IS ALL THE TIME

www.TeacherSource.com
Welcome to our catalog!

We asked educators, What would you need to build the ideal science classroom? And they told us:

- An atmosphere that encourages curiosity.
- Durable, hands-on materials that can be used again and again.
- Experiments that are fun, memorable, AND scientifically rigorous.
- Organized lessons and materials that don’t burden teachers with advance preparations.

We believe that our catalog offers all these things. Whether you’re a teacher, a parent, a camp leader or a seasoned science workshop presenter, we think you’ll find something here to fit your needs and budget.

Thank you for your continued support of our company. For us, Teachers Serving Teachers® isn’t just a slogan—it’s the reason we come to work every day!

From our classroom to yours,

Tami G. O’Connor

Look for These Icons Throughout the Catalog!

STEM Product
Made in the USA
Needs Batteries
(page 104)
Goggles Recommended
(page 117)
Not for children 3 years and under
Not for children 8 years and under

Quick Index  Volume 37
- New Products ..................................... 1-3,133
- STEM .................................................. 4-8
- Life Science ............................................ 9-16
- Forensics ............................................. 17-20
- Earth & Space ......................................... 21-29
- Air ...................................................... 30-36
- Density ............................................... 37-43
- Chemistry ........................................... 44-60
- Physics ............................................... 61-87
- Energy ............................................... 88-96
- Electricity .......................................... 97-107
- Magnetism ......................................... 108-113
- Lab Equipment ..................................... 114-124
- Gifts .................................................. 125-128
- Index .................................................. 129-131
- Shipping Info ....................................... 132

EDUCATE
We’re teachers, too—we know how much time you dedicate to preparing lessons that will keep your students focused and eager to learn more.

That’s why we are committed to developing original lesson ideas for our products. Most require minimal advance effort—just review our notes and go! These teaching ideas were designed for the classroom but many can be used at home, too, with adult supervision.

It’s easy to determine if a product has an online lesson ( ) or comes with a print version ( ). We have over 125 free PDF lessons online. You can access and print them out whenever you like!

INNOVATE
Has your school adopted the Next Generation Science Standards (NGSS)?

We have you covered!

We know you need materials to closely support these standards. That’s why we’ve outlined the specific ways our products connect to the relevant NGSS Disciplinary Core Ideas and Performance Expectations for elementary, middle, and high school.

In fact, over 250 of our products have easily-searchable NGSS details online—and we’re adding more daily!

If your funding requires you to provide evidence that your materials will be used to support the new standards, our yellow NGSS tab is the place to start. (See sample above.)

We think you’ll be pleased with our suggestions!

MOTIVATE
It’s the million-dollar-question: How can we get young minds to understand and retain information in a meaningful way? How do we turn reluctant students into lifelong learners?

We think the answer is to ensure that students are having FUN as they learn. That’s why our blogs and online newsletters are dedicated to helping you bring Super! Wow! Neat!® science into your classroom.

We invite you to spend time on our website. We know you’ll find something of interest in our motivational support materials. Start here:

www.TeacherSource.com/category/newsletterlibrary
http://blog.TeacherSource.com
NEW PRODUCTS

Chromatography Paper
See page 50.
FIL-309  9 cm Discs (100 Pack)  $6.95
FIL-311  11 cm Discs (100 Pack) $6.95

ZigZag Density Tumbler
See page 41.
DEN-475  $7.95

Magnetic Field Viewing Cube
See page 110.
M-255  $42.95

Star Coasters
See page 80.
MAR-330  Level 2  $19.95
MAR-335  Level 5  $59.95

Green UV Beads!
See page 62.
UV-GRN  $6.95 / pkg

Double Hand Spinners
See page 85.
PHY-270  Double Hand Spinners  $16.95
PHY-255  Single Hand Spinner  $6.95
M-187  25 Neodymium Ring Magnets  $19.95

Stackable spinners!
Teach science with toys!
NEW PRODUCTS

OneCar
See page 96.
PHY-280 $129.00

PUZ-400 Exit: The Abandoned Cabin $14.95
PUZ-405 Exit: The Secret Lab $14.95
PUZ-410 Exit: The Pharaoh’s Tomb $14.95

Exit: Escape Room Kits
See page 125.

ScooterArt
See page 82.
ROB-230 Single Kit $6.95
ROB-235 Class Kit of 10 $55.95

Solarmeter Model 6.5
UV Index Meter
See page 61.
UV-950 $249.95

Pocket LED Hand-Held Microscopes
See page 115.
MIC-610 60x-100x Microscope $16.95
MIC-615 60x-120x Microscope $16.95
MIC-620 20x Microscope $12.95

Award Winner

Pocket LED Hand-Held Microscopes

2017

Exit: Escape Room Kits
See page 125.

ScooterArt
See page 82.

Solarmeter Model 6.5
UV Index Meter
See page 61.

Pocket LED Hand-Held Microscopes
See page 115.

Award Winner
NEW PRODUCTS

SpectroClick Kits
See page 67.

- SPC-250 SpectroClick Teacher Kit (individual set) $14.95
- SPC-255 SpectroClick Basic Kit (classroom set of 10) $84.95

Robotic Arm Kit
See page 81.

- ROB-570 $49.95

Hydraulic Arm Edge Kit
See page 81.

- ROB-580 $52.95

Large Gro-Beast Dinosaurs 6-Pack
See page 57.

- GB-106 $6.95

Sponge Spicule Lab Kit
See page 11.

- BIO-250 $39.95

Sea Turtle Dichotomous Key Kit
See page 11.

- BIO-255 $15.95

Shown with quarter for scale.
**LightUp Kits**

These innovative kits allow kids to build their own real-world projects and wirelessly program them from a tablet. As they experiment, they’re not only learning about science and engineering, they’re also building confidence in their problem-solving abilities. Drag-and-drop code blocks and guided tutorials make it easy for young engineers and innovators to design exciting projects. Detailed instructions and sample ideas available online.

This is STEM at its best! It’s a simple, three-step process:
- **Build**: snap together magnetic blocks to build your circuit
- **Learn**: use the app to review your circuit and adjust any mistakes until the electricity flows
- **Code**: connect your circuit with a tablet and program it to do anything!

**Edison Kit**: It’s easy to understand how electronics and technology work with these magnetic snap blocks. Create a light sensor, buzzer, Morse code beeper, and more. Includes rechargeable battery, red LED, buzzer, light sensor, momentary switch, 50K variable resistor, six wire blocks, and micro USB cable.

**Tesla Kit**: With the power of code, young engineers can dream up hundreds of projects. The only limit is their imagination. Build a burglar alarm, a jukebox, a sunrise-triggered alarm, and more. Includes rechargeable battery, microcontroller, buzzer, light sensor, momentary switch, 5K resistor, seven wire blocks, and micro USB cable.

**OHM-400** Edison LightUp Kit **$49.95**
**OHM-405** Tesla LightUp Kit **$99.95**
SAM Labs Kits

SAM is a smart construction kit with no wires, no fuss—just serious fun and learning! Your students use SAM blocks to create awesome inventions. Each SAM block has a specific skill. There are buttons, lights, sensors, motors, and so much more. The blocks are wirelessly activated (using Bluetooth) to move, illuminate, or make sounds. One block, a million possibilities. Students can program patterns and behaviors using the intuitive SAM Space app, or build race cars right out of the box with the Curious Cars app. Simple ingenuity!

- SAM-100 SAM’s Inventor Kit $138.95
- SAM-105 SAM’s Curious Cars $198.95
- SAM-110 SAM’s STEAM Kit $598.95

Used in schools around the world!

See our website for more information & activities!

Brackitz

Brackitz is an award-winning STEM building set that enables you to design and construct any 3D structure you can imagine. Unique “connect-anywhere” pieces easily attach to traditional planks at any angle, allowing builders of all ages to craft everything from small-scale creations to gravity-defying 3D structures with moving parts. Your only limit is your imagination! Perfect for developing creativity and problem-solving skills. Durable, colorful plastic components are made in the USA.

- CST-300 Brackitz Driver 43 Piece Set $24.95
- CST-305 Brackitz Driver Parts Expansion Set $9.95
- CST-310 Brackitz Inventor 44 Piece Set $29.95
- CST-315 Brackitz Inventor 100 Piece Set $59.95
- CST-320 Brackitz Educational 320 Piece Set $199.95

Educational Innovations, Inc.®
5eBoard Levels 1-3

A three-part series designed to help young minds explore modern electronics. This is ideal STEM education material for K-12 students, summer science camps, homeschool, or after-school programs. Kits include all the components and instructions necessary for carrying out a variety of experiments and projects. Working through Level 1, Level 2, and Level 3, students can quickly grasp fundamental concepts in physics, math, and engineering, and use their new knowledge to solve real-world problems. All DIY projects and hands-on experiments employ the 5eBoard platform and reusable parts. No soldering involved.

Each kit includes all electronic components and materials necessary for carrying out the experiments and projects. Uses either two AAA or two AA batteries (not included).

- **OHM-450** Level 1: The Fundamental Concepts of Electricity and Electronics $39.95
- **OHM-455** Level 2: Basic DC Circuits and Electrical Measurements $55.95
- **OHM-460** Level 3: Ohm's Law, Resistive and Capacitive Circuit $49.95

How to Build a Stereo Amplifier

This hands-on DIY kit is an ideal STEM and makerspace material for primary to secondary school students and hobbyists. LEGO-like flexible building blocks help students (ages 9+) understand modern electronics. Comes with step-by-step instructions and a variety of components that can be repeatedly used for multiple projects. No soldering is involved. Students will learn how to use an integrated circuit (IC) to amplify sound signals. The stereo uses a TDA2822M IC chip to amplify sound signals input from an audio device such as a smart phone, iPod or MP4 player. The stereo signals produced by the chip are delivered to two speakers. Although simple, the amplifier can still produce high quality and volume sound. The circuit can be easily expanded to include a Bluetooth module for wireless sound input. Includes (1) 5eBoard standard kit; (2) Two speakers and all electronics components (iPod is not included); (3) An audio cable and connection wires; (4) Instruction manual (online download). Requires a wire stripper/cutter and AAA (or AA) batteries (not included).

**OHM-465** $39.95

Mastering Arduino Hardware and Software for Students

With step-by-step instructions, this all-in-one DIY kit allows students to understand and use the principles of both Arduino hardware and software to design their own projects. Students will learn how to build Arduino-based hardware such as a UNO-like microcontroller circuit board, an Arduino controllable 5x5 LED display, and many other devices. They’ll also learn how to write Arduino programs to control these devices. Ideal for use in a makerspace or as a DIY gift for students and hobbyists ages 12+. Includes all electronic components; no soldering required. Includes 5eBoard Professional Kit, more than 50 electronic components (resistors, capacitors, LEDs, diodes, oscillators, switches...), Atmega328 microcontroller with bootloader installed, FTDI232 USB-TTL Serial Adapter for programming, Mini-B USB cable, battery holder with switch, Dupont jumpers and connection wires (uncut), instruction manual (online download), including commonly used code libraries. Requires a wire stripper/cutter and four AAA (or AA) batteries (not included).

**OHM-470** $59.95
Dash and Dot Robots

These adorable Dash and Dot robots are exciting, hands-on learning tools for students in grades K-5! Teaching creative problem solving, coding, digital literacy, and robotics, Dash and Dot allow young students to get a head start on fundamental STEM principles and skills. As with human language, it’s easier for kids to pick up coding than it is for adults.

Students send basic commands to the robots to move them, light them up, and enable them to detect and interact with the world around them. Your students can even program the robots to mimic behavior in the natural world!

Many fun accessories are available to enhance the educational experience—including a xylophone, building brick connectors and more. Commands are transmitted via five free coding and robotics applications (available on iPad and Android devices). We recommend the Tech Center Pack (ROB-875) for the best device-to-student ratio. See our website for the full line of products and accessories.

NEW! Now you can use Apple’s free Swift Playgrounds app (v1.5) with Dash to bring code to life in real time, in the real world!

Dash
Dash and Dot
Dash and Dot Wonder
Dash and Dot Classroom
Dash and Dot Tech Center

MudWatt

Our MudWatt products are fun and educational science kits that use the natural micro-organisms found in soil to generate electricity. Microbiology, chemistry, and electrical engineering all in one versatile STEM-based kit!

Although we cannot see them with the naked eye, micro-organisms are all around us. One particular species of microbes possesses the unique ability to release electrons outside their bodies as part of their natural respiration. Each of our MudWatt kits utilizes this remarkable ability by providing mud-based microbes with two conductive graphite discs—the anode and cathode. The anode is placed within the mud where the electrogenic microbes grow, and the cathode is placed on top, exposing it to oxygen in the air.

All MudWatt kits come with everything you need, except soil. So dig in and get revved up! You’ll know your bacteria is generating power when you see the LED light blinking. Free lessons and interactive MudWatt Explorer app available online.

MudWatt Core
MudWatt Classic
MudWatt Science Fair
MudWatt Classroom
Intro to Structures: Bridges

Build 13 different bridge models, one at a time. Using this 207-piece set, a three student team—through experimentation—can investigate how different bridge types hold their loads, and evaluate the strength and stability of each bridge type. For grades 3-6.

KNX-750 $39.95

Builds 13 Models

Build all 7 classic bridge types: any two simultaneously!
Arch - Beam - Truss - Cable-stayed - Suspension - Cantilever - Bascule

Real Bridge Building

Students in grades 5-8 can build seven 5-6' long replicas of real world bridges. Kit contains over 2,200 pieces and includes CD-ROM and 144-page comprehensive Teacher's Guide.

KNX-700 $179.95

Balsa and Basswood Model Bridge Kits

At a loss for hands-on activities? Build a bridge! One of the most popular activities in middle and high school, building wooden bridges challenges students to solve problems creatively. Each kit comes with enough wood, adhesive, and competition design parameters for 24 students. For a lighter and more easily cut wood, try the Balsa Class Pack. For a stronger, more consistent wood, try the Basswood Class Pack.

MID-250 Balsa Bridge Class Pack (24 students) $99.95
MID-385 Basswood Bridge Class Pack (24 students) $95.95

Master Set of Building Instructions on CD-ROM

Pratt Truss
Lattice Truss
Albert Fink Truss
Squire Whipple Truss
William Howe Truss
King Post Truss
K-Truss
James Warren Truss
**Educational Innovations, Inc.**

### Cricket and Larva Lollipops

Each of these incredible lollipops contains a completely edible, farm-raised cricket or larva. Sugar-free. Colors/flavors may vary.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price</th>
<th>Box Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUG-160C</td>
<td>Cricket Lollies</td>
<td>$1.95 each</td>
<td></td>
</tr>
<tr>
<td>BUG-160W</td>
<td>Larva Lollies</td>
<td>$1.95 each</td>
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</tr>
<tr>
<td>BUG-150BX</td>
<td>Box of 36 Cricket &amp; Larva Lollies</td>
<td>$59.95 / box</td>
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<tr>
<td>BUG-600BX</td>
<td>Box of 36 All Cricket Lollies</td>
<td>$59.95 / box</td>
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<td>Box of 36 All Larva Lollies</td>
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### Larvets

Flavored Larva Treats

These edible, farm-raised larva are Bar-B-Que, Cheddar Cheese, and Mexican Spice flavored. With only nine calories per serving, these genuine insects will be a real hit. An unforgettable way to begin a food science or health unit, these dried, delicious treats are great fun. Some of our students describe the taste and crunch as similar to popcorn. 2 g/pkg (≈40-50 worms).

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</tbody>
</table>

### Crick-ettes

Flavored Real Cricket Treats

Real, edible, dried crickets! These packages of farm-raised crickets are flavored with either salt & vinegar, bacon & cheese, or sour cream & onion. Great for teaching that eating insects is common in many parts of the world! Serve as memorable hors d’oeuvres! 1.4 g/pkg.

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### Genuine Chocolate Covered Insects

Each package contains six completely edible, farm-raised chocolate covered insects (three crickets and three larva).

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Though our insect products contain no nuts, they are not manufactured in a nut-free environment.

### Genuine Farm Raised Bug Candy

All of our insect candy and snacks are hand made with great care, using only completely edible, farm-raised insects.

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### I Ate a Bug Today Stickers

The best way for your students to brag about their bug eating prowess. Package of 10. 1.5” diameter.

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<tr>
<td>BUG-110</td>
<td>$1.75 / 10</td>
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</table>

### Scorpion Lollipops

Have some desert dessert! Scorpions can be found in deserts, grasslands, rainforests, and our delicious lollipops! These completely edible, farm raised scorpions come in four sugar-free flavors. Colors/flavors may vary.

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<tr>
<td>BUG-400</td>
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"There are no words for the reaction the students had seeing me walking on campus with an insect in my candy."

- Lisa D., Coconut Creek, FL

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LIFE SCIENCE

EDIBLE INSECTS

Genuine
Farm
Raised
Bug
Candy

**I ATE A BUG TODAY!**

www.teachersource.com

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**Crick-ettes**

Flavored Real Cricket Treats

Real, edible, dried crickets! These packages of farm-raised crickets are flavored with either salt & vinegar, bacon & cheese, or sour cream & onion. Great for teaching that eating insects is common in many parts of the world! Serve as memorable hors d’oeuvres! 1.4 g/pkg.

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TickleMePlant™ Greenhouse Kit
Grows Indoors Any Time of the Year! Moves When You Tickle It! Never Forgotten!

Tickle this plant and it moves. Amazing and fun—TickleMePlant (*Mimosa pudica*) moves its leaves; even its branches can move down when tickled. TickleMePlants appear to sleep at night by closing up their leaves. The seeds can sprout in a matter of days and become ticklish within a month. Kit includes two TickleMePlant seed packets (~30-40 seeds), six flower pots, six soil pellets, easy to grow instructions, and one reusable greenhouse (6.6” x 5.5” x 4.25”).

GRO-140 $20.95

TickleMePlant™ Growing Kit
Includes one Jiffy Mini-Greenhouse, six peat pellets, one TickleMePlant seed packet, and easy to grow instructions. (Greenhouse size 5” x 4” x 2.5”.)

GRO-135 $14.95

TickleMePlant™ Seeds
Individual packet includes 10-20 seeds.

GRO-130 $5.95

TickleMePlant™ Classroom Kit
Includes 15 TickleMe Plant seed packets (over 200 *Mimosa pudica* seeds), 30 four-inch flower pots, 30 expanding Wonder Soil® wafers, and The TickleMe Plant Book, with more than 20 teacher-created science projects, cool experiments, growing tips, and easy to grow instructions.

GRO-145 $89.95

Carnivorous Plant Kit
Grow over 10 varieties of meat-eating plants! The Carnivorous Plant Kit includes the Venus Fly Trap, Pitcher Plant, Sundew Plant, Cobra Plant, and Trumpet Plant—and they’ll all eat bugs! The informative booklet included with this kit explains how each plant devours its prey. Learn about and watch these fascinating plants grow from seed to carnivore. Includes decals for the terrarium, planting mixture, seeds, and everything you need to grow meat-eating plants at home.

GRO-125 $27.50

Resurrection Plant
Grow the fastest-acting plant on the planet! The Resurrection Plant will transform from a dormant brown ball into a lush fern in a matter of hours. This plant can remain in its dormant stage for up to 50 years without water! Throughout history, these highly adaptive plants would dry up and blow in the wind until they came upon water. Then they would rapidly open and drink the water until they were satisfied. This ancient plant will actually spring to life in less than one day! Starts at about 2” long and gets much, much bigger!

GRO-175 $5.95

Hydronic Plant Lab
These oversized test tubes are perfect for sprouting seeds and growing seedlings. Did you know that roots grow faster than the plants themselves? That’s what we discovered testing this kit in our office. Do plants in polymer crystals (page 58) grow faster than those in soil? There’s only one way to find out. Includes three shatterproof plastic test tubes, three support rods, three seed baskets, and activity guide.

GRO-240 $24.95

Before

After two hours

Animal X-Rays

Printed on clear, heavy-duty plastic, these real X-rays are perfect for use on light tables. Study the difference between mammals, reptiles, fish, amphibians, and birds. Learn about each featured animal and the process of radiology. The idea guide contains many interesting facts about each animal such as habitat, distinctive features, and group type. The set includes cichlid, sunfish, frog, chameleon, crocodile eggs, iguana, python, rattlesnake, turtle, hawk, kangaroo, marmoset, and rabbit. 14 X-rays, 14 reference photos, and a teacher/parent guide. Pieces are up to 20.5 x 27 cm (8" x 10.75").

Sea Turtle Dichotomous Key Kit

A great introduction to using a dichotomous key for species identification. The kit includes eight distinct sea turtle models. Each beautifully detailed turtle is 2" in length, and has the correct number of scutes on the carapace and plastron. A wonderful hands-on classroom activity, the kit comes complete with all the paperwork needed for background information, vocabulary, and identification.

Sponge Spicule Lab Kit

This two-part classroom activity comes with six distinct species of sponges, each with a unique spicule type. Each kit has enough tissue for approximately 80 students working in pairs. Includes a written procedure for set-up and teacher preparation, along with a student worksheet and key. The lab requires only simple lab tools (tweezers, microscope, and slides) and household bleach.

Shrinkles® Plant and Animal Cells

Students draw and color their own models of plant and animal cells, then watch as the cells magically shrink in an oven (with adult supervision of course). Then they get to take their cells home as keychains or zipper pulls! Comes with instructions, teacher notes, diagrams, and enough materials to make 30 model cells. Use with colored pencils or permanent markers to create your own shrinking designs.

Refill Kit

Includes 50 sheets and 100 loops for keychains or zipper pulls. Kit makes 100 cells.
DNA Model Kit

DNA testing has revolutionized the field of forensics. This beautiful model coils and uncoils with a touch of the hand. It is ideal for showing base pairs and the near infinite combinations possible. 34” x 5” when fully extended, collapses to 9” high! Simple assembly required.

DNA-100 $69.95

K’Nex DNA Replication & Transcription Set

Build seven DNA and RNA molecules using the 521 K’Nex pieces and the 24-page full color building instructions booklet. This wonderfully flexible set allows students to build and learn about phosphate groups, deoxyribose and ribose sugars, hydrogen bonds, codons, nucleotides, and much more. Includes Teacher’s Guide on CD-ROM. For grades 8-12.

KNX-500 $64.95

Tangle Proteins Building Set

Touted as the world’s most accurate protein kit, Tangle Creator and Tangle Master Richard X Zawitz partnered with the world’s top protein expert, Professor Marcel Japers, to create a one of a kind science kit, allowing students, teachers, and science buffs to recreate the three main proteins: Streptococcal Protein G, Ubiquitin, and ω-Conotoxin MVIIA.

The Tangle Proteins Building Set allows users to construct their own three-dimensional proteins at home or in the classroom. As a science project or a great way of fostering creativity, the Tangle Proteins Building Set is a tool for educators and students to understand the challenging structure of amino acids and DNA in a polypeptide chain. This kit is a one-of-a-kind tool for complete understanding of proteins; all you have to do is build them and the rest is history. Lessons included. Pieces are ≈1” long and 1/8” wide.

BIO-100 $39.95

Genetics of Blood Typing Kit

Blood type is relevant in many areas of science—from forensic investigations to medical procedures. This kit will help your students in grades 5-college will learn about the genetics that determine blood type and how possible inheritance patterns may express themselves. Using simulated blood, students will determine the blood types of four unknown samples and use their results to help resolve a fictional paternity dispute. Kit contains enough materials for 10 groups, as well as a Teacher’s Manual and reproducible Student Study Guide copymasters. Kit also includes four Simulated Blood Samples (Mother, Child, Sample X, Sample Y), a bottle of Simulated Anti-A Serum, a bottle of Simulated Anti-B Serum, 40 Blood Typing Trays.

CSI-560 Genetics of Blood Typing Kit $38.95
CSI-565 Genetics of Blood Typing Refill $22.95
Educational Innovations, Inc.®

**LIFE SCIENCE**

**Bone Sorting & ID Sheets**
An excellent aid in bone identification during your Owl Pellet dissection, these Bone Sorting Sheets compare the primary skeletal features of rodents, shrews, moles, and birds. 8.5" x 11" sheets are sold in packs of 15.

- **OP-300** Bone Sorting & ID Sheets $4.95

**Bone Sorting & ID Poster**
This Bone Sorting Chart is identical to the Bone Sorting Sheets except that it is poster size! This 18” x 26”, heavy low-gloss paper chart can be put up on the wall and referenced by your entire class during their exploration of Owl Pellets.

- **OP-350** Bone Sorting & ID Poster $5.50

**Owl Pellets**
These Barn Owl Pellets are perfect to illustrate the nature of food chains and demonstrate the role of predators in the ecosystem. Owl Pellets are a natural educational tool. Introduce skeletal anatomy and the identification of prey with our Owl Pellets from the wild—each unique in size, shape, and contents. Average size is 1.5” or longer.

- **OP-100** 1-99 $2.75 each
- **OP-300** 100+ $2.50

**Owl Pellet Classroom Set**
The Owl Pellet Classroom Set includes 15 of our 1.5” or longer Barn Owl Pellets. Great for a class of 30 working in pairs, this complete educational set also includes an instructor’s guide, 15 student guides, an 18” x 26” food web poster, 15 wooden dissecting probes, and a transparency of a vole skeleton (one of the barn owl’s favorite prey).

- **OP-200** Owl Pellet Classroom Set $49.95

**Safe, Bug-Free, & Heat Sterilized!**

**Simulated ABO/Rh Blood Typing Kit**
This kit offers the most procedurally accurate simulation of the blood typing technique available. Students in grades 5-college will test and determine the ABO/Rh blood types of four different samples by combining simulated blood and antisera, gently agitating the blood typing tray, and observing the results. No toothpicks, no stirring, and no waiting for results! Kit contains enough materials for 10 groups as well as a Teacher’s Manual and reproducible Student Study Guide copymasters. See our website for the extensive materials list.

- **CSI-550** Simulated ABO/Rh Blood Typing Kit $42.95
- **CSI-555** Simulated ABO/Rh Blood Typing Refill $25.95

**CSI-570** Understanding Blood Types Kit $41.95
- **CSI-575** Understanding Blood Types Refill $22.95

**Understanding Blood Type Interactions**
The earliest historical attempts at blood transfusions often had lethal results. These results led to the investigation and discovery of blood types, as well as a deeper understanding of the importance of antigen/antibody interactions. In this investigation, students in grades 5-college will utilize simulated blood to determine the ABO/Rh blood type of four individuals, one in need of a transfusion. Based on the results, students will then determine which of three potential donors would provide the best match for the patient in need. Kit contains enough materials for 10 groups. Teacher’s Manual and Student Study Guide copymasters are included.

**CSI-550** Simulated ABO/Rh Blood Typing Kit $42.95
- **CSI-555** Simulated ABO/Rh Blood Typing Refill $25.95
Human X-Ray Sets

Use these young adult sized ≈5’ human X-rays on the overhead projector, place them on a white background, or hang them in the windows. Sturdy and reusable, these X-rays will be an X-cellent addition to your anatomy unit or biology classroom for years to come.

Brain Mold - Gelatin

Great for students of any age! The Brain Mold is useful in anatomy, biology, and injury prevention classes. It can be made to have the same color, size, mass, and consistency of a human brain. Instructions and suggested lesson plans included. (Gelatin not included.)

MOLD-100 $14.25

True-to-Life Human X-Ray Set

Best for introductory anatomy lessons

Shows the bones without organs or soft tissue. These X-rays can be studied individually or arranged together to create a young adult sized human skeleton. Includes 18 films.

XRY-100 $29.95

Broken Bones X-Ray Set

Not for the squeamish

Shows a variety of common breaks. Comes with an explanation of bone structure and how bones heal when broken, and a guide to understanding each of the X-rays. Sturdy and reusable. Includes 15 films.

XRY-135 $29.95

Fixed Bones X-Rays

Explore the medical repair of broken bones! Authentic X-ray images show the hardware (plates, screws, nails, pins, and wires) used to fix a broken bone. Fourteen images of the fractures, printed on card-stock, correspond to the X-rays of the repairs. Students can act like doctors for the day! Place the images onto a light source to see the details, just like in a doctor’s office. Great for young learners as well as Secondary Education Science. Features 14 X-rays, 14 broken bone images on cardstock, and guide. For ages 5+.

XRY-140 $19.95

Bone Playing Cards

Use individual cards as rewards for good work!

This unique deck of playing cards lists every bone of the human body. Each beautifully illustrated card presents one or two bones with their names in English, French, and Spanish. The two Jokers act as quick indexes. Use them as regular playing cards, flash cards, or student rewards. A great learning tool and reference guide!

CARD-550 $8.95

Lung/Diaphragm Demo

Without a pump, how do some animals inflate their lungs? Pull down on the rubber diaphragm and the balloon lungs inflate; release and they deflate. Large enough for small groups to see, small enough to keep as an interesting item on your desk all year! ≈8.8 cm (3.5”) tall. Colors may vary.

DIA-100 $19.95
Glo Germ™ Materials & Kits

A fun, safe way to teach about germs and how they spread. To demonstrate proper hand washing, have students rub Glo Germ lotion on their hands, and then wash their hands as they normally would. Under ultraviolet light, the Glo Germ lotion fluoresces, showing students where the "germs" are hiding! Glo Germ powder can be used to demonstrate how shaking hands can spread germs.

**Free 16-page lesson online!**

### Glo Germ™ Classroom Kit
Contains a portable ultraviolet light (6.5”), an 8 oz bottle of lotion, a 4 oz bottle of powder, and instructions. Excellent for demonstrations in a classroom setting. Includes four AA batteries.

- **GLO-210** $45.95

### Glo Germ™ Group Presentation Kit
Contains an 18” ultraviolet light, an 8 oz bottle of lotion, and a 4 oz bottle of powder. (Ultraviolet light runs off AC electricity only.) Perfect for lecture halls and larger demonstrations.

- **GLO-200** $59.95

### Glo Germ™ Powder
The Glo Germ powder is used to demonstrate proper surface cleaning, as well as the spread of germs. Contains 4 oz, enough for many uses, as only a small amount is needed.

- **GLO-230** $17.95

### Glo Germ™ Lotion
The Glo Germ lotion comes in an 8 oz bottle and is used to demonstrate proper hand washing. Each bottle is good for 75-100 applications.

- **GLO-220** $19.95

See inside front cover for details.

**Glo Germ™ Materials & Kits**

Free 16-page lesson online!

### Bacteria Growing Kit
If you are looking to gross out some friends and family (and carry out serious scientific analysis at the same time), you will want to try our Bacteria Growing Kit. It includes everything you need to get started—you just supply water and bacteria (don’t worry, it’s everywhere). Perfect for science fair experiments because so many variables can be tested for bacteria growth.

Our Science Fair Kit includes six large plastic Petri dishes, nutrient agar powder, six extra-long wooden shaft cotton swabs, a stirring stick, a plastic beaker, and instructions.

The Classroom Kit contains 20 Petri dishes, agar powder, 20 cotton swabs, stirring stick, and instructions. In the right conditions, bacteria will usually start growing in four to five days.

- **BIO-310** Science Fair Kit $11.95
- **BIO-300** Classroom Kit $17.95
- **BIO-200** Nutrient Agar Powder 25 g $12.95
- **LSP-110** 20 Large Plastic Petri Dishes (10 cm dia.) $6.95
- **LSP-120** 20 Small Plastic Petri Dishes (5.5 cm dia.) $4.95
- **LSP-130** 20 Mini Plastic Petri Dishes (3.5 cm dia.) $4.95

**Glo Germ™ Powder**

The Glo Germ powder is used to demonstrate proper surface cleaning, as well as the spread of germs. Contains 4 oz, enough for many uses, as only a small amount is needed.

- **GLO-230** $17.95

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- **GLO-200** $59.95

**Serpent Skin™**

The microscopic pores in the cellulose tubing produce a physical selection barrier—a semipermeable membrane. Serpent Skin may be used wet or dry. The equilibrium of particles moving through the membrane can be measured by changes in concentration, osmotic pressure, color, volume, or mass. The activities and experiments you can create with this fantastic product are limited only by your imagination. A sheet of ideas and experiments is included with every order. Sold in 12 m lengths.

- **SM-200** $14.95

**Serpent Skin simulates a cell wall or cell membrane.**

**Serpent Skin is an affordable and far more convenient substitute for dialysis tubing. No soaking needed!**
Show days, weeks or even months of activity in fast forward! Highlight your latest project’s advancements or display the majesty of nature unfolding with the value-priced Wingscapes TimelapseCam. Easy to set up and even easier to use, this variable-focus camera automatically captures frames at regular intervals and allows you to turn them into standard-definition time-lapse videos using downloadable software. Suitable for well-lit spaces and even security and surveillance applications, the TimelapseCam has a long battery life and stands up to the elements, with a rugged, lockable weatherproof case that allows you to leave it virtually anywhere without worry. 6.75” x 3.5” x 2.25”.

**Brd-245** $99.95
- Rugged, lockable, weatherproof construction
- Designed to be left outdoors, unattended
- Takes still photos or videos, close-up or landscape (6” to infinity)
- Tripod mountable
- Lets you see what is normally too slow to view
- Connects easily to your computer or television
- USB out or SD Card (not included)
- Makes it easy to share your movies through e-mail or post online

**Soda Bottle Bird Feeder**
This simple, easy-to-use bird feeder fits any size plastic bottle with a standard cap size. Just attach the included hanger, fill with bird seed, screw on the feeder base, and hang outside. Refills easily using a special opening at the bottom of the feeder. Made from recycled materials. Colors may vary.

**Brd-300** $2.95
Multi-Fiber Ribbon - Refill
This ribbon consists of eight different fiber strips woven together into a single ribbon. It can be used to test different commercial dyes such as Rit and Kool-Aid, and natural dyes such as goldenrod and grape juice. Soak a piece of Multi-Fiber Ribbon in a colored dye and note how each of the fabrics is stained differently. Use a strip of the ribbon as a “known” to identify a piece of unknown fabric. One yard may be cut into over 60 test strips!

SM-600
1-5 yards $7.95 / yard
6-49 $7.75
50+ $7.25

Multi-Fiber Dyes - Refill
Use these dyes along with the Multi-Fiber Ribbon to identify an unknown swatch of fabric. These incredible dyes stain each of the fibers a different color. Each package contains 10 ready-to-use capsules (five each of two different dyes). Simply place a capsule in boiling water and soak the Multi-Fiber Ribbon for five minutes. Absolutely amazing!

SM-605 $16.50

Multi-Fiber Unknowns - Refill
This kit consists of eight different pieces of fabric, each represented in the Multi-Fiber Ribbon. The eight 4" x 12" pieces of cloth can be divided into more than 200 unknown samples of cloth for students to identify using the Multi-Fiber Dyes (SM-605).

SM-610 $24.25

Develops the Interdisciplinary Mind

The Private Eye by Kerry Ruef
Designed to develop higher order thinking skills, creativity, and scientific literacy across subjects, The Private Eye is based on a simple set of “tools” that produce “gifted” results. Uses everyday objects, a jeweler’s loupe, and simple questions. It builds communication, problem solving, and concentration skills. For K-16, The Private Eye develops “the interdisciplinary mind.” Includes hundreds of lesson plan ideas, 240 pages.

EYE-200 $27.95

The Private Eye Loupe
This high quality jeweler’s 5X magnifying loupe is used throughout The Private Eye book. These simple magnifying lenses can accommodate large and small hands alike!

EYE-231
1-4 $3.95 each
10+ $3.25

Box Set of 18 Loupes
EYE-242 $67.95

Plastic Magnifier 3X/6X
Sturdy, inexpensive, quality magnifier. Dual lens 11.3 cm (4.5") long.
LEN-325
1-19 $1.00 each
20+ $0.75

Crime Scene Investigations
By Pam Walker & Elaine Wood
Real-Life Science Labs for Grades 6-12
Students in grades 6-12 are challenged to conduct lab tests, document results, and try to meet the standard of proof needed to solve crimes. The crimes range from check forgery to murder and include the use of fiber analysis, skeletal evidence, and fingerprinting techniques. 68 lessons, paperback, 288 pages.

BK-925 $31.95

Crime Scene Investigations
Real-Life Science Labs for Grades 6-12
Students in grades 6-12 are challenged to conduct lab tests, document results, and try to meet the standard of proof needed to solve crimes. The crimes range from check forgery to murder and include the use of fiber analysis, skeletal evidence, and fingerprinting techniques. 68 lessons, paperback, 288 pages.

BK-925 $31.95
Who Stole the Gold?
The gold is gone! Your students must work together in collaborative forensic teams to figure out the thief’s identity. Using evidence collected at the scene, students will practice techniques from soil and mineral analysis, document analysis, fabric and fiber analysis, blood analysis, fingerprint analysis, and hair analysis to solve the crime. Kit contains enough materials for 15 groups, and includes a Teacher’s Guide as well as reproducible Student Study Guide copymasters. See our website for the extensive materials list. Grades 5-college.

CSI-580 $149.95

Kidnapped! The Case of Jason Worth
A missing heir. Money, power, and mystery. What happened to Jason Worth? Students will analyze blood, fibers, handwriting, and fingerprints as they work at solving this engaging whodunit. Kit contains enough materials for students in three classes of 24 to conduct the same tests as a real forensics team. This kit presents a compelling scenario that relates to biology, chemistry, and physics—tied together with all the intrigue and excitement of an actual criminal case! Grades 5-college.

CSI-460 $73.95

Case of the Kidnapped Cookies: A Crime Scenario
This kit pushes the forensics unit into several other disciplines, as your students work to solve and try The Case of the Kidnapped Cookies! Found at the scene: a ransom note in Spanish, made from words cut from local newspapers with a strange red stain (lipstick?), white powder, and soil... Even the envelope containing the note has traces of DNA... Comes complete with all the evidence, full teacher guide on CD, student printables, and enough materials for 30 students to participate. Includes information on staging your own trial! (Microscope required—check out our microscopes on page 114.) Grades 5-8.

CSI-730 $169.95

Case of the Missing Mascot: A Crime Scenario
Who took the school mascot? Students must try to discover the culprit before the Big Game! Activities include fingerprint and bite mark analysis, fiber flame test—even DNA analysis! Comes complete with all the evidence, full teacher guide on CD, student printables, and enough materials for 30 students to participate. There is even information on staging your own trial! Grades 5-8.

