

Meet the **KELVIN®**  
Author: Harry T. Roman



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's books will help you bring the excitement of these topics to your classroom. His easy-to-read books are loaded with real-world experiences, classroom exercises, plus design challenges; and have been time-tested through many in-service seminars he has given to teachers in grades 6-12. Harry helped implement the technology education movement in New Jersey.

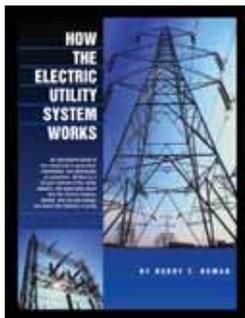


**KELVIN® Making Wet Cells & Batteries Lab**

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* (see above).

Contents include: detailed instructions, electrodes (copper, zinc, tin, aluminum, iron), Safe chemicals for creating electrolytic solutions, measuring containers and tools, cell containers, multimeters and alligator leads.

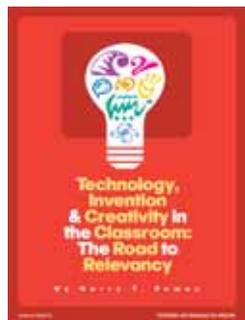
842300 Enough for 24 Students ..... **\$195**



**How the Electric Utility System Works**

This booklet brings the interest and diversity of utility activities to life for those who want to know how it all 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.

652497 Booklet ..... **\$14.95** or **\$13.95** ea./6+

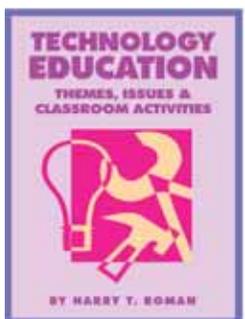


**Technology, Invention & Creativity in the Classroom: The Road to Relevancy™**

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 inventor's invent and move their products to the market.

652295 Booklet ..... **\$14.95** or **\$13.95** ea./10+

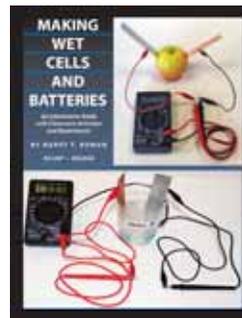
652335 Workbook ..... **\$14.95** or **\$13.95** ea./10+



**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.

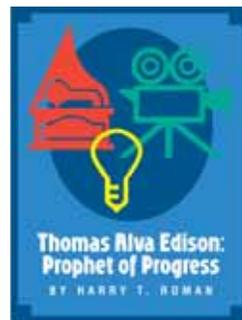
652337 Booklet ..... **\$14.95** or **\$13.95** ea./10+



**Making Wet Cells and Batteries**

The chemistry and materials in wet cells and batteries are all around us. Understanding 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!

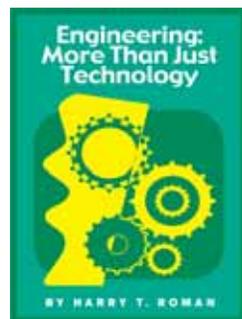
652656 Booklet ..... **\$14.95** or **\$13.95** ea./10+



**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+



**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.

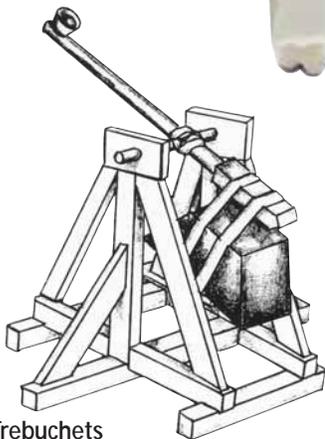


**Cardboard Constructions**

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 using a large piece of cardboard supported by small boxes. In the final activities, large modular houses are constructed from refrigerator boxes. 651814 .....\$9.95 or \$8.95 ea./10+

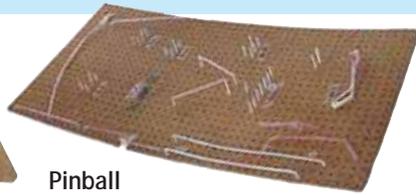
**Sand & Water Clocks**

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. 651669 .....\$9.95 or \$8.95 ea./10+



