**NEW**

**KELVIN® 3D Printer Cabinet Available**
- Cabinet protects your 3D printer and designs from dust and curious student hands.
- View 3D printer from all sides.
- Allows for even heat distribution.
- Storage shelf for PLA Filament.
- Houses other 3D printers that fit dimensions.
- Easy assembly for economy shipping.

**KELVIN® Storage Units for S.T.E.M. Mini Labs & Kits**
Mix and match cabinet sizes to create S.T.E.M. areas within your classroom, organize inventory and store student projects.

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**FREE SHIPPING**
Offer applies only to USA School Orders over $50. Does not apply to orders with overnight, overseas, oversized, overweight or hazardous products. Does not apply to shipping costs that are more than 10% of the order. Other restrictions may apply. Offer expires 09/30/20.

**USA code:** SHIPUSA0930
Catalog prices in USD $. Open purchase orders accepted from USA & Canada public schools.
KELVIN® Build Your Own® Creepy Crawler
Have students design or depict an insect that moves along a smooth surface; shaking, buzzing and even lighting up. Students can download computer graphics or draw their own bug bodies.

Battery Powered Creepy Crawler
The kit comes with a vibrating motor, AA battery holder (battery not included), switch, craft sticks, pipe cleaners, wire and googly eyes.

Advanced Super Capacitor Creepy Crawler
The circuit is powered by a 10F super capacitor to run both the vibrating motor and LED. Charge it with a 9V battery (not included).

The kit comes with a vibrating motor, 10F super capacitor, switch, craft sticks, pipe cleaners, LED, wire and googly eyes. Requires soldering and batteries. LED and motor will only work with the capacitor.

KELVIN® Pontoon Boat Kit
Design a boat that runs on an alternate form of energy. Includes foam blanks (2 x 2 x 12 in.), wood parts, propeller and a rubber band.

KELVIN® Clipper Glider
841233  Bulk Pack of 10 .... $1.25 Per Kit $12.50

Pre-Drilled Air Input Hole

Pre-Drilled Axle Holes

ONLY $2.45 PER KIT

Find More Robots on pgs. 81-97

Find More Boats on pgs. 66-67

ONLY $7.95 PER KIT

Hovercraft Racer
Includes foam, floating bag, propeller, motor, switch and battery holder. Requires 4 [A] AAA batteries as well as tools for cutting and shaping.

ONLY $4.95 PER KIT

Find More Hovercrafts on pg. 65

ONLY $1.25 PER KIT

Find Flight on pgs. 68-77

ONLY $1.45 PER KIT

Find Maglevs on pgs. 62-64

Universal Maglev Base
Attach student designs to a maglev base with velcro strips.

841412  Bulk Pack of 100 ........ $1.45 Per Kit $14.50

841114  $9.95 or $8.95 ea./5+

Maglev Magnets 1x3/4x3/16 in., 250/pkg.
640090  $36.95 or $32.50 ea./3+

ONLY $3.95 PER KIT

Pre-Drilled Air Input Hole

KELVIN® Kel-Air™
Air-Powered Dragster Kits w/ Blanks
(Pre-Drilled w/ BOTH Axle and Air Input Holes)
10 in. L wood blank (w/ pre-drilled axle & air input holes), wheels, axles, straw, screweyes and washers.

842380  Bulk Pack of 50 .... $3.95 Per Kit $197.50

ONLY $2.45 PER KIT

Find Mousetrap Launchers on pgs. 58-59

Find More Robots on pgs. 81-97

Find More Boats on pgs. 66-67

ONLY $7.95 PER KIT

Hovercraft Racer
Includes foam, floating bag, propeller, motor, switch and battery holder. Requires 4 [A] AAA batteries as well as tools for cutting and shaping.

842391  Bulk Pack of 15 ... $7.95 Per Kit $119.25

Find More Hovercrafts on pg. 65

ONLY $1.45 PER KIT

Find Maglevs on pgs. 62-64

Universal Maglev Base
Attach student designs to a maglev base with velcro strips.

841412  Bulk Pack of 100 ........ $1.45 Per Kit $14.50

841114  $9.95 or $8.95 ea./5+

Maglev Magnets 1x3/4x3/16 in., 250/pkg.
640090  $36.95 or $32.50 ea./3+

ONLY $3.95 PER KIT

Pre-Drilled Air Input Hole

KELVIN® Kel-Air™
Air-Powered Dragster Kits w/ Blanks
(Pre-Drilled w/ BOTH Axle and Air Input Holes)
10 in. L wood blank (w/ pre-drilled axle & air input holes), wheels, axles, straw, screweyes and washers.

842380  Bulk Pack of 50 .... $3.95 Per Kit $197.50

ONLY $2.45 PER KIT

Find Mousetrap Launchers on pgs. 58-59

Find More Robots on pgs. 81-97

Find More Boats on pgs. 66-67

ONLY $7.95 PER KIT

Hovercraft Racer
Includes foam, floating bag, propeller, motor, switch and battery holder. Requires 4 [A] AAA batteries as well as tools for cutting and shaping.

842391  Bulk Pack of 15 ... $7.95 Per Kit $119.25

Find More Hovercrafts on pg. 65

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841114  $9.95 or $8.95 ea./5+

Maglev Magnets 1x3/4x3/16 in., 250/pkg.
640090  $36.95 or $32.50 ea./3+
Bring high-tech 3D printing into the classroom!

- Safeguard your 3D printer from dust and curious hands.
- Storage shelf for PLA Filament.
- Works with other 3D printers (that fit dimensions).

**NEW**

**KELVIN® Build Your Own®**

**3D Printer & Assemble Your Own 3D Modeling Cabinet**

The 3D Modeling Station cabinet is designed to safeguard the 3D printer from dust and curious hands but still allow students to program and observe the printing process.

- Advanced high school students can assemble the 3D Printer to learn how the printer’s electro-mechanical heater, extruders and servo motors create the additive process of layering plastic filament to create three dimensional objects.
- Students can also download and explore 3D Modeling & Designing Software. The software contains libraries of codes that are used to 3D print various objects. With assistance, lower grades can also download libraries of object codes and firsthand be part of the 3D modeling process.

**3D Printer Kit Parts**

- 3D Printer Kit Sold to schools ONLY
- Once assembled, the printer measures 17.3 x 16.1 x 18.3 in. with a printing area of 8.6 x 8.6 x 9.8 in. Comes with a step-by-step assembly manual in addition to 4 different colored printer ribbons.
- 842510 3D Printer Kit - Assembly Required $395
- 842512 3D Printer - Assembled & Tested $645

**3D Modeling Station Cabinet**

- The cabinet is made from plywood and hardwood with 1/8 in. clear acrylic side panels. The cabinet base measures 25 x 25 in. with a height of 36 in. Also features a sturdy shelf for storing 3D filament rolls. Keeps even temperature for quality results.
- Ready to put together, the cabinet includes plywood with pre-drilled holes, a storage shelf and magnetic door catches. Arrives partially assembled and flat for shipping savings.
- 842511 Cabinet (Shipped Flat) $495

**3D Modeling Station Cabinet with 3D Printer Kit (Req, Assembly, Sold to schools ONLY)**

- Includes 842512 ($395) + 842511 ($495).
- 842508 ................Combined Price was $890 Now $845

**3D Modeling Station Cabinet with Assembled 3D Printer (Sold to schools ONLY)**

- 842512 ($645) + 842511 ($495).
- 842509 ................Combined Price was $1,149 Now $1045

**3D PLA Filament**

- PLA filament is stronger and more rigid, which generally produces sharper details and corners compared to ABS. The prints can also be sanded and machined. 1.75 mm outside dia. Spools hold 200 grams.
- 450087 Red...........$29.95
- 450088 Green..........$29.95
- 450089 Blue ..........$29.95
- 450090 Orange .........$29.95

**Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.**

Find California Prop 65 Warning on pg. 180

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SoFast® Playground for Arduino
Create circuits in seconds using SoFast® Playground for Arduino; designed for use with a plugged in ‘Arduino Nano Every’. The Gator-Clips make connecting circuits quick and easy.
Activities can also include the Kre8® Making System, compatible toy brick kit parts and standard electronic components.
Program with popular FREE 'Arduino Create' or the offline Arduino IDE software. The SoFast® Playground for Arduino also includes dedicated connectors for plugging in: traffic lights, servo motors (up to 3), ultrasonic sensor, and addressable pixel LEDs.
283804  Complete Kit .......... $99.95 or $94.95 ea./5+

Add-On Robot Car w/ Motor Control for SoFast® Arduino Playground
283805  Add-On Pack ............ $59.95 or $54.95 ea./5+

Plug-In Traffic Light
283806  [A] ........................................ $9.95
Micro Servo Motor, 9g
283807  [B] ........................................ $9.95
Basic Electronic Parts
283808  [C] ........................................ $9.95
Brick Compatible Tiles & Tape
283809  [D] 20/pkg. .............................. $9.95
Gator-Clips, Wire Leads & Tube
283810  [E] 12/pkg. .............................. $9.95
Ultrasonic Distance Sensor Only
283811 ............................................. $9.95

Sample connection diagrams for SoFast® Playground for Arduino

SoFast® Playground for Arduino with a few SoFast® Electronic carriers.

SoFast® Playground for Arduino on compatible toy brick parts.
Easy to Use, Non-Slip Gator-Clips

Extra flexible wire makes assembly FAST and EASY to use.

Tile added to circuit so it is compatible with toy brick parts.

A light sensitive circuit where the transistor driver controls the motor.

**SoFast® Electronics Mini Lab**

This stand alone kit for exploring electronics can also be used to easily expand your activities with the SoFast® Playground for Arduino (previous page).


**Complete Kit**

283812 ............................$99.95 or $94.95 ea./5+

**Panel A**

DIY holder, slide switch, push switch, RGB LED, (2) bi-color LEDs, and jumbo LED.

**Panel B**

Var. resistor, light sensor, Darlington amplifier, solar motor, 4.5V battery holder, tilt switch, touch switch and a buzzer.

**Activity Examples:**

Electronics: Basic to advanced circuits, Alarms Technology: Flying propeller, Competitions Science: Light color mixing Robotics: Microprocessors, Arduino

Find KELVIN® Kre8® products on pgs. 7, 13-17, 30, 34, 37, 45, 49, 67, 85, 106, 115, 133, 136, 181

Works with SoFast® Playground for Arduino on previous page

SoFast® Electronics carriers, like this DIY holder with capacitor, can also be connected with 'Dupont' jumper leads.

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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**KELVIN® Storage Units for S.T.E.M. Mini Labs & Kits**

Mix and match cabinet sizes to create S.T.E.M. areas within your classroom, organize inventory and store student projects.

Each cabinet includes heavy duty plastic storage bins (with or without lids) which slide into the cabinet on wood runners. Bin color may vary.

Versatile storage units are made from 3/4 in. cabinet grade Maple plywood. Cabinet sides are shipped flat and must be assembled after delivery.

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**Storage Unit for Bins (Countertop Height)**

Countertop-height units. Each unit includes [16] tray bins.

**Countertop Storage Unit**

430456  **[A]** 16-3/4 L x 26-1/4 W x 34-3/4 in. H ★ .......................................................... $645

**Tool Panel w/ Hooks & Interchangeable Sign**

430457  **[B]** Panel, 26 x 26 in. & Sign, 24 x 8-1/2 in. ................................................... $175

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**Storage Unit for Bins (Tall Height)**

Suited for older children (after being securely anchored to the wall). Each unit includes [16] bins.

430458  **[C]** Tall Storage Unit, 12-1/2 L x 18-1/2 W x 68-1/2 in. H ★ .................................................. $645

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**Storage Unit for Balsa & Wood**

430461  **[D]** 16-3/4 L ★ ................................................... $295

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**S.T.E.M. Materials Resources Bin Filler Suitable For All Ages**


430476  .................................................................................................................................. ($310 Retail) $275

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**S.T.E.M. Project Wood Bin Filler**

This bin filler includes an assortment of balsa wood, dowel rods and project wood.

430475  .......................................................... ($235 Retail) $195

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**Find More KELVIN® S.T.E.M. Bin Fillers on pg. 7**

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**FREE SHIPPING ON STORAGE UNITS (Shipped Flat)**

**KELVIN® EDUCATIONAL**

**FREE SHIPPING**

ON STORAGE UNITS (Shipped Flat)
Fill your STEM Materials Storage Bins with hundreds of basic design and build parts. Assorted parts to fill your storage unit bins appropriate to topics you are covering. Basic bin fillers get you started and advanced ones can be used for more complex projects within a topic. Photo shows a sampling of parts included. Items included are not limited to those listed here - complete contents can be found kelvin.com.

**KELVIN® S.T.E.M. Basic Bin Fillers** for Elementary & Middle Schools. Photos show a sampling of the types of items that may be included. Actual content may vary.

**KELVIN® Kre8® Systems**
Bin filler includes blue tubes, tube connectors, assorted wheels & gears, switches, tube cutters, blue collars, DC motors, battery holders and traction bands. 430463 .................................................($285 Retail) **$245**

**Mechanical Engineering**
Parts from elementary through high school with breadth and variety of assemble kits as they explore STEM based design engineering through hands-on activities. 430464

**Electricity**
Includes wires, switches, DC motors, battery holders, bulbs, LEDs, bulb sockets, jumper cables, soldering pencil, solder, basic tools and more. 430462

**KELVIN® Kre8® Systems**
This bin filler includes Connectors, Tubes, Wheels, Syringes, Advanced Motor Kits. 430469 .................................................($468 Retail) **$395**

**Electrical Filler** includes wires, switches, DC motors, battery holders, bulbs, LEDs, bulb sockets, jumper cables, soldering pencil, solder, basic tools and more. 430462

**KELVIN® S.T.E.M. Advanced Bin Fillers**
For Middle & High Schools. Photos show a sampling of the types of items that may be included. Actual content may vary.

**Mechanical Engineering**
Parts for pneumatic, hydraulic, systems, motors, pumps, gears, combos, balloons and plastic tubing. 430470

**KELVIN® Kre8® Systems**
This bin filler includes Connectors, Tubes, Wheels, Syringes, Advanced Motor Kits. 430469 .................................................($468 Retail) **$395**

**Electrical Filler** includes Proto Board, Multimeter, Parts, Tools, Kits and more. 430469

**KELVIN® S.T.E.M. Basic Bin Fillers**
- for Elementary & Middle Schools

**Beams & Triangles™ Basic Consumables**

**KELVIN® S.T.E.M. Advanced Bin Fillers**
- for Middle & High Schools

**Beams & Triangles™ Advanced Consumables**
Includes: Axle Mount Cardstock Sheets, Triangle Cardstock Sheets, Beams, Dowel Rods, Wood Sticks, Plastic Tubing, Cardboard Wheels, Spoke Wheels, Pulleys with Tire, DesignGrid™ Paper Sheets, Assorted Sandpaper Sheets, Bottles of Glue, Tech Excellence Medallions, Solar Cells, Solar Toy Motors, Toy Motor Mounts, Gear Sets, Spoke Wheels, Pulleys with Tire, Economy Pulleys, Box of Rubber Bands, Propellers, Balloons, AA Battery Holders and FREE Storage Box. 840972 Deluxe Class Pack .........................................................$462 Retail) **$345**

**KELVIN® S.T.E.M. Basic Bin Fillers**
- for Elementary & Middle Schools

**Beams & Triangles™ Basic Consumables**

**KELVIN® S.T.E.M. Advanced Bin Fillers**
- for Middle & High Schools

**Beams & Triangles™ Advanced Consumables**
Includes: Axle Mount Cardstock Sheets, Triangle Cardstock Sheets, Beams, Dowel Rods, Wood Sticks, Plastic Tubing, Cardboard Wheels, Spoke Wheels, Pulleys with Tire, DesignGrid™ Paper Sheets, Assorted Sandpaper Sheets, Bottles of Glue, Tech Excellence Medallions, Solar Cells, Solar Toy Motors, Toy Motor Mounts, Gear Sets, Spoke Wheels, Pulleys with Tire, Economy Pulleys, Box of Rubber Bands, Propellers, Balloons, AA Battery Holders and FREE Storage Box. 840972 Deluxe Class Pack .........................................................$462 Retail) **$345**

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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KELVIN® Gr. 4-7 S.T.E.M. Lab: Electricity
Learn through hands on and design and build activities the basics of electricity and electrical circuits. Students will combine electrical components to create simple circuits and solve simple electricity design problems. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack

842494  Team Pack ................................................................. $125

KELVIN® Gr. 7-12 S.T.E.M. Lab: Basic Motors
Unlock the mystery of motors for your students with this KELVIN® S.T.E.M. Lab. Students, in teams of two, will explore hands-on activities including: single magnet motors, electromagnets, reverse engineering DC motors, motor driven air powered carts and more experiments. Students can design their own display board for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board included.

Team Pack

842486  Team Pack ................................................................. $125

Advanced Team Pack


KELVIN® S.T.E.M. Lab: Advanced Motors

842376  Team Pack ................................................................. $245

Find More KELVIN® S.T.E.M. Labs on pgs. 9-14 & 22
**KELVIN® Gr. 4-7 S.T.E.M. Lab: Aeronautics & Flight**

Students will learn and apply the principles of flight as they build and test gliders, rubber band powered planes and helicopter rotors. Explore the force of lift by forming an airfoil glider wing. Control flight by adjusting wing flaps. Set the dihedral wing angle and wind the propeller that provides thrust for a balsa plane. Assemble the double rotors to fly the helicopter simulator.

Students can design their own display board (like sample right) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

**Team Pack**

842484 Team Pack .............................................. $125
842485 Class Pack - Team Pack x 3 plus 1 Board .... $325

**Advanced Team Pack**
Includes Team Pack (842484) PLUS Rubber Band PowerPole™ (fly balsa planes tethered to the pole), Reusable Corrugated Plastic Display Board and ★ BONUS Rubber Band Propeller Winder.

842487 Adv. Team Pack - Team Pack PLUS ★ .... $145
842488 Adv. Class Pack - Team Pack x 3 PLUS & ★... $315

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**KELVIN® Gr. 7-12 S.T.E.M. Lab: Advanced Aeronautics & Flight**

Extend the study of aeronautics and flight to include aerospace technology and flight control. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

**Advanced Aeronautics & Flight Team Pack**

842491 Team Pack .............................................. $295

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
KELVIN® Gr. 7-12
S.T.E.M. Lab: Pneumatics

Pneumatics and hydraulics is the use of compressed fluids to increase mechanical advantage and make work easier. This lab will introduce your students through hands on activities to the science and technology of pneumatic and hydraulics design and control.

Students will model existing systems, experiment with compressed fluids and design their own pneumatic applications.

Students can design their own display board (like sample right) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Basic Team Pack
Includes Reusable Corrugated Plastic Display Board, 4 Balloon Hovercraft Kits, 4 Balloon Racer Kits, 4 Basic Submarine Design Kits, 3 Dump Truck Kits, 3 Economy Robotic Arm Kits, Syringes, Tubing and instructions.
842495 Basic Team Pack $145

Advanced Team Pack
Includes Reusable Corrugated Plastic Display Board, 4 Kre8® Robotic Arm Kits, 4 Grabber Arm Kits, 3 Dump Truck Kits, 3 Submarine Design Challenge Kits, 3 Economy Robotic Arm Kits, Syringes, Tubing and instructions.
842496 Advanced Team Pack $245

KELVIN® Gr. 6-12 S.T.E.M. Lab: Alternative Energy - Wind, Solar & Hydro

This lab includes kits that will help students, in teams of two, explore different aspects of alternative energy - wind, hydroelectric and solar. Additional parts are included, so they can apply their knowledge with their own designs.

Activities include designing and building:
- Wind Turbine (2 included), powered by a hair dryer (not included), to light an LED.
- Hydroelectric Generator that uses running water from a sink or hose to generate electricity.
- Solar-powered Model Car.
- Solar-powered Model House.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack
Includes Reusable Corrugated Plastic Display Board, 2 Wind Turbine Kits, Hydroelectric Kit, Solar House Fan Kit, Solar Car Kit, Extra Parts and Instruction Manual. Requires assembly with hand tools, a blower fan and running water access.
842472 Team Pack $95

Class Pack
842473 Class Pack - Team Pack x 3 PLUS & ★ BONUS $255

KELVIN® 50LE Multimeter (990177, $4.95) ★ BONUS PRODUCT included w/ 842473.

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180 www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
**KELVIN® Gr. 6-12 S.T.E.M. Lab: Mechanical Engineering**

Design and model working mechanisms that solve real-world engineering problems with this new S.T.E.M. Lab. Change rotary motion into linear and reciprocating movement using linkages, cams, cranks, and gear trains.

Five teams, two students each, select three challenges from a list provided in the lab instructions. Enough materials are provided for the teams to build 15 models total. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack


842492 Team Pack ................................................................. $195

**KELVIN® Gr. 4-7 S.T.E.M. Lab: Basic Mechanical Engineering**

Have your students explore Mechanical Engineering through hands-on design and build activities. Topics include simple machines, friction, mechanical advantage, the Engineering Process, measuring and ratio calculations.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack


842492 Team Pack .......................................................................... $195

**KELVIN® S.T.E.M. Mechanical Engineering Challenge**

Includes Reusable Corrugated Plastic Display Board, Grid Paper, Gears, Pulleys, Cams, Cardstock, Kre8® Parts, Design Problem Cards and Instructions. Teachers will need to supply glue and hand tools. Class pack has materials for 10 students and 30 class activities. Grades 6-12.

842311 Class Pack ........................................................................ $99.95

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.  Find California Prop 65 Warning on pg. 180

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KELVIN® Gr. 4-7 S.T.E.M. Lab: Land Transportation
This entry level lab helps students investigates things that move on the ground. Connect lessons about force, motion, friction and Newton’s Laws with hands on activities.
Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack

842493 Team Pack ................................................................. $245

KELVIN® Gr. 7-12 S.T.E.M. Lab: Work, Machine & Gears
Discover how the application of gears help machines perform work with speed and power. Students, in teams of two, will assemble gear trains, calculate gear ratios and predict gear directions. They will also experiment with gear train designs to help solve speed and torque problems.
Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Team Pack

842474 Team Pack ................................................................. $95

Class Pack

842481 Class Pack - Team Pack x 3 PLUS & ★ BONUS ................... $295

Find More KELVIN® S.T.E.M. Labs on pgs. 8-11, 13-14 & 22
KELVIN® S.T.E.M. Lab: Water Transportation

From buoyancy to hydrodynamics introduce your students to the principles that govern the design of water transportation vehicles. Using a series of hands on learning by doing activities, students will design, build and test boats and submersibles. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Basic Team Pack
842497 Basic Team Pack - Grades 6-12 ........................................................... $95

Advanced Team Pack
842498 Advanced Team Pack - Grades 7-12 ........................................................... $245

KELVIN® Kre8® Sea Explorer
Includes [3] motors (for vertical and horizontal control), plastic ballast tubes, control switches, Kre8® structural frame parts, propellers, and instructions. Soldering, melting and pouring of low temperature wax is required. Requires a 6V lantern as a power source.
842107 Kit ........................................ $49.95 or $44.95 ea./3+ or $39.95 ea./10+

KELVIN® Gr. 8-12
S.T.E.M. Lab: Exploring Marine Architecture & Vessel Design

Naval architecture and marine engineering is the design of floating vessels and all the parts that together make up the boat or ship. This lab provides students with the opportunity to build, test and evaluate hull designs. Students will explore buoyancy, stability and hydrodynamics comparing flat bottom and “V” bottom hulls.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Basic Team Pack for 20
Includes Reusable Corrugated Plastic Display Board, Pre-cut 1/16 in. Bass Wood (to assemble into vessels), Testing Water Tank (35 in. L), Glue, Paint, Test Weights and Detailed Instructions (with background material).
842526 Basic Team Pack - Grades 8-12 ............................................................ $175
KELVIN® Gr. 4-7 S.T.E.M. Lab: Kre8® Modeling

Kre8® products are built from a unique building system consisting of tubes and connectors. The system can be used to model structures, vehicles and mechanisms. The tubes are cut to size using the included snips and snapped into position using different connectors. Parts are included to mount motors, gears and wheels. This is the perfect lab for the young engineer. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Find More KELVIN® S.T.E.M. Labs on pgs. 8-14 & 22

Team Pack
Includes Reusable Corrugated Plastic Display Board, as well as [4] pre-designed ready to build kits - Jet Car, Solar Car, Mars Rover, Catapult - as well as an open-ended kit - S.T.E.M. Maker - used to model student-designed objects. Two snips and an instruction manual complete the lab. Assign teams of two students each to investigate each of the kits. Requires Kre8® Tube Cutter or snips (see pg. 15).


Class Pack

842480 Class Pack - Team Pack x 3 PLUS & ★ BONUS ............................................. $295

KELVIN® Kre8® Hydraulic Robotic Arm ★ BONUS PRODUCT

Three syringes are used to explore hydraulics, leverage, control and motion. To operate, open the gripper, move the arm above the load, swing the arm around, lower the load and release it. Requires Kre8® Tube Cutter or snips (see pg. 15).

283767 Kit ................................................................. $34.95 or $29.95 ea./3+

283672 ................................................................. $25.95 or $22.95 ea./5+ or $18.95 ea./10+

Find More KELVIN® Kre8® products on pgs. 7, 13, 15-17, 30, 34, 37, 45, 49, 67, 85, 106, 115, 133, 136 & 181

KELVIN® Kre8® POP Robots

Comes with printout pages for 5 types of robots, Kre8® parts, an assembled manual remote controller and two motors per kit. It can also be controlled using a computer instead of the hand controller. Requires AA batteries as well as Kre8® Tube Cutter or snips (see pg. 15).

842476  ................................................ $34.95 or $29.95 ea./3+

283672 ................................................................. $25.95 or $22.95 ea./5+ or $18.95 ea./10+

Find More KELVIN® Kre8® POP Robots on pgs. 81-87

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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KELVIN® Kre8® S.T.E.M. Maker Kit
Build structural, mechanical and mathematical models. Enough parts are supplied to make models shown individually except for the Kre8® air powered vehicle which also needs the Kre8® Air powered upgrade pack.

To extend the range of activities you can purchase a Kre8® Maker Maths kit below. Requires Kre8® Tube Cutter or snips below. Patent pending.

842397 Kit ...................... Educational Pricing $29.95 or $27.95 ea./5+

This kit is supplied with 156 parts including:

- (93) Kre8® Maker connectors (red sheet and green sheet)
- (30) Kre8® Blue Tubes (200mm x 5mm dia. — cut as needed)
- (8) Kre8® Grey Collars • (16) Kre8® Blue Collars • (2) Kre8® Grey Tubes
- (2) Metal bearings • Spacer Tube • (2) Rubber Bands • Adhesive putty

Kre8® Kre8® Maker Maths Kit
Make basic geometric forms, including polyhedra, moving linkages etc. Enough reusable parts are supplied to make the complex models shown as well as a number of smaller models.

This kit is supplied with 138 parts including: tubes, connectors, and collars plus a link to videos & help sheets. To extend the range of activities you can purchase a Kre8® Maker S.T.E.M. kit (above). Requires Kre8® Tube Cutter or snips below. Patent pending.

842396 Kit ...................... Educational Pricing $25.95 or $23.95 ea./5+

Kre8® Small Tube Cutter
Cuts up to 6mm dia. tubes including rigid pvc tubing.
283653 ...$7.95 or $6.95 ea./10+ or $6.45 ea./20+

Utility Snips
7-1/2 in. long. Handle color may vary.
480009 ...$5.95 or $5.45 ea./6+

Kre8® kits can be assembled in regular classrooms. Use snips (see left) to cut sheet materials and light blue tubes. Optional Kre8® cutter (see left) can be used to score and snap tubes to length. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.
**KELVIN® Kre8® Basketball Flier**

Try to get the propeller into a basketball net or hit a picture of one on a wall. Adjust the angle as desired by sliding the support arm up or down, and then turn on the motor. The safety propeller will begin to spin fast and take off on its own for quite a long distance. Recommended for indoor flying only as wind may blow it off its course. Requires two AA batteries. Requires assembly and Kre8® Tube Cutter or snips (see pg. 15).

50mm base, 70mm (28 in.) high. Requires assembly and Kre8® Tube Cutter or snips (see pg. 15).

| 283766 Kit | $12.95 or $11.45 ea./5+ or $10.95 ea./10+ |

**KELVIN® Kre8® Marble Jump**

Converts a marbles “kinetic energy” into a jump, (such as a ski jump). The slope is made from ready to use print-outs or student-decorated paper and rods (requires laminating and cutting). Students can create a game of distance or accuracy for class competitions. 50mm base, 70mm (28 in.) high. Requires assembly and Kre8® Tube Cutter or snips (see pg. 15).

| 283663 ... | $13.95 or $13.45 ea./5+ or $12.45 ea./10+ |

Comes with:
- 2 Multiblocks, Green
- 6 Clip Connectors, Blue
- 7 Slit Rods, Blue, 3.93 in. (100 mm) Long
- 4 Slit Rods, Blue, 7.87 in. (200 mm) Long
- 8 Slit Rods, Blue, 18.89 in. (480 mm) Long
- 2 Plastic Laminate Sheets
- 1 Bag
- 1 Piece of Sand Paper

**Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. **

Find California Prop 65 Warning on pg. 180

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KELVIN® EDUCATIONAL

Make What You Want! The most versatile construction system using just a few parts. Designed for education, ideal for making models, prototyping and inventing. Use on its own or in combination with other kits! Parts can be cut, bent, drilled or used with other materials. Works with the Kre® Cutter or Utility Snips on pg. 15.

Tubes
Cut with scissors or Kre® Cutter. 0.20 in. dia., 7.87 in. L, Blue
391373 20 tubes .............................................$6.95
391324 100 Tubes.............................................$29.95
0.16 in. dia., 7.87 in. L, Gray
391365 20 tubes .............................................$4.95
391376 100 Tubes.............................................$19.95

Snap-Off Rods
Snap to length. For most construction work. Rigid. 0.20 in. dia., 6.29 in. L, Blue
391355 20 Rods .............................................$4.95
391377 100 Rods .............................................$19.95
0.20 in. dia., 6.29 in. L, Gray
391360 20 Rods .............................................$4.95
391379 100 Rods .............................................$19.95

Bendy Tubes
Flexible. Tight fits onto a 2mm dia. motor shaft. 0.20 in. dia., 2.36 in. L, Orange
391357 100 Tubes .............................................$12.95

Multi-Blocks
Features an integral hinge. Four per block; separate as needed. Blue.
391372 20 Blocks .............................................$6.95
391321 100 Blocks .............................................$29.95

Cap Ends
Makes tighter Joints. Push into the end of rods for a finished look. Separate as needed. Sold as each, not per strip.
391354 Blue, 100/pkg. ..................................$7.95

Collars
Slide and fix into position. Separate as needed. Sold as each, not per strip. 100/pkg.
391325 Fits 0.20 in. dia., Blue ..................................$7.95
391326 Fits 0.16 in. dia., Gray ..................................$7.95

Connectors
Features integral hinge. Four per block; separate as needed. Blue.
391372 20 Blocks .............................................$6.95
391321 100 Blocks .............................................$29.95

Safety Propeller
Dual purpose, push-fit. Use as a free flier or a normal propeller. 2.95 in. dia.
391369 10/pkg. .............................................$14.95
391384 20/pkg. .............................................$24.95

Rubber Bands
Durable and will stretch longer.
391358 1.77 in. L, 100/pkg. ..................................$8.95
391359 2.36 in. L, 100/pkg. ..................................$8.95

Wheels
Doubles as a gear or pulley using two piece. Holes measure 0.16 in. dia.
391362 1.10 in. dia., 20/pkg. ..................................$4.95
391380 1.10 in. dia., 100/pkg. ..................................$19.95
391363 1.57 in. dia., 20/pkg. ..................................$5.95
391381 1.57 in. dia., 100/pkg. ..................................$24.95
391364 2.75 in. dia., 20/pkg. ..................................$9.95
391382 2.75 in. dia., 100/pkg. ..................................$39.95

Bevel Gears
20-Teeth. Measures 0.79 in. dia. with 0.16 in. dia. holes.
391361 20/pkg. .............................................$4.95
391383 100/pkg. .............................................$19.95

KELVIN® Kre® Mechanical Parts

Find More KELVIN® Kre® products on pgs. 7, 14-16, 30, 34, 37, 45, 49, 67, 85, 106, 115, 133, 136 & 181

KELVIN® Kre® Electronics Parts
283656 ..................................................................$99

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KELVIN® Egg Drop Design Challenge™
In this activity, students apply the principles of physics and engineering by designing and testing a container to protect an egg that is dropped from a given height. Mathematical principles will also be used, incorporated in calculating the efficiency of the unit. Kit includes: cardstock, craft sticks, balsa wood strips, high-density foam, bubble wrap, graph paper, isometric paper and instruction guide. Eggs not included.

841339  Kit...........................................$7.95 or $7.45 ea./10+ or $7.25 ea./25

KELVIN® Geodesic Dome Kit
In utilizing the Geodesic Dome Kit, the children can build structures and arrange them to build spheres or a model station for an alien planet. Students learn about the construction of geodesic domes as well as the shapes that go into their development. Architectural concepts are also studied.

This kit includes heavy pre-printed cardstock that students can use to build and decorate their geodesic dome according to the criteria and constraints from the teacher.

841321  Kit ..............................................$2.95 or $2.85 ea./10+ or $2.75 ea./25+

KELVIN® Packaging Design Challenge™
Students build four different types of boxes. They can decorate these boxes prior to assembly as a design activity. For a design challenge, have students design the product information, promotional words, packaging for a: Soap Box, Jewelry Box, Perfume Box and Game Box. After assembling their box, they design the decoration, logo, UPC code, etc.

This kit includes heavy pre-printed cardstock that students can use to build a box or container and decorate it according to the criteria and constraints from the teacher.

841312  Kit ...........................................$3.95 or $3.75 ea./10+ or $3.45 ea./25+
841821  Bulk Pack of 35 ...................................$3.25 Per Kit $113.75

KELVIN® Shapes in Paper Kit
The Shapes in Paper Kit enables students to build a pyramid, a cylinder, a cube and a prism. They learn how these 3-D shapes can be constructed from flat materials, similar to what an engineer might do in designing ductwork or metal cabinetry for industry. The finished products can be used as samples for practicing shading and 3-D renderings.

841318  Kit ...........................................$4.95 or $4.75 ea./10+ or $4.45 ea./25+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
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**Rube Goldberg® Inventions**

A great collection of Rube Goldberg®’s splendidly over-complicated inventions, comic strips, editorial cartoons, and sketches along with a biography.

- **651529** Book, 192 pages $24.95

**Rube Goldberg® Inventions! Postcards**

30 colorful Rube Goldberg® postcards in one book. Limited Availability.

- **651530** Book, 30 pgs. $14.95

**KELVIN® Simple Machines Lab**

Students can experiment with hands-on activities to learn about simple machines like gears, pulleys, wheels, levers, and inclined planes.

Subjects covered include: mechanical advantage, rotational direction, angle, force, wedges, lifting loads, friction and friction belts.

- **Kit w/ Laser Cut Plastic Work Board**
  - **841743** $32.95
- **Kit w/ Cardstock Template (NO WORK BOARD)**
  - **841752** $19.95 or $17.95 ea./10+
- **Class Pack for 10 (NO WORK BOARD)**
  - **282198** $125 or $115 ea./3+

**KELVIN® Cuss Remediator**

The user loses a coin each time they cuss. The Cuss Remediator drops a coin into a container in a series of steps. Keep in mind that Rube Goldberg® made his drawings as a reaction to technology. They were a linear series of complicated steps to perform a simple task.

The first lever is pulled by someone after a person cusses, thus activating a second lever, which in turn activates a third lever pulling the magnet away from the steel ball (4th step). The steel ball rolls down the ramp tipping the teeter-totter (5th step) and knocking the coin onto the exposed wires (6th step), which in turn activates the buzzer (7th step) thus vibrating the coin into the cup (8th and last step).

- **Kit**
  - **841854** $29.95 or $27.95 ea./6+ $25.95 ea./10+
  - **841856** 10 Kit Bulk Pack $19.95 Per Kit $199.95

**KELVIN® Rube Goldberg® Inventions**

A great collection of Rube Goldberg®’s splendidly over-complicated inventions, comic strips, editorial cartoons, and sketches along with a biography.

- **651529** Book, 192 pages $24.95

**KELVIN® Problem-Solving Machine Contest Materials**

KELVIN® provides the hard-to-find materials students need to supplement their designs whether they are using a national design theme or a class theme.

**Explorers Team Packs**

The kind of items in this package include, but are not limited to: ping pong balls, marbles, dowel rods, string, springs, pulleys, gears, plastic spoons, plastic cups, mousetraps, balloons, etc.

- **841300** 1-2 Students $19.95 or $18.95 ea./4+
- **841301** 2-4 Students $39.95 or $37.95 ea./3+
- **841302** Bulk Pack of 4-8 Kids $125

**Electronics Team Pack**

The kind of items you’ll find in this package include, but are not limited to: switches, wire, sensors, battery holders, buzzer, bulbs, bulb holders, magnetic switches, gearbox kit, etc.

- **841303** 2-4 Students $39.95 or $37.95 ea./3+

**Electronics Class Pack**

4 Electronics Team Packs PLUS a soldering iron, multimeter, wire cutter and gearbox kit.

- **841304** For 8-16 Students $125

Find California Prop 65 Warning on pg. 180
Build Working Models like:
Vehicles • Bridges
Houses • Towers
Windmills • Cranes
Playgrounds & More

KELVIN® Beams & Triangles™ Design Kit
Design and create structures, vehicles and machines using student made frames, gears, levers, pulleys, wheels and axles.

- Kit includes pine wood (3/8 x 3/8 in. and 3/16 x 1/2 in.), dowel rods (3/16 in. dia.), twine, chipboard wheels (1-1/2 in. dia.), tubing, printed cardboard axle mounts and triangles. Assembly is required so students will have to drill, cut and glue their projects. Requires KELVIN® Gear Jig, Joint Jig and Cutting Jig (see below) as well as other hand tools.

KELVIN® Beams & Triangles™ Cardstock
Enough pre-printed, 8-1/2 x 11 in. sheets to cut out 2,100 triangles or 900 axle mounts.

- 420334 Triangles, 30 Sheets $7.95
- 390449 Axle Mounts, 30 Sheets $7.95

Find KELVIN® Beams & Triangles™ S.T.E.M. Lab on pg. 22
Find More KELVIN® Beams & Triangles™ products on pgs. 21-22

KELVIN® Beams & Triangles™ Consumables & Tools Pack
Includes: Deluxe Consumables Kit (#840972), Tools & Jigs Kit (see next page, #840680, see above), Technology Certificates, Instruction Guide and a Workstation Sign.

- 840972 Deluxe Class Pack $345
KELVIN® Tools & Jigs Set
840680  Set........................................................................................................................................395

Find More KELVIN® Beams & Triangles™ products on pgs. 20 & 22

KELVIN® Gear Jig
Build different gear combinations. On one side build 4-, 8- or 16-teeth gears and on the other side build 6-, 12- or 24-teeth gears.
990197  [A] 5/pkg. .................9.95

Joint Jig
Holds beams or dowels rods (up to 3/8 x 3/8 in.) in place at 45° or 90° angles as they are glued and drying.
390444  [B] 5/pkg. .................21.95

Cutting Jig
Cuts 30°, 45° or 90° angles in beams or dowels. Works with 3/8 x 3/8 in. beams.
390447  [C] 11.95 or 11.35 ea./3+

Jr. Hacksaw (Actual style may vary)
Use for cutting of beams and rods.
980042  [D] ........................6.95
980044  Blades, 10/pkg. ..........2.75

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180 www.kelvin.com  •  KELVIN®, 280 Adams Blvd., New York 11735, USA  •  Copyright © Kelvin L.P.  •  Prices represent discounted pricing for educational institutions.
BEAMS & TRIANGLES™ S.T.E.M.

Find More KELVIN® Beams & Triangles™ products on pgs. 20 & 21

★ BONUS PRODUCT
Included w/ Class Pack
KELVIN® Drill Press
w/ Hand Drill & [3]
Drill Bits (1/16, 3/16 & 1/8 in. dia.)
950301,
$139.95 or
$129.95 ea./3+

★ BONUS PRODUCT
Included w/ Class Pack
Clamp-On Work Vise
3 in. jaw opening.
540033, $29.95
or $27.95 ea./5+

KELVIN® Gr. 4-7 S.T.E.M. Lab: Beams & Triangles™
KELVIN® NEW S.T.E.M. lab lets students design and build structures, vehicles and mechanisms with this unique assembly system. Extra parts and an instruction manual complete the lab. Cut, join and assemble wood beams using specially designed tools, holding jigs and materials. This lab is perfect for the young engineer and builder. Each lab provides enough materials to construct many items depending on size.


Assign teams of two students each to investigate the kits. Students design their own display board or project portfolio for use in the classroom or S.T.E.M. fair. Requires assembly with hand tools.

842475 Team Pack - Tools & Parts .................................................................................................................. $145
842479 Class Pack - Team Pack x 2 - plus ★ BONUS Hand Drill, Drill Bits & Clamp-On Vise ...................... $290

Examples Of What Can Be Built

45° & 90° Joint Jig
Holds up to 3/8 x 3/8 in. beams or dowels at different angles as they are glued and drying.

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ▶ Find California Prop 65 Warning on pg. 180
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KELVIN® Design-A-Game™ Classroom Challenge

Students begin by sketching and describing their game (the rules, how many can play, why it would be fun, etc.). They then continue to design the game mechanically or use desktop publishing software and a computer. Use the products below and other materials to BUILD a prototype and EVALUATE the game by playing it. With FEEDBACK from participants, students should make any adjustments needed to make the game a success. Grades 2-12.

**Design-A-Game™ Class Pack**

This class pack contains: Assorted Dice, Large Pawns, Novelty Pawns (Rocket, Airplane, Horse with Rider, House and Hotel), Scoring Pencils, Paper Money, Sand Timers (10-second and 30-second), Chipboard (24 x 36 in.) for the game board, DesignGrid™ Paper and cardboard boxes for game storage.

842514  Design-A-Game™ Class Pack .......................................................... $199

**Quartz Clock Kit**

Design your own clock for any occasion. Includes a digital quartz clock movement that measures 2-1/4 x 2-1/4 x 5/8 in. with a 3/8 in. L x 5/16 in. diameter threaded shaft (includes washers and nuts). Also included are clock hands for hours and minutes with a diameter of 6-3/8 in. Requires a AA battery (#220016).

280161  Quartz Clock Kit. .......................................................... $8.45 or $7.95 ea./10+

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### Pre-Drilled Plain Clock Faceplates

**Materials**

Paint or decorate as you wish.

<table>
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<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>SHAPE</th>
<th>MATERIAL</th>
<th>SIZE in.</th>
<th>T in.</th>
<th>HOLE D. in.</th>
<th>$ 1-9</th>
<th>$ 10+</th>
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<td>Chipboard</td>
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<td>3/8</td>
<td>5/16</td>
<td>5.95</td>
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</tbody>
</table>

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**KELVIN® Design-A-Clock™ Kit**

A fun project ideal for Technology, Arts, Crafts, Fairs and Fundraisers. Kit includes a round or square wooden clock face with pre-drilled hole, quartz clock movement (2-1/4 in. sq. x 5/8 in. thick) with arabic numbers, seconds, hours and minute hands (6-3/8 in. diameter), washers, nuts 6 colors of poster paint and a paintbrush. Requires AA battery.

841765  Kit w/ 10 in. Round Face .......... $15.95 or $14.95 ea./6+ or $13.95 ea./20+  
841764  Kit w/ 10 in. Square Face .......... $15.95 or $14.95 ea./6+ or $13.95 ea./20+

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**Design A Clock & Decorate It How You Want**

*Students decorate the game box and board with markers, or use a computer to design and print out more professional designs and paste them onto the Game Box and Board.*

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180 www.kelvin.com  KELVIN®, 280 Adams Blvd., New York 11735, USA  Copyright © Kelvin L.P. Prices represent discounted pricing for educational institutions.
KELVIN® Design-A-Totem Pole™

Every part of a totem pole is significant and has its own story. Northwest Pacific Coast Natives carved totem poles as records of the past in a culture that had no written language.

Students design all six dimensions (top, bottom, and 4 faces) of the totem pole either using grid paper or, for more advanced students, CAD software. After drafting a final design, students transfer it to the wood blank. Using various wood crafting techniques, they carve out their totem pole. The totem pole can be sanded and then considered finished or taken even further by painting it.

Includes DesignGrid® Paper and Wood Blank. Plans are not included to encourage student problem-solving skills. Grades 3 to 8.

841150 ................................................................. $6.95 or $6.45 ea./10+

KELVIN® Design-A-Top™

Tops are among the oldest toys. The first may have been nuts or other symmetrical forms found in nature. Tops as toys were used by the early Chinese and Japanese, and other early civilizations around the world.

While a seemingly simple device the operation of a tops is based on application sophisticated science principles including: torque, angular momentum, gravity, center of gravity and precession. Opportunities to relate concepts such as symmetry in design and planning, to apply knowledge related to math in areas of measurement, and skills in technical areas such as cutting, shaping and fastening are all part of the make of a Kel-Top™.

Kit includes: 3/4 x 1 x 5-1/2 in. soft wood stick, 1/4 x 6 in. wood dowel, #18 x 1/2 in. escutcheon pin, 18 in. long piece of string, KELVIN® CD 1/4 in. axle insert, KELVIN® CD wheel and a KELVIN® TeAct Direction Sheet.

282383 Bulk Pack of 50 ................................................ $1.50 Per Kit $75

Experience the world of creativity, invention, technology education and engineering through the eyes of a nationally recognized engineer, inventor, and technology educator Harry T. Roman.

Thomas Alva Edison: Prophet of Progress
Re-live the excitement of the world’s greatest inventor as he completely changed our world. Much of what we take for granted today was the brainchild of the great Mr. Edison. Learn how his inventive world was so similar to technology education, and what it teaches us today for the classroom.
652338 Booklet .................. $14.95 or $13.95 ea./10+

Engineering: More Than Just Technology
Learn how engineering and technology education are intimately related, both historically and in the practical world. Understand the engineering process as discussed through actual examples given by the author in his own career. Explore values of an engineering education, the fields of engineering available today, and how to prepare for a challenging and well-paying job in it.
652336 Booklet .................. $14.95 or $13.95 ea./10+

Technology, Invention & Creativity in the Classroom: The Road to Relevancy
Designed to stimulate creative thinking and integrated problem solving, this book will provide the basics for unleashing the creative potential of students. It is loaded with real-world information and techniques for integrating the curricula; and a superb way to bring heads and hands together in the classroom. Learn how inventors invent and move their products to the market.
652295 Booklet .................. $14.95 or $13.95 ea./10+
652335 Workbook .................. $14.95 or $13.95 ea./10+

Technology Education: Themes, Issues and Classroom Activities
Take a tour of the many issues and themes of technology education today. This book surfaces a variety of valuable tech ed topics for you and your students to discuss; and presents a wealth of practical activities for your classroom.
652337 Booklet .................. $14.95 or $13.95 ea./10+
KELVIN® Reverse Engineering A Flashlight
Reverse engineer an everyday product and discover its designer’s ideas and concepts. The activity includes step by step instructions for the student and teacher along with probing questions that direct the students’ investigation of the product.

Each kit comes with: Flashlights, Student Study Guides and a Teacher Resource Guide. Please note actual project contents are subject to change.

841828  Bulk Pack of 10........................................................ $8.99 Per Kit $89.95

KELVIN® Hand Crank Flashlight
Turn mechanical energy into light energy using our Hand Crank Generator Flashlight Kit. Batteries not needed. Assemble the LED circuit within the pre-scored cardstock body. The crank turns a small DC motor changing the mechanical energy into electrical energy lighting the LED.

842442  Kit .............................................................................. $11.95 or $9.95 ea./10+

KELVIN® Discover It™ Lighthouse
Students can design their own creation, model an existing lighthouse or use the KELVIN® design to produce a working model. Class pack includes [30] pre-printed cardstock, knife switches, lamps, lamp bases, wires, battery holders and instructions. Requires AA batteries. Grades 2 & up.

842044  Bulk Pack of 10 Kits ...................................................... $5.99 Per Kit $59.95
842045  Bulk Pack of 20 Kits ...................................................... $4.99 Per Kit $99.95

KELVIN® Hand Crank Headlamp
When the lights go out use this headlamp to help get around. Crank generator lights three super bright LEDs. The head strap is adjustable.

842444  Kit .............................................................................. $19.95 or $14.95 ea./10+

Construct a lamp out of almost anything!

KELVIN® Lamp Kit
A great product for mass production projects. It can also be used for fund raising. Students design and construct the base for this lamp out of almost anything—a stack of books, a mason jar or a creative wood sculpture. The kit includes: 6 ft. long cord with plug, push-thru socket, 12 in. lamp pipe, and [2] hex nuts. Requires harp/final below.

840675  Kit .............................................................................. $6.95 or $5.95 ea./10+
842383  Bulk Pack of 15....................................................... $5.66 Per Kit $84.95

KELVIN® Mini LED Flashlight
Design, assemble and test a keychain flashlight with a super bright LED. Requires a heat gun.

842037  Bulk Pack of 25 .......................................................... $2.95 Per Kit $73.75
842259  Assembled Demo .......................................................... $39.95

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
Have students begin work as town planners by designing their own mini-community.

**KELVIN® Build-Your-Own® Community Design Challenge**

A great cooperative class project that integrates many subject areas, including: tech ed, math, science, social studies and art. Set up problem-solving scenarios such as lakes, streams or hills which students must consider in their designs. Stores, schools, houses and roads are worked into the layout of the community.

Materials included permit students to design original miniature structures or they can work with pre-designed buildings. Students develop a portfolio emphasizing key concepts covered in the project. This activity offers an excellent opportunity for students to learn about the concepts of community planning while working in cooperative groups. The finished project makes an excellent display for Parents’ Night or to promote your technology program.

**Real world concepts can be incorporated, including:** measuring, surveying, budget, zoning, planning, design, community issues, terrain, presentation, modeling, construction, working with tools and processing materials.

Kit includes: foam boards (for project platform), pre-printed building patterns with windows and doors, extra windows and doors, pre-printed patterns for stores and school, accessory starter set (trees, cars and people), Land Developer Design Portfolio and grid cardstock for designing new buildings.

**KELVIN® Off The Grid Structures w/ Pre-Cut & Scored Cardstock**

COMING SOON TO KELVIN.COM

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
KELVIN® Educational Design & Engineering House Framing

KELVIN® House Framing Kits
Try your hand at designing and building a model house frame! Students can design their own house or build one based on the drawings supplied. Kits include balsa or pine wood, DesignGrid™ paper, glue, pins and instructions. Some kits include the optional KELVIN® StiKutter™.

Balsa House Framing
Includes 1/8 x 3/8 x 24 in. beams.
841771 Kit ............................................... $45.95 or $44.95 ea./10+
841770 Kit with StiKutter™ ........................................... $49.95 or $46.95 ea./10+
841886 Bulk Pack of 10 Balsa Kits ........................................ $44.50 Per Kit $445

Pine Wood House Framing
Includes 1/2 x 3/16 x 24 in. & 3/4 x 3/16 x 24 in. beams.
841104 Kit ................................................... $36.95 or $35.95 ea./10+
841887 Bulk Pack of 10 Kits ........................................ $35.00 Per Kit $350

KELVIN® A-Frame Model House Kits
With this kit, students design and build a structure model of an A-frame house. Kits include balsa wood, glue, grid paper and instructions. The Large A-Frame is built to 1 in. scale and the Small A-Frame is built to 1/2 in. scale.

Small A-Frame Model Houses (not shown)
841777 Kit ................................................... $18.95 or $16.95 ea./10+
841822 Bulk Pack of 15 Kits ........................................ $16.33 Per Kit $245

Large A-Frame Model Houses (shown above)
841774 Kit ................................................... $44.95 or $42.95 ea./10+
841889 Bulk Pack of 10 Kits ........................................ $39.50 Per Kit $395

KELVIN® Roof Framing Kit
Try your hand at designing and building a model house roof! Students can design their own roof or build one based on the drawings supplied. Kit includes 1/8 x 3/8 x 24 in. balsa, DesignGrid™ paper, glue, pins and instructions.

841773 Kit ................................................... $39.95 or $38.95 ea./10+
841772 Kit with StiKutter™ ........................................... $45.95 or $43.95 ea./10+

KELVIN® Bungalow Framing Kits
Students must design, draw, calculate and build a frame house; using their own design and the materials supplied with the kit and by the teacher.

In the design process students should always make sure that they have enough materials for the four outside walls, the floor and the roof. Designs should include space for windows to scale and doors to scale.

For designing, your students will need DesignGrid™ paper as well as a pencil and ruler. To construct their house, students will cut the wood beams with a hand saw and glue them together using wood glue. Before cutting, students are required to show the teacher their drawing, plans and calculations for the amount of wood required.

841103 Pine Wood Bungalow Kit ........................................... $17.95 or $16.95 ea./10+
842515 Pine Wood Bungalow Bulk Pack of 10 Kits ........................................... $15.00 Per Kit $150
842516 Balsa Bungalow Bulk Pack of 10 Kits ........................................... $22.50 Per Kit $225

Find KELVIN® Model Houses & Dream House Design Challenge™ on pg. 27-29

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
Construct a Dream House Model From Scratch!

KELVIN® Ranch Dream House Design Challenge™
841325  Kit................ $6.95 or $6.45 ea./10+
or $5.95 ea./25+
Cardstock Only Bulk Pack
841424  Bulk Pack of 25 .................. $125

KELVIN® Modern Dream House Design Challenge™
841762  Kit .... $24.95 ea. or $23.95 ea./10+
Cardstock Only Bulk Pack
841761  Bulk Pack of 25 .................. $195

Students design the interior room layout for a house in 1/4 in. scale. They are given a footprint and exterior wall structure to work from. Elements of the interior layout include the location of windows, skylights, doors, partitions and other desired features. The house can be finished by painting it, adding roofing and other accessories.
**Foam Board/Cardstock Safety Holding Jig**

Secures foam board and cardstock material safely so students can cut it using a utility or X-Acto™ style knife. Adjustable to widths up to 4-1/4 in. with a metal guard that also serves as a 90° guide.

842372 ................................................. $55.00

---

**KELVIN® Two-Story Dream House Design Challenge™**

Students design a floor plan for a two story house considering a standard footprint and criteria required by the teacher. Students practice design, problem solving, communication, math and crafting skills.