CSI-720 $169.95

Case of the Lost Skull: A Crime Scenario
Someone has left an animal skull stuffed with cash outside the school! Who could have left it there? With this introductory forensics unit, students analyze fingerprints, blood, fiber, hair, and imprints, and document evidence over the course of about a class week. Includes all the evidence, full teacher guide on CD, student printables, and enough materials for 30 students to participate. Also includes connections to other curricula, as well as field trip suggestions. (Microscope required—check out our microscopes on page 114.) Grades 5-8.

CSI-710 Lost Skull Kit $176.95
CSI-715 Lost Skull Refill $91.95
The Carter Creek Mystery
An Environmental Disaster

The thriving community of Carterville has been growing in leaps and bounds. After a long stretch of a bad economy, Carter Creek Paper and Plastics has doubled its business. This means more jobs, opportunities, and $$$ for the area! There is a dark cloud on the horizon for the Carterville area. The creek has been polluted! Your students have been hired by a local chemical testing laboratory to find the nature of the contamination and locate its source.

CSI-450 $79.95

FACES 4.0 Composite Picture Software

Imagine being able to envision any face. FACES Software allows you to do just that... Create the face of any person, real or fictional, from any time, present or past, from anywhere, near or far. The greatest part is that it is so easy to use! Simply choose facial features from pictures on the right to add to your new face on the left. Add a nose, mouth, eyes, beard, glasses, hat, even dimples and forehead lines! It’s simply amazing!

Have your students try to recreate themselves or their favorite literary characters! This is the same software the television program America’s Most Wanted uses to create composite pictures of suspects and victims. This creative software comes on CD-ROM and runs on Mac or PC. See our website for complete details.

CD-750 Single User $124.95
CD-765 5 User License Pack $349.95
CD-775 Building-Wide Site License $895.95

Invisible Ink Spy Pen

With two or more Spy Pens, secret messages can be sent between friends! This incredible pen writes with invisible ink. Reveal the hidden message with the pen’s special ultraviolet light. Use this pen to mark unknown samples for students in the laboratory. Batteries included and replaceable. Styles may vary.

PEN-125 $6.50

Dissolving Paper

This is real paper, made of sodium carboxyl methyl cellulose. The amazing thing is that it dissolves in water. Dip it in hot or cold water and watch it disappear before your eyes! Can be used in most laser printers and copiers. After it’s printed on, the paper will dissolve, but the letters will remain! Make your own alphabet soup! 21.5 x 28 cm (8.5" x 11") sheets of paper. Available in packs of 15, 30, or 100 sheets.

SM-515 15 sheets $7.95
SM-530 30 sheets $13.95
SM-510 100 sheets $42.50

The Lois McArthur Mystery
A Murder Investigation

All the intrigue, mystery, and excitement of an actual case arrives at your school in a cost-effective way with The Lois McArthur Mystery! A single scenario that relates biology, chemistry, and physics tools to criminal investigations. Each student in three classes of 24 will be able to conduct the following tests: blood analysis, fiber analysis, fingerprints, and handwriting analysis.

CSI-455 $73.95

Get two and pass secret messages!

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A Murder Investigation

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CSI-455 $73.95
FINGERPRINTING

Fingerprint Cards - Standard FBI Applicant
Have your students practice taking and comparing fingerprints. Do any fingers have the same pattern? Do brothers and sisters have similar fingerprints? Try lifting a fingerprint from a glass and comparing it to a set of known fingerprints. 50 cards.
CSI-313 $13.25

Ink Pads
These Identicator® pads can be used on any paper. With clean ink technology, the slight residue left on the fingers can be easily removed by rubbing them together or wiping them clean with a towel or cloth. No ink-removing cleaners needed.
CSI-300 $11.95

COLLECT EVIDENCE

Official Paper Evidence Bags
These are genuine evidence bags used by police and crime investigators. They are printed with evidence labels for recording such information as Case Number, Date, Time, Location, Description, and Chain of Custody. 20.3 x 15.2 x 38.1 cm (8" x 6" x 15"). 50 bags. Make great lunch bags!
CSI-115 $19.95

Bi-Chromatic Fingerprint Kit
With this professional fingerprint kit, you can dust for prints on many different surfaces. The powder appears black when dusted on a light colored surface, but silver when dusted on a dark-colored surface. Lifted prints are always black. The Zephyr brush is easier to use and requires much less powder than a camel’s hair brush. Kit includes a 60 cc (2 oz) jar of powder, 9.1 m (360") roll of 5.1 cm (2") wide clear lifting tape, a Zephyr fiberglass brush, 100 white 7.6 x 12.7 cm (3" x 5") latent print backing cards, and instructions.
CSI-200 $43.95

NEW LOW PRICE!

Replacement Supplies

<table>
<thead>
<tr>
<th>Code</th>
<th>Item Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI-212</td>
<td>Bi-Chromatic Powder, 60 cm³ (2 oz)</td>
<td>$9.25</td>
</tr>
<tr>
<td>CSI-216</td>
<td>Bi-Chromatic Powder, 473 cm³ (16 oz)</td>
<td>$29.95</td>
</tr>
<tr>
<td>CSI-221</td>
<td>Zephyr® Brush</td>
<td>$15.50</td>
</tr>
<tr>
<td>CSI-227</td>
<td>Roll of Lifting Tape</td>
<td>$10.95</td>
</tr>
<tr>
<td>CSI-234</td>
<td>100/pkg Latent Print Backing Cards</td>
<td>$14.25</td>
</tr>
</tbody>
</table>

No forensics classroom is complete without these cards. Simply dust for latent prints, lift with tape, and apply to the shiny side of these 3" x 5" cards to preserve the prints in question as evidence. To be used with replacement supplies above.

DUST FOR FINGERPRINTS

Official Crime Scene Barrier Tape
Give your next forensics lesson an authentic feel with our official Crime Scene Barrier Tape. Available in economic thousand-foot rolls, now you can afford to cordon off your entire classroom! 7.6 cm x 304.8 m (3" x 1,000’)
CSI-100 $27.95

The Real Deal!
Our authentic law enforcement supplies are made available through a special agreement with the same companies that supply the police and FBI with crime scene investigation materials.

Bi-Chromatic Powder, 60 cm³ (2 oz)

Bi-Chromatic Powder, 473 cm³ (16 oz)

Zephyr® Brush

Roll of Lifting Tape

100/pkg Latent Print Backing Cards

Ink Pads

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CSI-200 $43.95
Fluorescent Mineral Set

These common fluorescent minerals are sensitive to long-wave ultraviolet (UVA) light and can be made to fluoresce using any of the fluorescent “black lights” in this catalog. Fluorescence is sometimes used to identify certain minerals and can change some rather ordinary looking rocks into marvels of colors and light. Once your students see these samples, they will be eager to test all the rocks they find and they won’t forget this uncommon addition to any mineral unit. Each set contains at least four samples.

RM-400  $14.25

Mineral Sorting Kit

Use a simple identification “key” to sort 15 small rough and polished rock and mineral samples. The special key is large enough for students to place the specimens directly on it. The kit includes rocks and minerals such as mica, quartz, calcite, amethyst, pyrite, plus 10 others. This kit has been successfully field tested in hundreds of classrooms with students in grades 2-5. Contains small samples. For ages 7+.

RM-6  1-9  $13.95 / kit
10+  $11.95

Floating Rocks!

Class Set of 25 Pumice Samples

Your class will erupt with excitement as each student explores and observes the product of an actual volcano. Pumice is a lightweight igneous rock, formed when lava cools quickly above Earth’s surface and traps gases before the molten material solidifies. As a result, it contains so many air holes that it floats in water!

RM-315  $5.95

Giant Pumice

The largest volcanic pumice samples we have ever seen... and they still float. In fact, during the spring thaw in the mountains of Oregon, you can see these huge pieces of pumice floating down the rivers! Totally cool!

RM-300  $19.95

Rocks, Fossils, Minerals & Gems

Each set of 21 specimens comes in a labeled display case that can be opened for closer inspection. A great addition to your Earth Science classroom or for any young collector! All sets come in clear 7” x 3.5” cases.

RM-800  Rocks, Fossils, Minerals and Gemstones of the US  $8.95
RM-810  Native Rocks - Foundations of the Earth  $8.95
RM-820  Natural Gemstone Collection - Jewels in the Rough  $8.95
RM-830  Complete Set of Three  $21.95

UV Lights (Additional info on page 63)

UV-641  Portable UV Light  $11.95
UV-605  18” Fluorescent UV Black Light  $25.95
Geodes for Splitting
These whole, unopened geodes are an exciting addition to any earth science, geology, or rock & mineral unit. Sorted by density, many are hollow and can be easily split open to reveal a variety of crystal formations within. Students love opening geodes, then trading the pieces to begin their own rock collections. Remember to wear your safety goggles. Six/pkg.

RM-540 $19.95 / pkg of 6

Small Geode Pairs
Geodes are natural wonders that have taken thousands of years to form. A rock cavity, like a gas bubble in a lava flow, slowly fills with water, which deposits its dissolved minerals. They eventually crystallize into a unique form and color. Each of our beautiful 2.5-5 cm (1-2”) geodes have been cut and polished. Set of two halves.

RM-500 $4.95 / set of two halves

Obsidian Arrowheads
Students are always fascinated when something mundane like a rock is formed into something useful like an arrowhead. These recently-made large arrowheads were hand-crafted from volcanic obsidian. Each is unique. A great demonstration tool when teaching about Native Americans, igneous rocks, or man’s early use of tools. Each arrowhead measures 5-7.5 cm (2-3”) long. Available individually or in packs of 15 or 30. Caution: Arrowheads are sharp!

RM-200 Single $1.50
RM-205 Pack of 15 $8.95
RM-210 Pack of 30 $14.95

Geodes Slices
These 1/8” thick geode slices are beautifully colored and highly polished. You can clearly see each layer of the different minerals. Approximately 2-3” across. Geodes are stained to easily show mineral layers. Pack of six. Colors may vary.

RM-510 1-4 packs $8.25 / pkg
5+ $7.50

Hardness/Streak Test Kit
Help identify a mineral by determining its hardness and performing a streak test. The collection of nine minerals represents the Mohs hardness scale from #1 (talc) to #9 (corundum). In addition, the kit includes instructions, a streak plate, and a field pouch.

RM-410 1-10 $12.95 / kit
11+ $11.95

Mohs Hardness Scale!

Sticky Stones
Don’t be fooled by these seemingly normal stones; they’re magnetic! Build fun structures and explore the theory of magnetism with these unusual and entertaining stones.

RM-150 ½ lb (~10-20 rocks) $6.95
RM-155 2 lb (~50-70 rocks) $24.95
Mini Dig Kits
Each of these fun, hands-on digging kits contains a genuine shark tooth, fossil, or gemstone buried inside a themed digging brick! Kits include an excavation brick, digging tool, brush, and information guide so your young scientist can identify and learn about the genuine specimen. Perfect stocking stuffer or party favor. A great hands-on activity.

RM-855  Shark Mini Dig Kit  $5.95
RM-860  Treasure Mini Dig Kit  $5.95
RM-870  Gemstone Mini Dig Kit  $5.95

Starter Geode Kit
Crack open these real geodes and discover the amazing crystal treasure inside! This starter science kit includes four real geodes from two different mines. Includes premium geodes that are guaranteed to have a variety of incredible crystals inside! Also included are safety goggles, a geode display stand, and a high quality information guide which will teach your young scientist all about geodes, and help identify the crystal formations inside. Plus there’s an activity booklet with 10 additional puzzles, games, and challenges. Science doesn’t get any cooler than this! Winner of multiple awards for exceptional geode quality, educational materials, and play value! Great for a geology-themed party game!
RM-850  $19.95

One Pound of Mica
Everyone loves to pull apart the layers from a specimen of mica. These mica specimens from New England will provide samples for at least 30 students. Sold in one-pound packages.
RM-910  $10.95

Use with our Super Quality Polarizing Filters (page 68)

Fulgurite
Lightning Fused Sand
These tubular formations are typical of the result when nearly one billion Joules of lightning energy strikes sand. With temperatures reaching 30,000 degrees Kelvin, the sand is melted or vaporized, leaving behind these amorphous glass tubes. ≈2” long sample. Colors may vary.
RM-640  $24.95

Graphite
From President Franklin Pierce’s NH Mine
Students will be fascinated by the idea of writing with a piece of mineral. Use a battery, wire, and bulb to show that graphite conducts electricity. Contains approximately one pound of graphite; may contain some rock matrix.
RM-610  $13.25
Crystal Growing Dolomite

Sometimes called "Popcorn Rocks," these gray dolomite samples grow dazzling, white Aragonite crystals when placed in a small amount of white vinegar. The crystal growing takes approximately one week. Samples of dolomite and complete instructions provided.

- **RM-390** Single Large Sample $2.95
- **RM-350** Class Set of 25 Samples $8.95

Bismuth Crystal

These man-made bismuth crystals are cubic and iridescent, giving them a unique, otherworldly appearance. Each specimen is 12-17 g and has a density of 9.81 g/cc.

- **RM-520** $8.95

Perfect for discussing super-saturated solutions!

Rock Candy Crystal Growing Experiment Kit

A scientific experiment you can eat! While quartz crystals take tens of thousands of years to grow in nature, you can grow crystals of sugar in only a few days! In the process, students learn about saturated and supersaturated solutions, seed crystals, and the rate of crystalline growth. Includes a glass jar with lid, five seeded wooden sticks, enough sucrose to grow one rock candy stick, and a study guide with complete instructions. More rock candy sticks can be grown using ordinary sugar and the additional seeded sticks. You will need to provide a saucepan, spoon, measuring cup, a stove or hotplate, and adult supervision.

- **RM-100** $16.95

Calcite Crystals

Iceland Spar

If you look at the words on a printed page through this crystal, you'll see double. These natural, nearly transparent crystals exhibit the property of "birefringence," i.e., they can break light into two distinct polarized beams. Each crystal is about 2 x 2 x 4 cm.

- **PF-2** $6.95

Mrs. Stewart's Liquid Bluing

Grow beautiful crystal gardens with bluing, table salt, household ammonia, and food coloring. For more than 50 years, this has been a favorite activity of teachers and children of all ages. 237 ml (8 oz).

- **SM-10A** 1 Bottle $5.50
- **SM-10B** Case of 12 $45.95
Astronaut Ice Cream

In space, no one can hear ice cream! These specially preserved ice creams are freeze-dried and require no refrigeration. Just open and eat! Each individually wrapped ice cream comes in a package that describes the freeze-drying process. Three flavors in each package.

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<tr>
<td>FD-100</td>
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<td>FD-110</td>
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<td>$299.95</td>
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</table>

Heat Activated Constellation Mug

A stellar gift for your favorite stargazer. At first glance, this unassuming black mug seems decorated with a light dusting of stars. But when you pour in a hot liquid, over 10 constellations appear as if by magic! Enjoy your tea while you marvel at the colorful outlines of Cassiopeia, Perseus, Sagittarius, Hercules, Andromeda, Scorpio, Taurus, Ursa Major, Ursa Minor, Orion, and Castor & Pollux. Microwave safe, hand wash only, holds ≈350 mL (12 oz).

MUG-195 $11.95

Sunspotter Solar Telescope

This safe Folded-Keplerian telescope is easy to use and suitable for students of all ages. The Sunspotter projects an image of the sun where sunspots are clearly visible. Perfect for teaching about the sun spot cycle! Makes a great gift for any aspiring astronomer!

SUN-100 $429.95

Images are not actual size. Specimens will vary in size, mass, and color.

Real Meteorites

Most meteorites from outer space burn upon entry into Earth’s atmosphere and are seen as “falling stars.” Because meteorites are naturally occurring, specimens will vary in size, mass, and color. Each is beautifully mounted in an 8 x 11 cm (3.25” x 4.25”) Riker Mount Specimen Box that can be opened to more closely examine the specimen. All meteorites are 4-16 grams.

<table>
<thead>
<tr>
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<th>Name</th>
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<td>RM-453</td>
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<td>RM-455</td>
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<td>1516</td>
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</tbody>
</table>

Observe the sun without seeing stars!

Home Science Lab

Our Home Science Lab is a 1, 3, or 6-month subscription series bursting with unique hands-on materials for children ages 6-11. There is simply no substitute for the kind of sensory learning your young scientists will experience in each box.

Every month, your young scientist will receive a sturdy keepsake box with all the materials needed to perform five or more thrilling, engaging, sometimes disgusting, but always easy-to-understand experiments centered around a key topic. For example:

- Slime, Seaweed & Polymer Blobs
- Caves, Crystals & Mineral Treasures
- Magnetic Field Fiesta
- The Chemistry of Magic
- Tabletop Fossil Safari
- Bernoulli’s Flight Basics

Your first kit comes with a free pair of safety glasses (a $2.95 value).

<table>
<thead>
<tr>
<th>HSL-100</th>
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<tr>
<td>HSL-300</td>
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<tr>
<td>HSL-600</td>
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</tbody>
</table>

"This is the greatest tool ever. Students can see sunspots not just through discussion, but through observation, and they can observe, construct a table, and collect data."
- Cherry W., Green Sea, SC

Cold Hot

Heat Activated Constellation Mug

A stellar gift for your favorite stargazer. At first glance, this unassuming black mug seems decorated with a light dusting of stars. But when you pour in a hot liquid, over 10 constellations appear as if by magic! Enjoy your tea while you marvel at the colorful outlines of Cassiopeia, Perseus, Sagittarius, Hercules, Andromeda, Scorpio, Taurus, Ursa Major, Ursa Minor, Orion, and Castor & Pollux. Microwave safe, hand wash only, holds ≈350 mL (12 oz).

MUG-195 $11.95

Astronaut Ice Cream

In space, no one can hear ice cream! These specially preserved ice creams are freeze-dried and require no refrigeration. Just open and eat! Each individually wrapped ice cream comes in a package that describes the freeze-drying process. Three flavors in each package.

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Fossil Sorting Kit

Each two-pound bag typically contains more than 100 assorted fossils along with a sorting guide. This kit is perfect for introducing students to organisms that existed over 400 million years ago! The sorting guide includes pictures of many of the fossils along with information about their approximate age and modern relatives. Kit typically contains fossilized ammonites, trilobites, coral, gastropods, and at least four other types of fossils. While we do our best, we cannot guarantee exactly which fossils or how many of each will be in each package.

RM-11A ½ lb (Well over 300 fossils!) $13.95
RM-11B 1 lb (Well over 600 fossils!) $21.95

Fossil Shark Teeth

Our Fossil Shark Teeth collection from Morocco is a fantastic chance for your students to own a piece of history at an amazing price. Each bag is unique. You will find various types of shark teeth in sizes ranging from juvenile sharks to adults. There are well over 300 fossils in each half-pound bag. You’ll also likely find a few fossilized sting ray teeth, small vertebrae, and fragments of bone. Ideal for sorting and predicting activities. At this price, you can let all your students keep a fossil to start their own collections!

RM-11A ½ lb (Well over 300 fossils!) $13.95
RM-11B 1 lb (Well over 600 fossils!) $21.95

Disappearing Dinosaurs Mug

Dinosaurs once ruled the entire planet. Thanks to this clever mug, you can watch eons pass before your eyes over a cup of coffee. The mug shows a prehistoric landscape populated by fierce dinosaurs. But when you pour in a hot beverage, the dinosaurs transform into fossils in a museum exhibition. Microwave safe, hand wash only. ≈350 mL (12 oz).

MUG-185 $12.95 each
MUG-190 $66.95 / set of 6

Large Fossil Collection

This high-quality collection of 24 fossils spans a vast time period in prehistory. It’s a handy survey of easily-identifiable fossils and an excellent way to support an Earth Science or Geology unit. Every set includes 24 different fossils along with helpful information cards related to each specimen. Fossil selection may vary; possible samples include dinosaur eggshells, shark teeth, ammonite, crinoids and more.

RM-135 Large 24 Fossil Collection $49.95
RM-142 Small 10 Fossil Collection $11.95

“I love the Fossil Sorting Kit! I set up ‘mini-digs’ in containers using sand from the beach as the medium through which students dig for the fossils. They are amazed to discover these are the actual remains of organisms and thrilled to be able to keep a sample. It’s the best way to introduce a study of prehistory!”
- Brandis H., Greenville, SC

Free lesson online!

Earth & Space Earth & Space

Fossils & Dinosaurs Fossils & Dinosaurs

**Tooth & Claw Molds**

**T-Rex, Oviraptor, Shark, Deinonychus**

These professional quality Latex rubber molds can be used to make hundreds of three-dimensional fossil replicas. Simply use a rubber band to hold the two halves of the mold together, pour in some Plaster of Paris or even better, our PerfectCast casting medium (below) and in about 30 minutes your students will have a perfect fossil replica. The finished casting may be painted to give it a completely realistic look. This is the best way to let your students take home a piece of history. Instructions included!

<table>
<thead>
<tr>
<th>Item</th>
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<tr>
<td>FSL-100</td>
<td>3&quot; Tyrannosaurus Rex Tooth Mold</td>
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<tr>
<td>FSL-105</td>
<td>Large 4&quot; T-Rex Tooth Mold</td>
<td>$12.95</td>
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<tr>
<td>FSL-110</td>
<td>Oviraptor Claw</td>
<td>$10.95</td>
</tr>
<tr>
<td>FSL-120</td>
<td>Shark Tooth</td>
<td>$10.95</td>
</tr>
<tr>
<td>FSL-130</td>
<td>Deinonychus Claw</td>
<td>$10.95</td>
</tr>
<tr>
<td>FSL-150</td>
<td>Set of five Tooth &amp; Claw Molds</td>
<td>$47.95</td>
</tr>
</tbody>
</table>

**Fossilworks**

**Fossil Molding Kit**

This kit comes with six high-quality, reusable seamless rubber molds (ammonite, crinoid, trilobite, cavebear tooth, shark tooth, and raptor claw), four pounds of PerfectCast casting medium, extensive background information on each fossil, and suggested exercises for students. ~3-5" long each.

Note: the molds included with this kit are different than our individual molds. They are single sided with a flat bottom for easy displaying and painting.

<table>
<thead>
<tr>
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</table>
| FSL-250 | $59.95

**PerfectCast**

**Casting Medium**

Far better than ordinary plaster, PerfectCast is the professional’s choice for casting complex fossil replicas. Simply add to water. PerfectCast dries as quickly as Plaster of Paris and is five times as strong. It is AP nontoxic and reproduces intricate detail identical to the original mold. Sold in four-pound bags. One bag will make about 20 large 4" T-Rex teeth.

<table>
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| FSL-315 | $7.95

**Woolly Mammoth Hair**

The Woolly Mammoth roamed throughout the northern North American continent, northern Europe, and Siberia. Occasionally in the permafrost areas of northern Siberia a mammoth is uncovered with hair preserved. The hair in this 3" x 5" acrylic frame is at least 10,000 years old and was found in the Taimyr Region of Siberia, Russia.

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<tr>
<th>Item</th>
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<tbody>
<tr>
<td>RM-750</td>
<td>Woolly Mammoth Hair</td>
<td>$14.95</td>
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</tbody>
</table>
Clean-Water Science Kit

Everything you need to conduct water purification experiments—just add water! You can build a tabletop version of a water filtration system, construct a miniature sea water desalination plant, disinfect water with solar power, and much more. A great demo for the classroom, rainy day science activity, or science fair project.

GRN-400  $13.95

Climate Change Mug

Add hot water and observe as Florida and California disappear, and Central America becomes just a chain of islands! This mug reminds us of the consequences of climate change. Watch what happens when our polar icecaps melt and the oceans begin to rise. Microwave safe, hand wash only, 170 ml (8 oz).

MUG-205  $12.95 each
MUG-210  $64.95 / set of 6

Weatherglass Barometer

When water moves up the spout, expect stormy conditions; when water moves down the spout, good weather is on its way. This hand-blown glass bulb contains trapped air that expands and contracts with changes in atmospheric pressure. Since 1643, many seamen have used this simple and accurate device to predict the weather. ≈15 cm (6”) tall. Colors may vary.

BAR-130  $19.95

Eco-cell Barometer

Replace Your Mercury Barometer!

The Eco-cell Barometer is safe, easy to use, and incredibly accurate! The 162 cm (64”) long, securely fastened, U-shaped glass tube is filled with red, nontoxic silicon oil. The adjacent 81 cm (32”) calibration tube is a sealed blue alcohol thermometer, complete with a sliding scale between the two tubes to compensate for the expansion of the oil due to temperature. Mounted on clear acrylic for easy viewing. Measures in both millimeters and inches of Hg. 92.7 x 14.6 x 3.2 cm (36.5” x 5.75” x 1.25”).

Advantages of an Eco-cell Barometer:
• Contains No Mercury  • Replaceable Components
• Easy to Read  • Applies Boyle’s Law
• Inexpensive  • Accurate

BAR-200  Eco-cell Barometer  $269.95
BAR-210  Replacement Thermometer Tube  $89.95
BAR-215  Replacement Barometer Tube  $155.95

Case studies document cleanup costs to schools for mercury spills ranging from $2,000 to more than $200,000. There is no longer any reason to jeopardize the health of children and educators with mercury in science classrooms.

Mercury Free!

Includes weather prediction symbols!
The Carter Creek Mystery
An Environmental Disaster

The thriving community of Carterville has been growing in leaps and bounds. After a long stretch of a bad economy, Carter Creek Paper and Plastics has doubled its business. This means more jobs, opportunities, and $$$ for the area! There is a dark cloud on the horizon for the Carterville area. The creek has been polluted!! Your students have been hired by a local chemical testing laboratory to find the nature of the contamination and locate its source.

CSI-450 $79.95

Oil Spill Kit

Our Oil Spill Cleanup Kit is a lively way to conduct a four-day interactive lesson with your class. Adaptable for students in grades 3-12. Your students must design and carry out a plan to clean their oil spill.

What is the best way to clean an offshore oil spill? It depends on water conditions, the effectiveness of the materials, the limits of funding, and a host of other factors. Bring current events right into your science classroom and teach your students to customize and optimize their clean-up.

The kit contains a variety of oil absorbent materials—including our best-selling Envirobond—as well as a thematic unit guide, lesson plans, resource sheets, and student printables. Refill kit and extra Envirobond sold separately.

ENV-100 Oil Spill Kit $49.95
ENV-110 Refill Kit $23.95

Envirobond

Envirobond is a unique long chain polymer that is hydrocarbon specific. It will only absorb and molecularly bond with hydrocarbons while repelling any water. No mixing required. Works with lubricating oils, vegetable oil, diesel, gasoline, etc.

ENV-120 227g. (¼ lb) $8.95
ENV-125 454g. (1 lb) $17.95

Weather Science Kit

With this exciting kit, your students can explore six basic weather phenomena. Experiment with static electricity that causes lightning, make your own clouds, build a desktop water cycle model, observe the movement of air currents, explore climate change and the greenhouse effect, and learn about the harmful impact of acid rain. Includes detailed instructions with fun facts. For ages 8+.

GRN-420 $12.95

Water Works

Water Test Kit

This amazing test kit and teacher’s guide contains enough materials for a class of 30 students to test water for nine factors twice—that’s 540 tests in every kit! Each kit includes 60 individually wrapped test strips for each of the following factors:

- Total Chlorine
- Nitrate
- Total Hardness
- Iron
- Free Chlorine
- Copper
- pH

Each test is easy to use; simply moisten the test strip with your water sample and compare to the included color chart. The teacher’s guide contains background information along with instructions and simple activities. If you study the water cycle, ground water contamination, or pollution, this kit is a perfect way to add some hands-on science to your unit.

WTR-100 $99.95
Microscale Vacuum Apparatus

Students can now safely produce a vacuum in a small bell jar at their lab stations. By reducing the pressure in the microscale bell jar, they can expand a balloon, boil warm water, and even transfer liquids from one pipet to another. Students are able to actively experiment on their own and observe the results right before their eyes. Kit includes 8.5 cm (3.5”) bell jar, base plate, vacuum pump syringe, suction cup, balloons, pipets, instructions, and Ron Perkins’ Thirteen Open-Ended Challenges.

VAC-10 Microscale Vacuum Apparatus $35.95
VAC-16 Class Set of 6 Vacuum Apparatus $192.70
VAC-115 Replacement Tube Assembly $12.95
GAS-140 60 cc Replacement Syringe $2.75
GAS-145 30 cc Replacement Syringe $2.50

Using a small dollop of shaving cream, demonstrate how much air is present in the cream by removing the air around it and watching it “grow.”

Pressure Pullers

What keeps these cups together? Suction or air pressure? These cups are very simple to use: no vacuum pump—just two levers—yet they are incredibly difficult to pull apart. A great way to illustrate the concept that air pressure, not suction, is forcing the cups together. Have your students calculate, based on the area of the cup and the standard air pressure, just how much force is required to pull the cups apart. Sold in sets of two. ≈12 cm (4.75”) diameter.

SC-300 $11.95 / pair

The World’s Most Useful (and Amazing!) Suction Cup!

"Lil’ Suctioner"

This device is so simple, it’s mind boggling. Simply slide the soft foam ring over a soda can or beaker and it sticks tight—really tight—to any smooth tabletop surface. Inadvertently invented by Mike Adjeleian, our “suctioners” use air pressure to hold in place all sorts of circular containers (up to 3” diameter). Great for the lab, your desk, or even at home. Printed with a variety of air pressure facts. Comes in assorted styles.

SC-100 $10.95 / pkg of 3
Milk Bottles

Use this sturdy glass milk bottle for an egg-cellent demonstration of air pressure. All you need is a hardboiled egg and a little bit of fire. If you drop some lit paper inside the milk bottle and then place the egg on top, the fire goes out and the egg is mysteriously pushed into the bottle, intact! Warm air expands, cool air contracts—it’s the cooling of the heated air inside the bottle that allows the atmosphere to “push” the egg inside.

BOT-800 $14.25

Harbottle Differential Pressure Demo

Use this beautiful glass globe to teach your students about the amazing properties of air pressure. Simply stretch the neck of the balloon over the mouth of the bottle and blow into the balloon. Once it’s inflated, insert the rubber stopper into the hole at the bottom of the bottle. The balloon remains inflated though nothing seems to be stopping the air from escaping! A great starter for atmospheric pressure discussions. Colors may vary.

AIR-275 $23.95

Gas Solubility Demonstration “The Baby Bottle Experiment”

An unopened can of soda feels very solid because more than three volumes of dissolved carbon dioxide gas create a pressure of about 55 PSI above the liquid. This is about four times atmospheric pressure. Fill a baby bottle with soda, secure with a rubber nipple without a hole, and shake. Watch the nipple expand as the gas comes out of solution. Amazing to see! Great for teaching Henry’s Law of Partial Pressures. Includes baby bottle, two rubber nipples without holes, and instructions. Designs may vary.

BOT-815 $8.95

Atmospheric Mat

There’s nothing like a discrepant event demonstration to bring an abstract concept to life. Our Atmospheric Mat offers a dramatic introduction to the concept of air pressure. Invite your students to pick up the mat. No matter how hard they pull on its sturdy metal hook, this mat will not budge! Is it some kind of suction trick? Nope! It’s just air pressure. The room’s air pressure is so much greater than the pressure under the mat that—in effect—the air itself is holding the mat in place. Works on almost any smooth surface.

Measures 26.6 x 26.6 cm (10.5” x 10.5”).

AIR-280 $21.95

Educational Innovations, Inc.®
**Hovercraft Class Kit**

The principle behind the Hovercraft’s levitation is that when air is released from the balloon, the air hits the ground and rushes outward in all directions. The air flowing from the balloon through the hole forms a layer of air between the Hovercraft and the table. This reduces the friction that would have existed if the Hovercraft rested directly on the table. With less friction, your Hovercraft scoots across the table.

This kit includes everything you need to make your own balloon Hovercrafts, including one dozen pre-drilled film canisters, one dozen balloons, one dozen CDs, and one strip of poster putty. Instructions can also be seen in our short video. Colors may vary.

<table>
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<td>Wholesale</td>
<td>Pkg of 40 Balloons with Pump</td>
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<tr>
<td>Wholesale</td>
<td>Balloon Refills (21 Balloons)</td>
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</table>

**X-Zylo Launcher**

This flying ring launcher dramatically illustrates the effect of gyroscopic forces on motion. If the flying ring is launched with the rubber bands pulled back straight, the ring wiggles through the air chaotically. But by twisting the rubber bands and giving the ring a spin, gyroscopic forces send it flying in a straight line! Flies over 100 feet!

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wholesale</td>
<td>Launcher</td>
<td>$13.25</td>
</tr>
<tr>
<td>Wholesale</td>
<td>2 Refills</td>
<td>$6.95</td>
</tr>
</tbody>
</table>

**Balloon Helicopter**

These balloon-powered helicopters are great for outdoor or indoor fun (if you have high ceilings). Simply snap the blades on the hub, place the balloon on the collar, inflate the balloon, and you’re ready for lift off! When you release, air travels through the blades, causing them to spin. Lift is created and off it goes! We’ve gotten these to fly over 20 feet high. Blow up the balloon again to relaunch. Colors may vary.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR-610</td>
<td>Box of 20 Balloons</td>
<td>$1.50</td>
</tr>
</tbody>
</table>

*Free lesson online!*

**These balloon helicopters were just too much fun! I got them for my 6-year-old’s science birthday party, and the kids just loved them!**

- Jennifer, Madison, WI
**Aero Copter**
Catapult the Aero Copter into the sky with the rubber band launcher, and watch it fly! When the Aero Copter reaches maximum height, its blades open and it spins down to the ground, with an LED light illuminating its descent. Best flown at night. 12/pkg. Colors may vary.

AIR-222  $9.95 / pkg of 12

**Dip-er-do Stunt Plane**
*Loops, Circles, and Returns*
These amazing, durable planes come back to you every time! Mike Stone amazed us all with the original Dip-er-do, and now these planes are featured at the national Air and Space Museum! Each plane comes with cool stickers and adjustable elevators and flaps. Graphically demonstrate the four forces involved in flight and what happens when lift is greater than weight!

SS-20  Dip-er-do Stunt Plane  $3.95 / 2 pack
SS-20B  Class Set of 30 (15 pkgs)  $41.95 / Class Set

"No assembly; two planes per pack—very reasonably priced. You can use this to introduce Newton’s Laws, aerodynamics, Bernoulli’s Principle, etc. We introduced our lesson using Dip-er-Do then challenged students to create gliders to compare. A lot of fun. One of the best gliders I’ve seen."
- Joseph B., Stanhope, NJ

**SnapCopters**
Fly what may be the world’s smallest helicopter with a snap of your fingers. Illustrate the principles of flight including camber, lift, center of gravity, and momentum. Each package contains 16 SnapCopters. Colors may vary.

AIR-425  $3.95 / pkg of 16

**HandCopters**
To launch, simply place the HandCopter’s plastic shaft between both hands and spin counterclockwise. These colorful copters can be used for dozens of scientific investigations. Why won’t the HandCopter work if launched clockwise? How does this simple “toy” illustrate the Bernoulli Principle? Students can test different variables to determine what will make the HandCopter stay aloft longer or fly straighter. Illustrate the principles of gravity, force, and motion as well as the principles of flight including camber, lift, center of gravity, and momentum. Each package contains five HandCopters. Colors may vary.

AIR-430  $6.95 / pkg of 5

**Flying Butterfly**
Wind up this clever little device and hide it inside a book or greeting card. When it is set free, the butterfly will spin and fly up to 20 feet in the air! Amazing!

AIR-480  $3.95
AMAZING NO-POP BUBBLES!

Amazing No-Pop Bubbles, with a new twist! Under a UV/black light, these bubbles glow brilliantly. They work especially well with our UV Flashlights (page 63). You won’t believe your eyes!

- **BUB-720** Mini-Bottle (~30 mL) $4.50
- **BUB-725** 12 Mini-Bottles $39.95

UV No-Pop Bubbles!

Amazing No-Pop Bubbles! Blow these incredible bubbles, wait 10 seconds, then reach out and catch them on your fingers! They don’t pop! Must be seen to be believed. In a dry environment, No-Pop Bubbles will last for weeks!

- **BUB-700** Mini-Bottle (~30 mL) $3.50 each
- **BUB-710** 12 Mini-Bottles $32.95 / set

**UV No-Pop Bubbles!**

UV No-Pop Bubbles, with a new twist! Under a UV/black light, these bubbles glow brilliantly. They work especially well with our UV Flashlights (page 63). You won’t believe your eyes!

- **BUB-700** Mini-Bottle (~30 mL) $3.50 each
- **BUB-710** 12 Mini-Bottles $32.95 / set

**Bubble Timer**

The Bubble Timer is a beautiful display of physics, surface tension, and geometry! Just turn it over to watch the colored liquid displace the air in the bottom bulb, creating more geometric bubbles every time! Takes approximately one minute. Colors may vary. ~20 cm (7.5”) tall.

- **TIM-212** $8.95

**Try This!**

Statically charge a latex balloon. Blow a bunch of No-Pop Bubbles and hold the balloon close enough to the bubbles to control their movement. Try to catch one on top of the other until you have a bubble tower on the balloon.

**Hover Racer**

Build your own motorized Hover Racer and watch it skim smoothly across the floor on its cushion of air. A fun science project and fantastic science fair idea. This kit includes a detailed instruction manual plus relevant information about the history and science behind the hovercraft. Uses four AAA batteries (not included). Not meant for use in water.

