



# Physical Sciences

**2024** Product  
Catalog

 **fisher science**  
**education**  
part of Thermo Fisher Scientific



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## Helpful Icons



New product



Must be shipped by truck for regulatory reasons



Meets Americans with Disabilities Act requirements



Protects against splashes from hazardous chemicals or potentially infectious materials



Applicable for remote learning



Defined as a medical device by the FDA

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If you're not 100% satisfied with your purchase, contact our customer service team within 30 days of your invoice date and we'll either exchange, repair, or replace the product, or give you a credit for the full purchase price. Call us toll-free for a return authorization number.

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**Address:** Fisher Science Education  
4500 Turnberry Drive  
Hanover Park, IL 60133

For international orders, see page 98.

*Products featured in this catalog may have limited availability and extended lead times. Prices are subject to change.*

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# Physical Sciences

Preparing today's students to be the innovators of tomorrow isn't always easy, but finding the right teaching tools can be. From basic lab supplies to state-of-the-art classroom technology, the Fisher Science Education team has everything you need to create a 21st century STEM learning environment.

Visit [fisheredu.com](https://fisheredu.com) to get started.

## Want to customize aspects of your curriculum?

Explore custom kits to meet the unique demands of your classroom. Visit [fisheredu.com/customkitting](https://fisheredu.com/customkitting) to learn more.

## Concerned about shipping and handling fees?

We offer \$12 flat-rate shipping on most orders and our hazardous material fee is just \$15 — the lowest in the country.

## Looking for Something Else?

Check out our other 2024 catalogs:

- Chemicals
- Lab furniture and equipment
- Lab supplies and consumables
- Life sciences
- Safety
- STEM



Scientists continue to research the medicinal effects of natural thermal waters, noting that treatments with sulfurous mineral water have shown benefits for hypertension, ulcers, chronic inflammatory diseases, and more.

Visit [fisheredu.com/headlinediscoveries](https://fisheredu.com/headlinediscoveries) for more articles and information for your classroom.

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Featured Supplier **Diversified Spaces**



*Your trusted  
furniture experts  
for all science spaces!*



# NEW Featured Products



## Demonstrate Wave Creation

Show students how waves form in water with this comprehensive system that includes a ripple generator and an LED stroboscope lamp.

Description	Cat. No.	Price
United Scientific™ Advanced Projection Ripple Tank	<b>S83794</b>	\$718.00



## Investigate Light Intensity

Help students measure wavelengths of light spectra with this precision instrument that is easy to use and set up.

Description	Cat. No.	Price
United Scientific Intermediate Spectrometer	<b>S139468</b>	\$2,103.00



## Teach Basic Electronics Concepts

Introduce students to Ohm's Law, resistors, capacitors, semiconductors, and transistors with this hands-on tool.

Description	Cat. No.	Price
Fundamentals of Electronics Kit	<b>S160141</b>	\$115.00



## Explore Renewable Energy

Demonstrate how solar power can run a vehicle on a small scale using sunlight or a rechargeable AA battery.

Description	Cat. No.	Price
Solar Powered Car	<b>S01274</b>	\$20.25



## Reliable Classroom Sample Testing

Test common to complex samples in the classroom with meters and meter kits that feature a large backlit display for easy viewability.

Description	Cat. No.	Price
Thermo Scientific™ PH111 pH/mV Bench Meter with Stand	<b>S81896</b>	\$675.00
Thermo Scientific PH111 pH/mV Bench Meter Standard Kit	<b>S81897</b>	\$924.00
Thermo Scientific PH111 pH/mV Bench Meter Easy-to-Clean Bio Kit	<b>S81898</b>	\$993.00
Thermo Scientific PH111 pH/mV Bench Meter Low-Maintenance Bio Kit	<b>S81899</b>	\$934.00
Thermo Scientific PH111 pH/mV Bench Meter Difficult Sample Kit	<b>S81900</b>	\$1,077.00



# Engage Your Students Wherever They Are

Keep your students safe and engaged with a selection of remote learning tools and materials.

You'll find:

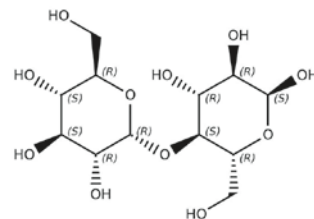
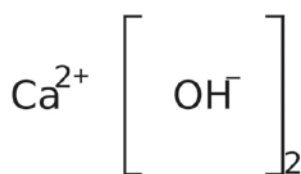
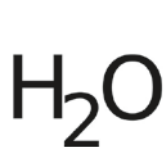
- Products for real-time instruction
- Activities for independent learning
- Physical distancing aids
- And more

Visit [fisheredu.com/remoteteaching](https://fisheredu.com/remoteteaching) to learn more.