842310 Kit .......................................................... $9.95
842220 Bulk Pack of 10 ........................................... $7.50 Per Kit $75

---

**As Low As**

**$7.50**

**Per Student**

---

**KELVIN® Bedroom Design Kit**

Students design and model a dream bedroom while building to scale, calculating area and cost, calculating percentage of window area and staying within a budget.

Each kit includes: chipboard base, grid paper, foam core board, pattern sheets for windows, furniture silhouette, furniture flat developments, cost sheets and design brief, dowel rod, felt, glue stick and detailed Instructions. PLEASE NOTE: Teacher must supply glue gun and glue slugs.

842371 Kit ......................................................... $9.95 or $8.95 ea./10+
842373 Bulk Pack of 10 ............................................. $7.50 Per Kit $75.00

**Lighting Consumables Pack**


842374 10pkg.......................................................... $29.95 or $24.50 ea./10+

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**KELVIN® Advanced Design-A-Deck**

Includes instructions and enough materials (wood and brads) to make a student-designed, multilevel deck. The deck size is approximately 24 x 12 in. Additional accessories can be purchased separately.

841562 Kit ......................................................... $49.95 or $48.95 ea./3+

---

**KELVIN® Basic Design-A-Deck**

Includes instructions and enough materials (wood and brads) to make a student-designed deck and stair system. Size is approximately 12 x 12 in. Other accessories can be purchased separately.

841561 Kit ......................................................... $29.95 or $27.95 ea./3+

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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CATAPULTS DESIGN & ENGINEERING

KELVIN® Small Catapult
This small catapult features a 7-1/2 in. long base with a swing arm that can be made up to 12 in. long. Includes wood, plastic cup and ping pong ball.
841362 Kit ...................................................... $3.95 or $3.75 ea./10+ or $3.45 ea./25+ 
841815 Bulk Pack of 24 .................................................. $5.20 Per Kit $125

KELVIN® Large Catapult
Large 18 in. base is 2-1/2 in. wide with a swing arm that can be up to 24 in. long. Includes wood, plastic cup and ping pong ball.
841229 Kit ...................................................... $7.95 or $7.75 ea./10+ or $7.45 ea./25+ 
841814 Bulk Pack of 24 .................................................. $5.41 Per Kit $129.95

KELVIN® Mousetrap Catapult
Use a mousetrap to catapult ping-pong balls. Adjust the length of the lever arm as well as the stopping angle of the arm's forward motion.
841882 Kit ...................................................... $11.95 or $10.95 ea./10+ or $9.95 ea./25+ 
842270 Bulk Pack of 10 .................................................. $8.99 Per Kit $89.95 
841883 Bulk Pack of 20 .................................................. $8.49 Per Kit $169.95

KELVIN® Kre8® Catapult
Build and rebuild this catapult. Includes: clip connectors, slit rods, tubes, string, bag, sandpaper and instructions.
283660 [A] Kit ...................................................... $8.95 or $7.95 ea./5+ 
283639 Bulk Pack of 20 .................................................. $6.95 Per Kit $139

KELVIN® Kre8® Ball Launcher
See who can get the ball to hit a target by pulling a rubber band to alter the launch arm angle and shoot the ball. Comes with all the parts required to make it.
283765 [B] Kit ...................................................... $9.95 or $8.95 ea./5+ or $7.95 ea./10+

KELVIN® Kre8® Power Ping-Pong Ball Launcher
Launch ping-pong balls using two wheels attached to spinning toy motors - change the trajectory angle to see how far they go. Comes with all the parts required to make it. Requires AA batteries.
283659 ...................................................... $19.95 or $17.95 ea./5+ or $14.95 ea./10+
Find More KELVIN® Kre8® products on pgs. 7, 13-17, 34, 37, 45, 49, 67, 85, 106, 115, 133, 136 & 181

KELVIN® Magnetic Repulsion Adjustable Stop Catapult
Updated with magnets - works with or without them. Simple assembly has this fun activity ready to test in a short time. Learn the fundamentals of force, energy, simple machines, Newton's Laws, trajectory and other science and math concepts. The moving lever arm is powered by a rubber band and adjustable to twelve different stop positions. Includes pre-cut wood parts and magnets.
Kit w/ Magnets & Pre-Cut Wood Parts
842461 ...................................................... $14.95 or $12.95 ea./10+
Kit w/ Pre-Cut Wood Parts Only
842381 ...................................................... $9.95 or $8.95 ea./10+

As Low As
$5.20
Per Kit

As Low As
$5.41
Per Kit

As Low As
$8.49
Per Kit

As Low As
$6.95
Per Kit

KELVIN® Educational
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Your students will design and build a lightweight crane that creatively lifts a variable load from a structure a minimum vertical height of 18 in. with a minimum horizontal clearance distance of 9 in. from the edge of the tower or footprint of the crane. The crane structure may encroach on a 45° angle from the lifting point.

The crane must lift the load at least 6 in. to qualify; the one that lifts the greatest load and meets portfolio/interview requirements showing proper application of the concepts introduced will be deemed the best design. Scores are based on Maximum Load, Team Portfolio and Team Interview.

Standard U.S. pennies are used for weights and counterweights, which must be suspended from the crane. Students design a container to hold the pennies for both weight and counterweight. There are no restrictions except that the container may not be structural and can not rest on the ground.

Kit includes official competition balsa, pulley pack (4 pcs.), DC motor, motor holder, competition guide. Teacher supplies glue (such as hot glue guns or wood glue), thin sheet metal (for block and tackle), nuts and bolts or pins and nails (for pulley axle). Great for Grades 7 and up.

**KELVIN® Tower Crane**

Includes: Gear Set, Pulley Set, Creative Crane Pulley, Motor, Motor Holder, Balsa, Wire, Wood Base and Instructions. Requires (2) power supplies (see #841051 below) or dual power supply to operate crane and swing unit simultaneously.

- 841823 Kit ...........................................................................................................$12.95 or $11.95 ea./10+
- 841824 Bulk Pack of 10 ....................................................................................$9.90 Per Kit $99
- 841051 Variable Power Supply ...........................................................................$145

**Swing Unit Kit**

Using this kit, students design a mechanism to allow the boom of their tower crane to swing so that it can lift a load from one spot and place it in another. Kit includes: 1:100 Gear Motor, Gear Set, Pulley Set, Wood (1/8x3x12 in.), Wire, and Instructions.

- 841825 Kit ...........................................................................................................$15.95 or $14.95 ea./10+

**KELVIN® Gear Box & Pulley Activity**

Learning about gears and what they can be used for (gearing for speed or for power) is an important aspect of many crane and vehicle activities and this kit enables students to do just that. Kit includes: Gear Set, Pulley Set, Creative Crane Pulley, Motor and Motor Holder, Wood, and Instructions.

★ NOTE: The activity must be clamped to a table (clamp is not included). The teacher will need to supply: string, glue, screws and a C-Clamp.

- 841810 Kit ...........................................................................................................$8.95 or $7.95 ea./10+
- 841811 Bulk Pack of 20 ....................................................................................$6.25 Per Kit $125

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ✉️ Find California Prop 65 Warning on pg. 180

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KELVIN® Long Island Structure Tester™
This unit is solidly welded, completely assembled and sold at a low cost. Includes frame, bridge support, boom testing system, bucket, plus the hook attachments and instructions. Complies with the specs set forth by the Science Olympiads.

FREE BONUS! A class pack of balsa wood bridge/ tower parts with glue, enough for 24 students—a $75 value!

841363 ★ Bucket is included! ...............................................................$345

KELVIN® Bridge & Material Tester™

280619 Bridge & Material Tester .....................................................$795
841223 Bridge & Material Tester w/ CPAD™, WIN XP-7 .................$1,295
841674 Bridge & Material Tester, CPAD™, PC, Monitor & Software, WIN XP-7 $2,795

KELVIN® CPAD™ (Continuous Pressure Analysis with Deflection)
Test the bridge project, tower or wood beam material that you will use for building your model bridge. The major advantage of this system is that you do not have to break anything — just compare deflection.

Deflection with the CPAD™ refers to how far the structure bends at the given weight. For example, if you put 5 lb. of weight on a structure, one structure may bend 1 in. and another structure may bend more or less. With the help of the computer we can differentiate between small differences in deflection which may not be seen by the eye.

Use with KELVIN® Bridge & Tower Tester™ (see above or your existing bridge tester. Interfaces with computer. For School Use Only, Grades 6 & up.

841227 CPAD™, WIN XP-7 .........................................................$695
841691 CPAD™ w/ PC, LCD Monitor & Software, WIN XP-7 .........$2,495
KELVIN® Bridge & Tower E.Q. Shake Table™
Designed to emulate the motion of a shake table by simulating the wave motion created during earthquakes. Use it to design and test earthquake resistant structures like model bridges and towers. Includes the testing components, 2.5lb. weight, and controller with built-in power supply. The controller has two knobs; one that controls side-to-side movement and the other controls up-and-down movement (primary and secondary waves).

$595

Earthquake Data Collection Interface
Collect vibration data and graph the result on your computer. Interface includes: interface, software, sensor and USB cable.

$295

Build Your Own® Bridge & Tower Tester
The teacher comes up with their own design for a structure to hold the cylinder and bridge or tower in place. The cylinder arm extends to compress and break the bridge or tower.

Essential parts include: cylinder, pressure sensor, [3] metal cylinder attachments, electronics with digital read out display, pump wall adapter, [2] blocks of wood to put bridge on top, and hardware for attaching cylinder.

$645

KELVIN® Tabletop Bridge & Tower Tester
Ideal for engineering units. The center table can be adjusted up and down to accommodate different height structures. A hand bicycle pump slowly provides the air to activate the 100 psi pneumatic cylinder movement. The tester is provided with an accurate digital display.

$995
KELVIN® Brooklyn Bridge

The Brooklyn Bridge is one of the oldest suspension bridges in the United States, stretching 5,989 feet over the East River of New York state. This scaled-down model measure 24 in. long with an additional 6 in. on each side for anchoring and a total length of 36 in. Requires cutter, pliers, and glue.

842089 Kit ..............................................$24.95 or $21.95 ea./5+ or $19.95 ea./10+
842104 Bulk Pack of 10 Students .........................As Low As $13.50 Per Kit $135

KELVIN® Suez Canal Bridge

The Suez Canal spans Bridge spans 2.4 miles long and with 510 ft. towers modeled after obelisks. This scaled-down model measures 24 in. long. Requires cutter, pliers, and glue.

842088 Kit ..................................................$19.95 or $16.95 ea./5+ or $14.95 ea./10+
842103 Bulk Pack of 10 Students .....................As Low As $12.50 Per Kit $125

KELVIN® Kre8® 3-in-1 Bridge Kit

Build and rebuild one of these three bridge types: arch, suspension, or truss. Students will learn about spanning a gap, rigidity, stiffness, enclosing a space, triangulation, mirror image, tension, compression, and redundant parts. Challenges include building bridges that can cover the widest spans and carry the heaviest loads. Kit includes: clip connectors, slit rods, tubes, plastic strip for road bed, string, bag and sand paper. Grades 5 & up.

283664 ★ Kit ..................................................$12.95 or $11.95 ea./5+ or $10.95 ea./10+ or $9.95 ea./20+
283677 Bulk Pack of 20 Students .................................................................$8.75 Per Kit $175

KELVIN® Kre8® Forklift with Manual Controller

The manual controller operates the motors. One motor moves the load up and down and a second motor moves the forklift forwards and backwards. Assembled height is about 18 in. Requires one AA battery.

283665 .............................................$29.95 or $27.95 ea./5+ or $25.95 ea./10+
**KELVIN® Educational**

**Actual Size of the Cubes is 2 x 2 x 2 in.**

**Alternate Views of KELVIN® Kubes™**

**KELVIN® Kubes™**
Machined aluminum drafting cubes are ideal for practicing drafting skills. Each cube is 2 x 2 x 2 in.

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Code</th>
<th>Price</th>
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<tr>
<td>420407 Set of 12 Cubes</td>
<td></td>
<td>$495</td>
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**Digital Calipers**
Digitally precise calipers are easy to use and accurate. Ideal for drafting classes.

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<th>Code</th>
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<tbody>
<tr>
<td>910062</td>
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**Inch Dial Calipers**
Direct reading calipers will measure capacity from 0-6 in. Color-coded dial is graduated in 0.01 in. and 64ths with inch/mm identified.

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<tr>
<td>910042</td>
<td>$34.95 or $32.95 ea./3+</td>
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**Basic Micrometer**
Satin finish, zero adjust and 0.001 in. accuracy.

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<th>Code</th>
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<td>910040</td>
<td>$22.95 or $20.95 ea./3+</td>
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**Pencil Compass**
Features key-locking pencil holder and a 6 in. long measuring arc with 1/8 in. divisions. Includes pencil.

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<td>420064</td>
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**T-Squares** Hardwood

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<td>420086 24 in. L</td>
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**T-Squares** Hardwood

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<td>420044 30°/60°, 10 in. L</td>
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<tr>
<td>420095 45°/90°, 6 in. L</td>
<td>$1.85</td>
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<tr>
<td>420096 45°/90°, 8 in. L</td>
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<td>420045 45°/90°, 10 in. L</td>
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**Triangles**

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<td>420078 Architect’s, White, 12 in. L</td>
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<td>420079 Architect’s, Yellow, 12 in. L</td>
<td>$7.95</td>
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<td>420080 Mechanical, White, 12 in. L</td>
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**Triangle Scales**

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<td>420225 Plastic, 12 in.</td>
<td>$1.25 or 99¢ ea./20+</td>
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<tr>
<td>910038 Steel, 12 in.</td>
<td>$7.95 or $7.45 ea./10+</td>
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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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KELVIN® Super Racer™

Design a dragster vehicle with 1 or 2 super capacitors that can be recharged multiple times using the Capacitor Charging Unit (see below). Super Racer I measures 6-1/2 in. long with a 10F super capacitor. Super Racer II measures 8-1/2 in. long with [2] 10F super capacitors. Comes with perforated cardstock cover that can be designed as you wish or taken off and use just the platform. Capacitor Charging Units listed below required. Racing Track for two lanes available (842395, see right). Soldering, shaping and assembly required.

842390 Super Racer Kit with [1] 10F Super Capacitor ........................................ $7.95 or $6.95 ea./10+
842392 Super Racer Kit with [2] 10F Super Capacitors ........................................ $11.95 or $9.95 ea./10+
140054 10 Farad Super Capacitor ................................................................. $5.95 or $4.95 ea./10+
140055 20 Farad Super Capacitor ................................................................. $7.95 or $7.45 ea./10+

KELVIN® Super Capacitor Dragster

Design a dragster vehicle with a 20F super capacitor that can be recharged multiple times using a 9V battery snap connector. Comes with a 20F super capacitor and perforated cardstock cover that can be designed as you wish or taken off and use just the platform. Measures 12 in. long. Racing Track for two lanes available top right. Soldering, shaping and assembly required.

841802 Kit w/ [1] 20F Capacitor & 9V Connector ........................................ $9.75 or $8.95 ea./10+
841803 Bulk Pack of 10 .............................................................................. $8.49 Per Kit $84.95

KELVIN® Super Capacitor Airplane

Design and build a foam plane, charge the capacitor, engage the magnet activated switch and launch. The wings can be trimmed to affect the flight. Magnet activated switch disengages, if the plane should crash, turning off the motor. Kit includes foam that students cut and shape, motor, super-capacitor, propeller, magnet, reed switch, wire and instructions.

841800 Kit ................................................................................................. $15.95 or $14.95 ea./10+
841801 Bulk Pack of 10 .............................................................................. $13.50 Per Kit $135

KELVIN® Super Capacitor Track

Two-lane super capacitor track is 8 ft. long. Add several to make a longer track. You may want to use fishing line and screw eyes to keep car straight on the track while running. $20 Oversized Shipping Charges Apply.

842395 8 ft. L Track .................. $75

Find More Super Capacitor Kits on pgs. 2, 36 & 59

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ☑️ Find California Prop 65 Warning on pg. 180
**KELVIN® Monsters™ Vehicle Design Challenge**

Features an 8 ft setup with obstacles track plus built-in trays for wood, stones etc. (designed for easy storage). The track must be powered with a KELVIN® Power Supply (DC) to move from points A to B at the end of the track, using overhead wires. Teachers may elevate the track on one end to increase the climbing challenge of the truck.

Track assembly required by the teacher. Design Challenge includes Obstacle Track and [2] Individual Kits. Requires a power supply (see below).

- **841675** Track and [2] Car Kits ................................................................. $195
- **841796** Track, [9] Car Kits, Spring Maker and Variable Power Supply ................................................................. $499
- **841051** Variable Power Supply (see pg. 163 for more info & other power supplies) ................................. $145

**Monsters™ Vehicle Design Kits**

Focusing on spring suspension and propulsion, students can work in teams or individually to design trucks from this basic kit.

- **841676** Car Kit - U-Design™ ................................................................. $19.95 or $18.95 ea./10+
- **841677** Bulk Pack of 9 Kits ................................................................. $18.30 Per Kit $165

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**KELVIN® Spring Maker**

Wind your own springs with KELVIN® Spring Maker™ and learn about math. The Spring Maker™ creates several different thicknesses of springs to use with your cars, machines and inventions. In addition, a special Power Point presentation covers spring design, manufacturing and calculation and measurement of spring rate. It also includes student activity to manufacture spring scale.

System includes: Spring Winder, Table Metal Rods, Student Activity and Power Point Presentation. Can be mounted in a table vise.

- **841345** Spring Maker System™ ................................................................. $125
- **390982** Additional Rod Pack for Making Springs ................................................................. $14.95

---

**Compression Spring**

5/16 in. OD. Spring Rating is 0.02 in. Max Workload is 1.02 Lb. Solid height is 0.28 in.

- **391119** ................................................................. $1.25 or $1.15 ea./10+

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**KELVIN® Kre8® Monster Truck**

Steer this 8.66 in. long customizable monster truck model over objects on the table. Connect up to the 3V hand controller provided to make it move forward, backward, and turn. Requires one AA battery.

- **283710** Kit with Manual Controller ................................................................. $29.95 or $26.95 ea./5+ or $24.95 ea./10+

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**KELVIN® Kre8® products on pgs.**

7, 13-17, 30, 34, 45, 49, 67, 85, 106, 115, 133, 136 & 181

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Ed Kozloski and Tom Larsen, teachers at West Islip, Long Island NY, designed this activity using KELVIN® parts. The activity was tested during the school year and students love this challenge!
KELVIN® Krasher™ Vehicle Safety Testing Track
Design safety restraints (like bumpers and air bags) for a student-built vehicle that will keep an egg intact after an impact of up to 35 mph. Includes 5 ft. launch track, giant elastic band propulsion system and manual with vehicle plans. ★ NOTE: Please allow $50 for oversized shipping. $295
840672  KELVIN® Krasher™ Track .................................................................................................................. $295
841637  KELVIN® Krasher™ Track, Vehicle Kits, Impact Analyzer PLUS a Computer with Pre-Loaded Software ★ ...$1,995
840820  Track Extender - 8 ft. Long .............................................................................................................$195
390565  Replacement Elastic Tubing, 50 ft. (Cut to Size) ...........................................................................$49.95

KELVIN® Vehicle Test Station
Help your students understand the use and importance of “testing” in the engineering and design process with KELVIN® Vehicle Test Station. This unique product will test a vehicle’s speed, torque and climbing ability, helping your students to optimize their design solutions.

The LED dynamometer will visually show the drive wheel speed. The more LEDs lit, the faster the wheels are turning. The gram scale will measure the torque of the vehicle in grams or Newtons. The adjustable ramp can be set at specific angles to measure the climbing ability of the vehicle. Batteries and vehicles not included. $195
842079  Vehicle Test Station .................................................................................................................. $195

KELVIN® “Build A Program” Engineering Mini Modules
Design and test safety systems that protect egg passengers during crash simulations. Module includes Kelvin Krasher, 3 Car Bases, DesignGrid Cardstock, Balloons, Bubble Wrap, 10cc Syringes and Plastic Tubing $695
841680  Level: ELM, MS, HS ............................................................................................................................ $695

Students use sensors to gather data about crash impact and interpret computer graphs. Requires Auto Safety Design 1 above. Module includes: Krasher Vehicle, Computer Interface, Software, Kel-Timer Jr. and Sensor Holders. $995
841702  Level: ELM, MS, HS ............................................................................................................................ $995

Includes the contents of Auto Safety Design 1 and 2 above PLUS a PC and 17 in. LCD Monitor. $2,945
841703  Level: ELM, MS, HS ............................................................................................................................ $2,945
Bill and Ted’s “Eggsellent” Adventure Unit

Bill and Ted’s “Eggsellent” Adventure is a Safety Car Case Study Activity developed by Barry Borakove, a leading technology education teacher from Syosset High School in New York. This activity, originally developed for use in the Principles of Engineering Course, incorporates engineering concepts along with problem-solving, design, physics, mathematics, and technology.

The class is divided into teams. Students are challenged to design a safety system for a pre-assembled platform base car that protects the occupant (an egg), in a plastic bag.

The object is to design and build the:
- Restraint System
- Ergonomics System
- Car Body
- Crumbling Zone

Students describe and then draw their designs for each objective using a design portfolio and, if possible, formally draft their design using a school CAD program. The teacher should be presented with the design portfolio before the team proceeds to the next step.

Once a design is approved, the teacher will provide the students with the tools and material needed to build the car body and crumbling zone. For the restraint and ergonomics systems, the teams can also use foam, bubblewrap, cardboard, plastic bags, rubberband, etc.

After construction is done, the teams test their designs and evaluate the survival of the occupant; the egg. The car is released from the top of a 16 ft. ramp and races down towards impact with the brick (provided by the teacher). During the evaluation stage, you may want to incorporate one of the KELVIN® Motion Timers™, to measure the car’s speed or the KELVIN® Odyssey™ Impact Analyzer to measure the impact on the passenger.

Each unit includes an 8 ft. long KELVIN® Eggsellent Track (we recommend two tracks connected end-to-end for this activity, #841262), Assembled Car Base (#841263), Car Base Kit (#841264) and Reproducible Teaching Materials. Grades 7-12.

1. 841263 Assembled Car Base $25.95
2. 841264 Car Base Kit $12.95
3. 390735 Low-Friction Ballbearing Wheel $1.95 ea., $1.45 ea./50+
**KELVIN® E-Road™**

Students can test to see which dragster is the fastest to the finish line. Put 2 or 3 tracks together to extend the track length to 16 or 24 ft. Metal springs provide electricity from the metal rails.

**Starter Track**


840999  Starter Track & [2] Car Kits ........................ $199
841051 Variable Power Supply (see below) ............... $145

**Advanced Track**

Includes: E-Road™ 24 ft. Track (in 2 sections of 8 ft. long each), Kel-Timer™ Motion Timer, High Output Power Supply and [10] Car Kits. PLEASE NOTE: Allow $125 for oversize shipping.

841101 ........................................................ $1,095

**E-Road™ Track Connector Kit**

Connects two 8 ft. long tracks together for a total length of 16 ft.

841617  Track Connector Kit ............................... $19.95

**E-Road™ with Class View™ Timer**

Includes: E-Road™ 72 ft track (in 3 sections of 8 ft. long each), ClassView™ Timer, High Current Power Supply, Master Controller for Race Start, Reaction Controller for each lane and [50] Bulk Pack Car Kits. PLEASE NOTE: Allow $150 for oversized shipping.

841566 ........................................................ $2,195

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**ClassView™ Timer Features:**

- **TIME:** 1/1000 Second
- **SPEED:** MPH, KPH. User selectable.
- **RESPONSE TIME:** Dual
- **CLASS VIEW:** Large (1 in.), super bright, 7-segment LED displays.
- **MONITOR:** 1- or 2-lane. Display all results simultaneously.
- **REACTION PRACTICE MODE:** 2 modes - normal (racing mode) and practice (test response time). Manual/automatic racing modes.
- **CONTROLS:** Master controller for race start. Two individual hand-held controllers for each lane.
- **CHRISTMAS TREE DISPLAY:** High-power LED based: A true random Christmas tree sequencer.
- **SENSORS:** Optical infrared, non-contact sensors for start/finish gates.
- **CAR STAGING:** Built-in car staging and testing.
- **TWO WINNER MODES:** Select winners by race time only or race time and response time.
- **USB INTERFACING:** Built-in USB port. Connect to computer and download results of each race.
- **SENSOR CABLE:** Up to 90 foot long race track.
- **POWER SUPPLY:** UL approved wall adapter.
- **HOUSING:** Strong metal enclosure with baked paint finish. 15.5 wide x 11-3/4 x 2 in. deep.
- **TRIPOD STAND:** Height adjustable. included.
KELVIN® Rubber Band Powered Build A Better Racer™

Though not mousetrap-powered, this vehicle teaches the same principles of physics and mechanics as our Mousetrap Racers (pgs. 38-39). The unique design utilizes the energy stored in a stretched rubber band. Minor soldering is required.

841920 Kit .......................................................... $6.95 or $5.95 ea./25+
841921 Bulk Pack of 25 ........................................ $5.00 Per Kit $125

KELVIN® Designer Rubber Band Powered Build A Better Racer™

Includes slotted wheel, wheels, wood dowel, axles, corrugated plastic, rubber band and string. Requires minor soldering.

841878 Kit .......................................................... $7.95 or $6.95 ea./25+
841879 Bulk Pack of 20 ........................................ $6.25 Per Kit $125

KELVIN® EggHead Pilot™

Bring in your empty foam egg carton and, with a few provided parts, drive your own Egghead Pilot™ vehicle! We provide the wheels, axles, propeller, wood, straws and rubberband. Requires use of hot glue gun.

841919 Kit .......................................................... $2.95 or $2.45 ea./10+

KELVIN® Egg Roll Motor™ Kit

Turn trash into a toy! Bring in your empty foam egg carton and transform it into a student-designed vehicle! We supply the parts, including wheels, axles, motor, switch, pulley, wood, straws and tubes. Requires use of hot glue gun and simple soldering.

841959 Kit .......................................................... $3.95 or $3.45 ea./10+

KELVIN® Basic Car Platform

Add your own body design from foam, cardboard, etc. Includes 100 wood bases (1/4 x 1-1/2 x 6 in.), 400 wheels, 200 axles and straws. Shaping, hot gun gluing and assembly required.

842439 Kit .......................................................... $2.95 or $2.45 ea./10+
841417 Bulk Pack of 100 ........................................ $0.99 Per Kit $99

KELVIN® Rubber Band & Propeller Car


841205 Kit .......................................................... $3.95 or $3.45 ea./10+ or $2.95 ea./25+
841954 Bulk Pack of 50 ......................................... $2.50 Per Kit $125

KELVIN® Basic Car Platform

Add your own body design from foam, cardboard, etc. Includes 100 wood bases (1/4 x 1-1/2 x 6 in.), 400 wheels, 200 axles and straws. Shaping, hot gun gluing and assembly required.

842439 Kit .......................................................... $2.95 or $2.45 ea./10+
841417 Bulk Pack of 100 ........................................ $0.99 Per Kit $99

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841879 Bulk Pack of 20 ........................................ $6.25 Per Kit $125

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841959 Kit .......................................................... $3.95 or $3.45 ea./10+

As Low As $5.00 Per Kit

As Low As $6.25 Per Kit

As Low As $2.45 Per 10+

As Low As $3.45 Per 10+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.

www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
KELVIN® Raceway Vehicle and Track Starter Kit
Engineer a car that can propel itself around the oval track without outside assistance! The car needs to navigate the track smoothly without a steering mechanism and in the shortest amount of time.
841798  Raceway Vehicle and Track Starter Kit ........................................ $195

KELVIN® Raceway Vehicle Car Kit
Kit includes wood, wheels, axles, motor, wire, switch, gears, battery holder, miscellaneous hardware and instructions.
841827  Raceway Vehicle Car Kit ........................................ $7.95 or $6.95 ea./10+

KELVIN® Raceway Vehicle Bulk Pack
841799  Bulk Pack of 15 Students ........................................ $6.67 Per Kit $99.95

Figure-8 Racetrack Setup
KELVIN® Add-On “Figure-8” Raceway Parts
Parts for creating a figure-8 race track. Requires #841798.
841826  ........................................ $175

KELVIN® Kel-Timer™ Motion Timer
Portable, ideal for field testing; no computer required. Input distance in feet or meters and results are displayed as Time, Mi/h or Km/h.
Features memory; remembers prior competitions.
Deluxe version also allows for measuring acceleration in a single lane using four infrared sensors. Enter the distance between each sensor so the timer can compute and display the speed and acceleration for your vehicle.
840978  Kel-Timer™ .................. $295
841807  Kel-Timer™ Deluxe .......... $345
Sensor Holder
841005  Height Adj., 1-Lane...... $49.95
Add. Sensor Cable Set up to 100 ft.
780061  1-Lane .................. $59.95

KELVIN® Raceway Booklet
The Raceway Booklet Table of Contents includes:
• Parts Lists
• K2 Truck Design
• Classic Mustang Car Design
• Classic Camaro Car Design
• Designing Paper Vehicle Bodies
• Folding Directions For All Included Vehicle Designs
• Race Directions
• Race Bracket
• Adding 4-Wheel Drive
• Optional Vacuum Form
  Vehicle Body Design
• Gear Placement
• Vehicle Wiring Directions
• Chassis Layout
• Cutting the Chassis and Attaching it to the Vehicle
• Racer Evaluation Sheet
• Race Time Calculation Sheet
• Post Race Graph
• Troubleshooting
652346  Raceway Booklet ........................................ $6.95 or $5.95 ea./10+

As Low As
$6.66
Per Student

Figure-8 Racetrack Setup
KELVIN® Kel-Timer™ Motion Timer
Portable, ideal for field testing; no computer required. Input distance in feet or meters and results are displayed as Time, Mi/h or Km/h.
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652346  Raceway Booklet ........................................ $6.95 or $5.95 ea./10+

As Low As
$6.66
Per Student
**KELVIN® E.V. Racer™ Car**

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Description</th>
<th>Price 1</th>
<th>Price 2</th>
<th>Price 3</th>
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<tr>
<td>841016</td>
<td>Kit</td>
<td>$4.95</td>
<td>$4.75</td>
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<tr>
<td>841416</td>
<td>Bulk Pack of 25</td>
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<td>840851</td>
<td>Kit w/ [2] AA NiCad Batteries</td>
<td>$6.95</td>
<td>$6.45</td>
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**KELVIN® Worm Gear Car**

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<th>Kit Code</th>
<th>Description</th>
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<tr>
<td>841255</td>
<td>Kit</td>
<td>$7.95</td>
<td>$6.95</td>
<td>$5.95</td>
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</table>

**KELVIN® Gearbox Car**
Students change the gear ratio to get different speeds. This kit includes a gearbox, motor, battery holder, switch, axles and wheels. Requires [2] AA batteries, soldering and the use of a hot glue gun for assembly.

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Description</th>
<th>Price 1</th>
<th>Price 2</th>
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<tr>
<td>841256</td>
<td>Kit</td>
<td>$9.95</td>
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**KELVIN® Gear Car**

<table>
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<th>Kit Code</th>
<th>Description</th>
<th>Price 1</th>
<th>Price 2</th>
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<tr>
<td>841207</td>
<td>Kit</td>
<td>$9.95</td>
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<td>$7.95</td>
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<tr>
<td>990204</td>
<td>Gear &amp; Motor Bracket, 5/pkg</td>
<td>$12.95</td>
<td>$10.95</td>
<td>$9.95</td>
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</tbody>
</table>

**KELVIN® Gr. 7-12 S.T.E.M. Lab: Work, Machine & Gears**
Discover how the application of gears help machines perform work with speed and power. Students, in teams of two, will assemble gear trains, calculate gear ratios and predict gear directions. They will also experiment with gear train designs to help solve speed and torque problems.

Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

**Team Pack**

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>842474</td>
<td>Team Pack</td>
<td>$95</td>
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</table>

**Class Pack**

<table>
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<th>Kit Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>842481</td>
<td>Class Pack - Team Pack x 3 PLUS &amp; ★ BONUS</td>
<td>$295</td>
</tr>
</tbody>
</table>

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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**KELVIN® Balloon Car**
Includes: balloon, balloon holder, stand, wheels, axles and wood base.
- 841257 Kit .......................................................... $4.45 or $4.25 ea./10+ or $3.95 ea./25+
- 841418 Bulk Pack of 50 .................................................. $3.50 Per Kit $175
- 870013 9 in. Balloons .................................................. $13.95 or $12.59 ea./3+

**KELVIN® Balsa Car**
- 841230 Kit .......................................................... $4.85 or $4.45 ea./10+ or $3.95 ea./25+

**KELVIN® Wood Car**
Students design and shape a piece of bass wood into a fast racing car. Then they can have competitions to see whose is the fastest. Kit includes: [4] wheels, [2] axle straws and a wood blank.
- 841254 Kit .......................................................... $4.95 or $4.45 ea./10+ or $3.95 ea./25+

**KELVIN® Balloon Racer**
Includes: balloon, balloon holder, stand, wheels, axles and wood base.
- 842477 Kit .......................................................... $3.95 or $3.75 ea./10+ or $3.30 Per Kit $99
- 842482 Bulk Pack of 30 .................................................. $3.30 Per Kit $99

**KELVIN® Engineering Principles™ Motor Dragster**
Bevel gears change the direction of power. Includes: pre-printed cardstock, battery holder, toy motor, gear, axles, and wheels.
- 841323 Kit .......................................................... $6.95 or $6.75 ea./10+ or $6.45 ea./25+
- 841337 Kit .......................................................... $5.95 or $5.45 ea./10+ or $4.95 ea./25+

**KELVIN® Ramp Racer™ Balsa Car**
Design and build a cruiser, sedan or mini van and the fastest down a test ramp is the winner. Easy to shape with hand tools (not included). This kit includes: wheels, balsa blank (2 x 3 x 9 in.), axles and DesignGrid™ Paper.
- 841337 Kit .......................................................... $5.95 or $5.45 ea./10+ or $4.95 ea./25+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
KELVIN® Air Motor Car
Kit includes: wheels, axles, motor, propeller, straw, motor holder, battery holder, switch, wood stick for base and wood base.
841208 Kit ......................................................$5.95 or $5.45 ea./10+ or $5.25 ea./25+
841419 Bulk Pack of 30 .....................................................$4.50 Per Kit $135

KELVIN® “Bottle Geek” Car
841299 Kit ......................................................$11.95 or $10.95 ea./10+ or $10.45 ea./25+
841421 Bulk Pack of 20 .....................................................$9.95 Per Kit $199

KELVIN® Kre8® Air-Propelled Racer
Build and race this exciting air car – moves well on flat surfaces! Decorate the body of the racer. Learn about potential energy, stored energy and kinetic energy along with gravity, friction and rotary motion. Requires AA batteries. Kit.
283657 Kit .................................................................$16.95 or $14.95 ea./5+
283803 Bulk Pack of 10 ......................................................$12.50 Per Kit $125

KELVIN® Kre8® Electric Racer
Quick and easy for students to make – see how fast they can make it go! Decorate the body of the racer. Includes switched battery holder and motor. Requires AA batteries.
283662 [D] Kit ......................................................$9.95 or $8.95 ea./5+ or $7.95 ea./10+
283641 Bulk Pack of 20 ......................................................$7.50 Per Kit $150

KELVIN® Generator Motor Car
Build Your Own® vehicle powered by a DC motor generator you build. Wind the coils and assemble. An ideal challenge for high school students.
842087 Kit .................................................................$29.95 or $27.95 ea./10+

KELVIN® Kre8® Electric Racer
Quick and easy for students to make – see how fast they can make it go! Decorate the body of the racer. Includes switched battery holder and motor. Requires AA batteries.

KELVIN® Air Motor Car
Kit includes: wheels, axles, motor, propeller, straw, motor holder, battery holder, switch, wood stick for base and wood base.
841208 Kit ......................................................$5.95 or $5.45 ea./10+ or $5.25 ea./25+
841419 Bulk Pack of 30 .....................................................$4.50 Per Kit $135

KELVIN® GR Cruiser Car
Build a battery-powered car with a U-shaped body and race it down the hall! Kit includes wood blanks, motors, gears, battery holders, wheels and axles. Requires drilling or gluing the axle holder (straw) with hot glue to the base.
841396 Kit .................................................................$7.95 or $7.45 ea./10+
841425 Bulk Pack of 25 ......................................................$5.80 Per Kit $145

KELVIN® Kre8® Air-Propelled Racer
Build and race this exciting air car – moves well on flat surfaces! Decorate the body of the racer. Learn about potential energy, stored energy and kinetic energy along with gravity, friction and rotary motion. Requires AA batteries. Kit.
283657 Kit .................................................................$16.95 or $14.95 ea./5+
283803 Bulk Pack of 10 ......................................................$12.50 Per Kit $125

Find More KELVIN® Kre8® products on pgs. 7, 13-17, 30, 34, 37, 49, 67, 85, 106, 115, 133, 136 & 181

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
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ENGINEERING PRINCIPLES KITS

KELVIN® E.P. Mousetrap Car

841315 Kit......$5.95 or $5.45 ea./10+ or $4.95 ea./25+  
842440 Bulk Pack of 20..............$4.75 Per Kit $142.50

Bulk Pack Price As Low As
$4.75 Per Kit

KELVIN® E.P. Jet Balloon Car
Includes: pre-printed cardstock, balloon attachment, balloon, axles and wheels.

841314 Kit...............$7.95 or $6.95 ea./10+  
842436 Bulk Pack of 20.......$6.45 Per Kit $129

Bulk Pack Price As Low As
$6.45 Per Kit

KELVIN® E.P. Rubber Band Racer
Includes: pre-printed cardstock, rubber bands, axles and wheels.

842434 Kit...............$7.95 or $6.95 ea./10+  
842437 Bulk Pack of 20.......$6.45 Per Kit $129

Bulk Pack Price As Low As
$6.95 Per Kit

KELVIN® E.P. Rubber Band Antique Car
Includes pre-scored cardstock, wheels and axles, rubber bands and detailed instructions.

842454 Kit...............$8.95 or $7.95 ea./10+  
842455 Bulk Pack of 20 ......$6.95 Per Kit $139

Bulk Pack Price As Low As
$6.95 Per Kit

KELVIN® E.P. Hydraulic & Pneumatic Truck
A wooden frame with gussets provides for strength. Use pneumatic or hydraulic power in the operation of the dumpster.

841324 Kit...............$7.95 or $6.95 ea./10+  
842438 Bulk Pack of 20 Kits ......$5.95 Per Kit $119

Bulk Pack Price As Low As
$5.95 Per Kit

KELVIN® E.P. Rubber Band Cardstock Racer
Powered by a rubber band. Great for design competitions! Includes chipboard, rubber band, wheels and axles.

842301 Kit..........................$8.95 or $7.95 ea./10+  
842302 Bulk Pack of 20 ..........$7.50 Per Kit $150

Build & Decorate Your Way

Build & Decorate Your Way

As Low As
$7.50 Per Kit

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**KELVIN® Build A Better® Mousetrap Racers™**

Design and build a vehicle that uses the energy from a mousetrap for propulsion.

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**The MOST Economical Mousetrap Racers Anywhere!**

Economical Kit with Inserts for CD Rear Wheels (CDs not included)

- **841282** Kit w/ Inserts for CD Rear Wheels $3.95 or $3.45 ea./24+
- **841414** Bulk Pack of 100 $2.45 Per Kit $245

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Contains ready-to-copy design briefs and challenges to engage students in the engineering design process. Also includes photographs, drawings and explanations of scientific concepts behind the challenges.

- **652414** Full Color Version of Guide $9.95
- **652579** Black & White Version of Guide $4.95

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**KELVIN® Big Project Rear Wheels**

Measures 4-3/4 in. dia. (CD-size) fits 1/4 in. dia. axle. Includes 1/8 in. insert.

- **990181** 10/pkg. $6.95 or $5.95 ea./10+

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**Pine Wood Chassis**

1/4 x 2-1/2 x 12 in.

- **970065** 99¢ or 89¢ ea./100+

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**Dowel Rods**

- **391212** 1/4 in. dia. 100/pkg. $9.95 or $8.95 ea./5+
- **850628** 1/8 in. dia. 20¢ ea./10+ or 18¢ ea./50+
- **850630** 1/4 in. dia. 30¢ ea./10+ or 28¢ ea./50+

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**Mousetrap Metal Arm**

12 in. long.

- **391040** 100/pkg. $24.95

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**Victor Regulation Mousetraps**

- **850699** 10/pkg. $6.95 or $6.35 ea./6+
- **851205** 72/pkg. $44.95

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KELVIN® Foam Mousetrap Car
Each kit comes with: mousetrap, mousetrap arm, foam sheets, rubber bands, front wheels, axles and instructional design material.
841338  [A] Kit ........................................ $5.95 or $5.45 ea./24+
841573  Bulk Pack of 20 Kits ......................... $4.99 Per Kit $99.95

KELVIN® Gear-Powered Mousetrap Racer™
Provides a selection of gears. Students can experiment by combining different gear diameters and observe the effects on the vehicle’s speed and distance traveled. Kit includes wheels, mousetrap, gears, wood dowel, cable ties, wood base and axles. Minor soldering is required.
841868  [B] Kit ........................................ $9.95 or $9.75 ea./10+ or $9.45 ea./25+
841869  Bulk Pack of 20 .................................. $8.50 Per Kit $170

KELVIN® Pulley-Driven XL Mousetrap Racer™
841870  [C] Kit ........................................ $7.95 or $7.45 ea./10+ or $6.95 ea./25+
841871  Bulk Pack of 20 Kits ......................... $6.25 Per Kit $125

KELVIN® Pulley-Driven Mousetrap Racer™
Allows designers to create different combinations of drive and follower pulleys. Students create speed or added force, controlling the output of the vehicle’s kinetic energy. Kit includes big project rear wheels, front wheels, mousetrap, pulleys, wood dowel, cable ties, wood base and axles. Minor soldering required.
841872  [D] Kit ........................................ $9.95 or $9.75 ea./10+ or $9.45 ea./25+
841873  Bulk Pack of 20 Kits ......................... $9.75 Per Kit $195

KELVIN® Double Mousetrap Racer™
This giant double mousetrap racer has even more energy. Examine how far or fast it goes. Test the acceleration and compare results with the single mousetrap racer. Developed as an open ended design activity, students create their own body design, experiment with the position of the traps and the length of the lever arm. Kit includes big project rear wheels, front wheels, mousetraps, wood dowel, cable ties, wood base and axles. Minor soldering is required.
841874  [E] Kit ........................................ $11.95 or $9.95 ea./10+ or $9.45 ea./25+
841875  Bulk Pack of 20 Kits ......................... $8.50 Per Kit $170

KELVIN® Ball-Bearing Double Mousetrap Racer™
Learn about friction and power with the addition of ball bearings to the giant double mousetrap racer!
841876  Kit w/ [4] Ball Bearings ....................... $35.95 or $34.95 ea./10+ or $33.95 ea./25+
841877  Bulk Pack of 10 Kits ......................... $29.50 Per Kit $295

Find More KELVIN® Mousetrap Racers on pgs. 46-47
KELVIN® Kre8® Solar Racer

Quickly assemble your educational solar car, no glue, no nails — just fun! Connect an electric motor to the solar pane and convert the sun's energy into electricity for power. The solar panel is adjustable so it can be made to face the sun directly.

Students will connect the electric motor and assemble a rubber band mechanism to reduce speed. The front wheels can be adjusted as wanted. Top clips into place. You can design your own top or use the design provided (or print it out from the kre8.com website). Assembly and construction involves measuring and cutting.

283691          Kit...................................................................................... $19.95 or $12.95 ea./5+ or $10.95 ea./10+
283734          Bulk Pack of 20 Students......................................................................... $9.99 Per Kit $199.95

Kre8® kits can be assembled in regular classrooms. Use snips (pg. 9) to cut sheet materials and light blue tubes. Optional Kre8® cutter (pg. 15) can be used to score and snap tubes to length. Kits require proper hand tools, soldering, advanced assembly and adult supervision. Kre8® is a registered trademark of KELVIN L.P.

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ☢️ Find California Prop 65 Warning on pg. 180

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**KELVIN® Solar Racer™**

**Solar Racer™ with Wood Base**
Bulk pack includes: motors, solar cells, wheels, axles, tube holders for axles, washers, gear set, wood bases and instructions.
841236 Kit.................................................................$11.45 or $10.25 ea./10+
841415 Bulk Pack of 20 .................................................$6.45 Per Kit $129

**Solar Racer™ with Plastic Base**
Includes: solar cells (2V, 200mA), DC solar motors, choice of wood or corrugated plastic bases, gear wheels, plastic axles and grid design paper.
842095 Kit.................................................................$11.45 or $10.25 ea./10+
842096 Bulk Pack of 20 .................................................$6.45 Per Kit $129

Find More KELVIN® Solar Cars on pgs. 49 & 51-53

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. For California Prop 65 Warning on pg. 180.
KELVIN® Engineering Principles™ Solar Car
Experiment with solar energy conversion to power. Each kit includes:
pre-printed cardstock, encapsulated solar cell, rubber band, wheels and axles.
841322 Kit .................................................... $11.95 or $10.95 ea./12+
842426 Bulk Pack of 20........................................ $9.95 Per Kit $199

KELVIN® Solar Zip Racer™
Comes with an acrylic pre-cut chassis—ready to assemble. The racer
features an adjustable steering system, adjustable position solar panel
support and geared transmission.
842085 Kit................................ $14.95 or $12.95 ea./6+ or $11.95 ea./20+

KELVIN® Solar Racer HP1™
Requires soldering and hand tools.

Solar Panel with 2V, 200mA Solar Cell
Includes solar cell (2 x 2 in.), AA battery holder and insulated
alligator clips with leads. Requires [1] AA NiCad battery (220025).
220163 ................................ $4.95 or $4.45 ea./10+

Solar Panel with Alternative Energy Battery Charger
Includes 2 V, 200 mA solar cell (2 x 2 in.), AA battery holder and insulated
alligator clips with leads. Requires [1] AA NiCad battery (220025).
220163 ................................ $4.95 or $4.45 ea./10+

Solar Motors
851105 [A] 0.7-5 V, 18 mA, 2200 RPM.... $3.35 or $2.95 ea./10+ or $2.75 ea./100+
851363 [B] 1.5 V, 140 mA, 6900 RPM .... $2.45 or $2.20 ea./10+ or $2.10 ea./100+

Find More Engineering Principles Kits on pgs. 18, 44 & 46
Find More KELVIN® Solar Cars on pgs. 49-50 & 52-53

KELVIN® Educational Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
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**KELVIN® Solar Sedan Kit**

Teach your student’s the principles of light to electricity conversions through this hands-on modeling adventure. Students will design and model the vehicle body and solar panel positioning mechanism. Kit includes: 9-1/2 in. long foam body block, 2V, 550mA solar cell, wheels, axles, motor, gears, instructions and more. Requires assembly and tools for cutting, shaping, and gluing.

- 842415 Kit - Shown Above .................................................. $19.95 or $18.45 ea./10+
- 842417 Bulk Pack of 10 Kits ........................................... $16.50 Per Kit $165

**KELVIN® Solar Dragster Design & Model Kit**

Teach your student’s the principles of light to electricity conversions through this hands-on modeling adventure. Students will design and model the vehicle body and solar panel positioning mechanism. The kit includes the following: 10 in. long wood blank, 2V, 550mA solar cell, wheels, axles, motor, gears, instructions and more. Requires assembly and tools for cutting, shaping, and gluing.

- 842412 Kit - Shown Right ........................................... $19.95 or $17.95 ea./10+
- 842414 Bulk Pack of 10 Kits ........................................... $16.50 Per Kit $165

Find More KELVIN® Solar Cars on pgs. 49-51 & 53
KELVIN® ECONOMY Solar Car Kit
Teach your student’s the principles of light to electricity conversions through this hands-on modeling adventure. Students will design and model the vehicle body and solar panel positioning mechanism.
Kit includes: 7 in. long foam body block, 2V, 200mA solar cell, wheels, axles, motor, gears, instructions and more.
Requires assembly and tools for cutting, shaping, and gluing.
842409 $11.85 or $10.45 ea./10+
842413 Bulk Pack of 10 Kits $99.50
As Low As $9.95 Per Kit

KELVIN® Solar Monster Truck Kit
Students will design a truck that can carry the largest load powered by the solar cell. The kit includes the following: foam body block, solar panel, wheels, axles, motor, gears, instructions and more. Requires assembly and tools for cutting, shaping, and gluing.
842416 Kit, $19.95 or $18.45 ea./10+
 Bulk Pack of 10 Kits
842418, $165
As Low As $16.50 Per Kit

Solar cell type will vary based on stock.

KELVIN® Solar Car: 2V, 200mA Solar Cell

BUILD & SHAPE

KELVIN® Solar Monster Truck: 2V, 550mA Solar Cell

BUILD & SHAPE

Find More KELVIN® Solar Cars on pgs. 49-52
KELVIN® Elite Kel-Timer™ Motion Timer
New features include redesigned sensors with LED feedback and 4-line LCD backlit display with selectable units for distance and speed (ft, meters, m/h, km/h). This new Kel-Timer™ makes aligning sensors quick and easy. Each pair of sensors at both the start and finish gates has an LED light that indicates when the sensors are properly aimed. Any settings changes you make can be stored so that you do not need to re-enter them every time.

Ideal for 1 or 2 lane timing with 1/1000 second accuracy. Maximum 99 seconds. Modular RJ45 cable connectors can be chained together from start gate to finish gate for the sensors (one per lane). Uses inexpensive CAT5 cable to any length needed. Mini-USB serial connection to transmit race information to a computer or serial terminal.

Comes with two 20 ft. long cables for 2-lane competitions (see 780086 for longer cables) and 5V power adaptor (110V AC). Optional rechargeable battery pack (charged by any USB charger) and additional longer cables are available. Wood blocks by teachers, optional stand attachment available.
KELVIN® Kel-Timer™ Motion Timer
Portable, ideal for field testing; no computer required. Input distance in feet or meters and results are displayed as Time, Mi/h or Km/h. Features memory; remembers prior competitions.
Deluxe version also incorporates a feature that allows for measuring acceleration in a single lane using four infrared sensors. Enter the distance between each sensor so the timer can compute and display the speed and acceleration for your vehicle.
Includes: 2-line LCD Display, Infrared Start/Finish Gates, [4] 50 ft. L sensor cables (can be used with a track up to 100 feet L and a DC wall adapter (or use [4] AA batteries).

840978   Kel-Timer™ ................................................................. $295
841807   Kel-Timer™ Deluxe ....................................................... $345
841005   Sensor Holder (Height Adj., 1-Lane) .............................. $49.95
780061   Sensor Cable (1-Lane set up to 100 ft.) ....................... $59.95

KELVIN® Economy Motion Timer
Portable, ideal for field testing—no computer required. Use with dragsters, maglevs, water channel testers, etc. Accurate to 1/1000 of a second. Features 7-segment, very bright red LED display.

842467   1 lane Economy Motion Timer w/ 50 ft. Sensor Cable .......... $99.95
842468   1 or 2 lane Economy Motion Timer w/ 2 Sets of 50 ft. Cables .... $145
780083   Sensor Cables, 1-Lane up to 75 ft. ............................... $45

KELVIN® Multi-Lane Timer
Easy to operate timer is ideal for competitions and timing from 1 to 6 lanes (with the 2 add-on units). The bright LED displays are large enough for the whole class to view.
All the lanes are timed beginning when the lever for the Downhill Racer™ (see left) releases the cars. When cars pass the sensors at the end of the ramp they stop the counter and the winning lane is displayed on top and the rest in winning order. The lane number is shown on the left and the time it took is shown on the right.
The Starter Unit includes:
• Multi-Lane Controller
• 2-Lane Display with Mounting
• Power Adapter
• 50 ft. long Cables

KELVIN® And The Winner Is...

How much time did it take for your student’s designs to travel? Measure time in 1 Lane or 2 Lane Versions. Idea for STEM Activities & Competitions

KELVIN® Economy Motion Timer
Portable, ideal for field testing—no computer required. Use with dragsters, maglevs, water channel testers, etc. Accurate to 1/1000 of a second. Features 7-segment, very bright red LED display.

842467   1 lane Economy Motion Timer w/ 50 ft. Sensor Cable .......... $99.95
842468   1 or 2 lane Economy Motion Timer w/ 2 Sets of 50 ft. Cables .... $145
780083   Sensor Cables, 1-Lane up to 75 ft. ............................... $45

KELVIN® Multi-Lane Timer
Easy to operate timer is ideal for competitions and timing from 1 to 6 lanes (with the 2 add-on units). The bright LED displays are large enough for the whole class to view.
All the lanes are timed beginning when the lever for the Downhill Racer™ (see left) releases the cars. When cars pass the sensors at the end of the ramp they stop the counter and the winning lane is displayed on top and the rest in winning order. The lane number is shown on the left and the time it took is shown on the right.
The Starter Unit includes:
• Multi-Lane Controller
• 2-Lane Display with Mounting
• Power Adapter
• 50 ft. long Cables

The Starter Unit includes:
• Multi-Lane Controller
• 2-Lane Display with Mounting
• Power Adapter
• 50 ft. long Cables

841393   Starter Unit with Controller (for up to 6 lanes) & 2-Lane Display $295
841394   Additional 2-Lane Display (Optional) ................................. $195

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.⚠️ Find California Prop 65 Warning on pg. 180
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Students can race their car designs using gravity!

**KELVIN® Foam Penny Racer™**
Teach the basic concepts of physics through design engineering. The KELVIN® Penny Racer™ and Gravity Track allows young children to create, build and experiment with vehicle design variables, while learning about forces, gravity, weight, motion, momentum and friction.

Students are asked to create a foam vehicle that will carry a minimum of ten pennies down an inclined ramp. Students will then gather a variety of vehicle performance data including speed and distance traveled as pennies are added and removed from the vehicle, as well as the effects of changing ramp heights. The kit includes foam block to shape, wood chassis, wheels, axles and instructions. Ideal for elementary and middle school students.

- 842034 Foam Car Kit .................................................... $6.95 or $5.95 ea./10+
- 842038 Bulk Pack of 20 Car Kits .......................... As Low As $3.49 Per Kit $69.95

**KELVIN® Penny Racer Lab**

- 842039 ......................................................................................... $295

**KELVIN® Penny Racer Gravity Track 5 ft. long**

- 842033 ......................................................................................... $145

**KELVIN® Beams & Triangles™ Open-Ended Design Kit**
Build Working Models like:
- Vehicles
- Houses
- Windmills
- Playground
- Bridges
- Towers
- Cranes
- More

Design and create structures, vehicles and machines using student made frames, gears, levers, pulleys, wheels and axles.