- **AIR-625** $17.95

**“This Hover Racer was fun to put together with my 12-year-old son. It’s amazing to see the speed at which it can travel.”**

- Karen S., Mount Olive, NC
Fountain Connection™
Connected to two clear 2-liter soda bottles, a fountain erupts every time the bottles are turned over. This is the modern version of Hero of Alexandria’s 2,000-year-old fountain. Two 2-liter soda bottles required. Colors may vary.

| SS-10 | 1-5 | $3.95 each |
| 6-49  | $3.75 |
| 50+   | $3.55 |

“This is a really cool experiment. Easy to set up and fun to use.”
- Diana, Chicago, IL

Tornado Tubes
Demonstrate a vortex in your classroom! Some people refer to it as a tornado in a bottle. These amazing connectors screw onto two plastic soda bottles (see our 1-Liter Soda Bottles on page 37) and allow students and teachers to create a water vortex, showing that in order for water to flow down, air must flow up. Colors may vary.

| SS-1 | 1-9 | $1.95 each |
| 10+  | $1.75 |

Bulk Pricing:
- SS-120 Pkg of 40 $60.00 / pkg
- SS-125 Pkg of 80 $110.00 / pkg
- SS-130 Pkg of 120 $150.00 / pkg

Air Power Soccer Disk
The Air Power Soccer Disk is perfect for demonstrating Newton’s Third Law of Motion: for every action, there is an equal and opposite reaction. The soccer disk glides on a cushion of air in a nearly frictionless environment. Uses four AA batteries (not included). 18.4 cm (7.25”) diameter.

AIR-141 $12.95

Glides on a cushion of air!

Pet Tornado
Spin the Pet Tornado clockwise and watch a mini tornado form before your eyes. The vortex forms and fades just like a real tornado. ≈11.5 x 4.5 cm (4.5” x 2”). Information on the back describes the Fujita tornado scale. For ages 7+.

AIR-260 $5.95

Air Zooka! Vortex Launcher
This amazing device launches an invisible vortex of air up to 20 feet. Powerful enough to blow out a candle from across the room! Safe for classroom use because it launches no projectile, only a strong puff of air. The Air Zooka really will “blow away” your students. Try it with our Diffusion Mist (page 69) for vortices you can see! Easy to assemble and use. No batteries required. Colors may vary.

AIR-200 $19.95
You provide the fast moving air, and we’ll take care of the rest! You can easily demonstrate the unexpected effects of low air pressure with an electric leaf blower or vacuum cleaner (exhaust mode). A fast stream of air across the top of this fascinating device reduces air pressure in the tube. As a result, ambient air pressure propels the ping pong balls upward, in apparent defiance of gravity! Students at all levels will marvel! Instructions included and available online.

**Bernoulli’s Principle Class Kit**
Is it Bernoulli’s Principle or the Coandă Effect? Using high energy activities, your students will learn about air pressure and common but counterintuitive phenomena. Our kit provides everything you need to demonstrate the relationship of air speed and air pressure for students in grades 4-8. The lessons can easily be adapted for younger or older students. Materials for 25 students. Includes 25 funnels, 28 ping pong balls, 50 flex straws, roll of kite string, 100 cards, 50 toothpicks, and detailed instructions.

**AIR-500** $22.95

**WindTubes**
Fantastic for teaching the properties of air, Bernoulli’s Principle, and even for building structures! WindTubes are like balloons that don’t stretch. They are not elastic. About eight feet long and 10 inches in diameter, they are huge! The illustrated instructions include over a dozen creative and educational activities that you can do with WindTubes. The inventor Doron Gazit suggests connecting them together with simple rubber bands to create space frames or even Buckminster Fuller structures. Packs of four come assorted colors. Rolls of 250 are all one color. Sorry, no color choice.

**WIN-600** 4 Assorted Color WindTubes $5.95

**WIN-610B** Roll of 250 Single Color WindTubes $290.00

“...This is a great way to show the children about air pressure and how even though they can’t see it, it has to move out when something else moves in. So many ideas to use to teach about Bernoulli’s principle.”
- Linda, Tahlequah, OK

*Takes as many as 70 breaths to fill...or just one breath if you understand Bernoulli’s principle!*
## Cartesian Divers

### Cartesian Divers DVD

Bob Becker, a pioneer in the field of Cartesian Divers, demonstrates and discusses a plethora of fascinating diver designs. After seeing this DVD, your students will want to dive into this subject! Includes DVD-ROM content for use in your classroom such as project guides and templates.

| CD-900DVD | $19.95 |

### Fizz-Keeper Pumps

Designed to keep the carbonation in one- and two-liter plastic soda bottles, these pumps are perfect for Cartesian Diver experiments. Simply place your diver in a plastic soda bottle filled with water, screw on a Fizz-Keeper Pump cap and pump away! With the pump, even young children with small hands can easily operate the diver.

| CD-4 | 1-10 | $4.75 each |
| CD-4 | 11+ | $4.50 |

### Cartesian Divers Class Kit

Contains enough material to make 30 hook and sinker diver sets. Great for a classroom activity. Bottles not included.

| CDH-422 | $21.95 |

### 1-Liter Soda Bottles for Experiments

Brand new soda bottles with caps are perfect for making Tornado Tube Bottles (page 35), Cartesian Divers, Bottle Biology experiments, storing aqueous solutions, and more. These bottles are completely clean, so there's no label to scrape off, and no worries about what had previously been stored in the bottle. Cap colors may vary.

| BOT-600 | 1 Dozen 1-L Bottles & Caps | $15.95 |
| BOT-672 | 72 1-Liter Bottles & Caps | $87.95 |
| SM-150 | Extra Caps 100 / pkg | $14.25 |

### Catch and Release Divers

Make a fun Cartesian Diver game! One diver floats and has a hook; the other diver stays on the bottom and has a loop. Explore fun and science as you try to hook the loop! Bottle not included.

| CDH-413 | $4.50 |

### Catch and Release Divers Class Set

Contains enough material to make 30 hook and sinker diver sets. Great for a classroom activity. Bottles not included.

| CDH-422 | $21.95 |

### Ballast Nuts

These nuts fit perfectly on our Cartesian Diver Pipets (PP-222). Made from non-corrosive stainless steel, they will not rust! 100 per bag.

| CD-3 | $16.50 |

### Plastic Cartesian Diver Pipets

The perfect size for making Cartesian Divers. They are inexpensive and the stem fits perfectly inside our ballast nuts (CD-3).

| PP-222A | Bag of 100 | $10.95 |
| PP-222 | Box of 500 | $26.95 |

### Cartesian Divers Class Kit

Ready for a classroom diversion? The Cartesian Divers Class Kit is a great hands-on way for students to learn about air pressure! Each kit comes with 60 ballast nuts, 60 pipets, one Fizz-Keeper Pump, one sheet of acetate, two feet of coated copper wire, five pipe cleaners, three permanent markers, four feet of fishing line, three sheets of colored craft foam, and two feet of yarn—enough to make 60 divers! Your students will love creatively decorating their divers while learning all about what makes them tick! Includes 42-page instruction booklet.

| CDK-625 | Cartesian Divers Class Kit | $32.95 |
| CDK-630 | Cartesian Kit and DVD (CD-900DVD) | $49.95 |
Solar Tube
Bigger and Better than the Rest!

At 60' long with a 72" circumference, this is the largest Solar Tube available. Run to fill with cool air, tie off the end, and move it into the sun. As the bag heats, the 240 cubic feet of air expands, becomes less dense, and floats. Includes tube, string, and instructions.

SLR-222 $14.95

“It’s really amazing to see how this big tube can be blown up in seconds. This can be used for Charles’s Law, air pressure, buoyancy, energy, and so many related topics. What could give a teacher more happiness than kids always looking forward to their class?”
- Madhavi S., Albany, NY

The perfect tether for our Solar Tubes!
Super Twine Kite String Class Set

This string is the perfect tether for homemade kites or our Solar Tubes. Each plastic roll is wrapped with ≈70 meters (200 feet) of thin twine with the loose end conveniently taped under the label. Students can easily tie two or three rolls together for even longer lines. Tell your entire class to go fly a kite, and at this price they can even take their strings home!

SM-20A Case of 12 rolls $15.95
SM-20 Case of 36 rolls $36.95

Air Swimmers

Teach your students the principles of buoyancy, density, and propulsion with these amazingly life-like Air Swimmers. With complete up, down, and 360 degree turning control, Sharks and Clown Fish propel themselves through the air with incredibly smooth, realistic motions. They require only four AAA batteries (not included). Fill your Air Swimmers with helium (easily found at any party store, florist shop, or grocery store that carries balloons). The body is made from a high quality, durable nylon material that will stay inflated for weeks! You can fill it again and again. Each fish is 57” long and 36” high.

AIR-444 Air Swimmer Shark $37.95
AIR-446 Air Swimmer Clown Fish $37.95

Floating Coins

These real Japanese 1 Yen coins are made from aluminum and can be made to float on the surface of water. Use a paper clip to gently lower the coin into the water and it will float on the surface! Adding a drop of liquid dish-washing soap destroys the surface tension and causes the coin to sink. Includes 50 coins and suggested activities. (These coins are nearly impossible to find in the U.S.) 50 coins per package.

YEN-110 $7.95

Absolutely amazing to see, our Solar Tube teaches many scientific principles, such as density and buoyancy.

It’s really amazing to see how this big tube can be blown up in seconds. This can be used for Charles’s Law, air pressure, buoyancy, energy, and so many related topics. What could give a teacher more happiness than kids always looking forward to their class?”
- Madhavi S., Albany, NY

Up, Up, and Away! with our 60-foot long, 72” circumference Solar Tube!

10 Feet Longer than

See inside front cover for details.
Density Sphere Experiment Kit

In this kit, students discover and apply the concepts of density and buoyancy by creating a sugar or salt gradient in a plastic column and floating five small spheres in the solution. Each sphere floats at a different level! Includes full instructions and write-ups as well as spheres made of polyethylene, polystyrene, nylon, acrylic, and cellulose acetate. Unknown plastics are also included for student density determination. Great for all ages.

DEN-10 Single $13.95
DEN-105 Class Set of 10 $104.95

Density Paradox

Something to Ponder!

When this solid object is initially placed in water, it sinks. But wait about 60 seconds, and it mysteriously floats to the surface. When removed and placed in different water, it continues to float initially and, in about 60 seconds, mysteriously sinks. (The first beaker contained hot water; the second beaker contained ice water.) Set of two. Colors may vary.

DEN-300 $14.95

Super Dense Wood

This very rare wood grows in South America. With a density higher than that of water, this unusual wood sinks in water and makes a great density lesson. May contain ironwood, Lignum Vitae, or other super dense woods. ≈130 g.

FE-12 $11.95

Blob-a-Lamp

Our Blob-a-Lamp is more than a mesmerizing motion light—it’s a complete lesson on density! At room temperature, the colored wax blobs are denser than the liquid. But turn the lamp on and soon enough, the questions begin: which material really is denser—the liquid or the wax blobs? What makes the blobs rise? Why do they descend back toward the lamp’s base? And what does the incandescent bulb in the lamp’s base have to do with any of this? Students at all grade levels will be engaged by this retro object, and will be eager to learn about heat, expansion, and density. ≈13” tall. Not recommended for children under 12. Colors may vary.

DEN-455 Blob-a-Lamp $12.95
DEN-457 Replacement Bulb $4.95
Density Mystery Set

Ask students to determine the density of 15 identical looking plastic specimens of various sizes. Results will vary. When mass vs. volume is plotted for our Density Mystery Set, two lines with different slopes result. This set is comprised of two different plastics which look the same, one with a density of 1.1 and the other with a density of 1.4. At the conclusion of the lesson, the pieces can be dropped into salt-water—half sink and half float. A great lesson in scientific truth and trusting your own calculations!

Density Cubes - Six Metals

Students identify each metal cube by determining its density. This classic lab is now available with extra large (easy-to-measure) 2.5 cm cubes of six different metals. Each set includes one cube each: aluminum, brass, copper, iron, lead, and zinc.

Density & Slope Set

Students can determine the density of two different materials: aluminum and a gray colored plastic. Plot mass vs. volume. Density is the slope of the line. The set contains four different sized samples of each material for a total of eight specimens. Requires a balance and a ruler or graduated cylinder.

Aerogel

Nanotechnology is changing the world. Aerogel, also known as “Frozen Smoke,” is a truly space-age material and is one of the least dense materials in existence. Silica aerogel contains particles of 2-5 nm in diameter. It is 99% air, but exhibits extraordinary insulation and structural properties. At one time it held 15 entries in the Guinness Book of Records, and still holds one. You can light a gas torch on one side and it won’t get hot enough to light a match sitting on the other side!

Some chipping around edges is normal. Classic Silica™ aerogel disc, 27 mm diameter x 7 mm height.

Note: While this material is amazing, the properties that make it amazing also make it inherently fragile. It is intended for adult handling. Handling instructions included.

Density Identification Set

Students try to identify each of 15 different samples by determining their density. Each sample cylinder varies in size (volume) and density, has a diameter of 1.5 cm and varies between 4-7 cm in length. Set includes aluminum, copper, brass, polyurethane, acrylic, plus 10 other samples.

Classroom Density Assortment

Our 48-piece density set provides four different sized specimens for each of twelve different materials. Each set of four density samples comes in its own tube for easy classroom management. Measuring the mass and volume of each sample specimen allows students to plot mass vs. volume, and thus determine the density of their individual material by calculating the slope of the resulting line. Materials include aluminum, PVC, acrylic, wood, polypropylene, phenolic, polyurethane, and PTFE.
Flowing Color Spectrum

Three different colorful droplets appear to be changing shape as they fall from the top reservoir of liquid to the bottom, when inverted. How many different colored droplets are really present? (Only two.) Can you infer anything about their densities? Why do the drops change shape as they fall? Great for sharpening observational skills! Colors may vary. 14.5 cm (5.6") tall.

DEN-445 $6.95

Colors in Motion

A colorful way to demonstrate density. This tabletop device has four chambers, each filled with a different colored liquid. Flip it over, and the colors will start to switch places, without mixing! Magic or density? Demonstrates density, color mixing, and insolubility. 13.3 cm (5.25") tall. Colors may vary.

DEN-425 $7.95

ZigZag Density Tumbler

This elegant desk “toy” offers a hypnotizing demonstration of surface tension, density, and insolubility. Turn the clear tumbler over and watch as two different colors of droplets float down in relaxing zigzag patterns. Great as a discussion or inquiry starter. How many liquids does the tumbler contain? What can you infer about the density of each liquid? What causes the difference in the size or speed of the droplets? How does static electricity affect the liquids? It’s a soothing demonstration of potential and kinetic energy in action. 7.6 x 15.3 cm (3" x 6"). Colors may vary.

DEN-475 $7.95

Poly Density Kit

By Polymer Ambassador Lynn Higgins

When this 1-liter bottle is shaken, the blue and white beads mix as expected. However, when allowed to settle, the beads separate: white at the top and blue at the bottom. Then the two separated colored beads slowly come together in the center of the bottle. How often do you see something floating in the middle of a liquid? Great for illustrating so many concepts: solubility, density, miscibility, the salting out effect... Spontaneous order from disorder! Isn’t this a violation of The Second Law?? (Rubbing alcohol not included.)

DEN-460 $19.95

Geological Flow Demo

"Deep Sea Round"

It’s sedimentary, my dear Watson! Perfect for a discussion of geological formation, this beautiful demo contains varying sizes and shapes of particles, which illustrate how naturally occurring “veins” of rock are formed. Stand included. Colors may vary. 26 cm (≈10") round.

SAND-100 $79.95

Sandscape

When inverted, three different colored sands flow through a clear liquid, starting and stopping as they encounter a hole or a barrier. It is fascinating to watch the eddy currents form by the flowing sand in a moving liquid! If you look carefully, you can even observe the fluid moving upward as everything else seems to be flowing downward. Colors may vary. 14 x 20 cm (5.5" x 8").

DEN-440 $12.95
THE DENSITY SERIES

The U-Tube Challenge
What happens when water is poured into the left tube (Figure 1)? Change the tube configuration and ask the same question (Figure 2). Students will surely have major misconceptions! Ask them to suggest ways for the liquids to be at different levels. More than a dozen challenge questions are provided. Developed to encourage critical thinking skills from middle school to Advanced Placement. This is analogous to the famous Niels Bohr Barometer Story.

DEN-500 $46.95

The W-Tube Puzzle
Challenge your students to replicate the picture shown using only water, sugar, food coloring, three small cups, a Beral pipette, and two caps. Easier said than done! Includes a teacher instruction booklet containing several challenges, from the simple to the complex. This is a great hands-on way to teach solution density, air pressure, and planning an experiment. Super for a science table or group work! Created by Ron Perkins and field tested with students from elementary through high school!

DEN-501 $44.95

Mixture Separation Challenge
Using only table salt and water, students are asked to develop a method for separating this mixture of four different small plastic beads. Advanced students can continue on to determine the density of each polymer! The materials in this separation lab can be used over and over again. Because only polymer materials are used, cleanup is easy. Complete teacher instructions provided. Includes 230 g (0.5 lb) of mixture, enough for a class of 24 students working in pairs. Beakers not included. Colors may vary.

MIX-100 $22.95

Steel Sphere Density Kit
Great for teaching the skills of observation and deduction! Although these two shiny, metal spheres have about the same mass, one has a diameter of 2.86 cm and the other a diameter of 12.7 cm, making their densities vastly different. Seeing the large one float in water seems unbelievable! Bowl not included.

DEN-350 $29.95

Density Flow Models
Bring the Earth Sciences to life with the truly amazing and versatile Density Flow Models. Engage your students with dramatic demonstrations and simulations of many of the Earth’s dynamic natural processes. With these ingenious kits, students use scientific inquiry techniques to explore concepts related to geology, meteorology, and oceanography.

Available in a large classroom demonstration model and a slightly smaller model perfect for student group work in the lab, both Density Flow Models use the flow of brightly colored fluids to help students of many different levels visualize important concepts relating to density such as plate tectonics, weather and fronts, air pressure, wind, ocean currents, thermoclines, and much more.

Density Flow Models come with extensive teacher’s guides (over 50 pages!) Each includes complete set-up instructions, student activities, and questions and answers designed to complement Earth science, general science, physical science, and integrated science curricula.

Developed by teacher Paul Herder. Please allow at least one week for delivery.

DFM-100 Large Classroom demonstration model tank: 112 x 15 x 9.5 cm (44" x 6" x 3.75") $434.95

DFM-200 Small Student Group demonstration model tank: 56 x 15 x 9.5 cm (22" x 6" x 3.75") $234.95

Soother Ooze Tube
When turned upside down, the tube's colorful, viscous liquid takes about 10 minutes to slowly flow through a large opening in the sealed plastic container. Great viscosity demo for your science table! Colors may vary.

- SS-16: Large 20 cm (8") tall - $14.95
- SS-165SM: Small 12.5 cm (5") tall - $6.95

Can Your Students Explain This?
Cover the outside of a Soother and start it rolling down an incline. It takes several minutes to descend! Why?

Check out our video!

Viscosity of Oil Tubes Set
By timing the fall of a sphere through different known grades of oil, your students can construct a time vs. viscosity graph. This graph is then used to determine the viscosity of an unknown oil. The five tubes of oil are sealed with two spheres: one steel and the other a polymer with a low density and low coefficient of friction. The instruction manual relates values to SAE Grades of motor oil used in automobiles. This lab stores in a minimum amount of space and requires very little teacher preparation time from year to year.

Great for practice in recording data, graphing, controlling the variables, etc. Includes instruction manual and set of five tubes, ≈29 cm (11.25"). Stopwatch required.

- VIS-10: $38.95

Extra Long Bubble Tubes
These are the same as our regular Bubble Tubes (BU-100) but longer! The longer tubes allow for the collection of more precise data and for additional experimentation. Tubes are ≈4 feet in length.

- BU-200: $46.95 / set of 3

Speed of the Bubble Tube Set
Perfect for teaching the concepts of precision, accuracy, graphing, slopes, uncertainty, and extrapolation! This set consists of three 22" long transparent plastic tubes containing colored fluids of different viscosities. A bubble in each tube rises at a constant speed depending on the fluid, the angle of the tube, and to some extent, the temperature. Comes with complete instructions.

- BU-100: Set of 3 Tubes - $39.95
- BU-105: Class Set of 15 Tubes - $149.95

At what angle should you hold the tube to maximize the bubble speed? Hint: it’s not 90°, and it’s not 45°!

(Activity suggested by Professor John Rusin of Edmonds Community College)
Elements of the Periodic Table

"Your periodic table is instructive and fun. I have put it up in my office." - Martin L. Perl, 1995 Nobel Laureate

This most beautiful periodic table in the world features photographs of the actual elements whenever possible. The noble gases are represented by their discharge tube colors, iodine is shown both in its solid and vapor phase, and some, like niobium, are photographed in forms that are rarely seen. A few highly unstable elements are impossible to photograph; these show a picture of the person credited with the discovery. Each element also includes its symbol, name, atomic number, and atomic mass. The 3D Lenticular version is especially awesome!! See below for the 241-page, full color book!

Student Size: Designed to be handed out to students, the back is filled with physical data about each element: melting point, boiling point, density, and a one-line description of the photographed sample. 21 x 28 cm (8.25" x 11").

PER-400 $25.95 pkg of 25
PER-405 $3.95 each

Laminated Placemats: Sturdy plastic laminate makes these ideal for table or classroom use. 25 x 50 cm (10" x 20").

PER-410 $5.95

Office or Classroom Size: Perfect for your office or classroom. Your students will be amazed to see how many of the elements are shiny metals! 68 x 134 cm (27" x 53") Double-sided and UV-coated.

PER-430 $44.95

3D Lenticular: The elements are shown in 3D! As you vary the angle, different images are seen! Creating it required photographing each sample from 12 different angles. 29 x 56 cm (11" x 22")

PER-450 $13.95

The Elements Book

By Theodore Gray

The Elements Book is a mesmerizing photographic display of the 118 elements in the periodic table! Or as the author says, it “is the universal catalog of everything you can drop on your foot!” This elegant coffee-table book uses two pages to showcase each element. Its beautiful photographs and concise stories make each element appear Super, Wow, Neat!™ 241 pages, copyright 2009. Hardcover.

PER-550 $29.95

Periodic Table Photo Cards

A new tool to teach periodicity! Each large element card contains a beautiful, high quality photograph on one side, with its name, symbol, atomic weight, and atomic number. The reverse side cleverly shows a density bar on the left, phase change bars on the right, and electronic structure lines on the bottom. By stacking a handful of elements, and sliding the deck slightly, students can see how density, melting point, boiling points, and electronic configuration trend by the automatically created bar graph. One can even lay out the cards in a 2.3 m (7.5') wide periodic table. The activities are endless!! 118 square element cards 12.7 cm (5”), 900 g (2 lb).

PER-500 $24.95
**Periodic Table Cups**

Teachers and students love these unique cups. On a white background, we’ve printed a boldly-colored version of the periodic table. Great conversation starters for science parties, workshops, and seminars. Use them as a motivational reward for your chemistry students!

PER-1 $16.95 / pkg of 50 cups

**Periodic Table Mousepad**

Now you can have the periodic table at your fingertips! This full-color mousepad has a rubberized back to keep it in place on your desk, and its glossy coating makes it virtually spill-proof. Made from recycled tires. 6” x 8”

PER-325 $5.95

**Periodic Table Shower Curtain**

This periodic table contains all the elements up to #111, roentgenium. Each element includes its symbol, atomic number, atomic mass, and name. 1.8 m² (6 ft²) Environmentally friendly: 70% EVA & 30% PE

PER-350 $31.95

**Chem Time Clock**

Our unique timepiece replaces the usual clock numbers with symbols of elements having corresponding atomic numbers. “H” replaces “1,” “He” replaces “2,” etc. The idea for this clock came from Prof. Bassam Shakhashiri at the University of Wisconsin, who asked Ron Perkins to make one in the summer of 1983. It is the perfect addition to a science classroom. 13” dia. Uses one AA battery (not included).

TIM-510 $31.95

**Heat Sensitive Periodic Tables**

Is it endothermic? Exothermic? Or just plain cool? Our periodic tables change color when heat is applied. Made from our Heat Sensitive Paper, these tables are educational and fun! Your students will be amazed!

HEA-300 8.5” x 11” - 30 / pkg $17.95
HEA-320 5.5” x 8.5” - 50 / pkg $17.95
Periodic Table Playing Cards

This regular double deck of playing cards features one element per card. Included for each element is its name in English, French, and Spanish; its atomic number, mass, melting and boiling points; and relevant usages. Great for discovering facts about the elements! Teachers can use the cards as rewards for good work!

PER-300 $15.95 / 2 decks

Periodic Table Jigsaw Puzzle

Designed by Theodore Gray, the creator of the Elements of the Periodic Table Poster, this beautiful 1,000-piece puzzle is sure to delight puzzle aficionados of all ages. A great way to learn where all the elements are, as you hunt around your table to place them. Glue it and frame it when it’s done, or take it apart and enjoy the challenge again! Completed size: 34” x 16”.

PER-555 $19.95

Shakhashiri 49 Chemical Demos DVD

Introduce your students to 49 of the most well-known chemical demonstrations by renowned chemical educator, Bassam Shakhashiri. What could be better? A lesson that works as expected, time after time. No chemical preparation, no clean-up, and no safety concerns!! Demonstrations include Becker’s Multiple Ammonia Fountain; The Mercury (II) Orange Tornado; Diffusion of Poisonous Bromine Vapor; The 72 Mouse Trap Simulation of a Nuclear Chain Reaction; and even our own Ron Perkins’ Red, White, and Blue Reaction! (Includes an Instructor’s Guide with references and sample questions.)

BZS-800 $59.95

Expose, Excite, Ignite: An Essential Guide to Whizz-Bang Chemistry by Carl Ahlers

Just when you thought you have seen it all... a book like this comes along and turns your science classes upside down. It’s here—the flaming activities they never mentioned at the Chemistry Faculty or banned from your chemistry set. In this one book you will get the explanations, the practical show-how, the safety issues, and extension ideas to take your students to the next level. This is not a chemistry recipe book. It is a practical chemistry revelation. No boring recipes on making fizzy volcanic mountains—this stuff sizzles!

The author focused on the triple S concept: All activities are SIMPLE, reasonably SAFE (hey, this is about combustion) and oh so SPECTACULAR. You’ll get step-by-step instructions and photos and all can easily be implemented in your classroom and lab—instant student engagement. Paperback, 119 pages.

BK-490 $15.95
### The Cool Blue Light Experiment Kit
Make a cool blue light appear in the dark. Make a “dirty” penny glow. Learn about how fireflies glow, chemiluminescence, and the real quantum leap. Contains luminol mixture, perborate mixture, copper sulfate crystals, vial, rack, spoon, small scoop, stirrers, cups and instructions. For ages 10+.

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Description</th>
<th>Individual Cost</th>
<th>Classroom Cost</th>
</tr>
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<tbody>
<tr>
<td>CK-150</td>
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<tr>
<td>CK-165</td>
<td>Classroom Kit</td>
<td>$44.95</td>
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</table>

### Fascinating Oscillating Reaction Kit (A Teacher Demonstration)
Make a clear solution and watch it change to amber then to blue-purple and back to colorless. Watch as it amazingly repeats the color cycle again and again. (3% hydrogen peroxide is required.)

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Description</th>
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<td>CK-480</td>
<td>Classroom Kit</td>
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### Make Foaming Drinks and Polymer Pudding
Learn about chemical solutions, acid/base reactions, indicators, pH, and gels. Class kit contains enough for a five station classroom setup that can be repeated approximately three times.

<table>
<thead>
<tr>
<th>Kit Code</th>
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<tbody>
<tr>
<td>CK-365</td>
<td>Individual Kit</td>
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</table>

### Fizz Wizard and Jammin’ Jelly
Learn about chemical solutions, acid/base reactions, indicators, pH, and gels. Class kit contains enough for a five station classroom setup that can be repeated approximately three times.

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<tbody>
<tr>
<td>CK-415</td>
<td>Individual Kit</td>
<td>$39.95</td>
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</tbody>
</table>

### Presto! Clock Reaction Class Kit
Make two chemical solutions and mix them together. Wait a few seconds, then wow! It will suddenly change colors. This is the famous iodine clock reaction in an easy-to-use kit. Change the concentrations or temperature and change the delay for the color change. Do the clock reaction with Eco-foam. Learn about solutions and rates of reaction (kinetics). Contains starch solution, sodium iodate, sodium sulfite, citric acid, sodium thiosulfate, Eco-foam, spoons, small scoops, cups, rack, and instructions. For ages 9+ with adult supervision. Contains enough for a five station classroom setup that can be repeated approximately three times.

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<tr>
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<td>Individual Kit</td>
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</tbody>
</table>

### Magic Crystal Tree
Crystal trees like this have been around for decades. Using capillary action and evaporation, you can watch as the branches of this specially treated paper tree bloom with colorful crystals. You’ll see your first crystals in just minutes, then watch as they continue to grow for hours. Includes one tree form, growing solution, and growing base. Each tree measures 10 cm (4”) tall. Colors may vary.

<table>
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<tr>
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<tr>
<td>CRY-200</td>
<td>Single Crystal Tree</td>
<td>$2.95</td>
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<tr>
<td>CRY-205</td>
<td>Class Pack of 10 Trees</td>
<td>$24.95</td>
</tr>
</tbody>
</table>
Hoberman Switch Pitch Ball

Toss the ball in the air and watch the colors magically flip! These fascinating balls transform back and forth between two colors. Amazing!!!

Gently toss one in the air without spin and notice no change. Repeat with increasing energy until a change occurs. A beautiful lesson in activation energy!

Point out the activated complex. Show the difference between translational and rotational energy. Use to demonstrate the activation energy needed for a reaction when two particles collide. Relate to the Arrhenius equation: \( k = Ae^{-E_a/RT} \). Colors may vary.

HOB-300 Single $8.95
HOB-315 Pair $16.95

Lesson plans (included with pair) offer suggestions on teaching chemistry from middle school to graduate p-chem courses.

Organic Fold-a-Matic

Using this handy apparatus, your students can easily learn the rules of organic nomenclature! Over 1,350 organic compounds can be created using this simple foldable card! This device is useful for students of all abilities, from those in first-year practical chemistry to those in advanced placement chemistry. Sold in packages of 30 cards with suggested teacher activities. Just cut and fold! Created by Bob Becker, Kirkwood High School, Kirkwood, MO.

HS-11 1-3 Sets of 30 $11.95 each 4+ Sets $10.95

Molymod Molecular Model Sets

These simple yet elegant model sets are the perfect companion for any chemistry classroom. A great way to demonstrate chemical compounds in three dimensions. These sets also allow students a hands-on approach to molecular geometry, making it easier to visualize the more complex arrangements. The organic/inorganic set comes with 52 atoms, 37 links, and three lone pair electron clouds. The organic model set comes with 50 atoms and 64 links.

MOD-150 Inorganic/Organic Set $33.95
MOD-155 Class Set of 12 Organic/Inorganic Sets $395.95
MOD-172 Organic Set $33.95
MOD-175 Class Set of 12 Organic Sets $395.95

“These are the original and best models for organic models, VSEPR, Lewis structures etc. The sets are sturdy and capable of heavy use. My students still use the set I bought as an undergraduate in 1991!”

- Ashley D., Brandon, MB Canada
It’s STEM!

Happy Atoms

Happy Atoms is an innovative digital and physical chemistry set that allows students to discover the world of molecules in an intuitive, hands-on way. It’s the perfect tool for a budding young chemist, yet it is advanced enough for older students seeking to visualize complex molecules and reinforce their chemistry studies. With the Introductory Set, students (ages 8+) use a set of 17 atom models—representing six different elements—to build, scan, and identify molecules. These atoms “bond” together using magnets that accurately portray the single bonds, double bonds, and free electrons that make up the molecules of the universe. A free app gives students a wealth of information about the molecules they’ve created. Also available as a Complete Set (50 atoms) and Educator’s Bundle (250 atoms). All sets includes a periodic table scanning mat, quickstart guide, and 16-page experiment manual. See our website for additional details. (Mobile app currently available for iOS only.)

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<thead>
<tr>
<th>Item Code</th>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>MOD-305</td>
<td>Introductory Set (17 Atoms)</td>
<td>$56.95</td>
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<tr>
<td>MOD-300</td>
<td>Complete Set (50 Atoms)</td>
<td>$143.95</td>
</tr>
<tr>
<td>MOD-310</td>
<td>Educator’s Bundle (250 Atoms)</td>
<td>$699.95</td>
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</table>

Magnetic Water Molecule Kit

There’s no better way to teach water concepts than with our hands-on Magnetic Water Molecule Kit. Embedded magnets accurately reflect positive and negative charges, allowing your students to feel the various strengths of hydrogen, covalent, and ionic bonds. Using these magnetic water molecules, your students can discover hydrogen bonding, make ice, dissolve salt, evaporate water, explore transpiration, create ethanol, and much more. Use our kit to show the differences between molecular adhesion, cohesion, and capillary action and to demonstrate surface tension, evaporation, condensation, and solubility. Each single kit includes enough pieces for 12 water molecules, plus one each for sodium, chloride, ethane, and hydroxyl groups. Our six-pack kit is perfect for classroom use. All kits come with detailed assembly instructions. Extensive lessons available online.

<table>
<thead>
<tr>
<th>Item Code</th>
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<th>Price</th>
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<tr>
<td>MOD-200</td>
<td>Single Kit</td>
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<tr>
<td>MOD-205</td>
<td>6 Pack</td>
<td>$231.95</td>
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</table>

Six extensive hands-on lessons for your classroom:
Chromatography Paper
Did you know that the black ink in your markers is not actually black ink? Our chromatography discs allow students to separate most water-soluble inks into their original blended pigments, revealing their hidden identities. Simply make several dots or lines of different colors in the center of the disc using water-soluble markers. Water from a cup is drawn up to the center of a disc using a paper towel. As the water is absorbed into the filter disc, the pigments separate into a colorful display. See which inks are pure, and which are blended. Test different types of markers to see which separate the best. Test on other pigments such as those found in flowers. Teaches about light, color, and capillary action. Pack of 100 discs available in 9 cm or 11 cm diameters. (Markers and cups not included.) For ages 6+.  
FIL-309 9 cm Chromatography Discs (100 Pack) $6.95  
FIL-311 11 cm Chromatography Discs (100 Pack) $6.95

Capillary Tube Set
Can water flow upward? Our Capillary Tube Set is the perfect tool to demonstrate the science behind rising fluids. Four clear glass capillary tubes—each with a different inner diameter—are mounted on a plastic stand, allowing your students to observe the processes of capillary action, cohesion, adhesion, and electrostatic attractive forces. This device will strengthen your students’ understanding of particles and the forces that hold them together. The Teacher’s Guide contains a broad assortment of classroom activities, discussion questions, and a student quiz. Height of tubes is about 15 cm (6”).  
PHY-225 $8.95

Fire Syringe Demo
When the plunger in the transparent cylinder is rapidly pushed down over a piece of cotton or paper towel, ignition occurs. This is one of the most impressive demonstrations of the heat produced when a gas is rapidly compressed—the principle of the Diesel engine ignition. ≈22 cm (8.5”) tall.  
FIR-150 $17.95

Comfort Knob for Fire Syringe
This heavy duty spherical knob makes a great replacement part.  
FIR-155 $4.95

Chemical Heat Packs
A Green Chemistry Product
Click a metal disk and watch the liquid crystalize. Younger students can safely feel the heat of a physical change. Advanced students can determine the heat of fusion of hydrated sodium acetate (fp = 54°C). Great for calorimetry experiments! Bending the metal disk initiates the crystallization of super-cooled sodium acetate and water; boiling in water returns the solid to a liquid. Can be used over and over. Instructions and lesson ideas provided! 10 x 10 cm (4” x 4”).  
HEA-400 Single $6.95  
HEA-415 Class Set of 12 $74.95

Heat Pipe Demo
A Super Vapor Pressure Demo
Hold one piece of copper in each hand and immerse the ends into a container of hot water or ice water. It is amazing how quickly heat transfers in the heat pipe and how slowly it transfers in the solid copper. Heat pipes are used in laptop computers and other devices for cooling. They work on the principle of the heat capacity of water and a wick. Explanation included.  
HP-100 $39.95
Red Cabbage Extract
A safe and easy universal acid/base indicator. As the pH of a solution increases, red cabbage juice changes gradually from red to green. By matching the color of the solution to the included chart, the pH of a solution can be determined. This powdered extract is enough to prepare five gallons of indicator solution.

Patriotic Colors Experiment Kit
Turn three colorless solutions into red, white, and blue. Make the colors disappear and reappear. Do the famous Disappearing Ink tricks, make test papers and more. Learn about the chemistry behind solutions, precipitates, acid/base reactions, and pH. Contains phenolphthalein solution, thymolphthalein solution, sodium carbonate, citric acid, calcium chloride, pipet, stirrers, cups, and instructions. For ages 9+ with adult supervision. Includes enough materials for repeating the experiment two to three times.

Color-Changing Goldenrod Paper
True goldenrod paper is made from a dye that is an acid/base indicator. This paper turns bright red in bases such as ammonia, baking soda, or washing soda and returns to bright yellow in acids such as vinegar or lemon juice. Make your own indicator paper or use to preserve hand prints. Instructions included. Color-changing goldenrod paper has become very difficult to find. Ours is guaranteed to change colors. Standard US letter size, 8.5” x 11”. 100 sheets.

Goldenrod Electrochemistry Kit
You already know that our Goldenrod Paper is a dramatic acid/base indicator, but did you know you can make it turn red using just salt water and electricity? With this simple, safe, easy-to-use add-on kit, you can use your goldenrod to explore the fascinating world of electrochemistry—just add foil, table salt, and water! (Goldenrod Paper not included).

pH Indicator Set
Measure pH, do science magic, and learn about indicators, acids, and bases! Use with Polyvinyl Alcohol (PVA) and borax solutions to make red, white, blue, and purple slime. Phenol Red is commonly used to test pH in spas and swimming pools. Bromthymol Blue is used to make Cub Scouts’ favorite colors (blue and gold) and Girl Scouts’ and 4 H Clubs’ favorite color (green). Both are used in elementary science experiments and have many uses in biology. Contains 1 oz phenol red solution, 1 oz bromthymol blue solution, 30 g citric acid, 30 g sodium carbonate, beaker, scoops, cups, sticks, pipets, pH card, MSDS, and instructions. For ages 9+ with adult supervision!
Nitinol Memory Wire
This crystalline metal changes phase around 50°C. Bend it, then drop it into hot water and watch it return to its original shape! Set into different shapes by heating with a candle flame. Diameter: 0.75 mm (0.0297”).