**Trebuchets**

Start with a working design of an ancient throwing machine similar to catapults and slingshots. The challenge is to improve on the design by testing and adjusting the different parts of this device. 58 pg. Guide. 651667 .....\$9.95 or \$8.95 ea./10+



**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. 651660 ..\$9.95 or \$8.95 ea./10+

**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. 651668 .....\$9.95 or \$8.95 ea./10+



**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. 651658 .....\$9.95 or \$8.95 ea./10+



**Cranes**

Using a cardboard box as the body, yardstick as a boom, and small electric motor as the power source, students make a working model of a crane. Use different ways of attaching string to the shaft of the motor so that it can lift varying amounts of nails in a cup. 651813 .....\$9.95 or \$8.95 ea./10+

**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. 651663 .....\$9.95 or \$8.95 ea./10+



**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. 651659 .....\$9.95 or \$8.95 ea./10+



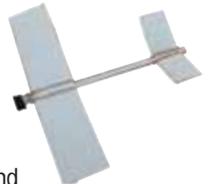
**Straw Rockets**

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. 651816 .....\$9.95 or \$8.95 ea./10+



**Gliders**

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. 651661 .....\$9.95 or \$8.95 ea./10+



**String Telephones**

Using paper cups & string, discover principles that govern the simplest form of a string telephone. Refine this model with other materials and get messages to go around corners. 651817 .....\$9.95 or \$8.95 ea./10+



**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. 651815 .....\$9.95 or \$8.95 ea./10+

**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. 651665 Implementation Guide, 32 pages.....\$6.95

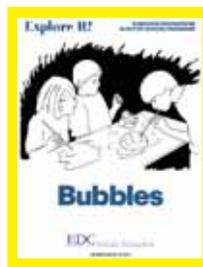
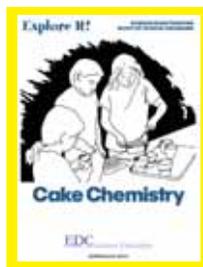
**Complete Design It! Series Set**

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**. 651916 Complete Set of 14 Lesson Guides + Implementation Guide .....\$139.95



**EXPLORE IT! LESSON GUIDES**

A series of introductory science 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.



**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./20+

**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./20+

**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./20+

**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./20+

**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./20+

**Bubbles**

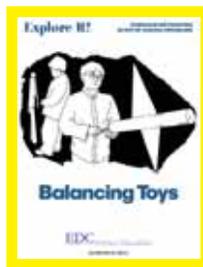
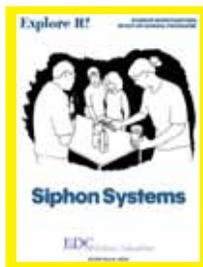
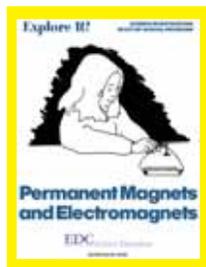
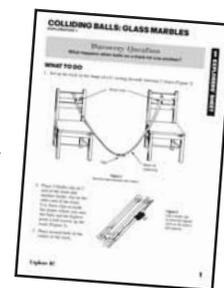
Floating giant bubbles (3 feet in diameter), small bubble domes on a table top, and soap film in frames are ways to observe some of the more obvious properties of bubbles (such as their round shapes) as well as subtle properties (such as surface tension).

652278 .....\$9.95 or \$8.95 ea./20+

**Colliding**

**Balls**  
Using a piece of molding as a track and a set of different kinds of balls, children experiment to see what happens when the balls collide with each other, through which children gain some sense of how objects exchange energy.

652277 .....\$9.95 or \$8.95 ea./20+



**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./20+

**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./20+

**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./20+

**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 air and water pressure.

652284 .....\$9.95 or \$8.95 ea./20+

**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./20+

**Balloons**

Different sizes and shapes of inflated balloons can be launched in a variety of ways with the result being different trajectories and different distances traveled. Children learn about the phenomena of action-reaction and the properties of air pressure.