**Find KELVIN® Beams & Triangles™ Products on pgs. 7 & 20-22**

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ✴️ Find California Prop 65 Warning on pg. 180
Students can race their car designs using gravity!

**KELVIN® Downhill Racer™ Car Kits**

Scouts love this activity, now you can do it too! Students can design and build the best looking and fastest vehicle to speed down the track. Use with the KELVIN® Downhill Racing Tracks above. Grades 5+.

**Kit with Your Choice of Blank**

Includes wheels, axles, choice of blank to form the body and instructions. PLEASE NOTE: Blocks require shaping with tools and sanding.

- 841392 Kit w/ Foam Blank ........................................................ $2.95 or $2.65 ea./10+
- 841390 Kit w/ Pine Blank ........................................................ $3.25 or $2.95 ea./10+
- 841391 Kit w/ Balsa Blank ........................................................ $4.45 or $3.95 ea./10+

**KELVIN® Downhill Racer™ Tracks**

Similar to Pinewood Derby® (registered trademark of the Boy Scouts of America), this raceway is an incredible 32 ft. long (in four 8 ft. sections) and is conveniently available in 2- or 4-lane configurations. Available separately is the timing unit (see Multi-Lane Timer) with display that shows the winner of the different races and the racing time of the different cars. PLEASE NOTE: $350 Oversized shipping charges apply.

- 841445 2-Lane Track ONLY (No Frame) ........................................ $325
- 841446 4-Lane Track ONLY (No Frame) ........................................ $525
- 841388 2-Lane Track & Frame .................................................... $575
- 841389 4-Lane Frame & Track .................................................... $795

**Kit & Wood Blank w/ Pre-Cut Axle Grooves**

Includes a wood block (1-1/4 x 1-3/4 x 7 in.) with pre-cut axle grooves, Speed Axles and KELVIN® High Speed Wheels for faster speeds.

- 841592 Kit .......................................................... $3.75 or $3.50 ea./10+
- 841817 Bulk Pack of 30 ...................................................... $3.30 Per Kit $99

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KELVIN® Kel-Air™ Air-Powered ELECTRONIC Dragster Launcher w/ Track & UPDATED Class View Timer™
841564 Launcher + ClassView Timer™ ★ ................................................................. $2,295
851518 Hand Controllers (Additional), Set of Blue, Red & Yellow .................................. $30
842429 Economy Racing Track (see pg. 59) ★ ................................................................. $250

KELVIN® Kel-Air™ ORIGINAL Air-Powered Dragster Launcher
Compressed air launches vehicles safety and economically when the hand-held controllers are pressed. The interface box translates the signal from the hand-held controllers and electrically activates the launch mechanism. Features built-in circuitry for independent launching. Launcher includes electric air launch box, electronic launch controller interface, [2] hand controllers, power pack and complete instructions. Copper tubes on the front of the launcher are not adjustable. Requires two portable air compressors with pressure gauge (below).
851367 Launcher Only .............................................................................................. $695
500027 Portable Air Compressor w/ Pressure Gauge & Tank ........................................ $195

KELVIN® Kel-Air™ ORIGINAL Air-Powered Dragster Launcher with Track
Includes Kel-Air™ Launcher, Track, Portable Air Compressor and [10] Vehicle Kits.
842447 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $795

KELVIN® Kel-Air™ ORIGINAL Air-Powered Dragster Launcher with Track & Motion Timer
Includes Track, Motion Timer, Portable Air Compressor, Sensor Mounting Stands, Instructions and [10] Vehicle Kits.
841100 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $1,250

KELVIN® No CO2 Dragsters Modular Lab
841030 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $1,295

Updated Design! NEW
KELVIN® ClassView Timer™ for 2-Lanes
841618, $1,295
For More on the KELVIN® ClassView Timer™ see pg. 40

Always Uses Compressed Air!
KELVIN® No CO2 Dragsters Modular Lab
841030 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $1,295

KELVIN® Kel-Air™ Air-Powered ELECTRONIC Dragster
Launcher w/ Track & UPDATED Class View Timer™
841564 Launcher + ClassView Timer™ ★ ................................................................. $2,295
851518 Hand Controllers (Additional), Set of Blue, Red & Yellow .................................. $30
842429 Economy Racing Track (see pg. 59) ★ ................................................................. $250

KELVIN® Kel-Air™ ORIGINAL Air-Powered Dragster Launcher
Compressed air launches vehicles safety and economically when the hand-held controllers are pressed. The interface box translates the signal from the hand-held controllers and electrically activates the launch mechanism. Features built-in circuitry for independent launching. Launcher includes electric air launch box, electronic launch controller interface, [2] hand controllers, power pack and complete instructions. Copper tubes on the front of the launcher are not adjustable. Requires two portable air compressors with pressure gauge (below).
851367 Launcher Only .............................................................................................. $695
500027 Portable Air Compressor w/ Pressure Gauge & Tank ........................................ $195

KELVIN® Kel-Air™ ORIGINAL Air-Powered Dragster Launcher with Track
Includes Kel-Air™ Launcher, Track, Portable Air Compressor and [10] Vehicle Kits.
842447 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $795

KELVIN® Kel-Air™ ORIGINAL Air-Powered Dragster Launcher with Track & Motion Timer
Includes Track, Motion Timer, Portable Air Compressor, Sensor Mounting Stands, Instructions and [10] Vehicle Kits.
841100 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $1,250

KELVIN® No CO2 Dragsters Modular Lab
841030 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $1,295

Always Uses Compressed Air!
KELVIN® No CO2 Dragsters Modular Lab
841030 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $1,295

KELVIN® Kel-Air™ Air-Powered ELECTRONIC Dragster Launcher w/ Track & UPDATED Class View Timer™
841564 Launcher + ClassView Timer™ ★ ................................................................. $2,295
851518 Hand Controllers (Additional), Set of Blue, Red & Yellow .................................. $30
842429 Economy Racing Track (see pg. 59) ★ ................................................................. $250

KELVIN® Kel-Air™ ORIGINAL Air-Powered Dragster Launcher
Compressed air launches vehicles safety and economically when the hand-held controllers are pressed. The interface box translates the signal from the hand-held controllers and electrically activates the launch mechanism. Features built-in circuitry for independent launching. Launcher includes electric air launch box, electronic launch controller interface, [2] hand controllers, power pack and complete instructions. Copper tubes on the front of the launcher are not adjustable. Requires two portable air compressors with pressure gauge (below).
851367 Launcher Only .............................................................................................. $695
500027 Portable Air Compressor w/ Pressure Gauge & Tank ........................................ $195

KELVIN® Kel-Air™ ORIGINAL Air-Powered Dragster Launcher with Track
Includes Kel-Air™ Launcher, Track, Portable Air Compressor and [10] Vehicle Kits.
842447 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $795

KELVIN® Kel-Air™ ORIGINAL Air-Powered Dragster Launcher with Track & Motion Timer
Includes Track, Motion Timer, Portable Air Compressor, Sensor Mounting Stands, Instructions and [10] Vehicle Kits.
841100 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $1,250

KELVIN® No CO2 Dragsters Modular Lab
841030 ★ NOTE: Add $150 for shipping in contiguous U.S. ........................................ $1,295

Always Uses Compressed Air!
KELVIN® K2™ Balsa Air-Powered Racing Car

Blanks Pre-Drilled
(with Air Input Holes ONLY)
Design a race car that uses compressed air – no CO2 cartridges! Kit includes pre-drilled balsa blank (7 x 2-1/2 x 2 in.), wheels, axles, etc. Requires air-powered launcher, see above or pg. S8.

842017 Kit ........................................ $12.95 or $11.95 ea./10+
842019 Bulk Pack of 10 ................ $9.99 Per Kit $99.95

Balsa Blanks ONLY
391246 Pre-Drilled w/ Air Hole ... $6.75 or $5.95 ea./10+
391248 NO HOLES ................ $5.75 or $5.45 ea./10+

KELVIN® KEL-AIR™ AIR-POWERED DRAGSTER BLANKS

Blanks Pre-Drilled
(with BOTH Axle and Air Input Holes)
Axle holes will fit plastic straw bushings used with traditional 1/8 in. steel axles. These blanks are perfect for anyone that doesn’t have the equipment to drill perpendicular axle holes.

970386 10 in. L Blank, 50/pkgs. .........................$2.95 Per Blank $147.50

Blanks Pre-Drilled
(with Air Input Holes ONLY)
390691 7-1/2 in. L x 3/4 in. W, 50/pkgs. .....................$1.50 Per Blank $75
390690 10 in. L x 1-1/4 in. W, 50/pkgs. ......................$1.90 Per Blank $95

Blanks (NO HOLES DRILLED)
Blanks are to be drilled with teacher supervision. 1/4 in. Front height, 1-1/4 in. Rear height.
970218 7-1/2 in. L x 3/4 in. W, Bass, 50/pkgs. .........................$1.30 Per Blank $65
390556 7-1/2 in. L x 3/4 in. W, Poplar, 100/pkgs. .......................$0.75 Per Blank $75
390555 10 in. L x 1-1/4 in. W, Poplar, 100/pkgs. .......................$1.15 Per Blank $115

Blank Drilling Jig
970046 Blank Drill Jig for 7-1/2 in. L Blank .......................$24.95
970047 Blank Drill Jig for 10 in. L Blank .......................$24.95

KELVIN® KEL-AIR™ AIR-POWERED DRAGSTER KITS

Bulk Pack Kit Price As Low As
Pre-Drilled Axle Holes

Pre-Drilled Air Input Hole

Bulk Pack Blank Price As Low As

Pre-Drilled Air Input Hole

Kits with Blanks
(Pre-Drilled with Air Input Holes ONLY)

841091 Kit with 7-1/2 in. L Blank .........................$4.95 or $3.95 ea./10+
841093 Kit with 10 in. L Blank .........................$3.95 or $3.75 ea./10+
841423 Bulk Pack of 50 Kits with 10 in. L Blanks ..........$3.00 Per Kit $150

Kits with Blanks
(Pre-Drilled with BOTH Axle and Air Input Holes)
Includes: 10 in. wood blank with pre-drilled axle holes and air input holes (3 in. deep). Also includes wheels, axles, straw, screweyes and washers.

842378 Kit with 10 in. L Blank .........................$5.95 or $4.95 ea./10+
842380 Bulk Pack of 50 Kits with 10 in. L Blanks ..........$3.95 Per Kit $197.50

KELVIN® Kel-Air™ Air-Powered Dragster Launcher with DIGITAL DISPLAY Pressure Gauge

NEW VERSION includes digital display pressure gauge for exact competition pressure every time (requires air compressor - see below - which can adjust air pressure).

Other features include enhanced pneumatic valve controls, finish gate bumpers and a launch switch that sends vehicles racing down the track under the power of compressed air (no need for expensive CO2). This allows a greater design flexibility and uses less wood for body design.

Grades 6-12.
851967 w/ Digital Display Gauge ................ $289
Portable Air Compressor w/ Pressure Gauge & Air Tank
500027 ........................................ $195

KELVIN® Kel-Air™ Economy Air-Powered Dragster Racing Track

Track is 24 ft. total L (3 sections) and 12 in. W. Requires any Kel-Air™ Launcher.

NOTE: Please allow $150 for shipping in contiguous U.S.
842429 (see below) ..................... $250

KELVIN® KEL-AIR™ AIR-POWERED DRAGSTER BLANKS

Bulk Pack Blank for 7-1/2 in. L Blank ...................$3.95
Bulk Pack Blank for 10 in. L Blank ...................$115

24 FT. LONG TRACK IN 3 SECTIONS OF 8 FT.
KELVIN® HotShot Raceway™
CO₂ Dragster Launcher
Self-contained mechanism doesn’t have dangerous spring tension hammers that can cause injury. Works with the CO₂ Racing Track (see right). Grades 6-12 w/ adult supervision.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>840710</td>
<td>[A] 1-Lane HotShot Raceway™</td>
<td>$295</td>
</tr>
<tr>
<td>840711</td>
<td>[B] 2-Lane HotShot Raceway™</td>
<td>$395</td>
</tr>
<tr>
<td>330344</td>
<td>Monofilament Line, 260 yds.</td>
<td>$3.95</td>
</tr>
<tr>
<td>390346</td>
<td>Screweyes, 9/64 in. I.D., 9/16 in. L Shank, 100/pkg</td>
<td>$4.95</td>
</tr>
</tbody>
</table>

CO₂ Cartridges
We only ship CO₂ cartridges to the Continental U.S. via Ground Service.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>500025</td>
<td>8 Gram, 10/pkg.</td>
<td>$4.95</td>
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<tr>
<td></td>
<td>or $4.75 ea./10+</td>
<td></td>
</tr>
<tr>
<td>500053</td>
<td>w/ Safety Cap, 10/pkg.</td>
<td>$5.95</td>
</tr>
<tr>
<td></td>
<td>or $5.75 ea./10+</td>
<td></td>
</tr>
</tbody>
</table>

KELVIN® CO₂ Racing Track
Ideal for HotShot Raceway™ Dragsters and other CO₂ dragsters. This 12 in. wide track measures an incredible 72 ft. in total length! Arrives in 9 sections, each 8 ft. long. Works on table top or floor. Use with monofilament line and screweyes to keep your dragster on the track.

- NOTE: Allow $400 for shipping in contiguous U.S.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>841097</td>
<td>See Picture Below</td>
<td>$1,250</td>
</tr>
</tbody>
</table>

KELVIN® Kel-Accel™
Data Acquisition
Accurately time the speed of a moving object! Position four sensors along the track. Enter the distance between the sensors and the computer will measure the travel time between sensors, calculate speeds and accelerations, then plot them graphically on the screen for motion analysis. View the results directly on the computer or store for later use. Includes 2 sets of sensor cables (4 total) open up to 100 ft., DC power supply, start/finish gates sensor cables (state-of-the-art infrared sensors set), interface and software.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>841806</td>
<td>WIN XP-7, USB</td>
<td>$245</td>
</tr>
<tr>
<td></td>
<td>Find More Motion Timers on pg. 54-55</td>
<td></td>
</tr>
</tbody>
</table>

KELVIN® Competition Certificates
High quality, cardstock awards are generic; teachers can customize name, competition and placement.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>840706</td>
<td></td>
<td>$4.95</td>
</tr>
</tbody>
</table>

KELVIN® Technology Competition Medals
Each set includes three 2 in. diameter medals: one each of gold, silver and brass colors. Each medal comes with a decorative ribbon.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>840706</td>
<td></td>
<td>$19.95</td>
</tr>
</tbody>
</table>
KELVIN® HOTSHOT RACEWAY™ CO2 DRAGSTER BLANKS

**AS LOW AS $2.95 PER BLANK**

Blanks Pre-Drilled
(with BOTH Axle and CO2 Cartridge Holes)

Blanks can now be purchased with pre-drilled for axes and CO2 cartridge. Axes holes will fit plastic straw bushings used with traditional 1/8 in. steel axes. These blanks are perfect for anyone that does not have the equipment to drill perpendicular axle holes on the dragster’s sides.

970387  12 in. L, 50/pkg. ........................................$2.95 Per Blank $147.50

Blanks Pre-Drilled (with CO2 Cartridge Holes ONLY)

Pre-drilled blanks have a CO2 cartridge hole ONLY. Students must drill the axle hole in these blanks. All blanks are 1-1/2 in. wide with a front height of 3/4 in. and a rear height of 2-3/4 in.

<table>
<thead>
<tr>
<th>Blanks</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pine Wood</td>
<td>8 in. Long, 1/pkg.</td>
<td>$2.45</td>
</tr>
<tr>
<td>Bass Wood</td>
<td>12 in. Long, 1/pkg.</td>
<td>$3.45</td>
</tr>
<tr>
<td>Pine Wood</td>
<td>12 in. Long, 1/pkg.</td>
<td>$3.45</td>
</tr>
<tr>
<td>Bass Wood</td>
<td>12 in. Long, 1/pkg.</td>
<td>$3.45</td>
</tr>
<tr>
<td>Balsa Wood</td>
<td>12 in. Long, 1/pkg.</td>
<td>$3.95</td>
</tr>
</tbody>
</table>

Blanks (NO HOLES DRILLED)

Foam blanks are to be drilled with teacher supervision.

390348  Foam - NO HOLES, 12 in. Long, 10/pkg. ..........$9.95 or $8.95 ea./100+

CO2 Dragger Paint Jig

Holds your dragger steady while you paint it.

841105 ...............................................................$6.95 or $5.95 ea./3+/10+

Monofilament Line

330344  260 yds. .........................................................$3.95

Screweyes

Place on the bottom of dragsters to use with monofilament line (330344, 260 yds., $3.95) to keep dragsters straight on the track.

390346  3/32 in. I.D. with 1/4 in. L Shank fits 1/8 in. Axle, 100/pkg. .................$4.95

390333  9/32 in. I.D. with 1/2 in. L Shank, 100/pkg. ........................................$12.95

KELVIN® HOTSHOT RACEWAY™ CO2 DRAGSTER KITS

**AS LOW AS $1 PER KIT**

Kits with Blanks - Pre-Drilled with BOTH Axle and CO2 Cartridge Holes

Includes: 12 in. L wood blank with pre-drilled axle holes and CO2 input holes. Also includes wheels, axles, straw, screweyes and washers. CO2 Cartridge sold separately.

842377  Kit with Blanks Pre-Drilled ..............................................$5.95 or $5.45 ea./10+

842379  Bulk Pack of 50 Kits with 12 in. L Blanks ........................................$4.95 Per Kit $247.50

Kits with Blanks (Pre-Drilled with CO2 Cartridge Holes ONLY)

Kits include your choice of pre-drilled 12 in. long wood blank (pine, bass or balsa), [2] rear wheels, [2] spoke wheels, metal axles, straws, screweyes, washers and instructions. Shaping and assembly required. Bulk packs do not include CO2 cartridges.

<table>
<thead>
<tr>
<th>Blanks</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
</table>
| Pine Wood   | Blank .....................................$4.45 or $3.95 ea./10+
| Bass Wood   | Blank .....................................$4.95 or $4.75 ea./10+
| Balsa Wood  | Blank .....................................$3.45 or $4.95 ea./10+

KELVIN® K1™ Balsa CO2 Racing Car

Pre-Drilled Blanks (with CO2 Cartridge Holes ONLY)

Design a race car that uses CO2 cartridges (sold separately and shipped ground, see lower left). Kit includes balsa blank (Pre-Drilled with CO2 Input Hole Only8-3/8 in. Long), wheels, axles, etc. The blanks measure approximately 8-3/8 x 2-1/2 x 2 in. (223mm x 65mm x 50mm). Requires a CO2 Launcher, see next page.

842016  Kit ...............................................................$12.95 or $11.95 ea./10+

842018  Bulk Pack of 10 .......................................................$9.99 Per Kit $99.95

Balsa Blanks ONLY

391245  Pre-Drilled w/ CO2 Hole Only, 8-3/8 in. L ........................................$6.75 or $5.95 ea./10+

391247  NO HOLES, 8-3/8 in. L ..................................................$5.75 or $4.75 ea./10+

**KITS**

<table>
<thead>
<tr>
<th>Blanks</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
</table>
| KIT         | ...........................................$99.95

Part Only - NO BLANK

<table>
<thead>
<tr>
<th>Blanks</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
</table>
| Kit        | ...........................................$1.00 Per Kit

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
### KELVIN® MAGLEV TRACK WITH ALUMINUM SIDES & ELECTRIC PROPULSION

**Maglev Tracks Can Be Extended – Up to 16 ft. Long!**

Design, build and evaluate a maglev vehicle using the 8 ft. long, pre-assembled maglev track. Add another 8 ft. L track using the maglev track connector, 840451, to extend it to 16 ft. Includes platform vehicle, wood base, self-adhesive magnetic strips, flat aluminum center rail and L-shaped aluminum guide rails. Electric power can be carried to the vehicles through the metal rails. Requires a power supply (841051). Gr. 5-12. ★ $20 Oversized Shipping Charges Apply.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>841051</td>
<td>Variable Speed Power Supply</td>
<td>$145</td>
</tr>
<tr>
<td>841051</td>
<td>Track Connector</td>
<td>$26.95</td>
</tr>
<tr>
<td>840451</td>
<td>Track Connector</td>
<td>$23.50</td>
</tr>
</tbody>
</table>

### KELVIN® Beginner Maglev Racer™ Track with See-Through Sides

Ideal for young students to view magnetic levitation of the car in the track. They can also measure the height of the maglev’s elevation as they put more weight (passengers) on it. The maglev car can be designed to be powered by a sail and a box fan, propeller and a rubber band or using an on-board battery. NOTE: The railing can’t be electrified since it is plastic. Works with maglev car kits 840665, 841294 & 840730 only. ★ $20 Oversized Shipping Charges Apply.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>841412</td>
<td>Bulk Pack of 100</td>
<td>$5.45</td>
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<tr>
<td>841209</td>
<td>Track, 2-Lane, 8 ft. L</td>
<td>$20.95</td>
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<tr>
<td>841208</td>
<td>Track, 2-Lane, 8 ft. L</td>
<td>$22.95</td>
</tr>
<tr>
<td>841207</td>
<td>Track, 2-Lane, 8 ft. L</td>
<td>$25.95</td>
</tr>
</tbody>
</table>

### KELVIN® MAGLEV RACER™ KITS

These kits work with all of the above MAGLEV RACER™ tracks.

**KELVIN® Basic Maglev**

Plans not included with this kit. Includes foam, magnets, wind power package, straws, craft sticks, dowels, wire and a workbook.

**KELVIN® Experimental Power On-Board Maglev**

Battery-powered. Includes foam body, motor, propeller, magnets, battery holder, wires, guide and switch. Requires 9V battery.

**KELVIN® Turbo Maglev Vehicle**


**KELVIN® Advanced Maglev**

Plans Not Included With This Kit. Includes magnets, motor, [2] propellers, balsa, foam blank, 4 x 2 in. tin plate, plastic base, wind power package, plastic straws, craft sticks, dowels, wire and workbook.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>841412</td>
<td>Bulk Pack of 100</td>
<td>$145</td>
</tr>
<tr>
<td>841208</td>
<td>Track, 2-Lane, 8 ft. L</td>
<td>$20.95</td>
</tr>
<tr>
<td>841207</td>
<td>Track, 2-Lane, 8 ft. L</td>
<td>$22.95</td>
</tr>
<tr>
<td>841206</td>
<td>Track, 2-Lane, 8 ft. L</td>
<td>$25.95</td>
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</table>

**Adhesive Magnet Strips**

3/4 x 1/8 in., 10 ft. long. Use only for maglev vehicles. North & South Set

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>840665</td>
<td>Kit</td>
<td>$6.45</td>
</tr>
<tr>
<td>840666</td>
<td>Kit</td>
<td>$9.95</td>
</tr>
</tbody>
</table>

**This kit works ONLY with our ELECTRIC PROPULSION tracks.**

**KELVIN® Turbo Maglev Vehicle**


<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>841733</td>
<td>Kit</td>
<td>$29.50</td>
</tr>
</tbody>
</table>

**KELVIN® Advanced Maglev**

Plans Not Included With This Kit. Includes magnets, motor, [2] propellers, balsa, foam blank, 4 x 2 in. tin plate, plastic base, wind power package, plastic straws, craft sticks, dowels, wire and workbook.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>840666</td>
<td>Kit</td>
<td>$9.95</td>
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</tbody>
</table>

**KELVIN® Basic Maglev**

Plans not included with this kit. Includes foam, magnets, wind power package, straws, craft sticks, dowels, wire and a workbook.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>840665</td>
<td>Kit</td>
<td>$4.95</td>
</tr>
</tbody>
</table>

**KELVIN® Experimental Power On-Board Maglev**

Battery-powered. Includes foam body, motor, propeller, magnets, battery holder, wires, guide and switch. Requires 9V battery.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>841294</td>
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**KELVIN® Turbo Maglev Vehicle**


<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>841733</td>
<td>Kit</td>
<td>$22.95</td>
</tr>
</tbody>
</table>

**KELVIN® Advanced Maglev**

Plans Not Included With This Kit. Includes magnets, motor, [2] propellers, balsa, foam blank, 4 x 2 in. tin plate, plastic base, wind power package, plastic straws, craft sticks, dowels, wire and workbook.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>840666</td>
<td>Kit</td>
<td>$9.25</td>
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</tbody>
</table>
A Fresh Approach to Maglev Activities

**KELVIN® The NEXT Generation Maglev Track™ with Single & Double Lanes**

Build the next generation in maglev modeling. The new keel design base eliminates the need for side rails on the track. This track design change allows students to easily see the levitating effects of the magnets and increases interest in the activity. The design change also allows for wider body design and eliminates the problem of magnets applied beyond the edge of the vehicle base wedging the vehicle in the guide way.

Power can be easily picked up from the track. The included voltage meter displays the voltage being applied to the track rails. The bumper at the end of the track prevents vehicles from flying off the guide way and getting damaged.

842359  Single Lane Maglev Track w/ Volt Meter, Assembled, 8ft. L – **$175**

842360  Dual Lane Maglev Track (side by side lanes), Assembled, 8ft. L – **$285**

841051  Variable Speed Power Supply - See page 163 for more information .......................... **$145**

**KELVIN® The NEXT Generation Maglev Track™ with a Track on Two Levels**

The same keel design guidance and other innovation used in our single and two lane tracks are incorporated into the two level track system (does not include voltage meter). This system is a real attention grabber. The track includes leveling feet and bumpers at the end of the guide way. Watching head to head vehicle performance from a side view helps students observe design differences and flaws helpful in optimizing their design solutions.

842364  Two Level Maglev Track (layered lanes), Assembled, 8ft. L – **$325**

841051  Variable Speed Power Supply - See page 163 for more information .......................... **$145**

**KELVIN® The NEXT Generation Maglev Racer™ Vehicle Keel Kits**

Add on a cardstock or foam vehicle design to the platform base.

Basic Vehicle Keel

Kit comes with: [6] magnets, chassis and keel material.

842361  Kit ......................................................... **$4.95** or **$4.50** ea./10+

842366  Bulk Pack of 30 Kits ......................................................... **$99**

Advanced Vehicle Keel with Power From Track Kit

Kit comes with: [6] magnets, chassis and keel material in addition to a foam block, motor, propeller and wire.

842365  Kit ......................................................... **$7.45** or **$6.85** ea./10+

842367  Bulk Pack of 20 Kits ......................................................... **$115**

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 163.

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HYPERLOOP TRANSPORTATION

KELVIN® Hyperloop (An Elon Musk Concept)

KELVIN® has created an original learning system that allows students to design, model and test vehicles in a reduced pressure Hyperloop tube. The track and tube measures eight feet long. A vacuum is used to reduce the pressure within the tube while the vehicles travel on the track. A compressor provides the air power to move the vehicles down the track.

To begin, students will integrate math, science and technology concepts by designing pods, experimenting with different air pressures within the tube and air pressure powering the vehicle.

KELVIN® Hyperloop Starter Set
Comes with a Hyperloop Vehicle Launching System, a Single Lane Next Generation Maglev Track (8 ft. long), a clear Hyperloop Tube (5 in. dia. x 8 ft. long), Hyperloop Vehicle Bulk Pack of [10] Kits and instructions.

Not included but required are a vacuum and compressor. Additional optional items (not included) are the KELVIN® Motion Timer, Sensor Stand and Sensor Holders – see below #842423 for complete system. Please note, oversized shipping charges of $100 apply.

842421 ..............................................................$1,495

KELVIN® Maglev Vehicle Lab

The need to travel has provided our world with many types of transportation. Futuristic maglev vehicles that can travel at speeds of up to 300 mph on magnetic waves, without friction, have become a reality. Students will learn about futuristic vehicles with this lab. This start-up package features the KELVIN® Maglev Racer™ which allows students to design, build and evaluate their maglev vehicle.

This Lab Includes:

• [2] KELVIN® Maglev Racer™ Tracks, Assembled
• [10] Basic Maglev Kits
• [10] Advanced Maglev Kits
• [2] Self-Propelled Car Kits
• Variable Power Supply
• Stop Watch, Hand-Held
• Universal Maglev Sled Kit
• Assorted Books

Consumables: Balsa Strips, Balloons, Rubber Bands, Velcro Tape

Project Parts: Motors, Propellers, Magnets

Tools: Soldering Irons and Solder, Glue Gun and Glue Slugs, Scissors, Snap Blade Craft Knives and Blades, Self-Healing Cutting Mats, Rulers


840768 Maglev Vehicle Lab - Grades 6-12 .................................................................$1,095

Elon Musk, the founder of SpaceX, Tesla Motors and SolarCity is a world renowned entrepreneur who focuses much of his creative efforts on the environment through sustainable energy production and consumption. His vision involves the production of high-speed transportation systems using reduced-pressure tubes in which passenger pods ride on a cushion of air powered by induction magnets and air pressure.
KELVIN® Hovercraft Racer
Students can design, build and compete with this model hovercraft. The kit includes floating bag, foam, motor, propeller, battery holder and switch.
Requires [4] AAA batteries as well as tools for cutting and shaping.
842389 Kit .........................$9.95 or $8.95 ea./10+  
842391 Bulk Pack of 15 ..........$7.95 Per Kit $119.25

KELVIN® Advanced Competition Hovercraft
Now you can design a hovercraft that not only lifts and travels from one point of the room to another but can also float in a pool and glide across tile - and NOW runs 50% faster for a longer time.
Includes: two types of motors, foam trays, two propellers (one for lift and one for propulsion forward), 9V battery snap, slide switch, wire, dowel rods, craft sticks and clips. Requires 9V battery or wired power adapter (see below) as well as designing, soldering, and assembly. Grades 9+.  
841109 Kit $8.95 or $8.75 ea./10+ or $8.45 ea./25+  
841420 Bulk Pack of 20 ..........$7.50 Per Kit $150

Wired Power Adapter
851510 .......................................$9.95 or $8.95 ea./10+

Quick Charger
Charges [4] AA rechargeable Ni-MH batteries (included) in 1 to 2.5 hours with 4000 mW charge power.
220155 .......................................$49.95

KELVIN® Lift-Push Foam Hovercraft
This kit includes: foam tray, propeller, motor, 9V battery snap, wire, straw, mini slide switch, craft sticks and clips. Requires 9V battery. Grades 6-12.
841108 Kit ...........................................$5.95 or $5.45 ea./10+  
842262 Bulk Pack of 25 ...............$5.00 Per Kit $125

KELVIN® Super Capacitor Hovercraft
Simple, but effective this super-capacitor hovercraft will float above a smooth surface. Use a regular or rechargeable battery to charge the super capacitor model for about 20 seconds. Turn on the switch and off it goes.
This kit includes a foam base, plastic, propeller, motor, super-capacitor, reed switch, magnet, wire and instructions.
841804 Kit ..................................................$11.95 or $10.95 ea./10+  
841805 Class Pack for 10 .................$9.99 Per Kit $99

Find More KELVIN® Super Capacitor Kits on pg. 36

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
### KELVIN® Educational Kits

**WATER TRANSPORTATION**

<table>
<thead>
<tr>
<th>Kit Description</th>
<th>Kit Code</th>
<th>Price Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>KELVIN® Propeller Boat Kit</strong>&lt;br&gt;Kit includes a propeller, rubber band, dowel and foam blank (2 x 3 x 12 in.).</td>
<td>840852</td>
<td>$4.95 or $4.75 ea./10+ or $4.65 ea./25+</td>
</tr>
<tr>
<td><strong>KELVIN® Steam Boat</strong>&lt;br&gt;This boat moves using steam power. This activity requires shaping of wood hull, steam engine and fitting the engine on the hull. Kit includes a candle and a wood blank that measures 1 x 3 x 6 in.</td>
<td>841248</td>
<td>$6.95 or $5.95 ea./10+ or $4.95 ea./25+</td>
</tr>
<tr>
<td><strong>KELVIN® Balsa Boat Hull</strong>&lt;br&gt;Design and shape a boat hull to be propelled by an inboard or outboard motor (not included). Includes a balsa blank (2 x 2 x 12 in.).</td>
<td>84113</td>
<td>$8.95 or $8.45 ea./10+ or $7.95 ea./25+</td>
</tr>
<tr>
<td><strong>Motor Propulsion Kit</strong>&lt;br&gt;Kit includes a motor, 1 in. propeller, shaft and a mounting bracket.</td>
<td>280412</td>
<td>$8.95 or $8.50 ea./6+</td>
</tr>
<tr>
<td><strong>KELVIN® Air Boat Kit</strong>&lt;br&gt;Design an air boat like those used in the Everglades. Includes motor, [2] foam blanks (2 x 2 x 8 in.), wood, propeller, switch and battery holder.</td>
<td>841251</td>
<td>$6.95 or $6.45 ea./10+ or $5.95 ea./25+</td>
</tr>
<tr>
<td><strong>KELVIN® Motor Boat Kit</strong>&lt;br&gt;Design a boat powered by a motor, propeller and battery. This kit includes a foam blank (2 x 2 x 8 in.), motor, switch, boat propeller kit assembly and a battery holder.</td>
<td>841247</td>
<td>$6.45 or $5.95 ea./10+ or $5.75 ea./25+</td>
</tr>
<tr>
<td><strong>KELVIN® Solar Cell &amp; Battery Boat Kit</strong>&lt;br&gt;Advanced kit includes: solar cell, motor, rudder, large propeller, boat propeller, foam blank (2 x 5 x 12 in.) and AA battery holder. Requires [2] AA batteries.</td>
<td>840853</td>
<td>$13.95 or $13.45 ea./10+ or $12.95 ea./25+</td>
</tr>
<tr>
<td><strong>KELVIN® Solar Boat Kit</strong>&lt;br&gt;Design a boat powered by energy from the sun. The kit includes a foam blank (2 x 3 x 12 in.), motor, switch, solar cell and a propeller.</td>
<td>841252</td>
<td>$9.95 or $8.45 ea./10+ or $8.45 ea./25+</td>
</tr>
<tr>
<td><strong>KELVIN® Balsa Boat Hull</strong>&lt;br&gt;Design a boat powered by an inboard or outboard motor (not included). Includes a balsa blank (2 x 2 x 12 in.).</td>
<td>84113</td>
<td>$8.95 or $8.45 ea./10+ or $7.95 ea./25+</td>
</tr>
<tr>
<td><strong>KELVIN® Motor Boat Kit</strong>&lt;br&gt;Design a boat powered by a motor, propeller and battery. This kit includes a foam blank (2 x 2 x 8 in.), motor, switch, boat propeller kit assembly and a battery holder.</td>
<td>841247</td>
<td>$6.45 or $5.95 ea./10+ or $5.75 ea./25+</td>
</tr>
<tr>
<td><strong>KELVIN® Rubber Band Powered Submarine</strong>&lt;br&gt;After assembling this unique rubber band powered submarine, students will experiment with different propellers, rudder sizes and the placement of stability wings. Bottle is included.</td>
<td>842108</td>
<td>$9.95 or $8.95 ea./10+</td>
</tr>
<tr>
<td><strong>KELVIN® Basic Submarine</strong>&lt;br&gt;Designed with a younger student in mind, this basic version allows them to design, test and modify a submarine that ascends and descends in a tank of water. Discover the principles of buoyancy, balance, density and pressure while engaging in a hands-on, learning activity. Each kit includes plastic bottles, additional resource materials and instructions.</td>
<td>842105</td>
<td>$9.95 or $8.95 ea./10+</td>
</tr>
<tr>
<td><strong>KELVIN® Advanced Submarine</strong>&lt;br&gt;The sight of a submarine disappearing into the vast ocean captures the imagination of both the young and old. How does the submarine descend and then climb back to the water’s surface? What propels the submarine deep underwater? Design, model and test a working submarine model. Younger children can make the submarine descend and ascend while older students can add and test a propulsion system for the diving submarine. Kits include detailed instructions and resource materials along with plastic bottles and all the necessary materials for building variable designs.</td>
<td>842106</td>
<td>$24.95 or $22.95 ea./10+</td>
</tr>
</tbody>
</table>

*Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180*
KELVIN® S.T.E.M. Lab: Water Transportation

From buoyancy to hydrodynamics introduce your students to the principles that govern the design of water transportation vehicles. Using a series of hands on learning by doing activities, students will design, build and test boats and submersibles. Students can design their own display board (like sample above) for use in the classroom or a S.T.E.M. fair with the reusable corrugated plastic board that is included.

Basic Team Pack
842497 Basic Team Pack - Grades 6-12 .................................................................$95

Advanced Team Pack
842498 Advanced Team Pack - Grades 7-12 .............................................................$245

KELVIN® Kre8® Sea Explorer
Includes [3] motors (for vertical and horizontal control), plastic ballast tubes, control switches, Kre8® structural frame parts, propellers, and instructions. Soldering, melting and pouring of low temperature wax is required. Requires a 6V lantern as a power source.
842107 Kit ........................................$49.95 or $44.95 ea./3+ or $39.95 ea./10+

KELVIN® Gr. 8-12 S.T.E.M. Lab: Exploring Marine Architecture & Vessel Design

Naval architecture and marine engineering is the design of floating vessels and all the parts that together make up the boat or ship. This lab provides students with the opportunity to build, test and evaluate hull designs. Students will explore buoyancy, stability and hydrodynamics comparing flat bottom and “V” bottom hulls.

Basic Team Pack for 20
Includes Reusable Corrugated Plastic Display Board, Pre-cut 1/16 in. Bass Wood (to assemble into vessels), Testing Water Tank (35 in. L), Glue, Paint, Test Weights and Detailed Instructions (with background material).
842526 Basic Team Pack - Grades 8-12 .................................................................$175
# FLIGHT TRANSPORTATION

## KELVIN® EDUCATIONAL

### KELVIN® Large Foam Glider

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>842458</td>
<td>Kit</td>
<td>$17.95</td>
</tr>
<tr>
<td>842463</td>
<td>Bulk Pack of 10</td>
<td>$14.50 per Kit</td>
</tr>
</tbody>
</table>

Students use engineering design techniques and tools to build a large scale glider and better understand Newton’s Laws of Motion. Includes: balsa, foam, propellers, rubber bands, dowels, modeling clay, screw eye, glue, craft knife, DesignGrid™ paper and instructions.

### KELVIN® Blue Bird Glider

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>842465</td>
<td>Kit</td>
<td>$5.95</td>
</tr>
<tr>
<td>842470</td>
<td>Bulk Pack of 25</td>
<td>$3.00 per Kit</td>
</tr>
</tbody>
</table>

Blue and Depron foam with cardstock tail section. The wingspan measure 16 in wide. Require cutting, shaping and drilling the foam before assembly.

### KELVIN® Depron Glider

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>842466</td>
<td>Kit</td>
<td>$6.95</td>
</tr>
<tr>
<td>842469</td>
<td>Bulk Pack of 25</td>
<td>$5.00 per Kit</td>
</tr>
</tbody>
</table>

Lightweight and fast flying. The wingspan measure 16 in wide. Require cutting, shaping and drilling the foam before assembly.

### KELVIN® Eagle Balsa Glider

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>283801</td>
<td>Kit</td>
<td>$3.75 or $2.95 ea./10+ or $2.75 ea./25+</td>
</tr>
</tbody>
</table>

Easy to assemble. Kit includes printed wing, tail surfaces and canopy.

### KELVIN® Foam Gliders

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>280614</td>
<td>Kit</td>
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<tr>
<td>280606</td>
<td>Bulk Pack of 20</td>
<td>$1.50 per Kit</td>
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<tr>
<td>280613</td>
<td>Kit</td>
<td>$3.95</td>
</tr>
<tr>
<td>280609</td>
<td>Bulk Pack of 20</td>
<td>$1.50 per Kit</td>
</tr>
</tbody>
</table>

Kit w/ Pre-Shaped Foam

Includes pre-cut foam body and wing (requires shaping), nose weights, rubber bands and instructions.

### Giant 46 in. Wingspan

Bulk Price

As Low As

Per Kit

$5.00

$3.00

$1.50

$1.00

$0.50

$0.25

$0.20

$0.10

$0.05

$0.01

$0.00
**KELVIN® Rubber Band Plane**

Students will learn about the principles of drag, lift, thrust and gravity by building rubber band-powered planes and testing them in flight. Includes balsa body, wings, prop, rubber band, tissue paper, etc.

- **Kit** .......................................................... $3.95 or $3.75 ea./12+
- **Bulk Pack of 30** ........................................ $4.17 Per Kit $125

**KELVIN® Rubber Band PowerPole™**

Students design, build and test a rubber band powered plane that they will fly around a stationary pole as many times as possible. It helps students understand the forces and mechanisms that make it possible for flight.

- **Starter Set** .................................................. $99.95
- **Class Set**
  - **Class Pack of 12 Kits** ................................. $3.00 Per Kit $36
  - **Bulk Pack of 50** ......................................... $3.10 Per Kit $155

**Rubber Band Flight Activity & Booklet**

One kit and one booklet (for assisting in the plane construction) is required for each student. Kit includes balsa, wheels, axle, propeller and rubber band.

- **Booklet & Kit** ........................................ $2.25 or $1.95 ea./12+
- **Class Pack of 12 Kits** ............................... $3.00 Per Kit $36

**Motor Loops**

- 391358 1.77 in. L, 100/pkg. .......................... $8.95
- 391359 2.36 in. L, 100/pkg. .......................... $8.95
- 850695 1/8 in. thick x 7 in. L, 35/pkg. .......... $8.95

**Rubber Bands for Competition**

- 850658 1/8 in. thick x 50 ft. long ..................... $9.95
- 420749 225 ft L - Enough for 10 Planes .......... $29.95

**Rubber Band Hand Winder**

Easily winds rubber bands for nosehook propellers or other uses. One revolution of hand crank equals 5, 10 or 15 turns of the rubber band.

- **Motor Loops**
  - 1.77 in. L, 100/pkg. ................................. $8.95
  - 2.36 in. L, 100/pkg. ................................. $8.95
  - 1/8 in. thick x 7 in. L, 35/pkg. .............. $8.95

**KELVIN® Rubber Band Flight Activity & Booklet**

One kit and one booklet (for assisting in the plane construction) is required for each student. Kit includes balsa, wheels, axle, propeller and rubber band.

- **Booklet & Kit** ........................................ $2.25 or $1.95 ea./12+
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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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KELVIN® Around The PowerPole™ Design Challenge

Students in middle school and up, can learn about aeronautics and problem-solving while they build a complete model from provided kit material and then test how it flies around the PowerPole™.

To begin the challenge, each student designs a model plane from the provided materials. Middle school students design the top wing; advanced and high school students design the whole plane. Model planes are then attached to the power pole for a controlled, 12-foot diameter flying area. Planes are evaluated on their speed (rpm), how much load they can carry, and how high they can fly. Airplanes can now be designed to fly faster and higher, controlled by the operator, with no time limit.

The challenge includes PowerPole™ and [2] balsa plane kits. Requires power supply. Use safety glasses. Suitable for Grades 5 and up.

- 841051 Variable Speed Power Supply – See pg. 163 for more information ............................................ $145

KELVIN® PowerPole™ Balsa Planes

Kits come with balsa, wheels, propellers, landing wheels and more.

- 842446 [A] Balsa Blank Kit (Not Pre-Cut, U-Design™) ........................................ $15.95 or $14.95 ea./10+
- 842445 [B] Pre-Cut Balsa Kit w/ Motor, Props, Wire ............................................. $17.95 or $16.95 ea./10+

KELVIN® PowerPole™ Foam Plane with POWER JACK Connector

- 842133 [C] Kit w/ POWER JACK Connector ......................................................... $13.95 or $12.95 ea./10+
- 842102 Bulk Pack of 10 w/ POWER JACK Connector ........................................ $9.99 Per Kit $99.95

KELVIN® Kel-Pole™ Cargo Plane

Includes foam, foam core board, landing gear, motor, three different propellers, instructions and four experiments.

- 841673 [D] Kit .......................................................................................................... $10.95 or $9.95 ea./10+

KELVIN® PowerPole™ Timer

Time the speed your plane is flying! This timer works with the PowerPole™. Enter the radius to determine the Distance-Traveled, Time-Traveled, Revolutions and Speed. The PowerPole™ Timer Deluxe is eight times more accurate in position detection with eight sensors instead of just one!

- 841260 Sensor, WIN, USB ................................................................. $99.95
- 841894 8 Sensors, WIN, USB ................................................................. $199.95
KELVIN® PowerPole™ Historical Planes
Designed by Robert Walker, these model planes are designed to fly around the PowerPole™ above. Learn about construction, plane design, testing, and the history of flight. Bulk packs include 5 cardstock models, motors, propellers, landing wheels and instructions. Teachers will have to supply glue and such.

**KELVIN® PowerPole™ Foam Plane**
KELVIN® PowerPole™ Foam Plane with PHONE Connector
841672  [H] Kit w/ PHONE Connector .................. $12.95 or $11.95 ea./10+
840732  Bulk Pack of 10 w/ PHONE Connector ........ $9.99 Per Kit $99.95

**KELVIN® PowerPole™ Balsa & Tissue Paper Plane**
Design and test wing structure. Comes with adjustable balsa structure, wire to PowerPole, motor, propeller and tissue paper.
281663  [I] Kit .................................................. $12.95 or $11.95 ea./10+

**KELVIN® PowerPole™ Plane Trainer**
Hook this pre-assembled model to the PowerPole™ and fly! Ideal for younger students who may find it easier to design a foam wing for the pre-assembled model plane. The original wings can be easily removed with a screwdriver and replaced with student-designed wings. Requires PowerPole™ and power supply.
840828  [J] Assembled Plane Trainer ......................... $89.95

**KELVIN® PowerPole™ Wright Brothers Replica Plane**
842125  [K] Kit .................................................. $13.95 or $12.95 ea./10+
842130  Bulk Pack of 10 Kits .......................... $12.00 Per Kit $120

All planes work with the KELVIN® PowerPole™ on pg. 70.

The Most Economical Catapult Launcher!

**KELVIN® Skyrider™**
**Balsa Glider Catapult Launcher**

The sturdy Skyrider™ Balsa Glider Catapult Launcher uses a heavy-duty rubber band for the power source, and will send your glider on its way! Since no CO2 cylinders or engines are required, students can economically launch one flight after another. Launcher disassembles for easy storage.

- **283414**  
  **HUGE – 6 ft. Long Launcher!** ........................................ $145

- **Balsa Glider Bulk Pack of 20 w/ Activity Manual**  
  **283415** .............................................................................. $4.95 Per Kit $99

**Glider Design Activity Manual**

Covers principles of design, aviation, Newton’s Laws of Motion, Bernoulli’s Principles and more as they design, build and fly the balsa wood gliders that they construct. The gliders are launched by means of the catapult, so the same force can be applied to each glider. Distance and time can be measured to determine which design performs the best—a great activity for a Middle School TSA flight event! Step-by-step instructions take students from first design to a finished glider.

- **652340**  
  **Booklet, 10/pkg............................................................** $29.95

**BEST DEAL!** **Skyrider™ Balsa Glider Catapult Launcher with Balsa Glider Bulk Pack & Activity Manual**

This ECONOMICAL package includes a Skyrider™ Balsa Glider Catapult Launcher, Balsa Glider Bulk Pack for 20 students, and the Glider Design Activity Manual.

- **283416**  
  **Best Deal! Skyrider™ Package...........................................................** $235

**KELVIN® Clipper Glider**

Design a balsa glider that glides the farthest or the highest.

- **841233**  
  **Bulk Pack of 10 ...............................................................** $1.25 Per Kit $12.50

**As Low As**  
**$1.25**  
**Per Student**

**As Low As**  
**$4.95**  
**Per Student**

---

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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Launch Into Flight Discovery!

**KELVIN® Condor™ Super Size Glider**
Design, build and test a foam glider with 21 in. long fuselage and a 24 in. wide wingspan. Bulk pack includes foam (cut to rough shape of wing and fuselage), balsa, rubber bands, nose weights and instructions with wing templates.

**CO2 Cartridges**

- 8 Gram, 10/pkg: $4.95 or $4.75 ea./10+ (500025)
- w/ Safety Cap, 10/pkg: $5.95 or $5.75 ea./10+ (500053)

PLEASE NOTE: We only ship CO2 cartridges to the Continental U.S. via Ground Service.

**As Low As $4.99 Per Student**

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
KELVIN® Helicopter Flight Test Center

After designing and building a helicopter, students can actually observe them hovering in the Test Center viewing area. Using a variety of propeller blade arrangements provided they will gather data focusing on the properties of the blades including wind speed and power.


842449  Test Center for Class ................................................................. $195

Helicopter Flight Test Center Consumables

Consumables include: foam body blanks, motor mount tubes, hand powered flying prop materials, pins, and straws. Requires propellers and motors.

842450  Bulk Pack of 10 .............................................. $19.95
**KELVIN® Double Propeller Helicopters**
Propellers on planes help pull it forward but when mounted horizontally, they lift a helicopter up. Features the same flight principles as a helicopter.

- **Kit with Wood Propellers**
  Students design and shape propellers. With dowel, balsa, thin wire, aluminum tube, rubber band and wood bead.
  - 842457 Kit .................. $4.95 or $3.95 ea./10+

- **Kit with Plastic Propellers**
  Ready to use and easier to assemble. Kit includes propellers, balsa and rubber bands.
  - 842464 ...................... $5.95 or $4.95 ea./10+

---

**"Indoor Flyer" Plane Kit**
When the motor is fully wound flights of more than 90 seconds are possible. The model can reach the roof of a sports hall and turn slowly in 2 meter circles.
It can even be flown in smaller spaces such as classrooms or a school hall. It has a wingspan of 28 cm (11 in.), a body length of 33 cm (13 in.) and weighs only 5 gm including the rubber motor. The kit includes: balsa strip, wing covering, propeller and step by step plans. Making this plane includes cutting and joining all the balsa strips, covering the wings, constructing the ‘V-form’ and assembling the model.

842448 Kit .................................................. $7.95 or $5.95 ea./10+

---

**Build-N-Fly Model Planes**
The Cadet, Cloud Buster and Fly Boy are the 2nd, 3rd and 4th skill levels, respectively, in the "Build-N-Fly" construction kit series. This series will teach you how to build and enjoy flying rubber-band powered model airplanes. The Cadet has a wing span of 14-1/2 in. long, the Cloud Buster, 17-3/4 in. long and the Fly Boy, 21 in. long.

- 282402 [A] Cadet Kit.........$15.95 or $15.15 ea./3+
- 282403 [B] Cloud Buster Kit...........$15.95 or $15.15 ea./3+
- 282404 [C] Fly Boy Kit...........$15.95 or $15.15 ea./3+

---

**Build By Number Model Planes**
Ideal for individual use or group model building such as in a school class. Each kit contains the right combination of building material and "power package" to assemble an attractive model with good flying ability. 24 in. wide wingspan.

- 282406 Kit ...................... $15.95 or $15.15 ea./3+

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.

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Geodesic Balloons: A Twist on Hot Air Balloons!

As Low As $3.30 Per Student

KELVIN® Geodesic Hot Air Balloon Challenge

Give your students a lesson in geometry and measurement while they build hot air balloons based on geodesic domes. The Geodesic Hot Air Balloon Challenge includes plans and instructions for several different models ranging from fourteen inches to over five feet tall, all from standard size tissue paper.

The bigger the balloon, the better it flies (providing a good lesson on surface area and volume)! Flat panels made up of pentagons and hexagons are easy to assemble and repair. These balloons can be launched with an electric hot plate (great for flying in a gymnasium), or sterno solid fuel (outdoor use only). The thoroughly illustrated instruction manual includes information on the history of hot air balloons, plus tips for easy construction.

Package includes: Launcher, Hot Plate and balloon starter pack with metal wire, tissue paper in assorted colors and glue. Requires 4 gel heat cartridges for outdoor use. Grades 6-12.

841638 Geodesic Hot Air Balloon Challenge Package $275

Balloon Kits
Include: colored tissue paper, metal wire, and glue.

Small Balloon Kit
841651 $3.95 or $3.65 ea./10+

Medium Balloon Kit
841652 $5.95 or $5.45 ea./10+

Large Balloon Kit
841653 $8.95 or $8.45 ea./10+

Class Pack
841639 $3.30 Per Kit $99

Traditional Kite Class Pack
Students design their own kites and then build them using colorful tissue paper. This kit includes tissue paper, 36 in. long basswood strips, [20] glue bottles, [20] rolls of string and basic guide sheets. Enough for 20 students.

281707 Class Pack $3.99 Per Kit $79.95

Kite Parts Bulk Pack
A variety of parts for student kites.

841426 Bulk Pack of 30 Students $4.00 Per Kit $120

Tissue Paper Pack
20 x 30 in.
420399 Assorted Colors, 50 Sheets $19.95

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
### Delta Dart
Best for first time builders! Build with glue sticks and white glue for a faster, cleaner project. Wing dihedral can be lowered for a 305mm wingspan needed for national competition. English/Spanish instructions. Additional motor loops listed below.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>280037</td>
<td>Kit</td>
<td>$2.65 ea.</td>
</tr>
<tr>
<td>280130</td>
<td>Bulk Pack of 35 Kits</td>
<td>$59.95 ea.</td>
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</tbody>
</table>

**Motor Loops**
- 1/8 in. dia. x 7 in L.  
  - 850695 35/pack: $8.95

### Super Delta Dart
Great for outdoor flying with longer flights, stronger framing, movable and removable wing for center of gravity experiments. Bulk pack includes bilingual instructions.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>280360</td>
<td>Bulk Pack of 24 Kits</td>
<td>$79.95 ea.</td>
</tr>
</tbody>
</table>

### Shoebox R.O.G.
A rubber-powered flying laboratory designed to make long duration flights to a minute indoors!

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>280507</td>
<td>Bulk Pack of 8</td>
<td>$37.95 ea.</td>
</tr>
<tr>
<td></td>
<td>or</td>
<td>$35.95 ea.</td>
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</table>

### Flip Glider
Features wing tip dihedral for stability. This kit may be easily converted to an outdoor catapult launched glider.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>280362</td>
<td>Bulk Pack of 35 Kits</td>
<td>$89.95</td>
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</table>

### Star Glider
An economical first step in aviation science. Students are each supplied with two gliders.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>281983</td>
<td>Bulk Pack of 35 Kits</td>
<td>$59.95</td>
</tr>
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</table>

### Right Flyer
The big brother to the Shoebox R.O.G. features cambered airfoil wings and a low thrust line for high performance.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>280359</td>
<td>Bulk Pack of 24 Kits</td>
<td>$115.00</td>
</tr>
</tbody>
</table>

### Tech Glider System
Complies with TSA’s “Flight Challenge” flying event. The Primary Pack (#281980), for 24 students, includes TSA specified balsa blanks for wings, fuselage and tail assembly, clay ballast, “B” size graph paper, Designer outlines and a design manual for teachers. The Consumable Pack (#281981), supplies all of the above for 24 students, except for the teacher’s manual. The Catapult Kit (#281982) includes enough rubber to create 2 loops.