# Chemicals for Environmental Science

Use this curated list of products to restock your environmental science classroom, and visit [fisheredu.com](http://fisheredu.com) to find even more science education products.



Description	Quantity	Cat. No.
Fisher Science Education Sodium Phosphate Solution, 0.1M	500 mL	S25889
Fisher Science Education Sodium Nitrate	500 g	S25558A
Fisher Science Education Bromothymol Blue Solution, 0.04%	10 mL	S25207
Fisher Science Education Sodium Hydroxide Solution, 0.2M	500 mL	S25880
Fisher Science Education Vinegar	500 mL	S25623
Fisher Science Education Sodium Bicarbonate	500 g	S25533
Fisher Science Education Hydrochloric Acid Solution, 0.25M	500 mL	S25855
Fisher Science Education Sodium Thiosulfate Solution, 0.1M	500 mL	S25893
AquaPhoenix Scientific™ Starch Indicator Solution, 1.0% w/v	500 mL	S88794
Fisher Science Education Sulfamic Acid	50 g	S25792
Fisher Science Education Manganese(II) Sulfate	500 g	S25422
Lugol's Dilute Solution, 2%	500 mL	S25945
Fisher Science Education Lime Water, 14%	500 mL	S25386
Fisher Science Education Water, Type II Deionized	4 L	S25293
Fisher Science Education Crystal Violet Solution, 1%	100 mL	S25275
Fisher Science Education Potassium Iodide Solution, 0.1M	500 mL	S25864
Fisher Science Education Sulfuric Acid Solutions	1 L	S25598A
Fisher Science Education Bromocresol Green Solution, 0.4% w/v	100 mL	S25846
Fisher Science Education Ethylenediamine Tetraacetic Acid	100 g	S25311B
Fisher Science Education EDTA, Disodium Salt	100 g	S25687A

## Chemistry

## General Chemistry

## Co-lab-orate

An innovative digital lab notebook that enables students to work together no matter the distance.

Co-lab-orate is an innovative digital lab notebook that allows teachers to easily assign lab reports to their classes. The notebook lets students work individually or together to complete hands-on activities that are easy to access and grade. Co-lab-orate is packed with features that make teaching and learning easy and collaborative!

- Enable students to work together, whether they are 6 feet or 6 streets apart
- Create new labs or import PDFs of labs you already have
- Easily deliver assignments to all students and classes
- Import photos and create and edit graphs, tables, and equations
- Access, complete, or grade hands-on lab activities using a mobile device, tablet, or laptop
- Communicate with other students and teachers through comments, or work independently
- Integrates with Google Classroom



NEW

Cat. No.	Price
S75250	\$149.00/Ea

## Ideal Gas Law Kit

Explore the gas laws through the reaction of sodium bicarbonate and hydrochloric acid. Students will perform the reaction and use the ideal gas law to calculate the amount of carbon dioxide produced, then use stoichiometry to determine their percent yield.

- Contains enough materials for 15 groups of students
- Teacher's manual and student study guide copymasters are included
- Aligned to the Next Generation Science Standards (NGSS)
- Disciplinary core ideas: PS1.A, PS1.B
- Performance expectations: MS-PS1-2, MS-PS1-4
- Cross cutting concepts: patterns, cause and effect engineering practices, analyzing and interpreting data, developing and using models



NEW

Cat. No.	Price
S18901	\$51.25/Ea

## Equilibrium and Le Chatelier's Principle

Students will investigate Equilibrium and Le Chatelier's Principle through four different experiments.

- Students will apply various stresses to different chemical systems at equilibrium, then use their understanding of Le Chatelier's principle to explain their results
- Kit contains enough material for 15 groups
- Teacher's guide and student study guide copymasters are included



NEW

Cat. No.	Price
S280000	\$30.50/Ea

## Stoichiometry of Copper and Silver Nitrate

Introduce students to stoichiometry and mole ratios with the reaction of copper and silver nitrate!