652276 .....\$9.95 or \$8.95 ea./20+

**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.

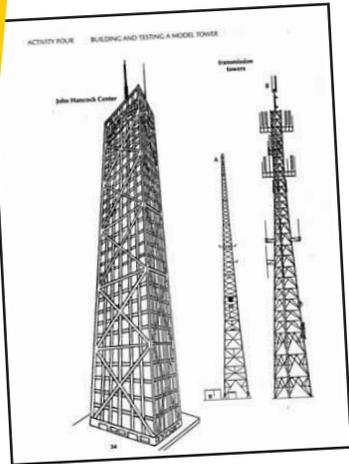
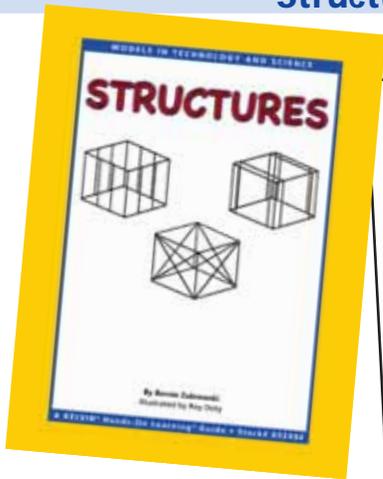
652345 .....\$9.95 or \$8.95 ea./20+

**Complete Explore It! Series Set**  
All 13 projects (Soda Science, Heating a House, Wiring a House, Exploring Food, Cake Chemistry, Bubbles, Colliding Balls, Magnets, Sinking & Floating, Measuring Ourselves, Siphon Systems, Balancing Toys, Balloons) plus a **FREE Implementation Guide**.

652562 .....\$139.95

**Models in Technology & Science**

**Structures**

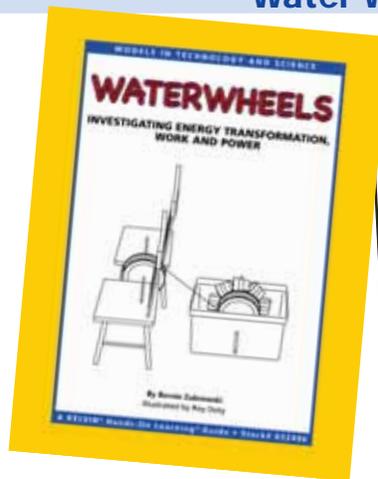


**An Integrated Engineering Investigation of HOUSES, BRIDGES & TOWERS**

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+

**Water Wheels**



**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.

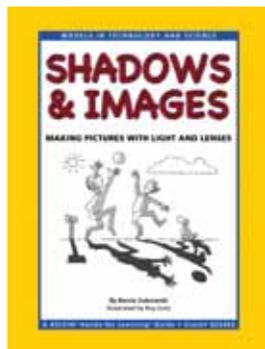
652496 Booklet .....\$9.95 or \$8.95 ea./10+

**Shadows and Images**

**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+

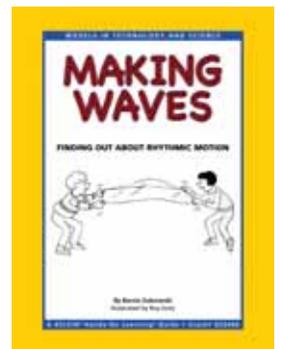


**Making Waves**

**An In-Depth Investigation of RHYTHMIC MOTION**

The focus of this investigation is on mechanical waves. Students explore how waves can be made in tanks of water, with frames of soap film, with Slinkies, and a vibrating doorbell. A model for studying wave motion is made from dowels and tape to investigate wave movement in a more systematic manner. Plus, various characteristics and properties of waves are introduced as student move through these explorations.

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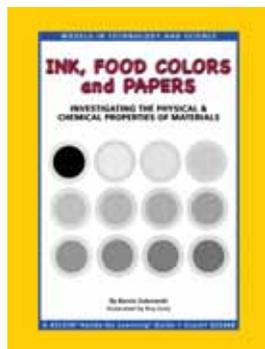