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>281980</td>
<td>Primary Pack, 24 Kits</td>
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<tr>
<td>281981</td>
<td>Consumable Pack, 24 Kits</td>
<td>$64.95</td>
</tr>
<tr>
<td>281982</td>
<td>Catapult Kit</td>
<td>$22.95</td>
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### Whitewings Competition Class Pack

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>280377</td>
<td></td>
<td>$69.95 ea.</td>
</tr>
<tr>
<td></td>
<td>or</td>
<td>$64.95 ea.</td>
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</tbody>
</table>

Find Propeller Winder on pg. 69

Find California Prop 65 Warning on pg. 180
**ROCKETS TRANSPORTATION**

**ESTES® Model Rockets**

**220 Swift** SKILL LEVEL 1
0.094 oz. Engines used: 1/4A3-3T, 1/2A3-4T, A3-4T.
283562 (A) Kit - 4.5 in. L x 0.54 in. dia. ............................................. $9.95 or $9.45 ea./3+

**Yankee™** SKILL LEVEL 1
Comes with self-adhesive decals, streamer recovery and die cut balsa fins.
Engines used: 1/2 A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.
281839 (B) Kit - 11 in. L x 0.74 in. dia. ............................................. $14.95 or $13.95 ea./3+

**Wizard™** SKILL LEVEL 1 – Max. Altitude of 1500 ft.
Engines used: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.
840277 (C) Kit - 12 in. L x 0.74 in. dia. ............................................. $14.95 or $12.95 ea./3+

**Viking™** SKILL LEVEL 1 – Max. Altitude of 1470 ft.
Features multiple fin configurations. Engines used: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.
282036 (D) Kit - 12.1 in. L x 0.74 in. dia. ............................................. $14.95 or $13.95 ea./3+

**Alpha®** SKILL LEVEL 1 – Max. Altitude of 1000 ft.
The perfect rocket to get you started with parachute recovery (12 in.)! Engines used: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.
282034 (E) Kit - 12.3 in. L x 0.98 in. dia. ............................................. $19.95 or $18.95 ea./3+

**Generic EZX Rocket** SKILL LEVEL 1
Easy to Assemble. Customize with markers or paint. Includes a variety of foil self-adhesive decals. Engines used: A8-3 B4-4, B6-4, B6-6, C6-5, C6-7.
281837 (F) Bulk Pack of 12 ........................................................... $120 or $116 ea./3+

**Big Bertha®** SKILL LEVEL 1 – Max. Altitude of 500 ft.
2.2 oz. Engines used: B4-2, B4-4, B6-2, B6-4, C6-5.
282035 (F) Kit - 24 in. L x 1.64 in. dia. ............................................. $26.95 or $25.95 ea./3+

**Alpha III™** SKILL LEVEL EZX – Max. Altitude of 1100 ft.
Great first rocket with bright molded one piece fin unit, nose cone and parachute.
1.2 oz. Engines used: 1/2A6-2, A8-3, A8-5, B4-4, B6-4, B6-6, C6-5, C6-7.
282022 (G) Kit - 12.25 in. L x 0.98 in. dia. ............................................. $19.95 or $18.95 ea./3+

**Mini Comanche 3™** SKILL LEVEL 2 – Max. Altitude of 500-900 ft.
Includes laser cut wood fins, waterslide decals, streamer and tumble recovery. 1.5 oz. Engines used: Booster Stages - A10-0T, Upper Stage - 1/2A3-4T (First Flight), 1/4A3-3T, A3-4T, A10-3T, Single Stage - 1/2A3-2T, A3-4T, A10-3T.
282049 (H) Kit - 31.1 in. L x 0.74 in. dia. ............................................. $14.95 or $13.95 ea./3+

![Porta-Pad® II Launch Pad](image)

**Porta-Pad® II Launch Pad**
Quick assembly - no glue or tools required! Comes complete with blast deflector and standoff, two-piece 1/8 in. (3 mm) launch rod, safety cap and key. Porta-Pad® II can accommodate a 3/16 in. (5 mm) Maxi™ launch rod - not included.
840380 ............................................. $27.95 or $26.95 ea./3+

**Two-Piece Maxi™ Launch Rod**
3/16 in. (5 mm). Launch rod with extra strength and stiffness for larger rockets.
282043 ............................................. $15.95 or $14.95 ea./3+

**Two-Piece Launch Rod**
1/8 in. (3 mm). Replacement rod; ideal for most rockets.
282053 ............................................. $13.95 or $12.95 ea./3+

**Blast Deflector Plate**
Replaces that worn-out deflector.
282052 ............................................. $6.95 or $6.45 ea./3+

**PLEASE NOTE:** Rocketry is a hazardous activity and an experienced counselor should be in charge.

---

**KELVIN® EDUCATIONAL**

**E™ Launch Controller**
Use this controller to launch "E" engine powered Estes model rockets. Comes complete with safety key and 30 ft. (9 m) of cable. Requires [4] AA alkaline batteries (not included). Adult supervision is required for anyone under 18 when launching "E" engine powered rockets.
282051 ............................................. $29.95 or $28.95 ea./3+

**Electron Beam® Launch Controller**
Launch controller comes complete with safety key, continuity light, push button launch button, 17 feet (5.2 m) of cable and micro-clips for igniter hook up. No assembly required! Requires [4] AA alkaline batteries - not included.
840287 ............................................. $25.95 or $24.95 ea./3+

---

**Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.**

**Find California Prop 65 Warning on pg. 180**

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KELVIN® Space & Rocketry Lab

**Nose Cones [A]**
Each package of nose cones contains a variety of shapes. Some cones are 1-piece, others 2-piece. All have eyelets for shock cord/shroud line attachments.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>QTY.</th>
<th>$ 1-2</th>
<th>$ EA./3+</th>
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<tr>
<td>282070</td>
<td>NC-20, 4/pkg.</td>
<td>1</td>
<td>$5.95</td>
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<tr>
<td>282071</td>
<td>NC-50, 5/pkg.</td>
<td>1</td>
<td>$12.95</td>
<td>$11.95 ea./3+</td>
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<tr>
<td>282072</td>
<td>NC-55, 4/pkg.</td>
<td>1</td>
<td>$7.45</td>
<td>$6.95 ea./3+</td>
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<tr>
<td>282074</td>
<td>NC-60A, 2/pkg.</td>
<td>1</td>
<td>$8.95</td>
<td>$7.95 ea./3+</td>
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**Body Tubes [B]**

<table>
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<th>TYPE</th>
<th>QTY.</th>
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<tbody>
<tr>
<td>840500</td>
<td>BT-5, 18 in. L, 4/pkg.</td>
<td>1</td>
<td>$6.95</td>
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<td>840501</td>
<td>BT-20, 18 in. L, 4/pkg.</td>
<td>1</td>
<td>$6.95</td>
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<td>840502</td>
<td>BT-50, 18 in. L, 3/pkg.</td>
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<td>$7.15 ea./5+</td>
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<tr>
<td>840503</td>
<td>BT-55, 18 in. L, 4/pkg.</td>
<td>1</td>
<td>$7.95</td>
<td>$7.15 ea./5+</td>
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<tr>
<td>840504</td>
<td>BT-60, 14.2 in. L, 3/pkg.</td>
<td>1</td>
<td>$8.50</td>
<td>$7.65 ea./5+</td>
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</table>

**Parachutes**
Assembled with canopy, shroud line and tape discs.

840505 [C] 12 in. $7.95 or $7.45 ea./5+ or

**Elastic Shock Cords**
Two 1/8 x 18 in. and a 1/4 x 36 in. elastic cords (enough for four shock cords). Includes instructions and mounts.

820260 [D] $6.95 or $5.95 ea./5+ or

**Recovery Wadding**
Flame resistant wadding protects recovery system. Required in most Estes® rockets. 75 sheets; enough for about 18-25 flights!

840498 $5.95 or $5.65 ea./3+ or

**Blast Off Flight Pack**
Includes [24] engines total (6 each of A8-3, B6-4, C6-3, C6-5), igniter plugs, [30] igniters and a package of recovery wadding [75 sheets].

840289 $69.95 or $66.95 ea./3+ or

**Rocket Engines Small Packs**
Minimum order of 3 packs.

<table>
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<tr>
<th>STOCK #</th>
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<tr>
<td>283036</td>
<td>B4-2</td>
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<td>B4-4</td>
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<tr>
<td>283039</td>
<td>C6-0</td>
<td>3</td>
<td>13.95</td>
<td>12.95</td>
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<tr>
<td>282047</td>
<td>D12-3</td>
<td>2</td>
<td>13.45</td>
<td>12.95</td>
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**Rocket Engines Packs**

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>QTY.</th>
<th>$ 1-2</th>
<th>$ EA./3+</th>
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<tbody>
<tr>
<td>282055</td>
<td>1/2 A3-4T</td>
<td>24</td>
<td>74.95</td>
<td>69.95</td>
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<tr>
<td>840231</td>
<td>A8-3</td>
<td>24</td>
<td>75.95</td>
<td>71.95</td>
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<tr>
<td>840232</td>
<td>B6-4</td>
<td>24</td>
<td>75.95</td>
<td>71.95</td>
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<tr>
<td>282056</td>
<td>C6-5</td>
<td>24</td>
<td>85.95</td>
<td>82.95</td>
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</table>

**Engine Hook Pack**
Hooks fit mini-engines (2), regular and “D” engines (3) and “E” engines (2) with spacer for engine hooks.

820266 [A] $5.95 or $5.75 ea./5+ or

**Engine Mount Kits**
Regular Engines
Fits BT-50, 55, 56 & 60 tubes. Includes parts to make [1] quick change mount for D-engine rockets.

282067 [B] $7.95 or $7.45 ea./5+ or

D & E Engine Mount Kit
Heavy duty engine mounts for “D” and “E” engines. Fits BT-55, 60 and 80 tubes.

282068 [C] $12.95 or $11.95 ea./5+ or

**Model Rocket Igniters**
Dependable, easy-to-use igniters in a convenient six pack. It is always a good idea to have a few spares.

840496 [D] 6/pkg. $5.95 or $5.45 ea./5+ or

**Launch Lug Pack**

840504 [E] $5.95 or $5.45 ea./5+ or

**Determine Altitude!**

**Altitrak™ Altitude Finder**
How high did it really go? Use this device to follow the rocket to apogee and release the trigger to lock the reading. Easy-to-read display gives you your altitude in meters along with the elevation angle. Use two Altitraks for greater accuracy.

840284 $26.95 or $25.95 ea./3+ or

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.

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KELVIN® Rocket Scientist™
Air Powered Launcher
Explore the factors that influence rocket flight. Students will design, build and test rocket performance by varying fin shape, size, and number, rocket weight, length and nose cone shape.

This STEM based lab demonstrates the application of scientific theory and concepts. And best of all, the air powered rockets require no rocket engines. Students can economically perform multiple tests on their design. Rockets travel up to 60 feet in height depending on design.

This system can also be used to test any model rocket that utilizes an ESTES® B-20 body tube (0.75 in. diameter). This saves money because you are not wasting expensive rocket engines.

Enough supplies for 20 students including: launcher, body tubes, balsa wood, plastic nose cones, foam nose cone fabrication materials and more. Requires air compressor, see below.

851958 Launcher (see left) .........................................................$295
283405 Bulk Pack of 20 ..............................................................$4.95 Per Kit $99

Air Compressor w/ Built-In Air Tank
500027 Portable ...............................................................................$195

Air Tank w/ 5-Gallon Volume
500026 Portable ...............................................................................$79.95

Save Money!
Pre-test model rockets (with an ESTES® B-20 body tube) without wasting expensive rocket engines!

Find ESTES® Rockets & Supplies on pgs. 78-79

KELVIN® Paper Rocket™ Launchers
KELVIN® adjustable angle launch pad can launch paper rockets up to 175 feet using compressed air. Flight is based on fin design and assembly. The system includes pre-printed colored paper, launch pad, extension tube attachment, dowel rods and instructions. Requires a portable air compressor (see below). Suitable for Grades 5 and up.

840868 Single Paper Rocket™ Launcher (Not Shown) ..............$245
841045 Dual Paper Rocket™ Launcher .........................................$375
500027 Portable Air Compressor w/ Built-In 4 Gal. Air Tank ..........$195

Pre-Printed Paper Rockets™ Body Tubes Bulk Pack
420406 8-1/2 x 11 in., 500 Sheets ............................................7¢ Per Tube $39.95

EDC Design It! Straw Rockets Lesson Guide
Launch the outer straw like a toy rocket by blowing. By using a sandwich bag propulsion system, students test different kinds of fins while trying to refine their toy rockets so that they will hit targets consistently.

651816 .........................................................$9.95 or $8.95 ea./10+

Find More EDC Design It! Guides on pg. 126
Robots & Control Mechatronics

KELVIN® Hydraulic Robot
For Advanced Students. Build a working robotic arm with four degrees of freedom (movement). The arm rotates at its waist, swivels up and down at its shoulder and elbow joint and opens and closes its gripper end effector. Features laser cut wood parts but also provides students an opportunity to process materials. Requires drilling, cutting, gluing, bending and mechanical assembly.

842309 Kit $69.95 or $67.95 ea./3+

KELVIN® Econobot™
Using craft sticks or pre-drilled and pre-cut wood parts, the Econobot™ is specifically developed to fit a limited budget and still provide a valuable hands-on experience for your students. The Econobot™ robotic arm moves on three joints each controlled by water filled syringes. An electromagnet grabber is used to gather magnetic materials for a pick and place challenge.

Both kits include detailed instructions and background material. AA batteries (sold separately) are needed for operation.

Econobot™ with Craft Sticks DRILLING REQUIRED
Please note: wood parts require drilling (for hand drill, see pg. 121) in addition to cutting and assembly.

842410 Kit with Craft Sticks (Requires drilling) $19.95 or $17.95 ea./3+
842419 Bulk Pack of 10 with Craft Sticks (Requires drilling) $16 Per Kit $160

Econobot™ with Pre-Cut & Pre-Drilled Plywood Parts (for easy assembly)
842425 Kit (Requires drilling) $24.95 or $22.95 ea./3+

Project Syringes
Ideal for simulating hydraulic and pneumatic systems and robots. Works with 1/8 in. inside dia. vinyl tubing.

A
B
C
D

Connectors Use with 1/8 in. inside dia. vinyl tubing
390398 [A] 2-Way $2.50 or $2.40 ea./10+
390399 [B] 3-Way ‘Y’ $1.95 or $1.85 ea./10+
390400 [C] 3-Way ‘T’ $1.95 or $1.85 ea./10+
390401 [D] 4-Way $4.95 or $4.45 ea./10+

Control Valves Use with 1/8 in. inside dia. vinyl tubing
390617 [E] 3-Way $2.95 or $2.65 ea./10+
390618 [F] No-Return $12.95 or $11.65 ea./10+

Vinyl Tubing
1/8 in. inside dia. Cut to length needed. 100 feet.

Experimenting with Syringes

842420 $15.95 or $14.95 ea./3+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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The KELVIN® GENIE Program It™ Control Activity Starter Kit is an innovative way to teach programming!

**KELVIN® GENIE® Program It™ Control**

The Genie Program It™ Activity Starter Kit is an innovative new product intended to teach programming to a wide range of individuals. There is no age barrier for this amazing tool. It hides all the complicated parts of a typical programming environment and lets you program a microcontroller by visually describing the logic using popular and well known flowchart symbols.

With the help of an amazingly easy to use and beautifully done software and a programming cable (sold separately) you can program the Genie Program It™ to blink the two LEDs on a specific sequence, or to respond to the pressing of the switch or to respond to changing light condition or to play a note or a complete tune sequence (there are many preprogrammed tunes to select from or you can create your own).

After creating a program, using the Genie design studio, click the mouse to send it to the Genie Program It™ activity board (connected to your computer with a USB cable) and it will start running immediately. It will continue running even if you turn the Genie Program It™ activity board off, or if you replace the batteries, because it stores the program in internal memory.

The Genie Program It™ activity board is the simplest of the Genie family of products. Once you get familiar with it, you can move to other boards with more powerful features. You can control external devices (with relays) of directly connect servo motors and even stepper motors. **Kit requires soldering experience or order assembled. Requires at least one download cable, see below.**

The KELVIN® GENIE Program It™ Control Activity Starter Kit includes:

- Genie Program It™ Activity Board Kit consisting of a small board (PCB) that houses the electronics as well as a programmable IC, two LEDs, a switch, a light sensor and a buzzer/speaker. Assembly and soldering required.
- Battery Holder with on/off switch.
- A CD with Genie programming software and a collection of demo programs.
- A Manual with instructions and many simple programs.
- USB Download Cable.
- See-through Storage Pouch.

**842291 Program It™ Activity Board Kit (Base not included. Req. Soldering) ..................................................$24.95**

**842294 Assembled/Tested with Mounted Acrylic Base .......................................................... $75**

**780080 USB Download Cable (at least 1 needed) .......................................................... $29.95 or $28.95 ea./5+ or $27.95 ea./10+**

**842292 Bulk Pack of 10 (Includes 1 set of instructions. Base not included) .................. As Low As $15 Per Kit $150**

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180 www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
Control Your World with KELVIN® GENIE Kits!

Students assemble fun and educational kits for well-known functions. Each kit includes parts and a sample code to operate or test them. By experimenting and using the provided code they develop an important understanding between hardware and software. Another important feature is that the student can take advantage of the available resources on the PCB (switches, LEDs, buzzer) and develop the software to do something totally different and unrelated to the original idea of the kit.

The programming environment for developing new programs or editing old ones is the “GENIE Design Studio”. The software is revolutionary in its nature. Develop simple or complicated programs without having to write a single line of code. It is all visually done with the aid of flowcharts.

KELVIN® Response Timer
This is a two player game. The circuit (based on the provided code) initiates a sequence of signals and then it captures the response from the two players and identifies the faster one. It uses a buzzer, two buttons and two LEDs. After the students master the project they can develop many different variations of similar games based on sounds and lights produced by the LEDs. Supply voltage is 4.5 – 6V.

842213 Kit (Requires a USB Cable - See Note) ★ $23.95 or $19.95 ea./5+
842212 Teachers Hand Assembled Board ........................................................................ $73.95
590442 Optional Microcontroller Chip for #842213 .......................................................... $7.95 or $6.95 ea./5+

KELVIN® Egg Timer
The circuit simulates an egg timer. The kit has four LEDs, two switches and a buzzer. One of the switches is labeled “Set Time”. As you press the switch multiple times the LEDs light up and stay on representing the total set time. Each step has a preset associated time. Once the total desired time has been set, pressing the second button labeled “Start” starts the count down sequence. As the timer counts down it turns off the associated LEDs in the reverse order. When the last LED goes off the buzzer announces that end of the preset time. After the students master the project as presented they can develop any kind of application that uses four LED a buzzer and up to two buttons. Supply voltage is 4.5 – 6V.

842214 Kit (Requires a USB Cable - See Note) ★ $23.95 or $19.95 ea./5+
842215 Teachers Hand Assembled Board ........................................................................ $73.95
590442 Optional Microcontroller Chip for #842214 .......................................................... $7.95 or $6.95 ea./5+

KELVIN® Combination Lock
The main parts of the kit consist of a buzzer, an LED and five numbered buttons. It simulates the idea of a combination lock. There is no lock per say but an LED that lights up and a buzzer that buzzes when the right combination is entered. The students can modify the code and produce a variable code sequence. After the students master the project as presented they can develop any kind of application that uses one LED a buzzer and up to five buttons. Supply voltage is 4.5 – 6V.

842216 Kit (Requires a USB Cable - See Note) ★ $29.95 or $27.95 ea./5+
842217 Teachers Hand Assembled Board ........................................................................ $79.95
590444 Optional Microcontroller Chip for #842216 .......................................................... $9.95 or $8.95 ea./5+

KELVIN® Traffic Light Controller
This kit simulates the sequence of the traffic lights at an intersection. It consists of two PCBs. The main controller board and the LED holder PCB. It produces the correct light sequences but in a faster way so that the students do not have to wait very long between changes. The second PCB that houses the lights (LEDs) can be packed into something that resembles the real traffic light assembly and if the students use a set of seven wires, they can mount it remotely to more realistically simulate the real traffic lights.

After the students master the project as presented they can develop any kind of application that uses LEDs. Due to the shape of the LED PCB many “fun” applications can be developed like interesting and fun light sequences like simulating disco lights. Supply voltage is 4.5 – 6V.

842219 Kit (Requires a USB Cable - See Note) ★ $29.95 or $27.95 ea./5+
842218 Teachers Hand Assembled Board ........................................................................ $79.95
590444 Optional Microcontroller Chip for #842219 .......................................................... $9.95 or $8.95 ea./5+

KELVIN® Three Zone Alarm
This kit simulates a three zone alarm system. It has connections for three sensors. These sensors can be lever switches, magnetic switches, motion detectors or any other type of alarm sensors that provides an open and close contact (most common type of alarm sensors). The PCB also provides three switches that enable or disable each zone, three LEDs that indicate the status of each zone and a buzzer that buzzes if any of the zones is open (active).

After the students master the project as presented they can develop any kind of application that uses externally located switches (with on-board enable and disable functionality) three LEDs and a buzzer. Supply voltage is 4.5 – 6V.

842222 Kit (Requires a USB Cable - See Note) ★ $39.95 or $36.95 ea./5+
842221 Teachers Hand Assembled Board ........................................................................ $89.95
590443 Optional Microcontroller Chip for #842222 .......................................................... $8.95 or $7.95 ea./5+

★ NOTE: You will need to purchase at least one USB programming cable, #780080, $29.95, (we recommend multiple cables) for your students to be able to download the code they develop to the Genie controllers. Optional microcontroller chips sold separately.
Control Your World with KELVIN® GENIE Kits!

PCB208 - 2 Inputs & 2 Outputs
The two inputs can be used as digital inputs and control any of the outputs. One of the inputs can be used as an analog input. They can be used to measure an analog signal and control an output. The two outputs are not the same in their current handling capabilities. One is directly connected to the microcontroller and it can drive a load by sourcing or sinking a current up to 20mA. The other output can be used as a transistor that can sink up to 200mA of current and there is a diode for transient suppression.
842201 Kit $19.95 or $18.95 ea./5+
Teachers Hand Assembled Board
842200 $59.95
Optional Microcontroller Chip for #842201
590441 $6.95 or $5.95 ea./5+

PCB214 - 5 Inputs & 5 Outputs
All of the inputs can be used as digital inputs and control any of the outputs. Two of the inputs can be used as analog inputs. They can be used to measure an analog signal and control an output. Three of the outputs are a directly connected to the microcontroller and it can drive a load by sourcing or sinking a current up to 20mA. The other outputs use transistors that can sink up to 200mA of current and they have diodes for transient suppression on the PCB.
842203 Kit $29.95 or $28.95 ea./5+
Teachers Hand Assembled Board
842202 $79.95
Optional Microcontroller Chip for #842203
590442 $7.95 or $6.95 ea./5+

PCB209 - 8 Inputs & 8 Outputs
All of the inputs can be used as digital inputs and control any of the outputs. Four of the inputs can be used as analog inputs. They can be used to measure an analog signal and control an output. Outputs can control a number of different devices. They are provided through a driver IC that is capable of sinking up to 500mA of current and it has built-in clamp diodes for transient suppression.
842207 Kit $29.95 or $28.95 ea./5+
842206 Teachers Hand Assembled Board $79.95
Optional Microcontroller Chip for #842207
590443 $8.95 or $7.95 ea./5+

PCB228 - 12 Inputs & 8 Outputs
Eight of the inputs can be used as digital inputs and control any of the outputs. Four of the inputs can be used as analog inputs. They can be used to measure an analog signal and control an output. The outputs can control a number of different devices. They are provided through a driver IC that is capable of sinking up to 500mA of current and it has built-in clamp diodes for transient suppression.
842209 Kit $49.95 or $44.95 ea./5+
842208 Teachers Hand Assembled Board $99.95
Optional Microcontroller Chip for #842209
590445 $19.95 or $18.95 ea./5+

PCB218 - 5 Inputs & 8 Outputs
All of the inputs can be used as digital inputs and control any of the outputs. Three of the inputs can be used as analog inputs. They can be used to measure an analog signal and control an output. The outputs can control a number of different devices. They are provided through a driver IC that is capable of sinking up to 500mA of current and it has built-in clamp diodes for transient suppression.
842205 Kit $27.95 or $26.95 ea./5+
Teachers Hand Assembled Board
842204 $79.95
Optional Microcontroller Chip for #842205
590444 $9.95 or $8.95 ea./5+

PCB418 - 5 Inputs & 5 Outputs
All of the inputs can be used as digital inputs and control any of the outputs. Three of the inputs can be used as analog inputs. They can be used to measure an analog signal and control an output. There are two different groups of outputs. The first group consists of two motor driving outputs. They can drive small project type motors. The second group consists of three servo motor driving outputs to control up to three servo motors at the same time.
842211 Kit $34.95 or $32.95 ea./5+
Teachers Hand Assembled Board
842210 $49.95 or $47.95 ea./5+
Optional Microcontroller Chip for #842211
590444 $9.95 or $8.95 ea./5+

NOTE: You will need to purchase at least one USB programming cable, #780080, $29.95, (we recommend multiple cables) for your students to be able to download the code they develop to the Genie controllers. Optional microcontroller chips sold separately.
3D Printer Controller Package Arduino Compatible

Board features are:
- RAMPS 1.4: Designed to fit the entire electronics needed for a RepRap in one small package for low cost. RAMPS interfaces an Arduino Mega with the powerful Arduino MEGA platform and has plenty room for expansion. The modular design includes plug in stepper drivers and extruder control electronics on an Arduino MEGA shield for easy service, part replacement, upgrade-ability and expansion. Additionally, a number of Arduino expansion boards can be added to the system as long as the main RAMPS board is kept to the top of the stack.
- MEGA 2560 R3: Mega is an ATmega2560 as core microcontroller development board itself has 54 groups digital I/O input / output terminal (14 groups do PWM outputs), 16 sets of simulation than the input side, group 4 UARTs (hardware serial ports), using the 16 MHz crystal oscillator. With the bootloader, download the program directly via USB without having to go through other external writer. Supply part of the optional USB power, or as an external power using the AC-to-DC adapter and battery. Arduino development IDE interface is based on open-source principles, allows you to free download for use in project work, school teaching, motor control, interactive works.
- A4988 DRIVER: This is a carrier board or breakout board for Allegro’s A4988 DMOS Microstepping Driver with Translator and Overcurrent Protection by Pololu. This stepper motor driver lets you control one bipolar stepper motor at up to 2 A output current per coil.

590489 .................................................................$47.95

Raspberry Pi 3 Model B
Single-board computer with wireless LAN and Bluetooth connectivity.
Specifications: Quad Core 1.2GHz Broadcom BCM2837 64bit CPU, 1GB RAM BCM43438 wireless LAN and Bluetooth, low energy (BLE) on board, 100 Base Ethernet, 40-pin extended GPIO, [4] USB 2 ports, 4-pole stereo output and composite video port, full size HDMI, CSI camera port for connecting a Raspberry Pi camera, DSI display port for connecting a Raspberry Pi, touchscreen display, micro SD port for loading an operating system and storing data, upgraded switched micro USB power source up to 2.5A.
You’ll need (not included): Micro SD card with NOOBS, Micro USB power supply and to use it as a desktop computer, you’ll need a TV or monitor, HDMI cable, keyboard and mouse.

590491 .................................................................$79.95

Find More KELVIN® Kre8® products on pgs. 7, 13-17, 30, 34, 37, 45, 49, 67, 106, 115, 133, 136 & 181

KELVIN® Kre8® Conveyor Belt
This activity will expose students to a number of scientific principles including types of motion, speed ratios, gravity and compound gears.

Students will be challenged to get the most ping pong balls into a box in one minute, make a ball hopper, achieve the highest lift, create a production line and control direction and speed.

The conveyor belt slope is adjustable and measures 18 in. (457 mm) long and 1 in. (25.4 mm) wide. Powered by an electric motor.

As an option, use with the Genie PCB418 board or the Wired Manual Controller on page K24. Requires two AA batteries.

283650 Kit ...............................................................$33.95 or $29.95 ea./10+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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## UNO Rev3 Arduino-Compatible

The best board to get started with electronics and coding. Based on the ATmega328P. Pins include 14 digital input/outputs (6 PWM outputs) and 6 analog inputs. Other features include: 16 MHz quartz crystal, USB connection, power jack, ICSP header and a reset button. Compatible with Arduino IDE. Supports ISP download function. Requires USB cable, AC/DC adapter or battery.

- **Part Number**: 590460
- **Price**: $18.95 or $17.95 ea./5+

## Mega 2560 Rev3 Arduino-Compatible

Ideal for devices like 3D printers and other demanding applications. Pins include 54 digital input/outputs (15 PWM outputs) and 16 analog inputs. Also has 16 MHz quartz crystal, USB connection, power jack, ICSP header and a reset button. Requires USB cable, AC/DC adapter or battery.

- **Part Number**: 590463
- **Price**: $27.95 or $24.95 ea./5+

## WeMos D1 WiFi Board Arduino-Compatible

Pins include 11 digital input/outputs and 1 analog input. Micro USB for auto programming or use OTA. Based on ESP-8266EX. Compatible with Arduino IDE and NodeMcu. Power with micro-USB cable, AC/DC adapter or battery.

- **Part Number**: 590464
- **Price**: $19.95 or $18.95 ea./5+

## Stepper Motor Control Board Arduino-Compatible

Assembled package includes: motor control board, plug-on motor control shield, USB download cable, motor wires, and battery holder. Requires batteries.

- **Part Numbers**: 842435, 590484, 590485
- **Prices**: $39.95 or $37.95 ea./5+; $11.95 or $9.95 ea./5+

## LilyPad Arduino-Compatible

Designed for e-textiles and wearable projects. It can be sewn to fabric with conductive thread. Based on the ATmega 168V (the low-power version of the ATmega 168). Pins include 14 digital input/outputs and 6 analog inputs. Power: 2-5 V. Works with ATmega168 or ATmega328V.

- **Part Number**: 590466
- **Price**: $9.95 or $8.95 ea./5+

## Nano V3 Arduino-Compatible

Compact board based on the ATmega328P. Pins include 22 digital input/output (6 PWM outputs) and 8 analog inputs. Compatible with Arduino IDE. Supports ISP download function. Requires a Mini-B USB cable to get started.

- **Part Number**: 590462
- **Price**: $14.95 or $12.95 ea./5+

## UNO R3 Basic Starter Kit Arduino-Compatible

UNO R3 board, USB cable, prototype extension board, mini breadboard, 5V stepper motor with driver board, LEDs (green, red and blue), sensors (vibration, flame and temperature), infrared receiver, photoresistors, key caps, key switches, piezo buzzer, tone generator, adjustable potentiometer, jumper cap, large breadboard, remote contro, screen, servos, component box, DuPont line, breadboard line, 220ohm resistor, dot matrix display, single digit 7-segment LED bar display, four digit 7-segment LED bar display, IC 74HC595, battery holder, 1K resistor, 10K resistor, 9V battery, 40-pin header, and more.

- **Part Number**: 590465
- **Price**: $59.95 or $49.95 ea./5+

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86 Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180. www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
Weather Sensor Module Arduino Compatible
LED lights up when it senses wet weather conditions like snow, humidity and rain. Sensitivity can be adjusted with a potentiometer.
590481 ...........................................

Temperature & Humidity Sensor Module Arduino Compatible
High-precision temperature measurement device with a high performance, 8-bit microcontroller connection and capacitive humidity sensing element.
590469 ...........................................

Sensor Module Arduino Compatible
Electronic microphone with single-channel signal output.
590480 ...........................................

DFPlayer Mini MP3 Player Sensor Module Arduino Compatible
Outputs directly to a speaker. The module can be used as a stand-alone device by attaching a battery, speaker and push buttons or use with an Arduino UNO or any other with RX/TX capabilities.
590468 ...........................................

USB to TTL Serial Converter Module Arduino Compatible
Converts USB connection to TX/RX. Requires a Mini-B USB cable to get started.
590471 ...........................................

Wireless Bluetooth Serial Transceiver Module Arduino Compatible
Can be set to master or slave by user. Wiring (only need 4 wires): RX to RXD, TX to TXD, GND to GND and 3.6V to 6V. Not suitable for IOS system.
590475 ...........................................

Micro SD Card Module Arduino Compatible
Includes SD card to complete the library card initialization and read-write.
590470 ...........................................

Tricolor LED Module Arduino Compatible
Access the current limiting resistor to prevent burn out. The PWM modulator with three primary colors can be mixed in different colors.
590479 .............................................

High Precision Real Time Clock Module Arduino Compatible
Extremely accurate with integrated temperature-compensated crystal oscillator.
590472 ..........................................

Dot Matrix MCU LED Display Module Arduino Compatible
A single module can drive an 8 x 8 common cathode lattice.
590477 ...........................................

Dot Matrix 4-in-1 Display Module Arduino Compatible
A single module can drive a 8x8 dot matrix common cathode. Support for cascading multiple modules.
590478 ..........................................

LCD Display Module Arduino Compatible
A low-power consumption character LCD module with a built-in controller. Can be easily interfaced with a MCU. White text, blue backlight.
590482 ..........................................

LED & Key Display Module Arduino Compatible
Gathers more than three common SCM peripheral circuits. Only three IO ports are occupied when it drives. SCM doesn’t need to work for scanning display and key scanning. Features 8 Bits, 8 keys, 8 LEDs, 8 digital tubes, common cathode LED digital tube.
590474 ..........................................

37 Sensor Modules Set
Active buzzer, passive buzzer, common cathode RG LED, common cathode two-color LED, RGB LED, RGB colorful LED, knock, shock switch, photo resistor, push button, tilt switch, infrared transmit, hydrguymyrum switch, colorful auto flash, magnet-ring, hall, infrared receiver, analog hall, magic ring, rotate encode, light break, finger pulse, magnetic spring, obstacle avoidance, tracking, microphone, laser transmit, relay, analog temperature, 18b20 temperature, digital temperature, linear hall, flame, high sensitive voice, humidity, joystick PS2 and touch.
590467 ...........................................

Breadboard Adapter Shield Module Arduino Compatible
Breadboard power supply module is compatible with 3.3-5 V. Apply to MB102 breadboard.
590476 ..........................................

4-Channel Relay Module Arduino Compatible
Control various appliances and other equipment with large current.
590483 ..........................................

PS2 Game Joystick Module Arduino Compatible
Connect two analog inputs and control a robot with X/Y control.
590473 ..........................................

Find more Arduino-Compatible Modules on pgs. 2-3 & 76
Find Genie Controllers & Kits on pg. 72-74

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.⚠️ Find California Prop 65 Warning on pg. 180
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KELVIN® SUMO Car Wrestler®

Plastic Car Bases for Wireless Controllers

Small Base Kits - MS to HS
Kits include 7-1/2 in. plastic base, motors, plastic gearboxes, gear sets, wheels, traction bands, tether control, axles, washers, nuts and instructions.
842069 [A] Circular Base Kit ......................................................... $49.95 or $44.50 ea./10+
842071 Rectangular Base Kit ........................................................ $49.95 or $44.50 ea./10+

Add-On Small Base w/ Screws & Spacers ONLY
842070 Circular Base w/ Screws & Spacers................................. $16.95 or $14.95 ea./10+
842072 Rectangular Base w/ Screws & Spacers......................... $16.95 or $14.95 ea./10+

Large Base Kits - HS to College
Kits include 10-1/2 in. bases, motors, larger metal gearboxes, gear sets, pre-punched U-shape gear bracket, wheels, traction bands, tether control, axles, washers, nuts and instructions.
842073 Circular Large Base Kit ....................................................... $69.95 or $64.95 ea./10+
842075 [B] Rectangular Large Base Kit ......................................... $69.95 or $64.95 ea./10+

Add-On Large Base w/ Screws & Spacers ONLY
842074 Circular Base w/ Screws & Spacers................................. $24.95 or $22.95 ea./10+
842076 Rectangular Base w/ Screws & Spacers......................... $24.95 or $22.95 ea./10+

KELVIN® SUMO Car Wrestler® Competition Arena
8ft. diameter. Additional shipping charges apply.
282361 .......................................................................................... $325

KELVIN® SUMO Car Wrestler® Wired Controller
Two control boxes with two dual joysticks. Each joystick operates up to four motors each – two for flippers and two for wheels – on two student-designed robotic cars.
840896 Control Box w/ 2 Dual Joysticks .................................... $595
841265 Replacement Dual Joystick Only ................................. $39.95

KELVIN® Add-On Sensor Package
Includes: [2] lever switch sensors, whisker extenders, screws and wire to connect the robot brain interface (sold sep.). Does not include plans or car base.
842277 ................................................................. $14.95 or $13.95 ea./3+

KELVIN® Add-On Swivel & Push Package
Includes toy motor, motor holders, screws, wire, gears, pulley sets, rods, wood, wheels, metal chain and more. Parts may vary. Does not include plans or car base.
842276 ........................................................................ $39.95 or $36.95 ea./3+

KELVIN® 2 x 2 SUMO Car Wrestler® Wired Controller
One control box with two joysticks. Each joystick operates two motors on two student-designed robotic cars. Can also be used to control up to four motors on one robotic car.

KELVIN® 4 x 2 SUMO Car Wrestler® Wired Controller
Two control boxes with two dual joysticks. Each joystick operates up to four motors each – two for flippers and two for wheels – on two student-designed robotic cars.
840896 Control Box w/ 2 Dual Joysticks .................................... $595
841265 Replacement Dual Joystick Only ................................. $39.95

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
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KELVIN® SUMO Car Wrestler® Wireless Controller Starter Set
Add to each competing SUMO Car Wrestler® if going wireless. Can also be added on the second level. Includes a transmitter, [2] receivers, [2] joysticks as well as BONUS [2] SUMO Car Wrestler® Wireless Base Kits (each kit with 3 geared motors and a project motor). Battery and charger not included (see 281773 below).

821773 Battery Pack & Charger ...................................................................................................................................................... $39.95

KELVIN® SUMO Car Wrestler® Wireless Base Kit

842451 Kit .................................................................................................................................................................................. $44.95 or $39.95 ea./10+

KELVIN® SUMOlér™ Manual Hand Controller
This assembled wired controller includes: [4] directional switches and 15 ft cable. Requires D batteries.
842306 [A] Assembled .................................................. $29.95 or $27.95 ea./5+
‘D’ Alkaline Battery

KELVIN® SUMO Car Wrestler® Cardstock Base
Build your own SUMO Car Wrestler® on top of the cardstock base and attach to smart board controller such as Arduino (see below). Includes cardstock, [2] assembled gear motors, wires, a front wheel and [2] back wheels. Requires folding and hot glue gun assembly. Controller not included - see above. MS to HS.
842433 [B] Kit ................................................................. $24.95 or $22.95 ea./10+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
KELVIN® SUMO Car Wrestler® Robotic Car

841291 [A] Kit .......................................................... $36.95 or $34.95 ea./4+
★ NOTE: Does not include servos, receiver or batteries – use those supplied with the SUMO Car Wrestler® W4, #841292. Servos are also sold separately.

KELVIN® SUMO Car Wrestler® Wireless Controllers
Add to above kits (needed for each competing SUMO Car Wrestler® if going wireless). Can be added on the second level. Controller kits include servo motors, rechargable battery, battery charger, receiver, and KELVIN® PC board. Assembly and soldering required.

842078 [B] Kit - Control 4 Motors .................................................. $295

KELVIN® SUMO Car Wrestler® Kit
No plans are included with this kit, as students must design and plan their own vehicle. Includes [2 or 4] motors, pulleys, gears, wheels and vehicle blank.

840919 Kit with [4] Motors .................................................. $16.95

KELVIN® SUMO Car Wrestler® Robotic Platform

841293 [D] Kit .......................................................... $18.95
★ NOTE: Does not include servos, receiver or batteries – use those supplied with the SUMO Car Wrestler® W4, #841292. Servos are also sold separately.

Pushbutton Terminal
This pushbutton terminal has spring loaded posts for easy connection with four positions; two red and two black.
390737 ............................................. $1.95 or $1.75 ea./10+

Ping Pong Balls
Use as the load for your catapult, as a nose cone for model rockets, or with the KELVIN® SUMO Car Wrestler® Competition (see who can gather the most ping pong balls).
870036 6/pkg .................................................. $2.10

Genie® Motor Control Board PCB418
Features 5 inputs and 5 outputs. Uses easy logic based programming. Requires USB download cable (see 780080 below). Download FREE Software at www.genieonline.com.
842211 Kit - Requires Adv. Soldering .................................................. $34.95 or $32.95 ea./5+
842210 [C] Assembled Board .................................................. $49.95 or $47.95 ea./5+
780080 USB Download Cable .................................................. $29.95 or $28.95 ea./5+

Arduino Motor Control Board
Assembled package includes: Motor Control Board, Plug-On Motor Control Shield, USB Download Cable, Motor Wires, and Battery Holder. Requires batteries. Download FREE Software at www.arduino.cc/.
842435 [D] Assembled .................................................. $39.95 or $37.95 ea./5+

Find More Arduino-Compatible Modules on pgs. 4-5 & 85-87
Find More Genie Controllers & Kits on pg. 82-84
Find More KELVIN® Kre8® products on pgs. 7, 13-17, 30, 34, 37, 45, 49, 67, 85, 106, 115, 133, 136 & 181

Find KELVIN® Advanced Gear Set on pg. 107
Find Servo Motors & Gear Boxes on pg. 114

Find California Prop 65 Warning on pg. 180
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TUG OF WAR: The first team that pulls the other one over the line is the winner!

KELVIN® Tug-of-War & Tractor Lift Competition with Track
Classmates can compete directly against each other with the Kelvin Tug-of-War Activity or they can compete indirectly with the Kelvin Tractor Pull. By altering gear ratios, vehicle weight, traction systems and wheel sizes student’s build vehicles with the greatest pulling power. They can try to move the greatest weight or pull another vehicle across the threshold. A fun learning experience.

Includes:
- Track with high traction surface
- Tug-of-War and Tractor Pull Car Kits (12 W X 48 in. L)
- [2] 2-1/2 lb. weights for tractor pull
- Sled to hold weights
- Connecting Chain

Requires variable power supply for operation (see below). Can be used with a single KELVIN® Power Supply (#841051 or 841052) controlling both vehicles simultaneously. Two KELVIN® Power Supplies can be used with one powering each vehicle, or a KELVIN® Dual Power Supply (#841387) can be used to power both vehicles.

841640 Tug-of-War/Tractor Pull Competition Kit with Track........................................................................................................ $125
841051 Variable D.C. Power Supply, 0 to 16V DC, 1.5A ........................................................................................................................................ $145

Tug-of-War/Tractor Pull Car Kit
283123 Kit .................................................................................... $29.95 or $27.95 ea./6+ or $24.95 ea./10+

Find Cardboard Wheels & Dowels on pg. 20

Wide Tread Wood Wheels
1-1/2 in. thick, 11/64 in. dia. hole
2-3/4 in. dia. [A] 282347 $1.95 or $1.75 ea./10+ or $1.55 ea. 100+
3-3/4 in. dia. [A] 283020 $2.45 or $2.25 ea./10+ or $1.95 ea. 100+

Traction Material Cut to Fit 851308 [B] 12 in. W x 4ft. L ......................... $7.95

Axle Pack
842535 ................................................................. $4.95 or $4.45 ea./10+

KELVIN® Gear Box Kits
Build a gear box for robots or where a gear reduction or gearing change is needed. Kits include a pre-punched U-shaped bracket, motor, axles, gears, washers and instructions. Box measures 2.5 x 6.7 x 1.70 in.

SUMO Car Wrestler® Gearbox
Connects to 1 Wheel (not included)
Ideal for multiple directional changes. Includes a screw and nut axle that connects to the wheel (sold separately). Two gear boxes are required to transmit power to each wheel.
282360 [A] Kit ★ ........................................ $19.95 or $17.95 ea./4+

Tug-of-War Gearbox Connects to 2 Wheels (not included)
The assembly lends itself to forward and backward motion with both wheels being driven by the same gear box. It includes a long threaded axle rod for attachment to two wheels (not included).
283122 [B] Kit ★ ........................................ $22.95 or $20.95 ea./4+
★ NOTE: Wheels sold separately. Students must enlarge holes in the gears to fit. Optional Variable Power Supply, 841051, $145

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KELVIN® Robotic Battle Ball™

**Competition Arena Class Set**

This complete system for conducting all-out robotic arm combat is economical, one time expense for your school because you can use it with all robotic classes.

The challenge is to design a robotic arm with an electromagnet head that picks up balls with metal screws through them. Robotic arm construction and team work throughout are keys to winning. The first team to move six balls from the central container and put them in their team’s ball return container is the winner.

**Class Set Includes:**
- Arena Board: assembled 16 x 47 x 3/4 in. plywood with yellow/blue acrylic top
- 4 Robotic Battle Ball™ Robotic Arm Kits: enough essential parts for 4 teams—see #841333 for content
- Competition parts: ball container, ball return tubes and balls with screws
- 6 Hand Controllers: assembled on plywood bases (three per team)
- 2 Switches: for turning on/off the electromagnets (one per team)
- Instructions and drawings

Requires 2 6V lantern batteries.

841356 ............................................. $895

KELVIN® Build Your Own™

**Battle Ball™ Robotic Arm Parts Kit**

Since we don’t know the material or design students will choose for their robotic arm, we’ve put together this kit with the parts they must use, such as: 3 syringes, 3 syringe holders, magnet wire, bolt washers for magnet head, and wire. In addition, we have added 3 1 x 2 x 12 in. pieces of pine and 2 small aluminum plates.

This is an open-ended design competition so we don’t provide plans; we recommend purchasing the Hydraulic Robotic Arm Demo Unit (#841329) in order to get ideas. Requires 3 Competition Arena Controllers (#841376) or the Electronic Power Pack Controllers (#841330). One kit required for a team of 3-4 students.

841333 .. $24.95 or $22.95 ea./10+ or $19.95 ea./20+

Assembled Robotic Arm

Requires #841356 or #841330.

841384, $195

Robotic Arm Demo Unit

Each student controls an axis and the electro-magnet head. Demo unit includes: assembled robotic arm, 3 hand controllers, and balls with screws. Requires 6V lantern battery.

841329 .............................................. $395

**Shown to the left is Marty Nelson, the competition’s designer, and his students from Quince Orchard High School in Montgomery County, MD. He and his students have successfully conducted this activity every year since 1997. The kids love it!!**
**KELVIN® RoboTech™ Electronic Control System**

Enrich your Battle Ball™ Robotic Arm (#841333) or any hydraulic robot of your own design with this full blown hydraulics system! Controls 4 axes on a robot with hydraulics or 3 axes and an electro-magnetic gripper. You can also use the power pack controller (6-12 VDC) and the four control switch units to control electric motors or actuators on a motorized robot. The hydraulics are installed on a sturdy aluminum base.


841330  RoboTech™ Electronic Control System .................................................. $595
841694  Above System with Assembled Robot Arm ........................................... $795

**KELVIN® RoboTech™ Computer Control**

This robotic interface/software takes the place of manual hand control switches. The RoboTech™ Software can be to enter a sequence of robot commands that can be stored and executed or used for real-time robot control of 4 axes.

Program the fourth axis for a motor, pump or electromagnet. Commands include moving each axis forward or back, turning an electromagnet gripper on/off and looping instructions. A 'home' command will move the robot to a reference position. The interface can monitor and respond to 2 limit switches per axis for a total of 8 switches.


841331  .......................................................... $495

**KELVIN® RoboTech™ Electronic Control System & Computer Control Complete Package**


841641  RoboTech™ Control Complete Package ........................................... $1,995
Combine the KELVIN® Kel-Botics™ Robotic Arm, Conveyor Belt and Turntable to Create Your Own Robotic Manufacturing

**BEST VALUE!**
**KELVIN® Kel-Botics™ Deluxe Package**
This package includes:
- Computer with Screen
- Pre-Loaded Software
- Fully Assembled Robotic Arm
- Fully Assembled Interface.
IBM Windows XP-7, USB, Grades 6 & Up
841957 ........................................... $1,495

**KELVIN® Robotic Control System**
Now you can program the robotic arm for PAUSE, REPEAT and GO TO. KELVIN® Robotic Control System has superior hardware and software for better robotic arm response.
The System includes: Fully Assembled Interface, Software, Robotic Arm (Fully Assembled or Unassembled Robotic Arm Kit), Wall Adapter. The Unassembled Robotic Arm Kit requires that students assemble the robotic arm with assistance from the teacher. The robotic arm requires four ‘D’ batteries (#220014) or the Battery Eliminator (listed below). KELVIN® has worked hard to make the Kel-Botics™ Robotic Arm easy to operate, easy to control; easy to program for all ages (best for grades 2 and up). Windows XP-7, USB.
841046 ASSEMBLED Robotic Arm with Manual Controller, Gr. 2+ .................................................. $139.95
841916 ASSEMBLED Robotic Arm & Interface plus Software, WIN XP-7, USB ........................................ $275
841915 UNASSEMBLED Robotic Arm Kit, ASSEMBLED Interface & Software ........................................... $225
220119 BATTERY ELIMINATOR Replaces [4] ‘D’ Cells ........................................................................ $29.95
841098 KELVIN® Kel-Botics™ 5-10 Module .................................................................................................. $39.95

**KELVIN® Conveyor Belt**
Ideal for Robotics units. The DC motor operates from 6-12V DC and runs with KELVIN® Variable Speed Power Supply (listed below). Comes with two stands for holders. Choose your own height (low to high) or remove. Add your sensors to count, sort, read IDs, time, etc. Dimensions: 3 ft. L x 4 in. W with adjustable height. Comes assembled. Robotic Arm not included (see above).
841893 Assembled Conveyor Belt ........................................................................................................... $695
841051 Kel-K.P.S.™ #100 Variable Power Supply ..................................................................................... $145

**KELVIN® Turntable**
This rotating, 13 in. diameter turntable can be used along with KELVIN® Conveyor belt to illustrate the manufacturing process. Requires variable power supply (listed below). Robotic Arm not included (see above).
841972 Turntable with DC Motor ............................................................................................................... $395
841973 Turntable w/ Stepper Motor, Controller, Interface, Software ......................................................... $495
841051 Kel-K.P.S.™ #100 Variable Power Supply ..................................................................................... $145

Combine the KELVIN® Kel-Botics™ Robotic Arm, Conveyor Belt and Turntable to Create Your Own Robotic Manufacturing
KELVIN®

PneumaBasics™ Trainer

Use problem-solving learning to teach students about pneumatics. The workbook contains a series of hands-on activities based in situations occurring in every day life. The assembled, industrial-grade trainer also comes with quick-disconnect tubes, fittings, student workbook and teacher guide. Requires access to an air source. Ideal for Grades 9 and higher.

840629  Assembled Trainer .................. $1,495
840733  Pneumatic Parts Only ............... $895

Portable Air Compressor
with Built-In Air Tank
500027 ........................................... $195

Portable Air Tank
with 5-Gallon Volume
500026 ........................................ $79.95

KELVIN®

HydraBasics™ Trainer

Hydraulic products like automobile lifts, elevators, and robots are often operated using oil as the working “fluid.” KELVIN® HydraBasics™ Trainer uses distilled water instead of oil which, can be messy when used in a classroom lab.

The workbook contains a series of problems that investigate the control of cylinders and the integration of hydraulics with mechanical and electrical systems. The assembled, compact trainer includes industrial-grade components, student workbook and teacher guide. Recommended for Grades 9 and up.