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<tbody>
<tr>
<td>HS-6</td>
<td>1-5 feet</td>
<td>$5.25 / foot</td>
<td>$4.75</td>
</tr>
<tr>
<td></td>
<td>6 feet+</td>
<td></td>
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</table>

Memory Wire Samples
These 3” samples of memory wire can be wound around a pencil to form a coil. 10 wires per pkg.

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</thead>
<tbody>
<tr>
<td>HS-9</td>
<td>1-10</td>
<td>$6.95 / pkg</td>
<td>$5.95</td>
</tr>
<tr>
<td></td>
<td>11+</td>
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</tbody>
</table>

Nitinol Memory Spring
What’s so special about a piece of coiled wire? Plenty. Our spring is made of nitinol, an amazing metal that can be twisted or straightened but will always return to its original shape when dipped into hot water (=50°C). Talk about discrepant events—this wire is practically magic! An alloy of nickel and titanium, nitinol (Ni-Ti) falls into a sophisticated class of materials known as shape memory alloys that “remember” their original shape. Perfect for classroom demonstrations. Comes with a Teacher’s Guide. Wire is 0.75 mm thick, with a 20 mm inner diameter and 45 cm overall length.

HS-620 $13.95

Fabric Identification Kit
This complete kit allows a class of 15 pairs of students to use dyes to identify unknown pieces of fabric from eight possibilities. The kit consists of instructions, five feet of Multi-Fiber Ribbon, two Multi-Fiber Dye pellets, three packages of powdered drink mix, and enough material to make 60 unknown fabric samples.

SM-615 $43.95

Multi-Fiber Ribbon - Refill
This ribbon consists of eight different fiber strips woven together into a single ribbon. It can be used to test different commercial dyes such as Rit and Kool-Aid, and natural dyes such as goldenrod and grape juice. Soak a piece of Multi-Fiber Ribbon in a colored dye and note how each of the fabrics is stained differently. Use a strip of the ribbon as a “known” to identify a piece of unknown fabric. One yard may be cut into over 60 test strips!

SM-600 1-5 yards $7.95 / yard
6-49 $7.75
50+ $7.25

Multi-Fiber Dyes - Refill
Use these dyes along with the Multi-Fiber Ribbon to identify an unknown swatch of fabric. These incredible dyes stain each of the fibers a different color. Each package contains 10 ready-to-use capsules (five each of two different dyes). Simply place a capsule in boiling water and soak the Multi-Fiber Ribbon for five minutes. Absolutely amazing!

SM-605 $16.50

Multi-Fiber Unknowns - Refill
This kit consists of eight different pieces of fabric, each represented in the Multi-Fiber Ribbon. The eight 4” x 12” pieces of cloth can be divided into more than 200 unknown samples of cloth for students to identify using the Multi-Fiber Dyes (SM-605).

SM-610 $24.25
**Reaction Plate Mixing Wells**

These clear mixing well trays are perfect for color mixing and micro-reactions. Challenge students to make as many colors as they can from red, yellow, and blue colored water. Discover various color reactions of acids and bases using a universal indicator. Ideal for mixing up small amounts of liquids, sprouting small seeds, or storing small items. Trays measure 13 x 9 cm (5” x 3.25”) each. Lids are included.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Quantity</th>
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<tr>
<td>LSP-150</td>
<td>12 Well Reaction Plates</td>
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<tr>
<td>LSP-155</td>
<td>24 Well Reaction Plates</td>
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<td>$2.50</td>
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</table>

**Chemical Clock**

**“The Water Clock”**

This clock keeps accurate time using energy from a battery that you make. Simply add weird liquids such as soda, fruit juice, dilute ketchup, salt water, etc. to the two containers, insert four metal electrodes, and connect with three wires. ≈ 15 cm (6 in.) wide. Replacement zinc electrodes also available. Pack of four. (Brass electrodes should not need to be replaced, only cleaned occasionally.)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>TIM-800</td>
<td>Chemical Clock</td>
<td>$23.95</td>
</tr>
<tr>
<td>TIM-810</td>
<td>Replacement Electrodes</td>
<td>$5.95</td>
</tr>
</tbody>
</table>

**ColorFlame Candles**

Unlike anything you have seen before, these candles burn in COLORS—the actual flames burn in brilliant hues of red, green, blue, orange, & purple! Created using 100% natural, nontoxic ingredients. Set of 12 candles and holders. 5.5 cm (2.25”) tall.

**Mole Element Sample Set**

Each sample of aluminum, copper, iron, and zinc contains $6.02 \times 10^{23}$ atoms of the metal. Great for chemistry students learning the mole concept and for determining densities and specific heats!

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<thead>
<tr>
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<tbody>
<tr>
<td>MOL-500</td>
<td>Mole Element Sample Set</td>
<td>$25.95</td>
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**Self-Inflating Balloons**

Squeeze a flat, colored balloon and watch it self-inflate! Challenge students to offer an explanation. Afterwards have them observe the clear, colorless balloon self-inflate. What’s going on? Ask your students to construct their own self-inflating balloon using water and baking powder, or vinegar and baking soda! Four self-inflating Mylar balloons are included: two colored and two colorless. 14.5 cm flat dia. (5.75”). Styles may vary.

<table>
<thead>
<tr>
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<tr>
<td>AS-800</td>
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<td>$6.95</td>
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<td>AS-800</td>
<td>Self-Inflating Balloons</td>
<td>$6.95</td>
</tr>
</tbody>
</table>
Make Your Own Slime!

Our slime-making kits come with all the materials you need to make 0.5 oz of perfect slime! Each kit comes with the required chemicals in sealed disposable pipets, a mixing container with lid, mixing stick, and complete instructions. The Glowing Slime Kit comes with a capsule of our Glow-in-the-Dark Pigment (page 64). Introduce your students to plastics and polymers in a way they'll remember forever!

<table>
<thead>
<tr>
<th>Kit</th>
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<tbody>
<tr>
<td>SL-1</td>
<td>Slime-Making Kit</td>
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<tr>
<td>SL-2</td>
<td>Glowing Slime-Making Kit</td>
<td>$4.95</td>
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Hot Water Soluble Polyvinyl Alcohol Bags

These polyvinyl alcohol bags can be dissolved in hot water to make a polyvinyl alcohol solution. When combined with a borax solution, the polyvinyl alcohol polymer is cross-linked to form a substance more commonly called SLIME! Simply dissolve each bag in about two cups of hot water to make the 4% polyvinyl alcohol solution necessary for slime. Makes about two cups per bag.

<table>
<thead>
<tr>
<th>Kit</th>
<th>Description</th>
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<tr>
<td>SM-8A</td>
<td>Pack of 5 PVA bags</td>
<td>$7.95</td>
</tr>
<tr>
<td>SM-8B</td>
<td>Pack of 25 PVA bags</td>
<td>$22.95</td>
</tr>
<tr>
<td>SL-305</td>
<td>Sodium Borate (8 oz)</td>
<td>$2.95</td>
</tr>
</tbody>
</table>

Classroom Slime Kit

Everyone enjoys making slime! Slime is an easy and fun way to teach about polymers and cross linking. This slime kit contains one liter of colorless, 4% polyvinyl alcohol—initially clear, but it can easily be colored using food dyes—and enough sodium tetraborate solution to cross-link with it. A preservative has been added to avoid the growth of unwanted creatures. If pulled slowly, it flows. If pulled quickly, it snaps. If rolled into a ball, it bounces! Makes more than 60 portions (0.5 oz each).

<table>
<thead>
<tr>
<th>Kit</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL-300</td>
<td></td>
<td>$16.95</td>
</tr>
</tbody>
</table>

Alginate Worm Kit

Make colorful, worm-like gels by combining two solutions; sodium alginate (from seaweed) and the salt, calcium chloride. The calcium ions from the salt loosely bind the polymer alginate chains into a gel. With the addition of our Red Cabbage Extract (page 51), students can watch the color-changing gel as it forms. The kit includes instructions one liter of sodium alginate solution, calcium chloride salt, cups, forks, droppers, and a plastic tub.

<table>
<thead>
<tr>
<th>Kit</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>CK-600</td>
<td></td>
<td>$19.95</td>
</tr>
</tbody>
</table>

Super Cool Slime

We all know that slime is cool, but this slime is REALLY cool—literally! You’ll marvel at how chilly this stuff is. Each flask contains multi-colored, shimmery goo that breaks when you pull it apart, but also flows like a liquid. Ask students, why does it feel so cold? Is it a solid or a liquid? How do the colors remain separated, even after stirring? An awesome discrepant event demo that you can relate to many topics: heat energy, non-Newtonian fluids, polymers, and much more. Comes in assorted colors.

<table>
<thead>
<tr>
<th>Kit</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SL-500</td>
<td></td>
<td>$3.95</td>
</tr>
</tbody>
</table>
Color-Changing Silicone Putty

Containing a heat sensitive dye, these silicone bouncing putties change color with the heat of your hand and from the heat generated by pulling and stretching. 91 g (≈1/5 lb).

- PUT-150 Twilight (purple to light blue) $11.95
- PUT-170 Sunburst (deep orange to yellow) $11.95

Poly-Ox: A Self-Siphoning Gel

This amazing polyethylene oxide polymer displays mind-bending, non-Newtonian properties when dissolved with anhydrous alcohol or acetone (not included). Using only a small amount of polymer, you can create a fluid that will climb a rotating rod, or siphon itself into a lower beaker!

- GB-100A 91 g (=1/5 lb) $10.95 enough for 30 demonstrations
- GB-100B 454 g (1 lb) $44.95

UV Sensitive Putty
Arctic Flare

After just a few seconds in the sun—or under the black light keychain (included)—this putty’s icy white shimmer is transformed to a vibrant purple. Hold the UV light close to the putty to draw an intense line of color, or move it farther away for a pink glow. Take it outside and watch it react! Then tear it in half to see the unchanged color in the middle. This non-Newtonian substance can be bounced, stretched, pulled, and snapped. Always returns to its original white color and never dries out. Glows orange in the dark. The possibilities are endless! Made in the USA. 91 g (≈1/5 lb).

- PUT-175 $14.95

Super Ferromagnetic Silicone Putty

This silicone bouncing putty responds to the presence of a magnetic field. Place a blob near or between two strong magnets and watch what happens. Especially good attraction with our neodymium magnets. Includes a 1.3 cm (0.5”) neodymium cube.

- PUT-200 91 g (=1/5 lb) $15.95

Melting Snowman

Build a snowman out of snow-white putty and the included plastic accessories; then watch as he melts into a puddle of goo. This silicone-based bouncing putty has properties of a solid as well as a liquid, and it will slowly ooze to take the shape of its container. The good news is that your snowman can be rebuilt over and over again, without the risk of frostbite! 50 g of putty.

- PUT-300 $8.95
Heat Sensitive Paper

Works on Any Printer

Our thermochromic paper changes color within the temperature range of 31°C (88°F) to 37°C (98°F). As the paper is held in your warm hands, the color will begin to change or disappear. As it cools, it reverts back. The cycle repeats itself indefinitely. This 8.5” x 11”, 24 lb. weight paper will accept practically any type of printing: photocopier, laser, ink jet, pen, pencil, etc.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEA-200</td>
<td>Pkg of 40 sheets</td>
<td>$25.95</td>
</tr>
<tr>
<td>HEA-250</td>
<td>Ream of 400 sheets</td>
<td>$189.95</td>
</tr>
<tr>
<td>HEA-285</td>
<td>SAMPLE pack of 8 sheets</td>
<td>$5.95</td>
</tr>
</tbody>
</table>

Four brilliant colors:
• Purple to Pink
• Green to Yellow
• Blue to White
• Magenta to White

Heat Sensitive Periodic Tables

Is it endothermic? Exothermic? Or just plain cool? Our periodic tables change color when heat is applied. Made from our Heat Sensitive Paper, these tables are educational and fun! Your students will be amazed!

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEA-300</td>
<td>8.5” x 11” - 30 / pkg</td>
<td>$17.95</td>
</tr>
<tr>
<td>HEA-320</td>
<td>5.5” x 8.5” - 50 / pkg</td>
<td>$17.95</td>
</tr>
</tbody>
</table>

Heat Sensitive Pencils

These unique thermochromic pencils let you know that “you’re getting warmer” as you make your point. They actually change color with the heat from your hand! Excellent motivational prizes or a sure-fire way to guarantee your students won’t lose their pencils. 25 pencils in assorted colors.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MO-7</td>
<td>$11.95 / pkg of 25</td>
<td></td>
</tr>
</tbody>
</table>

The Ultimate Paper Sample Pack

What dissolves in water? Reacts to fluctuations in temperature? Changes color in the presence of acids and bases? The answer is our Ultimate Paper Sample Pack! We’re offering three unique types of paper in a single kit that will turn your classroom into a learning showcase for dozens of hands-on discrepant events. This sample pack includes eight sheets apiece of Color-Changing Goldenrod Paper (page 51), Dissolving Paper (page 19), and Heat-Sensitive Paper (above). The number of experiments that are possible is limited only by your students’ imaginations—and your paper supply!

Sample pack contains:
• eight sheets of Color-Changing Goldenrod Paper (SM-925)
• eight sheets of Dissolving Paper (SM-510)
• eight sheets of Heat-Sensitive Paper (HEA-200)
  two blue, two green, two pink, two purple

All sheets are standard US letter size, 8.5” x 11”

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM-575</td>
<td>$9.95</td>
<td></td>
</tr>
</tbody>
</table>

“Love the Heat Sensitive Paper. One of my students used it to calculate the wavelength of microwaves in the oven! (Only 4 seconds). We used it over and over with different frequency ovens.”
- Dee, West Terre Haute, IN

Great for bookmarks, secret messages, and papers your students will never lose.
When placed in water, our alligators expand as much as 400% by slowly absorbing water. RE-USAble! When removed from distilled water, they return to their original size and shape as the water evaporates.

**Our Famous Gro-Beast Alligators!**

These Gro-Beast reptiles start at about 4” long and grow to almost a foot long when placed in water! Great for a class measuring or graphing project. Makes a super demonstration! Growth is visible within 24 hours, full size in about a week. (See our 1-Liter Soda Bottles on page 37.) Color and style may vary.

- **GB-202** 2 pack $3.95
- **GB-210** 10 pack $12.95
- **GB-220** 20 pack $23.85

**Zack’s Alligator**

*by Shirley Mozelle*

Have your students make the connection between literature, science, and math with our Gro-Beast children’s book, *Zack’s Alligator*. In this beautifully illustrated book, all the fun begins for Zack (and your students!) when a small package arrives in the mail. Contained within is a small alligator keychain and a note from Zack’s uncle. Following his uncle’s instructions, Zack places his keychain in the sink and WOW! a huge, fun-loving alligator emerges! Have your class chart the growth of their own growing alligator. This book is a great way to begin some terrific science in your classroom! Paperback, 63 pages.

- **BK-200** Book only $3.95
- **BK-205** Book with 2 Alligators $6.95

**Growing Frogs**

This bright green critter starts out 4 cm (1.5”) long but swells up to more than twice its size when placed in water for 8-10 hours. When removed from water, your slippery amphibian will slowly shrink back to its original size as it dehydrates. A wonderful tool for investigating concepts like mass, volume, surface area, absorption of different concentrates, and more. Perfect for even the youngest scientists. Use distilled water for best results. As in nature, not all of our frogs are perfect—a few may have subtle abnormalities. Enjoy the diversity of nature.

- **GB-25** 9.95 / pkg of 30

**Large Gro-Beast Dinosaurs 6-Pack**

When dry, these six little dinosaurs will all fit easily in the palm of your hand...but when placed in water, they’ll absorb many times their own weight in water. Made of a superabsorbent polymer, our green Gro-Beast Dinosaurs start at about 1” long and grow to over 4” each! Each package contains six different types of dinosaur. A wonderful way to work on variables, measurements, mass, volume, and more. Dinosaurs will shrink back to their original size as they dehydrate. We recommend using distilled water for best results, but why not try submerging a few in other liquids to see how their growth changes?

- **GB-106** $6.95

**Small Gro-Beast Dinosaurs**

When placed in water these small colorful reptiles (about 1” long) will expand by about 600%! If removed from distilled water, the Gro-Beast will dry and shrink back to its original size. Styles and colors may vary.

- **GB-1**
  - 1-10 $0.95 each
  - 11-29 $0.90
  - 30+ $0.75
Growing Spheres
**Hydrophilic Water Gel**

Place these hard crystals in water and they expand about 300 times, producing gel-like spheres. Students love to feel the slippery, spherical gel! The Regular size starts with a diameter of about 2 mm and ends with a diameter of about 14 mm. Ask students to determine the change in volume, using \( V = \frac{4}{3} \pi r^3 \). Great for starting seeds and growing plants so that the roots can be seen! Can be tinted using food coloring. The polymer is similar to our super-absorbent Water Gel Spikes and can be dried and reused.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Style</th>
<th>Expanded Size</th>
<th>Grams</th>
<th># Spheres</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-702</td>
<td>Small</td>
<td>≈1 cm (0.4&quot;)</td>
<td>50</td>
<td>=3000</td>
<td>$6.95</td>
</tr>
<tr>
<td>GB-710</td>
<td>Regular</td>
<td>≈1.4 cm (0.55&quot;)</td>
<td>50</td>
<td>=2500</td>
<td>$6.95</td>
</tr>
<tr>
<td>GB-730</td>
<td>Jumbo</td>
<td>≈3.3 cm (1.3&quot;)</td>
<td>50</td>
<td>=870</td>
<td>$6.95</td>
</tr>
</tbody>
</table>

**Water Gel Spikes**

These 1" long, 0.25" thick clear, colorless spikes are made from a super-absorbent polycrylamide polymer similar to our Water Gel Crystals. When placed in water they expand to several inches with a corresponding gain in mass as they absorb water. They are great for quantitative measuring experiments. Reusable (10 spikes per package).

<table>
<thead>
<tr>
<th>GB-3</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>1-10</td>
<td></td>
<td></td>
<td></td>
<td>$3.50 / pkg</td>
<td></td>
</tr>
<tr>
<td>11-29</td>
<td></td>
<td></td>
<td></td>
<td>$3.25</td>
<td></td>
</tr>
<tr>
<td>30+</td>
<td></td>
<td></td>
<td></td>
<td>$3.00</td>
<td></td>
</tr>
</tbody>
</table>

**Water Gel Crystals**

**“Ghost Crystals”**

These clear, colorless, super-absorbent polycrylamide crystals absorb many hundreds of times their own weight when placed in water and become virtually invisible because they have the same index of refraction as water. For different effects, they can easily be dyed with ordinary food coloring.

<table>
<thead>
<tr>
<th>GB-SB</th>
<th>113 g (¼ lb)</th>
<th>$6.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-SC</td>
<td>454 g (1 lb)</td>
<td>$14.95</td>
</tr>
</tbody>
</table>

**Growing Cubes**

**Hydrophilic Water Gel**

Same hydrophilic polymer as the Growing Spheres and Water Gel Crystals, but made into different cubic shapes that can be stacked. Start at about 6 mm (0.25") and end at about 3 cm (1.25"). 50 grams (~290 cubes).

| GB-740  | $6.95  |

**Growing Spheres can be dyed by putting food coloring in the water before they are hydrated or made UV-sensitive with our Glow-Bright Concentrate (page 64).**

**Polymer Bead Demo**

This amazing demo starts when one end of a 50' length of beaded chain is pulled over the edge of its container. As the end falls and accelerates, the chain rises higher than the rim and seems suspended in the air. Students see this as a discrepant event. They will ask to see it again and again. This demo is great for explaining self-siphoning polymers and Newton’s First Law. Holding the handle of the large mug (included) enhances the visibility.

| MER-100 | $19.95 |

See inside front cover for details.
Instant Snow Polymer

Add water to this granular white powder and watch it instantly expand to 40 times its original volume. The result is a fluffy artificial snow that feels as cool as it looks! Our snow won’t “melt” but it can be dehydrated and reused. Great for teaching endothermic and exothermic reactions or as part of a polymer lab. This is a great demonstration of interest to students and educators of all ages and abilities.

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Quantity</th>
<th>Makes</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-300</td>
<td>100 g</td>
<td>2 gallons of snow</td>
<td>$6.95</td>
</tr>
<tr>
<td>GB-315</td>
<td>454 g</td>
<td>8 gallons of snow</td>
<td>$19.95</td>
</tr>
<tr>
<td>GB-320</td>
<td>2270 g</td>
<td>40 gallons of snow</td>
<td>$85.95</td>
</tr>
</tbody>
</table>

Try This!

Mix equal portions of Sodium Polyacrylate with Instant Snow Polymer. Add water and pack tightly. You can actually make a snowball!

(Submitted by Jill Miller of the American Chemical Society)

Check out our blog for an easy-to-follow polymer lab lesson.

Shrinkles® Plant and Animal Cells

Students draw and color their own models of plant and animal cells, then watch as the cells magically shrink in an oven (with adult supervision of course). Then they get to take their cells home as keychains or zipper pulls! Comes with instructions, teacher notes, diagrams, and enough materials to make 30 model cells. Use with colored pencils or permanent markers to create your own shrinking designs.

BIO-150       $33.95

Refill Kit

Includes 50 sheets and 100 loops for keychains or zipper pulls. Kit makes 100 cells.

DIN-110       $32.95

Thermoplastic Polymer

This amazingly versatile polymer can be heated and molded over and over again! It falls into a class known as thermoplastics. The melting point for this material is quite low—only 150°F (60°C), so it can be melted in hot water and molded by hand. It can also be cut and extruded. Safe and biodegradable. 250 g.

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEA-500</td>
<td>Thermoplastic Polymer</td>
<td>$15.95</td>
</tr>
<tr>
<td>HEA-5RED</td>
<td>Red Polymer Pigment</td>
<td>$4.95</td>
</tr>
<tr>
<td>HEA-5YL</td>
<td>Yellow Polymer Pigment</td>
<td>$4.95</td>
</tr>
<tr>
<td>HEA-5BLU</td>
<td>Blue Polymer Pigment</td>
<td>$4.95</td>
</tr>
<tr>
<td>HEA-5GRN</td>
<td>Green Polymer Pigment</td>
<td>$4.95</td>
</tr>
<tr>
<td>HEA-5BLK</td>
<td>Black Polymer Pigment</td>
<td>$4.95</td>
</tr>
<tr>
<td>HEA-525</td>
<td>Polymer Pigment 5 Pack</td>
<td>$19.95</td>
</tr>
</tbody>
</table>

Try This!

“Add color to your creation!”

Sodium Polyacrylate

A.K.A. Aqua Keep

This fine white powder instantly turns water into a slushy solid substance. Technically speaking, the polymer absorbs from 500-1,000 times its own weight in water. Simply add table salt to reverse the reaction. Safe and amazing—your students will love it!

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>GB-6A</td>
<td>113 g</td>
<td>$7.95</td>
</tr>
<tr>
<td>GB-6B</td>
<td>454 g</td>
<td>$19.95</td>
</tr>
<tr>
<td>GB-620</td>
<td>2270 g</td>
<td>$89.95</td>
</tr>
</tbody>
</table>

We live in Arizona, where it feels like Spring in January. This product allowed the students to feel snow. We also talked about polymers and states of matter. Many uses for this product.

-Renee A., Goodyear, AZ
**Kinetic Sand**

Kinetic Sand is an easy-to-shape sand that breathes motion and can be molded into countless designs. Playing with Kinetic Sand is a mesmerizing experience for all ages. A great way for your students to explore variables and a perfect addition to any classroom for group play. Based on 98% clean sand, conforms to the US and EU market safety directives. For ages 3+. 1 kg (2.2 lb).

**SAND-200 $14.95**

---

**Fluorescent Magic Sand**

Magic Sand is regular sand that has been dyed and coated with a hydrophobic material—a substance that repels water. The coating on the outside of the Magic Sand repels water and keeps the sand dry! Simply remove the sand from the water with a spoon...it is perfectly dry! Available in four fluorescent colors.

MS-2BLU $5.95 / lb
MS-3ORG
MS-2PNK
MS-3GRN

---

**Fortune Fish**

Actually a very thin piece of red cellophane in the shape of a 3.5" long fish, this amazing innovation twists and curls when placed in the palm of your hand, but why? An old favorite of science demonstrators.

SS-40F 72 Fish $6.95
SS-40B 144 Fish $12.95

---

**Super Bouncing Ball Kit**

Super balls are plenty of fun to bounce, and even more fun to make! The kit can be used to reinforce students' mastery of lab procedures, as an unforgettable introduction to polymers, or even as an energy lab (measuring bounce heights). Comes with 12 sturdy plastic molds and enough colorful crystals to make 24 bouncy balls. You provide the water and in just a few minutes, your students will be able to use their creations to conduct a wide range of investigations. This is hands-on science at its best! Refill kits are sold separately, and contain enough polymer crystals to make 12 more super bouncing balls. (No additional molds.)

BALL-115 Super Bouncing Ball Kit $16.95
BALL-110 Bouncing Ball Refills $7.75

---

“Kids and adults alike are amazed at this demo...the concept of hydrophilic and hydrophobic substances is beautifully shown. Great for use in studying plasma membranes.”

- Beth H., New Haven, CT
Nature Print Paper produces beautiful, permanent prints from natural and man-made materials. This unique light-sensitive paper exposes in direct sunlight to create white on blue prints. When placed on the paper, flat objects such as leaves, photo negatives, coins, cut-outs, lace, etc. block the sun and provide the subject for the print. Exposure time is approximately two to three minutes (depending on the level of sunlight), then develop in water in seconds. It’s fast, safe, and leaves no mess. Nature Print Paper is great for any age group and includes full instructions. Each package contains 40 sheets of 12.7 x 17.8 cm (5” x 7”) light-sensitive paper.

SPP-40 $11.95

Press Print Frame Holder
Special multi-use printing frames! Holds flat samples together without moving during exposure; no need for rocks or tape to hold the specimens. When finished, the frames may be used to display your prints. 19 x 24 cm (7.5” x 9.5”). Four frames/pkg.

SPP-310 $6.95

Super Size 11” x 17” Nature Print Paper
These giant sheets of Nature Print Paper are perfect for large group and science fair projects. Package of 20.

SPP-200 $14.95
In UV light

Ohsomes are white 2500 - 360 nm
Ohsomes are colors 360 - 300 nm
Ohsomes are white 300 - 1 nm

Ultraviolet Detecting Beads - Now Available in Green!

Be dazzled by beads! Indoors, these beads are white—but don’t be fooled! Expose the beads to an ultraviolet light source (like the sun or a UV light) and watch the color magically appear! Use the beads with rawhide or a pipe cleaner for stylish, scientific jewelry!

UltravioletDetectingBeads

<table>
<thead>
<tr>
<th>Beads sold in 2 oz pkg (≈250 / pkg)</th>
<th>UV-RED</th>
<th>UV-ORG</th>
<th>UV-VEL</th>
<th>UV-GRN</th>
<th>UV-BLU</th>
<th>UV-PUR</th>
<th>UV-AST</th>
<th>UV-750</th>
<th>UV-20K</th>
</tr>
</thead>
<tbody>
<tr>
<td>UV-RED</td>
<td>White to Red</td>
<td>$6.95 / pkg</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>UV-ORG</td>
<td>White to Orange</td>
<td></td>
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<tr>
<td>UV-VEL</td>
<td>White to Yellow</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UV-GRN</td>
<td>White to Green - NEW!</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UV-BLU</td>
<td>White to Blue</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>UV-PUR</td>
<td>White to Purple</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UV-AST</td>
<td>Assorted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UV-750</td>
<td>3,000 Assorted Beads (bulk)</td>
<td>$54.95</td>
<td></td>
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<td></td>
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<tr>
<td>UV-20K</td>
<td>20,000 Assorted Beads (bulk)</td>
<td>$324.95</td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
</tr>
</tbody>
</table>

Extra-Long Pipe Cleaners

Perfect for stringing beads. 12" long. White. 100 per pack. Beads sold separately.

UV-STEM $3.95

See inside front cover for details.

“I have used these beads for a lab on SPF, UV exposure, ozone depletion, and incidence of skin cancer. My students totally enjoy this activity. They also make their own SPF bead bracelets to evaluate their own exposure/risk.”

- Paula F., Frewsburg, NY
**Professional Geologists’ UV Flashlights**

These LED flashlights emit long wave ultraviolet light at a wavelength of 385 nm (UV-A). They are powerful enough to make gems and minerals fluoresce even in normal room lighting. They quickly change the color of our UV Detecting Beads (page 62). Each light comes with a black filter to block nearly all of the white (visible) light. Made of super sturdy aircraft aluminum and built for rugged use by prospectors, they will easily stand up to classroom use. Each light comes with batteries and a convenient nylon holder to carry on a belt.

- **UV-644** 9-Bulb UV Pocket Light (uses 3 AAA batteries) $39.95
- **UV-651** 51-Bulb Pro UV Light (uses 3 AA batteries) $79.95

**Rawhide**

Perfect for making UV detecting bead bracelets! (≈three bracelets per yard.)

- **UV-RAW** Rawhide $1.00 / yard
- **UV-310** Bulk Rawhide, 25 yards $19.95
- **UV-KIT** UV Bead Bracelet/Necklace Kit $5.95
  - Contains 25 assorted UV Beads and one yard of rawhide!

**UV No-Pop Bubbles!**

Amazing No-Pop Bubbles, with a new twist! Under a UV/black light, these bubbles glow brilliantly. They work especially well with our UV Flashlights. You won’t believe your eyes!

- **BUB-720** Mini-Bottle (≈30 mL) $4.50
- **BUB-725** Class Set of 12 Mini-Bottles $39.95

**18” Fluorescent Ultraviolet Black Light**

For use with our UV Beads, UV Nail Polish, and Minerals!

Now you can experiment on a rainy day! Our black light fixture consists of a 15-watt, 18”-long fluorescent ultraviolet light bulb in a 21”-long fixture. A safe source of UV-A light. For ease of use, get our UV Light with Wooden Stand (UV-625).

- **UV-605** 18” Fluorescent UV 'Black Light’ Fixture w/Bulb $25.95
- **UV-650** Replacement 15 watt, 18” Fluorescent UV Bulb $13.95
- **UV-625** 18” UV Light Fixture w/Bulb & Wooden Stand $59.95

**6” Portable UV Light**

This portable 4-watt long-wave UV light is handy for small scale, close-up demonstrations, such as fluorescence of mineral samples, soap powders, paints, currency, and some credit cards. Uses four AA batteries (not included). Colors may vary.

- **UV-641** 1-5 $11.95 each
  - 6+ $10.95

**UV Filter Set**

Set of two plastic disks, 7 cm (2.75”) dia.; one absorbs UV (A & B) light, the other doesn’t. Great for experimentation with our UV Beads!

- **FIL-235** $17.95
**Ultraviolet & Glow-in-the-Dark**

**Write and See Squares**

Move the Violet light across the Write and See Square and observe the brightly glowing trail. Violet light has enough energy to excite the phosphorescent pigment in the vinyl. The excited pigment then slowly releases energy as green light (the “glow” look). Contains a mounted sheet of phosphorescent vinyl = 15 x 15 cm (6” x 6”) and a Violet Photon Light LED flashlight on a keychain ring. Great for kindergarten through college! A wonderful way to teach about Einstein’s photoelectric effect.

SS-910 $18.75

*Use with our MicroLights on page 65.*

**Fluorescent Mineral Set**

Could it be kryptonite? These amazing rocks fluoresce under ultraviolet light! Try these along with one of our black lights for an eye-catching demonstration. Each mineral set contains at least four samples.

RM-400 $14.25

**Phosphorescent Vinyl Sheet**

This “glow-in-the-dark” material absorbs light and slowly emits it over a few minutes. By placing your hand over the sheet in the light, you can see your hand print (actually your hand’s shadow) “printed” on the sheet when it is placed in the dark. The material has a stick-on backing and can be cut with scissors. 12” wide.

SM-7 1-10 feet 11 feet+ $11.95 / foot $10.95

**Glow-in-the-Dark Pigment**

This terrific pigment is used to make paint and other products glow in the dark. The pigment can be activated by just about any light source including sunlight, fluorescent, incandescent, and ultraviolet light. Use our colored Light Sticks (see page 65) to demonstrate the pigment’s greater sensitivity to blue light.

GLO-100A 28 g (1 oz) sample $5.50
GLO-100B 227 g (8 oz) $21.95
GLO-100C 454 g (1 lb) $38.95

**Glow-Bright Concentrate**

This 2 oz bottle of concentrated liquid will make over two gallons of liquid that fluoresces a brilliant yellow-green under an ultraviolet light. Mix with our Slime Kits (page 54) for glowing slime! Use it in the water when you expand our Growing Spheres (page 58)! You can even make glowing Instant Snow (page 59)! The possibilities are endless. Caution: May stain some surfaces.

Note: Unlike our Phosphorescent Vinyl, this liquid is not activated by white light; you must use a UV light.

GLO-120 $2.95

“Photon Microlights are awesome! I saw them used to teach about Atomic Structure at an ACS workshop. We also ordered the Phosphorescent VinylSheet (SM-7) and have a cool interactive Demo ready to use with our students!”

- M. Bartholomew of Aurora, CO
PHYSICS

Light Sticks & MicroLights

6" Chemical Light Sticks (8-hr)
For classroom demos! Chemical light sticks don’t create heat and are completely waterproof. Place one in warm water and one in cold water and observe the effect of temperature on the rates of chemical reactions. Nontoxic and safe for young children. Available in red, blue, or green. Please indicate color and quantity.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Color</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS-4</td>
<td>R, B, or G</td>
<td>1-10</td>
<td>$1.95 each</td>
</tr>
<tr>
<td>SS-4</td>
<td>R, B, or G</td>
<td>11-99</td>
<td>$1.85</td>
</tr>
<tr>
<td>SS-4</td>
<td>R, B, or G</td>
<td>100+</td>
<td>$1.55</td>
</tr>
</tbody>
</table>

Case quantities of 288 available. (Call for details)

4” Chemical Light Sticks (8-hr)
For individual lab work! These smaller 4” light sticks are perfect for individual laboratory work. Just the right size for up-close and personal experimentation, and inexpensive enough to give to each student.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Color</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS-450</td>
<td>R, B, or G</td>
<td>pkg of 12</td>
<td>$13.25</td>
</tr>
<tr>
<td>SS-450AST</td>
<td>R, B, or G</td>
<td>pkg of 12 (four of each color)</td>
<td>$13.25</td>
</tr>
</tbody>
</table>

Case Quantities of 576 available. (Call for details)

6” Ultra Hi-Intensity, 5-Minute Orange Light Stick
Best for observing temperature effects! Put these in warm water for the brightest light sticks you’ve ever seen!

<table>
<thead>
<tr>
<th>Item #</th>
<th>Quantity</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>SS-5</td>
<td>1-10</td>
<td>$3.25 each</td>
</tr>
<tr>
<td>SS-5</td>
<td>11+</td>
<td>$2.95</td>
</tr>
</tbody>
</table>

Photon MicroLights
These small, bright micro- flashlights are available in a spectrum of colors and perfect for a variety of experiments and student applications. Although MicroLights are not monochromatic, they come extremely close with their ultra-high intensity LEDs to a specific wavelength (except, of course, for white). The wavelength of the violet light is close enough to the UVA spectrum to excite fluorescent minerals or even hidden fluorescent dyes on currency and credit cards. Uses replaceable lithium batteries (included). Fits easily on a key chain.

Demonstrate Einstein’s photoelectric effect using various colors and a square of our Phosphorescent Vinyl (page 64).

Price: $16.95 each. See below for item numbers.

<table>
<thead>
<tr>
<th>LED-RED</th>
<th>Red</th>
<th>24° (wide)</th>
<th>1 Lithium CR-2032</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED-ORG</td>
<td>Orange</td>
<td>15° (narrow)</td>
<td>1 Lithium CR-2032</td>
</tr>
<tr>
<td>LED-YEL</td>
<td>Yellow</td>
<td>15° (narrow)</td>
<td>1 Lithium CR-2032</td>
</tr>
<tr>
<td>LED-GRN</td>
<td>Green</td>
<td>30° (wide)</td>
<td>2 Lithium CR-2016</td>
</tr>
<tr>
<td>LED-BLU</td>
<td>Blue</td>
<td>30° (wide)</td>
<td>2 Lithium CR-2016</td>
</tr>
<tr>
<td>LED-VIO</td>
<td>Violet (black light)</td>
<td>&gt;30° (wide)</td>
<td>2 Lithium CR-2016</td>
</tr>
<tr>
<td>LED-WHT</td>
<td>White</td>
<td>full spectrum (6500° Kelvin)</td>
<td>2 Lithium CR-2016</td>
</tr>
</tbody>
</table>

| LED-AST | Assortment (All seven colors) | $94.95 |

Liquid Light Demo Kit
Demonstrate the primary colors of light without an expensive light box! When red, green, and blue light are mixed, you get white. Included with each kit are six light sticks (two red, two green, and two blue) and instructions for experiments and demonstrations.

SS-6 | $15.95 each

Educational Innovations only sells TRUE RED light sticks. These chemical light sticks contain a glowing RED LIQUID in a clear plastic tube instead of green liquid in a red tube.

1.5” Mini Light Sticks
A convenient way to let your students interact with luminous chemicals! Each 1.5” light stick can glow for up to six hours. Each box of 50 light sticks comes in an assortment of colors. Great for fundraisers or your school store!

**TRY THIS:** Use the light sticks to demonstrate rate of reaction by placing one glowing stick in hot water, and one stick in cold water. Which stick glows brighter? Which stick will last longer?

Use with our Spectroscopes (page 66).

SS-460 | $22.95 / 50 light sticks

Order LED-AST for $94.95 and get the full set of seven colors at a huge savings!
Hand-Held Spectroscope

Reveal the hidden nature of color and visible light with this durably constructed, economical spectroscope. Measure the wavelengths of visible light from 4,000-7,000 Angstroms with the precision of ± 50 Angstroms using the built-in scale. Supplied with instructions that include the history of light theory, diffraction gratings, and suggestions for numerous experiments.

**SPC-100** $10.95

Pocket Spectroscope

This is the best adjustable slit spectroscope we have seen. By varying the amount of light passing into the prism, this portable spectroscope is able to resolve even very close or dim spectral lines. This makes identifying a light source easier and more accurate. Use for examining the spectral composition of white light, sodium vapor or mercury vapor street lamps, LEDs, neon signs, and more. 20 mm in diameter, 130 mm long when fully extended. Adjustable light aperture. Each quality spectroscope comes in its own beautiful wooden box.