**Inks, Food Colors and Papers**

**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+

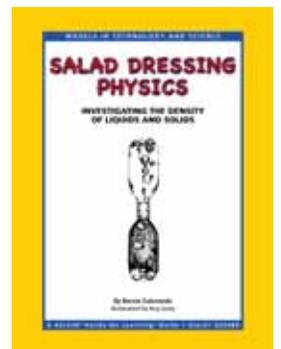


**Salad Dressing Physics**

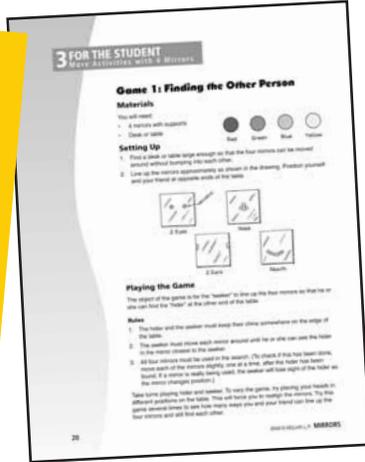
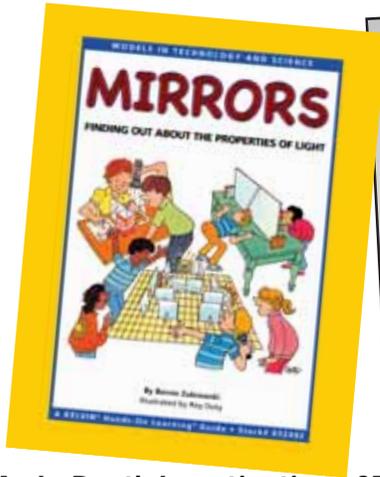
**Investigating the DENSITY OF LIQUIDS AND SOLIDS**

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+



**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.

652492 Booklet .....\$9.95 or \$8.95 ea./10+

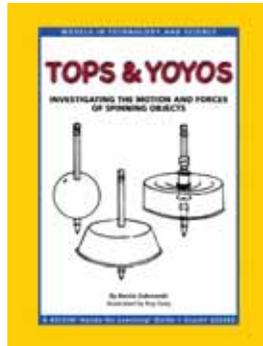
**Tops and Yo-yos**

**An In-Depth Investigation of the FORCES AND MOTION OF ROTATING OBJECTS**

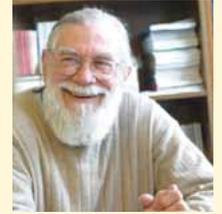
A set of tops is made from plastic plates and dowels are first launched with a special rubber band device as well as a mixer. A systematic inquiry is then carried out to determine what characteristics of the tops affect how long they spin. A similar process is carried out with yo-yos made from the same materials.

These explorations provide the experiential context for introducing the concepts of rotational motion, torque, rotational inertia, potential and kinetic energy.

652495 Booklet .....\$9.95 or \$8.95 ea./10+



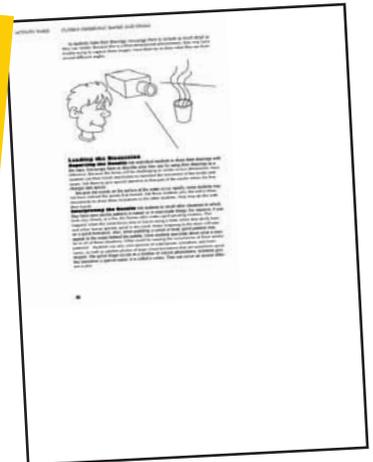
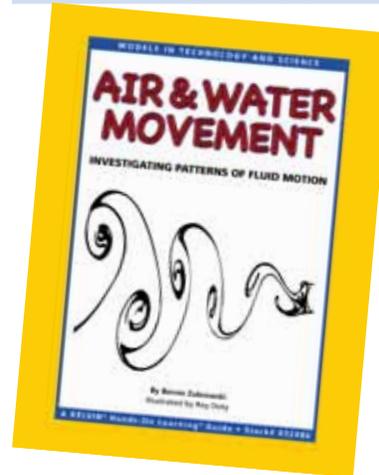
**Meet the KELVIN® Author: Bernie Zubrowski**



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.