840723  Assembled Trainer .................. $1,695
840735  Hydraulic Parts Only ............... $945

Experimenting with Syringes


842420 ........ $15.95 or $14.95 ea./3+

Find Syringes on pg. 81
Find Syringe Mounts on pg. 113

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ☢️ Find California Prop 65 Warning on pg. 180
Tamiya Universal Gearbox & Motor
Power a shaft in a horizontal or vertical position relative to the motor. Various arrangements of gears produces ratios of 101:1, 269:1, 719:1.
281651 [A] Kit .......................................................... $18.95 or $17.95 ea./3+
Tamiya High Efficiency Worm Gearbox & Motor
Produces extremely low speeds of rotation and is used for gear reduction. Two gear ratios include 216.1:1 & 336.1:1. Includes motor operates on 3-4.5 volts.
281649 [A] Kit .......................................................... $21.95 or $19.95 ea./3+
Tamiya Twin Motor Gearbox
This ready to assemble gearbox uses two electric motors to independently control each of the output shafts. Two gear ratios, 207:1 or 58:1 can be selected. Used for SUMO Car™ and other robotics projects.
281650 [A] Kit .......................................................... $26.95 or $24.95 ea./3+

Tamiya High Power Gearbox & Motor
Designed for high torque output rather than speed with 2 gear ratios (41.7:1 and 64.8:1). Suitable for constructing models such as tanks, buggies and tracked vehicles. Included motor operates on 3-4.5 volts.
281660 [A] Kit .......................................................... $19.95 or $18.95 ea./3+
Tamiya High Speed Gearbox & Motor
Allows 2 gear ratios, 11.6:1 and 18:1 to be selected. Accepts both 140 or 260 type motors. Included motor operates on 3-4.5 volts.
281661 [A] Kit .......................................................... $31.95 or $29.95 ea./3+
Tamiya 4-Speed Crank Axle Gearbox & Motor
Alter the gear combinations for four different gear ratios (126:1, 441:1, 1543:1, 5402:1). Higher speed setting is suitable for car model; lower speed setting is suitable for tracked vehicle model and more.
281652 [A] Kit .......................................................... $25.95 or $24.95 ea./3+

Tamiya Planetary Gearbox
A highly versatile system for reduction of high RPM electric motors to high-torque low RPM applications. Combine gearboxes in various ways for 8 different gear ratios (4:1, 5:1, 16:1, 20:1, 25:1, 80:1, 100:1, 400:1).
281665 [A] Kit .......................................................... $29.95 or $28.95 ea./3+

Find More Gearboxes on pg. 114

Tamiya Robotic Chassis Kits

Tamiya Tracked Vehicle Chassis
Ideal for robotics projects, adding control to a vehicle, or crane design. Comes with tractor base and necessary parts.
281654 Kit ...... $29.95 or $27.95 ea./3+

Tamiya Buggy Car Chassis
Kit comes with an assembled transmission, gear shift lever, pneumatics tires, Ackerman steering system, chassis, roll bar, springs, battery holder, battery switch, and wooden chassis.
281668 Kit ...... $39.95 or $36.95 ea./3+

Tamiya Amphibious Vehicle Chassis
An amphibious vehicle, designed for travel on land or shallow water. Kit includes a chassis, submarine motor, floats, worm gear, propeller and rudder.
281656 ...... $39.95 or $34.95 ea./3+

Tamiya 4-Wheel Drive Chassis
Two gearboxes (for front/rear), motor, battery holder, wooden chassis, roll bar, pneumatic tires, battery holder, drive shaft and a switch kit.
281667 Kit ...... $39.95 or $36.95 ea./3+

Tamiya Rowboat
Sturdy white plastic hull holds all interior engine parts with no cover. Includes a crank arm, gear box, switch lever, AA battery, link rod and a square foam float.
281658 Kit ...... $27.95 or $26.95 ea./3+

Tamiya Remote Control Bulldozer
Pre-wired 2-channel remote system to enable forward/reverse and left/right movement. Powered by two FA-130 motors.
282390 Kit ...... $49.95 or $44.95 ea./3+

Tamiya Remote Control Forklift
Simulate the movements of a full sized forklift. Forward and reverse movement, steering and lift operation can be controlled with a 3-channel remote control box.
281659 ...... $59.95 or $56.95 ea./3+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ✓ Find California Prop 65 Warning on pg. 180
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TechCard Build-It Kit
Explores simple structures and mechanisms such as wheels axles, hinges, cranks, cams and linkages. Includes TechCard and mechanical components to construct 10 models (two each). Also comes with worksheets, teacher’s notes.
283263 Kit ........................................................................................................... $69.95

TechCard Motors Resource Pack
Includes: economy motors, sticky fixers, battery holders, battery snaps and notes.
283516 Pack for 10 ...................................................................................................... $24.95 or $22.95 ea./3+

TechCard Resource Pack
Pre-cut, pre-punched, pre-scored strips, girders, beams, bases, and project bases.
283512 Pack for 30 ................................................................................................... $39.95 or $37.95 ea./3+

TechCard Power-It Kit
Explore gears, pulleys, pneumatics and electric motors. Includes worksheets and enough parts to construct 10 different types of models (two each).
283265 Kit ........................................................................................................... $119.95

TechCard Wheels & Axles Resource Pack
Includes:
- 300mm Axles
- 30mm Card Wheels
- 50mm Card Wheels
Pack for 20
283513 ..........$45.95 or $42.95 ea./3+

TechCard Pneumatics Resource Pack
Includes:
- 5ml Syringes
- [20] 20ml Syringes
- 10m of Plastic Tubing
Pack for 20
283517 ..........$26.95 or $22.95 ea./3+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
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PAINT PROJECT MATERIALS

Tempera Paint
Brilliant colors, velvet smooth and non cracking. Non-toxic paint for posters, cardboard, wood and crafts.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>SIZE oz.</th>
<th>COLOR</th>
<th>$ 1-5</th>
<th>$ 6+</th>
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Washable Gothic Paint
These colors have been made to meet the need for inexpensive quality washable paint with bright colors for pre-school and the young budding artist.

<table>
<thead>
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<td>Yellow</td>
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</table>

Acid-Free Construction Paper
420540 12 x 18 Assorted, 50 Sheets ................$5.95  
650368 9 x 12 Assorted, 200 Sheets ..................$7.95

Posterboard
Use for displays, signs and posters. Measures 22 x 28 in. with a 4-ply thickness.  
420306 White, 100pkg. ………$69.95 or $64.95 ea./2+

Washable Acrylic Paint
Ideal for classrooms! These washable paints provide both good coverage and a permanent finish. Non-toxic.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>SIZE oz.</th>
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<th>$ 1-5</th>
<th>$ 6+</th>
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Felt Sheets
9 x 12 in. Felt Sheets in Assorted Colors.  
420550 1 lb....................$15.95 or $14.95 ea./3+

Pipe Cleaners
For twisting and shaping into figures, bridges, etc. Measures 12 in. long. Assorted colors.  
420511 100pkg. ..........................$2.95

Economy Brush Set
White bristle brushes with color-coded handles.  
420481 Set of 10 Brushes ..................$16.95

Quality Brush Set
Set of four 7 in. long handle brushes: 1/4 in., 1/2 in., 3/4 in. and 1 in. W. Natural wood handles.  
420482 ..........................$5.95

Brushes
Ideal for the artist in you. 11 in. long handle.  
420453 1/4 in. Wide, 6/pkg. ..................$4.95

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Steel Balls
870048  [A] 3 mm, 100/pkg. .................................................. $14.95
870049  6 mm, 50/pkg.......................................................$12.95
870050  11 mm, 10/pkg.................................................... $3.35

Acrylic Balls
870045  [B] 5/8 in., 15/pkg. .................................................... $19.95
870047  1 in., 5/pkg..........................................................$15.95

Wood Balls
870041  [C] 19 mm, 10/pkg. .................................................. $2.95

Glass Marbles
Six solid colors (2 each), 14.2 mm in dia.
870037  [D] 12/pkg........................................................... $1.45 or $1.25 ea./10+

Practice Golf Balls
Light and hollow with dimpled surface. 43 mm dia.
870039  [E] 12/pkg. ........................................................... $7.95

Balloon Pump
870013  [A] 9 in. dia. ...........................................................$13.95 or $12.59 ea./3+
870014  [B] 11 in. dia..........................................................$16.95 or $15.25 ea./3+

Velcro Tape
Use these self-adhesive strips for a variety of projects, such as: elbow protectors, disk holders, hanging pictures. Includes hook and loop sides.
340133  3/4 in. W x 3 ft. L ...................................................$5.95
340154  3/4 in. W x 24 ft. L ............................................... $28.95

Modeling Clay
Used for creating model prototypes and other student projects. A basic studio clay set is also offered for working the clay.
282009  [A] ................................................................. $7.95

Craft Sticks
390372  [B] 3/8 x 4-1/2 in., 1,000/pkg......................... $10.95
390373  [C] 3/4 x 6 in., 500/pkg...................................$13.95

Maglev Magnets Bulk Pack
Ideal for maglev vehicles, tracks and other projects. Magnets measure 1 x 3/4 x 3/16 in. 250/pkg.
640090  ........................................................ $36.95 or $32.50 ea./3+

Neodymium Magnets
Disc-Type
640131  1/4 x 1/4 in., 2/pkg. ..............................................$1.25
640127  3/8 x 1/8 in., 4/pkg. ........................................... $3.25
640128  1/2 x 1/8 in., 2/pkg. ...........................................$1.95
640129  1-1/2 x 1/2 x 1/8 in. ............................................$2.95

Ring-Type
640130  3/4 o.d. x 1/4 i.d. x 1/4 in.................................$4.95

Rare Earth Magnets
640120  1/4 x 1/4 in. .......................................................$59¢
640121  1/2 x 1/4 in. .....................................................$1.59
640122  3/4 x 1/8 in. .................................................... $2.25
640123  1 x 3/8 in. ........................................................ $6.39

KELVIN® Magnets Pack
841584  ........................................................ $12.95 or $11.95 ea./6+

KELVIN® Magnets Pack
841584  ........................................................ $12.95 or $11.95 ea./6+

Bar Magnet
For projects and experiments. Red ceramic. 1.13 x 0.25 x 0.25 in.
640109 .45¢ or .43¢ ea./3+ or $39¢ ea./6+ (d)
**ADHESIVES & METAL PROJECT MATERIALS**

**All-Purpose Glue Stick**
Use to glue photos, paper and fabrics.
930011  [A] 0.22 oz. .................. $0.99 or $0.89 ea./6+

**School Glue**
Works on a variety of materials. Non-toxic, white glue dries clear.
930007  [B] 4 oz. .................. $2.45 or $1.95 ea./6+

**Tacky Formula Modeling Glue**
For wood. 
930046  [C] 1 oz. .................. $1.25 or $1.05 ea./6+

**Tacky Glue**
For paper, wood and crafts.
930049  [D] 4 oz. .................. $4.45 or $3.95 ea./6+

**Carpenter’s Interior Wood Glue**
For furniture repair and general projects.
930014  [E] 4 fl oz. .................. $2.95

**Cool Melt Mini Glue Gun**
With trigger feed. Uses 5/16 in. dia. multi-temp glue slugs.
920041  [A] .................. $4.95 or $4.45 ea./6+

**Hot/Cool Melt Glue Gun**
With 2-temperature switch & trigger feed. Uses 1/2 in. dia. multi-temp or hot melt glue slugs.
920021  [B] .................. $13.95 or $12.95 ea./6+

**Glue Gun Sticks**
5/16 in. dia.
990157  Multi-Temp, 4 in. L, 6/pkg. ...... $0.99 or $0.85 ea./10+
930052  Multi-Temp, 4 in. L, 100/pkg. ...... $9.95
1/2 in. dia.
930002  Hot Melt, 4 in. L, Clear, 30/pkg. ...... $9.95
930032  Hot Melt, 4 in. L, Clear, 100/pkg. ...... $24.95
920033  Multi-Temp, 10 in. L, Clear, 20/pkg. ...... $14.95

**Krazy Glue**
Bonds instantly. Ideal for most surfaces including wood, plastic, metal, rubber, glass, and ceramic.
510005 .................. $2.95 or $2.65 ea./6+

**Super Glue**
Bonds in seconds. Clog resistant tip. One drop application. Works on plastics, porcelain or leather.
930019  [F] 2 grams .................. $2.45 or $1.95 ea./6+

**Super Fast Epoxy Cement**
Two Parts
Sets in 5 minutes! Bonds wood, metal, most hard plastics, glass, marble, concrete, tile and brick.
930012  [G] 0.5 oz. .................. $6.95 or $6.55 ea./6+

**Epoxy Adhesive**
Industrial strength
Binds in 4-6 minutes. Use with ceramic, glass, wood, leather, fiberglass, metals, most plastics, and more.
930058  [H] .................. $6.95 or $6.45 ea./6+

**Electrical Tape**
3/4 in. W x 60 Ft. Long
340005  [A] Black .............. $1.95 or $1.75 ea./10+
340006  Red .............. $1.95 or $1.75 ea./10+
340139  4 Color Set .............. $7.45 or $6.95 ea./5+

**Masking Tape**
60 yds.
340066  [A] 1/2 in. W .............. $0.95 or $0.85 ea./5+
340070  3/4 in. W .............. $1.45 or $1.25 ea./5+
340067  1 in. W .............. $2.75 or $2.50 ea./5+

**Duct Tape**
2 in. W x 60 yds.
340152  [A] Gray .............. $5.95 or $5.45 ea./5+

**Twine**
Plied cotton twine for a variety of uses. 300 ft.
330400 .................. $7.95

**Copper Wire**
18AWG bare wire. Solid, 50 ft. L.
330343 .................. $14.95 or $13.95 ea./3+

**Nichrome Wire**
Ideal for various uses or as replacement cutter for StyroDesigner. 10 ft. L.
330338  [B] 24 ga. .............. $9.95
330340  [B] 18 ga. .............. $19.95

**Steel Wire**
Galvanized steel wire. 100 ft. L.
330342  [C] .................. $4.95 or $4.65 ea./10+

**Steel Rods**

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**Aluminum Rectangle Tubes**

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**Find Wire on pg. 166**

**Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.**

[Find California Prop 65 Warning on pg. 180](http://www.kelvin.com) • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
**KELVIN® EDUCATIONAL**

**PROJECT MATERIALS VACUUM FORMING**

**Mold Vehicle Bodies then Design and Build the Frame and Power Train**

**KELVIN® Molded Polymer Clay**

Design your own mold and build your own design. Requires vacuum former.

841894 110 V (requires shop vacuum) ................................................................. $1,395
841903 110 V with Power Suction ....................................................................... $1,495

**Polystyrene Sheets**

For use with vacuum former, 0.12 to 0.20 in. thick.

750225 Asstd. Colors, 12 x 18 in., 25 Sheets ....................................................... $29.95
750226 Clear, 14 in. x 20 in., 10 Sheets ............................................................... $38.95
570228 Asstd. Colors, 14 x 20 in., 10 sheets ...................................................... $125

**KELVIN® Resin Molds**

Form a vehicle body with one of these resin molds and then decorate it. Requires vacuum former.

570124 Vehicle Model Mold .................................................................................. $75
570125 Racer Mold ............................................................................................... $75
570126 Pick-up Truck Model Mold ....................................................................... $75

**KELVIN® Vehicle Parts Bulk Pack**

Build a vehicle and design your own power train using the KELVIN® pulley or gear pack. Kit includes a wood base, wheels, axles, plus motor, switches, battery holder, pulley pack, gear pack, and assorted colors of plastic sheets.

842015 Bulk Pack of 20 ........................................................................................ $145

**KELVIN® Molding & Casting with Urethane Resins**

Expand your plastics and manufacturing program with the introduction of urethane mold making and resin casting. This lab pack provides materials and detailed instructions that challenge your students to design and create a model, make a urethane elastomer mold of that model and cast the mold using urethane resin. Sample designs can include monograms, plaques, jewelry and sculpture.

**Materials included:** 2 Polyurethane Foam Boards (1 x 24 x 24 in.), Half-Gallon Quick Cast Resin, 2 Quarts Urethane RTV Resin, 5 Molding Waxed Containers, 1 Can Mold Release Parting Compound, 2 Measuring Containers 250 ml, and Instructions.

570133 Lab ............................................................................................................... $295

**Teacher Demo Kit**

Demo kit includes: Quick Cast Resin (1 qt.), Urethane RTV Resin (1 qt.), 5 Molding Waxed Containers, a can of Mold Release Parting Compound, 2 Measuring Containers (250 ml) and Instructions.

570137 ................................................................................................................... $125

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ▶️ Find California Prop 65 Warning on pg. 180

www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
New! Kelvin® Jumbo Foam Cutter
Extra large foam cutter with a cutting area that measures 12 x 18 in. Features guide for straight cutting. Arm can be easily tilted for cutting angles. Comes with on/off switch, plug and DC power supply.
8425456 Assembled $135

Kelvin® Economy Foam Cutter
Ready to operate and now comes with starter set of 5 assorted foam blocks. A perfect machine for modeling design ideas and hobbyists at an affordable price! Features one level of heat and an acrylic table with an adjustable wire cutting angle. Includes wall adapter.
841982 Assembled w/ Foam Blocks $69.95

Kelvin® Economy Foam Cutter Kit
Students and teacher assemble this affordable foam cutter. Features acrylic table with an adjustable wire cutting angle that's simple and quick to set! Comes with wall adapter. Kit requires assembly.
842428 Kit $59.95

Kelvin® Foam Cutter with Built-In Plug
Assembled with built-in plug for easy on/off.
842460 $79.95

Nichrome Wire
Ideal for various uses or as replacement cutter for foam cutters. 10 ft. L.
330338 24 ga. $9.95
330340 18 ga. $19.95

Jumbo Foam Trays
12 x 16 x 5/8 in.
750053 50/pkg. $39.95

Rectangle Stryrofoam
3 x 3 x 10 in.
850943 10/pkg. $9.95

Abrasive Shaping Pads
851197 100/pkg. $69

Kelvin® Hand Held Foam Cutter
An easy and portable way to cut foam. Foam cutter includes power supply.
842117 $79.95 or $76.95 ea./3+ or $74.95 ea./10+

Hot Wire Foam Cutter
Hand-held cutter is ideal for sculpting. Cutter w/ Transformer
740116 $39.95
Replacement Wire
330403 4 ft. $3.00

CAUTION: Hot Wire! Adult Supervision Required.

Kelvin® Jumbo Foam Trays
12 x 16 x 5/8 in.
750053 50/pkg. $39.95

Kelvin® Rectangle Stryrofoam
3 x 3 x 10 in.
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Hot Wire Foam Cutter
Hand-held cutter is ideal for sculpting. Cutter w/ Transformer
740116 $39.95
Replacement Wire
330403 4 ft. $3.00

CAUTION: Hot Wire! Adult Supervision Required.
**Corrugated Plastic Boards**
Build a basic structure with a craft knife, ruler, pencil, felt tip pen, hot glue gun, and rubber bands for holding things together as the glue sets. Quickly create 3D structures, model houses, model bridges, package designs, display pedestals, prototypes, model vehicles and more. 3/8 x 24 x 48 in., Assorted Colors. Please Note, Oversized Shipping Charges Apply.
750100 8 Sheets .................................................................$39.95

**Architectural Foam Board**
Rigid foam board can be used for creating architectural models, boxes, prototypes and much more! Sheets measure 1/4 x 4 x 24 in. Please Note, Oversized Shipping Charges Apply.
281605 25 Sheets, Assorted colors...........$19.95

**Nylon Hinges**
Hinge pin locked in place. 7/16 x 1-1/16 in.
283102 6/pkg. ..............$2.45 or $2.25 ea./3+

**Acrylic Sheets**
Sheets measure 12 x 24 x 1/8 in.

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**Plastic Cutter**
Cuts plastic up to 1/4 in. thick and easily creates beveled edges.
390430 ..........................$5.95

**Polystyrene Foam Blanks** Blue

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**Polystyrene Foam Sheets**

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**Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Please Note, Oversized Shipping Charges Apply.**
### Wood Project Materials

#### Kelvin® Educational

**Bridge Dowel Kits**

Each kit includes enough beams, glue and DesignGrid™ paper for one student. 

- 1/16 x 1/8 x 13 in. & 1/8 x 1/8 x 13 in. Basswood & Grid Paper Kit ........................................... **$6.95 or $5.95 ea./10+**
- 3/32 x 3 x 1/8 x 13 in. Basswood & Grid Paper Kit ........................................... **$7.95 or $6.95 ea./10+**
- 3/32 x 3 x 3/4 x 24 in. Basswood Class Pack ........................................... **$99.95**
- Variety of Basswood SIZES Class Pack ........................................... **$99**

**Wood Sticks Bulk Pack**

3/16 x 1/16 x 5-1/2 in. 1,000 sticks per pack. 

390050 ........................................... **$5.95 or $4.95 ea./5+**

**Kelvin® Pre-Printed Grid Paper**

Ideal for bridges; there is space to list bridge specs, 3 drawings viewing and student information. 

420586 17 x 22 in., 100 sheets ........................................... **$29.95**

---

#### Kelvin® Basswood

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#### Paper-Backed Foam

- **Draw bridge design on paper and attach it to foam with pins.**
- **Pin the balsa on top of the pattern and glue together.**
- **Sheets are 3/16 in. thick.**

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<th>Qty.</th>
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#### Pins

- **[A] Rnd. Head, 1-1/4 in. L, 500/pkg.**
- **[B] Flat Head, 1000/pkg.**
- **[C] T-Head, 1 in. L, 4 oz. Box.**

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#### Grid Paper

- **[A] 17 x 22 in., 100 sheets**
- **[B] 11 x 17 in., 50 pkg.**

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### Balsa Bridge & Tower Kits with StiKutter™
Each kit includes StiKutter™, balsa, glue, DesignGrid™ paper and instructions.

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**KELVIN® Balsa StiKutter™**
Affordable enough for every student to own! Easy to use with a long handle and compact size; 4-1/2 x 4-1/2 in. The clear plastic shield acts as a finger protector.
Cut angles easily in one step with a built-in protractor and moveable guide. Cuts up to 3/16 in. thick with a replaceable blade (by teacher). Base has four corner holes for mounting and no stop on the right side.

990198 StiKutter™ $9.95 or $8.95 ea./10+ 841430 Add StiKutter™ Blades, 10/pkg. $2.95

**Bridge & Tower Balsa Kits with StiKutter™**
Each kit includes StiKutter™, balsa, glue, DesignGrid™ paper and instructions.

841667 Basic $15.95 or $14.95 ea./10+ 841668 Advanced $16.95 or $15.95 ea./10+

**Balsa Bridge & Tower Kits**
Design and build a bridge or tower your way with the provided balsa.
1/16 x 1/8 x 13 in. & 1/8 x 1/8 x 13 in. Balsa
841348 Kit $6.95 or $5.95 ea./10+ 3/32 x 3/32 x 18 in. Balsa
841350 Kit $7.95 or $6.95 ea./10+ 1/8 x 1/8 x 24 in. Balsa Class Pack
280363 Pack of 24 Kits $8.95 Per Kit $215
1/16 x 1/8 x 36 in. Balsa Class Pack
280028 Pack of 24 Kits $5.20 Per Kit $125

**Find Wood Dowels on pg. 20.**

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180 www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
Make What You Want! The most versatile construction system using just a few parts. Designed for education, ideal for making models, prototyping and inventing. Use on its own or in combination with other kits! Parts can be cut, bent, drilled or used with other materials. Works with the Kre8® Cutter or Utility Snips on pg. XX.

**Tubes**
Cut with scissors or Kre8® Cutter.
0.20 in. dia., 7.87 in. L, Blue
391373 20 Tubes .................................. $6.95
391358 100 Tubes .................................. $29.95
0.16 in. dia., 7.87 in. L, Gray
391365 20 Tubes .................................. $4.95
391376 100 Tubes .................................. $19.95

**Snap-Off Rods**
Snap to length. For most construction work. Rigid.
0.20 in. dia., 6.29 in. L, Blue
391355 20 Rods .................................. $4.95
391351 100 Rods .................................. $19.95
0.20 in. dia., 6.29 in. L, Gray
391360 20 Rods .................................. $4.95
391378 100 Rods .................................. $19.95

**Bendy Tubes**
Flexible. Tight fits onto a 2mm dia. motor shaft.
0.20 in. dia., 2.36 in. L, Orange
391384 20 pkg. ...................................... $6.95
391331 100 pkg. .................................... $29.95

**Connectors**
Features integral hinge. Four per block; separate as needed. Blue.
391372 20 Blocks .................................. $6.95
391321 100 Blocks .................................. $29.95

**Multi-Blocks**
Features an integral hinge. Four per block; separate as needed. Green.
391374 20 Blocks .................................. $6.95
391322 100 Blocks .................................. $29.95

**Cap Ends**
Makes tighter Joints. Push into the end of rods for a finished look. Separate as needed. Sold as each, not per strip.
391354 Blue, 100 pkg. ............................. $7.95
391356 Gray, 100 pkg. ............................. $7.95

**Collars**
Slide and fix into position. Separate as needed. Sold as each, not per strip. 100 pkg.
391325 Fits 0.20 in. dia., Blue .................. $7.95
391326 Fits 0.16 in. dia., Gray ................. $7.95

**Safety Propeller**
Dual purpose, push-fit. Use as a free flier or a normal propeller. 2.95 in. dia.
391369 10 pkg. ..................................... $14.95
391384 20 pkg. ...................................... $24.95

**Rubber Bands**
Durable and will stretch longer.
391358 1.77 in. L, 100 pkg. ................. $8.95
391359 2.36 in. L, 100 pkg. ................. $8.95

**Bevel Gears**
20-Teeth. Measures 0.79 in. dia. with 0.16 in. dia. holes.
391361 20 pkg. ..................................... $4.95
391383 100 pkg. .................................... $19.95

**KELVIN® Kre8® Mechanical Parts**
283665 ........................................................................ $125

**KELVIN® Kre8® Electronics Parts**
283656 ........................................................................ $99
KELVIN® Educational

**KELVIN® Worm Gear**
Versatile worm gear features two hole sizes. One side fits a 2mm motor shaft. The other side fits a 1/8 in. axle. Black.

990377 10/pkg. ................................. $9.95

**Gear Rack**
50mm (2 in.) long with 1/16 in. mounting holes.
390626 10/pkg. ...................... $8.25 or $7.75 ea./3+

**Bevel Gears**
20mm diameter gears with beveled edges. Fits a 1/8 in. or 3mm diameter shaft.

390622 [A] 10/pkg. ...................... $6.95 or $6.45 ea./3+

**Motor Pinion Gears**
10-Tooth Gear
390623 [B] Fits 2 mm Shaft, 10/pkg. ................. $1.95

**Motor Pinion Gear Reducers**
10/pkg.

390632 [C] 1/8 in. (3mm) to 2 mm .............. $2.45
390629 3/16 in. (4mm) to 2 mm .................. $2.45
391294 [D] 4 mm to 3 mm ....... $4.95 or $4.45 ea./3+

**Gear/Pulley Combo Unit**
Fits 2mm (project motor) shaft. Gear/Pulley only - project motor not included. 20/pkg.
390585 ........ was $2.95 or $2.45 ea. Now $1.95

**KELVIN® Advanced Gear Set**
Evenly spaced holes near the edge can be used to attach the gear to a wheel, pulley or other objects. Use with a slotted optocoupler (270115) to measure velocity, acceleration or distance.

Gears measure 9/16 in. dia. with 13 teeth, 3/4 in. dia. with 18 teeth, 1-9/16 in. dia. with 38 teeth and 2-11/32 in. dia. with 58 teeth. Set includes four center hole inserts to 1/8 in. and one insert to 2mm. Gears are 1/4 in. thick.

391128 [A] ...................... $2.45 or $1.95 ea./10+

**Slotted Optocoupler for Advanced Gear Set**
Use to measure gear rotation speed. 5V DC.
270115 [B] ............................. $3.95

**KELVIN® Super Economy Gear Sets**
Set of [4] different-sized gears with holes to attach to each other with screws. Large gear measures 1-5/8 in. in diameter. The small gear fits 2mm toy motor shafts. Other gears push-fit 3mm (or 1/8 in. dia.) shaft/axle. 1/4 in. thick durable plastic.

990179 Black ....... $9.50 or 85¢ ea./10+ or 80¢ ea./50+
990174 Green ................ $1.45 or $1.25 ea./10+

**KELVIN® Gear & Motor Mounting Bracket**
Specially designed to be used with the KELVIN® Super Economy Gear Set (990179 or 990174). Works with KELVIN® gears and motors.
390204 5/pkg. .................. $12.95 or $10.95 ea./10+ or $9.95 ea./25+

**Small Gear Angled Mounting Plate**
390627 2/pkg. ................ $4.95 or $4.45 ea./3+

**KELVIN® Deluxe Gear Set**
750112 Set .................. $36.95 or $34.95 ea./3+

**Build Your Own® Gear Combinations!**

**KELVIN® Inertia Welder**
Make your own gear combinations. Includes a special KELVIN® jig, class pack of gears to start welding and PowerPoint presentation. Requires drill stand or drill press and teacher supervision.
841310 .................................. $145

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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**WHEELS**  PROJECT PARTS

**KELVIN® Dragster Wheels**

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**KELVIN® Racing Style Dragster Wheels** Center hole fits 1/8 in. axle.

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**Hi-Traction Rubber Wheels**

Black rim with black tire.

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<td>3/16</td>
<td>10</td>
<td>13.95</td>
<td>12.95</td>
</tr>
</tbody>
</table>

**Rubber Wheels**

White rim with black tire.

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Dia. in.</th>
<th>T in.</th>
<th>Axle dia. in.</th>
<th>Qty.</th>
<th>$ ea.</th>
<th>$ ea. per 5+</th>
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<tbody>
<tr>
<td>390612</td>
<td>1-5/8</td>
<td>3/4</td>
<td>3/16</td>
<td>10</td>
<td>14.95</td>
<td>13.95</td>
</tr>
</tbody>
</table>

**Hub Wheel**

Polythene hub wheel in assorted colors. 39 mm dia. fits 3 mm shaft.

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Dia. in.</th>
<th>Qty.</th>
<th>$ ea.</th>
</tr>
</thead>
<tbody>
<tr>
<td>391144</td>
<td>[A]</td>
<td>75¢</td>
<td></td>
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</table>

**Plastic Wheels**

Assorted Colors. 1-1/2 in. dia. fits 3mm shaft.

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Qty.</th>
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</tr>
</thead>
<tbody>
<tr>
<td>390424</td>
<td>60pkg.</td>
<td>$21.95 or $20.95</td>
</tr>
</tbody>
</table>

**Track Wheel**

391143  [C] 75 mm dia., Fits 3mm Shaft, .....99¢

**Caterpillar Track**

Soft durable track with a transverse tread. Can be used with #391144 or #391143. Measures 30 x 180 mm long.

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Qty.</th>
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</thead>
<tbody>
<tr>
<td>391140</td>
<td>.....</td>
<td>$2.95 or $2.75</td>
</tr>
</tbody>
</table>

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180. www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
6-Spoke Polythene Wheels
Use where weight reduction is important. 0.21 in. thick. Center hole to push-fit onto a 3mm shaft. Can be drilled out to accommodate other diameters.
990339 2.95 in. dia., 2/pkg. $4.95

KELVIN® Big Wheels
Turn big 3 in. dia. wheels into gear wheels using the center holes to mount gears (below) with screws and nuts. Push fits 1/8 in. axle. Pack of 4 wheels.
990176  Blue & Yellow $4.95 or $3.95 ea./10+

KELVIN® Big Project Rear Wheels
Ideal wheel for your mousetrap dragster or other projects. This wheel measures 4-3/4 in. dia. (same size as a CD) fits 1/4 in. dia. axle. Includes our 1/8 in. insert.
990181 10/pkg. $6.95 or $5.95 ea./10+

KELVIN® Project Wheels
990199 Kit $3.45 or $3.25 ea./10+ or $2.95 ea./50+
390983 O-Ring Tires, (optional - not required) 4/pkg. $2.50

KELVIN® CD to Wheel Adapter
Cleverly convert CDs into a project wheel. Adapter fits a wheel or CD with a 5/8 in. hole with a 1/4 in. diameter axle. Use with the adapter below to fit a 1/8 in. diameter axle.
990182  [A] 20/pkg. $2.95 or $2.75 ea./10+

Wheel to 1/8 in. Axle Adapter
Fit a wheel with a 1/4 in. hole onto a 1/8 in. dia. axle. Can be used with adapter above.
990317  [B] 10/pkg. $2.45 or $1.95 ea./10+

Plastic Wheels w/Holes
Make 3-wheeled vehicles! Use a wheel by itself in front and pushing the axle through. 1-9/16 in. dia. x 5/8 in. T Wheel. Fits 1/8 in. axle. Black.
840910 100/pkg. $14.95

KELVIN® Super Lightweight Wheels Set
Ideal where reduced weight and friction are important, these wheels weigh 2.9 grams without adapters. Fits 3mm axle or use adapters to fit 2mm or 1/8 in. axle. Includes [2] 2-1/2 in. dia. wheels, [2] 2mm adapters and [2] 1/8 in. adapters.
990323 ................ $2.95 or $2.45 ea./10+

KELVIN® High Speed Wheels Set
990211 ...$1.45 or $1.35 ea./10+ or $1.25 ea./50+

High Speed Axles ONLY
Zinc-coated steel, precision machined. 0.0870 in. dia., 0.02 in. dia. head, 1 in. L.
391087 100/pkg. $19.95 or $16.95 ea./3+

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Find California Prop 65 Warning on pg. 180

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WHEELS PROJECT PARTS

Find Cardboard Wheels & Dowels on pg. 20

Wood Wheels
1-1/2 in. thick, 11/64 in. dia. hole
282347 [A] 2-3/4 in. dia. ..........$1.95 or $1.75 ea./10+ or $1.55 ea. 100+
283020 [A] 3-3/4 in. dia. ..........$2.45 or $2.25 ea./10+ or $1.95 ea. 100+

Traction Material
Cut to Fit
851308 [B] 12 in. W x 4 ft. L .......$7.95

Axe Pack
Includes 1-12” 8:32 threaded rod, 4-10 flat washers, and 4- 8:32 nylon lock nuts.
842535 ........$4.95 or $4.45 ea./10-

Traption Bands
Ideal for basic back wheels of dragstes. Type #82.
1/2 x 2-1/2 in.
841441 100/pkg....................$7.95

Waxing Rods

Wide Tread Wood Wheels

Axle Materials

Delrin Rod
Lightweight, self-lubricating rod. Easily cuts to size. 1/8 in. dia. x 24 in. long.
750162 [A].........................$2.95 or $2.45 ea./4+

Steel Rods
1/8 in. dia. x 2-1/2 in. long.
390361 [B] 100/pkg. ..............$5.95 or $5.45 ea./10+

Welding Rod
1/8 in. dia. x 36 in. long.
391136 [C] 80/pkg. .............$69.95 or $64.95 ea./4+

Bushing/Friction Reducer Materials

White Plastic Milk Straw
Use as bushing for 1/8 in. dia. axles. Approximately 9/64 in. dia. x 5 in. long.
330358 [D] 500/pkg. .............$5.95 or $4.95 ea./4+

White Paper Art Straw
Approximately 1/4 in. dia. x 16 in. long.
330372 [E] 250/pkg. ...........$24.95 or $22.95 ea./4+

Plastic Tubing
Make your dragster go faster and farther! Use friction reducers below between the dragster body and the wheels to reduce friction, help axle turn freely and keep wheels from sliding on axles. Fits 1/8 in. dia. axle. 5 ft. long; cut to size.
390450 [G]............................$2.95

Flat Steel-Plated Washers
390045 [H] #6, 100/Box ..................$2.50

Dura-Collars
Will hold wheels onto axles and allows them to spin freely. Use for airplanes or model vehicles. Fits 1/8 in. dia. shaft.
283099 [I] 100/pkg. .............$2.95 or $2.45 ea./3+

Plastic Straws
Use as bushing for 1/4 in. dia. axles. Approximately 1/4 in. dia. x 7-3/4 in. long.
330327 [J] 500/pkg..............$4.25 or $3.75 ea./10+
Approximately 19/64 in. dia. x 7-3/4 in. long
330408 150/pkg......................$4.95 or $4.45 ea./10+

Springs
Assorted springs can be used for hundreds of things such as: vehicle suspension and safety systems, robots, inventions, Rube Goldberg designs, etc.
390377 100/pkg....................$9.95 or $8.95 ea./3+

KELVIN® EDUCATIONAL

Plane Landing Wheels
Create landing gear for model planes or other activities. Fits thin wire (music wire). 100 wheels per package.

Stock # Fig. Type D in. T in. $ ea.
850934 A Wood 5/8 3/16 $12.95
850933 B Wood 3/4 7/32 $29.95
850931 C Plastic 3/4 1/8 $12.95
850930 D Plastic 1 1/8 $19.95

Wheel Halves
Glue these hollow, plastic wheel halves together to make a full wheel or use as halves. 7/16 in. thick when assembled. Product includes [25] wheel halves makes [25] wheels.
850929 1 in. dia. ..................$7.95

Landing Wheels Set
1-1/16 in. dia. x 5/16 in. thick wheels. Does not include wire (see below).
390459 2/pkg..........................99¢

Thin Wire
Used to create landing gear for model planes. 0.032 in. dia. x 12 in. long
330337 30/pkg. ......................$10.95 or $9.95 ea./10+
Pre-Shaped, 0.032 in. dia. x 12 in. long
850932 50/pkg. ......................$14.95 or $13.95 ea./10+

Find the KELVIN® S.T.E.M. Lab for Aeronautics & Flight on pg. 9.
Find Flight on pgs. 68-67

Plastic Tubing
2/pkg. ................................$2.95

Find the KELVIN® S.T.E.M. Lab for Aeronautics & Flight on pg. 9.
Find Flight on pgs. 68-67

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KELVIN®
Creative
Crane Pulley
Pulley fits a 2mm motor shaft or a 1/8 in. dia. axle. Inside width is 3/8 in. and overall width is 0.94 in. (the inner dia. is 0.28 and the outer dia. is 1-1/2 in.). Has holes in side wall to thread string through.
990212 10/pkg. .............................................$9.95 or $8.95 ea./3+

Drive Belts for Pulleys
For precise motion transfer, 5/pkg.
841937 60mm...$3.95 or $3.75 ea./3+
841429 90mm...$3.95 or $3.75 ea./3+

High Quality Pulleys
For all your experiments. Style may vary. 50mm.
710062 [A] Single ........................................$2.25 or $1.95 ea./10+
710063 [B] Double ......................................$3.15 or $2.95 ea./10+
710064 [C] Triple ......................................$3.55 or $3.25 ea./10+
710068 [D] Quadruple ..............................$4.25 or $3.95 ea./10+
710065 [E] Double Tandem ............................$4.45 or $4.15 ea./10+
710075 [F] Triple Tandem ............................$4.45 or $4.15 ea./10+

Spring Clothespins
Use with clothesline pulleys and cord to simulate conveyor belts.
280173 50/pkg. ........................................$4.95

Crank Handle
Use this crank handle to turn pulleys, gears, etc. Fits 3/16 in. diameter shaft. 30/pkg
390610 .............................................$19.95 or $18.95 ea./3+

Sprocket Chain
5 links per inch. 1/4 x 36 in. long. Chain can be cut to your desired length. (Gear not included).
750112 .............................................$5.95 or $5.45 ea./3+

Cams
A set of four cams: one eccentric, one regular and two pear-shaped.
391189 Set of 4 .....................................$3.95
390423 Bulk Pack of 20 Sets ..................$16.95

Screw-In Axle Nut
Fits 2mm (project motor) shaft. Project motor not included. 20/pkg.
390585 .............................................$2.95

KELVIN® Pulley Station
Structure with multiple pulleys for experimenting.
841266 .............................................$145

KELVIN® Economy Pulley Set
An economical set of four pulleys. 10mm. dia., pulley fits 2mm shaft. 20mm dia., pulley fits 1/8 in. shaft. 30mm dia., pulley fits 1/8 in. shaft. 40mm dia., pulley fits 1/8 in. shaft.
841538 .............................................$1.95 or $1.75 ea./10+ or $1.45 ea./100+
841539 Bulk Pack of 20 Sets (4/5) ......................$9.95

Hole Reducers
Adapts hole from 4mm to 3mm. Works with pulleys and gears. 391294 10/pkg. ..................$4.95 or $4.45 ea./3+

KELVIN® Bin Fillers
Find KELVIN® Kre8® Project Parts on pgs. 6-7
Find KELVIN® Bin Fillers on pgs. 6-7

KELVIN® SUPER-SIZED Parts Bulk Pack w/ Storage Cabinet
A variety of parts needed for your mechanical and prototype design needs with a BONUS Storage Cabinet!
841328 .............................................$359

Pulley Activity Set
280341 .............................................$16.95

KELVIN® Project Parts
Bulk Pack
841586 .............................................$9.95 or $8.95 ea./6+

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### Project Motors with Solder Tabs

Always Great Prices & Great Value!

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Fig.</th>
<th>Nom. Volt. (V)</th>
<th>Volt. Range (V)</th>
<th>Current (A)</th>
<th>Speed (rpm)</th>
<th>Torque (g/cm)</th>
<th>Shaft Dia. (mm)</th>
<th>Shaft L. (mm)</th>
<th>Size (mm)</th>
<th>Wire L (mm)</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
<th>$ ea./100+</th>
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<tr>
<td>850646</td>
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<td>1.5</td>
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<td>0.34</td>
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<td>.58</td>
<td>.54</td>
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<tr>
<td>850647</td>
<td>B</td>
<td>6</td>
<td>3-6</td>
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<td>20.72</td>
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<td>6.5</td>
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<td>851165</td>
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<td>850887</td>
<td>D</td>
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<td>10</td>
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<td>851254</td>
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<td>1.5-3</td>
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<tr>
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<td>G</td>
<td>1.5</td>
<td>0.9-1.6</td>
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<td>—</td>
<td>Vibrator</td>
<td>10 x 12.4</td>
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<tr>
<td>850941</td>
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<td>3</td>
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<tr>
<td>850962</td>
<td>H</td>
<td>30</td>
<td>12-30</td>
<td>1.31</td>
<td>12,800</td>
<td>238.4</td>
<td>3</td>
<td>8.5</td>
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<td>7.45</td>
<td>7.25</td>
<td>6.25</td>
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<tr>
<td>851934</td>
<td>I</td>
<td>12</td>
<td>6-18</td>
<td>0.75</td>
<td>7,205</td>
<td>587</td>
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<td>13.7</td>
<td>37.5 x 27.8</td>
<td>10.45</td>
<td>9.45</td>
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### Project Motors with Wire Leads

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Fig.</th>
<th>Nom. Volt. (V)</th>
<th>Volt. Range (V)</th>
<th>Current (A)</th>
<th>Speed (rpm)</th>
<th>Torque (g/cm)</th>
<th>Shaft Dia. (mm)</th>
<th>Shaft L. (mm)</th>
<th>Size (mm)</th>
<th>Wire L (mm)</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
<th>$ ea./100+</th>
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<tbody>
<tr>
<td>851949</td>
<td>J</td>
<td>1.5</td>
<td>1.2-3</td>
<td>0.34</td>
<td>10,200</td>
<td>6.81</td>
<td>2</td>
<td>8.1</td>
<td>20 x 25</td>
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<td>1.55</td>
<td>1.45</td>
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<tr>
<td>851950</td>
<td>K</td>
<td>6</td>
<td>3-6</td>
<td>0.26</td>
<td>17,000</td>
<td>20.72</td>
<td>2</td>
<td>6.5</td>
<td>23.5 x 27</td>
<td>125</td>
<td>1.65</td>
<td>1.55</td>
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<td>851230</td>
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<td>1.5</td>
<td>1.5-3</td>
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<td>1.55</td>
<td>1.35</td>
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<tr>
<td>851105</td>
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<td>0.018</td>
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<td>6</td>
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<td>30</td>
<td>3.95</td>
<td>3.55</td>
<td>3.25</td>
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</tbody>
</table>

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
## Motor/Syringe Mounts
Motors and syringes not included.

<table>
<thead>
<tr>
<th>Stock #</th>
<th>Fig. Dia.</th>
<th>Mount Firs These Motors &amp; Syringes:</th>
<th>Qty</th>
<th>$ per S+</th>
<th>Low As</th>
<th>Each As</th>
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</thead>
<tbody>
<tr>
<td>282424</td>
<td>A 5/8</td>
<td>—</td>
<td>1</td>
<td>.49</td>
<td>.46</td>
<td>.46</td>
</tr>
</tbody>
</table>
| 390968  | A 7/8     | • Motors: 850647, 851950, 851230, 850887, 851105  
• Syringes: 30cc Luer, 390979    | 1   | .59      | .56    | .56     |
| 390963  | B 1/2     | • Syringes: 10cc Straight, 390977         | 1   | .75      | .66    | .66     |
| 390967  | B 3/4     | • Motors: 850647, 851950, 851230, 850887, 851105  
• Syringes: 30cc Luer, 390979    | 1   | .75      | .69    | .69     |
| 390962  | B 1       | • Syringes: 60cc Luer, 390981             | 1   | 1.69     | 1.60   | 1.60    |
| 390726  | C 3/4     | —                                   | 10  | 1.45     | 1.35   | .14     |
| 390727  | C 1-1/4   | —                                   | 2   | .79      | .69    | .35     |
| 390588  | E 3/4     | • Motors: 850646, 851949  
• Syringes: 20cc Luer, 390979 | 10  | 9.95     | 8.95   | .90     |
| 990364  | D 3/4     | • Motors: 850646, 851949, 850647, 850887, 851230, 851950  
• Syringes: 30cc Luer, 390979  
*Includes Adapter    | 10  | 5.95     | 5.45   | .55     |
| 390572  | E 7/8     | • Motors: 850647, 851950, 851230, 850887, 851105  
• Syringes: 30cc Luer, 390979 | 10  | 6.95     | 6.45   | .65     |

### Solar Water Pump
Requires [3] 0.5V, 1000mA solar cells and assembly.

280514 ..............................................$9.95 or $9.75 ea./3+

### Low Voltage Water Pump
Demonstrate power output from wind and solar kits. It makes comparing different turbine designs easy; simply measure how high different turbines can pump water using this mini pump. Includes low voltage pump with attached wires and 30 cm tubing (1/4 in. inside dia.).

450091 ............................................$10.95 or $9.95 ea./3+

### Gear/Pulley Combo Unit
Fits 2mm (project motor) shaft. Project motor not included. 20/pkg.

390585 ............................................Now $1.95  
was $3.95 or $3.45 ea./3+

### Sprint Motors for Junior Solar Competitions

#### 260 Motor
1.5 to 3V DC, 120mA, 6,500 RPM, 51G-CM. 23x31mm. 2mm dia. shaft is 6 mm long.

851342 ............................................$1.65 or $1.40 ea./10+

#### 280 Motor
1.5 to 3V DC, 200mA, 8,200 RPM, 142G-CM. 23 x 34mm. 2mm dia. shaft is 10 mm long.

851343 ............................................$1.65 or $1.40 ea./10+

#### 370 Motor
Add a propeller and place in front of a fan to make a generator. Can light an LED. 12VDC, 16mA, 3500 RPM, 119G-CM. 24 x 33mm. 2mm dia. shaft is 9 mm long.

851360 ............................................$3.45 or $2.95 ea./10+

### 10 Motors in Set

#### KELVIN® Project Motors Set
• [1] Basic Solar Motor (2,200 rpm)  
• [4] High Speed Motors (17,000 rpm)  
• [1] SUMO Motors (12,500 rpm)

841585 ............................................$9.95 or $8.95 ea./6+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
### Gearbox & Wheel

**842398 Kit ..................................** $19.95

#### Gearbox
Easier to mash. Ideal for use with transfer of energy activities, gears, solar cell project designs, battery car models.
6-12V DC. Output shaft is 3mm dia.

**6-12V** DC ............................... $4.95 or $4.45 ea./10+

#### Clunk-Click Gearbox
Easy to assemble and take apart. Comes with motor holder and gears. 1-6V DC, 0.1-1.0 A (load dependent). 2mm dia. shaft.

**281739 Kit..............................** $6.95 or $5.95 ea./10+

### Motor & Gearbox Kit
5:1 up to 1125:1. Kit includes an RC20 motor (that runs on 1.5-4.5V DC) and instructions. 3mm dia. shaft.

**280411 Kit......................** $12.95 or $11.95 ea./3+

### 2-in-1 Gearbox Kit
Connects to 1 Wheel (not included)

#### SUMO Car Wrestler® Gearbox
Ideal for multiple directional changes. Includes a screw and nut axle that connects to the wheel (sold separately). Two gear boxes are required to transmit power to each wheel.

**282360 Kit ★ .................** $19.95 or $17.95 ea./4+

#### Tug-of War Gearbox
The assembly lends itself to forward and backward motion with both wheels being driven by the same gear box. It includes a long threaded axle rod for attachment to two wheels (not included).

**283122 Kit ★ .................** $22.95 or $20.95 ea./4+

### Universal Gearbox
Expand by adding gears up to 6 gear ratios. It has metal side plate. 1.5–4.5 VDC. Output shaft is 4mm diameter.

**281740 ..........................** $18.95 or $17.95 ea./3+

### Heavy Duty Gearbox & Motor
1 in. dia. x 2-7/8 in. L. Output shaft measures 0.15 in. dia. x 3/8 in. L. 851100 100:1, 6-12V DC ................................ $14.95 or $13.95 ea./10+

**851494 15:1, 1-3V DC ......** $13.95 or $12.95 ea./10+

### Economy Gearbox & Inline Motor
1:120, 100 RPM. Shaft size (oval): 13/64 x 9/64 in. 3V DC (6V DC max.).

**282396 ..........................** $9.95 or $8.95 ea./10+

### 2-in-1 Gearbox
Kit includes a motor, two sets of gears, metal shafts, gearbox and other accessories.

**282394 Kit .................** $10.95 or $9.95 ea./3+

### Motor & Gearbox Kit
5:1 up to 1125:1. Kit includes an RC20 motor (that runs on 1.5-4.5V DC) and instructions. 3mm dia. shaft.

**280411 Kit ....................** $12.95 or $11.95 ea./3+

---

### Tamiya Gearbox and Motor Kits

#### Tamiya Universal Gearbox & Motor
Power a shaft in a horizontal or vertical position relative to the motor. Various arrangements of gears produces ratios of 101:1, 269:1, 719:1.

**281651 Kit ..................** $18.95 or $17.95 ea./3+

---

### Servo Wheel Set ONLY

**842424 ............................** $4.95 or $4.50 ea./10+

---

### Servo Motor ONLY
Does NOT include wheel. 4.8-6V DC. For robotics and remote-controlled prototypes. Lightweight plane motor outputs 44 to 57 oz. of torque per inch. Futaba S3003.

**851878 ..........................** $19.95 or $19.45 ea./4+

---

### Servo Wheel ONLY

**842424 ............................** $4.95 or $4.50 ea./10+

---

### Universal Educational Kit
Build a gear box for robots or where a gear reduction or gearing change is needed. Kits include a pre-punched U-shaped bracket, motor, axles, gears, washers and instructions. 2.5 x 6.7 x 1.70 in.

---

### Servo Motor ONLY
Does NOT include wheel. 4.8-6V DC. For robotics and remote-controlled prototypes. Lightweight plane motor outputs 44 to 57 oz. of torque per inch. Futaba S3003.

---

### Servo Wheel ONLY

---

### Universal Educational Kit
Build a gear box for robots or where a gear reduction or gearing change is needed. Kits include a pre-punched U-shaped bracket, motor, axles, gears, washers and instructions. 2.5 x 6.7 x 1.70 in.
Fill your STEM Materials Storage Bins with hundreds of basic design and build parts. Assorted parts to fill your storage unit bins appropriate to topics you are covering. Basic bin fillers get you started and advanced ones can be used for more complex projects within a topic. Photo shows a sampling of parts included. Items included are not limited to those listed here - complete contents can be found kelvin.com.

**KELVIN® S.T.E.M. Basic Bin Fillers** for Elementary & Middle Schools. Photos show a sampling of the types of items that may be included. Actual content may vary.

**KELVIN® S.T.E.M. Advanced Bin Fillers** for Middle & High Schools. Photos show a sampling of the types of items that may be included. Actual content may vary.
Rubber Band Hand Winder
Easily winds rubber bands for nosehook propellers or other uses. One revolution of hand crank equals 5, 10 or 15 turns of the rubber band.

283694 1:10 ...........................................$29.95

Rubber Bands for Competition
850658 1/8 in. thick x 50 ft. long .........................$9.95
420749 225 ft L. - Enough for 10 Planes ..............$29.95

Boat Propellers

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Onboard Boat Motor Propeller
For use with model boats. Kit includes 1 in. diameter propeller, motor, shaft and mounting bracket.

280412 ......................................$8.95 or $8.50 ea./6+

---

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180 www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
PROJECT PARTS

PROPELLERS

KELVIN® EDUCATIONAL

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2-Blade Propellers

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Multi-Blade Propellers

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Safety Propellers

Force fits onto any small electric motor with 2mm dia. shaft but has the advantage of a safety ring preventing contact with spinning blade tips. Black. 125mm (4.92 in.) dia.

990338 [N] 10/pkg. ........................................ $8.95 or $8.10 ea./5+.

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.

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KELVIN® Tool Panels
High quality tools and convenient storage panels to display and safely organize your tools. Specific tool manufacturers may vary from the items pictured below depending on availability. Mounting holes for the panels are not predrilled so the panels can be custom installed to fit most situations.

Measurement & Layout Tools with Tool Panel
- Digital Scale
- Sliding T Bevel
- [6] Rulers (12 in.)
- [2] Yard Sticks
- [2] Tape Measures
- Framing Square
430085 Tool Panel w/Tools ..............................................$1,595

Fastening Tools with Tool Panel
- [12] Quick Grip Bar Clamps
- [3] C-Clamps
- [4] 2-inch Spring Clamps
- Stapler
430086 Tool Panel w/Tools ......................................................$1,395

Portable Power Tools with Tool Panel
- 2HP Router with Basic Bit Set
- Jig Saw
- Variable Speed Drills (1/2 in.)
- Speed Bore Drill Set
- Twist Drill Set
840728 Tool Panel (Not Shown) ......................$2,450

Basic Lab Tools with Tool Panel
- [2] Slip Joint Pliers
- Needle Nose Plier
- Vise Grip
- Wire Cutter
- Diagonal Cutter
- [2] Backsaws
- Hack Saw
- [2] Dowetail Saws
430087 Tool Panel ......................................................$1,250

Electronics Tools with Tool Panel
- [4] 50LE Multimeter
- Soldering Gun
- Screwdriver Set
- Nut Driver Set
- [1] Self Adjusting Wire Stripper
430084 Tool Panel ......................................................$1,250

Top-Quality, Name-Brand Tools with Durable Storage Tool Panels
- [2] Dividers
- Caliper
- Trammel Point
- Spring Scale
- Gram/Ounce Scale
- Storage Panel

- [2] Low Melt Glue Guns
- Hot Melt Glue Gun
- Storage Panel
Eyeglass Storage Case
Clear, acrylic safety eyewear case holds 20 safety glasses or goggles. Keeps your glasses neat and organized. Dimensions 15 x 12 in., 20 cubbie holes measuring 2-7/8 in. wide. Can be wall-mounted. Door keeps glasses secure and dust-free.
280185 ........................................ $19.50

Non-Fogging Goggles
240001 ........ $2.45 or $2.25 ea./6+

Visitor’s Glasses
240047 ........ $2.95 or $2.75 ea./6+

First Aid Kit
240057 ........................................ $48.95

Disposable Latex Gloves
851156 100/pkg.............................. $9.95

Disposable Dust Masks
50/pkg. 520280, $8.95

Rubberized Cloth Apron
Made of a chemical resistant PVC coated cloth which stays flexible. Reinforced. Cloth ties at the neck and waist. 27 x 42 in.
710123 ...... $12.95 or $11.95 ea./5+

Blue Denim Apron
Two pockets. Cloth ties at the neck and waist. Measures 36 in. long.
710200 ...... $12.95 or $11.95 ea./3+

Extension Cord
3-Prong plug is polarized. 16/3 cord is orange and measures 25 ft. long.
350325 ...... $12.95 or $11.95 ea./3+

Multi-Outlet Power Strip
Features six outlets along with power surge protection and on/off switch.
340060 ...... $9.95 or $8.95 ea./3+

KELVIN® Tools & Jigs Set
Set includes:
[6] Scissors
Drill Press
Hammer
Mallet
Hand Drill
[4] Cutting Jigs
[10] Hacksaw Blades
[2] Slotted Screwdrivers
Storage Box
840680 Set ................ $32.50

Find KELVIN® Beams & Triangles™ on pgs. 7 & 20-22

Electronic Tool Set
BEGINNER SET
840213 ........................................... $24.95 or $23.95 ea./6+

Heat Gun
Top quality gun with dual temperature and 6 ft. long cord. 1000W.
820054 ...... $69.95 or $64.95 ea./3+

Heat Shrink Tubing
Shrinks to 50% of inside diameter.
330078 1/8 in. dia. x 10 ft. L ........................................ $3.95 or $3.75 ea./10+
330079 3/16 in. dia. x 10 ft. L ........................................ $3.95 or $3.75 ea./10+
330080 1/4 in. dia. x 10 ft. L ........................................ $5.45 or $4.95 ea./10+
330081 5/16 in. dia. x 10 ft. L ........................................ $7.95 or $6.95 ea./10+

Electronics

Safety

KELVIN® EDUCATIONAL

Projects may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.