**ROY-100** $59.95

Single Axis Diffraction Grating Material

Sometimes it is easier to use a single axis diffraction grating for measuring emission spectra in the classroom laboratory. It gives brilliant spectra with fluorescent lights, flame tests, gas discharge tubes, or even holiday lights! 500 lines/mm. Slides are 35 x 24 mm diffraction material mounted in 2" x 2" frame.

- **PG-400** 6" x 24" sheet $6.75
- **PG-415** 30 slides / pkg $17.75

Double Axis Diffraction Grating Material

This material is the same as used in our Prism Glasses—double axis, holographic diffraction grating. Purchase in either 8" x 10" sheets or mounted in standard 2" x 2" slide frames for easy handling during classroom experiments. Slides are 35 x 24 mm diffraction material mounted in 2" x 2" frame.

- **PG-2** 8" x 10" sheet $6.75
- **PG-3** 30 slides / pkg $17.75

Rainbow Viewers

These are a great way to teach about light, color, and rainbows. Just look at a light through these Rainbow Viewers and you are treated to a burst of colors. The secret lies in a special diffraction grating that separates the colors of the light into a spectrum of colors. Experiment by looking at different colored lights and different types of light bulbs. Made of durable cardboard, each Rainbow Viewer measures 4.3 cm (1.7") diameter. For ages 5+.

- **PG-605** $2.95 / pkg of 5
- **PG-630** $14.95 / pkg of 30

---

**Is it a wave or is it a particle?**
Prism Glasses (Double Axis)
These highly efficient, double axis, holographic diffraction grating lenses separate light from any source into its spectral components for study and analysis. Lenses are mounted in sturdy cardboard frames. Sold in sets of 10. Colors may vary.

<table>
<thead>
<tr>
<th>PG-1</th>
<th>1-10 sets</th>
<th>$8.95 / set</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11-49</td>
<td>$7.95</td>
</tr>
<tr>
<td></td>
<td>50+</td>
<td>$6.95</td>
</tr>
</tbody>
</table>

Our Prism Glasses use the same material as our Double Axis Diffraction Grating!

Color Filter Paddles
Mix primary (red, blue, & green) and secondary (cyan, yellow, & magenta) filters to study additive and subtractive color mixing, color transmission, and absorption of different wavelengths of light. Polarizing filters can be used to show birefringence, light scattering, and light reflection. Diffraction gratings can be used for direct viewing and analysis of spectra from light sources. Included are 13,500 line/inch double axis and the 500 line/mm single axis gratings. Filters are 5.5 x 6.7 cm (2.16” x 2.63”).

| FIL-100 | $19.95 |

Color Filter Paddles

Persistence of Vision Double Fan
This two-headed fan does more than cool you off—it delivers a dazzling lesson in persistence of vision! Each fan blade contains five colorful LEDs that flicker at different speeds, giving the illusion of streams of light instead of individual dots. (This is the same principle that turns a sequence of still images into a motion picture.) Turn it on and enjoy a double light show in red, green, yellow, and blue. Better still, give the blades an extra spin to increase the speed of the rotating arm so that the two individual fan patterns merge into a larger, ever-changing geometric design: triangles, loops, spirals, and more! We guarantee you haven’t seen a persistence of vision device like this before! Uses three AA batteries (included).

| OPT-370 | $6.95 |

SpectroClick Kits
The SpectroClick Kit introduces students from primary to advanced levels to fundamental concepts of light and measurement through personal observation. Students are provided with all necessary components of a rudimentary spectrometer, which they assemble themselves. They observe spectra through a diffraction grating and compare clear and colored samples. Advanced students may use free software to further interpret spectra.

The SpectroClick Teacher Kit includes one complete set of components and instruction booklet. Intended for classroom use under adult supervision.

The SpectroClick Basic Kit includes 10 student spectrometer sets and a 16-page instruction booklet (also available as a free download).

| SPC-250 | SpectroClick Teacher Kit (individual set) | $14.95 |
| SPC-255 | SpectroClick Basic Kit (classroom set of 10) | $84.95 |
**One Pound of Mica**

Everyone loves to pull apart the layers from a specimen of mica. These mica specimens from New England will provide samples for at least 30 students. Sold in one-pound packages.

RM-910  $10.95

---

**Super Quality Polarizing Filters**

*Thicker than card stock but can be cut with a paper cutter!*

When two polarizing filters are placed atop one another, they can be transparent or opaque to light. By rotating one of the filters, the transmitted light passing through the filters may be turned “on” or “off.” Certain materials such as polyethylene, cellophane tape, plexiglass, and corn syrup will exhibit beautiful colors when placed between two polarizing filters.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Size</th>
<th>Qty</th>
<th>Cost Each</th>
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<tbody>
<tr>
<td>PF-3A</td>
<td>2.75” x 2.75” square</td>
<td>1-9</td>
<td>$3.75</td>
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<tr>
<td></td>
<td></td>
<td>10+</td>
<td>$3.45</td>
</tr>
<tr>
<td>PF-4</td>
<td>6” x 6” square</td>
<td>1-9</td>
<td>$10.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10+</td>
<td>$9.95</td>
</tr>
<tr>
<td>PF-5</td>
<td>15” x 17” panel</td>
<td></td>
<td>$65.95</td>
</tr>
<tr>
<td>PF-12</td>
<td>39” x 17” panel</td>
<td></td>
<td>$129.95</td>
</tr>
</tbody>
</table>

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**Calcite Crystals**

*Iceland Spar*

If you look at the words on a printed page through this crystal, you’ll see double. These natural, nearly transparent crystals exhibit the property of “birefringence,” i.e., they can break light into two distinct polarized beams. Each crystal is about 2 x 2 x 4 cm.

PF-2  $6.95

---

**Mica Demo Kit**

When placed between two crossed polarizing filters, each different thickness appears as a different color. When one polarizing filter is rotated, the colors change. Each piece of mica is approximately 8 x 8 cm and about as thick as card stock. Includes two 2” x 2” polarizing filters to view effects.

PF-8  $8.75

---

**Polarizing Tape Demo Kit**

This special cellophane tape exhibits brilliant colors when placed between two polarizing filters. When one filter is rotated, the colors change. Create beautiful cellophane designs. Includes two 2.75” x 2.75” polarizing filters to view effects.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Cost Each</th>
</tr>
</thead>
<tbody>
<tr>
<td>PF-7A</td>
<td>Kit</td>
<td>$8.75</td>
</tr>
<tr>
<td>PF-7</td>
<td>Tape only</td>
<td>$1.95</td>
</tr>
</tbody>
</table>

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**Polarizing Filter Demo Kit**

This kit contains materials and suggestions for more than 10 different experiments and demonstrations using polarized light. Each kit comes with these components:

- 2 2.75” x 2.75” polarizing filters
- 1 Plexiglass stress tester
- 5 sheets of acetate
- 1 piece of polyethylene
- 1 roll optically active cellophane tape
- 1 piece of mica
- 1 calcite crystal (Iceland spar)

PF-1  Polarizing Filter Demo Kit  $15.95
PF-6  Plexiglass Stress Tester with two 2” x 2” Polarizers  $5.95
**Physiology**

**Prisms**

*Equilateral & Right Angle*

Equilateral prisms are often used for breaking up white light into a spectrum of colors, while right angle prisms are generally used for measuring critical angles and observing total internal reflection such as in fiber-optics. Made of optical glass or clear colorless acrylic plastic.

| Model   | Description                  | Price  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PSM-100</td>
<td>Equilateral 25 x 75 mm Optical Glass</td>
<td>$7.95</td>
</tr>
<tr>
<td>PSM-110</td>
<td>Equilateral 25 x 75 mm Acrylic</td>
<td>$6.95</td>
</tr>
<tr>
<td>PSM-130</td>
<td>Right Angled 35 mm Face Optical Glass</td>
<td>$7.95</td>
</tr>
</tbody>
</table>

**Red Laser Pointer**

High quality class IIIa (<5 mW, 650 nm) red diode laser at an incredibly low price! Each laser comes complete with batteries. These lasers are especially interesting with our Mirage® 3D Instant Hologram Maker (page 73) and our Diffusion Mist. Please note: diode lasers are REAL lasers and should be treated with care and used responsibly.

| Model   | Description                  | Price  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LSR-100</td>
<td>Red Laser Pointer</td>
<td>$13.95</td>
</tr>
<tr>
<td>BAT-55</td>
<td>Repl. Batteries 10 / pkg</td>
<td>$5.95</td>
</tr>
</tbody>
</table>

**Green Laser (<5 mW)**

*All Class IIIa Lasers are less than 5 mW, but the question is how much less? Our LSR-200 is almost 5 (4.95) mW, making it one of the brightest on the market.*

These green lasers are perfect for applications where a continuous beam must be observed, such as when demonstrating lenses, prisms, or mirrors, or in long distance applications. The bright green beam is especially effective when observed in water. Simply direct the beam through the flat side of an aquarium filled with water. Add a few milliliters of milk to clearly observe the beam. (All lasers require some reflective particles to be visible in air.)

| Model   | Description                  | Price  
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>LSR-200</td>
<td>Deluxe</td>
<td>$109.95</td>
</tr>
<tr>
<td>LSR-225</td>
<td>Economy</td>
<td>$62.95</td>
</tr>
</tbody>
</table>

**Case included with Deluxe model**

**About Continuous Beam Lasers:**

Many green lasers blink on and off rapidly, often faster than the eye can perceive. This can impact the results of some experiments. Continuous beam lasers do not blink, resulting in a higher perceived brightness and requiring fewer reflective particles (dust or mist) to see the beam in the air. (All lasers require some reflective particles to be visible in air.)

**Works great with our laser pointers!**

**Diffusion Mist**

When this nontoxic aerosol is sprayed in a darkened room, a laser beam can be readily seen. Used in theaters to create special effects, a single can will spray for almost five minutes! 16 oz can, non-flammable and nontoxic.

| Model   | Description                  | Price  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>HS-7</td>
<td></td>
<td>$17.95</td>
</tr>
</tbody>
</table>

**For the price, this is the best green laser on the market!**

All Class IIIa Lasers are less than 5 mW, but the question is how much less? Our LSR-200 is almost 5 (4.95) mW, making it one of the brightest on the market.

These green lasers are perfect for applications where a continuous beam must be observed, such as when demonstrating lenses, prisms, or mirrors, or in long distance applications. The bright green beam is especially effective when observed in water. Simply direct the beam through the flat side of an aquarium filled with water. Add a few milliliters of milk to clearly observe the beam. Great for large group demonstrations. As this is a true laser, please exercise care when using this fantastically educational device. Class IIIa (<5 mW 532nm. Uses two AAA batteries (included).
The faster you spin it, the more the colors separate!

Color Splash Tablets
Finally a STAIN-FREE alternative to food coloring! The tablets are available in the primary colors of blue, red, and yellow. From these colors, your students can create more than two dozen different colors. Each tablet contains a small amount of baking soda to help in the dissolving process. (=100 tablets per bag.) Do not eat. Not a food product.

<table>
<thead>
<tr>
<th>Code</th>
<th>Color</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>CSP-100</td>
<td>Assorted</td>
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<tr>
<td>CSP-110</td>
<td>Red</td>
<td>$4.95</td>
</tr>
<tr>
<td>CSP-120</td>
<td>Yellow</td>
<td>$4.95</td>
</tr>
<tr>
<td>CSP-130</td>
<td>Blue</td>
<td>$4.95</td>
</tr>
</tbody>
</table>

Mysterious Glowing Ball
When stationary, this ball appears to glow with white light. When spun by the cord, one can see the white light separate into blinking red, blue, and green lights. Fascinating to watch in the dark. Great for reinforcing that white light can be produced by mixing three different colors of light. Advanced classes can relate it to the three different retinal color receptors in the back of the eye, and the persistence of vision. 6.4 cm (2.5") dia. Uses three L1154 batteries (included).

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPT-500</td>
<td>Mysterious Glowing Ball</td>
<td>$6.95</td>
</tr>
<tr>
<td>OPT-505</td>
<td>Jugglers' Set of Three</td>
<td>$17.50</td>
</tr>
<tr>
<td>BAT-55</td>
<td>Repl. Batteries 10 / pkg</td>
<td>$5.95</td>
</tr>
</tbody>
</table>

Nanosecond Bar
Measure the immeasurable—right in your classroom! The Nanosecond Bar is a great way to demonstrate how fast light travels. This durable, three-dimensional bar is exactly 30 centimeters long—the distance light travels in a nanosecond (a nanosecond = one billionth of a second). Get your students learning at the speed of light!

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAN-100</td>
<td></td>
<td>$4.95 each</td>
</tr>
</tbody>
</table>

The Color Chaos Class Kit
Confounding, compelling, and just plain fun, this engaging experiment explains how we see color. Your students will use an assortment of colored beads, a trio of LED lights (in red, blue, and green), a battery, and their own powers of observation to demonstrate the science behind color perception. What happens when different colors of light shine upon different colors of beads? Our blue beads look blue because they reflect only blue light. But what do they look like if there isn’t any blue light? What does a red bead look like in blue light? What about purple? It’s the white-and-gold (or blue-and-black) dress debate again, brought to your classroom! This class kit and lesson will help your students explore these concepts in a dramatic and memorable way. Includes 60 LEDs, 1,000 colored beads, 20 CR2032 batteries, and complete instructions.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>LGT-300</td>
<td>Color Chaos Class Kit</td>
<td>$19.95</td>
</tr>
<tr>
<td>BAT-50</td>
<td>Repl. Batteries 5 / pkg</td>
<td>$10.95</td>
</tr>
</tbody>
</table>
Centripetal Spinner

The prettiest demonstration of centripetal force and inertia we’ve ever seen! This perky, iridescent device reflects a dazzling rainbow as it spins. Twirl the stick and the thin ribbons spread into a bubble shape. The faster you spin, the wider the bubble becomes! It can be gently twisted by hand to make a delicate “flower” that neatly tucks itself into a tight ball. Endlessly fascinating!

PHY-250 $3.95

“I had fun with activities using the spinner. Such precise parts! Did you notice that the film bands reflect one color and transmit its complement? While the reflection is from blue to green (depending on angle of viewing), the transmission is red to yellow...nice lesson in interference. The spinner itself shows centripetal force, and spinning it up shows Newton’s 2nd law and impulse.”

- Evan Jones, retired physics teacher, Sierra College, Rocklin, CA

Mini Fiber-Optic Light

We’ve never seen such an affordable fiber-optic lamp before! Using high quality fine optical fibers and an internally concealed LED light source, this light gives a beautiful shimmering effect! Makes a great demonstration of total internal reflection, not to mention that it looks cool in your classroom! This model has long fibers giving it a beautiful, “weeping willow” appearance. So affordable they could be party favors! Uses three L1154 batteries (included). ≈23 cm (9”) tall. Colors may vary.

OPT-275 Mini Fiber-Optic Light $3.95
BAT-55 Repl. Batteries 10 / pkg $5.95

NEW LOW PRICE!

Chromadepth 3D Glasses

These glasses allow the wearer to perceive two-dimensional images in three dimensions! Through selective refraction, the transparent lenses in the Chromadepth 3D Glasses change the perceived depth of different colors. Anything printed in red appears to move toward you. Text and images in blue appear to move back behind the paper. Glasses work with an overhead projector, too! Package of 10.

CLR-100 10 / pkg $10.95

PhysicsQuest 2014

In celebration of the International Year of Light, our 2014 PhysicsQuest kit contains all the equipment needed to teach students about bending light, spherical lenses, how color and energy are related, and how the sun’s light also transmits heat. Students must apply their new knowledge to help our superheroes prevent the evil Miss Alignment’s attempted town domination. Contains nearly all the materials to complete four different experiments (and variations) related to light. Some minor household items are required, i.e., water and cups. Includes a full-color Teacher Guide/Student Comic Book.

PQ-14 $22.95
**Optics Kit**

Explore the wonders of light and optics with our Optics Kit. Its versatile mountings and various optical components provide true hands-on experiences with reflection, refraction, dispersion, images, polarization, and other optical phenomena. Students will gain an understanding of fundamental optical principles by performing the 10 fully illustrated and annotated explorations provided. The kit is designed to provide a maximum of versatility, enabling students to explore beyond the basics by enhancing set-ups and utilizing additional optical components. The one-time assembly (glue not included) of the mountings is simple and fun.

PUZ-350 $6.50 each
PUZ-355 $29.95 / pk of 5

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**Plastic Mirrors**

These high-quality plastic mirrors are perfect for student applications—even safe for young students! Available in different sizes, they are durable and just right for mirror writing, periscopes, and many other experiments.

<table>
<thead>
<tr>
<th>Item</th>
<th>Size</th>
<th>Qty</th>
<th>Cost Each</th>
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<tbody>
<tr>
<td>SM-1</td>
<td>5” x 7”</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>$6.50</td>
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<tr>
<td>SM-3</td>
<td>1.625” x 9” kaleidoscope mirror (3 fit in 2” diameter mailing tube)</td>
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<td>$2.15</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>$1.95</td>
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<tr>
<td>SM-4</td>
<td>3” x 4” periscope mirror (Use 2 to make a great periscope!)</td>
<td></td>
<td>$2.15</td>
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<td></td>
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<td>SM-458</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>$1.40</td>
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</tbody>
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**Concave/Convex Mirror**

Two mirrors in one! This compact and easily stored mirror is convex on one side and concave on the other. The concave side is front-surface—perfect for a physics unit on light and reflection. The mirror is 75 mm in diameter with a focal length of 200 mm. Made of high quality glass with beveled edges, this mirror is safe and long-lasting.

MIR-335 $7.95

---

**Perplexing Puzzle Paradox**

Add fun and excitement to your class with this delightful puzzle available only from Educational Innovations. Count the number of people shown, then move the top pieces and count again. Where did the 13th person go?!! A math and science lesson, a writing lesson, an art lesson, all rolled up into one fantastic puzzle! Observation, inference, metric measurement, creative writing, and more... Made of sturdy cardboard that will last for years. ≈39 x 14.6 cm (=15.3” x 5.75”). Five pack includes template for students to create their own puzzle!

PUZ-350 $6.50 each
PUZ-355 $29.95 / pk of 5

---
The Mirage® 3D Instant Hologram Maker
High Quality Anti-Scratch Mirrors for a Crystal Clear Image!

Looks can be deceiving! The Mirage creates an amazingly life-like image of anything you place inside its secret mirror chamber. The 3D image looks so real you’ll reach out and try to touch it. The image even reflects light! Perfect for teaching your students about real and virtual images. Mirrors are scratch resistant. 22.5 cm (9”) dia.

MIR-100 $44.95

Giant Mirage® 3D Instant Hologram Maker

This giant 22” model of The Mirage is perfect for your school. It has a 6” opening and weighs over 10 lb. The sharp 3D image is perfect to display a lemon or a golf ball.

MIR-155 $1,500.00

Special Micro-Fiber Cleaning Cloth

MIR-125 $4.75

Mirascope Mini

Project a real image that you can put your finger through. Using two concave, parabolic mirrors, a small object placed on the bottom appears to be floating as if real. A finger can pass right through it! A laser light even appears to bounce off the image! Visible 360 degrees! While not as big as our larger Mirage, it is impressive! Includes a plastic frog. 15 cm (6”) dia.

MIR-135 $7.95

Disappearing Beaker

This clear beaker has no markings and bends light to the same degree as cooking oil. The borosilicate glass and the oil have roughly the same index of refraction. When this beaker is immersed into a container of oil, the beaker becomes invisible. Package includes the beaker and instructions. (Outer container and oil not included.)

GL-500 $9.95 each (Beaker only)

Dioxide Glass Puzzle

Why would the cylindrical lens invert the blue colored word and not the red one? What is different? Can you test your hypothesis? Great critical thinking question for students of all ages! Perfect for a science table, display case, or even your desk! 12.2 x 6.6 x 6.6 cm (4.8” x 2.6” x 2.6”) Lesson ideas included!

PUZ-155 $19.95

“A magical demo with a great science explanation that really helps the students make sense of some tough energy/light/wave related concepts.”
- Janet S., Lake City, FL

How does it work?
Crystal Animator™

Since its invention almost 150 years ago, this elegant optical toy has traditionally been built from costly, precisely-angled glass or plastic mirrors. But the Crystal Animator is made from sturdy mirrored paper and works just as well or better. Drop in one of the 18 animation strips, look in the mirror of your Crystal Animator and rotate the handle between your palms. You won’t believe your eyes! Yellow giraffes come to life and gallop, blue dolphins leap and splash and monkeys swing from vine to vine. Kit assembles in minutes; no cutting or gluing required.

Illusion Science

Everyone loves optical illusions. This kit gives students a chance to perform over 20 optical illusion experiments—including the classic morph illusion and Benham disk—while learning about the science behind them. A specially-designed 3D marker set is provided, as well as 3D glasses, a carrying pouch, and more. For ages 8+.

Zoetrope

The Zoetrope is the best known of several animation toys invented in the 19th century, a time when people first discovered ways to make still pictures move. The Zoetrope is known as “the wheel of life.” When you place a strip of drawings inside the Zoetrope’s drum, spin it, and look through the slots, you will see the images moving as if they had come to life. This illusion of motion depends on two things: persistence of vision and the Phi phenomenon.

Illusion Spinner

Trick your eyes and brain with these amazing spinning-top illusions! See your hand shrink, grow as if bugs are crawling under your skin, see colors magically appear from a black and white pattern, or watch kaleidoscopic patterns emerge under fluorescent light. Inside are five spinning top patterns, complete with fun explanations of how they create their illusions.

Magic Wire Illusion

Watch as two twisted wires are pulled apart, or are they? A fascinating illusion, these two wires appear to be untwisting from each other as you pull, but they never come apart. Does the wire get longer, or is something else happening? (Some assembly required.)
**Boomwhacker Bass Set**

Add some bass to your boom! This set of seven longer tubes produces the C Major Bass Diatonic Scale. This is a great addition to the basic set (BOM-150). Let your students explore the relationship between length and frequency. With the two sets, students discover that a long open tube produces the same frequency as a tube half the length with an end cap. The tubes in this set range in size from 24”-48”. Together the Bass set and the Basic set form a continuous scale. Great for teaching about sound, frequency, and nodes.

BOM-120 $47.95

"The Boomwhackers provide a fantastic opportunity to qualitatively explore the differences between open and closed pipe resonance. You can also take it a step farther with the low and high C to quantitatively compare the frequencies of both as open or closed.”

- Stephen B., Snellville, GA

**Octavator™ End Caps**

This accessory lowers the pitch one octave. One size fits all Boomwhackers (both the Basic and Bass sets). Each removable end cap easily snaps on either end of a Boomwhackers tube. Set of eight.

BOM-130 $9.95

**Basic Boomwhacker Set**

These labeled tubes produce the C Major Diatonic Scale. Set includes eight tubes, 12”-24” long.

BOM-150 $27.95

**Teach Sound, Resonance, & Frequency with Boomwhackers!**

*Tube A is open on both ends. When it is hit, the vibration of the tube causes the air column to resonate with a certain frequency and a tone is produced. Notice the half sine waves which represent pressure variations inside the tube.*

*Tube B is open on both ends, but is twice as long as Tube A. It produces a sound that is an octave lower. Notice the longer wavelength, twice as long.*

*Tube C is closed on one end. It produces the same frequency sound as Tube B.*
**Chinese Spouting Bowl**

Hand crafted originals! Fill the 15" diameter bowl halfway with water and rub the handles with wet hands. The resonance set up within the bowl is powerful enough to actually "spout" water up and out of the bowl! Totally amazing! We’re sure you will be as impressed as we are.

SPT-100  $139.95

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“The Chinese Spouting Bowl is fantastic. Not only an intriguing science demo, but also a crowd pleaser and confidence builder. It is fantastic to see the eyes light up when a student who has been trying to get it to spout water finally does. PRICELESS. I find it mesmerizing as the water leaps out of the bowl in fascinating fountains.”

- Matthew T., Hillston, NSW Australia

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**Did you know you can pour sound?**

**Singing Pipe**

This heavy, black iron pipe (about 4 lb) has a metal alloy screen fitted into one end. By heating the screen with a flame from a burner for about 10 seconds, the vertical pipe will produce a loud tone for as much as 30 seconds. The noise is produced because certain frequencies of sound from the turbulent flow of heated air resonate within the tube cavity. Turning the tube horizontally disrupts the flow of air and the sound stops. A matched pair will produce a clearly audible beat frequency. Full instructions and explanation provided.

HS-14  Single Pipe  $34.95  
HS-14A  Matched Pair  $64.95

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**Thunder Drums**

This absolutely incredible theatrical musical instrument can create thunderous rumbling with a twitch of the attached spring. Simply hold the drum and shake to listen as the rumbling builds in intensity. Makes a great resonance demonstration. Styles may vary.

<table>
<thead>
<tr>
<th>Model</th>
<th>Size</th>
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<tbody>
<tr>
<td>TD-125</td>
<td>6” x 6” Thunder Drum</td>
<td>$36.95</td>
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<tr>
<td>TD-150</td>
<td>2.32” x 7” Thunder Drum</td>
<td>$14.95</td>
</tr>
</tbody>
</table>

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**Energy Chimes**

Interference was never this much fun! The Energy Chimes trio comes complete with hard-headed mallet and is pre-assembled to provide optimal sound for interference demonstrations. You can really hear the beats! Aesthetic and musical, it’s perfect for the classroom or for any physics aficionado.

CHM-100  $27.95
Pocket Sound Blaster
Our Loudest Sound Demo!
Sounds like a loud truck air horn, yet it fits in your pocket. As you blow air through the side hole, the rubber diaphragm vibrates as the air pressure repeatedly increases and discharges. By lightly touching the diaphragm, you can produce different sounds. Colors may vary. 7.6 cm tall x 3.8 cm dia. (3” x 1.5”).

Pocket Sound Blaster

<table>
<thead>
<tr>
<th>Item Code</th>
<th>Description</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>SNG-600</td>
<td>$2.95 each</td>
<td></td>
</tr>
<tr>
<td>SNG-610</td>
<td>$14.95 / set of 6</td>
<td></td>
</tr>
<tr>
<td>SNG-625</td>
<td>$48.95 / set of 24</td>
<td></td>
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</tbody>
</table>

Singing Rod
When you run your fingers lightly along this seemingly innocent metal rod, an ear-piercing shriek fills the air! Absolutely amazing! Each Singing Rod comes with crushed rosin to lightly coat your fingertips. Great for teaching about longitudinal and transverse waves. Crushed rosin included.

Singing Rod

<table>
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<tr>
<th>Item Code</th>
<th>Description</th>
<th>Price</th>
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<tbody>
<tr>
<td>SNG-100</td>
<td>Singing Rod</td>
<td>$12.95</td>
</tr>
<tr>
<td>SNG-150</td>
<td>Replacement Rosin</td>
<td>$5.95</td>
</tr>
</tbody>
</table>

Singing Rod 3-Tone Set
Consists of three rods of lengths 60, 80, and 100 cm. When your fingers are rubbed quickly along the rods, each produces a different tone. This is a super way to introduce sound, wavelength, or frequency to your students. Crushed rosin included.

Singing Rod 3-Tone Set

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<tr>
<th>Item Code</th>
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<th>Price</th>
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<tbody>
<tr>
<td>SNG-300</td>
<td>Singing Rod 3-Tone Set</td>
<td>$37.95</td>
</tr>
<tr>
<td>SNG-150</td>
<td>Replacement Rosin</td>
<td>$5.95</td>
</tr>
</tbody>
</table>

Sound Tubes
When spun in a circular motion, these tubes produce a tone. As the Sound Tubes are spun faster, the tone steps up in frequency. Due to the harmonics of the tube, there is not a gradual increase in frequency. Use these with our Wave Modeling Spring (page 78) for a fantastic standing wave demonstration. Colors may vary. ≈76 cm (30”) long.

Sound Tubes

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<tr>
<td>SS-600</td>
<td>$3.95 each</td>
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<tr>
<td>SS-600A</td>
<td>$35.95 / case of 12</td>
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Singing Rod
With this innovative product, students can actually make a paper or plastic cup talk! By rubbing a specially-molded plastic tape, the bottom of the cup is vibrated in just the right way to produce audible speech. The principle is the same as a diamond needle traveling through a record groove. These incredible tapes are sold separately in sets of 12 or as a kit with cups and complete instructions. Assorted tapes say things such as “Science Is Fun” and “Happy New Year.”

Singing Rod

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<tbody>
<tr>
<td>TC-150</td>
<td>Talking Cups Kit</td>
<td>$16.95 / kit with 12 asst. tapes</td>
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<tr>
<td>TC-100</td>
<td>Assorted Tapes</td>
<td>$10.95 / set of 12 tapes</td>
</tr>
<tr>
<td>TC-100A</td>
<td>“Science Is Fun” only</td>
<td>$10.95 / set of 12 tapes</td>
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Singing Rod

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Talking Tapes

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Talking Tapes

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<tr>
<td>SS-600A</td>
<td>$35.95 / case of 12</td>
<td></td>
</tr>
</tbody>
</table>

Science is fun!

Sound Tubes make a great outdoor activity!
This six-foot-long spring stretches to over 30 feet! Perfect for modeling standing and moving transverse waves as well as moving sound waves. Demonstrate the relationship between wavelength and frequency in a way your students will never forget. These gigantic springs have myriad uses in the classroom and lab.

**SPR-1**  $17.95

**3D Standing Wave Machine**
Create mesmerizing standing waves with a simple string by adjusting the speed of the machine's two motors and the distance between them. In the dark, the light from red, green, and blue LEDs allows a full spectrum of brilliant color. The variations in standing waves are limitless! Great for teaching about nodes, antinodes, and wavelength. Uses four AA batteries (not included). 20° x 9.5°

**OPT-400**  $26.95

**Flow Ring**
Constructed from a single strand of thin, flexible metal, the Flow Ring is both a kinetic sculpture and a mesmerizing flow toy. With one look, you’ll see why it has been called a “4th dimensional Slinky.” Folds flat and pops open into a beautiful 3D geometrical shape. Slip it on your arm or a rope and watch its translational energy change to rotational energy! Centripetal forces cause the ring to expand as it spins faster. The result is remarkable: the Flow Ring begins spinning while simultaneously falling, creating the illusion of a silver bubble. The secret is in how the metal is wrapped—the ribbon coils through itself, forming a torus knot. Get ready to be astonished as you watch this spherical toroid ring roll, bend, and flow. Comes with storage pouch.

**PHY-265**  $11.95

**Super Size Wave Spring**
This super size version of the ever-popular spring toy is a perfect way to demonstrate wave theory in a way your students will never forget. Easily model transverse and longitudinal or compression waves and teach the relationship between wavelength and frequency. Perfect for every physics classroom. Measures 80 mm in diameter, 160 mm in length, and stretches up to 8 meters.

**SPR-215**  $12.95

**Wave Modeling Spring**
This six-foot-long spring stretches to over 30 feet! Perfect for modeling standing and moving transverse waves as well as moving sound waves. Demonstrate the relationship between wavelength and frequency in a way your students will never forget. These gigantic springs have myriad uses in the classroom and lab.

**SPR-1**  $17.95
**Small Balancing Bird Demo**

Our colorful little bird balances on anything—your finger, a pencil point... The center of mass (or center of gravity) is designed to be beneath the tip of the beak. Students can experiment by adding small pieces of tape to change the bird’s center of gravity. Each comes with a stand. 8 cm (=3") wingspan. Colors may vary.

CTR-250   $1.50 each  
CTR-260   $14.95 / set of 12

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**Balancing Bird Demo**

This eagle balances on almost anything—your finger, a pencil, or the edge of your desk. Its center of mass (or center of gravity) is generally beneath the tip of its beak. Students can change the eagle’s center of gravity by adding small pieces of tape or paper clips to have it balance perfectly. Our proud bird can even be used to demonstrate rotational inertia! Just balance it on a pencil above your head, and turn around 360 degrees. The bird will remain in the same orientation due to its fairly large moment of inertia. Each comes individually packaged with a stand. ≈16 cm (=6") wing span. Colors may vary.

CTR-200   $2.95 each  
CTR-225   $28.95 / set of 12

---

**Demonstrate the importance of keeping a low center of gravity as an object slides down a length of fishing line.**

**Center of Gravity Kit**

When assembled, this mysterious device will balance upon a point or slide down fishing line from one side of your room to the other. Students can easily bend the wires so that it balances at different angles. It demonstrates the advantage of keeping a low center of gravity. It is easy to assemble. Pencil sharpener, sandpaper, and wood glue are required.

WK-4   1-5  $8.95 each  
       6+  $8.25

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**Did You Know?**

The center of gravity is the point at which all the weight of an object appears to be concentrated. The point at which an object balances is directly below its center of gravity. Students have difficulty with this concept, especially when it appears that the balancing point is not directly in the middle of an object.

“I keep this Balancing Bird on top of my file cabinet and students wander in from the hallway to examine it! When they balance it on their fingertip, an expression of joy and amazement is guaranteed.”

- Connie G., Philadelphia, PA
Star Coasters

With so many design variables to explore, your students will have a new learning adventure each time they build these high-speed ball roller coasters!

**Level 2** guarantees thrilling action rides that include wild rotations, daring loop-the-loops, hairpin turns, and spectacular swivel motions. After each ride, the steel sphere is hoisted back to its starting position by a battery-powered spiral conveyor elevator. A great challenge for beginner STEM or DIY enthusiasts! Level 2 comes with 193 pieces, two steel balls, and 10 meters (32.8 ft) of rail. Estimated assembly time is three hours. Suitable for ages 14+. Overall dimensions are 60 x 18 x 36 cm (23.6” x 7.1” x 14.2”). Uses one C battery (not included).

**Level 5** features multiple paths for steel balls to travel including a vertical corkscrew, a pendulum, seesaw drop, three-way split junction path, quadruple loop, and MUCH more! The ball’s journey ends (and begins again) on a battery-powered spiral conveyor elevator. It is the ultimate challenge for any STEM or DIY enthusiast! Comes with 682 pieces, five steel balls, and 32 meters (105 ft) of rail. Estimated assembly time is eight hours. Suitable for ages 14+. Overall dimensions are 95 x 34 x 41 cm (37.4” x 13.4” x 16.1”). Uses one C battery (not included).

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**The Vortex™**

When coins are dropped from the launching ramps, they begin spinning tangent to the curved surface, traveling in a circular motion. As the coins spin into the well, their rotational velocity greatly increases. Use the Vortex as a bank for your loose change. Great for teaching gyroscopic motion, rotational energy, the law of conservation of energy, and more. 38 cm (15”) high.

| SS-400 | 1 | $26.95 | 2+ | $23.95 |

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**The Wall Coaster**

*NOT your ordinary marble run!*

Just find a wall and let your imagination soar and your marbles drop! The Wall Coaster uses the basic laws of physics and gravity to enable hours of fun and imaginative play. Comes with eight marbles and more than 16 feet of track and tubes! Super easy to use. For ages 5+.

Simply remove the track and tubes from the package, affix two small pieces of coaster tack (similar to standard reusable poster putty) to the back of the desired pieces, and press onto the wall. By trial and error you will learn which configurations work and which don’t—this is part of the fun! So many variations, you can almost lose your marbles! Colors may vary.

**MAR-600** $21.95

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**Wall Coaster Deluxe Pack**

The Original Wall Coaster, plus Stunt Kit.

MAR-625 $46.95

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**Wall Coaster Stunt Kit**

Extra track (seven long pieces, three medium pieces, and 10 short pieces), two pieces of tubing, four marbles, coaster tack, and several special shapes to make great new wall coasters!

**MAR-615** $29.95

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**Wall Coaster Crazy Stairs**

Includes coaster tack and two marbles.

MAR-630 **$7.95**

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“[I teach HS and let kids put it on the wall of my room. It has been remodeled 100’s of times! I have enjoyed watching my students problem solve and work cooperatively.”

- Carrol W., LaCenter, KY
**Sparklz Wind-Up Toy**

Our “sparky” little wind-up critter may seem aimless, but take a closer look. The axle on this simple machine is bent to produce a complex pattern of motion. Can you predict where it will go? Also, take a look at the wheel on the top of the machine. Two pieces of flint circle around a strike plate, producing brilliant sparks as Sparklz makes its way across a flat surface. Perfect for the study of simple machines, friction, and for prediction activities! Adult supervision recommended for children under 14. ≈9 cm (3.75”) tall. Colors may vary.

KLW-310 $13.95 each

**Hydraulic Arm Edge Kit**

The Hydraulic Arm Edge is a DIY science construction kit that yields a kid-powered hydraulic robot arm capable of performing six different functions. An exciting introduction to hydraulics and basic engineering. The robotic arm allows users to command six axes of movements. With the removal of the gripper, you can activate the suction apparatus. This feature enables the user to elevate objects with a larger surface area (like a small mobile phone). Easy-to-follow instructions with detailed graphic illustrations pave the way for successful and satisfying kit building. Complement your engineering, math, science, and technology learning strategy. No battery or motor required. Ages 10+. With its 229 assembly parts, it will challenge beginner engineering enthusiasts. See our website for more details.

ROB-580 $52.95

**Working Wood Catapult**

Build your own miniature fully functional mangonel! What’s a mangonel, you ask? It’s the predecessor to the trebuchet, and was one of the earliest throwing devices in the Middle Ages. You probably know it as a catapult. Perfect for side-by-side comparisons and competitions with the trebuchet for distance and accuracy! 19 cm (7.5”) arm, 25.4 cm (10”) front to back, 15.2 cm (6”) wide, 12.7 cm (5”) tall. For ages 9+.

CAT-300 $19.95

**Trebuchet**

Economy sized and priced for a basic introduction to trebuchets. Easy to construct, this model is good for demonstrating the fundamentals of projectiles. 37.5 cm (14.75”) at base, arms 29 cm (11.5”) high.