- Students will watch as beautiful silver crystals are formed on the copper wire, then determine the moles of silver formed and moles of copper reacted to calculate the mole ratio
- Using this data, they will write the balanced chemical equation for the reaction, and determine the limiting reactant and their percent yield
- Kit contains enough materials for 15 groups of students
- Teacher's manual and student study guide copymasters are included



NEW

Cat. No.	Price
S280001	\$73.25/Ea

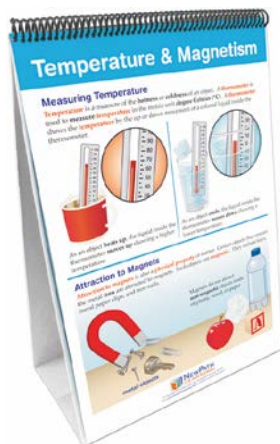


## Physical Sciences Flip Chart and Multimedia Lessons

These multimedia kits can help students master key physical sciences concepts.

### Flip Chart Sets Feature:

- Graphical instruction and write-on/wipe-off activities
- Flip chart set features 10 laminated, double-sided charts
- Side 1 features a graphic overview of the topic while Side 2 provides corresponding write-on/wipe-off activities for review and reinforcement
- Includes a teacher's guide with copymaster activities and review questions
- Spiral-bound and mounted on a sturdy easel for years of use, the flip chart sets are ideal for small group instruction, learning centers, independent use or classroom reference



### Flip Chart Sets with Multimedia Lessons Also Include:

- One year access to a corresponding online multimedia lesson for a teacher and all their students that can be accessed anywhere, anytime, on any device – including Chromebooks, tablets, computers and mobile devices.
- Each lesson features animated, narrated tutorials; interactive exercises and activities; virtual lab investigations; illustrated, narrated glossary; visual resource library; and an inquiry-based student activity guide
- Developed under sponsorship of the National Institutes of Health (NIH), the lessons are perfect for individual student instruction on any computer as well as classroom presentation on any interactive whiteboard

### Flip Chart Set Details:

- All About Matter Flip Chart, Grades 3 - 5 (S13535)** covers What is Matter?, Properties of Matter, Physical Properties, Measuring Mass & Volume, Density & Buoyancy, Temperature & Magnetism, States of Matter, Changes in Matter, Mixtures & Solutions, Vocabulary
- Atoms & Chemical Bonding Flip Chart with Online Multimedia Lesson (S81127)** covers: Models of the Atom; Atomic Configuration & Bonding; Chemical Bonding; Ionic Bonding; Ionic Compounds; Covalent Bonding; Covalent Compounds; Naming Compounds; and Metallic Bonding
- Elements & the Periodic Table Flip Chart with Online Multimedia Lesson (S81128)** covers: Introduction to Elements; Atomic Structure; Metals; Metalloids, Nonmetals; The Periodic Table; Groups on the Periodic Table; and Identifying Elements

Cat. No.	Description	Contains	Grades	Price
S13535	All About Matter	Flip Chart only	3 to 5	\$58.00/Ea
S81127	Atoms & Chemical Bonding	Flip Chart with Online Multimedia Lesson	6 to 10	\$70.25/Ea
S81128	Elements & the Periodic Table	Flip Chart with Online Multimedia Lesson	6 to 10	\$70.25/Ea

## Ion-Exchange Chromatography Kit

Learn the principles of ion-exchange chromatography.

Most biological molecules have a net charge within a pH range of 2 to 10. When the pH is altered, the net charge on molecules can change drastically.

- Learn the principles of ion-exchange chromatography by separating two charged molecules using a two-step salt gradient
- Proteins are absorbed onto a charged solid support ion-exchange column and subsequently separated during elution under conditions that influence their net charge



Cat. No.	Price
S94617	\$169.00/Ea

## Paper Chromatography Kit

Investigate the oldest documented technique used to separate chemical substances.

- Perform paper chromatography on three individual dyes and a mixture of dyes. Determine if all three dyes are in the mixture.
- See why different substances move at different rates within the chromatography system



Cat. No.	Price
S96896*	\$46.00/Ea

## Thin Layer Chromatography Kit

See that commercial food colors contain more than meet the eye.