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### HAND TOOLS

**Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.**

#### KELVIN® EDUCATIONAL

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#### AHWL

Carbon steel awl with plastic handle. Measures 5-1/2 in. long.

500019 (A) ...$3.95 or $2.95 ea./6+

#### Reamer Tool

Steel reamer tool with a T-handle.

950221 [G] ...$7.95 or $5.95 ea./3+

#### Warding Files

Six assorted types. 4 in. L.

520266 [J] ...$14.95 or $13.95 ea./3+

#### Screwdriver Set


520029 ...........$7.95 or $7.45 ea./6+

#### Precision Screwdrivers

Five screwdrivers and case.

520025 ...........$3.95 or $3.45 ea./6+

#### 4-In-1 Quick Change Screwdriver


500016 ...........$7.95 or $5.95 ea./6+

#### Slotted Blade Screwdrivers

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#### Phillips Blade Screwdrivers

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#### Swiss Needle Files Set

12 assorted types. 5-1/2 in. L.

520209 [J] ...$30.95 or $29.95 ea./3+

#### Wood Chisels

3/4 in. w x 2-1/2 in. long

520162 [G] ...$8.95 or $8.45 ea./6+

1 in. w x 2-1/2 in. long

520173 [G] ...$8.95 or $8.45 ea./6+

#### Slotted Blade Screwdrivers

4 in. L with 1 in. Jaws

540029 ...........$2.45 or $1.95 ea./3+

#### C-Clamps

540034 3 in. W ...........$8.95

540023 6 in. W ...........$11.95

#### Ratchet Drive Socket Set

Includes 1/4 in. and 3/8 in. sockets. Total of 40 pcs. with case.

520228 ...........$19.95 or $16.95 ea./6+

#### Wood Vise

Build your own wood bench. With base holes and guide bars. 6 in. Wide.

540025 ...........$39.95 or $35.95 ea./3+

#### Clamp-On Work Vise

3 in. Jaw opening.

540033, 520283 29.95 or $27.95 ea./5+

#### Torpedo Level

9 in. Long

910028 ...........$5.95 or $5.45 ea./6+

#### Cutting Jig

Cuts 30°, 45° or 90° angles in beams or dowels. Works with 3/8 x 3/8 in. beams.

910047 ...........$11.95 or $11.35 ea./3+

#### Combination Square, Level and Ruler

910008 ...........$12.95 or $11.95 ea./6+

#### Introductory Tool Pack


840729 ...........$245

#### Utility Hacksaw

980001 ...........$22.95 or $21.95 ea./3+

#### Pro Heavy-Duty Hacksaw

Comes with 12 in. long blade.

980005 ...........$16.95 or $15.95 ea./3+

#### Keyhole Saw

10 in. Long Blade with 10-Teeth.

980035 ...........$5.95 or $5.45 ea./6+

#### Coping Saws

6-1/2 in. depth. Uses 6-1/2 in. long blades.

980029 ...........$13.95 or $13.25 ea./6+

6-1/2 in. Long Blades 16-Teeth. 12/pkg.

980038 ...........$5.95 or $5.45 ea./6+

#### Cutting Jig

Cuts 30°, 45° or 90° angles in beams or dowels. Works with 3/8 x 3/8 in. beams.

390447 ...........$11.95 or $11.35 ea./3+

#### Power Tape Measure

910047 1 in. w x 25 ft. ..................$9.95

#### Introductory Tool Pack


840729 ..................$245

Economical! A Great Tool Starter Set.

#### Introductory Tool Pack


840729 ..................$245

#### Introductory Tool Pack


840729 ..................$245
### Drill Bit Sets

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### Hi Speed Drill Bits

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### Snap Blade Craft Knives
Snap blade craft knives contain multiple points so your blade never goes dull. Blade locks into position.

- **470065** [A] 13 pt. Blade Snap Blade Craft Knife .......... $1.15 or 85¢ ea./10+  
- **470066** [B] 7 pt. Blade Snap Blade Craft Knife .......... $1.75 or $1.45 ea./10+  
- **470067** 7 pt. Snap Blades Only, 10/pkg. .......... $3.95 or $3.75 ea./6+

### X-ACTO Craft Knives

- **470023** [C] #1 Craft Knife with #11 Blade & Cap .......... $7.45 or $6.95 ea./6+  
- **470026** #11 Craft Knife Blades Only, 5/pkg. .......... $2.75 or $2.45 ea./6+  
- **470045** #17 Craft Knife Blades Only, 100/pkg. .......... $46.95 or $44.95 ea./6+  
- **470028** #2 Craft Knife with #2 Blade .......... $7.95 or $7.75 ea./6+  
- **470031** #2 Large Fine Point Blade .......... $3.95 or $3.75 ea./3+

### Utility Knives

- **970002** [D] Retractable Utility Knife with 2 Blades, 6 in. L .......... $3.95  
- **970090** Retractable Utility Knife with Sure Grip .......... $9.95  
- **970004** Heavy Duty Utility Knife Blades Only, 5/pkg. .......... $1.60

### Razor Blades

- **841430** [E] Straight, 100/pkg. .......... $2.95  
- **470034** Straight, 100/pkg. .......... $12.95

### Self-Healing Cutting Mat
A safe way to cut materials using craft knives, rotary cutters, etc.

- **470077** 9 x 12 in. Cutting Mat .......... $10.95  
- **470079** 12 x 18 in. Cutting Mat .......... $24.95  
- **470078** 18 x 24 in. Cutting Mat .......... $39.95

### Wire Brush
Heavy-Duty, 10 in. L

- **520009** .......... $1.95 or $1.75 ea./3+

### Sandpaper Assortment

- **850542** Variety of grits for light sanding. Sheets measure 9 x 11 in. 15/pkg.  
  - **850542** .......... $2.75 or $2.45 ea./13+

### KELVIN® Hand Drill & Drill Press
Includes drill press, hand drill and [3] drill bits (1/16, 3/16 and 1/8 in.).

- **950301** .......... $139.95 or $129.95 ea./3+  
- **950311** Hand Drill Only .......... $22.95

### Wire Brush
Heavy-Duty, 10 in. L

- **520009** .......... $1.95 or $1.75 ea./3+

### Sandpaper Assortment

- **850542** Variety of grits for light sanding. Sheets measure 9 x 11 in. 15/pkg.  
  - **850542** .......... $2.75 or $2.45 ea./13+

### 5-1/4 in. Blunt Point Scissors
Ideal for younger children.

- **480029** .......... $4.95 or $4.45 ea./10+

### 5-1/4 in. Safety Point Scissors

- **480038** .......... $5.95 or $5.45 ea./10+

### 5-1/2 in. Quality Precision Cut Scissors
Right/Left Hand Use

- **480003** .......... $4.95 or $4.45 ea./6+

### 7-1/2 in. Power Utility Snips

- **480009** .......... $5.95 or $5.45 ea./6+

### 8 in. Left/Right Hand Scissors

- **480036** .......... $4.95 or $4.45 ea./10+

### 8 in. Quality Stainless Steel Scissors

- **480039** .......... $16.95 or $15.95 ea./6+

### 8 in. Stainless Steel Scissors

- **480028** .......... $10.95 or $9.95 ea./10+

### Easy Cutters for Wood Strips

- **520596** .......... $19.95 or $18.95 ea./10+ for 1/8 in. W Wood  
- **520595** .......... $29.95 or $27.95 ea./10+ for 1/16 in. W Wood

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“Build A Program” Engineering Mini Modules
A New Approach to Organizing Technology Modules & Programs

KELVIN® Hydroponics Engineering Mini Module
Students learn the basics of hydroponics by designing and building their own growing unit as well as maintaining a classroom growing system. This lab includes enough materials for three classes to design their own hydroponic system. Also includes materials to build three raft style classroom growing units.
841681   Level: ELM, MS, HS .................................................................$845

KELVIN® Engineering & Structures Mini Modules
1: Beam Style Bridges
841679   Level: ELM, MS, HS .................................................................$1,195

KELVIN® Package Engineering Mini Modules
Package Design 1
841646   Level: ELM, MS, HS .................................................................$495

Package Design 2: Adhesive & CAD
Design and test package adhesive and design. Module includes: Tab+ CAD Pattern Software, Measuring Devices and Non-Toxic Glue.
841647   Level: ELM, MS, HS .................................................................$345
841650   Plus PC .................................................................$1,795

KELVIN® Aerospace Engineering Mini Modules
Aerospace Engineering 1
841642   Level: MS, HS .................................................................$845

Aerospace Engineering 2
Understand how forces can be used to control flight. Activities include Flying with the PowerPole Flight Trainer. Includes: Wright Bros. Trainer, KELVIN® PowerPole™, Variable Power Supply, Delta Dart Kits (1 per student) and Flight Control Teacher’s Guide.
841643   Level: MS, HS .................................................................$695

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“Build A Program” Engineering Mini Modules
A New Approach to Organizing Technology Modules & Programs

KELVIN® Auto Safety Design Engineering Mini Modules
Auto Safety Design 1
Design and test safety systems that protect egg passengers during crash simulations.
Module includes Kelvin Krasher, [3] Car Bases, DesignGrid Cardstock, Balloons, Bubble Wrap, 10cc Syringes and Plastic Tubing
841680  ELM, MS, HS ...............................$995
Auto Safety Design 2
841702  Level: ELM, MS, HS ......................$995
Auto Safety 1 & 2 Combo PLUS a PC and 17 in. LCD Monitor
841703 ........................................................................$2,945

KELVIN® Magnetic Levitation Vehicles Engineering Mini Modules
Magnetic Levitation 1
Design, model and test a Maglev vehicle. Module includes: Maglev See-Thru 8’ Track, Foam Cutter, Kel-Timer Jr., Maglev Magnets, Foam and DesignGrid Paper.
841644  Level: ELM, MS.................................$995
Magnetic Levitation 2
841645  Level: MS, HS .................................$1,395

KELVIN® Rocketry Engineering Mini Modules
Rocketry Design 1
Design, build and test a model rocket powered by compressed air. Module includes: Dual Paper Launcher, Portable Air Compressor, Pre-printed Body Tube, Foam for Nose Cones, DesignGrid™ as well as a To The Moon Video.
841648  Level: ELM, MS, HS .........................$895
Rocketry Design 2: Solid Fuel Rockets
841649  Level: ELM, MS, HS .........................$595

KELVIN® SUPER-SIZED Parts Bulk Pack w/ Storage Cabinet
A variety of parts needed for your mechanical and prototype design needs with a BONUS Storage Cabinet!
841328 ........................................................................$359

Find KELVIN® Kre8® Project Parts on pg. 17
Find KELVIN® Bin Fillers on pgs. 6-7

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Models in Technology & Science

An Integrated Engineering Investigation of HOUSES, BRIDGES & TOWERS
Working with drinking straws and paper clips student meet the challenge of building a model house with drinking straws and paper clips. They test their houses to determine how much weight it can hold before it collapses. The findings from this first challenge are applied to building bridges and towers with same kind of materials. An inquiry is carried out on different truss designs. These projects provide a context for introducing the concepts of force, tension, compression and static equilibrium.

652494 Booklet.................................................$9.95 or $8.95 ea./10+

An In-Depth Investigation of HOW IMAGES ARE FORMED
Students first explore ways that different objects cast shadows with different kinds of light sources. Then they explore in a systematic manner the relationship of the shape of the object and the shadow it creates. Glass jars and then lenses are used to observe how light it bent to form images. These explorations can be used to introduce the concept of refraction and the properties of lenses.

652493 Booklet.................................$9.95 or $8.95 ea./10+

An Integrated Engineering Project Investigating HOW WORK AND POWER ARE GENERATED
Given plastic plates and cups, buckets, and a few other materials students construct model water wheels to see how much weight their model can lift when water is poured on the cups attached to the wheel. Students will carry out a systematic inquiry of how different variables associated with the model determines its lifting capacity. This experience is used to introduce the concepts of work, power, momentum, torque, potential & kinetic energy.

652496 Booklet.................................................$9.95 or $8.95 ea./10+

Inks, Food Colors and Papers
Investigating the PHYSICAL / CHEMICAL PROPERTIES OF MATERIALS
Water based pens are tested with water and then other kinds of liquids by placing these liquids on marks made on paper. Chromatography is used to refine these observations. A similar process is carried out with permanent pens. These experiences are used to introduce the concept of solubility and physical change. Bleaching of the inks and the changing of the inks of special pens is used as a context for introducing chemical change.

652488 Booklet.................................................$9.95 or $8.95 ea./10+

Salad Dressing Physics
Investigating the DENSITY OF LIQUIDS AND SOLIDS
The movement of different liquids is observed in a set of mystery bottles. Students carry out solubility tests and weigh equal volumes of the liquids to identify what the liquids are. These experiences are used to introduce the concept of density. A second set of bottles each having a liquid and several balls of different densities is also investigated. The densities of the liquids compared to those of the balls are determined. A homemade Lava Lamp is made from mineral oil and two kinds of rubbing alcohol.

652489 Booklet.................................................$9.95 or $8.95 ea./10+

Structures

Water Wheels

Shadows and Images

Making Waves

Inks, Food Colors and Papers

Salad Dressing Physics
Meet the **KELVIN® Author:** Bernie Zubrowski

Bernie Zubrowski has spent much of his professional life devising ways to educate young people about science, both while they're at school and when they are out in the world, away from the classroom. He has contributed to many of EDC’s landmark science curricula, including Elementary Science Study and the African Primary Science Program. He is currently directing several projects, including Explore It! Science Investigations in Out-of-School Programs.

In his years with Boston’s Children’s Museum, Bernie designed exhibits that traveled to science centers across the United States. His 16 books—with titles like Siphons and Water Pumps and Blinkers and Buzzers—and 12 curriculum guides have influenced museum designers, educators, and parents throughout the world.

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### Mirrors

**An In-Depth Investigation of THE REFLECTION OF LIGHT**

Regular mirrors are first investigated through several kinds of challenges and games. The tracing of reflected light rays is carried out to help students understand how images are formed. Pieces of plexiglass are used to investigate the transmission and reflection of light. Flexible Mylar is used to investigate how curved surface reflect light. These experiences provide the context for introducing properties of light such as reflection, transmission as well as a way of modeling what happens to light in these situations.

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### Tops and Yo-yos

**An In-Depth Investigation of the FORCES AND MOTION OF ROTATING OBJECTS**

A set of tops is made from plastic plates and dowels are first launched with a special rubber band device as well as a mixer. A systematic inquiry is then carried out to determine what characteristics of the tops affect how long they spin. A similar process is carried out with yo-yos made from the same materials.

These explorations provide the experiential context for introducing the concepts of rotational motion, torque, rotational inertia, potential and kinetic energy.

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### Ice Cream Making and Cake Baking

**An In-Depth Investigation of HEAT TRANSFER**

Students carry out simple tests of different kinds of containers to determine what is the best kind for making ice cream. They then gather data on cooling rates of hot water in a selected container surrounded by three different cooling solutions. A cardboard box oven is constructed to study convection and radiation. Collected results are used to make ice cream in a container and bake a cake in the cardboard oven. These experiences provide the context for introducing conduction, convection, radiation, and phase change.

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### Mobiles

**An In-Depth Investigation of BALANCING TOYS AND STATIC EQUILIBRIUM**

Students first balance their body and models of a human body. They experiment with balancing pieces of different shaped cardboard in a vertical and then a horizontal orientation. They end up constructing mobiles that provide a context for introducing and discussing static equilibrium and the concept of torque.

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### Air and Water Movement

**An In-Depth Investigation of PATTERNs OF FLUID MOTION**

Students map air currents outdoors and indoors. Then they explore the patterns made when different shaped objects are moved through water having a special liquid that makes these patterns visible. These explorations provide the experiential context for helping students understand phenomena such as cloud movement, currents in rivers and oceans as well as the design of planes and cars.

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**Models in Technology & Science**

**TEACHER RESOURCES GUIDES**

**KELVIN® EDUCATIONAL**

**Bernie Zubrowski has spent much of his professional life devising ways to educate young people about science, both while they're at school and when they are out in the world, away from the classroom. He has contributed to many of EDC’s landmark science curricula, including Elementary Science Study and the African Primary Science Program. He is currently directing several projects, including Explore It! Science Investigations in Out-of-School Programs.**

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**Meet the KELVIN® Author: Bernie Zubrowski**

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DESIGN IT! TEACHER RESOURCES

DESIGN IT! LESSON GUIDES
A series of introductory engineering experiences with instructions for each project as well as implementation suggestions for extended projects. Suitable for after-school programs and elementary school students (ages 8–12). Funded by the National Science Foundation and developed by the Education Development Center, Inc.

Sand & Water Clocks
Students use flowing sand and water in connected soda bottles to try to make accurate and consistent sand and water clocks that measure out 30-second, 60-second, or even longer time intervals.

Cardboard Constructions
How strong a stool can students construct from a small cardboard box? Will it support an adult? Building on this experience, students build a bed supported by small boxes. In the final activities, large modular houses are constructed from refrigerator boxes.

Pinball
Build pinball games complete with bumpers, traps, flippers and plungers. Students assign their own numbers to their traps and decide where they should be, and test different methods of launching the ball. 61 pg. Guide.

Blinking Lights
Your students are challenged to design a flashlight from a soda can, cardboard, battery and wires. A rotary switch can also be designed, which is used to control a model traffic light system.

Paper Bridges
Make strong structures with limited materials. Students perform more and more difficult challenges to uncover many simple principles of bridge building. 67 pg. Guide.

Rubber Band Powered Cars
Using cardboard, dowels, plastic plates, and rubber bands, students can build their own cars, and learn in a direct way the engineering concept of optimization by testing different sized rubber bands and different diameter plates as wheels. 55 pg. Guide.

Balloon Powered Cars
There is more to this project than just making an inflated balloon move a car. Engineering involves designing a way to support the balloon and get it to work consistently. Match the power requirements of the car with the right balloon. Nozzles can be designed and tested.

Giders
Construct simple planes from paper. After testing designs for tails, bodies and wings, construct a rubber band launcher. This allows for a more consistent way of evaluating all of the variables. 64 pg. Guide.

Straw Rockets
Launch the outer straw like a toy rocket by blowing. By using a sandwich bag propulsion system, students test different kinds of fins while trying to refine their toy rockets so that they will hit targets consistently.

Spinning Toys
Plates, dowels, rubber washers, and tuna fish cans become homemade tops and yo-yos. Uncover the principles of balance and spin to make long spinning tops and regular or “sleeper” yo-yos.

Design It! Implementation Guide
An introduction to the Design It! series and a resource for teachers using the program for the first time. The guide covers managing and structuring an effective classroom environment and gives a sense of context and procedures needed to effectively engage students.

Complete Design It! Series Set
All 14 projects (Balls and Tracks, Pinball, Trebuchets, Gliders, Paper Bridges, Rubber Band-Powered Cars, Balloon Powered-Cars, Cardboard Constructions, Cranes, Blinking Lights, String Telephones, Straw Rockets, Spinning Toys, Sand and Water Clocks) plus a FREE Implementation Guide.

FREE Implementation Guide

Complete Set of 14 Lesson Guides + Implementation Guide

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Soda Science
Children can make up their own soda recipes while practicing the mathematical operations of ratio and proportion. Then, they analyze a real soda to compare how the ingredients in the commercial version compare with theirs.
652285 $9.95 or $8.95 ea./10+

Heating a House & an Oven
By finding different ways to insulate a cardboard “house” warmed by a 40W light bulb, children explore the difference between the heat and temperature. Using a 100W bulb, they turn the house into an “oven” that can bake cookies.
652282 $9.95 or $8.95 ea./10+

Wiring a House
Children discover some of the principles of practical wiring and electrical circuitry by installing lights and switches in the rooms of a cardboard house. They follow electrical “pathways” to explain why some light bulbs shine differently.
652286 $9.95 or $8.95 ea./10+

Exploring Food
Marooned on a desert island with a limited food supply, children investigate the properties and make-up of common foods. Investigations of water, fat and the roles of starch and gluten in flour all contribute to the overall question of what is a “balanced” diet.
652280 $9.95 or $8.95 ea./10+

Cake Chemistry
What are the ingredients in a recipe that cause a cake to rise? Is the same gas produced when using baking powder, baking soda, or yeast? These are some questions pursued in this exploration while, at the same time, getting to eat experiments!
652279 $9.95 or $8.95 ea./10+

Balloons
Floating giant bubbles (3 feet in diameter), small bubble domes on a table top, and soap film in frames are ways to observe some of the more obvious properties of bubbles (such as their round shapes) as well as subtle properties (such as surface tension).
652278 $9.95 or $8.95 ea./10+

Permanent Magnets and Electromagnets
Children explore the properties of permanent magnets, such as how to make their magnetic fields visible. Making fun gadgets help determine the properties of electromagnets.
652281 $9.95 or $8.95 ea./10+

Sinking & Floating
Children explore the buoyancy of common objects and make boats from a variety of materials, gaining a sense of the contribution of the material and shape will sink or float. They repeat their experiments with other solutions to see how the type of liquid makes a difference in how things float.
652283 $9.95 or $8.95 ea./10+

Measuring Ourselves
Children measure their own bodies in a variety of ways to learn more about their basic physical make-up and to observe both the consistency and variation of body shape, size, and strength among their peers.
652287 $9.95 or $8.95 ea./10+

Siphon Systems
Using an arrangement of plastic tubing and a special connector, children transform a soda bottle into an interesting device for exploring how water flows through a closed or open system. Connecting multiples of bottles allows analyzing what happens to the water pressure.
652284 $9.95 or $8.95 ea./10+

Balancing Toys
Children transform a pool noodle into a model of a person, a plane, and a boat, and then manipulate them to see how they balance. They also build simple mobiles to explore other kinds of balancing arrangements to understand about equilibrium.
652275 $9.95 or $8.95 ea./10+

Implementation Guide
Designed to serve as an introduction to the Explore It! series, this guide covers aspects of managing and structuring each exploration by providing suggestions for effective practices that engage the children in a productive and satisfying experience.
652345 $9.95 or $8.95 ea./10+

Complete Explore It! Series Set
652562 $139.95

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KELVIN® Competition Certificates
High quality, cardstock awards are generic; teachers can customize name, competition and placement.
840704 30/pkg..............................................................$4.95

KELVIN® Design Portfolios
Design portfolios encourage students to use the problem-solving method of input—process—output—feedback when planning and designing projects. Each portfolio consists of 4 pages for students to fill out.
651030 100/pkg ..............................................................$25

KELVIN® Technology Competition Medals
Each set includes three 2 in. diameter medals: one each of gold, silver and brass colors. Each medal has a decorative ribbon.
840706 ..............................................................$19.95

KELVIN® Awareness of Technology
Approach technology concepts with problem solving techniques and hands-on, modifiable activities.
Over 50 activities include: Air Pressure, Air Rockets, Airfoils, Automation, Balloon Pinwhee, Balloon Race, Boomerang, Bottle Rockets, Communications, Careers, Caterpillars, Controlling, Earth/Moon Distance, Egg Drop, Energy, Gravity, Habitats, Hero Engine, Hydroponics, Logos, Magnets, Marble Shoot, Measuring, Molds, Mouse Maze, Musical Tube, Oil Spills, Paper Rockets, Perpetual Motion, Plant Growth, Presentations, Recycling, Robotics, Rockets, Satellites, Shelters, Sight, Sound, Structures, Time, Transportation, and Water Rocket.
Also includesover 100 pages of documented plans and materials list.
650421 Booklet..............................................................$45

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.  ▲ Find California Prop 65 Warning on pg. 180
Power House
Build a model house complete with solar panels, windmill, greenhouse, and desalination system. Kit contains solar house & greenhouse parts, frame, base, glue, solar panel, compass, wire, LED, seeds, battery holder, light bulb and holder, solar motor, magnifying glass, propellers, iron core, ring magnet, thermometer, test tube holder, beaker, sandpaper, copper foil, zinc plate, wire mesh, hardware, iron powder, wires, tubing, rubber bands, wooden components, and manual.

282093 Kit .................................................. $99.95 or $95.95 ea./3+

Using Solar Cells for Fun, Education, Hobbies and Crafts
Introduce the amazing process of Photovoltaics where sunlight is converted into electricity.


840217 Kit ........................................... $79.95

Solar Educational Kit
This remarkable kit self-explains solar energy and its applications. Kit includes: solar cell, solar motor, wire, motor clips, nut, propeller, plastic discs, colored paper models and instruction booklet.

260185 Kit .......................................................... $14.95 or $13.95 ea./6+

Solar Deluxe Educational Kit
An interactive learning toy. Students complete a series of do-it-yourself experiments to acquire the basic knowledge of solar energy. Your students will gain an understanding in making electrical and solar circuits, as well as increasing both the voltage and current. Kit includes a musical unit, plastic lamp, fan unit, motor accessories and plastic adapters. The solar array measures 100x125x10mm.

260184 Kit ............................................................ $26.95 or $24.95 ea./6+

Educational Solar Energy Kit
Children will acquire the basic knowledge of solar energy through the experiments with this set.

Experiments include: making a solar/electrical circuit, learning how to increase the voltage and current and making a solar panel (108x95x10mm) from solar cells. Includes [8] solar cell modules, motor, wire, clip, nut, spinner, plastic disc and experiment booklet.

260183 Kit .................................................. $24.95

KELVIN® Odyssey™
Parabolic Solar Collector
Design and construct an efficient parabolic solar collector. Sensors monitor temperature changes along a focal point bar and the reflective surface. Students perform the mathematical layout of a parabola, which is engineered into a mirrored surface and placed in a testing device.

841610 Challenge .......................................................... $845
841629 Challenge w/ PC, LCD Display & Software, WIN XP-7 ........................................... $1,995

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
**KELVIN® Solar Energy Houses**

These kits will guide your students through activities focused on the conversion of light into electrical energy as well as heat transfer and storage for the purpose of space and water heating. Requires a light source.

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<td>Beginner</td>
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<td>Intermediate</td>
<td>Advanced</td>
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<td>Template Only for 1-Room House</td>
<td>Template &amp; Foam Board for 1-Room House</td>
<td>Template &amp; Foam Board for 1-Room House</td>
<td>Template &amp; Foam Board for Multi-Room House</td>
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Includes:
- Aluminum Sheet
- Instructions

Includes #841748 Contents PLUS:
- Ceramic Tile
- Alligator Leads

Includes #841635 Contents PLUS:
- Water Pump
- Foam Cutter
- Knife Switch
- Beaker
- Battery Holder
- Tubing
- LEDs
- Clothespins
- Wood

Includes #841603 Contents PLUS:
- Socket & Lamp
- 50 LE Multimeter
- Car Kit

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**KELVIN® Active Solar Space Heater with Data Collection**

Introduce students to active solar hot water and heat production used in homes worldwide and how to create a sustainable source of energy. A series of activities focus on heat transfer, heat absorption, insulation, solar geometry and solar heat collector mechanics.

Students then apply this information in the design of a solar hot water and space heater. A data interface and sensors are used to gather data during activities as well as display the data in graph and chart form.

**Active Solar Space Heater Data Collection Interface**

Includes: data collection interface, windows software, USB cable and student/teacher instructions. Also includes information for the material needed to build an active solar & space heater.

Data Interface w/ Software & Instructions
842431 ................................................................................. $295

**Assembled Active Solar Space Heater with Data Collection Interface Lab**

Includes: data collection interface (with windows software, sensors, USB cable, and interactions), adjustable solar collector, pump, lamp (light source) and stand, supplies (like absorption materials, insulation materials, tubing, tubing clamps, digital thermometer, angle finder, measuring containers and more), instruction booklet and design portfolio.

Data Interface, Software, Instructions & More
841611 ................................................................................. $895

**KELVIN® Active Solar Space Heater with Data Collection Interface Lab**

Includes: data collection interface (with windows software, sensors, USB cable, and interactions), adjustable solar collector, pump, lamp (light source) and stand, supplies (like absorption materials, insulation materials, tubing, tubing clamps, digital thermometer, angle finder, measuring containers and more), instruction booklet and design portfolio.

Data Interface, Software, Instructions & More PLUS Computer
841630  WIN XP-7 ....................................................... $1,995

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180 www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
**KELVIN® Power Grid**

**Electrical Distribution Grid Lab**
Explore how electrical energy arrives at its final destination, as well as introduce alternative sources of energy. Construct a model home from the pattern provided and then assemble a simple LED and resistor light circuit that is installed into the model home.

Each model house snaps into the power grid base and picks up current from overhead wires. Measure power output using a multimeter. The house can also work off the grid using electrical energy from the included solar cells or optional batteries or wind turbine generator (sold separately).

Lab includes: grid base, preprinted mini model home patterns on cardstock, all electronic parts, solar cells and multimeter. Requires assembly. For off grid operation, [4] AA batteries (sold separately), and/or wind turbine generator (shown) not included.

842082 Lab for 24 .........................................................................................$195 or $185 ea./3+

**Power Grid Mini Model Homes Bulk Pack**
Pre-printed cardstock, special LED, LED holder, wires, connector, and alligator clips.

652520 Bulk Pack of 10 – Requires Power Grid Above ........................................$3.49 Per Kit $34.95

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**KELVIN® Solar Energy Farm**
Teach the basics of solar voltaic energy!
The kit consists of [6] 0.5 volt encapsulated solar cells mounted to a movable arm. Jumpers are used to connect the cells in series or parallel. Also included are 50LE multimeter, [10] LEDs, breadboard, motor, fan prop, protractor to measure the cell angle and instructions.

842035 Kit - Assembly Required .................................................$99.95 or $89.95 ea./3+

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**KELVIN® Wind Farm Lab**
Join three wind turbines in series or parallel and measure current and voltage for each generator or the total output of the wind farm as the load is varied.
Lab includes base, analog display, wind blower and instructions.

842100 Lab ..........................................................................................................................$345

Above Lab (#842100) plus Computer w/ LCD Screen & Software with Data Collection Interface (#842099)
842101 Lab with Computer ...............................................................................................$1,595

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**KELVIN® Wind Farm™ Data Collection Interface**
Monitors up to 3 motor generators as well as load consumption.
Displays voltage AND current.

842099 USB, IBM ..........................................................$295

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**KELVIN® Wind Farm Designer’s Kit**
Find Wind Turbine Designer’s Kit on pg. 133

**How the Electric Utility System Works**
Learn how electricity is generated, transmitted, and distributed. Also covers how the electric industry started, how we use energy, and where the industry is going. Booklet.

652497 .................................................................$14.95 or $13.95 ea./6+

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www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
Build a wind turbine with a motor and generator. Advanced students can wind their own motor and generator using magnet wire.

Test rotor and blade designs by varying the rotor sweep, blade size and blade shape to change the electrical output of the generator. Test rotor output with the included multimeter or see how many LEDs are lit.

Fold a cardstock model house and create a LED circuit to plug into the wind turbine generator. A box fan or similar fan on a stand is required but not included.

---

KELVIN® Experimental Wind Turbine with Motor Generator
Includes: motor generator, gearbox parts, hub, corrugated plastic for blades, PVC stand with sturdy base, multimeter, LEDs, breadboard, printed house layout, wire, terminals, and instructions. Available as a kit or assembled and complete with stand.
842267 Kit w/Stand ............................................ $125
842268 Assembled w/Stand ................................... $199

Motor Generator Kit Only
Build your own! Comes with motor generator, gearbox parts and hub. Does not come with blades, PVC stand or wind turbine class parts.
851924 Kit- No Stand ........................................... $85 or $75 ea./5+

KELVIN® Experimental Wind Turbine w/ Transformer & Wind-Up Generator
Build a motor generator. Includes: motor generator parts, hub, corrugated plastic for blades, PVC stand with sturdy base, multimeter, LEDs, breadboard, printed house layout, wire, terminals, & instructions. Req. motor coil winding and assembly.
842258 Kit w/Stand ........................................... $139.95
842257 Assembled w/Stand ................................... $295

Transformer Generator Kit Only
Build your own! Includes motor generator parts and hub. Requires motor/coil winding and assembly. Does NOT include blades, PVC stand or wind turbine parts.
851925 Kit- No Stand ........................................... $99 or $89 ea./5+

KELVIN® Wind Turbine Model House
Bulk pack includes cardstock, LEDs, LED holder, resistor, wire, clips, and connectors. Req. Experimental Wind Turbine (see left), soldering and circuit wiring.
652613 Bulk Pack of 10 ................................ $32.95

KELVIN® Wind Turbine Blade Design
Includes: [10] corrugated plastic boards (design your own blade shape) and [10] dowel rods.
283726 .......................................................... $19.95

KELVIN® WinData™ Data Collection Interfaces
Add data collection to your projects with these economical interfaces. Can monitor 3 or 6 motor generators. Graph displays voltage on your computer. For best results, use with KELVIN® motor (851363). Can monitor 3 or 6 motor generators.
842354 Win Data™ 3 - Up to 3 Motors ...................... $145
842363 Win Data™ 6 - Up to 6 Motors ...................... $225

KELVIN® Wind Farm™ Data Collection Interface
Monitors 3 motor generators as well as load consumption. Displays voltage AND current. 842099 USB, IBM - Up to 3 Motors ....................... $295
KELVIN® Edcational

POWER & ENERGY
WIND

KELVIN®
Wind Turbine Lab
Produce, store and use energy. Individual pack includes: Adjustable Gearbox System, Turbine, Meter, LEDs, Super Capacitor, and Super Capacitor Dragster Kit (charge it and run it).

Individual Pack
841984  No Box Fan.........................$49.95
841960  Lab–Box Fan & [5] Individual Packs ....$245
390442  Box Fan, 20 in. x 20 in. ..............$29.95

Wind Turbine Consumables
Dowel, hub, corrugated board, LEDS and Super Capacitor Dragster kit.
851462  Bulk Pack of 10 ......................$99.95

KELVIN®
Kre8® Wind Generator
Experiment with wind power - a renewable energy source. The solar motor is powered by the wind and can provide energy to other projects - like powering the included LED. Take the kit apart and build it again in the next class.

Gearbox Only (No Stand, No Blades)
842068 .........................$34.95 or $29.95 ea./10+

Gearbox WITH a Stand
842146 .................................$39.95

KELVIN®
Economy Wind Turbine
See how wind can be used to light an LED using a Box Fan (NOT included). Comes with: 2- and 3-bladed propellers, KELVIN® 50LE Meter, LED and alligator clips. Measures 7 in. tall.
841958 ..............................$32.95 or $29.95 ea./2+

KELVIN® Wind Turbine Junior Design Challenge
Design, build and test a wind turbine generator that will light an LED. Works with The Wind Farm (pg. 45). Each kit has enough materials to make either a vertical or horizontal axis wind turbine.

KELVIN® Basic Wind Turbine Parts
842353  Kit ...........................$13.95 or $11.95 ea./10+

KELVIN®
Eco-Power Wind Turbine
Includes gearbox and instructions. Teachers provide the material (recycled cardboard, etc.) for the blades.

Gearbox Only
842068 ..........................$34.95 or $29.95 ea./10+

Gearbox WITH a Stand
842146 .................................$39.95

KELVIN®
Wind Turbine Designer’s Kit
Kit includes: motor, advanced gears set, motor holder, wood hub, dowel, gearbox bracket, nuts, PVC, screws, washers, twisted wire, orange LED, resistors, threaded rod, and instructions. Stand/base not included - students build their own.
842097  Kit ..............................$29.95 or $27.95 ea./5+

KELVIN®
Eco-Power Wind Turbine
Includes gearbox and instructions. Teachers provide the material (recycled cardboard, etc.) for the blades.

Gearbox Only (No Stand, No Blades)
842068 ..........................$34.95 or $29.95 ea./10+

Gearbox WITH a Stand
842146 .................................$39.95

Find More KELVIN® Kre8® products on pgs. 7, 13-17, 30, 34, 37, 45, 49, 67, 85, 106, 133, 136 & 181

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KELVIN® Investigating Generators, Transformers and Turbines

Bring the production of electrical power to a scale your students can understand. Using this kit students will build their own generator. After testing the generator students are challenged to design, build, install and test a wind turbine to spin the generator shaft. To increase the voltage going to an LED circuit, students will add a step up transformer to their turbine generator design. How many LED’s can your student designed turbine generator light?

842140 ................................................................. $39.95

Solar Energy Lab

For centuries the sun has been used as an energy source. In this module, you will learn about several important uses of solar energy. Most new homes being built today are designed to be energy efficient and many include special features to utilize solar energy for heating and cooling. Recently there has also been a great deal of interest in designing solar powered vehicles in order to reduce gasoline consumption as well as air pollution. Less expensive and more efficient solar cells are bringing us closer to the day when it will be common to see solar vehicles on the road.

Lab includes:
- Equipment: Digital Multimeter, Digital Thermometer, Alligator Clip Cables, Clamp-On Flood Light and Bulb
- Tools: Craft Knives and Blades, Rulers, Scissors, Cutting Mats, Cool Melt Glue Gun and Glue Sticks
- Videos: Tomorrow’s Energy Today, Photovoltaics
- Software: Solar Workshop
- Plus, a Workstation Sign

841716 ................................................................. $795

KELVIN® Odyssey™ Wind Turbine Design

Students will design and construct a wind turbine and determine its efficiency by monitoring rotational speed. The goal is to create a turbine that turns as fast as possible when exposed to a wind source for a specific period of time.

The software will monitor and display the rotational speed of a vertical and horizontal wind turbine. A special graph will show the RPM while the actual RPM number will be displayed. Students can determine the most efficient turbine by comparing the highest recorded RPM or the greatest average RPM computed by the program.


000000 MS/HS without Computer ................................................................. $00
841632 MS/HS w/ PC, LCD Display, Software, WIN XP-7 ..................................... $1,995

Fuel Cell Car and Experiment Kit

More than 30 experiments and demos. Learn how a reversible fuel cell works to perform electrolysis as well as to create energy. The electricity required to activate electrolysis is created with a large solar cell included with the kit.


281857 Kit .................................................................................. $225
**KELVIN® Educational**

**AERODYNAMICS WIND TUNNELS**

---

**Build Your Own® Wind Tunnel Chamber**

**KELVIN® Kel-Lift & Drag Sensor™**

Measure lift and drag properties of wings, vehicles, boat hulls using this interface. Attach a test item to the sensor rod and turn on the wind tunnel. Use the USB cable to interface with a computer and view, store, graph and compare test data.

Includes interface with USB port, software, digital wind speed meter and USB cable. This unit can be retrofitted to wind tunnels other than KELVIN®. Requires computer for display. Grades 6-College.

841410 Win, USB ............... $995

**KELVIN® Stand-Alone Kel-Lift & Drag Sensor™ w/ LCD Display**

View the data acquired from each test on the 2-line LCD display. This unit does not store data but can connect to a computer via USB connection. Power supply is included.

841722 Win, USB ............... $1,250

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**KELVIN® Flight Dynamic Wind Tunnel**

Students can optimize their design solutions by gathering data and visualizing air flow over a surface. The tunnel can be used to view and measure the force of lift on airfoils and the force of drag on vehicle bodies, rocket parts and other objects. When used with a simple streamer or smoke machine students can observe the flow of air over any surface. 1/4 HP blower features wind speed up to 25mph. LED lit viewing chamber measures 14 x 6-1/4 x 6-1/2 in. Tunnel includes streamer, test stand, airfoil/rocket mounts and instructions. Optional Kel-Lift & Drag Sensors™ are available at left.

**NOTE:** Please allow $295 for oversize shipping.

841786 Flight Dynamic Wind Tunnel ................................................................. $1,795
841410 Kel-Lift & Drag Sensor™ (see details at left) ........................................... $995
841722 Kel-Lift & Drag Sensor™ w/ LCD Display (see details at left) ................. $1,250

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**KELVIN® Kel-Wind™ Wind Tunnel**

The air intake for this wind tunnel provides smooth laminar air flow; allowing students to accurately measure lift and evaluate their airfoil design with 41 knots of wind speed.

Includes activity manual, airfoil holding fixture, scale package, and built-in DC fan blower motor with variable speed controller. Chamber measures 18 x 8 x 8 in. Overall dimensions are 69 x 26 x 21 in. Assembled; durable construction.

Optional Kel-Lift & Drag Sensors™ are available at left. **NOTE:** Please allow $395 for oversize shipping.

840614 Kel-Wind™ Wind Tunnel ................................................................. $4,995
841697 Kel-Wind™ Wind Tunnel, Kel-Lift & Drag Sensor, Computer w/Display & Pre-Loaded Software ................................................................. $6,795
841410 Kel-Lift & Drag Sensor™ (see details at left) ........................................... $995
841722 Kel-Lift & Drag Sensor™ w/ LCD Display (see details at left) ................. $1,250

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**KELVIN® ATEC Wind Tunnel**

For airfoil shapes and lifting forces. Includes digital scale, magnetic protractor, blower fan, tunnel, special airfoil testing fixture and assembly instructions.

840580 Grades 5+ ........................................................................ $375

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**KELVIN® Engineering Mini Module: Aerospace 1**

Includes ATEC wind tunnel, teacher’s guide, foam cutter, high-density foam, balsa, tissue paper, foam abrasive pad and white glue.

841642 Grades 5+ ........................................................................ $895

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**Find “Build A Program” Engineering Mini Modules on pgs. 122-123**

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ∆ Find California Prop 65 Warning on pg. 180

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KELVIN® Economy Plastic Motor
Features high quality molded plastic with unique coil winding assembly.
842395  [A] Kit ................................................................. $9.95 or $8.95 ea./10+
842337  Bulk Pack of 30 ................................................................. $6.00 Per Kit $180
842338  Assembled Model ................................................................. $74.95

KELVIN® Electricity & Magnetism Motor
Includes: wood, magnet, batteries, battery holder and wire.
841147  [B] Kit ................................................................. $4.95 or $4.45 ea./12+
841816  Bulk Pack of 24 ................................................................. $4.12 Per Kit $99

KELVIN® Motor Generator Kit
Convert mechanical energy into electricity. Kit includes a motor, generator,
840031  [C] Kit ................................................................. $7.95 or $7.45 ea./10+
842430  Bulk Pack of 30 ................................................................. $7.00 Per Kit $210

KELVIN® Reed Switch Motor
As one of the 2 fixed magnets passes the reed switch, it is closed and the magnet
core is engaged. The interaction of the electro-magnet and permanent magnet
produce an incredibly fast revolution of the rotor. Requires a AA battery.
283287  [D] Kit ................................................................. $10.95 or $9.95 ea./10+

KELVIN® Sturg DC Motor
William Sturgeon invented the first rotary electric motor. Based on his design,
this simple motor provides continuous rotary motion. Includes: DC electric motor
with wood, magnet and wire.
841967  [E] Kit ................................................................. $12.95 or $11.95 ea./10+
842408  Bulk Pack of 10 Kits ................................................................. $9.95 Per Kit $99.95
842441  Bulk Pack of 20 Kits ................................................................. $9.50 Per Kit $190
841968  Bulk Pack of 30 Kits ................................................................. $9.17 Per Kit $275

KELVIN® Spinning Motor
This super smooth motor kit includes a precut acrylic base and parts for ease of assembly. The motor utilizes four magnetic contacts and a reed switch to create KELVIN® fastest spinning DC motor kit. Requires [2] AA batteries.
842083  [F] Kit ................................................................. $14.95 or $12.95 ea./6+ or $11.95 ea./20+

KELVIN® Kre8® DC Motor
Build an electromagnet and make the motor spin as fast as possible! Comes with:
tubes, slit rods, steel rods, copper wire, collars, clip connectors, [2] magnets,
metal bearing, resettable fuse, reed switch, red base, bag and sand paper.
Requires a battery.
842081  [G] Kit ................................................................. $15.95 or $14.95 ea./5+ or $13.95 ea./10+
283736  Bulk Pack of 20 ................................................................. $12.50 Per Kit $250

KELVIN® Advanced Motor
Designed for older students, this metal and acrylic motor kit challenges their
ability to precisely layout and drill mounting holes and assemble this elegantly
280576  [H] Kit ................................................................. $13.95 or $13.45 ea./20+

KELVIN® Bell
Building a bell project in the class is fun and educational. Kit includes bell, electrical parts, wood, [3] AA batteries and basic instructions.
280577  [I] Kit ................................................................. $11.95 or $10.95 ea./10+

KELVIN® Telegraph & Buzzer
Wind coil, connect wires and construct a real, working telegraph
sender and receiver. Includes materials and instructions. Requires batteries.
841978  Kit ................................................................. $44.95 or $42.95 ea./6+
283119  Bulk Pack of 10 ................................................................. $39.50 Per Kit $395

Find More KELVIN® Kre8® products on pgs. 7, 13-17, 30, 34, 37, 45, 49, 67, 85, 106, 115, 133 & 181
**KELVIN® Investigating Electricity Lab**

KELVIN® Investigating Electricity Lab takes a unique approach to teaching basic DC electricity concepts. The experiment board and components use a Velcro like technique to mount parts when assembling circuits. The lab has been designed to teach students the basic fundamentals and concepts behind DC electricity and circuits. The lab provides background information on many topics and activities that allow the students to apply their knowledge. The activities include Measuring Voltage, Assembling Simple Electric Circuits, Assembling Circuits Using Schematic Diagrams, Series and Parallel Circuits, Using a Meter to Measure Electricity in a Circuit and The Effects of Voltage, Current and Resistance in a Circuit.

360029 Lab .......................................................... $99.95 or $94.95 ea./3+

**KELVIN® Hydroelectric Turbine Generator**

Hydroelectricity is a clean and renewable source of energy that supplies electricity to many parts of the United States. Assembling this kit gives your students an opportunity to produce a working model of a hydroelectric generator that will light an LED. The design element of this activity challenges your students to produce turbine blades that provide the most efficient use of the moving water. Measure output with a multimeter. Running water is needed; some tools are needed for drilling. Red acrylic base is included.

842339 Kit ....................................................... $29.95 or $27.95 ea./5+
842340 Bulk Pack of 10 ......................... $25 Per Student $250

**KELVIN® Making Wet Cells & Batteries Lab**

Design, build, test and experiment with electro-chemistry. Students will create wet cells and batteries using a variety of different electrode and electrolytic solutions while gathering and analyzing output data. This lab kit is the perfect companion to author Harry Roman’s booklet, Making Wet Cells and Batteries.

Includes: detailed instructions, electrodes (copper, zinc, tin, aluminum, iron), Safe chemicals for creating electrolytic solutions, measuring containers and tools, cell containers, multimeters and alligator leads.

842300 Enough for 24 Students ............................................. $275

Making Wet Cells and Batteries

The chemistry and materials in wet cells and batteries are all around us. Under-standing how wet cells work, helps us understand rust and corrosion; and why batteries behave the way they do and eventually need replacement. Includes fun information and simple experiments. Wait until you see what you can use to make wet cells and batteries!

652656 Booklet ................. $14.95 or $13.95 ea./10+

**Use water and the hydroelectric turbine generator to make electricity and light the LED.**
Intro Mechanics: Aircart
Designing any transportation system requires an understanding of some basic ideas of physics. In this unit you will build an aircart, decide what attributes of the cart are pertinent, and what variables are important for the description of motion. Determining a set of variables and the relationships between them is the primary work of creating a model. A good model can be generalized and extended. With a good model in hand, design work can proceed. What transportation problems could an aircart solve? What are its drawbacks? This kit includes the parts to build a propeller-driven cart and a force/thrust gauge. Grades 9 through College.

840996   H.O.P. Aircart Kit .................. $23.95

Intro Optics: Haze
In this unit, you build optical sensors that can be used to infer haze levels and contribute your data to an international haze monitoring network. This work involves understanding the physics of light with an emphasis on wavelengths, absorption, scattering, and photon energy. Look at the spectrum and polarization of the sun, LEDs, flames, other sources, and of scattered light using different kinds of scattering.

This kit includes all the parts needed to build a Sun Photometer. Grades 9 through College.

840995   H.O.P. Haze Kit ........................................ $29.95

Intro Electronics: Security Systems
This is an introduction to circuits and electronics set in the context of creating a building security system. The simplest system consists of switches, a power supply, and a buzzer. A variety of switches will be introduced, including magnetic, optical and thermal ones. You’ll gain familiarity with interpreting schematics, using breadboards, using meters, and debugging circuits. You will also build a power supply used later. Physics concepts include electrical terms, power, an introduction to solid state and experimental skills. This kit includes the parts needed to build a Low-Voltage Power Supply to use in this and other H.O.P. Units. Grades 9 through College.

840994   H.O.P. Electronics Kit ........................................ $29.95

Intro to Sound Waves
These extensions involve measurements of sound intensity. For these sound investigations you will need to build a Sound Level Meter. You will also need a sound source. The tone generator you build in the Core project will serve quite well if you add a speaker. All parts need for extensions are included.

841334   H.O.P. Sound Kit ........................................ $29.95

H.O.P. Tool Box
An assortment of tools and supplies for use with the H.O.P. experiments.

840997 .................................................. $155

KELVIN® Voice Over™ Trainer with Laser Beam
The best of the Voice-Over™ Trainers—it’s an economical way to study laser beam communication!

Use the trainer to demonstrate voice modulation or transmit voices or music over a laser beam. An input jack allows students to access CD players or tape recorders for additional activities in communications. Covers: Light Communication, Parts and Operation, Fiber Optics, The Laser Diode, Beam Divergence and Graph, The Transmitter, Beam Intensity, The Receiver and Using the Voice-Over™ Laser.

Also includes: Assembled Voice-Over™ Fiber Optics Trainer, transmitter/receiver, microphone, input jack, laser pointer and manual. Grades 8 and up ............. $195

Laser Pointer Activities
By Thomas Altman. Consists of nine laser pointer activities: earthquake detector, music controlled laser patterns, crystal ball laser projector, diffraction and moving diffraction grating, representing a black hole, laser Lissajous patterns and twisting beams. Also explores the issues of safety and use in the classroom. 27 pages.

652291   Guide ............ $9.95 or $8.95 ea./20+

Hands-on investigations that help students build sophisticated experiments out of inexpensive parts.
Students use troubleshooting techniques in all Project ComTech™ projects—they are not given the standard foolproof, step-by-step instructions.

KELVIN® Project ComTech™ Lab

In this pilot module, Communicating with Light: From Smoke Signals to Fiber Optics, students become familiar with the elements of communications systems as well as with basic electronics, coding schemes, and the properties of light. Students master a limited number of powerful technology and science concepts, sense the excitement and challenge of technology, and develop critical thinking and reasoning skills that can be transferred to all disciplines. This instructive modular lab, supplemented with electronic, electro-optical, electrical and mechanical components, is recommended for use in grades 6-10 science and technology classes.

The key components are five electronic circuit boards (or modules) which accompany the written material. Modules 1 and 2 are very simple; Modules 3 and 4 are more advanced. The five Assembled Modules include: Light Sensor Module, Light-Emitting Diode (LED) Module, Voltage to Frequency Converter Module, Audio Modulator Module and Amplifier Module.

The written material, approximately 178 pages in length, describes a number of activities addressing light communication systems and codes, students progress through voice-modulated signals employing optical fiber.

Technical topics covered include: signal codes, properties of light, transducers and simple circuitry. Sensory feedback is provided throughout the experiments with flashing lights, attractive colors, vibrating transducers, and interesting sounds.

Unit 1
- How People Communicate (talking, drawing, Braille, camera, drums, telephone, etc.)
- Experiment with Batteries / Bulbs (light emitting diode, building and testing the flashing light communicator)
- Coding and Sending Messages (morse code, flashing light, binary code, encoding transmitting, receiving and decoding messages)

Unit 2
- Improving Communication with Electronic Circuitry (light sensor, voltage to frequency converter, loud speaker, power supplies, input/output and how they are connected, electronic measurements, range and speed).

Unit 3
- Communicating with Optical Fiber
- Understanding the Properties of Light Which Makes Optical Fiber Communications Possible (reflection, deflection, total internal reflection, light following in curved path, light traveling through fiber, light splitting into two fibers, sending your voice over a beam of light, making an optical fiber coupler)

This modular lab includes: [5] Assembled Modules, Lab Manual, Batteries, Fiber Cable, Light Bulbs, Speakers, Hookup Wire, Alligator Clips, and Plastic Parts for Light Devices. Other material will need to be supplied by the teacher in order to conduct activities (such as a c-clamp, milk, water, ruler, etc.). Grades 6-10 science and technology classes.

841284 Project ComTech™ Modular Lab ................................................. $195
841306 Project ComTech™ Class Pack of 4 Sets ........................................... $775
651567 Project ComTech™ Lab Manual .................................................... $29.95

KELVIN® Project ComTech™ was created by the Science Education Department of the Harvard-Smithsonian Center for AstroPhysics, with support from the National Science Foundation.

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180
KELVIN® Investigation
Groundwater Pollution Lab
Students will take part in five activities that explore soil science, surface contamination of water, purifying raw water, measuring particulate, and modeling groundwater and aquifers. Includes detailed student resource materials and a teacher’s guide.
282231 Lab ................................................. $115

KELVIN® Oil Spill Cleanup Activity Lab
A series of activities and design challenges focused on environmental cleanups resulting from oil spillage. Lab includes oil absorbent matting material, biological oil absorbing materials, absorbing powder, dispersants, instructions and much more. Each kit provides enough materials for a class of 20 students.
282232 Lab ................................................ $99.95

KELVIN® Exploring Water, Soil & Air Lab
This provides information and hands-on activities for the study of our natural environments and the interdependency of each of its parts. Air, water, soil, plants, animals and living organisms combine to create the ecosystem we live in.
281910 ...................................................... $99.95

KELVIN® Class Hydroponics System™
Growing plants without using soil seems impossible but it is becoming necessary to feed a growing world population that has limited land use, limited sunlight and extreme weather conditions (such as the deserts and poles).
Control inputs of light, water and nutrients so that the output is a healthy, fresh crop. Students use problem-solving to determine best conditions for growing plants. Includes pallets, bucket, lettuce seeds, plant food and instructions. Does not include workstation table shown. Some assembly will be required. Grades 4–12.
840691 Class Hydroponics System™ .................. $495
650688 Hydroponics Booklet, 24 pgs .................. $5.95

Find the KELVIN® Hydroponics Engineering Mini Lab on pg. 105.
**Digital Probe Lab Thermometer**
Measures Fahrenheit and Celsius from -50° F to 150° C. Auto power off. 0.5 second sample rate. Includes a storage sheath and LR44 battery.