CAT-350 $15.95

**Robotic Arm Kit**

Robotic science is becoming a greater part of our everyday lives. This amazing DIY construction kit will allow young explorers to understand how robotic servos and relays operate as they build a functional robotic arm of their own. Once complete, the robotic arm can be used for assisting action figures, creating robot art, or whatever a young imagination can devise. It uses five axes of motion and includes a gripper with a searchlight for use at night. Construction time is about two hours. Uses four D batteries (not included). For ages 10+.

ROB-570 $49.95
Dance with our Stars: Robots and Sliders

Though they don’t perform on TV, these simple wind-up machines include levers and rotating cams, and show the change from elastic potential into kinetic energy. The Dancing Robot has a visible cam in its belly that moves its hips and arms while bobbing its head. The Slider uses a remarkable timing gear to switch between two different dance moves, including a split. Unique motors cannot be overwound. ≈10 cm (≈4”) tall. Colors and styles may vary.

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Kit Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROB-320</td>
<td>Dancing Robot</td>
<td>$4.75</td>
</tr>
<tr>
<td>ROB-325</td>
<td>Robot Slider</td>
<td>$4.75</td>
</tr>
</tbody>
</table>

Polymer Bead Demo

This amazing demo starts when one end of a 50’ length of beaded chain is pulled over the edge of its container. As the end falls and accelerates, the chain rises higher than the rim and seems suspended in the air. Students see this as a discrepant event. They will ask to see it again and again. This demo is great for explaining self-siphoning polymers and Newton’s First Law. Holding the handle of the large mug (included) enhances the visibility.

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Kit Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MER-100</td>
<td>Polymer Bead</td>
<td>$19.95</td>
</tr>
</tbody>
</table>

3-2-1 Blast Off! Kit

Our 3-2-1 Blast Off! workshop on forces and energy has become a standing-room-only event at NSTA conferences. Over the years, hundreds of teachers have asked us to develop a kit that bundles our much-loved demonstrations of things that go ‘bump’ in the day! Kit includes comprehensive teaching instructions and enough hands-on components for up to 10 students. (Safety glasses recommended, see page 117.) We’ve also created memory-refresher videos that walk you through each of the demonstrations, so you’ll be up to speed and ready to Blast Off in just minutes!

Covers these topics:
- Law of Conservation of Energy
- Potential and Kinetic Energy
- Newton’s Laws of Motion
- Working with Variables

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Kit Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY-321</td>
<td>3-2-1 Blast Off!</td>
<td>$94.95</td>
</tr>
</tbody>
</table>

Kit includes:
- 10 Dropper Poppers
- 5 Reaction Rockets
- 12 BolNks
- Extensive Lessons
- 40 Rocket Balloons and Pump
- 10 ping pong balls
- 1 Seismic Accelerator
- 5 Mighty Seltzer Rockets
- Student Printables

ScooterArt

Our ScooterArt Kit lets students build their own robotic “Jackson Pollock” to explore many principles of engineering and robotics. Each bot stands on three legs made of water-soluble markers and relies upon a battery-operated pulsating motor to slide and skitter around, leaving a colorful trail behind. What happens if you change the length of one (or more) leg? Change the motor’s orientation or weight? Can you make your bot travel in a straight line? In a circle? Dozens of variables mean hours of open-ended experimentation! Single kit contains a DC motor, two AA batteries, three felt-tip markers, six double-sided adhesive foam squares, a plastic cup and instruction sheet with project ideas.

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Kit Name</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROB-230</td>
<td>Single Kit</td>
<td>$6.95</td>
</tr>
<tr>
<td>ROB-235</td>
<td>Class Kit of 10</td>
<td>$55.95</td>
</tr>
</tbody>
</table>

Bring STEAM into your class!
**Newton’s Apple**

What is a Newton? It is the force equal to the weight of an average apple (mass of 102 g). What better way for your students to visually understand Sir Isaac Newton’s idea of $F=ma$ than to drop a 1 Newton foam apple on someone’s head? They will remember it forever!

Set of six includes lesson ideas.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>NA-95S</td>
<td>Single Foam 1 N Apple</td>
<td>$6.95</td>
</tr>
<tr>
<td>NA-100</td>
<td>Set of six</td>
<td>$29.95</td>
</tr>
</tbody>
</table>

**Flying Spaceman**

Some of you may remember Buck Rogers and his personal jetpack: the ultimate in personal transportation. Borrowing from the future of helicopter technology, this spaceman makes science fiction a reality. The coaxial contra-rotating lift system provides many advantages over conventional helicopter design. Instead of a tail rotor to overcome the angular momentum effects created by engine torque, the two rotors spin in opposite directions (canceling out the effects) to provide lift. Incredibly easy to fly, our spaceman is recommended for indoor use only. Operates on an internal rechargeable battery charged by conventional AA batteries (not included).

**Fresnel Lens**

Traditionally used to focus the beam in lighthouse lamps, a Fresnel Lens replaces the curved surface of a conventional lens with a series of small, narrow concentric grooves on its surface. Compared to conventional, bulky lenses, our plastic Fresnel Lens is thinner, lighter, and flatter and captures more oblique light from the source. This Fresnel Lens is perfect for magnifying images. Used in conjunction with our book, *Physics Demonstration Apparatus*, you can easily build a device that will melt pennies in as little as 30 seconds! 10.25” x 7”. ≈12” focal length.

**Tin Can Cable Car**

This do-it-yourself pulley system introduces young minds to some of the fundamentals of mechanical science. This kit comes complete with gears, pulleys, motor, reversing switch, and more. (You supply the soda can.) A wonderful chance to discuss electricity, friction, and more. Makes a great science fair project. Uses two AAA batteries (not included). For ages 8+.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>GRN-425</td>
<td>Tin Can Cable Car</td>
<td>$17.95</td>
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</table>

**Penny melted with Atomic Penny Vaporizer**

- LEN-500 $3.95

**Best From Conceptual Physics Alive**

The best parts of Paul Hewitt’s Conceptual Physics Alive lecture series have been combined into this two DVD set. The demonstration of concepts is fascinating; the viewing of great teaching techniques is inspiring! The four hours of video on these two DVDs teach over 100 physics concepts with clever demonstrations and insightful questioning. Chapters include Old Tablecloth Trick, Bed of Nails, Bowling Ball and Conservation of Energy, Tacoma Bridge Collapse, and many more! This fantastic DVD set includes the best of Paul Hewitt’s $1,000+ 18-hour-long lecture set. Simply skip directly to the DVD chapter in which you are interested.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>PHY-100</td>
<td>Best From Conceptual Physics Alive</td>
<td>$244.95</td>
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</tbody>
</table>

**Fresnel Lens melting a penny**

- LEN-500 $3.95

**Penny melted with Atomic Penny Vaporizer**

- LEN-500 $3.95
Inverting Pop Tops

When these small wooden tops are spun, they start precessing until the heavier hemispherical end is lifted, seemingly against gravity. The Nobel Museum in Stockholm reports that Neils Bohr was captivated by this top when first observed over 50 years ago. These newly designed tops, with a hollowed out sphere, are like the original and work extremely well! The natural wood ones can be decorated by students. 3.8 cm (1.5") tall, 3.2 cm (1.25") dia.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
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<tr>
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<td>Natural 5 / pkg</td>
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<td>TOP-305</td>
<td>Natural 20 / pkg</td>
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<tr>
<td>TOP-330</td>
<td>Red 5 / pkg</td>
<td>$5.95</td>
</tr>
<tr>
<td>TOP-335</td>
<td>Red 20 / pkg</td>
<td>$19.95</td>
</tr>
</tbody>
</table>

Euler’s Disk

Spin the disk and enjoy a hypnotic light display with ever-changing sound. The disk seems to spin forever, rotating and precessing as it slowly transforms gravitational potential energy into kinetic energy. Concave mirror base reflects the disk’s spectacular effects. Try it in a darkened room with a flashlight or laser. Includes magnetic holographic film for extra dazzle. Disk diameter 7.5 cm, mirror diameter 20 cm.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>TOP-400</td>
<td></td>
<td>$27.95</td>
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</table>

The PhiTOP

We’ve fallen in love with the PhiTOP, and bet you will, too! This beautifully crafted top does for angular momentum what Newton’s Cradle does for linear momentum. When spun, it starts out horizontal and then, surprisingly, stands upright. Wow! In the process, it illustrates the difference between equilibrium and stability. The rise of the “center of mass” is a fascinating physics problem. It will spin for minutes on end, producing a marvelouls optical illusion as it slows down. Invented by astrophysicist Kenneth Brecher, the PhiTOP encourages exploration of force, mass, density, gravity, friction, and time. In short, the PhiTOP is an elegant scientific, mathematical, and aesthetically-pleasing object that makes a perfect gift, desktop display piece, or student stumper. See for yourself in our video! Egg is ≈5 cm tall (2").

<table>
<thead>
<tr>
<th>Item</th>
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<tbody>
<tr>
<td>TOP-410</td>
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<td>$19.95</td>
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</table>

Mysterious Spinning Top

Give this top a spin and watch it move for hours without stopping. Secret revealed: The top contains a small magnet. When this magnet moves past the center of its base, the top’s spinning magnetic field induces a current in a coil, which closes a switch, allowing a battery to momentarily energize a small electromagnet. The top increases its rate of spin and moves away from the center of the base. Top: 2.5 cm (1”), Base: 8 cm (3.1") Uses one 9-volt battery (not included).

<table>
<thead>
<tr>
<th>Item</th>
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</thead>
<tbody>
<tr>
<td>TOP-375</td>
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</table>

Light Up Gyro Wheel

Here’s a new take on a retro “toy” that mesmerizes while it teaches! Demonstrate the conversion of potential energy to kinetic energy and back again. The colorful wheel has a hidden LED light inside. As soon as the magnetic edges of the wheel touch the metal rails, the LED lights up—a perfect demo of open and closed circuits! Simply tip the rail to begin the spinning motion. Colors may vary.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>GYR-285</td>
<td></td>
<td>$3.95</td>
</tr>
</tbody>
</table>

Try it in the dark! Free lesson online!
**Squiggle Ball**

The Squiggle Ball has the amazing ability to navigate out of corners—even simple mazes! In fact, it’s virtually impossible to block. The ball’s transparent case allows your students to view the specially-weighted motor inside. Uses one AA battery (not included). ≈8.5 cm (3.3”) dia. Colors may vary.

**TOP-205** $9.95

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**Revolution Top**

This amazing, magnetically levitated top is the only one we have seen that spins horizontally. Spin the top and observe the patterns created by the alternating colors and your persistence of vision. The device operates in a very low-friction environment. Take it for a spin! Colors may vary.

**TOP-205** $9.95

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**Double Hand Spinners**

Do fidget spinners really teach anything? You bet they do! Our Double Hand Spinners offer more teachable physics—at such a reasonable price—than almost anything we’ve seen. Start by using a single spinner to discuss all three of Newton’s Laws. Then attach the spinners together and observe how their contra-rotational motion can cancel out angular momentum. Go even further and add the six neodymium magnets (included) to the spinners’ arms to open up an exciting new area of exploration involving magnetic forces—both attraction and repulsion. Your students will be riveted by this memorable, unique demonstration. Includes two spinners, a connector, six neodymium ring magnets, and lesson. Colors and styles may vary.

**PHY-255** Single Hand Spinner $6.95

**PHY-270** Double Hand Spinners $16.95

**M-187** 25 Neodymium Ring Magnets $19.95

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**Classic Gyroscope**

The toy gyroscope has been in production since 1917 and has been a classic educational tool for generations. Use the power of physics to balance the gyroscope on its pedestal, a fingertip, the edge of a glass, or even a string. Gyroscopes are used in robotics, space exploration, and they are even used to stabilize movie cameras. Each gyroscope is packed in a clear styrene box with starting string, pedestal, and instructions for several amazing tricks. Measures 4.75" tall.

**GYR-270** $6.95 each

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**Squiggles Ball**

Impossible to block • Self-navigating

Stackable spinners! Teach science with toys!

New
**ScooterBots**

With colorful chenille stems, wiggly eyes, and a toothbrush head body, our ScooterBots are as adorable as they are educational. What makes them go? A battery-powered pulsating motor causes the individual bristles (or legs) to vibrate and shimmy, sending the bot scooting across any flat surface. Dozens of variables are possible. What happens if you trim or bend the bristles? Connect several bots together? Add stabilizing wire legs? A memorable way to teach principles of engineering and electric circuitry. Kit contains all you need to create these mini-marvels, including instructions.

- **ROB-210** ScooterBot 10 pack $29.95
- **ROB-225** ScooterBot 25 pack $65.95
- **BAT-55** Repl. Batteries 10 / pkg $5.95

**Jiter Ring**

Rotate the large steel ring vertically and five smaller rings spin horizontally like tops. As the larger ring rubs on the inside of the smaller rings, energy is transferred, maintaining the spinning motion. Great for showing energy transfer and gyroscopic motion! Students often are able to throw it back and forth while keeping the smaller rings spinning. Requires practice, but amazing to see. 25 cm (10").

**Wacky Hall Walker**

With this not-so-simple machine, your students investigate the amount of potential energy given the rubber band vs. the distance traveled by the Wacky Hall Walker. After collecting data and graphing the results, students can be challenged to make their Wacky Hall Walker travel a certain distance. Includes a full set of lesson plans. Some assembly required.

- **WHW-100** Single Kit $10.95
- **WHW-115** Class Set of 6 Kits $54.95
- **WHW-120** 6 Replacement Rubber Bands $9.95

**Glides on a cushion of air!**

**Air Power Soccer Disk**

The Air Power Soccer Disk is perfect for demonstrating Newton’s Third Law of Motion: for every action, there is an equal and opposite reaction. The soccer disk glides on a cushion of air in a nearly frictionless environment. Uses four AA batteries (not included). 18.4 cm (7.25") diameter.

**PUZ-120** The Coin Puzzle

Can you remove the quarter? Easier said than done! Here is a chance to put real scientific principles to the test! How many solutions can you find? We include the five solutions that we discovered. Quarter not included.

**SS-180** Jiter Ring $15.95

**NEW LOW PRICE!**
**Rattlebacks**

A Rattleback is a half-ellipsoid object carved so that it will spin in only one direction. Accidentally discovered by archaeologists, this curious object was first dubbed a celt stone, named after the prehistoric axes and adzes they were studying. Idly spinning one of these ancient tools on the table, these scientists must have been surprised to discover that the seemingly normal piece of carved stone would spin freely in only one direction. ≈10 cm (4”) long, 2 cm (0.8”) wide.

<table>
<thead>
<tr>
<th>Code</th>
<th>Price</th>
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<tbody>
<tr>
<td>SS-310</td>
<td>$7.95 / 5</td>
</tr>
<tr>
<td>SS-335</td>
<td>$16.95 / 12</td>
</tr>
<tr>
<td>SS-323</td>
<td>$34.95 / 30</td>
</tr>
</tbody>
</table>

**Newton’s G-Ball**

Sir Isaac Newton, so the story goes, was hit on the head with an apple, thus giving birth to his theory of gravity... but apples are so 17th century! Students can use this clever device to easily study the effects of gravity. A digital timer in the center of the G-Ball measures the amount of time the ball is in the air. The timer begins when the display button is released, and it stops when the ball is caught or hits a surface (maximum 12 meters—about three stories—when dropped onto a fairly soft surface). Students can throw the ball straight up, horizontally, or simply let the ball drop to calculate the height, velocity, or magnitude of gravitational acceleration. This is a fun way for students to master the concepts of gravity. Diameter 10 cm (≈4”). Uses two LR1130 batteries (included).

<table>
<thead>
<tr>
<th>Code</th>
<th>Price</th>
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<tbody>
<tr>
<td>PHY-200</td>
<td>$34.95</td>
</tr>
<tr>
<td>BAT-60</td>
<td>$10.95</td>
</tr>
</tbody>
</table>

**Rheoscopic Fluid**

Captivate your students with this unique fluid. Its suspended pearly crystals show current movement continually. This nontoxic, pearly white substance is a water-based suspension. When warmed or cooled, strong convection currents appear. Appropriate for all grade levels K-college. Although the fluid ships colorless, it may be easily tinted with food coloring. ≈1 L (32 oz).

<table>
<thead>
<tr>
<th>Code</th>
<th>Price</th>
</tr>
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<tbody>
<tr>
<td>RH-100</td>
<td>$16.50</td>
</tr>
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</table>

**Try This!**

Using tiny pieces of masking tape, can you get the Rattleback to spin in both directions equally? Add food coloring for extra interest!

**Students use basic science process skills—observations, predicting, testing hypothesis, and explaining why they believe the rattleback behaves the way that it does in either a clockwise or counterclockwise spinning motion. I want the students to question status quo thinking and be able to change their prior conceptions when evidence suggests otherwise.”**

- Kathy J., Denison, Iowa

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**Products being sold are not toys. They are for Educational / Laboratory use only. They are not for use by children 12 and under.**
**Liquid Crystal Sheets**

So hands-on, you won’t be able to keep your hands off! Note: the color change is very much dependent upon the ambient temperature. Each color seen is a different temperature.

### 20-25°C Transition (68-77°F)

Perfect for showing the effect of samples cooler than room temperature, such as ice cubes and endothermic reactions!

<table>
<thead>
<tr>
<th>Item #</th>
<th>Sizes</th>
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<tbody>
<tr>
<td>LC-2025A</td>
<td>12&quot; x 12&quot; sq.</td>
</tr>
<tr>
<td>LC-2025B</td>
<td>4&quot; x 4&quot; sq.</td>
</tr>
</tbody>
</table>

### 25-30°C Transition (77-86°F)

Perfect for showing the effect of samples slightly higher than room temperature, such as hand prints and exothermic reactions!

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<tr>
<th>Item #</th>
<th>Sizes</th>
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<tbody>
<tr>
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</tr>
<tr>
<td>LC-2530B</td>
<td>4&quot; x 4&quot; sq.</td>
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</table>

### 30-35°C Transition (86-95°F)

Perfect for showing the effect of samples higher than room temperature, such as hot coffee and heat from a light bulb.

<table>
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<th>Item #</th>
<th>Sizes</th>
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<tbody>
<tr>
<td>LC-3035A</td>
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</tr>
<tr>
<td>LC-3035B</td>
<td>4&quot; x 4&quot; sq.</td>
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**4" x 4" Squares**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Cost</th>
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<tbody>
<tr>
<td>1-10</td>
<td>$7.95 each</td>
</tr>
<tr>
<td>11+</td>
<td>$6.95</td>
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</table>

**12" x 12" Squares**

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Cost</th>
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</thead>
<tbody>
<tr>
<td>1-10</td>
<td>$25.95 each</td>
</tr>
<tr>
<td>11+</td>
<td>$23.95</td>
</tr>
</tbody>
</table>

**Touch and See Square**

Place your hand on this black plastic square and create a beautiful thermal hand print. Each color represents a different temperature. Can be used over and over again. Great addition to your “Hands-on Science Table.” ≈6" x 6" square. Each square is mounted on foam board.

<table>
<thead>
<tr>
<th>SS-900</th>
<th>1-10</th>
<th>11+</th>
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<tbody>
<tr>
<td></td>
<td>$12.95 each</td>
<td>$11.95</td>
</tr>
</tbody>
</table>

**Blob-a-Lamp**

Our Blob-a-Lamp is more than a mesmerizing motion light—it’s a complete lesson on density! At room temperature, the colored wax blobs are denser than the liquid. But turn the lamp on and soon enough, the questions begin: which material really is denser—the liquid or the wax blobs? What makes the blobs rise? Why do they descend back toward the lamp’s base? And what does the incandescent bulb in the lamp’s base have to do with any of this? Students at all grade levels will be engaged by this retro object, and will be eager to learn about heat, expansion, and density. ≈13” tall. Not recommended for children under 12. Colors may vary.

<table>
<thead>
<tr>
<th>DEN-455</th>
<th>Blob-a-Lamp</th>
<th>$12.95</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Replacement Bulb</td>
<td>$4.95</td>
</tr>
</tbody>
</table>

**Liquid Crystal Sample Assortment Package**

Not sure which temperature to purchase? Try our sample assortment. Included are three 4" x 4" square samples of liquid crystal: one 20-25°C, one 25-30°C, and one 30-35°C. Each sample has an adhesive backing. Can be easily cut on a standard paper cutter.

| LC-ASTX | $19.95 |

**Putt Putt Steam Boat**

Originally called “Putt Putt Steam Boats” in the 1920s, these reproduction toys can be used to teach many scientific principles. Using a small flame from a candle or a few drops of cooking oil, the 10 cm (4") long boats will chug along for hours. It is great for demonstrating the transformation of heat energy to mechanical energy. More advanced students can be given the problem of explaining how it works. Fascinating to watch in a circular pan of water. Colors may vary.

| SB-100  | $8.95 |

**Fuel Candles (pkg of 8)**

<table>
<thead>
<tr>
<th>SB-150</th>
<th>1-5</th>
<th>6+</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$3.50 each</td>
<td>$2.95</td>
</tr>
</tbody>
</table>
Disk and Ring Kit

The Disk and Ring Kit is made from a polymer that expands and contracts dramatically with changing temperature. It is wonderful for demonstrating the effects of thermal expansion. Submerge the disk in hot water and the ring in ice water and see what happens when you put the two back together. What would happen if you place the disk in the ice water and the ring in hot water? Disk outer diameter ≈19 cm (7.5”) at room temperature.

XPD-110 $25.95

New Low Price!

Soft Shell Ice Cream Ball - Pint Size

Fill one side with ice, add rock salt, and close the lid securely. Mix up your favorite ice cream ingredients and pour the mix into the cylinder on the opposite end of the ball. Shake, Rock, and Roll... Enjoy!

Great way to teach how adding salt to ice lowers the temperature of the resulting solution. Takes 15 minutes to make a pint of ice cream. Colors may vary.

ICE-140 $34.95

Soft Shell Ice Cream Ball - Quart Size

Weighing more than twice as much as the smaller version of the Soft Shell, when filled it takes 20 minutes to make a quart of ice cream. Colors may vary.

ICE-145 $45.95

New Low Price!

Ice Cream Flavors and Colors

Why struggle with difficult ice cream recipes? Simply substitute one of these in your recipe wherever it calls for vanilla extract or other flavoring. The flavors include chocolate fudge, black raspberry, mint chocolate, and strawberry. Each 1.7 oz bottle will flavor three quarts of ice cream.

ICE-130 $12.95

Amazing Ice Melting Blocks

Totally awesome to watch! Place an ice cube on each of these seemingly identical blocks. One ice cube instantly begins to melt and is gone in about 90 seconds while the other shows no evidence of melting. Great for showing the disparity in heat conductivity of different materials. This demo is simple enough for elementary students yet also challenges high school or university level students. Invented by retired teacher Jim Housley. Set of two blocks, 9.5 x 9.5 cm (3.75” x 3.75”) each.

BLK-100 $22.95

Bimetallic Jumping Disk

A curved jumping disk? The sky’s the limit for these disks, which have two layers of bonded metals with different thermal expansion properties. A change in temperature causes these disks to jump approximately 12 inches or higher into the air! Simple enough for elementary students; challenging enough for AP physics classes! 25 mm (1”) dia.

HEA-450 $15.95 / pkg of 10

Use with our IR Thermometer (page 124) to show that before ice is placed on blocks, the blocks are both at thermal equilibrium.
### Piezo Popper Kit

These amazing piezoelectric devices generate a few thousand volt sparks at the touch of a button. No batteries required. The discharge is created when a small hammer inside the device strikes a quartz crystal. It can be used as a safety lesson to demonstrate the flammability of alcohol or perfume. Igniting two drops of alcohol in a film canister (below) will cause the canister to fly more than 20 feet into the air! **Not available for international shipping.**

<table>
<thead>
<tr>
<th>Item #</th>
<th>Description</th>
<th>Qty</th>
<th>Cost each</th>
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<tr>
<td>HS-2A</td>
<td>Piezo Popper Kit</td>
<td>1-12</td>
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<td>$6.25</td>
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</tbody>
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### Quest Water Rockets

The Quest Water Rocket system is designed for hours of fun and education. The Complete Launch System includes sturdy tripod base, pre-assembled pressure chamber, 15 foot pull cord, ground stake, and complete assembly-and-use instructions. The Single Water Rocket includes one pre-cut rigid foam fin set, one translucent molded nozzle, one Foam Recovery bumper, and complete assembly-and-use instructions. The Water Rocket Class Pack of 12 is ideal for Scout projects, school experiments, and parties. You need to provide a bicycle pump with pressure gauge, fuel (water), and a PET soda bottle (24 oz, 1 liter, or 2 liter). Rockets, nozzles, and bottles sold separately.

- **RKT-700** Launch System $35.95
- **RKT-720** Single Water Rocket $9.95
- **RKT-710** Water Rocket Class Pack of 12 $75.95
- **RKT-750** Replacement Nozzle $4.95
- **RKT-755** Replacement Fin Set $4.95
- **RKT-760** Replacement Bumper $2.95

"If you’re using RKT-700 with your own rocket, you will need a nozzle (RKT-750)."

"This was the biggest hit in our summer science camp! The kids were able to measure the height of the rocket and compare it to the variables we changed. Great activity and wonderful customer service! Thanks EI!"

- Paul, WA

### Rocket Film Canisters

These canisters are perfect for building your Alka-Seltzer rockets! The tight fitting lid allows the pressure to increase enough for the rocket to fly several feet into the air. Great activity for changing the variables: amount of tablet, amount of water, with or without a nose cone, with or without fins, the way the paper rocket is rolled, etc. Online lessons include complete instructions for building film canister rockets. Also great for geocaching!

- **CAN-300** Pack of 12 $7.95
- **CAN-330** Pack of 30 $15.95
- **CAN-310** Pack of 100 $44.95

### Articulating Stomp Rocket System

Your students will have a blast building their own Stomp Rockets and launching them outside for hands-on experiments related to Newton’s laws, energy transfer, aerodynamics, and more variables than we can name! Our Stomp Rocket launch pad is built from durable components that will provide years of service. Includes 11 distance marker flags, a protractor, and directions for downloading step-by-step assembly instructions, a rocket template, teaching lessons, and student printables. Can be modified for use in K-12 classes. Plastic soda bottle not included.

- **RKT-210** $25.95

Free lesson online!
3-2-1 Blast Off! Kit

Our 3-2-1 Blast Off! workshop on forces and energy has become a standing-room-only event at NSTA conferences. Over the years, hundreds of teachers have asked us to develop a kit that bundles our much-loved demonstrations of things that go ‘bump’ in the day! Kit includes comprehensive teaching instructions and enough hands-on components for up to 10 students. (Safety glasses recommended, see page 117.) We’ve also created memory-refresher videos that walk you through each of the demonstrations, so you’ll be up to speed and ready to Blast Off in just minutes!

Kit Includes:
- 10 Dropper Poppers
- 10 ping pong balls
- 5 Reaction Rockets
- 5 Seismic Accelerators
- 40 Rocket Balloons and Pump
- 12 Bolinks
- 5 Mighty Seltzer Rockets
- Extensive Lessons
- Student Printables

Covers these topics:
- Law of Conservation of Energy
- Potential and Kinetic Energy
- Newton’s Laws of Motion
- Working with Variables

Have your students experiment with variables!

Mighty Seltzer Rocket

Five, four, three, two, one, LIFT OFF! This cleverly designed rocket with nose cone and fins will travel 20 to 30 feet into the air. Simply pour in water, drop in a seltzer tablet, replace the end cap, and the rocket is prepared for launch. To activate, invert the rocket, place it on a flat surface and move away. The rocket is 12.5 cm (5”) long. Adult supervision and eye protection recommended. Not for indoor use. Four seltzer tablets included. Five pack includes 10 seltzer tablets. Colors may vary.

RKT-555 Mighty Seltzer Rocket $6.95
RKT-557 Seltzer Rocket 5 Pack $25.95
RKT-560 Pack of 36 Seltzer Tablets $7.95

Mighty Missile Launcher Class Kit

Place a missile on the launcher, aim and fire! The soft tipped missile is launched by a burst of air from punching a balloon and travels as much as three meters (10’). Perfect for controlling the variables: direction, angle, and velocity of air. Challenge your students to hit a target, e.g., a small box lid. Kit contains 40 rockets and 10 launch pads. The rockets are pre-made and ready for firing. The launch pads require a hot glue gun to assemble. Colors may vary.

RKT-615 Mighty Missile Launcher $39.95

Reaction Rocket

Appearances can be deceiving. This rubber ball launcher and plastic rocket may look simple—but they’re a sure-fire way to provoke a WOW reaction—and introduce students to Newton’s Laws. Hold the top of the launcher and drop it straight down onto a hard surface. The rocket shoots up dramatically higher than its original drop height. Explaining energy conversion was never this easy…or this much fun! Comes with one launcher, two rockets. Class Kit includes 15 launchers and 30 rockets. Colors may vary.

RKT-625 Single Rocket $2.95
RKT-630 Class Kit $39.95
**Exergia Memory Metal Engine Learning Kit**

This is a very special kind of heat engine that demonstrates the conversion of heat into mechanical energy. It uses the unique property of nitinol alloy (≈50% nickel, ≈50% titanium, the “nol” at the end of nitinol refers to Naval Ordnance Laboratory in Maryland USA where this alloy was developed) called the “memory effect.” Once nitinol has been formed into shape at high temperature (about 600°C) and allowed to cool to room temperature, it can be easily deformed. However, when heated above a transition temperature (in this application about 50°C to 70°C), the nitinol object abruptly returns to its high-temperature shape with substantially more force than that required to deform it when cold. Uses a nitinol wire formed to a closed loop that drives the two connected wheels. Includes assembly drawing and hints for construction both in English and German. Dimensions: diameter ≈100 mm, height ≈150 mm. The included candle gives an operation time of about three to four hours.

HS-200 $39.95

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**Exergia Electricity from Hot Water Learning Kit**

This kit demonstrates the direct conversion of heat into electrical energy via the Seebeck effect. Like in photovoltaic cells, the generation of electricity results from processes on an atomic scale without macroscopic movement of mechanical parts. The atomic vibrations that correspond to heat result in a gradient of the electron’s distribution, i.e., an electrical voltage.

The key component is the Peltier element that is connected to two aluminum L-profiles. One aluminum profile conducts heat from a reservoir with hot water to one side of the Peltier element. The other profile conducts heat from the back side of the Peltier element to a cold water reservoir. As long as there is a temperature differential of about 10 degrees between the back and front side of the Peltier element, sufficient electricity is generated to power the motor with the propeller.

Assembling the kit is very easy and takes only a few minutes. The kit includes Peltier module, two acrylic plastic reservoirs, motor with propeller, fasteners and screws, and assembly instructions.

HS-210 $39.95

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**Exergia Three Wheeler with Thermoelectric Drive Learning Kit**

This kit demonstrates the direct conversion of heat into electrical energy via the Seebeck effect. Like in photovoltaic cells, the generation of electricity results from processes on an atomic scale without macroscopic movement of mechanical parts. The atomic vibrations that correspond to heat result in a gradient of the electron’s distribution, i.e., an electrical voltage.

The car is powered by a food warmer candle. Put the car on flat, smooth ground, fill the upper reservoir with cold water (about one third), and light the candle. The resulting temperature difference between both sides of the thermogenerator produces electricity, supplying the electrical motor on the front wheel. After a minute or two, the car starts moving and slowly speeds up. It moves on a straight path or turns around in circles, which is adjustable by twisting the middle joint. Increase the car’s speed by using cold water from the fridge or adding some ice cubes. Includes assembly drawing and hints for construction both in English and German. Dimensions: diameter ≈100 mm, height ≈150 mm. The included candle gives an operation time of about three to four hours.

HS-205 $49.95

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**Stirling Engine with Alcohol Burner**

Nearly a century after it was invented, the Stirling Engine is still a unique and fascinating heat machine. Our desktop model allows your students to witness thermodynamics in action! The Stirling Engine Model uses a closed-cycle system in which air is compressed and expanded at different temperatures to create energy. Vividly demonstrates how thermal expansion and cold shrinkage can create enough mechanical energy to power an engine, and then have that mechanical energy converted to electrical energy to light four LEDs. The alcohol burner heat source is secured in a recessed well on the finished wooden base for safety. Engine can be run repeatedly for a memorable lesson in thermodynamics. 7” wide, 3.5” deep, 3.25” high.

ENG-300 $99.95
Magnetic Accelerator Paradox

Place three seemingly identical spheres on a 3-foot horizontal track touching each other. Slowly roll another sphere into the spheres at rest. Wow! All of a sudden one sphere takes off with tremendous velocity. Has the system gained energy? Could this be the basis of a perpetual motion machine? Hmm... Great for open-ended discovery! Colors may vary.

MAG-400 Flexible track with six spheres $29.95
MAG-415 Six extra spheres for additional experimentation $10.95

Talk about a discrepant event!

“...This thing is just great! I’ve had the smaller, silly looking one for many years. It is still going and was worth every penny. This decorative one is much more of an eye catcher, and it’s a lot easier to see what’s happening because the whole thing is clear. I must admit that this bird has not left my house yet. My intent was to display it in the classroom, but when I have friends and their children over—they spend more time watching and smiling for the birdie than using their cell phones or watching my TV. I’ll probably end up buying another so he can be in two places at once. Very nice product—everyone who’s seen it loves it.”
- C. Newcomer, Sallisaw, OK

Wilesco Mini Steam Engine

This Wilesco Mini Steam Engine is smaller than most other steam engine models. Heated with a tea light, the filigree oscillating cylinder purrs up and down and drives the sparkling flywheel. You will take delight in watching this mechanical masterpiece. The boiler capacity lasts for a run of more than 30 minutes. Baseplate: 70 x 70 mm, height: 120 mm, weight: 0.2 kg.

ENG-200 $99.95

Giant Glass Drinking Bird

Is it a demonstration of scientific law or a work of art? Made of hand-blown glass, this striking piece will surely be a point of conversation in your classroom, office, or home! Just place a glass of water in front of it, dip its beak to get it wet, and this bird will keep going as long as you keep it supplied with water! The movement is mesmerizing and will have everyone wondering how and why it works! 25 cm (9.8") tall. Colors may vary.

DB-125 $29.95 each

Compare with our regular Drinking Bird on page 95

“...This thing is just great! I’ve had the smaller, silly looking one for many years. It is still going and was worth every penny. This decorative one is much more of an eye catcher, and it’s a lot easier to see what’s happening because the whole thing is clear. I must admit that this bird has not left my house yet. My intent was to display it in the classroom, but when I have friends and their children over—they spend more time watching and smiling for the birdie than using their cell phones or watching my TV. I’ll probably end up buying another so he can be in two places at once. Very nice product—everyone who’s seen it loves it.”
- C. Newcomer, Sallisaw, OK

BoInks

Spring your way into your energy unit! Compress the plastic woven tube, release it, and watch it fly! Students love experimenting with BoInks. What a great way to demonstrate elastic potential energy! Four BoInks, colors may vary. ≈12.5 cm (5") long.

POP-200 $3.25 / pkg of 4
Smashing! Steel Sphere Demo Kit

When two 1-pound, 2" diameter, chrome steel spheres are smashed together, enough heat is generated at the point of contact to burn a hole in a piece of ordinary paper! This amazing demonstration graphically illustrates the conversion of mechanical energy into heat energy. Although there are no flames, a charred hole appears along with the odor of burnt paper. The kit contains two steel spheres and instructions.

Preserve shock wave in aluminum foil!

Burns holes in paper upon impact!

Smashing! Steel Sphere Demo Kit

SAVE $28.95 / set of 2

HB-100 $5.95 each
HB-125 $5.95 / case of 12

Students find these fascinating. We use them for a distillation lab first and then to study vapor pressure later in the year.

- Judy W., Ashville, OH

NEW LOW PRICE!

Seismic Accelerator

The Seismic Accelerator illustrates the laws of conservation of momentum and energy during the creation of a supernova. Several balls are threaded on a plastic shaft. When the apparatus is dropped straight downward onto a hard surface, the top ball can rebound to a height equal to five times the original drop. WOW! Leads to an interesting discussion of what’s happened due to the Law of Conservation of Energy. Safety glasses included.

SS-150 $12.95

Radiometer

Originally designed by William Crooke in the 1860s, the radiometer still fascinates both young and old. When light shines on the four diamond-shaped vanes, the paddle wheel spins at up to 3,000 rpm. Great for illustrating the conversion of light energy into mechanical energy. Each vane is black on one side and white on the other. Because the black surface absorbs energy better than the white reflective side, the air molecules move faster near the black surface.

RAD-100 1-10 $10.95 each
11+ $9.95

Students find this fascinating. We use it for a distillation lab first and then to study vapor pressure later in the year.

- Michelle W., Stanley, NC

Horizontal Handboiler Demonstration

Transfer liquid back and forth using the heat of your hand! Amazing to see! Fascinates students! Challenge: Can you find a way to obtain clear liquid on one side and solid red dye on the other? Suggestions for experiments provided. 3.8 cm (1.5") dia. bulb, 18 cm (7") apart. Colors may vary.

HB-200 $7.95
Drinking Bird
Simply moisten the bird’s head with water, place it next to a full glass of water and watch as the bird periodically dunks its head into the glass for a “drink.” It continues for hours. Scientific explanation on our website. 15 cm (6”) tall. Colors may vary.

DB-100  $5.95 each
DB-110  $64.95 / case of 12

Choozitz Decision Balls
(Happy/Sad Balls)
These are the largest “Happy-Sad” balls we have seen! These two black rubber balls appear identical, but have extremely different physical properties. Dropped onto a hard surface, one ball bounces while the other hits the surface and stops immediately. An effective reminder to students that some properties cannot be observed without experimentation. Includes two 3.8 cm (1.5”) dia. balls.

SS-3  $7.75

Newton’s Kinetic YoYo
Demonstrate Newton’s classic laws of physics! With a flick of the wrist, set the spheres in motion. It really is “all in the wrist!” As the first sphere swings around, it stops and transfers its energy to the second ball, forcing it to swing around. With practice, students can even make the spheres ricochet off one another above and below the handle. Colors may vary. Two sizes. 10 cm (4”) handle or 20 cm (8”) handle.