- Perform a highly effective separation procedure on four food colors
- Determine if there is more in each color than visual appearance would suggest



Cat. No.	Price
S96897***	\$100.00/Ea



### FEATURED SUPPLIERS MORE FOR YOU

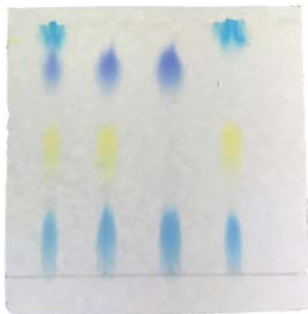
Visit [fisheredu.com/featuredsuppliers](https://www.fisheredu.com/featuredsuppliers) to learn more about enhanced products and promotional information.



## Dangerous or Delicious: Using Chromatography to Examine Vaping



In this experiment, students become medical researchers and investigate the chemical contents of three simulated e-liquids using thin layer chromatography.



- Explore the health risks of e-cigarettes and vaping
- Investigate the chemical contents of three simulated e-liquids
- Perform thin layer chromatography
- Introduce chromatographic theory using two different solvent systems
- Enough material for 8 separations
- Time required: Spotting Plates - 20 minutes, TLC Separation - 5 minutes
- Kit includes Instructions, samples, reagents and solvents, cellulose thin layer plates, 15 mL tubes, & microcentrifuge tubes
- All you need: 250 mL beakers, metric rulers, pencils, gloves & safety goggles
- Some components require refrigerator storage

Cat. No.	Price
S52004	\$118.00/Ea

## Chemistry Kit: Characteristics of Matter

Explore various physical and chemical properties of matter.



- Students can observe chemical properties of five solutions by observing their reactions with other solutions, then determine names of two unknown solutions
- Ten experiments help students to explore various characteristics of matter: color, odor, solubility, shape, size, texture, density, alkalinity, acidity, states of matter, boiling point and melting point (graphing of melting and boiling points)
- Grades 5-9
- Class size: 24 students

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S06736	\$238.00/Ea

## Small Group Learning: Introduction To Chemical Equations

Students will perform a series of experiments highlighting the differences in chemical reactions, and use what they learn to write balanced chemical reaction equations.



Chemical reactions take place all around us. Being able to identify reactions and communicate what is happening is vital to the scientific community.

- The kit introduces two common types of chemical reactions; single replacement and double replacement.
- Contains enough materials for 5 groups
- Teacher's manual and student study guide copymasters are included
- Aligned to the Next Generation Science Standards (NGSS)
- Disciplinary core ideas: PS1.A; PS1.B
- Performance expectations: MS-PS1-2; MS-PS1-5; HS-PS1-1; HS-PS1-7
- Cross cutting concepts: patterns; energy and matter
- Engineering practices: developing and using models; analyzing and interpreting data

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Cat. No.	Price
S40726	\$41.00/Ea



## Periodic Table – Nonmetals, Metals, and Metalloids

Students will learn about three different categories of elements – metals, nonmetals, and metalloids. They will examine the physical properties of several elements, test the chemical reactivity of each element, and classify each of the tested elements as either metal, nonmetal, or metalloid.



During the nineteenth century Russian chemist Dmitri Mendeleev began constructing a table of the elements. The work of Mendeleev allows us to understand that the periodic table of the elements is an organized classification of chemical elements based on certain properties of each element in relation to other elements.

- Kit contains enough material for 15 groups
- Teacher's manual and student study guide copymasters are included
- Aligned to the Next Generation Science Standards (NGSS)
- Disciplinary core ideas: PS1.A; PS1.B
- Performance expectations: MS-PS1-2; HS-PS1-1; HS-PS1-2
- Cross cutting concepts: patterns
- Engineering practices: analyzing and interpreting data; developing and using models

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Cat. No.	Price
S40759	\$53.75/Ea

## Polyurethane Foam Chemical Kit

**Excellent demonstration of thermoplastic polymers.**

Produce polyurethane foam with the condensation reaction of a polyisocyanurate and a hydroxyl-containing material (i.e., a polyol derived from propylene oxide).

- Mix two viscous liquids to initiate a reaction
- Lightweight foam expands to 30 times the original volume of the liquids
- After about 10 minutes, the foam hardens

**Notes:** Perform in a fume hood and wear chemical splash goggles, apron and gloves as the chemical components are eye and skin irritants.



Cat. No.	Price
S73009	\$68.00/Ea

## Chromatographic Paper

No. 1 paper can be used for one- and two-dimensional work.