**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.

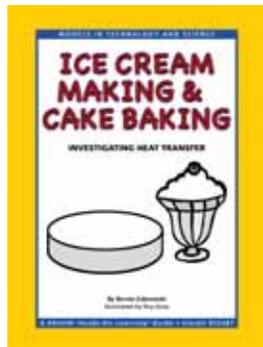
652486 Booklet .....\$9.95 or \$8.95 ea./10+

**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.

652487 Booklet .....\$9.95 or \$8.95 ea./10+

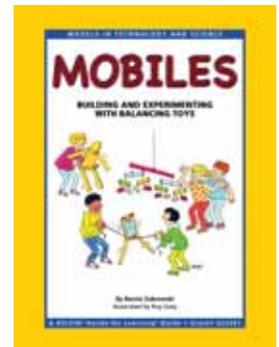


**Mobiles**

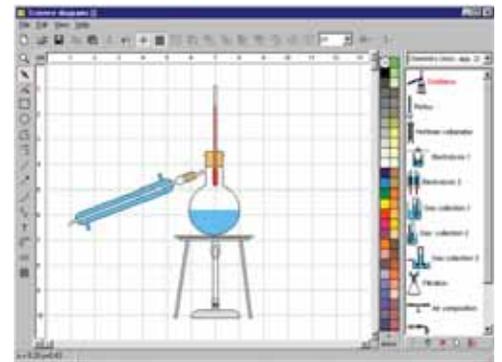
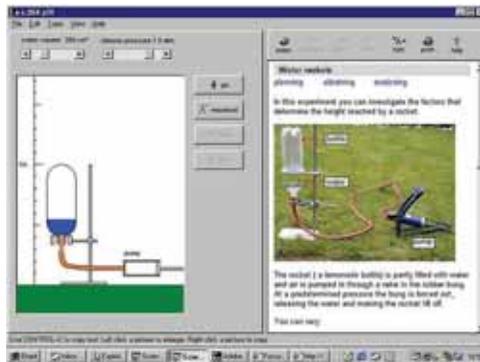
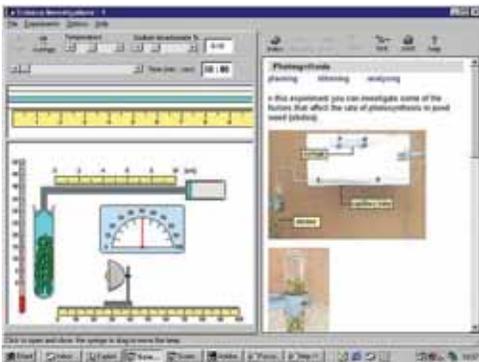
**An In-Depth Investigation of BALANCING TOYS AND STATIC EQUILIBRIUM**

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.

652491 Booklet .....\$9.95 or \$8.95 ea./10+



**FOCUS EDUCATIONAL SOFTWARE** Concepts are clearly explained using 2D (3D where possible) animations, photographs, video and text. Programs often contain a comprehensive animated reference section with links to each topic area. Focus Educational Software packages are interactive and perfect for whiteboard teaching and as an individual study aid.



**Science Investigations 1**

Biology experiments include: Photosynthesis, Yeast respiration and Breakdown of starch by amylase. Chemistry experiments: CaCO<sub>3</sub> - HCl reaction, Heat of neutralisation and Decomposition of hydrogen peroxide. Physics experiments: Bouncing ball, Car stopping distances, Energy stored in a spring, Expansion of a gas, Heating, Resistance, Strength of an electromagnet, Terminal velocity, and Friction.

- 121689 1-User .....\$99
- 121690 School License .....\$895

**Science Investigations 2**

Biology experiments: Osmosis, Transpiration, Reaction of rennin with milk, Decomposition of H<sub>2</sub>O<sub>2</sub> by catalase, and effect of Penicillin on bacteria. Chemistry experiments: Decomposition of sodium thiosulphate, Electrolysis, Combustion, and Neutralisation. Physics experiments: Bat & ball, Bending a beam, Filament lamp, Fuses, LEDs, Lift, Motors, Cooling, Ski jump, Solar cells, Springs, Thermistors, and Water rockets.

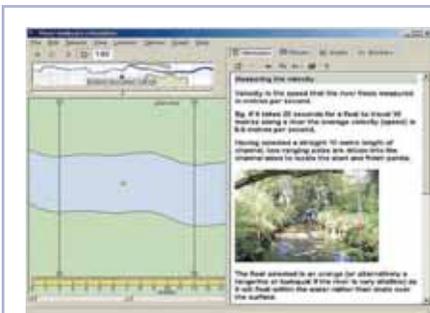
- 121691 1-User .....\$99
- 121692 School License .....\$895

**Science Diagrams**

A science experiment drawing program that anyone can use to produce professional looking scientific diagrams in a matter of minutes.