790006 -50° F to 150° C ...........................................$24.95

**Density Blocks**

710085 Density Blocks ...........................................$34.95

**Power Supply for Spectrum Discharge Tubes**
Specially designed power supply to safely run spectrum discharge tubes of length approx. 10-1/4 in. (260mm). Encased in a metal body. Spring loaded with clips to connect the tubes securely. Dual voltage capability (110V /220V) by the flip of a switch! ROHs and CE certified! Tubes are not included and are sold below.

283799 ...................................................................$199.95

**Spectrum Tubes**
283783 Air ...............................................................$21.95
283784 Argon ..........................................................$21.95
283785 Bromine .........................................................$27.95
283786 Carbon Dioxide ...............................................$21.95
283788 Deuterium ......................................................$23.95
283789 Helium ..........................................................$21.95
283790 Hydrogen ......................................................$21.95
283792 Krypton ........................................................$21.95
283793 Mercury .........................................................$21.95
283794 Neon ............................................................$21.95
283795 Nitrogen ........................................................$21.95
283796 Oxygen ........................................................$21.95
283797 Water Vapor ....................................................$21.95
283798 Xenon ...........................................................$21.95

**Slotted Brass Weights Set**
Set contains: two 5g, one 10g, nine 20g, and one 50g weight with hook.

710186 ..............................................................$23.95

**Double Hooked Weight Set**
Useful when additional weights are required to be added. All weights have counter sunk recessed bottoms so that the weight rests flat. All weights have Brass Hooks. Set of 9 weights includes: 1000g, 500g, [2] 200g, 100g, 50g, [2] 20g, and 10g.

710187 ..............................................................$94.95

**Spring Scales**
Quality scales at affordable prices! Used to measure force and mass. Calibrated in Newtons and grams with a beveled top for use on inclined planes.

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**Triple Beam Balance/Scale**
Has 610g x 0.1g capacity! Durable, mechanical platform balance with tiered beams and magnetic damping. Use weights shown below for measuring activities, science experiments, etc.

850688 Triple Beam Balance/Scale ..................$149.95
851423 Triple Beam Balance/Scale w/ Weights........$175

**Digital Utility Scale**
Non-slip steel platform has low profile design. 400 lbs x .5 lb. Detachable table or wall mount indicator has 9 ft. cord. Tare indicator. LB/KG convertible. AC adapter included. Operates on 9V battery (not included).

851341 ..............................................................$225

**Economy Stopwatch**
282363 ...........................................................$5.95

**Stopwatch**
Features: daily alarm, hour chime, 12/24 hr., clock and 1/100 sec. up to 24 hours. Displays lap time, hrs., min., sec., mo., date and day of week. Black.

150034 .............................................................$16.95

**Sand Timers**
10 Second Timer
210023 ............................................................$6.95

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**Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.**

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KELVIN® Hanukkah Menorah
Features laser-cut acrylic base and big, 10mm LEDs simulating the candles. Stable design is very easy to operate. Two small, low profile switches help “turn on” the right amount of LEDs or reset the unit. Comes with a 5V DC wall mounted power supply. Powered by USB cable.
842524 Kit..........................................................................................COMING SOON

KELVIN® Metal Detector
Detect metal objects in or behind surfaces. Requires a 9V battery. Enclosure not included.
841595 Kit. .................. $14.95 or $13.95 ea./10+ 842183 Assembled Demo ........................ $69.95
Bulk Pack  As Low As $12.00 Per Kit
842240 Bulk Pack of 10 Kits ........................................ $120

KELVIN® Intercom X2 Way
Small low profile, lightweight intercom with excellent sound quality and long battery life. Additional features include a big easy to use “push-to-talk” button and LED indicator that light up when it is in use. Convenient screw-type connectors for attaching and detaching wires. Comes with 20 feet of cable that can be easily extended to any length you want.
842532 ..........................COMING SOON

KELVIN® Metal Stud Finder
Detects metal studs behind a wall. Requires a 9V battery. Enclosure not included.
841594 Kit. .................. $12.75 or $11.95 ea./10+ 842184 Assembled Demo ........................ $69.95
Bulk Pack  As Low As $9.99 Per Kit
842241 Bulk Pack of 10 Kits ........................................ $99.95

KELVIN® Wireless Microphone
Transmit a voice to any FM radio up to 100 feet away. Includes PVC pipe. Requires 9V battery.
841599 Kit........ $29.95 or $26.95 ea./10+ 842181 Assembled Demo ......................... $69.95
Bulk Pack  As Low As $26.00 Per Kit
842238 Bulk Pack of 10 Kits ........................................ $260

KELVIN® Experiments with Fiber Optics: Alarm Chain
Wrap the fiber optic cord around your computer or valuable possession. If the fiber optic wire is cut, it’s relay will trigger the alarm circuitry (sold separately). The alarm circuitry can be shut off by pressing reset. Requires 9VDC battery.
841125 Kit .................. $29.95 or $26.95 ea./10+ 842247 Bulk Pack of 10 Kits ...................$245
**KELVIN® Flashing LED Heart**
A heart is formed by 16 LEDs. The first switch flashes the whole heart, the second switch flashes 1/2 of the heart then the other. Requires a 9V DC battery.
842519 Kit .................. $11.95 or $10.95 ea./3+

842521 Kit .................. $15.95 or $12.95 ea./3+

**KELVIN® Sound Effects v2**
New design features a programmed Arduino chip. Make four different sound effects; from a Laser Gun to Police Siren. Requires a 9V battery.
842505 Kit .................. $13.95 or $11.95 ea./10+

842520 Kit .................. $10.95 or $9.95 ea./3+

**KELVIN® Electronic Chirp**
Automatically comes on with switch. Makes repeating cricket sound (time between two crickets) using piezo electric buzzer. Requires a 9V battery.
842507 Kit .................. $9.95 or $8.95 ea./10+

**KELVIN® Sound to Light**
7 super bright LED’s flash in time with sound fed through the onboard microphone. Sensitivity can be adjusted through the volume control.
842032 Kit .................. $12.95 or $10.95 ea./10+

**KELVIN® Stroboscope**
Features a powerful flash effect. Use for warning signs, as eye-catcher, alarm, etc. Auto turn on at dark mode with adjustable sensitivity. Requires a 9V battery or 12V DC.
Kit 842529. $15.95 or $12.95 ea./3+

**KELVIN® Flashing LED Heart**
A heart is formed by 16 LEDs. The first switch flashes the whole heart, the second switch flashes 1/2 of the heart then the other. Requires a 9V DC battery.

**KELVIN® Christmas Tree**
This kit has 16 LEDs that can either blink in pattern or whole board with the use of two switches. Requires 9V battery.
842520 Kit .................. $10.95 or $9.95 ea./3+

**KELVIN® Flashing & Adjustable Jumbo LED**
Uses one adjustable potentiometer and large LEDs (10mm).
Kit 842490, $5.95 or $4.95 ea./10+
Bulk Pack of 30 Kits 842528, $127.50
As Low As $4.25 Per Kit

**KELVIN® Speedy Brain**
842506 Kit .................. $14.95 or $13.95 ea./3+

**KELVIN® Dice**
Electronic die with an LED indication. Rolls slowly out when the push button is released. Requires a 9V battery.
842518 Kit .................. $12.95 or $9.95 ea./3+

**KELVIN® 3D Christmas Tree**
This kit features 32 LEDs that can either blink in pattern or light up the whole board with the use of two switches. Easy assembly by sliding the two boards together onto the bottom board (where major components are soldered). Requires 9V battery.

**KELVIN® Flashing LED Heart**
A heart is formed by 16 LEDs. The first switch flashes the whole heart, the second switch flashes 1/2 of the heart then the other. Requires a 9V DC battery.

**KELVIN® Electronic Chirp**
Automatically comes on with switch. Makes repeating cricket sound (time between two crickets) using piezo electric buzzer. Requires a 9V battery.

842519 Kit .................. $11.95 or $10.95 ea./3+

842521 Kit .................. $15.95 or $12.95 ea./3+

**KELVIN® Sound Effects v2**
New design features a programmed Arduino chip. Make four different sound effects; from a Laser Gun to Police Siren. Requires a 9V battery.
842505 Kit .................. $13.95 or $11.95 ea./10+

842520 Kit .................. $10.95 or $9.95 ea./3+

**KELVIN® Electronic Chirp**
Automatically comes on with switch. Makes repeating cricket sound (time between two crickets) using piezo electric buzzer. Requires a 9V battery.
842507 Kit .................. $9.95 or $8.95 ea./10+

**KELVIN® Sound Effects v2**
New design features a programmed Arduino chip. Make four different sound effects; from a Laser Gun to Police Siren. Requires a 9V battery.
842505 Kit .................. $13.95 or $11.95 ea./10+

842520 Kit .................. $10.95 or $9.95 ea./3+

**KELVIN® Flashing LED Heart**
A heart is formed by 16 LEDs. The first switch flashes the whole heart, the second switch flashes 1/2 of the heart then the other. Requires a 9V DC battery.

**KELVIN® Christmas Tree**
This kit has 16 LEDs that can either blink in pattern or whole board with the use of two switches. Requires 9V battery.
842520 Kit .................. $10.95 or $9.95 ea./3+

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842507 Kit .................. $9.95 or $8.95 ea./10+

**KELVIN® Flashing & Adjustable Jumbo LED**
Uses one adjustable potentiometer and large LEDs (10mm).
Kit 842490, $5.95 or $4.95 ea./10+
Bulk Pack of 30 Kits 842528, $127.50
As Low As $4.25 Per Kit

**KELVIN® Speedy Brain**
842506 Kit .................. $14.95 or $13.95 ea./3+

**KELVIN® Dice**
Electronic die with an LED indication. Rolls slowly out when the push button is released. Requires a 9V battery.
842518 Kit .................. $12.95 or $9.95 ea./3+
**KELVIN® Electronics Kits** All kits require batteries, soldering and assembly.

**KELVIN® Blending LEDs**
Demonstrates how to blink two LEDs with many basic electronic parts. Requires a 9V battery.
- Kit: $3.95 or $2.95 ea./10+
- Assembled Demo: $49.95

**KELVIN® Reaction Tester**
Anticipate when the LED will light and release the switch. Stays lit up when right. Requires a 9V battery.
- Kit: $3.95 or $3.65 ea./10+
- Assembled Demo: $49.95

**KELVIN® Decision Maker**
Great tool for making any “YES,” “NO,” or “Heads or Tails” decisions. Requires a 9V battery.
- Kit: $3.95 or $3.65 ea./10+
- Assembled Demo: $49.95

**KELVIN® Micro-Mazer™**
Blinking LED eyes and a jumbo LED gives this kit a ‘robotic face’. Requires a 9V battery.
- Kit: $6.95 or $5.95 ea./10+
- Assembled Demo: $49.95

**KELVIN® Night Light**
A photocell turns on/off a super bright LED as the room darkens or lightens. Uses batteries (not included) as a power source. Includes pc board and parts. Kit requires soldering and assembly. Also requires [2] AA batteries.
- Kit: $4.95 or $4.45 ea./10+ or $3.95 ea./20+
- Assembled Demo: $59.95

**KELVIN® Touch Control**
Activates a relay just by touching the ON probe. Requires a 9V battery. Enclosure not included.
- Kit: $3.95 or $2.95 ea./10+
- Assembled Demo: $49.95

**KELVIN® Light Activated**
Light triggers a relay for an alarm or robot. Requires a 9V battery. Enclosure not included.
- Kit: $9.95 or $8.95 ea./10+
- Assembled Demo: $59.95

**KELVIN® Moisture Sensor**
Check the soil moisture of plants with probes and keep them alive. Requires a 9V battery.
- Kit: $9.95 or $8.95 ea./10+
- Assembled Demo: $59.95

**KELVIN® Night Light & Battery Charger Kit**
Sunlight and the solar cell charges the rechargeable battery during the day. Integrated circuit senses voltage change to turn on LED light at dark. Kit includes PC board, LED light, battery holder, rechargeable AA battery and solar panel. Kit requires soldering and assembly.
- Kit: $12.95 or $11.95 ea./10+

**KELVIN® Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.**

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**KELVIN® Electronics Kits** All kits require batteries, soldering and assembly.

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**KELVIN® Continuity**
Both require a 9V battery.

- **LED Light Only Continuity Tester Bulk Pack**
  - 842407 Bulk Pack of 30 Kits $88.50
    - **As Low As $2.95 Per Kit**
  - **Mechanical Buzzer & LED Light Continuity Tester Bulk Pack**
    - 842405 Bulk Pack of 20 Kits $99
    - **As Low As $4.95 Per Kit**

**KELVIN® Deluxe Continuity Tester**
Electric Buzzer with LED Light. Requires a 9V battery.
- 841241 Kit $7.95 or $6.95 ea./10+
- 842172 Assembled Demo $59.95
- **Bulk Pack**
  - 842233 Bulk Pack of 20 Kits $99
    - **As Low As $4.95 Per Kit**

**KELVIN® Booster Audio Amplifier**
Works from any audio signal up to 1W. Relays to incl. speaker w/ volume control. Req. 9V battery.
- 841133 Kit $6.95 or $5.95 ea./10+
- 842177 Assembled Demo $59.95
- **Bulk Pack**
  - 842236 Bulk Pack of 20 Kits $109
    - **As Low As $5.45 Per Kit**

**KELVIN® Police Siren**
Mimics a police car siren with tone adj. Can also be used as a burglar alarm. Requires a 9V battery.
- 841567 Kit $7.95 or $6.95 ea./10+
- 842189 Assembled Demo $59.95
- **Bulk Pack**
  - 842245 Bulk Pack of 20 Kits $120
    - **As Low As $6.00 Per Kit**

**KELVIN® Decision Stick**
Push the button to display the answer to your question. Requires a 9V battery.
- 841569 Kit $9.95 or $8.95 ea./10+
- 842195 Assembled Demo $59.95
- **Bulk Pack**
  - 842248 Bulk Pack of 20 Kits $149
    - **As Low As $7.45 Per Kit**

**KELVIN® Kel-Wheel of Fortune**
Push the button and see 10 LEDs appear to spin around the wheel. Requires a 9V battery.
- 841572 Kit $10.95 or $9.95 ea./10+
- 842197 Assembled Demo $59.95
- **Bulk Pack**
  - 842251 Bulk Pack of 10 Kits $89
    - **As Low As $8.90 Per Kit**

**KELVIN® Bicycle Safety Light**
- 841596 Kit $11.95 or $10.95 ea./10+
- 842167 Assembled Demo $59.95
- **Bulk Pack**
  - 842228 Bulk Pack of 10 Kits $99.95
    - **As Low As $9.99 Per Kit**

**KELVIN® Hollywood Marquee**
Kit includes a PC board, parts and instructions. Requires a 9V battery.
- 840556 Kit $12.95 or $11.95 ea./10+
- 842168 Assembled Demo $69.95
- **Bulk Pack**
  - 842229 Bulk Pack of 10 Kits $99.95
    - **As Low As $9.99 Per Kit**

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180

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KELVIN® Electronics Kits All kits require batteries, soldering and assembly.

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<td>840662</td>
<td>$17.95 or $16.95 ea./10+</td>
<td>$69.95</td>
<td>As Low As $15.00 Per Kit</td>
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<td>KELVIN® 20W Audio Amplifier</td>
<td>841598</td>
<td>$19.95 or $18.95 ea./10+</td>
<td>$69.95</td>
<td>As Low As $16.00 Per Kit</td>
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<td>KELVIN® Strobe Light</td>
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<td>$59.95</td>
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<td>KELVIN® Temperature Control</td>
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<td>KELVIN® Temperature Control</td>
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<td>KELVIN® Number Picker</td>
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<td>KELVIN® Audio Level</td>
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<td>KELVIN® Motor Speed Control</td>
<td>842237</td>
<td>$160</td>
<td>As Low As $16.00 Per Kit</td>
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</table>

Big Ear
Build an ultra sensitive listening device. Requires a 9V battery. Enclosure not included.

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 36.
**KELVIN® Reverse Engineering A Flashlight**
Reverse engineer an everyday product and discover its designer’s ideas and concepts. The activity includes step by step instructions for the student and teacher along with probing questions that direct the students’ investigation of the product.
Each kit comes with: Flashlights, Student Study Guides and a Teacher Resource Guide. Please note actual project contents are subject to change.
841828 Bulk Pack of 10 ........................................................ $8.99 Per Kit $89.95

**KELVIN® Hand Crank Flashlight**
Turn mechanical energy into light energy using our Hand Crank Generator Flashlight Kit. Batteries not needed. Assemble the LED circuit within the pre-scored cardstock body. The crank turns a small DC motor changing the mechanical energy into electrical energy lighting the LED.
842442 Kit ................................................................. $11.95 or $9.95 ea./10+

**KELVIN® Hand Crank Headlamp**
When the lights go out use this headlamp to help get around. Crank generator lights three super bright LEDs. The head strap is adjustable.
842444 Kit ........................................................................ $19.95 or $14.95 ea./10+

**KELVIN® Mini LED Flashlight**
Design, assemble and test a keychain flashlight with a super bright LED. Requires a heat gun.
842037 Bulk Pack of 25 .................................................... $2.95 Per Kit $73.75
842259 Assembled Demo ............................................................ $39.95

**KELVIN® Discover It™ Lighthouse**
Students can design their own creation, model an existing lighthouse or use the KELVIN® design to produce a working model. Class pack includes [30] pre-printed cardstock, knife switches, lamps, lamp bases, wires, battery holders and instructions. Requires AA batteries. Grades 2 & up.
842044 Bulk Pack of 10 Kits .................................................. $5.99 Per Kit $59.95
842045 Bulk Pack of 20 Kits .................................................. $4.99 Per Kit $99.95

**KELVIN® Lamp Kit**
A great product for mass production projects. It can also be used for fund raising. Students design and construct the base for this lamp out of almost anything—a stack of books, a mason jar or a creative wood sculpture. The kit includes: 6 ft. long cord with plug, push-thru socket, 12 in. lamp pipe, and [2] hex nuts. Requires harp/final below.
840675 Kit ........................................................................ $6.95 or $5.95 ea./10+
842383 Bulk Pack of 15 ....................................................... $5.66 Per Kit $84.95

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 36
AM/FM Radio Kit with Transistor & IC
842313 Kit.................................................................$45.95 or $40.95 ea./6+

Actual Size is 5-1/4 x 11-5/8 in.

AM Radio Kits
Easy-to-build, complete radio on a single printed circuit board. Unique design allows you to place parts over a corresponding symbol on the PC board. Detailed instructions and illustrations make it an educationally sound project. Requires soldering and a 9V Battery.

Kit with 2 ICs
280642 ..................................................$23.95 or $20.95 ea./6+
Kit
840262 ..................................................$31.50 or $29.95 ea./6+

Electronic Parts ID Course
Over 50 Parts Included with the Course! 28-pg. manual with dozens of illustrations includes detailed descriptions of parts, their functions, color codes, and five self tests.
282432 .................................................$9.95 or $9.45 ea./3+

Practical Soldering Project I
This solder practice kit will help students achieve good soldering techniques and become familiar with a variety of electronic components. Comes with soldering iron and side cutters. Requires a 9V battery.
282459 Kit.................................$23.95 or $20.95 ea./10+

Practical Soldering Project II
Another superb solder practice kit designed to meet the ever increasing demands on proper soldering procedures in electronics courses. Includes color code calculator as well as kit parts. Requires a 9V battery.
282460 Kit.................................$11.95 or $10.45 ea./3+
**KELVIN® Educational Kits**

- **KELVIN® Telegraph & Buzzer**
  Wind coil, connect wires and construct a real, working telegraph sender and receiver. Includes materials and instructions. Requires batteries.
  - 841978 Kit $44.95 or $42.95 ea./6+ or $39.50 Per Kit
  - 283119 Bulk Pack of 10...

- **KELVIN® Learn About Electronics Mini Lab**
  No soldering is required! Students experiment with series and parallel circuits, switches, batteries, lights, continuity and more. Includes board, banana plugs and instructions.
  - 841749 Assembled...

- **KELVIN® Clip-On™ Electronics Experiment Trainer**
  A low cost, no frills trainer that expands as your student’s knowledge base builds. Covers a variety of basic electronic components found in everyday use. Parts are connected together into circuits using jumper leads and a “parts holder”. Parts include a variety of switches, lamp, LED, buzzer, piezo buzzer, motor, fixed resistor, photoreseistor, variable resistor, power pack (batteries not included), jumpers and instructions. No soldering is required.
  - 841980 Mini Lab $39.95 or $34.95 ea./10+ or $32.95 ea./20+

- **Snap Circuits™ Educational Kits**
  Make learning electronics a “snap.” Just follow the colorful pictures in the manual and build over 300 projects, such as AM radios, burglar alarms, flashlights, doorbells, and much more. You can even play electronic games with your friends! Enjoy hours of educational fun while learning about electronics. No tools required.
  - Uses AA batteries (not included).
  - 282378 Snap Circuits Jr. - Over 30 Parts $36.95
  - 282379 Snap Circuits - Over 60 Parts...

- **50-in-1 Electronic Playground**
  Learn about the basic principles of electronics while building these exciting circuits: finger touch lamp, magnetic bridge, voltmeter, Morse code, alarm, electronic noisemaker, electronic kazoo, electronic keyboard, transistor radio, a radio announcer and metal detector. Uses spring hook-up method. Includes all the parts needed to perform 50 experiments. Requires a 9V battery.
  - 281645 Kit...

**New York State teachers, remember to use KELVIN®’s New York State Contract # PC67818, on all of KELVIN®’s products.**

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
**Circuit Design and Simulation Software Has Never Been More User-Friendly!**

**LIVEWIRE** is a simulated electronics lab that uses animation and sound to demonstrate principles of electronic circuits. 100’s of components can be connected to investigate behavior of circuits. Simple interface helps to build circuits quickly. Livewire integrates with PCB Wizard 3, so when you’ve simulated a circuit, transfer it with the click of a button. PCB Wizard 3 automatically places all components & routes the circuit.

**Livewire Professional has these extra features:**
- 1000 extra components to choose from.
- More virtual instruments, including logic analyzer, function generator and word generator.

**Livewire Educational includes Professional features plus:**
- Component fault simulation for teaching fault-finding.
- Educational support material and courseware authoring tools.
- Network support (Standard/Pro editions don’t run on networks).
- Multi-user versions offering discounted prices.

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<th>Version Description</th>
<th>Price</th>
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<td>121442</td>
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<td>Educational Version*, Single User</td>
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<td>121444</td>
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<td>121445</td>
<td>Educational Version*, Add. 5-Users</td>
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**BRIGHT SPARK** combines on-screen animation with realistic simulation to bring circuits to life. It assumes no prior knowledge and includes built-in courseware to learn key electronics principles. Experiment with over 40 components as well as a voltmeter, ammeter and oscilloscope to record circuit measurements. Interactive worksheets teach principles behind electricity and electronics. Activities include Ohm’s law, Series and parallel circuits, AC and DC circuits, Kirchoff’s laws, Resistance, Capacitance, Logic and Transistors.

**Bright Spark Professional has these extra features:**
- Large component library.
- Electronics theory teaching courseware.

**Bright Spark Educational includes Professional features plus:**
- Courseware authoring tools.
- Network support (Standard and Pro editions won’t run on networks).
- Multi-user versions offering discounted prices.

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**CONTROL STUDIO 2** provides a rapid method of developing circuit ideas, allowing you to consider different scenarios before a final design solution. Compatible with Circuit Wizard, Livewire & PCB Wizard 3, it is easy to turn your ideas into a schematic or PCB. Creating circuits could not be easier. Drag and drop subsystem blocks from the parts gallery onto your document, link them with connectors and press “play”. Edit with built-in tools such as panning, clipboard and grid.

**Control Studio Professional version has these extra features:**
- Larger component library.
- Electronics-systems theory teaching courseware.

**Control Studio Educational includes Professional features plus:**
- Courseware authoring tools.
- Network support (Standard and Pro editions won’t run on networks).
- Multi-user versions offering discounted prices.

<table>
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<tr>
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★ EDUCATIONAL VERSIONS SOLD TO SCHOOLS ONLY

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.

www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
Designed with Educational Institutions in mind. Easy to teach and easy to learn!

By integrating the entire design process, **CIRCUIT WIZARD** provides you with all the tools necessary to produce an electronics project from start to finish – even including on-screen testing of the PCB prior to construction!

Designing is easy with Circuit Wizard. Just grab the components you need from the library, connect them together using the intelligent wiring tool and then press the ‘Play’ button to begin simulation.

**SPICE circuit simulation**—Circuit Wizard features a new simulation engine based on Berkeley SPICE. This industry-standard technology is the most advanced in the world, so you can be confident that results will be very fast and accurate.

**Professional version** has Hobbyist features plus:
- 1,000 extra components to choose from.
- More virtual instruments including logic analyzer, DC power supply, function & word generator.
- Double-sided and Interactive PCB routing.
- DXF export for CAD/CAM.

**Educational version** has Hobbyist and Professional features plus these extra features:
- Component fault simulation for teaching students about fault-finding.
- Educational support material & courseware authoring tools.
- Network support for Educational Versions.

121747  Hobbyist Version 1.7, Single User..............$175
121748  Professional Version 1.7, Single User ........$275
121743  Educational Version 3*, Single User ..........$275

121744  Educational Version 3*, 5-User Network.....$695
121745  Educational Version 3*, 5-User Extension ....$245
121818  Educational Version 3*, 25-User Lic. .........$1,495

**PCB WIZARD 3** is great for designing single- and double-sided PCBs. It provides a range of tools for all traditional steps in PCB production and eliminates steep learning curves. Drag and drop components to a document and connect them with the intelligent wiring tool. Select “Convert to PCB” and PCB Wizard 3 does the rest.

**Professional version** has Hobbyist features plus:
- 1000 extra components to choose from.
- Double-sided and Interactive PCB routing.
- DXF export for CAD/CAM

**Educational version** has Hobbyist and Professional features plus these extra features:
- More virtual instruments, incl. logic analyzer & word generator
- Component fault simulation for teaching students fault-finding.
- Educational support material and courseware authoring tools.
- Network support (Standard/Pro editions won’t run on networks).

121450  Hobbyist Version, Single User............$79.95
121451  Professional Version, Single User ........$175
121763  Educational Version*, Single User .........$175
121452  Educational Version*, 5-Users .............$495
121453  Educational Version*, Add. 5-Users .......$195

*EDUCATIONAL VERSIONS SOLD TO SCHOOLS ONLY*
**KELVIN® Basic 3™ Trainer**

Electronic circuits and schematic diagrams can be difficult to understand when learning about them. Even simple concepts can be difficult to grasp! What’s needed are simple, hands-on activities that explore the concepts as students learn about them - KELVIN’s® BASIC 3™ Trainer!

The original BASIC 3™ concept and activities were designed and written by Earl D. Gates, the author of Introduction to Electronics: A Practical Approach, 5th Edition, published by Delmar Publishers. Further developed by KELVIN® engineers, the BASIC 3™ Input-Process-Output Trainer introduces students to electronics in a non-threatening, thematic way. Hands-on activities help students, Gr. 5 & up, explore electronics at their own pace.

The compact, assembled trainer features a plug-in motherboard, 6-1/4 x 9-1/4 in., and built-in sensors. Stackable banana plug leads are used for quick circuitry design and hands-on experiments.

The assembled trainer includes: Expandable Motherboard, 9V DC Wall Transformer, Stackable Banana Plug Leads, Ten Activity Cards, Design Portfolio, Detailed Teacher’s Guide, and Plug-In Module Ready (additional plug-in modules for digital and analog are on the next page).

**Best Value! Basic 3™ Complete Set with Plug-In Boards**


840796 ................................................................. $1,250

**KELVIN® Basic 3™ Plug-In Boards**

An excellent way to plug-in to the potential of the Basic 3™ Trainer!

**Analog Plug-In Boards**

- Analog Outputs, Resistors & Potentiometers
  840553 3 Boards ........................................ $195 or $185 ea./3+
- Circuits & 555 Timers
  840650 2 Boards/Circuitry .................. $145 or $135 ea./3+
- Wire, Fiber Optics & Infrared Communications
  840625 2 Boards .................................. $145 or $135 ea./3+
- Op-Amp
  840836 1 Board .......................................... $95

**Digital Plug-In Boards**

- Logic Gates, Input & Output Devices
  840552 3 Boards ...................................... $195 or $185
- Digital Input & Output Devices
  840554 3 Boards ...................................... $195 or $185
- Counters & Shift Registers
  840648 1 Board ........................................ $95
- Binary Adders & Subtractors
  840649 2 Boards/Circuitry .................. $145 or $135

**Mounting Bases for Plug-In Boards**

For organizing and storing your plug-in boards.

840797 Analog Mounting Base ...................... $95
840798 Digital Mounting Base ..................... $95

**KELVIN® Basic 3™ External Sensors**

Use instead of the built-in sensors on the BASIC 3™ motherboard to build a “Smart House,” explore controls, etc. External sensors reach up to 3 feet away from the motherboard.

- Individual Sensors:
  840656 – On/Off
  840657 – Liquid
  840654 – Thermistor
  840658 – Magnetic
  840655 – Micro Lever
  840684 – Microphone
- Complete Set of All 7 Above
  840894 .............................................. $135 or $125 ea./3+
**KELVIN® Belly Bear Electronics Trainers**

These trainers are an economical way for students, grades 1 and up, to learn about electronics. No prior electronics knowledge, on the part of the teacher or student, is needed. Quick disconnect connections make it easy to create and test circuitry while learning about discrete components.

The Teacher Guide includes Lesson Plans, Teacher Aids for each Lab, Suggested Discussions, Assessment Tests with Answer Keys, and a Glossary. The Student Manual contains numerous labs and projects.


- 840985 Belly Bear I™ Trainer .......................... $145 or $125 ea./5+
- 840993 Belly Bear II™ Trainer .......................... $165 or $145 ea./5+
- 841235 Belly Bear II™ Trainer w/ Spanish Manual... $165 or $145 ea./5+

**Ideal for Younger Students**

Actual Sizes are 8-1/2 x 10-1/2 in.

Available in Spanish or English
**KELVIN® Binary Quartz Clock**

24-hour binary quartz accurate clock features built-in alarm and bi-color LEDs. Includes a built-in alarm, DC wall transformer and detailed assembly instructions.

840589 Kit....................$99.95 or $94.95 ea./10+

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**KELVIN® So Fast® Playground for Arduino**

SoFast® Playground for Arduino with a few SoFast® Electronic carriers.

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**The KELVIN® GENIE Program It™ Control Activity Starter Kit is an innovative way to teach programming!**

**KELVIN® GENIE® Program It™ Control**

There is no age barrier for this amazing tool. It hides all the complicated parts of a typical programming environment and lets you program a microcontroller by visually describing the logic using popular and well known flowchart symbols.

With the help of an amazingly easy to use and beautifully done software and a programming cable (sold separately) you can program the Genie Program It™ to blink the two LEDs on a specific sequence, or to respond to the pressing of the switch or to respond to changing light condition or to play a note or a complete tune sequence (there are many preprogrammed tunes to select from or you can create your own).

After creating a program, using the Genie design studio, click the mouse to send it to the Genie Program It™ activity board (connected to your computer with a USB cable) and it will start running immediately. It will continue running even if you turn the Genie Program It™ activity board off, or if you replace the batteries, because it stores the program in internal memory.
KELVIN® Logic Challenge Trainer™
A fresh and exciting way for students to learn about the digital logic circuits that are used in computers and almost all electronics equipment.

Teachers can also use pre-wired logic circuits to demonstrate inverters and basic logic gates. After using this trainer, students will be more prepared for work in advance computer operations.

Key Features:
- Pre-Wired Logic Circuits
- Monitor Input/Output States
- Interconnect w/ Banana Plug Leads
- Easy to Learn, Easy to Read Student Workbook

The Comprehensive Student Workbook contains: six demonstration projects, real world examples, self-tests, explanation of experiment results and classes or self-paced learning.

Table of Contents:
- Basic Digital Logic
- Binary Numbers and Codes
- Making Binary Numbers with Electronic Circuits
- How to Use the Logic Challenge Trainer
- Project 1 - Logic Inverter
- Project 2 - AND Gate
- Project 3 - NAND Gate
- Project 4 - OR Gate
- Project 5 - NOR Gate
- Project 6 - XOR Gate

Power is provided by a plug-in wall outlet transformer, built-in DC voltage regulator and separate on/off switch. The assembled trainer comes with a student workbook written by Lou Frenzel. Board measures 5-3/8 x 8-1/4 in. Ideal for Grades 9 to 12.

840870 ................................ $135 or $125 ea./3+

Programmable Control Without A Computer!

KELVIN® If…Then™ Trainer
Learn more about conditional programming with this programmable logic controller. Programming is written in simple logic for quick learning and exploring input, process and output. Use it for controlling a model such as a greenhouse, light show, house alarm, doll house automation, etc.

Features:
- Alphanumeric Display (backlit, 2-line)
- Microprocessor (built-in) with Keyboard
- [4] Input Sensors (switch, photocell, etc.)

The assembled controller includes a light sensor, switch sensor, buzzer, light bulb, motor, wall adapter and a RS232 cable. For Grades 6 and up.

840990 .......................... $199.95 or $189.95 ea./3+
**KELVIN® 1st Breadboard Lab™**

Introduce beginners to electronics! This easy to use trainer lets students build circuits that are far from simple in function. Breadboards originated as a way to lay out and wire electronic circuits. This makes it easy to design, experiment with, and test circuitry without etching and soldering PC boards. Students explore a wide variety of electronic concepts simply by sticking components into the breadboard.

This trainer not only contains a small breadboard for students to assemble circuits on, but includes basic components that most circuits use—right on the board, ready for easy wiring.

In addition, an assortment of loose parts are included to build the 30 experiments in the lab manual and to design countless circuits. The completely assembled trainer includes a 6-1/4 x 6-1/2 in. breadboard, all the necessary experiment components and a detailed lab manual.

- **840739** Trainer, English.......................... $99.95 or $95.95 ea./6+
- **841009** Trainer, Spanish ......................... $99.95 or $95.95 ea./6+
- **650801** Additional Manual, English .......... $19.95 or $17.65 ea./6+
- **651240** Additional Manual, Spanish .......... $19.95 or $17.65 ea./6+

**Experiments:**
- Resistor Color Code
- Resistor measurement
- Ohm’s Law
- Measuring Voltage
- Measuring Current
- Series Circuits
- Photocells
- LED Current Limiting
- Variable Time Constants
- Capacitors
- Using Switches
- Using Buzzers
- CMOS OR Gate
- CMOS AND Gate
- SPDT Toggle Switch with LEDs
- Diode Operation
- Transistor as Switch
- Transistor as Amp
- Crystal Radio with Amplifier
- Kirchhoff’s Law
- 555 Timer IC with LED Flasher
- 555 Timer IC with Buzzer
- 555 Timer Delay Circuit
- Basic PA System
- Audio Power Amp with Speaker
- Photocell Switch
- Alarm Buzzer
- Logic Inverter
- Microphone
- LED with Buzzer
- Sound Generation Circuits
- Parallel Circuits
- Binary Numbers
- Lights & Switches

**Actual Size is 6-1/4 x 6-1/2 in.**

**NEW**

**KELVIN® So Fast® Electronics**

Stand-Alone Kit for Exploring Electronics

Easy to Use, Non-Slip Gator-Clips

Extra flexible wire makes assembly FAST and EASY to use.

Tile added to circuit so it is compatible with toy brick parts.

"The KELVIN® 1st Breadboard Lab™ works well because most of the parts are fixed to the board which makes it easier for the students to use and less parts are lost or broken."

— Patrick Klubben
Winner Middle School, SD

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Please find California Prop 65 Warning on pg. 180 www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
**KELVIN® Everything 10™ Trainer**

The KELVIN® Everything 10™ Trainer is the MOST electronic trainer for your money! In addition to a Wire Jumper Kit and 12V Power Supply, this trainer includes the items listed below. Intended for use with your textbook; does not include curriculum.

**[2] Power Supplies**
- 5V Fixed Power Supply
- 1.2-12V Variable Power Supply

**[1] Function Generator**
- 0.4Hz-20KHz with 3 Outputs (Square, Sinusoidal, Triangular)

**[4] Potentiometers**
- 1K Potentiometer
- 10K Potentiometer
- 100K Potentiometer
- 1M Potentiometer

**[9] LEDs / Displays**
- [8] Fully Buffered LEDs
- Large 7-Segment Display (3/4 in. High)

**[12] Switches**
- SPDT Switch
- Pushbutton Switch
- [2] Fully Debounced Pushbutton Switches with +/- Signal Outputs
- [8] Signal Switches

**[1] Breadboard**
- 400 Contact Breadboard

841121 Kit ..................... $135 or $125 ea./3+
841122 Assembled ............. $195 or $185 ea./3+

**KELVIN® Everything 50™ Trainer**

Super Analog/Digital bench top trainer includes power supplies, function generator, potentiometers, switches (straight & debounced), LEDs (straight & buffered) and two 7-segment LED displays, Wire Jumper Kit and 12V Power Supply. The trainer includes all of the items listed below. Intended for use with your textbook; does not include curriculum.

- [1] Breadboard: 400 Contacts
- [4] Power Supplies: 5V Fixed, 1.2 to 12V Variable, -1.2 to -12V Variable (Req. DC Wall Adapter, #220121), 2.5V High Acc. Reference Source
- [1] Function Generator: 0.4Hz-20KHz with 3 Outputs(Square, Sinusoidal, Triangular)
- [3] Inputs: Condenser Microphone, External Microphone Jack, Parallel Port with DB25 Female Connector
- [4] Potentiometers: 1K, 10K, 100K, 1M

841143 Assembled .................... $295 or $275 ea./9+ or $255 ea./10+

**DC Wall Adapter (Optional Power Supply for Negative Voltage)**

220121 12V, 800mA ......................................................... $15.95 or $14.95 ea./3+

**SUPER ANALOG/DIGITAL TRAINER!**

Actual Size is 7-1/4 x 6-3/4 in.
KELVIN® Electronic Troubleshooting Trainers with Built-In Teacher Inputs

Ideal for middle school students and up. When working within the field of electronics, students should know how to troubleshoot, evaluate, and repair electronic circuitry. The KELVIN® Troubleshooting Trainers are inexpensive and easy to set-up because they require no wiring or soldering.

Using troubleshooting and problem-solving procedures, these troubleshooting trainers show students how to find a problem on a PC board and then fix it. The trainers were developed to make teaching troubleshooting fast, easy, and effective—with actual electronic equipment, hardware, and pre-wired circuits.

According to the experiments, the teacher inserts a problem into the circuit using DIP switches. By following the circuits and measuring the components, students then isolate the trouble and fix it using problem-solving techniques and by resetting the DIP switches. System concept and student manuals developed by Lou Frenzel.

AC Troubleshooting Trainer
Assembled trainer includes: pre-wired PC boards (8-1/2 x 11 in.); 3-ring storage binder; working electronic circuits with DIP switches; student lab manuals with experiments and tests; and teacher’s guide with detailed, documented faults.


840627  Assembled Trainer ............................................................ $295 or $245 ea./3+  

Also Check Out KELVIN® Everything Trainers on pg. 157

DC Troubleshooting Trainer
Assembled trainer includes: pre-wired PC boards (8-1/2 x 11 in.); 3-ring storage binder; working electronic circuits with DIP switches; student lab manuals with experiments and tests; and teacher’s guide with detailed, documented faults.

Labs include: Series/Parallel Circuits, Voltage Divider with Thermistor, Voltage Divider with Pot, Series Dropping Resistor w/ LED, Series Traces, Parallel Traces, Adjustable Bridge Circuits, Dual Voltage Source Circuits, Resistance Circuits in IC Form, 2-Way Switch Circuit with Bulb, Capacitor Charging/Discharging, Time Constant, DC Diode Biasing, DC Inductor Effects, Transistor Switch Relay with LED, Photoresistive Input Control and 555 IC Timer as Stable LED Flasher.

840626  Assembled Trainer ............................................................ $295 or $245 ea./3+

KELVIN® Troubleshooting Trainers Complete Set
All five troubleshooting trainers—AC, DC, Digital, Analog, Communications—in one complete set! Assembled trainers include: pre-wired PC boards (8-1/2 x 11 in.); 3-ring storage binder; working electronic circuits with DIP switches; student lab manuals with experiments and tests; and teacher’s guide with detailed, documented faults.

841402  Set of 5 Assembled Trainers ........................................ $1,225

Actual Size is 8-1/2 x 11 in.

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ▲ Find California Prop 65 Warning on pg. 180 www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
Assembled trainers include: pre-wired PC boards (8-1/2 x 11 in.); 3-ring storage binder; working electronic circuits with DIP switches; student lab manuals with experiments and tests; and teacher’s guide with detailed, documented faults.

**Communications Troubleshooting Trainer**
Labs include: Amplitude Modulator, Diode Detection, Balanced Modulator, Frequency Demodulation, Class 'C' Amplifier, FSK Modulation, Fiber Optics Transmission/Receiving, Function Generator, Noise Amplifier, AM Pulse Mode and Parallel/Serial Data Converter.

840951   Assembled Trainer ................................................................. $295 or $245 ea./3+

**Linear/Analog Troubleshooting Trainer**
Labs include: 1-Stage NPN/PNP Common Emitter, Diode Biasing, Complementary Symmetry, Emitter Follower, Amplifier Circuits, Single Stage FET Amplifier, Audio Power Amplifier with Tone Control, Differential/Power Amplifiers, Amplifier w/ Constant Current Source, Operational Amplifier Inverter, Non-Inverting Amplifier/Follower, Operational Amplifier Comparator/Integrator, Active Filter with Operational Amplifier, Instrumentation Amplifier with Bridge Input & Thermistor, Speakers/Mixers / Audio Oscillator, Linear and Switching SCR Light Dimmer and Power Supply Regulator.

840857   Assembled Trainer ................................................................. $295 or $245 ea./3+

**Digital Troubleshooting Trainer**
Labs include: Logic Gates (both TTL/CMOS), Decoders / Encoders, Basic Flip Flops, Binary Comparators / Adders, Sequential / Combination Logic Circuits, XOR Gate and Applications, BCD Counters, Shift Registers, Multiplexer / Demultiplexer, Binary Up / Down Counters, 7-Segment Display, 3-State Bus and Static RAM.

840856   Assembled Trainer ................................................................. $295 or $245 ea./3+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
### KELVIN® Low Voltage Electric System

Using low voltage, students will safely wire AC components (such as outlets, switches, breakers, a dimmer switch, light fixture and a ceiling fan) for practice with DC voltage.

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<td>Trainer Kit</td>
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### KELVIN® Bedroom Design Kit

Students design and model a dream bedroom while building to scale, calculating area and cost, calculating percentage of window area and staying within a budget.

Each kit includes: chipboard base, grid paper, foam core board, pattern sheets for windows, furniture silhouette, furniture flat developments, cost sheets and design brief, dowel rod, felt, glue stick and detailed instructions. PLEASE NOTE: Teacher must supply glue gun and glue slugs.

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### Lighting Consumables Pack


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### Foam Board/Cardstock Safety Holding Jig

Secures foam board and cardstock material safely so students can cut it using a utility or X-Acto™ style knife. Adjustable to widths up to 4-1/4 in. with a metal guard that also serves as a 90°guide.

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KELVIN® Home Electrical Wiring Trainer

Students get valuable experience with home wiring tools and supplies. This comprehensive trainer includes all the supplies needed for students to complete a number of hands-on activities like creating and testing common AC/DC circuits. Subsequent activities challenge students as they wire progressively harder circuits. For Grade 9 through College.

840642   See Right ................................................................. $695
**Tools and Electronics**

**Kelvin® Educational**

1. **Kelvin® Tool Panel w/ Electronic Tools**
   - High quality tools and convenient storage panels to display and safely organize your tools. Specific tool manufacturers may vary from the items pictured below depending on availability. Mounting holes for the panels are not predrilled so the panels can be custom installed to fit most situations.
   - 430084 Tool Panel ................................................................. $1,250

2. **Diagonal Cutters**
   - Can be used for most electronics work such as cutting wire and pc boards.
   - 4-1/2 in. Long
     - 520023 .......................... $3.95 or $3.45 ea./6+
   - 6-1/2 in. Long
     - 520022 .......................... $4.95 or $4.50 ea./6+

3. **Xcelite Shearcutter**
   - Flush cuts soft wire up to 20AWG. Static-dissipative grips. Features safety clip to reduce flying debris. 5 in. long.
   - 820077 .......................... $17.95 or $15.95 ea./6+

4. **Electrician’s Pliers**
   - For cutting or twisting wire or removing metal box knockouts. 7 in. long.
   - 520026 .......................... $7.95 or $7.45 ea./6+

5. **Automatic Wire Stripper**
   - Holds wire in place while the blade strips off the insulation. Use to strip 12 to 22 gauge wire. 7-1/2 in. long.
   - 520194 .......................... $27.95 or $25.95 ea./6+

6. **Premium Wire Stripper**
   - 4-in-1 tool with wire stripper, cutter, pliers and crimper. AWG 16 - 26.
   - 6 in. Long
     - 530202 .......................... $8.95 or $8.45 ea./6+

7. **KELVIN® Kel-Function Frequency Generator Kit**
   - Real test equipment for a hobbyist. Produces sine, triangle and square waveforms with frequency range of 100Hz to 100KHz. Includes amplitude adjustment. Requires 9V battery.
   - 841571 ............................ $18.95 or $17.95 ea./10+
     - 842176 Assembled Demo .......... $69.95

8. **Beginner Electronics Tool Set**
   - 840213 .......................................................... $24.95 or $22.95 ea./6+

9. **KELVIN® Tool Panel**
   - High quality tools and convenient storage panels to display and safely organize your tools. Specific tool manufacturers may vary from the items pictured below depending on availability. Mounting holes for the panels are not predrilled so the panels can be custom installed to fit most situations.
   - 430084 Tool Panel ................................................................. $1,250

**Tools and Electronics**
KELVIN® Project Power Supply

Plenty of power with higher voltage and current than regular power supplies. Small, portable, design, easy to move where power is needed.

Built-in over-current protection makes it indestructible. DC voltage source is 3-24V DC. 2.5A of current with over-current protection. Digital display (of voltage) with 2 decimal digits of accuracy.

The polarity box has a convenient way of switching the polarity of the power provided.

The polarity box can also be used with other power supplies as long as the have a similar round jack. Standard banana plugs for output compatible with regular lab cables.

841386  Single Display .................................................................$295 or $275 ea./3+
841387  Dual Display (Shown) ..............................................................$395 or $375 ea./3+

Small, portable, design, easy to move next to the project that needs power.

KELVIN® Digital Display Power Supplies

Durable power supplies provide 0-20V DC at 2A. Bright LED display(s) are switchable between voltage and current. Built-in overload indicator and protection, LED, and circuit breaker(s).

The dual power supply has two independent power supplies in one box and is ideal for dual maglev, etc.

Easy to control large crank knob(s). Features a rugged metal case painted yellow.

841386  Single Display ..............................................................................$295 or $275 ea./3+
841387  Dual Display (Shown) ..............................................................$395 or $375 ea./3+

Electricity

S.T.E.M. Bin Filler

430462, ($278 Retail) ...............................$245

Find KELVIN® S.T.E.M. Bin Fillers on pgs. 6-7

KELVIN® Variable Power Supplies

Variable, regulated power supplies with low ripple and short circuit protection. Ideal for use with the KELVIN® PowerPole™, Maglev Racer™, etc.

The #100 model has a variable range of 0-16 V DC, 1.5 A. The #101 model supplies fixed voltages of 1.5, 3, 4.5, 6, 9 and 12 V DC at 1.5 A.

841051  #100, 0-16 V DC .................................................................$145
841052  #101, Voltage Switch .........................................................$135

KELVIN® Dual Power Supply Kit

Build a dual adjustable power supply to power your projects. Outputs positive-negative voltages from +/-1.25 to +/-15VDC at 700mA per supply. Requires wall adapter.

841590  Kit ..................................$23.95 or $22.45 ea./10+
842174  Assembled Demo..........................$79.95

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 36
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**SOLDERING ELECTRONICS**

**Project Soldering Iron**
Soldering iron with 3/16 in. long tapered tip and break-resistant plastic handle. 30W, 117V, 60Hz (UL).

- 990098  [A] 2-Prong Soldering Iron ........................................... $4.95 or $4.65 ea./6+
- 990099  2-Prong Soldering Iron Tip Only ................................... $9.5¢ or $85¢ ea./12+
- 990072  3-Prong Soldering Iron ............................................ $13.25 or $12.95 ea./6+
- 990117  3-Prong Soldering Iron Tip Only ................................... $4.15 or $3.95 ea./12+

**WELLER Marksman Soldering Irons**
Featherweight (1-3/4 oz.) soldering iron is ideal for reaching hard to get spots on PC boards.

- 810001  All-Purpose.................. $22.99 or $21.95 ea./6+
- 810002  25 W ...................... $23.95 or $21.95 ea./6+
- 810004  25 W Cone Tip .......... $2.95 or $2.69 ea./6+
- 810005  40 W ...................... $23.95 or $21.95 ea./6+
- 810007  High Heat, 200-260 Watts ....................... $59.95
- 810003  Tips, 2/pkg. ............... $6.95 or $6.25 ea./6+

**WELLER Pencil Thin Soldering Iron**
12W soldering iron is pencil thin. Ideal for reaching into those tight spots. Tip temperature is 800°. Use WELLER MP auto slide-in soldering iron tips.

- 810054  ........................................... $19.95 or $17.95 ea./6+

**Student Soldering Stations**
Electronically controlled to provide variable heat for general soldering. The unit includes a soldering iron, holder funnel for the iron, sponge pad and an on/off indicator light.

- 282438  Assembled ....................... $41.50 or $39.95 ea./3+
- 282439  Kit ................................ $41.50 or $39.95 ea./3+

Find California Prop 65 Warning on pg. 36

**SOLDERING SUPPLIES & TOOLS**

**Heat Gun**
Top quality gun with dual temperature and a 6 ft. long cord. 1000W.

- 820054  ....................................... $69.95 or $64.95 ea./3+

**Heat Shrink Tubing**
Shrinks to 50% of inside diameter. 10 ft. long.

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**WELLER All-Purpose Soldering Gun**
This all-purpose soldering gun features built-in, pre-focused spotlight with pull of trigger. Pistol-grip with replaceable tip.

- 810001  All-Purpose................. $48.95 or $44.95 ea./3+
- 810007  High Heat, 200-260 Watts ......... $59.95
- 810003  Tips, 2/pkg. ................ $6.95 or $6.25 ea./6+

**WELLER Stained Glass Soldering Iron**
Ideal for hobby work, stained glass and minor repairs. Soldering iron rest included. 3/8 in. dia. replaceable tip. 900°F/482°C temperature. Indicator light allows you to instantly see that the iron is on. 9-3/4 in. long.

- 820051  80W ...................... $34.95 or $31.95 ea./3+

**WELLER Soldering Iron Tips**

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<tr>
<td>820004</td>
<td>Cone</td>
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</tbody>
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**WELDER Marksman Soldering Iron Set**

- 810029  ................................ $25.95 or $24.95 ea./3+

**WELDER Pencil Thin Soldering Iron**
12W soldering iron is pencil thin. Ideal for reaching into those tight spots. Tip temperature is 800°. Use Weller MP auto slide-in soldering iron tips.

- 810054  ................................ $19.95 or $17.95 ea./6+

**Heat Sinks**
Protect heat-sensitive parts when soldering.

- 450034  [D] Clip-On .......... $1.15 or $1.00 ea./10+
- 480024  [E] Snap-On ........... $69¢ or $59¢ ea./10+

**Soldering Aids Set**
Includes a Heat Sink, Fine Probe, Slotted Probe and Brush/Scraper.

- 450032  ......................... $4.25 or $3.95 ea./10+

**Solder Brush with Metal Bristles**

- 580043  ....................... $1.75 or $1.50 ea./3+

**Acid Brushes**

- 580045  100/pkg ............... $2.95 or $2.75 ea./6+

**Wire Glue**
Join together wires and components in small electrical projects where soldering is unsafe or impractical. Great for elementary grades.

- 580059  .......................... $7.95 or $7.75 ea./6+

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.

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**Breadboards**
Suitable for a variety of prototyping needs and circuit design. These solderless breadboards accept most electronic components including integrated circuits and transistors for digital and/or analog circuitry.

General Purpose Boards
Multi-purpose boards for circuit design featuring pre-drilled and solder-ringed holes. Accept DIPs, sockets, headers. Indexed for pin-out ID.

Press-n-Peel Transfer Film
Photocopy or laser print circuit designs onto Press-N-Peel Film. Iron the film onto copper clad board and peel it off before etching. [S] 8.5x11 in. sheets. 440198 $13.95 or $12.95 ea./6+.

Copper-Plated Blank Circuit Boards
1/32 Thick - 1-Sided
440026 4 lbs. makes 2 gallons. Ammonium Persulfate Etchant Powder
450069 Air Circulation & Agitation Pump
440143 440142 accessories. Requires tank heater (see below).
Etch in 4 minutes! Maximum PC board size is 160 x 250 mm. Includes electric agitator and hanging cover snaps off for your working convenience. Ideal for your electronic projects and storage! Plastic
440065 36 x 34 in. ...................$76.95 or $69.25 ea./10+
440013 3/4 x 2-1/2 in. ............$6.95 or $5.95 ea./10+
Fast Etching Tank
440003 7 x 5 in. .......................$5.95 or $5.35 ea./10+
Fast Etching Tank
440005 15-1/2 x 7-1/2 in. .....$10.95 or $9.85 ea./10+
440014 3/4 x 2-1/2 in. ..........$7.95 or $7.15 ea./10+
440065 36 x 34 in. ...................$76.95 or $69.25 ea./10+

Press-n-Peel Transfer Film
Photocopy or laser print circuit designs onto Press-N-Peel Film. Iron the film onto copper clad board and peel it off before etching. [S] 8.5x11 in. sheets. 440198 $13.95 or $12.95 ea./6+.