- Smooth surface
- Thickness: 0.07 in. (0.18 mm)
- Medium flowrate
- Good resolution
- Suitable for general analytical separations



Cat. No.	Dimensions (W x L)	Format	Quantity	Price
S47086	18.1 x 22.4 in. (46 x 57 cm)	Sheet	100/Pack	\$523.00/Pk
S47087A	1.5 in x 300 ft. (3.81 cm x 91.44 m)	Roll	11/Case	\$110.00/Cs
S47087	0.78 in. x 328 ft. (2.0 cm x 100 m)	Roll	1/Each	\$61.25/Ea

## Structure of an Atom 3D Model Making Kit



**The Structure of an Atom 3D Model Making Kit allows students to make paper models of protons, neutrons, electrons, and electron shells to learn about the nuclear model of an atom.**

- The nuclear model of the atom was developed after many years of theories and experiments
- Students will make paper models of protons, neutrons, electrons and electron shells
- The model covers the features of subatomic particles, electron energy levels, atomic number, mass number, ions and isotopes
- The Model Making Kit includes enough materials for students to assemble up to 5 paper models working cooperatively
- The comprehensive Teacher Resource Guide included provides illustrated readings, activities, key vocabulary and an assessment, along with teaching opportunities for students to Engage, Explore, Explain, Extend and Evaluate their understanding of the concepts presented



Cat. No.	Price
S436053	\$56.00/Ea



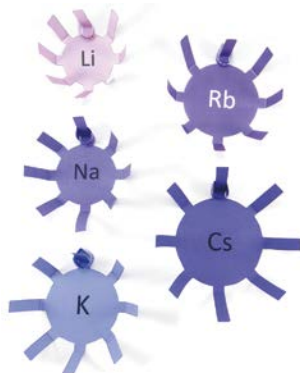
**BIOTECHNOLOGY**  
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Visit [fisheredu.com/biotechnology](http://fisheredu.com/biotechnology) for the latest resources, products and training information.

## Group 1 Elements 3D Model Making Kit

This kit allows students to build models of atoms and electrons to see how alkali metals react and how bonds are formed.

- Group 1 of the Periodic Table contains the reactive alkali metals
- Students will use these easy to assemble models to learn how Group 1 elements react
- The differently colored electrons make it easy to see how the bonds are formed and the models shows reactions with water, oxygen, and chlorine
- Kit includes enough materials for students to assemble up to 5 paper models working cooperatively
- The comprehensive Teacher Resource Guide included provides illustrated readings, activities, key vocabulary and an assessment, along with teaching opportunities for students to Engage, Explore, Explain, Extend and Evaluate their understanding of the concepts presented



Cat. No.	Price
S436054	\$56.00/Ea

## Generating Electricity 3D Model Making Kit

Use this kit to teach your students how electricity is generated.

- Teach your students how electricity is generated with our interactive model of a power station
- Students can observe how electricity is generated from non-renewable fossil fuels or renewable bio-fuels
- The model covers different types of fuel, the role of the boiler, what a steam turbine does, and how the generator produces electricity
- They can even turn the turbine!
- The model is a great starting point to consider different types of fuel and the pros and cons of generating electricity in different ways
- This kit includes enough materials for students to assemble up to 5 paper models working cooperatively
- The comprehensive Teacher Resource Guide included provides illustrated readings, activities, key vocabulary and an assessment, along with teaching opportunities for students



Cat. No.	Price
S436055	\$56.00/Ea

## Science Cube Kit – Molecular Model Set

Do you want to see what water looks like? How about carbon dioxide? The Molecular Model Set is an excellent way to visualize organic and inorganic compounds, and gain a better understanding of the actual structure of complex molecules.

- Perfect for group experiments
- Perfect for home schooling
- Save space when storing in reusable plastic snap box
- Ages 10+

### Includes:

- 1 reusable plastic snap box
- 35 colored balls
- Connectors in various lengths
- 1 exploration guide



Cat. No.	Price
S89520	\$26.50/Ea

## Eisco™ Mole Set

Helps students develop greater understanding of mole, mass, molar mass, and properties of each element when they compare these four specimens side by side.

- Contains four element specimens: copper, iron, zinc, and aluminum
- Each sample contains one mole,  $6.02 \times 10^{23}$  atoms of the element

### Dimensions:

- Copper: 45 x 12.7 x 12.7 mm
- Iron: 46 x 12.6 x 12.6 mm
- Zinc: 61 x 12.6 x 12.6 mm
- Aluminum: 65 x 12.6 x 12.6 mm



Cat. No.	Price
S23760	\$26.25/Ea

## Eisco™ Molecular Model Kit

Introductory kit includes Includes 127 pieces neatly organized in a storage case. Perfect for educational activities and experiments.