Contains hundreds of pre-drawn, fully scalable and editable pictures in an indexed image library in addition to a comprehensive palette of drawing tools.

- 121687 1-User .....\$99
- 121688 School License .....\$895



**River Studies**

Enable students to carry out virtual fieldwork on a stretch of simulated river and then use the skills learned in their actual fieldwork projects. On-screen help gives a detailed step-by-step guide to practical techniques and methods of data collection and analysis.

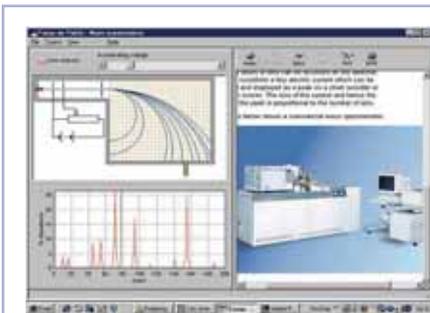
- 121673 1-User .....\$99
- 121674 School License .....\$895



**Resistant Materials 2**

As materials are selected from a 15-category main index, an on-screen submenu allows the user to scroll between materials, information and pictures that can be copied, pasted and used as the basis for evaluations. Covers metals, plastics, woods, etc.

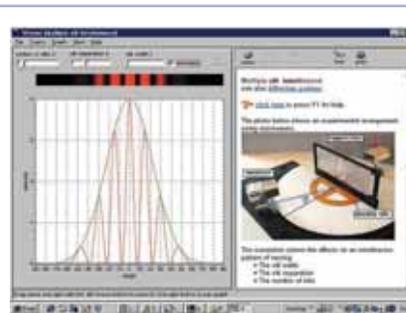
- 121685 1-User .....\$99
- 121686 School Lic. ....\$895



**Fields**

Includes: Mass spectrometer, Alpha particle scattering, DC motor, Deflection, Dynamo, Magnetic field plotting, Force, Electromagnetic induction, Millikans oil drop experiment, Motion in a uniform gravitational field, Planetary orbits, and Thompsons experiment for e/m.

- 121669 1-User .....\$99
- 121670 School License .....\$895

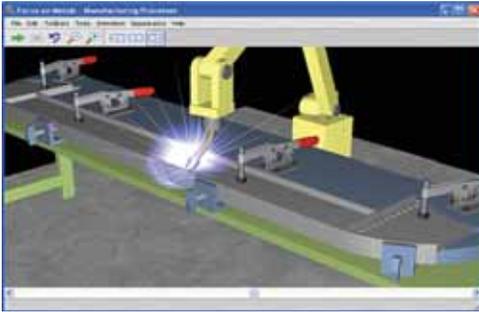


**Waves**

Includes: Gamma rays, Damped SHM, Diffraction grating (spectrometer), Electromagnetic waves, Forced oscillations and resonance, Hydrogen emission spectra, Multiple slit diffraction, Polarization, Ripple tanks, Types of waves, Sound waves, and Young's double slit experiment.

- 121671 1-User .....\$99
- 121672 School License .....\$895

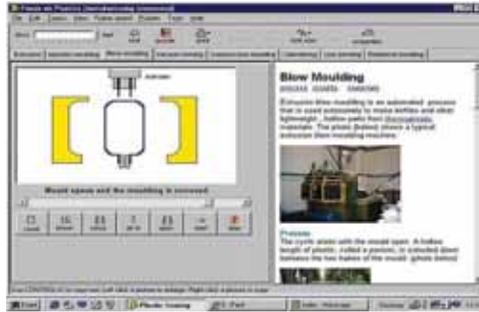
**FOCUS EDUCATIONAL SOFTWARE** Concepts are clearly explained using 2D (3D where possible) animations, photographs, video and text. Programs often contain a comprehensive animated reference section with links to each topic area. Focus Educational Software packages are interactive and perfect for whiteboard teaching and as an individual study aid.



**Metals Manufacturing Processes**

An excellent way to bring examples of industrial practice into a Design Technology classroom. Design Technology processes covered: Sand Casting, Investment Casting, Die casting, Sheet Metal Bending, Drilling Jigs, Spinning, Punching, Press Work, Welding, Plasma Cutting and CNC Milling.