Fast Etching Tank
Etch in 4 minutes! Maximum PC board size is 160 x 250 mm. Includes electric agitator and hanging cover snaps off for your working convenience. Ideal for your electronic projects and storage! Plastic
440065 36 x 34 in. ...................$76.95 or $69.25 ea./10+
440013 3/4 x 2-1/2 in. ............$6.95 or $5.95 ea./10+

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## WIRE ELECTRONICS

### COPPER WIRE

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### MAGNET WIRE

Copper Enamel, 1 lb. Spool

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### BELL WIRE

Solid, 18 AWG, PVC

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<td>89.95</td>
</tr>
</tbody>
</table>

### PROJECT WIRE

Solid, 22 AWG, 100 ft.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea.</th>
<th>$ ea./3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>330193</td>
<td>Red</td>
<td>9.95</td>
<td>8.95</td>
</tr>
<tr>
<td>330208</td>
<td>Black</td>
<td>9.95</td>
<td>8.95</td>
</tr>
<tr>
<td>330192</td>
<td>Blue</td>
<td>9.95</td>
<td>8.95</td>
</tr>
<tr>
<td>330209</td>
<td>Brown</td>
<td>9.95</td>
<td>8.95</td>
</tr>
<tr>
<td>330121</td>
<td>Gray</td>
<td>9.95</td>
<td>8.95</td>
</tr>
<tr>
<td>330128</td>
<td>Violet</td>
<td>9.95</td>
<td>8.95</td>
</tr>
<tr>
<td>330124</td>
<td>White</td>
<td>9.95</td>
<td>8.95</td>
</tr>
<tr>
<td>330147</td>
<td>Yellow</td>
<td>9.95</td>
<td>8.95</td>
</tr>
</tbody>
</table>

### CONTROL WIRE

Stranded, Lightweight, 2-Conductor, 50 ft.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>L ft.</th>
<th>$ ea.</th>
</tr>
</thead>
<tbody>
<tr>
<td>330438</td>
<td>Red/White</td>
<td>50</td>
<td>14.95</td>
</tr>
</tbody>
</table>

### PHONE WIRE

Solid, 4-Conductor

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>L ft.</th>
<th>$ ea.</th>
<th>$ ea./3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>860017</td>
<td>7</td>
<td>2.95</td>
<td>—</td>
</tr>
<tr>
<td>860025</td>
<td>50</td>
<td>4.95</td>
<td>4.45</td>
</tr>
</tbody>
</table>

### SPEAKER WIRE

Clear

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>L ft.</th>
<th>$ ea.</th>
<th>$ ea./3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>330154</td>
<td>25</td>
<td>6.95</td>
<td>6.45</td>
</tr>
<tr>
<td>330155</td>
<td>50</td>
<td>11.95</td>
<td>10.95</td>
</tr>
</tbody>
</table>

### BUILDING WIRE

Solid, THHN, 12 AWG, 500 ft.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea.</th>
<th>$ ea./3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>330010</td>
<td>White</td>
<td>115.00</td>
<td>105.00</td>
</tr>
</tbody>
</table>

### MAGNET WIRE

Copper Enamel, 1 lb. Spool

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>AWG</th>
<th>$ ea.</th>
<th>$ ea./25</th>
</tr>
</thead>
<tbody>
<tr>
<td>330128</td>
<td>22</td>
<td>16.95</td>
<td>15.95</td>
</tr>
<tr>
<td>330330</td>
<td>24</td>
<td>16.95</td>
<td>15.95</td>
</tr>
<tr>
<td>330332</td>
<td>26</td>
<td>17.95</td>
<td>16.95</td>
</tr>
<tr>
<td>330334</td>
<td>28</td>
<td>18.95</td>
<td>17.95</td>
</tr>
<tr>
<td>330336</td>
<td>30</td>
<td>19.95</td>
<td>18.95</td>
</tr>
</tbody>
</table>

### JUMPER WIRE

Solid, Ends Stripped, 22 AWG, 10 in., & 50/pkg.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea.</th>
<th>$ ea./3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>330425</td>
<td>Red</td>
<td>8.95</td>
<td>7.95</td>
</tr>
<tr>
<td>330426</td>
<td>Black</td>
<td>8.95</td>
<td>7.95</td>
</tr>
</tbody>
</table>

### TEST LEAD WIRE

Solid, 18 AWG, PVC

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>L ft.</th>
<th>$ ea.</th>
</tr>
</thead>
<tbody>
<tr>
<td>330007</td>
<td>100</td>
<td>27.95</td>
</tr>
<tr>
<td>330008</td>
<td>Black 100</td>
<td>27.95</td>
</tr>
<tr>
<td>330166</td>
<td>Red 1000</td>
<td>249.00</td>
</tr>
<tr>
<td>330167</td>
<td>Black 1000</td>
<td>249.00</td>
</tr>
</tbody>
</table>

### 10 KV, 18 AWG, Rubber

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>L ft.</th>
<th>$ ea.</th>
</tr>
</thead>
<tbody>
<tr>
<td>330369</td>
<td>Red 50</td>
<td>12.95</td>
</tr>
<tr>
<td>330370</td>
<td>Black 50</td>
<td>12.95</td>
</tr>
</tbody>
</table>

### ZIP CORDS

Stranded, Vinyl, UL-listed, 250 ft.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>COLOR</th>
<th>$ ea.</th>
<th>$ ea./3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>330010</td>
<td>18/2</td>
<td>Black</td>
<td>34.95</td>
<td>32.95</td>
</tr>
<tr>
<td>330120</td>
<td>18/2</td>
<td>Clear</td>
<td>34.95</td>
<td>32.95</td>
</tr>
<tr>
<td>330082</td>
<td>16/3</td>
<td>Black</td>
<td>129.00</td>
<td>122.95</td>
</tr>
</tbody>
</table>

### Electrical Tape

Useful for electronics and a variety of other projects. 3/4 in. wide x 60 ft. long.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea.</th>
<th>$ ea./6+</th>
</tr>
</thead>
<tbody>
<tr>
<td>390169</td>
<td>Black</td>
<td>1.95</td>
<td>1.75</td>
</tr>
<tr>
<td>390299</td>
<td>Red</td>
<td>1.95</td>
<td>1.75</td>
</tr>
<tr>
<td>340005</td>
<td>White</td>
<td>1.95</td>
<td>1.75</td>
</tr>
<tr>
<td>340157</td>
<td>Green</td>
<td>1.95</td>
<td>1.75</td>
</tr>
</tbody>
</table>

### Locking Ties

100/pkg.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>PIECES</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>330289</td>
<td>140</td>
<td>6.95</td>
<td>6.45</td>
</tr>
<tr>
<td>330290</td>
<td>350</td>
<td>16.95</td>
<td>15.95</td>
</tr>
</tbody>
</table>

### Plastic Spacers

All dimensions in inches. 100/pkg.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>SIZE</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>390146</td>
<td>#4</td>
<td>1/4</td>
<td>24.95</td>
<td>23.95</td>
</tr>
<tr>
<td>390152</td>
<td>#6</td>
<td>3/8</td>
<td>24.95</td>
<td>23.95</td>
</tr>
<tr>
<td>390153</td>
<td>#6</td>
<td>1/2</td>
<td>24.95</td>
<td>23.95</td>
</tr>
<tr>
<td>390154</td>
<td>#6</td>
<td>5/8</td>
<td>24.95</td>
<td>23.95</td>
</tr>
<tr>
<td>390157</td>
<td>#8</td>
<td>1/4</td>
<td>24.95</td>
<td>23.95</td>
</tr>
<tr>
<td>390159</td>
<td>#8</td>
<td>1/2</td>
<td>24.95</td>
<td>23.95</td>
</tr>
<tr>
<td>390161</td>
<td>#8</td>
<td>3/4</td>
<td>24.95</td>
<td>23.95</td>
</tr>
<tr>
<td>390162</td>
<td>#8</td>
<td>1</td>
<td>24.95</td>
<td>23.95</td>
</tr>
<tr>
<td>390163</td>
<td>#10</td>
<td>1/4</td>
<td>25.95</td>
<td>24.95</td>
</tr>
</tbody>
</table>

### Wire Jumper Kit

Kit includes Quick Test Sockets, Bus Strips and 22-Gauge Wire (pre-cut, pre-stripped and color-coded).

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>SIZE</th>
<th>$ ea.</th>
</tr>
</thead>
<tbody>
<tr>
<td>340710</td>
<td>Black</td>
<td>Small</td>
<td>15.95</td>
</tr>
<tr>
<td>340711</td>
<td>Orange</td>
<td>Small</td>
<td>17.95</td>
</tr>
<tr>
<td>340712</td>
<td>Black</td>
<td>Med.</td>
<td>15.95</td>
</tr>
</tbody>
</table>

### Wire Nuts

100/pkg.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>SIZE</th>
<th>$ ea.</th>
</tr>
</thead>
<tbody>
<tr>
<td>340024</td>
<td>Black</td>
<td>Small</td>
<td>15.95</td>
</tr>
</tbody>
</table>

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 180.
KELVIN® Storage Units for S.T.E.M. Mini Labs & Kits
Mix and match cabinet sizes to create S.T.E.M. areas within your classroom, organize inventory and store student projects.

Each cabinet includes heavy duty plastic storage bins (with or without lids) which slide into the cabinet on wood runners. Bin color may vary.

Versatile storage units are made from 3/4 in. cabinet grade Maple plywood. Cabinet sides are shipped flat and must be assembled after delivery.

Storage Unit for Bins (Countertop Height)
Countertop-height units. Each unit includes [16] tray bins.

Countertop Storage Unit
Tool Panel w/ Hooks & Interchangeable Sign
430457  [B] Panel, 26 x 26 in. & Sign, 24 x 8-1/2 in. ........................................................................ $175

Storage Unit for Bins (Tall Height)
Suited for older children (after being securely anchored to the wall). Each unit includes [16] bins.

430458  [C] Tall Storage Unit, 12-1/2 L x 18-1/2 W x 68-1/2 in. H ★ .................................. $645

Storage Unit for Balsa & Wood

430461  [D] 16-3/4 L ................................................. $295

Storage Unit for Mini Labs & Kits w/ [3] Bins & Matching Lids

Storage Unit for Mini Labs & Kits Countertop Height w/ [6] Bins & Matching Lids

S.T.E.M. Materials Resources Bin Filler Suitable For All Ages

430476 .........................................................................................................................($310 Retail) $275

S.T.E.M. Project Wood Bin Filler
This bin filler includes an assortment of balsa wood, dowel rods and project wood.

430475 ..............................................($235 Retail) $195

SAVE MONEY with KELVIN® Bin Fillers! Each Bin Filler saves you money versus the retail price of buying each item individually.

Find More KELVIN® S.T.E.M. Bin Fillers on pg. 7

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. ✔ Find California Prop 65 Warning on pg. 180

www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding.

Find California Prop 65 Warning on pg. 36
ELECTRONICS ACTIVITIES

9V Battery Clips

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220013</td>
<td>A</td>
<td>Metal</td>
<td>.45</td>
<td>.39</td>
</tr>
<tr>
<td>220078</td>
<td>B</td>
<td>Plastic</td>
<td>2.75</td>
<td>2.45</td>
</tr>
</tbody>
</table>

9V Battery Snaps

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220001</td>
<td>A</td>
<td>T-Snap</td>
<td>.25</td>
<td>.19</td>
</tr>
<tr>
<td>220017</td>
<td>B</td>
<td>I-Snap</td>
<td>.25</td>
<td>.19</td>
</tr>
</tbody>
</table>

BATTERIES

Alkaline Batteries

Eveready or Duracell Quality

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>V</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220033</td>
<td>AAA</td>
<td>1.5</td>
<td>.85</td>
<td>.80</td>
</tr>
<tr>
<td>220016</td>
<td>AA</td>
<td>1.5</td>
<td>.80</td>
<td>.75</td>
</tr>
<tr>
<td>220014</td>
<td>D</td>
<td>1.5</td>
<td>1.25</td>
<td>1.10</td>
</tr>
<tr>
<td>220019</td>
<td>Radio</td>
<td>9</td>
<td>2.35</td>
<td>1.85</td>
</tr>
</tbody>
</table>

Rechargeable Ni-Cad Batteries

1.2V (except the 9V radio) sealed Nickel Cadmium cells provide up to 1,000 charge/discharge cycles.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>mAH</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220039</td>
<td>AAA</td>
<td>—</td>
<td>1.35</td>
<td>1.25</td>
</tr>
<tr>
<td>220025</td>
<td>AA</td>
<td>500</td>
<td>1.35</td>
<td>1.25</td>
</tr>
<tr>
<td>220027</td>
<td>C</td>
<td>1200</td>
<td>2.95</td>
<td>2.75</td>
</tr>
</tbody>
</table>

Button Batteries

Maxell brand button batteries. For watches, calculators and more! 3V.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220154</td>
<td>#CR2032</td>
<td>....................</td>
<td>75¢</td>
<td></td>
</tr>
<tr>
<td>250075</td>
<td>Button Battery Holder</td>
<td>$1.69</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ni-Cad/Ni-mh

4-Cell Battery Charger

Charges D, C, AA, AAA, 6V, and 9V Ni-Cad/Ni-mh batteries. LEDs indicate proper charging and switch charges at 50mAH or 120mAH.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>mAH</th>
<th>$ ea.</th>
<th>$ ea./16+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220039</td>
<td>AAA</td>
<td>—</td>
<td>1.35</td>
<td>1.25</td>
<td></td>
</tr>
<tr>
<td>220007</td>
<td>D</td>
<td>500</td>
<td>1.35</td>
<td>1.25</td>
<td></td>
</tr>
<tr>
<td>220010</td>
<td>Radio</td>
<td>9</td>
<td>1.35</td>
<td>.99¢</td>
<td></td>
</tr>
</tbody>
</table>

Carbon Batteries

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>mAH</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220009</td>
<td>AA</td>
<td>500</td>
<td>1.35</td>
<td>1.25</td>
<td></td>
</tr>
<tr>
<td>220007</td>
<td>D</td>
<td>500</td>
<td>1.35</td>
<td>1.25</td>
<td></td>
</tr>
<tr>
<td>220010</td>
<td>Radio</td>
<td>9</td>
<td>1.35</td>
<td>.99¢</td>
<td></td>
</tr>
</tbody>
</table>

Find KELVIN® Power Supplies on pg. 163

ALKALINE BATTERIES

AAA Plastic Battery Holders

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220131</td>
<td>A</td>
<td>2</td>
<td>1.55</td>
<td>1.45</td>
</tr>
<tr>
<td>220132</td>
<td>B</td>
<td>4</td>
<td>3.95</td>
<td>3.60</td>
</tr>
</tbody>
</table>

AA Plastic Battery Holders

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220089</td>
<td>C</td>
<td>1</td>
<td>.50</td>
<td>.35</td>
</tr>
<tr>
<td>220128</td>
<td>D</td>
<td>1</td>
<td>1.45</td>
<td>1.35</td>
</tr>
<tr>
<td>220129</td>
<td>E</td>
<td>2</td>
<td>.95</td>
<td>.86</td>
</tr>
<tr>
<td>220090</td>
<td>F</td>
<td>2</td>
<td>.60</td>
<td>.50</td>
</tr>
<tr>
<td>220091</td>
<td>G</td>
<td>4</td>
<td>2.65</td>
<td>2.45</td>
</tr>
<tr>
<td>220004</td>
<td>H</td>
<td>4</td>
<td>1.99</td>
<td>1.85</td>
</tr>
<tr>
<td>220092</td>
<td>I</td>
<td>6</td>
<td>4.45</td>
<td>3.95</td>
</tr>
</tbody>
</table>

AA Aluminum Battery Holders

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220048</td>
<td>P</td>
<td>2</td>
<td>6.45</td>
<td>5.45</td>
</tr>
<tr>
<td>220040</td>
<td>Q</td>
<td>4</td>
<td>6.95</td>
<td>5.95</td>
</tr>
</tbody>
</table>

C Plastic Battery Holders

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220093</td>
<td>J</td>
<td>1</td>
<td>1.75</td>
<td>1.50</td>
</tr>
<tr>
<td>220094</td>
<td>K</td>
<td>2</td>
<td>2.75</td>
<td>2.30</td>
</tr>
</tbody>
</table>

DC ADAPTERS

110 V input voltage. Includes 2.1 mm plug.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>V</th>
<th>A</th>
<th>$ ea.</th>
<th>$ ea./5+</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220168</td>
<td></td>
<td>5</td>
<td>1200</td>
<td>7.95</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>220069</td>
<td></td>
<td>9</td>
<td>500</td>
<td>11.95</td>
<td>10.95</td>
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<tr>
<td>220068</td>
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<td>12</td>
<td>500</td>
<td>13.95</td>
<td>12.95</td>
<td></td>
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<tr>
<td>220121</td>
<td></td>
<td>12</td>
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<td>15.95</td>
<td>14.95</td>
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<tr>
<td>220100</td>
<td></td>
<td>12</td>
<td>2000</td>
<td>19.95</td>
<td>18.95</td>
<td></td>
</tr>
</tbody>
</table>

Battery Holders

Stackable Battery Holders

Battery holders can be snapped together to form series and parallel battery packs. Plastic. 1-cell. D.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>220096</td>
<td>L</td>
<td>.85</td>
<td>.75</td>
</tr>
<tr>
<td>220133</td>
<td>M</td>
<td>1.45</td>
<td>1.25</td>
</tr>
<tr>
<td>220097</td>
<td>N</td>
<td>2.65</td>
<td>2.35</td>
</tr>
<tr>
<td>220098</td>
<td>O</td>
<td>2.75</td>
<td>2.45</td>
</tr>
</tbody>
</table>

P

Q

R

S

T

U

V

W

X

Y

Z

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 36 www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
## 7400 Series ICs [A]

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>S ea.</th>
</tr>
</thead>
<tbody>
<tr>
<td>590001</td>
<td>00</td>
<td>1.30</td>
</tr>
<tr>
<td>590005</td>
<td>04</td>
<td>1.75</td>
</tr>
<tr>
<td>590043</td>
<td>47</td>
<td>2.45</td>
</tr>
<tr>
<td>590052</td>
<td>73</td>
<td>0.75</td>
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</table>

## 74LS ICs [A]

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
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</tr>
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<tbody>
<tr>
<td>590088</td>
<td>00</td>
<td>0.60</td>
</tr>
<tr>
<td>590144</td>
<td>47</td>
<td>1.99</td>
</tr>
<tr>
<td>590080</td>
<td>74</td>
<td>0.85</td>
</tr>
<tr>
<td>590111</td>
<td>90</td>
<td>1.60</td>
</tr>
<tr>
<td>590094</td>
<td>161</td>
<td>0.55</td>
</tr>
<tr>
<td>590180</td>
<td>163</td>
<td>0.55</td>
</tr>
<tr>
<td>590100</td>
<td>194</td>
<td>0.95</td>
</tr>
<tr>
<td>590081</td>
<td>240</td>
<td>0.99</td>
</tr>
<tr>
<td>590213</td>
<td>283</td>
<td>0.65</td>
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</table>

## 74HC ICs [A]

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>590257</td>
<td>06</td>
<td>1.25</td>
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</table>

## CD4000 ICs [A]

<table>
<thead>
<tr>
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<th>TYPE</th>
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</tr>
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<tbody>
<tr>
<td>590229</td>
<td>4011</td>
<td>0.45</td>
</tr>
<tr>
<td>590228</td>
<td>4017</td>
<td>0.89</td>
</tr>
<tr>
<td>600178</td>
<td>4027</td>
<td>0.75</td>
</tr>
<tr>
<td>600181</td>
<td>4046</td>
<td>0.85</td>
</tr>
<tr>
<td>590343</td>
<td>4078</td>
<td>0.55</td>
</tr>
<tr>
<td>600186</td>
<td>4081</td>
<td>0.55</td>
</tr>
<tr>
<td>600158</td>
<td>4528</td>
<td>1.45</td>
</tr>
</tbody>
</table>

## Silicon Controlled Rectifier

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>PIV</th>
<th>AMPS</th>
<th>S ea.</th>
<th>S ea./5+</th>
</tr>
</thead>
<tbody>
<tr>
<td>600004</td>
<td>1N344</td>
<td>50</td>
<td>1.5</td>
<td>3.75</td>
<td>3.45</td>
</tr>
<tr>
<td>600014</td>
<td>200</td>
<td>4</td>
<td>.99</td>
<td>.95</td>
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</tbody>
</table>

## Silicon Power Rectifiers 1A

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>PIV</th>
<th>AMPS</th>
<th>S ea.</th>
<th>S ea./5+</th>
</tr>
</thead>
<tbody>
<tr>
<td>620103</td>
<td>1N4001</td>
<td>1</td>
<td>1.2</td>
<td>.15</td>
<td>.12</td>
</tr>
<tr>
<td>620104</td>
<td>1N4003</td>
<td>1</td>
<td>1.4</td>
<td>.18</td>
<td>.14</td>
</tr>
<tr>
<td>620089</td>
<td>1N4004</td>
<td>1</td>
<td>1.5</td>
<td>.20</td>
<td>.15</td>
</tr>
<tr>
<td>620098</td>
<td>1N5400</td>
<td>1</td>
<td>1.8</td>
<td>.22</td>
<td>.18</td>
</tr>
<tr>
<td>620094</td>
<td>1N5401</td>
<td>1</td>
<td>1.8</td>
<td>.22</td>
<td>.18</td>
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</tbody>
</table>

## Full Wave Bridge Rectifiers

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>PIV</th>
<th>AMPS</th>
<th>S ea.</th>
<th>S ea./100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>620152</td>
<td>200</td>
<td>8</td>
<td>2.75</td>
<td>2.60</td>
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</tbody>
</table>

## Power Transformers

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>S ea.</th>
<th>S ea./10+</th>
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</thead>
<tbody>
<tr>
<td>320047</td>
<td>22.95</td>
<td>20.95</td>
</tr>
</tbody>
</table>

## Relays [A]

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>TYPE</th>
<th>COIL</th>
<th>OMS</th>
<th>S ea.</th>
<th>S ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>410030</td>
<td>SPST</td>
<td>200 VDC, 0.5 A</td>
<td>5 VDC, 10 mA</td>
<td>3.99</td>
<td>3.05</td>
</tr>
<tr>
<td>410025</td>
<td>DPDT</td>
<td>110 VAC/24 VDC, 5A</td>
<td>6 VDC, 86 mA</td>
<td>2.56</td>
<td>2.30</td>
</tr>
<tr>
<td>410024</td>
<td>SPDT</td>
<td>120 VAC/24 VDC, 10A</td>
<td>6 VDC, 60 mA</td>
<td>2.29</td>
<td>2.06</td>
</tr>
<tr>
<td>410027</td>
<td>SPDT</td>
<td>250 VAC/30 VDC, 7A</td>
<td>12 VDC, 30 mA</td>
<td>3.95</td>
<td>3.55</td>
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</table>

## Buzzers 80dB

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FIG.</th>
<th>TYPE</th>
<th>RATING</th>
<th>S ea.</th>
<th>S ea./10+</th>
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</thead>
<tbody>
<tr>
<td>680089</td>
<td>B</td>
<td>Wire Lead</td>
<td>3-12 VDC</td>
<td>1.25</td>
<td>1.15</td>
</tr>
<tr>
<td>680135</td>
<td>C</td>
<td>Piezo</td>
<td>3-6 VDC</td>
<td>2.95</td>
<td>2.75</td>
</tr>
<tr>
<td>680089</td>
<td>D</td>
<td>Double Coil</td>
<td>6-12 VAC</td>
<td>9.95</td>
<td>—</td>
</tr>
<tr>
<td>680104</td>
<td>E</td>
<td>PCB Mount w/ Leads</td>
<td>6-9 VDC</td>
<td>1.95</td>
<td>1.75</td>
</tr>
</tbody>
</table>

**Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 36**
### Capacitors

#### Ceramic Disc Capacitors (A)
- 50V, 20/pkg.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>mF</th>
<th>$ ea.</th>
<th>$ ea. 10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>140001</td>
<td>0.0010</td>
<td>3.00</td>
<td>2.75</td>
</tr>
<tr>
<td>140003</td>
<td>0.0022</td>
<td>3.00</td>
<td>2.75</td>
</tr>
<tr>
<td>140005</td>
<td>0.0047</td>
<td>3.00</td>
<td>2.75</td>
</tr>
<tr>
<td>140014</td>
<td>0.012</td>
<td>3.00</td>
<td>2.75</td>
</tr>
<tr>
<td>140009</td>
<td>0.022</td>
<td>3.00</td>
<td>2.75</td>
</tr>
<tr>
<td>140028</td>
<td>0.033</td>
<td>3.00</td>
<td>2.75</td>
</tr>
<tr>
<td>140011</td>
<td>0.10</td>
<td>3.00</td>
<td>2.75</td>
</tr>
<tr>
<td>140015</td>
<td>0.12</td>
<td>3.00</td>
<td>2.75</td>
</tr>
<tr>
<td>140029</td>
<td>0.33</td>
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</tr>
<tr>
<td>140034</td>
<td>0.47</td>
<td>3.00</td>
<td>2.75</td>
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#### Polyester Metallized Radial Capacitors (B)
- ±10% tol. 250V.

<table>
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<tr>
<th>STOCK #</th>
<th>FARADS</th>
<th>$ ea.</th>
<th>$ ea. 10+</th>
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</thead>
<tbody>
<tr>
<td>130060</td>
<td>0.2</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>130061</td>
<td>0.47</td>
<td>35</td>
<td>32</td>
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</table>

#### Monolithic Capacitors (C)
- 50V, 10/pkg.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>mF</th>
<th>$ ea.</th>
<th>$ ea. 10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>140046</td>
<td>0.01</td>
<td>22</td>
<td>-</td>
</tr>
<tr>
<td>140047</td>
<td>0.047</td>
<td>1.50</td>
<td>1.25</td>
</tr>
<tr>
<td>140048</td>
<td>0.1</td>
<td>1.50</td>
<td>1.25</td>
</tr>
<tr>
<td>140049</td>
<td>0.22</td>
<td>1.90</td>
<td>1.70</td>
</tr>
<tr>
<td>140050</td>
<td>0.47</td>
<td>2.50</td>
<td>2.25</td>
</tr>
</tbody>
</table>

#### Resin Tantalum Capacitors (D)
- -55°C to +85°C, ±20% tol. 10/pkg.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>FARADS</th>
<th>$ ea.</th>
<th>$ ea. 10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>190054</td>
<td>2.2</td>
<td>4.00</td>
<td>3.75</td>
</tr>
</tbody>
</table>

#### Variable Capacitor Trimmer (E)
- For FM microphone & transmitter.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>pF</th>
<th>$ ea.</th>
<th>$ ea. 10+</th>
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<tbody>
<tr>
<td>130084</td>
<td>15-90</td>
<td>2.95</td>
<td>2.75</td>
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### Resistors

#### 2 Watt Resistors

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>OHMS</th>
<th>$ ea.</th>
<th>$ ea. 100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>010167</td>
<td>10 k</td>
<td>1.17</td>
<td>.13</td>
</tr>
<tr>
<td>010168</td>
<td>10 k</td>
<td>.17</td>
<td>.13</td>
</tr>
<tr>
<td>010166</td>
<td>10 k</td>
<td>.17</td>
<td>.13</td>
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</table>

#### 5 Watt Resistors

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>OHMS</th>
<th>$ ea.</th>
<th>$ ea. 100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>080000</td>
<td>51</td>
<td>.59</td>
<td>.53</td>
</tr>
<tr>
<td>080001</td>
<td>10</td>
<td>.29</td>
<td>.14</td>
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</table>

#### 10 Watt Resistors

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>OHMS</th>
<th>$ ea.</th>
<th>$ ea. 100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>100012</td>
<td>2</td>
<td>.40</td>
<td>.38</td>
</tr>
<tr>
<td>100006</td>
<td>5</td>
<td>.40</td>
<td>.38</td>
</tr>
<tr>
<td>100005</td>
<td>10</td>
<td>.40</td>
<td>.38</td>
</tr>
<tr>
<td>100014</td>
<td>20</td>
<td>.40</td>
<td>.38</td>
</tr>
<tr>
<td>100015</td>
<td>25</td>
<td>.40</td>
<td>.38</td>
</tr>
<tr>
<td>100017</td>
<td>35</td>
<td>.40</td>
<td>.38</td>
</tr>
</tbody>
</table>

#### Light Dependent Resistor (Top Quality)

- $2.75

### Resistor Kit

- Five each of 73 values from 1W to 1MW, 1/4W. 365 total.
- $23.95 or $20.95 ea.+3

### Resistor Kel-Pack™

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>W</th>
<th>VALUES</th>
<th>PCS.</th>
<th>$ ea.</th>
</tr>
</thead>
<tbody>
<tr>
<td>840468</td>
<td>1/4</td>
<td>24</td>
<td>3200</td>
<td>49.95</td>
</tr>
<tr>
<td>840487</td>
<td>1/2</td>
<td>16</td>
<td>4800</td>
<td>49.95</td>
</tr>
</tbody>
</table>

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 36.
SWITCHES ELECTRONICS

KEY SWITCH

Normally Open
270081 ...............49¢ or 44¢ ea./6+

MOMENTARY SWITCHES

SPST
Normally Open
270052 ............$1.25 or 99¢ ea./10+

SPST
Right Angle, 12mm
270104 ............$1.75 or 1.58 ea./10+

SPDT
Normally Open/Closed
270074 .............$3.45 or $2.95 ea./10+

HALL EFFECT SWITCH

Switch/Sensor
260093 .................99¢ or 85¢ ea./20+

TILT SWITCH

Metal Can
270086 ............$2.65 or $2.45 ea./10+

REED SWITCHES

Magnetic
270065 ............$2.25 or $1.95 ea./10+

Includes magnet, 5/pkg.
270065 ............$2.25 or $1.95 ea./10+

PHOTO CELLS

Variable Resistance
STOCK # OHMS  |  $ ea.  |  $ ea./100+
-----------------|--------|--------------
260017 450      |  .99   |  .85
260018 1.5 K    |  .99   |  .85

THERMISTORS

Linear Taper Potentiometers

STOCK # OHMS  |  $ ea.  |  $ ea./10+
-----------------|--------|--------------
110051 500      |  2.95  |  2.45
110052 1 k       |  2.95  |  2.45
110054 5 k       |  2.95  |  2.45
110055 10 k      |  2.95  |  2.45
110057 50 k      |  2.95  |  2.45
110058 100 k     |  2.95  |  2.45
110060 500 k     |  2.95  |  2.45
110063 5 M       |  2.95  |  2.45

Audio Taper Potentiometers

STOCK # OHMS  |  $ ea.  |  $ ea./10+
-----------------|--------|--------------
110064 1 k       |  2.95  |  2.50
110068 100k      |  2.45  |  2.25

ULTRASONIC SENSOR SET

Aluminum Case
680115 ...$13.95 or $12.95 ea./10+

PCB Mount Potentiometers

STOCK # OHMS  |  $ ea.  |  $ ea./10+
-----------------|--------|--------------
110132 1 k       |  1.95  |  1.76
110136 2 k       |  1.95  |  1.76
110130 10 k      |  1.95  |  1.76
110133 100 k     |  1.95  |  1.76
110135 500 k     |  1.95  |  1.76
110134 1M        |  1.95  |  1.76

ROTARY SWITCHES

30° indexing, single phenolic wafer sections and silver-plated contacts.

STOCK # POSITIONS  |  $ ea.  |  $ ea./100+
---------------------|--------|--------------
990035 3             |  3.95  |  3.15
990031 6             |  3.95  |  3.15
990029 12            |  3.95  |  3.15

High Quality Potentiometers

STOCK # OHMS  |  $ ea.  |  $ ea./10+
-----------------|--------|--------------
110088 100 k     |  13.95 |  11.95

TRIMMERS

Horizontal Trimmers
PCB Mount, CTS
STOCK # OHMS  |  $ ea.  |  $ ea./10+
-----------------|--------|--------------
110083 5 k       |  1.95  |  1.75
110111 100 k     |  1.95  |  1.75
111012 500 k     |  1.95  |  1.75

Horizontal Trimmers
PCB Mount, Top Adjusting
STOCK # OHMS  |  $ ea.  |  $ ea./10+
-----------------|--------|--------------
110107 47k       |  2.95  |  2.75

Vertical Mini Trimmers

STOCK # OHMS  |  $ ea.  |  $ ea./10+
-----------------|--------|--------------
110043 500 k     |  1.25  |  1.15
110106 2.2M      |  1.95  |  1.75
110099 1k        |  2.25  |  1.95
111010 2 k       |  1.95  |  1.75

KELVIN® Kre8® Electronics Parts


283656 ......................$79.95

Find More KELVIN® Kre8® products on pgs. 7, 13-17, 30, 34, 37, 45, 49, 67, 85, 90, 106, 115, 133, 136 & 181

172 Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 36
# ELECTRONICS SWITCHES

## PUSHBUTTON SWITCHES

<table>
<thead>
<tr>
<th>Normally Closed</th>
<th>Black w/ Nut</th>
<th>110 V, 3 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>990074</td>
<td>1/4</td>
<td>.63</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normally Closed</th>
<th>Red w/ Nut</th>
<th>110 V, 3 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>990002</td>
<td>1/4</td>
<td>.39</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Normally Closed</th>
<th>Black w/ Nut</th>
<th>14 V, 2 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270023</td>
<td>3/8</td>
<td>1.65</td>
</tr>
</tbody>
</table>

## SLIDE SWITCHES

<table>
<thead>
<tr>
<th>SPST</th>
<th>Solder-type</th>
<th>125 V AC, 0.5 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270042</td>
<td>1/4</td>
<td>.70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPST</th>
<th>Includes nut.</th>
<th>125 V AC, 3 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270004</td>
<td>1/4</td>
<td>.70</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPST</th>
<th>Horiz. PCB Mount</th>
<th>125 V AC, 0.5 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270111</td>
<td>3/8</td>
<td>3.25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPDT</th>
<th>PCB Mount</th>
<th>30 V DC, 0.2 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270064</td>
<td>3/8</td>
<td>1.45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPDT</th>
<th>PCB Mount</th>
<th>125 V DC, 0.5 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270099</td>
<td>1/2</td>
<td>.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPDT</th>
<th>Solder-type</th>
<th>125 V DC, 0.5 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270002</td>
<td>3/8</td>
<td>.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DPDT</th>
<th>Side Mount</th>
<th>50 V DC, 0.5 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270092</td>
<td>1/2</td>
<td>.89</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DPDT</th>
<th>Solder-type</th>
<th>125 V DC, 0.5 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>HOLE in.</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270009</td>
<td>1/2</td>
<td>2.25</td>
</tr>
</tbody>
</table>

## LEVER SWITCHES

<table>
<thead>
<tr>
<th>Submini</th>
<th>Snap Action</th>
<th>SPST</th>
<th>125 / 250 V, 6 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
<td>$ ea./25+</td>
</tr>
<tr>
<td>270084</td>
<td>1.45</td>
<td>1.25</td>
<td>1.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Mini</th>
<th>Snap Action</th>
<th>SPDT, w/ Nut</th>
<th>125 / 250 V, 10 A</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
<td>$ ea./25+</td>
</tr>
<tr>
<td>270061</td>
<td>11.95</td>
<td>9.95</td>
<td>8.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pushbutton</th>
<th>SPST</th>
<th>Screw-type Normally Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>QTY</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270097</td>
<td>10</td>
<td>10.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toggle</th>
<th>SPST</th>
<th>Screw-type</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>QTY</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270095</td>
<td>10</td>
<td>10.95</td>
</tr>
</tbody>
</table>

## DOLL HOUSE SWITCHES

<table>
<thead>
<tr>
<th>Lever</th>
<th>SPST</th>
<th>Fahnestock On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270077</td>
<td>1</td>
<td>1.25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Toggle</th>
<th>SPST</th>
<th>Screw-type On/Off</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>QTY</td>
<td>$ ea.</td>
</tr>
<tr>
<td>270095</td>
<td>10</td>
<td>10.95</td>
</tr>
</tbody>
</table>

## ROCKER SWITCH

<table>
<thead>
<tr>
<th>Lighted</th>
<th>SPST, 250 V, 10 A Req. panel cutout.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
</tr>
<tr>
<td>340130</td>
<td>2.95</td>
</tr>
</tbody>
</table>

## TOGGLE SWITCHES

<table>
<thead>
<tr>
<th>SPST</th>
<th>125 V AC, 4 A</th>
<th>Includes nut.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270007</td>
<td>.70</td>
<td>.63</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPST</th>
<th>125 V AC, 6 A</th>
<th>Includes nut.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270034</td>
<td>1.35</td>
<td>1.25</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPST</th>
<th>125 V AC, 8 A</th>
<th>Includes nut.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270001</td>
<td>3.95</td>
<td>3.75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPST</th>
<th>125 V AC, 20 A</th>
<th>Includes nut.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270059</td>
<td>4.45</td>
<td>4.35</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPST</th>
<th>125 V AC, 0.3 A</th>
<th>PCB Mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>990097</td>
<td>2.65</td>
<td>2.45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPST</th>
<th>125 V AC, 6 A</th>
<th>Includes nut. Center-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270036</td>
<td>1.25</td>
<td>1.15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SPST</th>
<th>125 V AC, 15 A</th>
<th>Includes nut. Center-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270005</td>
<td>4.45</td>
<td>3.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DPST</th>
<th>125 V AC, 6 A</th>
<th>Includes nut.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270011</td>
<td>1.25</td>
<td>1.15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DPST</th>
<th>125 V AC, 6 A</th>
<th>Includes nut.</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270037</td>
<td>1.95</td>
<td>1.75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DPST</th>
<th>125 V AC, 15 A</th>
<th>Includes nut. Center-off</th>
</tr>
</thead>
<tbody>
<tr>
<td>STOCK #</td>
<td>$ ea.</td>
<td>$ ea./10+</td>
</tr>
<tr>
<td>270013</td>
<td>2.25</td>
<td>1.95</td>
</tr>
</tbody>
</table>

Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 36 www.kelvin.com • KELVIN®, 280 Adams Blvd., New York 11735, USA • Copyright © Kelvin L.P. • Prices represent discounted pricing for educational institutions.
### LEDs

**Diffused LEDs:** 5mm, T 1-3/4. Minimum order of 10.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea./3+</th>
<th>$ ea./100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260010</td>
<td>Red</td>
<td>.15</td>
<td>.08</td>
</tr>
<tr>
<td>260011</td>
<td>Green</td>
<td>.15</td>
<td>.08</td>
</tr>
<tr>
<td>260012</td>
<td>Yellow</td>
<td>.15</td>
<td>.08</td>
</tr>
</tbody>
</table>

**Mini LEDs:** 3mm, T1. Diffused. Minimum order of 20.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea./10+</th>
<th>$ ea./20+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260080</td>
<td>Red</td>
<td>.19</td>
<td>.16</td>
</tr>
<tr>
<td>260081</td>
<td>Green</td>
<td>.19</td>
<td>.16</td>
</tr>
<tr>
<td>260082</td>
<td>Yellow</td>
<td>.19</td>
<td>.16</td>
</tr>
</tbody>
</table>

**Blinking LEDs:** 5mm. Diffused. Minimum order of 10.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea./20+</th>
<th>$ ea./100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260075</td>
<td>Red</td>
<td>.75</td>
<td>.65</td>
</tr>
<tr>
<td>260076</td>
<td>Green</td>
<td>.95</td>
<td>.85</td>
</tr>
<tr>
<td>260077</td>
<td>Yellow</td>
<td>.95</td>
<td>.85</td>
</tr>
</tbody>
</table>

**Rectangular LEDs:** 2x5mm, Diffused.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea./10+</th>
<th>$ ea./20+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260083</td>
<td>Red</td>
<td>.22</td>
<td>.18</td>
</tr>
<tr>
<td>260084</td>
<td>Green</td>
<td>.22</td>
<td>.18</td>
</tr>
</tbody>
</table>

**Triangular LEDs:** Minimum order of 10.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea./10+</th>
<th>$ ea./20+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260102</td>
<td>Red</td>
<td>.28</td>
<td>.25</td>
</tr>
<tr>
<td>260103</td>
<td>Green</td>
<td>.28</td>
<td>.25</td>
</tr>
<tr>
<td>260107</td>
<td>Yellow</td>
<td>.28</td>
<td>.25</td>
</tr>
</tbody>
</table>

**Extra Large LEDs:** 10mm. Minimum order of 10.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea./10+</th>
<th>$ ea./100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260085</td>
<td>Red</td>
<td>.39</td>
<td>.35</td>
</tr>
<tr>
<td>260086</td>
<td>Green</td>
<td>.39</td>
<td>.35</td>
</tr>
<tr>
<td>260087</td>
<td>Yellow</td>
<td>.39</td>
<td>.35</td>
</tr>
</tbody>
</table>

**Dual Color LEDs:** Red/Green, T 1-3/4. Minimum order of 10.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>LEGS</th>
<th>$ ea./20+</th>
<th>$ ea./100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260078</td>
<td>2</td>
<td>.29</td>
<td>.25</td>
</tr>
<tr>
<td>260079</td>
<td>3</td>
<td>.29</td>
<td>.25</td>
</tr>
</tbody>
</table>

### NEON BULBS

**Neon Bulb Panel Kits**
Each kit includes NE2 neon bulb, high temperature lens cap (colored plastic), timer mounting clip, and a current limiting resistor (68K, 1/2W). Solder tabs.115V AC, 7/8 in. long, 11/32 in. diameter. Requires a 5/16 in. dia. mounting hole.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea./10+</th>
<th>$ ea./20+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260004</td>
<td>Red</td>
<td>.95</td>
<td>.89</td>
</tr>
<tr>
<td>260005</td>
<td>Green</td>
<td>.95</td>
<td>.89</td>
</tr>
<tr>
<td>260009</td>
<td>Clear</td>
<td>.95</td>
<td>.89</td>
</tr>
</tbody>
</table>

**Neon Bulb Assembly**
Includes red indicator and housing.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>V</th>
<th>$ ea./10+</th>
<th>$ ea./100+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260113</td>
<td>12.5</td>
<td>2.95</td>
<td>2.75</td>
</tr>
</tbody>
</table>

### XENON STROBE TUBE

**Trigger Coil 4kV**
Strobe Tube Only
Used for photoflashes. Features a 4KV trigger with a 200-300V DC anode.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>V</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>320037</td>
<td></td>
<td>1.95</td>
<td>1.75</td>
</tr>
<tr>
<td>260050</td>
<td>4K</td>
<td>2.95</td>
<td>2.75</td>
</tr>
</tbody>
</table>

### AUDIO KITS & PARTS

**Crystal Radio Bulk Pack**
Unique flat design. Each kit includes a crystal earpiece, aerial wire, and a self-adhesive postcard graphic. Bulk Pack for 10

<table>
<thead>
<tr>
<th>STOCK #</th>
<th></th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>283701</td>
<td></td>
<td>175</td>
<td></td>
</tr>
</tbody>
</table>

**Stereo Audio Amplifier**
High quality; uses an LM1875 to amplify any small signal and to drive an 8 ohm speaker with 1% THD. Requires 12-30 V DC power supply.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>$ ea.</th>
<th>$ ea./4+</th>
</tr>
</thead>
<tbody>
<tr>
<td>350009</td>
<td>.85</td>
<td>.75</td>
</tr>
</tbody>
</table>

**Project Speakers**
8 Ohms, 0.1 W, PM, 2 in. Dia.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>350043</td>
<td>4.95</td>
<td>4.45</td>
</tr>
</tbody>
</table>

**Project Microphone**
10V DC, 1K

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>$ ea.</th>
<th>$ ea./10+</th>
</tr>
</thead>
<tbody>
<tr>
<td>350041</td>
<td>2.25</td>
<td>1.95</td>
</tr>
</tbody>
</table>

### LED Holders
5mm

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>COLOR</th>
<th>$ ea./10+</th>
<th>$ ea./20+</th>
</tr>
</thead>
<tbody>
<tr>
<td>250019</td>
<td>Black</td>
<td>.48</td>
<td>.32</td>
</tr>
</tbody>
</table>

### LED Readouts
7-Segment. Red. Anode

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>PIN #</th>
<th>$ ea.</th>
<th>$ ea./20+</th>
</tr>
</thead>
<tbody>
<tr>
<td>260022</td>
<td>14</td>
<td>1.95</td>
<td>1.85</td>
</tr>
<tr>
<td>260021</td>
<td>10</td>
<td>1.85</td>
<td>1.75</td>
</tr>
</tbody>
</table>

### Kelvin® Kel-Pack™ LED Pack

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>PCS.</th>
<th>$ ea.</th>
<th>$ ea./3+</th>
</tr>
</thead>
<tbody>
<tr>
<td>840485</td>
<td>670</td>
<td>85.00</td>
<td>80.00</td>
</tr>
</tbody>
</table>

### Kelvin® 20W+20W Stereo Audio Amplifier
Lightweight. 100dB. 4-32 Ohms.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>$ ea.</th>
<th>$ ea./4+</th>
</tr>
</thead>
<tbody>
<tr>
<td>350009</td>
<td>.85</td>
<td>.75</td>
</tr>
</tbody>
</table>
### KELVIN® EDUCATIONAL ELECTRONICS

#### FUSES & BULBS

**Slow-Blow Fuses**
Measures 1/4 x 1/4 in. 125 V. Minimum order of 10.

<table>
<thead>
<tr>
<th>STOCK #</th>
<th>QTY</th>
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**Fast-Acting Fuses**
AGC-type. Measures 1/4 x 1/4 in. 250 V. Minimum order of 10.

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**Test Instrument Fuses**
GMA-type. Measures 1/4 x 1/4 in. 250 V. Minimum order of 10.

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**Fuse Holders**
Includes mounting nut.

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**Circuit Breakers**

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<td>380073</td>
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**Find KELVIN® Electronic Kits on pages 142-147, 163 & 174**

**Find Sensors on pg. 172**

**Find LDRs on pg. 171**

**Basic Parts Kit**
- Resistors, 1/4W, 2 each (ohms): 10, 100, 470, 1k, 2.2k, 4.7k, 8.2k, 10k, 18k, 27k, 47k, 82k, 100k, 220k, 330k, 470k, 1M
- LEDs, T-1 3/4 size, 5 each: Red, Green, Yellow
- Radial Electrolytic Capacitors, 50V, 2 each (mF): 0.001, 0.0047, 0.01, 0.047, 0.1, 0.33
- Radial DIP Mylar Capacitors, 100V, 2 each (mF): 0.001, 0.0047, 0.01, 0.047, 0.1, 0.33
- Ceramic Disc Capacitors, 500V, 2 each (pF): 2.2, 4.7, 10, 1, 22, 47, 100, 220, 470, 680
- Inductors (mh): 4.7, 10, 47, 100, 470, 1, 10, 33
- Trim Pots, 1-Turn, 1 each: (ohms): 500, 1k, 5k, 50k, 100k, 500k, 1M
- Switches, 2 each: Push-button, SPDT slide, DPDT slide, 8-pos. DIP
- Displays, 7 each: 7-segment common cathode, 7-segment common anode
- Transistors, 2 each: PN2222, PN2907, 2N3055, 2N3904, 2N3906, 2N5457
- Integrated Circuits, 2 each: 7805, 7812 Reg., LM386 Audio Amp, 555
- Timer, 741 Op-Amp, 74LS00, 74LS04, 74LS05, 74LS10, 74LS47, 74LS74, 74LS86, CD4013, CD4017
- Diodes, 2 each: 1N4148, 1N4001, 1N34, 1N4728, 1N4733, 1N4739, 1N4743, 1N4747
- Miscellaneous: 25 ft. of 22AWG Hook-up wire, Alligator lead sets, 5V DIP relay, Photo cell, Microphone, Speaker, Buzzer, 9V battery, 1.5A 100V bridge, 4A 200V SCR
- Plastic Container: 18 divisions. 11 x 7 x 1-1/2 in.

**P.O. Soldering Kits**
- Insulated, 2 Solder Tabs.
- Screw-type.
- Threaded, Raised. Solder Tab.
- Threaded, 2 Solder Tabs.
- Clip-On. Works with craft stick.
- Fahnestock

**E-10 Base Mini Bulbs**
Threaded. 2.2 V, 0.25 A. #222.

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**E-10 Base Mini Bulb Sockets Bare**

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**E-5 Base Mini Bulbs**
Threaded. 12 V, 0.27 A. #1769.

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**Bayonet Base Mini Bulbs**
2 V, 0.06 A. #49.

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**6.3 V, 0.15 A. #47**

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**E-10 Base Mini Bulb Sockets**
Bare with 6 in. Lead.

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**Bayonet Base Mini Bulb Sockets**

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Kits may require soldering and assembly. Wood, balsa and foam blanks require shaping with tools and sanding. Find California Prop 65 Warning on pg. 36

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KELVIN® Kre8® Air-Propelled Racer
Build and race this exciting air car – moves well on flat surfaces! Decorate the body of the racer. Learn about potential energy, stored energy and kinetic energy along with gravity, friction and rotary motion. Requires AA battery, scissors, hole punch and clear tape. Also requires Kre8® Tube Cutter or snips (see pg. 15).

Kit
283657 ................................ $16.95 or $14.95 ea./5+

Bulk Pack  As Low As $12.50 Per Kit
283803   Bulk Pack of 10 ................................. $125

KELVIN® Kre8® 3-in-1 Bridge Kit
Build and rebuild one of these three bridge types: arch, suspension, or truss. Students will learn about spanning a gap, rigidity, stiffness, enclosing a space, triangulation, mirror image, tension, compression, and redundant parts.

Kit includes: clip connectors, slit rods, tubes, a plastic strip for road bed, string, bag and sand paper.
Requires AA battery, scissors, hole punch and clear tape. Also requires Kre8® Tube Cutter or snips (see pg. 15).

283664 Kit ........................................... $12.95 or $11.95 ea./5+ or $10.95 ea./10+ or $9.95 ea./20+

Bulk Pack  As Low As $8.75 Per Kit
283677   Bulk Pack of 20 Students ................. $175

KELVIN® Kre8® Curiosity Rover
Like the real Mars Rover, the front excavator and vision arms can be moved; steer it right, left, forwards and backwards. Powered by two motors and controlled with included remote controller. Requires AA battery, scissors, hole punch and clear tape. Also requires Kre8® Tube Cutter or snips (see pg. 15).

Kit w/ Assembled Manual Controller
283771 ........................................... $29.95 or $27.95 ea./5+

Bulk Pack  As Low As $22.95 Per Kit
283772   Bulk Pack of 10 Kits .......................... $229.50

Vehicle Kit Only

283707 Kit ........................................... $24.95 or $22.95 ea./10+

Bulk Pack  As Low As $19.50 Per Kit
283782   Bulk Pack of 10 ......................... $195

KELVIN® Kre8® 3-in-1 Bridge Kit
Build and rebuild one of these three bridge types: arch, suspension, or truss. Students will learn about spanning a gap, rigidity, stiffness, enclosing a space, triangulation, mirror image, tension, compression, and redundant parts.

Kit includes: clip connectors, slit rods, tubes, a plastic strip for road bed, string, bag and sand paper.
Requires AA battery, scissors, hole punch and clear tape. Also requires Kre8® Tube Cutter or snips (see pg. 15).

283664 Kit ........................................... $12.95 or $11.95 ea./5+ or $10.95 ea./10+ or $9.95 ea./20+

Bulk Pack  As Low As $8.75 Per Kit
283677   Bulk Pack of 20 Students ................. $175

KELVIN® Kre8® Mars Rover
This model of the NASA Mars Rover is steerable with included remote controller: right, left, forward, and backward. Also comes with motors and Kre8® parts. Requires Kre8® Tube Cutter or snips (see pg. 11) and [1] AA battery. Kit.

Kit w/ Assembled Manual Controller
283659 ........................................... $29.95 or $27.95 ea./5+

Bulk Pack  As Low As $22.95 Per Kit
283672   Bulk Pack of 10 Kits .......................... $229.50

Self-Driving Robotic Car

Shown with optional Genie® Motor Control Board (not included).

KELVIN® Kre8® Autonomous Vehicle
Students build a basic robotic car and expand it with autonomous control by selecting your choice of motor control board (see below). Once built, the car can be taken apart and rebuilt by the next group. All kits require [4] AA batteries, snips or Kre8® Tube Cutter to cut tubes to length. Sold to schools only. Grades 7+.

Vehicle Kit plus Assembled GENIE Control Board
Requires USB download cable (see below), 842537 Kit ........................................... $69.95 or $64.95 ea./10+

842538 Car Kit ..................................... $79.95 or $74.95 ea./5+

Vehicle Kit Only

283707 Kit ........................................... $24.95 or $22.95 ea./10+

Bulk Pack  As Low As $19.50 Per Kit
283782   Bulk Pack of 10 ......................... $195

KELVIN® Kre8® Mars Rover
This model of the NASA Mars Rover is steerable with included remote controller: right, left, forward, and backward. Also comes with motors and Kre8® parts. Requires Kre8® Tube Cutter or snips (see pg. 11) and [1] AA battery. Kit.

Vehicle Kit plus Assembled ARDUINO Control Board & USB Cable
842538 Car Kit ..................................... $79.95 or $74.95 ea./5+

Vehicle Kit Only

283707 Kit ........................................... $24.95 or $22.95 ea./10+

Bulk Pack  As Low As $19.50 Per Kit
283782   Bulk Pack of 10 ......................... $195

Self-Driving Robotic Car

Shown with optional Genie® Motor Control Board (not included).

KELVIN® Kre8® Autonomous Vehicle
Students build a basic robotic car and expand it with autonomous control by selecting your choice of motor control board (see below). Once built, the car can be taken apart and rebuilt by the next group. All kits require [4] AA batteries, snips or Kre8® Tube Cutter to cut tubes to length. Sold to schools only. Grades 7+.

Vehicle Kit plus Assembled GENIE Control Board
Requires USB download cable (see below), 842537 Kit ........................................... $69.95 or $64.95 ea./10+

842538 Car Kit ..................................... $79.95 or $74.95 ea./5+

Vehicle Kit Only

283707 Kit ........................................... $24.95 or $22.95 ea./10+

Bulk Pack  As Low As $19.50 Per Kit
283782   Bulk Pack of 10 ......................... $195

KELVIN® Kre8® Mars Rover
This model of the NASA Mars Rover is steerable with included remote controller: right, left, forward, and backward. Also comes with motors and Kre8® parts. Requires Kre8® Tube Cutter or snips (see pg. 11) and [1] AA battery. Kit.

Vehicle Kit plus Assembled ARDUINO Control Board & USB Cable
842538 Car Kit ..................................... $79.95 or $74.95 ea./5+

Vehicle Kit Only

283707 Kit ........................................... $24.95 or $22.95 ea./10+

Bulk Pack  As Low As $19.50 Per Kit
283782   Bulk Pack of 10 ......................... $195

Self-Driving Robotic Car

Shown with optional Genie® Motor Control Board (not included).

KELVIN® Kre8® Autonomous Vehicle
Students build a basic robotic car and expand it with autonomous control by selecting your choice of motor control board (see below). Once built, the car can be taken apart and rebuilt by the next group. All kits require [4] AA batteries, snips or Kre8® Tube Cutter to cut tubes to length. Sold to schools only. Grades 7+.

Vehicle Kit plus Assembled GENIE Control Board
Requires USB download cable (see below), 842537 Kit ........................................... $69.95 or $64.95 ea./10+

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