NE-125 Small 10 cm handle  $6.95 / 12
NE-100 Large 20 cm handle  $6.95 / 5

Dropper Poppers
A Dropper Popper is more than just half of a rubber ball. This incredible device seemingly defies the laws of physics by bouncing higher than where you dropped it! Requires a small amount of “activation energy” to work. It is molded into a special shape that allows it to store elastic potential energy and then convert it to kinetic energy with a POP when dropped. Dropper Poppers make an engaging demonstration for any physics or chemistry class! 5.7 cm (2.25”) diameter.

POP-100 1 Dropper Popper  $2.75
POP-107 1 Dropper Popper and 2 Ping Pong Balls  $3.45
POP-112 2 Dropper Poppers and 10 Ping Pong Balls  $7.75
POP-124 20 Dropper Poppers and 40 Ping Pong Balls  $54.95

Newton’s Cradle
Find hours of entertainment with the best Newton’s Cradle we’ve ever seen for the price! Perfect for teaching your students about Newton’s laws of motion, makes a great addition to any classroom. ≈18 x 12 x 18 cm (7” x 4.5” x 7”).

NEW-100  $19.95

“I use these birds to have students make observations and inferences, demonstrate heat engines and discuss thermal expansion. Endless possibilities!”
- Diedre A., West Terre Haute, IN

“I love the Dropper Poppers. My 5th graders had fun using them and talking about force and motion concepts. We had a lot of ping pong balls flying everywhere outside.”
- Jennifer J., Belmont, NC
Mousetrap Car Kits

We designed our classic Mousetrap Racer kit for students ready to try the construction and operation of their first mousetrap race car (recommended for 4th grade and up). Our robust design features die-cut parts from Micro-lite Plywood for lasting durability and detailed instructions for each student.

Our Class Packs include enough materials to build 12 mousetrap racers with the following features:

- Mousetraps (power supply)
- Die-cut plywood wheels
- Die-cut chassis and body parts
- String (transmission)
- Brass eyelets (axle bearings)
- Rubber bands (tire treads)
- Die-cut balsa tires
- Dowels (axles)
- 12 instruction sheets and a teacher’s manual

MID-150 Class Pack of 12 $112.95

Pull-Back Cars

This simple and fun demonstration teaches how torque, speed, and friction can influence the distance an object travels. So many interesting physics concepts can be taught using these two pull-back cars, one with high torque (low gear) and the other with low torque (high gear). When pulled back the same amount and then released, both cars travel approximately the same distance, but one gets there in a hurry, while the other takes its time. ≈5 cm (2”) long. Colors may vary.

ROB-340 Pair of 2 Pull-Back Cars (one of each) $6.95

Wooden Car Kit

This wooden car is powered by an elastic band. When the potential energy of the stretched elastic is converted into kinetic energy of motion, the car will travel about three meters (=10 feet). Students can experiment by varying the method of winding the elastic, the number of turns, and the type of surface used. Easy to assemble.

WK-1 1-5 $8.95 each
6+ $8.25

Washers for Wooden Car Kit

Test your wooden car with yet another variable! These washers enable your students to tackle “weightier” experiments. Pack of eight.

WK-105 $1.95

Wooden Wheels

Provide your students with four wheels and ask them to construct a wooden car using scrap wood.

(Large 2" dia., 0.75" thick, 0.375" hole)

WK-2 $7.95 / 12

(Small 1.25" dia., 0.5" thick, 0.25" hole)

WK-3 $5.95 / 12

The Amazing Flywheel Powered ZeCar

These “simple machines” are perfect examples of the wheel and axle in action. Each beautifully constructed car consists of a brightly colored stainless steel flywheel connected to a pair of wheels through a series of gears. A gentle push spins the flywheel and supplies the ZeCar with the energy it needs to move and even climb gentle inclines. Have your students calculate the energy stored in the flywheel by measuring how high the ZeCar is able to climb up a ramp. Great for all grade levels. Colors may vary.

Klw-200 $13.95

OneCar

OneCar is a comprehensive, open-ended STEM system that allows students to explore energy and motion in as many ways as they can imagine—without soldering! Every kit includes eight OneCars. Each has a low-friction car chassis, four wheels, and ample components that can be assembled and de-constructed for multiple use. Students can design, build, test, and propel their cars in six different modes, using a solar panel, electric motor, capacitor, kitchen chemicals, compressed air, propeller and more. Your students will be in the engineering fast lane as they learn about simple machines, Newton’s Laws, electrical circuits, renewable energy, chemical reactions, energy conversion and more! Sold as an eight-pack with ample Teacher’s Notes. Additional instructions downloads available online. Batteries not included.

PHY-280 $129.00
Solar Cells
Use these solar cells to power small motors or other electrical devices that draw current. Each of these encapsulated solar cells will produce 400 mA at 0.9 volts. They can be used individually or connected in a series for more voltage or in parallel for more current. ≈6.5 x 9.5 cm (2.5” x 3.75”).

SLR-600 1-5 $10.95 each 6+ $9.95

The PowerWheel
The PowerWheel is a micro hydro generator—an amazing tool for teaching lessons on energy, hydro-power, and other renewable sources of energy. The unit easily connects to a classroom faucet or outside hose. Imagine charging a cell phone or laptop computer from the power of your faucet! The PowerWheel can be used to enhance lessons for students from kindergarten through 12th grade.

The Basic PowerWheel Bundle includes a fully-assembled PowerWheel, LED light strip, bridge rectifier, all the wiring to convert the AC output to DC (for powering battery powered devices), and a user’s manual with educational mini-lessons and suggestions for use.

The PowerWheel Incandescent Light - Show the difference in efficiency between the included LED lights and this two-bulb incandescent light. Includes two spare bulbs.

Electronic Tone Alert - Turn the electrical energy from your Power Wheel into sonic energy instantly!

Peltier Thermoelectric Cooler/Heater - Convert electrical energy directly into a temperature difference, or vice-versa. When 12 volts are applied to the leads, one side of the unit will become hot, the other cold.

Transparent Alternator Kit
Experience Mankind’s Greatest Discovery - Firsthand!

How is power made? The Transparent Alternator Kit (TAK) gives your students a chance to discover the answer to this question in an unforgettable way. In less than 20 minutes, students can create a simple device that will not only allow them to produce the energy to light up an LED…but help them understand how it happens. What a marvelous introduction to mankind’s greatest discovery, electricity! This simple device truly demonstrates the foundation of all technology. The discoveries continue as students explore what they can power with their copper wire and magnet alternator. With modifications, they’ll produce enough electricity to charge a cell phone! The alternator can be unwound, disassembled, and rebuilt over and over again.

OHM-150 Transparent Alternator Kit $19.95
OHM-155 Replacement Wire Coil for Transparent Alternator $6.00
OHM-160 Transparent Alternator Class Set of 10 $179.95

GRN-200 The Basic PowerWheel Bundle $179.95
GRN-210 The PowerWheel Incandescent Light $14.95
GRN-215 Electronic Tone Alert $3.95
GRN-220 Peltier Thermoelectric Cooler/Heater $9.95
GRN-225 Set of Tone Alert and Peltier $11.95

“Great hands-on tool for teaching about electricity. Affordable and reusable...good stuff!” - KC, Bellingham, WA
Power House
Great for Science & Technology Classes, Home Schools, and Student Projects For Ages 10+

With this kit, you can learn about alternative energy and sustainable living by conducting 100 experiments and building energy related models. Build the Power House and then conduct experiments in and around the house. Learn about energy-efficient construction materials and passive house design. Experiment with heating, cooling, conduction, convection, and insulation. Investigate Earth’s climate, the water cycle, and that inexhaustible power plant in the sky: the Sun. Test passive solar collection methods with a solar collector. Hook up a photovoltaic solar panel to generate electricity from sunlight. Build wind turbines to extract energy from the wind. Construct a greenhouse and learn about the energy conservation tricks used by plants.

EXP-110 $99.95

Multi Project Solar Kit
Mini solar building kits teach students the benefits of solar energy while they create a fun toy that requires no batteries. An excellent beginner building kit designed to show how solar power can be used to drive a small motor for any of six different devices: an air boat, windmill, robotic puppy, moving car, a stationary plane, or a revolving plane.

Works outside in sunlight or inside with a high intensity lamp! This kit includes a solar cell, motor, and 21 snap-together parts. No experience or tools required. For ages 10+.

ROB-550 $19.95

ROBOTIKITS
These three mini solar kits are easy to assemble and demonstrate alternative energy principles. Running on sunlight, they require no batteries. Small screwdriver and little or no experience required. For ages 10+.

The Super Solar Racing Car
This little car has surprising speed. It can be stopped quickly by shielding its power source. Eleven parts simply snap together. 5.5 x 4 x 1.5 cm (2.125” x 1.625” x 0.5”)

ROB-500 $10.95

The Frightened Grasshopper
In sunlight, the eyes jiggie, legs wiggle, and antennas sway to-and-fro as the frightened grasshopper dances. Seven parts simply snap together. 3.5 x 1.3 x 0.6 cm (1.325” x 0.5” x 0.25”)

ROB-510 $10.95

The Happy Hopping Frog
When placed in sunlight, this joyous amphibian sporadically leaps using its hind legs and rubber feet. With 26 parts, this kit is more challenging to assemble. 6.5 x 4.3 x 4.3 cm (2.5” x 1.75” x 1.75”)

ROB-520 $10.95

Salt Water Car Kit
This environmentally and kid-friendly vehicle reflects the new, cleaner ways we think about automobile use and demonstrates a more effective use of our natural resources. Now teaching “green” concepts is child’s play! As salt water reacts with the magnesium metal sheet (three sheets included) in the fuel cell module, the car can operate for five to seven hours continuously. If you want to park the vehicle, simply take out the fuel cell module, rinse with tap water, and dry. All the materials used in this kit are environmentally clean, with no toxins or disposal concerns. It will not produce heat, so it is completely safe. Refill includes five magnesium sheets, one air cathode, and one piece of non-woven fabric.

ROB-560 Salt Water Car Kit $15.95
ROB-562 Salt Water Car Refill $4.95

New Low Price!
Hydrogen Powered Car - Fuel Cell X7

A fuel cell produces bubbles of gas from water. This gas can be used to power a model car. Energy from two AA batteries is used to break apart water molecules into hydrogen and oxygen. When the hydrogen and oxygen are allowed to reform water molecules within a fuel cell, electricity is produced. Easy to use, this car demonstrates hydrogen as an alternative energy source for automobiles. (Two AA batteries and one liter of distilled water not included.) For ages 10+.

FC-125 $129.95

Mova Rotating Globe

This globe continuously rotates without the need of an energy source other than the ambient light of your home or office. Developed over the course of six years by a team of physicists, the globe operates in apparent violation of the laws of thermodynamics. An enclosed photocell uses room light to power an internal drive that interacts with the Earth’s magnetic field to spin the globe. The globe is suspended in a clear liquid inside of a clear shell, allowing a mere 0.1 microwatts of energy to cause rotation. The globe continues to spin even when held in your hand. A three-prong acrylic base is included. 11.5 cm (4.5”) dia. Full explanation included.

MOVA-30 $135.00

MudWatt

Electricity from Mud

Our MudWatt products are fun and educational science kits that use the natural micro-organisms found in soil to generate electricity. Microbiology, chemistry, and electrical engineering all in one versatile STEM-based kit!

Although we cannot see them with the naked eye, micro-organisms are all around us. One particular species of microbes possesses the unique ability to release electrons outside their bodies as part of their natural respiration. Each of our MudWatt kits utilizes this remarkable ability by providing mud-based microbes with two conductive graphite discs—the anode and cathode. The anode is placed within the mud where the electrogenic microbes grow, and the cathode is placed on top, exposing it to oxygen in the air.

All MudWatt kits come with everything you need, except soil. So dig in and get revved up! You’ll know your bacteria is generating power when you see the LED light blinking. Free lessons and interactive MudWatt Explorer app available online.

<table>
<thead>
<tr>
<th>Kit</th>
<th>Description</th>
<th>Price</th>
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<tr>
<td>OHM-250</td>
<td>MudWatt Core Kit</td>
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<tr>
<td>OHM-270</td>
<td>MudWatt Classroom Pack</td>
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See our website for complete details on these exciting kits!
Green Science Kits

Set of all three Green Science Kits below. All require recycled bottles or cans and a screwdriver. Ages 8+.

**Solar Robot**
Make a green-powered, simple machine with visible gears, levers, motor, and a solar panel. Students can recycle cardboard or other everyday materials to customize their Solar Robot. Runs on solar energy or direct indoor light source. No batteries required. For ages 8+.

- **GRN-410**
- **$16.95**

**Solar Rover**
Build and customize your battery-free Solar Rover, place it in the sun and watch it zip along! The reflectors and solar panel turn sunlight into the energy that runs the motor. Can be built with or without a soda can body. For ages 8+.

- **GRN-415**
- **$16.95**

14-in-1 Educational Solar Robot
Use solar powered technology to mix and match parts to make 14 unique solar robots. Engineer moving, rolling, and swimming robots. Robots can be used on both land and water. Make a companion dog-bot, a crawling turtle-bot, a scurrying beetle-bot, a wheel bot, boat bot, and more! Extremely detailed instructions with 190 mix-and-match parts. For ages 8+. Parental assistance might be needed depending on skill level.

- **ROB-575**
- **$35.95**

**Windmill Generator**
Watch the LED glow as it is powered by energy from the wind! No batteries required.

- **GRN-100**
- **$11.95**

**Dynamo Torch**
Convert a small motor into a generator, which can be used to power a light bulb. No batteries required.

- **GRN-110**
- **$10.95**

**Tin Can Robot**
Turn a metal can into a walking, wobbling, bug-eyed robot. Uses one AA battery (not included).

- **GRN-120**
- **$14.95**
Electric Paint (10 ml)
Create your own circuits without using wires! Our Electric Paint provides a great platform for discovering, playing, repairing, and designing electronics. Electric Paint can be used as both a liquid wire and a conductive adhesive. Using this handy tube allows you to draw circuits and attach small components to your projects. Works great on many materials including paper, plastic, textiles, and conventional electronics (but not skin). The paint dries quickly at room temperature. Once dry, you can even overlap the paint and the two layers won’t interact, allowing you to overlap circuits! Washable and nontoxic.

Electric Paint Circuit Kit
Includes an Electric Paint tube (10 ml), five LEDs, and five CR2032 batteries.

Series vs. Parallel Circuits

Light Bulb Experiment Kit
Demonstrate the difference between parallel and series circuits in a vivid way students can easily understand. This kit contains four Light Bulb Holders with Fahnestock Clips, four pairs of Jumper Wires with alligator clips, 10 Miniature Light Bulbs, eight D-Cell Battery Holders, and eight D batteries.

Jumper Wires
These plastic covered wires with alligator clips are perfect for electricity experiments. Each wire is 30 cm (12") long. Use with our D-Cell Battery Holders and Light Bulb Holders (sold separately). Five black and five red.

Light Bulb Holder with Fahnestock Clips
This miniature light bulb holder is great for teaching about electricity, circuits, and voltage. Easily attach batteries and bulb using the Fahnestock Clips. Simply push on the tab and insert the wires, or use alligator clips. Miniature light bulb sold separately.

Battery Holders
These versatile battery holders can be connected together in parallel or series circuits for many different experiments. D-Cell Battery Holders available individually or in a pack of four. AA battery holders available only as a pack of four. (Batteries not included.)

Miniature Light Bulbs
These miniature light bulbs are perfect for use with our Light Bulb Holder with Fahnestock Clips. Available in 1.5 or 3 volts.

See inside front cover for details.
**Energy Ball**

The Energy Ball is all you need to safely introduce your students to electric energy. This is a fun way to demonstrate open and closed series circuits without any danger of electric shocks! When the ball is “turned on,” a red light flashes and a buzzer sounds. Activating the ball is the fun part—just touch the metal strips with your two index fingers. Your body forms the conducting material that bridges the gap between the two metal strips and closes the circuit!

SS-30

<table>
<thead>
<tr>
<th>Age</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-15</td>
<td>$3.95 each</td>
</tr>
<tr>
<td>16+</td>
<td>$3.50</td>
</tr>
</tbody>
</table>

“Energy Balls are an excellent way to demonstrate how circuits work. We had fun seeing how many people we could include in a series circuit (60 people and it still worked)!”

- Terry B, Ontario, Canada

**Energy Tube**

Safely demonstrate open and closed series circuits without any danger of electric shocks! When the tube is “turned on,” the red, green, and blue lights flash and it makes a funny buzzing sound. Activating the tube is the fun part—just touch the metal ends with both hands. Your body forms the conducting material that bridges the gap between the two metal strips and closes the circuit! 7” x 1.5”

OHM-350 $7.95

**Electronic Snap Circuits**

Snap together electronic blocks to build over 300 different electronic circuits. All of the components (diodes, capacitors, resistors, transistors, etc.) are mounted with snaps that can be easily connected and disconnected. No soldering! No wire twisting! Learn by snapping together components to build:

- Light Bulb Circuits
- Fire Engine Siren
- Musical Door Bell
- Water Detector
- Electronic Fan
- Radio

OHM-125 $61.95

**Snap Circuits Jr.**

This kit includes instructions for more than 100 projects, ranging from flying saucers to sound-activated switches and alarms that play music. Contains over 30 parts including a motor, photoresistors, and multiple switches, plus an illustrated manual with instructions for over 100 projects. Uses two AA batteries (not included). For ages 8+.

OHM-130 $29.95

**Water Alarm**

Test different liquids to see what tone they produce.

**Our free lesson is loaded with classroom activities!**

Use with our Plasma Globe (page 103) for an electrifying demonstration!
HomoMotor Kit
Introduce your students to one of the simplest devices, the homopolar electric motor. Credited to Michael Faraday, it does not involve the polarity change of more complex motors. Includes instructions to make three different styles of motors: pinwheel, spiral, and butterfly. Students can build the motor, make it run, and then break it down to make a different one. They can even design and build their own variations. Regular Kit contains all materials (including batteries) for two motors. Class Kit contains all materials (including batteries) for 24 motors.

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIT-700</td>
<td>HomoMotor Kit</td>
<td>$6.95</td>
</tr>
<tr>
<td>KIT-710</td>
<td>HomoMotor Class Kit</td>
<td>$49.95</td>
</tr>
</tbody>
</table>

Plasma Globe Experiment Kit
Each kit includes one fluorescent tube, 10 neon lamps, activity guide, and one diffraction slide.

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLS-110</td>
<td>Plasma Globe Experiment Kit</td>
<td>$11.95</td>
</tr>
<tr>
<td>PLS-120</td>
<td>30 Extra Neon Lamps</td>
<td>$21.95</td>
</tr>
</tbody>
</table>

Pinwheel

Plasma Globe
A fun and safe way to demonstrate Tesla Coils! Inside this globe, a Tesla Coil ionizes gas molecules, creating a plasma. As free electrons return to the gas molecules, light is produced. When you touch the glass globe, your fingers act as a source or sink of electrons, producing a unique light pattern. Totally awesome!

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>PLS-100</td>
<td>18 cm (7”) Globe</td>
<td>$39.95</td>
</tr>
<tr>
<td>PLS-150</td>
<td>7.6 cm (3”) Globe</td>
<td>$19.95</td>
</tr>
</tbody>
</table>

The Electri-Putty Kit
A surefire way to teach electric circuitry to students of all ages! Our Electri-Putty Kit is the ultimate in hands-on learning. We provide the recipes for conductive and insulating dough (non-toxic, of course!) as well as four sturdy jumper wires, 10 jumbo LEDs in assorted colors, a vibrating motor, a tone alert buzzer, a 9v battery, and battery holder. Your students can start building basic circuits and quickly proceed to motorized, buzzing dough creations. The only limit is their imagination! Each kit includes easy-to-follow dough recipes as well as activity suggestions.

<table>
<thead>
<tr>
<th>Kit Code</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>OHM-375</td>
<td>Electri-Putty Kit</td>
<td>$14.95</td>
</tr>
</tbody>
</table>

Learn more on our blog!
ELECTRICITY

Oudin Coil with Safety Switch
Like a hand-held Tesla Coil

This Oudin Coil is often mistakenly referred to as a hand-held Tesla Coil. The coil is self-contained in a heavy duty Bakelite case which forms a convenient handle. The spark is adjustable from 10,000-50,000 volts at frequencies of approximately ½ megahertz. The high frequency spark produced is about 1” long and can be used for a wide array of applications. The electrode is approximately 2” long and the instrument is furnished with an intensity adjusting knob. For 115 v, 50/60 Hz. An improved safety feature is the on/off momentary switch in the handle.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Battery Description</th>
<th>Quantity/Pack</th>
<th>Price/Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS-10</td>
<td>Oudin Coil w/Safety Switch</td>
<td></td>
<td>$229.95</td>
</tr>
<tr>
<td>HS-135</td>
<td>Replacement Tip for Oudin Coil</td>
<td></td>
<td>$39.95</td>
</tr>
</tbody>
</table>

“After our 20 year old Tesla Coil could no longer be revived, I searched for its replacement. I found the best price on a new one from Educational Innovations. Not only was it the best price, but this model is much safer to use because it is activated with a safety button in the center of the unit.”
- Alison M., Greensboro, NC

Oudin Coil Visualizer

This unique addition to a hand-held Oudin Coil replaces the standard issue brass probe. Screw in an ordinary clear light bulb and it turns your Oudin Coil into a great high voltage demonstration! Note: requires a hand-held Oudin Coil (HS-10) and light bulb, not included.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Battery Description</th>
<th>Quantity/Pack</th>
<th>Price/Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>HS-5A</td>
<td>Oudin Coil Visualizer</td>
<td></td>
<td>$34.95</td>
</tr>
<tr>
<td>HS-5B</td>
<td>5” Clear Globe Bulb (perfect for Oudin Coil Visualizer)</td>
<td></td>
<td>$11.95</td>
</tr>
</tbody>
</table>

“After our 20 year old Tesla Coil could no longer be revived, I searched for its replacement. I found the best price on a new one from Educational Innovations. Not only was it the best price, but this model is much safer to use because it is activated with a safety button in the center of the unit.”
- Alison M., Greensboro, NC

Extra Heavy Duty

For Student Projects

Batteries

These low-cost, extra heavy duty carbon-zinc batteries are ideal for after-school programs, workshops, and general laboratory work where the battery is used for short periods of time. Sold only in packs or cases.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Battery Type</th>
<th>Quantity/Pack</th>
<th>Price/Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAT-10P</td>
<td>AA</td>
<td>40</td>
<td>$14.95</td>
</tr>
<tr>
<td>BAT-20P</td>
<td>C</td>
<td>24</td>
<td>$11.95</td>
</tr>
<tr>
<td>BAT-30P</td>
<td>D</td>
<td>24</td>
<td>$12.95</td>
</tr>
<tr>
<td>BAT-40P</td>
<td>9 volt</td>
<td>10</td>
<td>$7.95</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Item #</th>
<th>Battery Type</th>
<th>Quantity/Pack</th>
<th>Price/Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAT-10C</td>
<td>AA</td>
<td>800</td>
<td>$248.00</td>
</tr>
<tr>
<td>BAT-20C</td>
<td>C</td>
<td>288</td>
<td>$129.00</td>
</tr>
<tr>
<td>BAT-30C</td>
<td>D</td>
<td>288</td>
<td>$139.00</td>
</tr>
<tr>
<td>BAT-40C</td>
<td>9 volt</td>
<td>480</td>
<td>$340.00</td>
</tr>
</tbody>
</table>

Button Batteries

For a variety of small electronic devices.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Battery Type</th>
<th>Quantity/Pack</th>
<th>Price/Pack</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAT-50</td>
<td>CR2032 Lithium</td>
<td>5</td>
<td>$10.95</td>
</tr>
<tr>
<td>BAT-55</td>
<td>L1154 Alkaline</td>
<td>10</td>
<td>$5.95</td>
</tr>
<tr>
<td>BAT-60</td>
<td>389 Silver Oxide</td>
<td>10</td>
<td>$10.95</td>
</tr>
<tr>
<td>BAT-65</td>
<td>S1154S Silver Cell</td>
<td>10</td>
<td>$10.95</td>
</tr>
<tr>
<td>BAT-70</td>
<td>CR2016 Lithium</td>
<td>5</td>
<td>$10.95</td>
</tr>
</tbody>
</table>
Static Electricity Electroscope

We’re all familiar with the static charges that occur when we remove a wool sweater, but detecting and measuring static can be a bit tricky. Now you can visually demonstrate the presence of a static charge with this classic flask electroscope. Simply place the two aluminum ribbons onto the hook inside of the flask. If a static charge is nearby, the two ribbons will repel away from each other. The stronger the charge, the farther apart the ribbons separate. Charged objects do not need to touch the flask at all. Simply bring them near the insulated metal platform to observe the effect in action. Test different materials for their static potential. Does darker hair create more of a static charge than lighter hair? What happens if you rub your feet on the carpet on a dry day and then bring your hand near the electroscope? Includes glass flask, stopper, rod, aluminum ribbons, and activities. (Not intended for use by children under 12.)

STC-200 $12.95

Static Spheres

People tell us our Static Spheres are downright addictive. Imagine holding physical proof of the Laws of Motion and static electricity in the palm of your hand! You’ll be mesmerized as these tiny spheres roll, flip upside down, and form patterns—without ever touching! Our Static Spheres are amusing and educational. Perfect as a gift, party favor, or hands-on activity for your science lab. Made in the USA. 5.5 cm (2.2”) dia.

STC-150 $3.50

Styrofoam Pellets

These pellets are extremely clean and smooth. Their insulating qualities make them perfect for all kinds of static electricity experiments. The pellets move so easily over each other, a container full pours nearly as easily as a liquid. They can even be used to model the physical differences between solids, liquids, and gases.

STY-100 ≈2 liters $9.95

Brite Star Tinsel Levitating Orb Experiment

Create your own static electricity activity! All you need is some tinsel and a source of static electricity. Knot several strands of Brite Star Tinsel on both ends, grab a PVC pipe, a latex balloon, a wiffle ball bat, or a FunFlyStick™ to charge your orb, and you’re ready to go! Each package comes with 1,000 strands, so one package will last years!

VAN-260 $1.25

Static Tube Kit

This 9” plastic tube is filled with small styrofoam pellets that jump back and forth when the tube is statically charged. The single kit includes different materials to test on the tube. Perfect for demonstrating that like charges repel and unlike charges attract. Comes with instructions and suggested activities. Class kit contains styrofoam pellets, 16 tubes and caps, instructions, and suggested activities. (You will need to supply your own test materials!)

SS-7 Single Kit $7.95
SS-705 Class Kit $15.95

Demonstrate how like charges repel and unlike charges attract!
Hand-Powered Flashlight

Change kinetic energy from your hand into light energy. This hand-held “dynamo” is easily visible. It clearly demonstrates how electrical energy can be produced by moving an electrical conductor through a magnetic field—a discovery made by Michael Faraday in 1831.

This unit has a built-in non-rechargeable, non-replaceable battery that can provide light for many hours, showing the efficiency of modern LED lighting technology. However, no batteries are ever required—no bulb to replace. This is a great safety item. Place one in your car, next to your bed, or in your tool box and you will always have light when you need it without the worry of discovering dead batteries!

SS-234 $12.95

World’s Simplest Motor™

This easily assembled motor is able to run for more than five hours on a simple flashlight battery. Recommended for ages 8+. Uses one D-cell battery (not included). Colors may vary.

SS-11
- 1-10 $4.95 each
- 11+ $4.45

Replacement Wire for Motor

With these replacement wires, you can buy a class set of our World’s Simplest Motors and have students wind their own armatures year after year. The wire is the same used in the original kit (SS-11).

SS-11A
- 5 wire coils / pkg $4.95

Magnetic Force Flashlight With Two Coils!

One to two minutes of vigorous shaking is enough to produce hours of light! The secret to this new and improved flashlight is the double coils inside, which create twice the electricity and give you twice the illumination. Completely waterproof, buoyant, and virtually unbreakable, this flashlight is the best we’ve ever seen. Amaze your students while teaching them about Lenz’s law. Includes detailed instructions. 20 x 3.8 cm (7.8” x 1.5”), 235 g (8.3 oz).

LGT-100 $24.95

Hand-Cranked Generator

This hand-held crank generator produces up to 12 volts of DC electricity. It can be connected to an external circuit or used independently as a flashlight with the included bulb. Housed in tough transparent plastic, all components can be easily observed. When compared with similar products costing more than twice as much, we overwhelmingly preferred this one for its simplicity and usability.

GEN-100 $21.95
Using the copper and aluminum tubes together, you have an instant example of how a material's conductivity affects the magnet's drop time.

Super-Large Eddy Current Tubes
As you drop neodymium magnets down these large diameter, thick-walled copper and aluminum tubes, you can watch them twist and turn as they slowly fall. Each tube kit listed below contains a thick-walled Eddy Current Tube and sample neodymium magnets. The length of the heavy-walled aluminum tube is calculated so that magnets take approximately the same amount of time to fall as the short copper tube (ED-100).

<table>
<thead>
<tr>
<th>Item #</th>
<th>Material</th>
<th>≈ Tube Length</th>
<th>≈ Fall Time</th>
<th>Incl. Neo Magnets</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED-100</td>
<td>Copper</td>
<td>18 cm (7&quot;)</td>
<td>4 sec.</td>
<td>2 rings</td>
<td>$39.95</td>
</tr>
<tr>
<td>ED-125</td>
<td>Aluminum</td>
<td>36 cm (15&quot;)</td>
<td>4 sec.</td>
<td>2 rings</td>
<td>$29.95</td>
</tr>
<tr>
<td>ED-140</td>
<td>Copper</td>
<td>61 cm (24&quot;)</td>
<td>18 sec.</td>
<td>1 sphere</td>
<td>$99.95</td>
</tr>
</tbody>
</table>

Use with Magnetic Field Viewer Film (page 110) for an amazing effect!

Demonstrate Lenz's Law!

Eddy Current Rods
Invert the apparatus and observe the magnets simultaneously sliding down three different rods! The velocity is inversely related to the conductivity of the materials: copper, aluminum, and rigid plastic. A recreation of an old, hand-made apparatus found in a university physics storeroom, this is great for demonstrating Lenz's Law! 21.6 x 28 x 1.9 cm (8.5" x 11" x 0.75").

Neodymium Magnet Experimenter's Set
This set includes a fantastic assortment of our most popular neodymium magnets, which work well with all of our Super-Large Eddy Current Tubes. Each has different characteristics along with slightly different fall times. A must for every teacher or student experimenting with eddy current tubes! See page 113 for magnet dimensions and other details. Not intended for children under 12 years.

<table>
<thead>
<tr>
<th>Item #</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED-175</td>
<td>$49.95</td>
</tr>
</tbody>
</table>
Micro Diamagnetic Levitation Kit

Float a small square of pyrolytic graphite above a set of magnets at room temperature! This fascinating form of graphite is one of the few materials that one can easily observe being repelled by a magnetic field. In fact, at room temperature, pyrolytic graphite has the greatest diamagnetic susceptibility of any known material. The demonstration is small (~6 x 6 mm) but impressive! Instructions included.

M-950 $14.95

"These magnets make it easy to demonstrate polarity and the forces of attraction and repulsion. Who doesn’t love to see a floating magnet!?"
- Michele C., State College, PA

Levitating Platform

Our most advanced levitation device is now better than ever! Includes a smoky plastic base, colored globe, a magnetic hover disc that can float objects (up to 13 oz) in mid-air, and tools to make setting up the platform a snap! The translucent platform enables you to observe the inner workings of this astonishing device. Four white accent LEDs spotlight the items you choose to display. Use the Levitating Platform to float your favorite collectibles! Base is ~10.5 cm (4") across. Runs on AC power.

LEV-240 $92.95

"These magnets make it easy to demonstrate polarity and the forces of attraction and repulsion. Who doesn’t love to see a floating magnet!?"
- Michele C., State College, PA

“New & Improved!”

Instead of using a super cooled superconductor, this demonstration takes advantage of the diamagnetic effect present in many common materials (water, wood, plants, animals, diamonds, fingers, etc.), but is strongest in graphite and bismuth.

Floating Ring Magnet Set

Defy gravity! This amazingly simple set is a great demonstration of magnetic fields—the colorful magnets float effortlessly above each other! It’s sure to have your students saying "Super! Wow! Neat!" One base, four rings per set.

M-780 $5.95 each

Pyrolytic Graphite!

U.S. nickel

"These magnets make it easy to demonstrate polarity and the forces of attraction and repulsion. Who doesn’t love to see a floating magnet!?"
- Michele C., State College, PA

U.S. nickel

Demonstrate magnetic fields!
Ferrofluid Display Cell

A fantastic way to demonstrate ferrofluid with students of any age. The sturdy 5.5” plastic display cell is completely sealed and resistant to breakage. Use the cell with any strong magnet to illustrate the incredible properties of this amazing liquid. Demonstrate lines of force or show how charged particles stream into a star. Produced cooperatively with Ferrofluidics Corporation.

Note: The Ferrofluid in the display cells is not the same as the bulk ferrofluid. Bulk ferrofluid cannot be used to make a display cell.

New Low Price!

Magnaprobe

The Magnaprobe is a highly sensitive probe for studying three-dimensional magnetic force fields. It is far more convenient and accurate than the traditional methods using compasses and iron filings. Shown with our best-selling Cow Magnet (page 111).

Super Ferromagnetic Silicone Putty

This silicone bouncing putty responds to the presence of a magnetic field. Place a blob near or between two strong magnets and watch what happens. Especially good attraction with our neodymium magnets.

Includes a 1.3 cm (0.5”) neodymium cube.

Ferrofluid Bolt Kit

Our Ferrofluid Bolt Kit comes with everything you need to create the amazing field spikes seen here. Each kit includes a 50 ml bottle of ferrofluid, a special ferrous nut and bolt, and magnets. Can be used again and again.

Great for Demonstrations

The Ferrofluid Adventure Science Kit

Demonstrate magnetic fields in an incredible way! The Ferrofluidic Adventure Science Kit contains everything necessary (including magnets and a 17-page instruction booklet) to conduct fascinating experiments with ferrofluid—the only known ferrous liquid. We’re sure this kit will totally amaze you and your students. Because ferrofluid can be quite messy if handled recklessly, we recommend this kit for hands-on use with students in middle school and older. Great demonstration for younger students.

Not available for international shipping or shipping by air.
**Magnetic Field Viewing Cube**

The Magnetic Field Viewing Cube is a striking new way for students to observe magnetic field lines—in 3D! Even students who have seen magnetic fields demonstrated on a two-dimensional plane will be fascinated. Save yourself the mess of loose iron filings with this sealed, transparent acrylic box. Simply shake the oil-filled cube, drop the cylindrical magnet (included) into the center compartment, and watch the iron filings respond to the magnet’s presence. Durable enough to allow students to handle individually or use it with an overhead projector to share with a large group. Countless opportunities for experimenting with variables. Cube measures 3” x 3” x 3”.

M-255 $42.95

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**Magnetic Field Pattern Window**

Easily observe magnetic field pattern lines. Whether placed on top of white paper or projected on the screen, these sealed particles of iron move in a fluid to show the field lines of magnets. Includes a sealed magnetic field window, pair of small ferrite block magnets, a pair of plastic cased bar magnets, and teacher instructions. 22 x 12 x 0.9 cm (9” x 5” x 0.35”).

M-617 $59.95

---

**1 Pound of Iron Filings**

Experiment with magnetic fields using iron filings. Place a magnet under a piece of paper and shake the filings on top. The filings will reveal the magnetic field lines. Hint: Place your magnet in a plastic bag to avoid the mess of cleaning iron filings off your magnet. Each bottle contains one pound of filings.

M-600 1-5 lb $5.95 / lb

6+ lb $4.95

---

**Sealed Iron Filings**

Iron filings in a sealed plastic case. See how iron filings react with magnets and show magnetic fields without the mess. 9.4 x 6.8 cm (3.7” x 2.7”).

M-610 1-10 $2.95 each

11-99 $2.75

100+ $2.25

---

**Magnetic Field Viewing Strip**

Observe a falling magnet in one of our Eddy Current Tubes (page 107) by attaching this magnetic viewing film to the outside of the tube. A truly amazing sight! 2.5 x 90 cm (9” x 36”).

M-565 $10.95

---

**Magnetic Field Viewer Card**

Use this amazing viewer card to convey the concept of magnetic poles. It shows exactly where and how many magnetic poles are on any small magnet. Great for identifying magnets!

M-555 1-10 $2.95 each

11+ $2.50

---

**Magnetic Field Viewer Film**

This micro-encapsulated film enables students to view a static magnetic field, such as found around permanent magnets or DC electromagnets. Simply place the film directly on the surface of the magnetic material in question and instantly reveal a magnetic field of any shape or pattern. You can easily identify the poles. The film is highly flexible and quite durable. It can be laminated. 30 x 30 cm (12” x 12”) square. Make interesting patterns by dragging magnets across the film.

M-560 12” x 12” $32.95

M-570 6” x 6” $10.95

---

TexT 110 phone: 203-74-TEACH (83224)

fax: 203-229-0740

www.TeacherSource.com
Buzzing Stunt Magnets

When two magnets are attracted to each other, you know there’s likely to be a collision. Our Buzzing Stunt Magnets do something you may not expect—they scream! Toss these two unique magnets into the air, or lay them on a low friction surface about 15 cm apart. As they collide, they produce a high-pitched clattering sound. Some say it sounds like a cicada or high voltage sparking. We say it’s amazing! What makes the sound? Why does one magnet turn when the other is spun around? This is a great puzzler for students. Critical thinking and problem solving ahead!

BUZ-100 $3.95 / pair

Ceramic Magnets

These ceramic magnets are available as ring or bar magnets. The ring magnets fit perfectly over a standard pencil and are great for demonstrating magnetic repulsion. Use them to collect magnetite (black iron mineral) out of beach sand. Hint: Place your magnet in a plastic bag to avoid the mess of cleaning the magnetite off later. Fun, safe, and strong.