- 121816 1-User .....\$99
- 121817 School License .....\$895



**Plastics Manufacturing Processes**

Based on real-life production facilities, this Design Technology resource effectively brings industry into the classroom. Processes covered include: Extrusion, Injection moulding, Compression moulding, Blow moulding, Calendering, Line bending, Rotational moulding, and Vacuum forming.

- 121679 1-User .....\$99
- 121680 School License .....\$895



**Mechanisms**

All major types of mechanisms and uses include: Motion, Gear Systems, Pulley Systems, Lifting Systems, Screw Threads, Levers, Linkages, Cams & followers, Crank & slider, Sprockets & chain, and Ratchet & Pawl. Features uses, with animations, photographs, video and text.

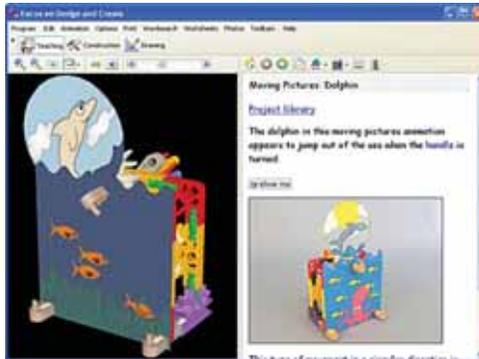
- 121677 1-User .....\$99
- 121678 School License .....\$895



**Mechanical Toys**

students of all abilities can investigate the basic principles of mechanisms by exploring mechanical toy projects. Simple-to-use learning aid includes sections covering: Mechanical Toys, Types of motion, Cams and followers, Levers and linkages, Pulley systems, Gear systems and Technical vocabulary.

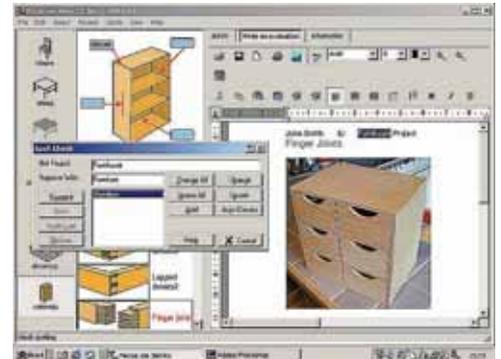
- 121675 1-User .....\$99
- 121676 School License .....\$895



**Design and Create**

A built in 2D drawing program helps students design and decorate their projects. A library of pre-drawn images can be edited to suit individual needs, saved and printed out for use as templates. Tutorials provide step-by-step instructions on how to draw different shapes and use the program.

- 121753 1-User .....\$99
- 121754 School License .....\$895



**Wood Joints**

Exceptionally clear 3D models of 37 traditional joints (sorted by seven common furniture project areas from chairs to cabinets) and linked information pages, make this program ideal for learning about wood joints and where they should be used. Students can control the angle of view, zoom, etc.

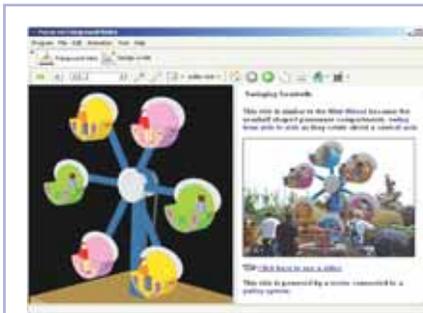
- 121681 1-User .....\$99
- 121682 School License .....\$895



**Commercial Printing Processes**

Examines industry designs and prints advertising brochures and packaging using the three industry standard printing processes: Offset Lithography, Flexography and Screen Printing. Covers printing processes like Offset Lithography, Screen Printing and Flexography.

- 121750 1-User .....\$99
- 121751 School License .....\$895



**Fairground Rides**

Encourage research into the design of ride layouts and includes sections examining: Pulleys Systems, Types of Motion, Gear Systems, and Switching Circuits. High quality 3D animations, photos and text are available as well as videos of each toy's mechanical structure.

- 121683 1-User .....\$99
- 121684 School Lic. ....\$895



# “Build A Program” Engineering Mini Modules

## A New Approach to Organizing Technology Modules & Programs



### Hydroponics

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.

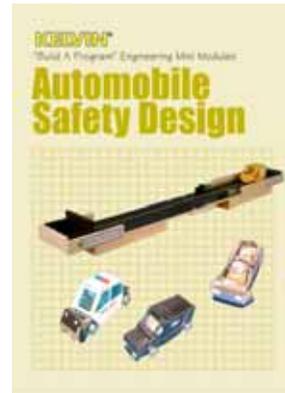
#### Module includes:

- drip emitters
- tubing
- flow valves
- wicking material
- seed starters
- starting trays with hoods
- growing medium
- nutrients
- seeds
- lamp
- instructions

This lab also includes materials to build three raft style classroom growing units.

Level: ELM, MS, HS

841681 .....\$795



### 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 .....\$695

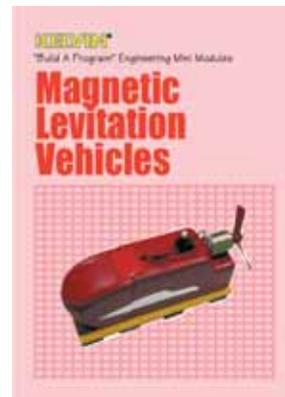
### Auto Safety Design 2

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

841702 Level: ELM, MS, HS .....\$995

### Auto Safety 1 & 2 Combo PLUS a PC and 17 in. LCD Monitor

841703 .....\$2,945



### 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 .....\$745

### Magnetic Levitation 2

Design, model, test a self-propelled Maglev vehicle. Module includes: [2] Maglev Tracks, Kel-Timer, 8' Aluminum Railings, Foam Cutter, Power Supply, DC Motors, 3" Propellers, Balloons, Nose Hook Propellers, Polystyrene, Maglev Magnets and DesignGrid Paper.

841645 Level: MS, HS .....\$1,145



### Package Design 1

Design, model and evaluate a package design. Module includes: Design Portfolio, Package Fabricating Material, Tools, DesignGrid Card Stock and [25] Package Design Challenge Kits

841646 Level: ELM, MS, HS.....\$395

### 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.....\$195

841650 Plus PC.....\$1,795

### Engineering & Structures 1:

#### Beam Style Bridges

Design, fabricate, evaluate a model beam bridge. Module includes: L.I. Structure Tester, Triple Beam Balance, Cardstock, DesignGrid Paper, Wood Glue, Tape, Balsa, Pins, Wax Paper, and Craft Knives.

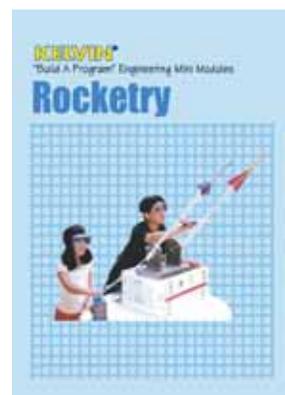
841679 Level: ELM, MS, HS.....\$795

### Engineering & Structures 2:

#### Earthquake Resistant Bridges

Design and build a model of an earthquake resistant bridge. Module includes: EQ Machine with Mass Destr. Unit, Power Supply, Balsa, Wood Glue, DesignGrid™ Paper, Cardstock, Pins, Wax Paper, Craft Knives, Balance, String, Sand, Rubber Bands, Paper Cups, Springs, Foam and manual.

841678 Level: ELM, MS, HS .....\$1,295



### 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.....\$695

### Rocketry Design 2: Solid Fuel Rockets

Build a model rocket powered by solid fuel. Module includes: Launch Pad, Launch Controller, Body Tubes, Engine Tubes, Hooks, Fin Material, Balsa, Parachute Materials and Launch Lugs.

841649 Level: ELM, MS, HS.....\$495

### Aerospace Engineering 1

Discover the force of lift by designing and testing airfoil shaped wings. Includes: ATEC Wind Tunnel, Teacher's Guide, Foam Cutter, High-Density Foam, Balsa, Tissue Paper, Foam Abrasive Pad & White Glue.

841642 Level: MS, HS .....\$595

### Aerospace Engineering 2

Understand how forces can be used to control flight. Activities include Flying with the Power Pole Flight Trainer. Includes: Wright Bros. Trainer, KELVIN® Power Pole™, Variable Power Supply, Delta Dart Kits (1 per student) and Flight Control Teacher's Guide.

841643 Level: MS, HS .....\$595