Ceramic Bars 0.375" thick x 0.875" x 1.875"
M-700 1-5 packages of 2 6+ packages $2.25 / pkg $2.05

Ceramic Rings 1.25" in diameter with a 0.375" hole
M-710 package of 20 $9.95 / pkg
M-715 package of 100 $44.95

Cow Magnet

This standard Alnico cow magnet is stronger than bar magnets of equal size. Cow magnets have a pole at each end and are perfect for a 3D demonstration of magnetic fields. Simply put the cow magnet into a test tube, then lower the test tube into a clear 16 oz soda bottle filled with mineral oil (or glycerin) and iron filings. Shake the bottle, and watch the iron filings line up all the way around the magnet!

M-400 $6.95

Why “cow” magnet? Farmers often place one of these magnets in a cow’s stomach to catch nails or small pieces of iron that the cow might ingest. This prevents damage to a cow’s stomach, or “Hardware Disease.”
Rainbow Magnets
Our brightly-colored Rainbow Magnets are perfect for small hands. A great teaching aid to help students discover that opposite poles attract and like poles repel. These durable, pinch-resistant magnets are enclosed in plastic for easy clean up. Students can conduct an investigation to compare the different strengths or directions of pushes and pulls on the motion of an object. How will the magnets interact? Can you make them “flip”? Countless explorations for young scientists! Magnets are 5.3 x 2.5 x 1.3 cm (2” x 1” x 0.5”). Not suitable for children under 3.

- M-670 Rainbow Magnet 6 pack $7.95
- M-675 Rainbow Magnet 20 pack $19.95

Magnetic Marbles
These aren’t your ordinary marbles—they’re magnets! They attract and repel each other, making them interact in amazing ways. Everyone loves to play and learn with them! 15 mm (0.6”) dia.

- M-620 20 / bag $5.95
- M-625 400 / bag $74.95

Create awesome magnetic sculptures!

Rainbow Magnets
Magnetic Wands
Each brightly-colored wand contains a permanent magnet molded into the end of a durable plastic handle. With these magnetic wands, there is less chance of students pinching their fingers. 7.5” long each. Style and colors may vary.

- M-630 $6.95 / pkg
- M-510 1-19 20+ $1.75 each $1.55
- M-512 Case of 100 $135.00

Magnetic Sand Timer
Instead of sand, the Magnetic Sand Timer is filled with black iron filings. Set the device on its stand and watch the metal grains arrange themselves into a beautiful, spiked sculpture. What’s the secret? A powerful rare earth magnet is hidden in the base. Each time you turn it over, a different pattern is formed as the ferrous material is drawn into the magnetic field. Not intended as a real time-keeping device; actual times will vary. ≈14 cm (5.5”) tall.

MAG-300 $7.95

Magnetic Marbles
Magnetic Counting Chips
These colorful little transparent discs are not magnets, but have a thin metal band around the outside, making them attractive to magnets of all kinds. Counting chips are perfect for exploring the properties of magnetism. 100 chips per pkg.

- M-630 $6.95 / pkg
- M-660 $6.95 / pkg
- M-665 $19.95 / pkg
- M-670 Rainbow Magnet 6 pack $7.95
- M-675 Rainbow Magnet 20 pack $19.95
- M-620 20 / bag $5.95
- M-625 400 / bag $74.95

“Create awesome magnetic sculptures!”

Magnetic Wands
Magnetic Sand Timer
Rainbow Magnets
Magnetic Marbles
Magnetic Counting Chips

“Discuss these magnetic wands are easy for kids to handle. They are great for demonstrations.” - Nancy, Cleveland, AL
Super Special: 25 Neodymium Ring Magnets

These super-strong, nickel-plated, rare earth magnets are great for projects. You won’t find a better deal on neodymium magnets anywhere—at least we haven’t yet. 17 mm OD, 10 mm ID, 3 mm thick. *Not intended for children under 12 years.*

M-187 $19.95

Large Neodymium Spheres

These extremely strong spherical magnets have a north/south orientation through their axis, allowing them to be strung into infinite chains. Not for children under 3 years old. 1.9 cm (0.75") dia. *Not intended for children under 12 years.*

M-190 $10.75

Neodymium Magnets

Neodymium is one of the most powerful magnet materials in the world and has a high resistance to demagnetization. These magnets can be used for a variety of incredible experiments, such as removing the iron from fortified breakfast cereal, and attracting the magnetic ink in a dollar bill. These magnets are used in computer disk drives, motors, and loud speakers. An incredible value! *Not intended for children under 12 years.*

M-100 (large trapezoid) 0.75" x 1.3" x 0.47" thick $9.95
M-150 (small disk) 0.5" dia. x 0.1" thick $3.50
M-165 (large disk) 1" dia. x 0.25" thick $7.95
M-180 (ring) 0.75" OD; 0.375" ID; 0.25" thick $4.50

ED-175 Neodymium Experimenter’s Kit $49.95
*Includes two M-180’s, one M-100, one M-195, one M-190, and one M-165*

Our Largest Neodymium Magnet

We are pleased to offer our largest and most powerful neodymium magnet. For teacher demonstrations only! 7/8" OD x 1" high.

M-195 $16.95

Please exercise extreme caution with these very powerful magnets! For teacher demonstrations only! Safety glasses recommended.

WARNINGS:

Choking Hazard - Keep neodymium magnets away from small children.

Magnets are harmful if swallowed. Can cause fatal injuries or infections if ingested.

Injury Hazard - Handle with extreme care to avoid injury and/or damage to the magnets. Fingers can be pinched between attracting magnets, and magnet can chip if allowed to “jump” at an attracting surface or object.
Shinco Microscope

The Shinco Scope is designed for rugged student use. It has easy threaded focus, efficient prism illumination, and a locked-on eyepiece. Its 5X eyepiece and 6X objective give a total magnification of 30X. Includes a vinyl cover and a set of five common slides. Weight: 2.4 lb.

MIC-500  1-5  $86.95 each  $76.95
         6+  $155.95 each

See our website for all of our Shinco accessories!

Deluxe Shinco Kit

Includes microscope, 5X & 10X eyepieces, 6X, 10X, & 40X objectives, field case, vinyl cover, and a set of five common slides. Color of field case may vary.

MIC-595  Deluxe Shinco Kit  $189.95
CASE-200  El Utility Field Case  $24.50

Accessory Lenses

Fit both Shinco and Brock microscopes.

MIC-350  10X Eyepiece  $29.95
MIC-360  10X Objective  $29.95
MIC-370  40X Objective  $43.95

Brock "Magiscope" Microscope

The Brock Magiscope is known for its ruggedness, simplicity, and versatility—perfect for science classroom use. With the fine adjustment ramp, it is even easier to focus. It has only one moving part, no batteries, and no breakable glass mirrors. This model, with its 5X eyepiece and 4X objective lens, gives 20X magnification. Height: ≈9.5". Weight: ≈1.8 lb.

MIC-310  $178.95

Deluxe Brock Kit

Includes Magiscope, 5X and 10X Eyepieces, 4X, 10X and 40X Objectives, and Field Case.

MIC-377  Deluxe Brock Kit  $273.95

Plastic Magnifier 3X/6X

Sturdy, inexpensive, quality magnifier. Dual lens 11.3 cm (4.5") long.

LEN-325  1-19  $1.00 each  $0.75
         20+  $0.75 each

See our website for all of our Brock accessories!
Mini Inspector with Smartphone Attachment

This easy-to-use, compact instrument magnifies items approximately 60 times for close-up examination. Built-in LED lamp illuminates for clear view and UV (black light) provides added versatility. Includes leatherette storage case. Dozens of uses include entomology, plant specimens, coin collections, and stamp collections. Use UV light to reveal forensic specimens, security marks on US and foreign currency, security marks on credit cards, IDs and passports, and to spot counterfeits. Uses three LR1130 button cell batteries (included).

Fit this Mini Inspector to your smartphone with the special attachment so your samples can be viewed and photographed with the phone’s camera!

MIC-660 Mini Inspector $12.95
BAT-60 Repl. Batteries 10 / pkg $10.95

Pocket LED Hand-Held Microscopes

Powerful magnification with an extremely lightweight and portable design. These pocket microscopes features a built-in LED light that provides a bright, clear image and a rubberized eyepiece for comfortable viewing. They fit easily in your pocket so you can bring them with you anywhere. The MIC-620 features a built-in UV light, a key chain ring, and is bright orange to make it easy to find in the field or classroom!

<table>
<thead>
<tr>
<th>Item #</th>
<th>Power</th>
<th>Batteries</th>
<th>Size</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIC-610</td>
<td>60x-100x</td>
<td>3 SG3 (included)</td>
<td>1.3” x 0.5” x 3.5”</td>
<td>$16.95</td>
</tr>
<tr>
<td>MIC-615</td>
<td>60x-120x</td>
<td>1 AA (not included)</td>
<td>2.3” x 1.2” x 3.7”</td>
<td>$16.95</td>
</tr>
<tr>
<td>MIC-620</td>
<td>20x</td>
<td>3 G12 (included)</td>
<td>1.5” x 0.9” x 1.7”</td>
<td>$12.95</td>
</tr>
</tbody>
</table>

Microscope Accessories

MIC-550 Glass Microscope Slides (72 / pkg) $4.50
MIC-555 Glass Cover Slips (100 / pkg) $4.50
MIC-560 Introductory Prepared Slide Set (25 / pkg) $32.95
Includes pollen grains, mammal hairs, mosquito mouth parts, fish scale, onion cells, lily stamen, etc.

The Private Eye by Kerry Ruef

Designed to develop higher order thinking skills, creativity, and scientific literacy across subjects, The Private Eye is based on a simple set of “tools” that produce “gifted” results. Uses everyday objects, a jeweler’s loupe, and simple questions. It builds communication, problem solving, and concentration skills. For K-16, The Private Eye develops “the interdisciplinary mind.” Includes hundreds of lesson plan ideas, 240 pages.

EYE-200 $27.95

The Private Eye Loupe

This high quality jeweler’s 5X magnifying loupe is used throughout The Private Eye book. These simple magnifying lenses can accommodate large and small hands alike!

EYE-231 1-4 $3.95 each
10+ $3.25

Box Set of 18 Loupes
EYE-242 $67.95

Develops the Interdisciplinary Mind

“I’m very impressed. A really exciting set of tools... to bring out the gifted in everyone.”
- Professor Joseph Renzulli, The National Research Center on the Gifted and Talented
**Dino-Lite Digital Microscope**

An amazing, easy-to-use, hand-held digital microscope with USB output interface. High resolution magnification at your fingertips! Detailed examination of any area you choose. The eight LEDs can be turned on or off. Adjustable magnification from 10X-200X, all in one compact lens!

Ideal for a wide variety of practical applications in the classroom, workplace, and home. Can be used for science and engineering work and study, dermatology (skin/scalp) exam, detailed repair, assembly and quality control (i.e., electronics, mechanical, etc.), hobbies and collecting (coin, stamp, watch, jewelry, etc.), law enforcement (counterfeit ID, crime lab, etc.), entertainment, or simply as a reading aid. Just use your imagination!

Included with each Dino-Lite digital microscope is a copy of the DinoCapture software, enabling you to capture a photograph, video, or time-lapsed video with a simple click! Also includes a 1-year warranty with full technical support.

Also available, a four-LED (always on) version of the Dino-Lite. Software included. Stand not included.

**General Features:**
- Resolution: 640 x 480 pixels
- Magnification: 10-200X continuous
- Sensor: 1/4" color CMOS
- Video frame rate: up to 30 frame-per-second
- Compatible with Windows XP, Vista, 7, and 8, and Mac OS 10.5+
- LED on/off controlled by software
- Body length: 10.2 cm (4”)

**Package includes:**
- Dino-Lite digital microscope
- CD with DinoCapture application software & user’s manual
- Holster
- 16.5 x 16.5 x 6 cm (6.5” x 6.5” x 2.5”) 360-degree versatile silver stand

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIC-810</td>
<td>8-LED on/off Dino-Lite with stand</td>
<td>$249.95</td>
</tr>
<tr>
<td>MIC-800</td>
<td>4-LED always on Dino-Lite (no stand)</td>
<td>$99.00</td>
</tr>
</tbody>
</table>
It’s All about Safety!

Deluxe Safety Glasses
Our Best Glasses!
These Crews “Tomahawk” safety glasses offer superior comfort and impact protection. The black frame is fully adjustable both in length and angle, while the clear polycarbonate lenses have a scratch-resistant coating to keep your vision clear. Built-in side shields to provide an even greater level of impact protection.

SAFE-146
1-11 $6.75 each
12-143 $5.45
144+ $4.25

Youth Safety Glasses
Real safety glasses, priced so all students can have their own pair.

Perfectly sized for younger students, ensuring proper fit, and lighter weight for use in elementary/middle school grades. With clear lenses, these general purpose safety glasses are best for indoor applications that require impact protection. Scratch-resistant lenses.

SAFE-152
1-11 $2.95 each
12-143 $2.45
144+ $1.95

Deluxe Crews Goggles
Our Best Goggles!
Designed to fit over regular prescription glasses, these goggles have an excellent field of view, a unique ventilation system, and a clear, anti-fog lens which can be replaced if it becomes damaged or scratched. With an adjustable strap, these goggles provide comfort for longer periods of wear.

SAFE-100
1-19 $9.95 each
20+ $8.95

Standard Adult Safety Glasses
Best Choice on a Limited Budget
These Crews “Stratos” Safety Glasses offer good impact protection at an affordable price. The temples extend to provide a comfortable fit and the crystal clear polycarbonate lenses have built-in side shields for additional protection.

SAFE-157
1-11 $4.95 each
12-143 $3.75
144+ $2.45

Standard Pyramex Goggles
Best Choice on a Limited Budget
These economical splash goggles feature anti-fog lenses, an adjustable strap, and are designed to fit over regular prescription glasses. Lenses are not removable or replaceable. This type of splash goggle is the standard in chemical education throughout the world.

SAFE-125
1-19 $5.45 each
20-299 $4.25
300+ $3.65

Children’s Safety Goggles
These chemical splash goggles feature anti-fog lenses, an adjustable strap, and are designed to fit over regular prescription glasses. They are comfortable and vented, but the lenses are not removable or replaceable. This type of chemical splash goggle is the standard in chemical education throughout the world.

SAFE-178
1-11 $5.95 each
12-50 $4.95
51+ $3.95

All of our Safety Glasses and Goggles meet or exceed 2971-2003 ANSI Standards. All lenses are polycarbonate which absorbs 99.9% UV A and B light. Only Safety Goggles give the impact and splash protection required for working with chemicals. Safety Glasses give good impact protection.

The standard chemical splash goggle!
Nitrile Safety Gloves
100% Free of Latex and Powder

Our Nitrile gloves have superior puncture and chemical resistance. They have a textured finish, making it easy to pick up items. They are 3 mil. thick, comfortable to wear, and fit either hand. Colors may vary.

$7.95 / box of 100 gloves
(All one size per box)
SAFE-600S Small
SAFE-605M Medium
SAFE-610L Large
SAFE-615XL Extra Large

SAFE-650S Small
SAFE-655M Medium
SAFE-660L Large
SAFE-665XL Extra Large

$73.95 / case of 1,000 gloves
(All one size per case)

Plastic Beakers

Beakers are like books—you can never have too many! Our stackable, economical Plastic Beaker set is just right for nearly any scientific task that doesn’t require extreme heat. Five sturdy polypropylene beakers come in convenient sizes of 50 ml, 100 ml, 250 ml, 500 ml, and 1,000 ml. Best of all, they stack together to take up less storage. Graduated measurements are raised on the beakers so they won’t fade or wash off.

SAFE-600S $9.95
SAFE-605M $9.95
SAFE-610L $9.95
SAFE-615XL $9.95
SAFE-650S $9.95
SAFE-655M $9.95
SAFE-660L $9.95
SAFE-665XL $9.95

Nitrile Safety Gloves
100% Free of Latex and Powder

Super! Wow! Neat!®
Tie-Dyed Lab Coats

These whimsical safety posters are sure to make your students think twice before making unsafe choices in the lab. Designed by Loose in the Lab’s Bryce Hixson. Set of 10 full-color posters. 13” x 19” each. 100 pound glossy paper with aqueous coat.

SAFE-850 $29.95

Plastic Beakers

Beakers are like books—you can never have too many! Our stackable, economical Plastic Beaker set is just right for nearly any scientific task that doesn’t require extreme heat. Five sturdy polypropylene beakers come in convenient sizes of 50 ml, 100 ml, 250 ml, 500 ml, and 1,000 ml. Best of all, they stack together to take up less storage. Graduated measurements are raised on the beakers so they won’t fade or wash off.

SAFE-600S $9.95
SAFE-605M $9.95
SAFE-610L $9.95
SAFE-615XL $9.95
SAFE-650S $9.95
SAFE-655M $9.95
SAFE-660L $9.95
SAFE-665XL $9.95

Super! Wow! Neat!®
Tie-Dyed Lab Coats

These 100% cotton lab coats have a distinctive look that your students will remember for years. The colorful design is also fantastic for disguising the occasional spill.

LAB-105S Small $44.95
LAB-105M Medium $44.95
LAB-105L Large $44.95
LAB-105XL Extra Large $49.95
LAB-105XXL XX Large $49.95
Demo Tank

This narrow tank is perfect for demonstrating float and sink, pouring gas from one container to another, and Gro-Beasts (page 57). Its narrow width minimizes the amount of water, while its clear sides maximize visibility. This tank was originally designed and produced by Ron Perkins in 1984 as part of the elementary science teaching program. 38 x 25.4 x 11.5 cm (15” x 10” x 4.5”) 10 L capacity.

TNK-200 $69.95

Preform & Rack Kit

This kit contains six soda bottle preforms, caps with temper rings, and one preform rack. Note that preforms have a larger diameter than most test tubes and don’t fit easily into standard test tube racks. Our polypropylene rack fits perfectly, resists spills and stains, and incorporates built-in drying pegs. Cap colors may vary.

TT-200 $10.95

Preform Rack (Only)

This polypropylene rack is perfect for holding six preforms. It has openings of 2.5 cm diameter on a top plate with hemispherical wells and drying pins. 24 x 7 x 9 cm (9.5” x 2.75” x 3.5”).

TT-100 $6.95

Great for Geocaching!

Reaction Plate Mixing Wells

These clear mixing well trays are perfect for color mixing and micro-reactions. Challenge students to make as many colors as they can from red, yellow, and blue colored water. Discover various color reactions of acids and bases using a universal indicator. Ideal for mixing up small amounts of liquids, sprouting small seeds, or storing small items. Trays measure 13 x 9 cm (5” x 3.25”) each. Lids are included.

LSP-150 12 Well Reaction Plates $2.50
LSP-155 24 Well Reaction Plates $2.50

Petri Dishes

These high quality, economical plastic Petri dishes are perfect for classrooms or science fair projects. Grow bacteria, sprout seeds, hold small items for viewing, observe life in pond water, etc. The sterile plastic dishes have a consistently even surface and excellent optical clarity. They feature a triple-vented lid to help prevent condensation, and are easily stackable. Sold in packs of 20 dishes.

LSP-110 20 Large Plastic Petri Dishes (10 cm dia.) $6.95
LSP-120 20 Small Plastic Petri Dishes (5.5 cm dia.) $4.95
LSP-130 20 Mini Plastic Petri Dishes (3.5 cm dia.) $4.95

Soda or "Pop" Bottle Preforms and Caps

All plastic soda or “pop” bottles start as a small plastic tube called a preform. When this preform is heated and blown into a bottle shape, it is ready to be filled with your favorite carbonated beverage. Our preforms come with full-sized final threaded openings so they use standard plastic soda bottle tops (included). Use them for a problem-solving activity by seeing if your students can guess their use. All bottle caps may be used again and again. These preforms are air and water tight when sealed with a bottle top. Perfect for collecting or storing liquid samples. Preforms are ≈11 cm long x 2.5 cm in diameter (≈4.3” x 1”). Interior volume of preform is ≈25 cc (≈0.84 fl oz). The polymer in our baby soda bottle preforms is polyethylene terephthalate, commonly known as PET. This polymer has a monomer formula mass of C10H8O4, a melting point of 260°C, and a specific heat of 1 kJ/(kg-K). It has a glass temperature of 70°C-80°C, when it starts to soften. Package contains 30 preforms and 30 bottle caps. Bottle caps sold separately as well. Cap colors may vary.

Note: Our new preforms are slightly shorter than prior models but they will still fit in your Preform Rack (TT-100)—and they’re still perfect for Super! Wow! Neat!! experiments.

SM-100A Pkg of 30 Preforms w/Caps $18.95
SM-150 Pkg of 100 Caps only $14.25

New Size
Educational Innovations is an authorized dealer for all OHAUS products. For our full line of balances and other OHAUS products, please visit our website.
School Balance (OH AU S SB-1200)

This durable, inexpensive balance is perfect for teaching the importance of accurate weighing to young students. Its sturdy construction can withstand constant “hands-on” practice, and the 2,000 g capacity with a ± 0.5 g sensitivity makes it easy for students to weigh familiar objects such as paper clips, erasers, and books. Includes an eight piece set of weights (actually masses).

<table>
<thead>
<tr>
<th>BAL-20</th>
<th>1-4</th>
<th>$46.95 each</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5+</td>
<td>$40.95</td>
</tr>
</tbody>
</table>

Extra Set of Weights

Eight pieces: one 1 g, two 2 g, one 5 g, one 10 g, two 20 g, and one 50 g in a case.

| BAL-22 | $21.95 |

Spring Scales

Our spring scales are great for measuring force in Newtons anywhere in the universe. In addition, they are calibrated to measure the mass in grams of an object at rest on the surface of the Earth. Each has a zero adjustment. Clear plastic tubes allow students to see how the scale works.

<table>
<thead>
<tr>
<th>SP-10</th>
<th>250 g / 2.5 N Blue</th>
<th>$5.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-20</td>
<td>500 g / 5 N Green</td>
<td>$5.50</td>
</tr>
<tr>
<td>SP-30</td>
<td>1000 g / 10 N Brown</td>
<td>$5.50</td>
</tr>
<tr>
<td>SP-40</td>
<td>2000 g / 20 N Red</td>
<td>$5.50</td>
</tr>
<tr>
<td>SP-50</td>
<td>3000 g / 30 N White</td>
<td>$5.50</td>
</tr>
<tr>
<td>SP-60</td>
<td>5000 g / 50 N Yellow</td>
<td>$5.50</td>
</tr>
<tr>
<td>SP-100</td>
<td>Complete Set of Six Scales</td>
<td>$29.95</td>
</tr>
</tbody>
</table>

Spring Scales (Push/Pull)

Weigh a suspended object or measure the force of pushing or pulling an object. These color-coded, high-quality spring scales are calibrated in grams and in Newtons. (Warning: scales calibrated for use on Earth only!)

<table>
<thead>
<tr>
<th>SP-700</th>
<th>250 g / 2.5 N Blue</th>
<th>$9.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP-710</td>
<td>500 g / 5 N Green</td>
<td>$9.95</td>
</tr>
<tr>
<td>SP-720</td>
<td>1000 g / 10 N Beige</td>
<td>$9.95</td>
</tr>
<tr>
<td>SP-730</td>
<td>2000 g / 20 N Red</td>
<td>$9.95</td>
</tr>
<tr>
<td>SP-740</td>
<td>3000 g / 30 N White</td>
<td>$9.95</td>
</tr>
<tr>
<td>SP-750</td>
<td>5000 g / 50 N Yellow</td>
<td>$9.95</td>
</tr>
<tr>
<td>SP-790</td>
<td>Complete Set of Six Scales</td>
<td>$55.95 / set</td>
</tr>
</tbody>
</table>

OHAUS Hand-Held Scale

Convenient, compact and portable weighing capability in the palm of your hand! This little scale, with sleek styling and convenient size, is ideal to take anywhere—throw it in a field case or drop it in a backpack and you are ready to go. Unique hand-held design features a battery-saving auto shut-off feature, protective snap-on cover for storage and transport, and a large, high contrast display.

<table>
<thead>
<tr>
<th>BAL-146</th>
<th>(Ohaus HH120)</th>
<th>120 g ± 0.1 g</th>
<th>$159.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAL-148</td>
<td>(Ohaus HH320)</td>
<td>320 g ± 0.1 g</td>
<td>$145.95</td>
</tr>
</tbody>
</table>

SP-100 Complete Set of Six Scales $29.95
Adam Highland Precision Portable Balances

With more features and accessories than any other in its class, the Highland is an excellent choice for middle school, high school and college applications. Adam’s unique patented ShockProtect® helps prevent overload damage, and HandiCal® offers internal calibration with built-in mass, so no weights are needed. Pan size 12 cm (4.7”).

- Vivid, backlit LCD easily visible in any lighting condition
- Balances stack efficiently and safely to save space
- Security slot for optional Kensington-type lock and cable to help prevent theft
- Three-point ShockProtect® feature prevents overload damage to internal components
- Removable draft shield helps to reduce errors caused by air currents
- USB and RS-232 interfaces provide easy communication with computers and printers
- Hook included for weighing below the balance
- Rechargeable battery allows for operation virtually anywhere
- Internal calibration eliminates need for external weight set

<table>
<thead>
<tr>
<th>Model</th>
<th>Model</th>
<th>Capacity</th>
<th>Price</th>
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</thead>
<tbody>
<tr>
<td>BAL-700</td>
<td>HCB-123</td>
<td>120 g ± 0.001 g</td>
<td>$351.95</td>
</tr>
<tr>
<td>BAL-705</td>
<td>HCB-302</td>
<td>300 g ± 0.01 g</td>
<td>$271.95</td>
</tr>
<tr>
<td>BAL-710</td>
<td>602H</td>
<td>600 g ± 0.01 g</td>
<td>$349.95</td>
</tr>
</tbody>
</table>

Adam Dune Compact Balances

Dune has all the features students and teachers need for quick, easy weighing tasks. With overload protection to help prevent damage to internal components, a splash-proof keypad and battery operation, Dune delivers reliable readings in the classroom or in the field. Simple to use on/off, unit and tare positive push buttons provide trouble-free operation. Its low-profile design makes Dune easy to store between sessions. Pan size 14.5 cm (5.7”).

- Color-coded keys facilitate quick recognition of the most frequently used buttons
- Solid ABS housing is durable for industrial uses
- Auto power-off to save energy
- Low-battery indicator alerts users when batteries need replacement
- High-contrast display is easily visible from a distance
- Operates with AC adapter (included) or AA batteries (not included)

<table>
<thead>
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<tr>
<td>BAL-730</td>
<td>DCT-201</td>
<td>200 g ± 0.1 g</td>
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<td>BAL-735</td>
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<td>BAL-740</td>
<td>DCT-5000</td>
<td>5000 g ± 2 g</td>
<td>$83.95</td>
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Adam CB Compact Scales

Unrivaled in capacity and readability among its peers, the Adam CB Compact Scale combines performance and value. Its solid ABS housing and stainless steel pan make the CB easy to clean, while its compact size facilitates effortless storage and transportation between classrooms. Built-in battery operation enables it to be used in any location, while auto power-off helps conserve battery life. Pan size 13 cm (5.1”).

- High-contrast display is easily visible from a distance
- Large, type 304 stainless steel pan allows swift cleaning
- Overload protection helps prevent damage to internal components
- Sealed keypad protects against dirt and spills
- Auto power-off to save energy

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<td>BAL-745</td>
<td>CB-501</td>
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<td>CB-1001</td>
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<td>BAL-755</td>
<td>CB-5000</td>
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Adam Core Compact Portable Balances

Compact and duraible, Adam Core balances deliver features for classroom weighing at an exceptional value. The ABS housing is easy to clean and protects against spills, helping it stand up to harsh classroom environments. Its ShockProtect® feature enables the Core to handle overloads without a problem. The basic keypad with dual tare keys and a brightly backlit display make Core balances simple to use right out of the box. Pan size 12 cm (4.7”).

- Balances stack efficiently and safely to save space
- Security slot for optional Kensington-type lock and cable to help prevent theft
- Removable draft shield (120 mm pan size only)
- Hook included for weighing below the balance
- Large, type 304 stainless steel pan allows swift cleaning
- Audible overload alarm warns when capacity has been exceeded
- Operates with AC adapter (included) or AA batteries (not included)
- Three-point ShockProtect® feature prevents overload damage to internal components
- Case and draft shield are designed to reduce static electrical interference with the balance

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<td>BAL-725</td>
<td>CQT-601</td>
<td>600 g ± 0.1 g</td>
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</table>
**Adam Triple Beam Balance (TBB-6105)**

Adam Equipment’s TBB is the sturdiest balance choice for the classroom, with strong metal housing, stainless steel weighing pan, and a larger body than other triple beam balances. The innovative tripod legs and integral weigh-below hook allow you to easily determine density and specific gravity. Pan size 15.2 cm (6”).

- Security slot for optional Kensington-type lock and cable to help prevent theft
- Magnetic damping slows pointer movement for faster readings
- Notched, tiered, graduated beams ensure positive positioning and accurate reading of results
- Integrated rulers in centimeters and inches lets users measure length

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<td>BAL-760</td>
<td>TBB-6105</td>
<td>610 g ± 0.1 g</td>
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**MyChron Student Timers**

The Silent Timer

These timers are much easier to use than a traditional stopwatch yet just as accurate and precise. Reduce uncertainty due to student errors in timing. The timers measure to the hundredth of a second and come with a one year manufacturer warranty. Multi-packs include a clear storage box for easy, visible classroom management. ≈5 x 5 x 1.3 cm (2” x 2” x 0.5”).

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<tr>
<td>BAT-60</td>
<td>Repl. Batteries 10 / pkg</td>
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<td>$10.95</td>
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**Catapult™ Bench Scale (OHAUS #C11P20)**

OHAUS Catapult 1000 Compact Bench Scales offer users reliable and precise performance in an affordable, compact design. Catapult 1000 Scales are easy to transport and carry with built in carrying handles. Other standard features include an AC power pack, as well as battery operation with power saving auto shut-off mode. OHAUS Catapult 1000 series Compact Bench Scales are the perfect solution for home use, general shipping applications, veterinary weighing, and other dry weighing applications where low cost, portability, and precision are required. 20 kg ± 1 g (44 lb ± 0.02 lb). Platform size 31.6 x 28 cm (12.4” x 11”).

<table>
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<tbody>
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<td>BAL-154</td>
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<td>20 kg ± 1 g</td>
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“Our little timers are great and can take a serious beating from high school students. They are incredibly easy to use. The only problem I’ve had is that other teachers keep ‘borrowing’ them from me!”

- Maria, Irving, TX
Infrared Thermometer

Simply point and press. These amazing thermometers measure the temperature of an object without ever touching it. No need for a heat capacity of thermometer calculation! The temperature is instantly shown on a digital display to a fraction of a degree in either Celsius or Fahrenheit.

IR thermometers are extremely safe and do not contain the hazardous glass, mercury, or alcohol found in regular laboratory thermometers. Because temperature is determined quickly and without direct contact, these thermometers were used to pre-screen travelers to stop the spread of the SARS virus!

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<tr>
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BAR-210   Replacement Thermometer Tube $89.95
BAR-215   Replacement Barometer Tube $155.95
Science Fun Birthday Pack
A $49 value!

Celebrate your birthday in scientific style! Our Science Fun Birthday Pack contains 10 “Happy Birthday” Talking Tapes with cups, a pack of ColorFlame Candles, 10 “Happy Birthday” Self-Inflating Balloons, and a set of four Science Cookie Cutters shaped like beakers, test tubes, flasks, and atoms. A recipe for easy and delicious sugar cookies is also included. For more details, see page 53 for Self-Inflating Balloons and ColorFlame Candles, and page 77 for Talking Tapes.

SFP-100 $39.95

Delicious Science!

Science Cookie Cutters

Make cookies shaped like beakers, test tubes, flasks, and atoms! Perfect for science birthday parties, science clubs, teachers, or any science enthusiast. Four stainless steel cookie cutters. Cookie sizes range from 10.5-13.5 cm (4-5.5”). Includes an easy and delicious sugar cookie recipe.

FD-200 $14.50

Heat Sensitive Pencils

These unique thermochromic pencils let you know that “you’re getting warmer” as you make your point. They actually change color with the heat from your hand! Excellent motivational prizes or a surefire way to guarantee your students won’t lose their pencils. 25 pencils in assorted colors.

MO-7 $11.95 / pkg of 25

Periodic Table Cups

Teachers and students love these unique cups. On a white background, we’ve printed a boldly-colored version of the periodic table. Great conversation starters for science parties, workshops, and seminars. Use them as a motivational reward for your chemistry students!

PER-1 $16.95 / pkg of 50 cups
Motivational Pencils

Give these encouraging pencils to the student with the highest score on your test. 24 pencils per pack. Each brightly colored #2 pencil is imprinted with one of the following:

MO-2  “WOW! Highest Test Score CHEMISTRY”
MO-5  “Super! Wow! Neat!” SCIENCE”

(To reward students for good jobs unrelated to a test score.)

$8.95 / pkg of 24

Climate Change Mug

Add hot water and observe as Florida and California disappear, and Central America becomes just a chain of islands! This mug reminds us of the consequences of climate change. Watch what happens when our polar icecaps melt and the oceans begin to rise. Microwave safe, hand wash only, 170 ml (8 oz).

MUG-205  $12.95 each
MUG-210  $64.95 / set of 6

Disappearing Dinosaurs Mug

Dinosaurs once ruled the entire planet. Thanks to this clever mug, you can watch eons pass before your eyes over a cup of coffee. The mug shows a prehistoric landscape populated by fierce dinosaurs. But when you pour in a hot beverage, the dinosaurs transform into fossils in a museum exhibition. Microwave safe, hand wash only.

MUG-185  $12.95 each
MUG-190  $66.95 / set of 6

Science Is Fun Buttons

These bright “Science Is Fun!” buttons will grab the attention of both teachers and students. An inexpensive and eye-catching way to deliver the message at your workshop. Available as text only or with artwork. Each button is ~7.6 cm (3”) in diameter. For quantities of 500 or more, call for special pricing.

SF-500  Science Is Fun Button  1-9  $1.50 each
SF-510  Button with picture  10-99  $1.25
                     100+  $0.90

Heat Activated Constellation Mug

A stellar gift for your favorite stargazer. At first glance, this unassuming black mug seems decorated with a light dusting of stars. But when you pour in a hot liquid, over 10 constellations appear as if by magic! Enjoy your tea while you marvel at the colorful outlines of Cassiopeia, Perseus, Sagittarius, Hercules, Andromeda, Scorpio, Taurus, Ursa Major, Ursa Minor, Orion, and Castor & Pollux. Microwave safe, hand wash only, holds ~350 mL (12 oz).

MUG-195  $11.95
Beaker Mugs

These beaker mugs are super for chemical demonstrations! Students can see liquids being poured from one container to another without the demonstrator’s hand getting in the way. The mugs also allow safer handling of hot and corrosive liquids.

GL-270A 600 mL $13.95 each
GL-270B $79.95 / set of 6

GL-340A 400 mL $12.95 each
GL-340B $69.95 / set of 6

Caffeine Beaker Mug

The structure of the caffeine molecule is enameled in white on the beaker. When a dark-colored beverage is added, the molecule becomes visible. (400 mL).

GL-400A $13.95 each
GL-400B $79.95 / set of 6

Caffeine Travel Mug

This 16 oz stainless steel travel mug is imprinted with the molecular structure of our favorite morning stimulant! This insulated mug will be a great conversation starter with your friends, students, and coworkers. Hand wash with warm water. Style may vary.

MUG-200 $12.95

Erlenmeyer Mug (500 mL)

Cut down from Erlenmeyer flasks, these unique mugs are perfect for any beverage. As a bonus, because they are wider at the base than the mouth, they resist tipping. No more spills!

GL-440 $13.95 each
GL-440B $79.95 / set of 6
**Bill Nye Bobblehead**

Beloved for his humor and knack for clever demonstrations, Bill Nye is sure to bring a smile to your students. This unique bobblehead is made exclusively for Educational Innovations (with a nod of approval from the Science Guy himself!). Use Bill to demonstrate frequency and period, or as humorous desk decor. 18 cm (7”) tall.

**BOB-201** $16.95

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**Home Science Lab**

Our Home Science Lab is a 1, 3, or 6-month subscription series bursting with unique hands-on materials for children ages 6-11. There is simply no substitute for the kind of sensory learning your young scientists will experience in each month’s box. And besides, what’s more fun than sitting around your kitchen table doing science with your kids?! Get the full scoop on our website!

- **HSL-100** 1 month $26.95
- **HSL-300** 3 months $74.85
- **HSL-600** 6 months $137.70

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**One Minute Mysteries: 65 Short Mysteries You Solve With Science!**

Got a minute? Then we have a mystery for you! Not an ordinary mystery book, *One Minute Mysteries: 65 Short Mysteries You Solve With Science!* makes science fun. These short mysteries have a clever twist—you have to tap into your science wisdom to solve them. Each story, just one minute long, challenges your knowledge in Earth, space, life, physical, chemical, and general science. Exercise critical thinking skills with dozens of science mysteries (solutions included) that will keep you entertained—and eager to learn more! Written by a father/daughter team, this entertaining and educational book is great for kids, grown-ups, educators, and anyone who loves good mysteries, good science, or both! Paperback, 188 pages.

**BK-435** $12.95

---

**Invitations to Science Inquiry**

by Tik Liem

The famous Dr. Tik L. Liem lives on in this amazing collection of more than 400 discrepant events to interest and motivate students in learning science. Each page contains a list of the materials needed, a sketch, a points-wise, questions to ask, and an explanation. Emphasis is placed on the use of simple, easily acquired materials. Many of the activities are counter-intuitive, challenging the students to develop new ways of thinking. Perfect for all grades, elementary-college. Paperback, 467 pages.

**BK-375** $69.95

---

**Invitations to Science Inquiry Supplement**

by Tik Liem

100 additional experiments. Paperback, 170 pages.

**BK-377** $29.95

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“From the fun cartoons on the box to the experiment names such as ‘Big Cup O’ Boogers’ this science kit screams kid. There are so many experiments included in each box and all the experiments were easy for my 11-year-old son to complete on his own. I love that the instructions include not just how to complete the experiment, but why it works and even sometimes how the science is applied in the real world. These kits would not only be a great addition to any classroom or home school program, but are just fun to play with!”

- Jen W., Cottonwood Heights, UT
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<td>6.25%*</td>
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— The Teachers at Educational Innovations, Inc.

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