- Combine the elements and bonds to create both simple and complex molecular structures with multiple elements, single and double covalent bonds
- Flexible links included for building more complex inorganic compounds

**Included in set:** instructional booklet, 9.25 x 6.75 x 1.5 in. storage case, short link removal tool

**Elements included:** 14 carbon, 8 oxygen (2 holes), 6 oxygen (1 hole), 22 hydrogen, 2 nitrogen, 1 sulphur, 6 halogen, 1 phosphorus

**Links included:** short, medium, long flexible



Cat. No.	Price
S13020	\$37.50/Ea



## Eisco™ Student Basic Organic Chemistry Molecular Model Sets

Lets students visualize three-dimensional molecule structures and understand molecular formulas.

Hard plastic pails of different colors represent atoms; each has holes at correct angles to be connected with flexible plastic "bonds." Medium links represent single covalent bonds while long links can be used for double and triple covalent bonds.

- 12 gray metal (2 holes)
- 10 gray metal (3 holes)
- 10 gray metal (6 holes)
- 42 red oxygen (2 holes)
- 12 red oxygen (4 holes)
- 18 red oxygen (1 hole)
- 12 yellow sulfur (4 holes)
- 15 blue nitrogen (3 holes)
- 45 black carbon (4 holes)
- 12 purple phosphorus (4 holes)
- Six purple phosphorus (3 holes)
- 36 white hydrogen (1 hole)
- 170 medium gray links
- 100 long gray links



Cat. No.	Price
S96541	\$140.00/Ea

## Inorganic/Organic Student Set

Teaching tool designed for school, college or self study (private) chemistry courses.

- Model for organic structures and inorganic molecules with empirical formula representations, such as carbon dioxide, ammonia, sulphuric acid, calcium hydroxide, metal salts, copper sulphate, alkanes, alcohols, glucose and benzene
- Used to represent any element having one sp<sup>3</sup>, one dsp<sup>3</sup> and one d<sup>2</sup>sp<sup>3</sup>, in addition to existing element hybridizations done by three brown atoms
- Molecular model is easily assembled and reassembled
- Links are provided to make single, double, and triple bonds for OPEN, and short links for CLOSED models



Cat. No.	Price
S07017	\$39.00/Ea

## Eisco™ Chemistry Molecular Model Sets

Lets students visualize three-dimensional molecule structures and understand molecular formulas.

### 54 Piece Basic Organic Chemistry Set (S96538)

- Ideal for chemistry and introductory organic chemistry classrooms
- Contains 30 colored atoms and 24 gray bonds in a convenient and reusable plastic case
- Includes: 6 black carbon (4 holes), 14 White hydrogen (1 hole), 2 blue nitrogen (4 holes), 6 red oxygen (2 holes), 2 green halogen (1 hole), 20 Gray links (28 mm), 4 Gray links (43 mm)

### 114 Piece Organic Chemistry Set (S96539)

- Hard plastic balls of different colors represent atoms
- Each has holes at correct angles to be connected with flexible plastic bonds
- Medium links represent single covalent bonds while long links can be used for double and triple covalent bonds
- Includes: 12 Black carbon (4 holes), 20 White hydrogen (1 hole), Six red oxygen (2 holes), Four blue nitrogen (4 holes), Two yellow sulphur (6 holes; 1 hole), One purple phosphorus (4 holes), One gray metal (1 hole), 28 mm Gray links (26), 43 mm Gray links (12), 28 mm White links (26), Assembly tool

### 95 Piece Organic and Inorganic Chemistry Set (S96540)

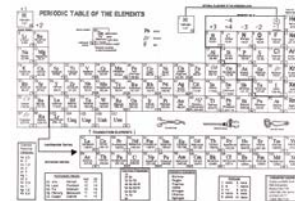
- Hard plastic balls of different colors represent atoms; each has holes at correct angles to be connected with flexible plastic "bonds." Medium links represent single covalent bonds while long links can be used for double and triple covalent bonds
- Includes: Six black carbon (4 holes), 14 white hydrogen (1 hole), Two blue nitrogen (4 holes), One blue nitrogen (5 holes), Six red oxygen (2 holes), Three yellow sulfur (one each: 2 holes, 4 holes, and 6 holes), One purple phosphorus (5 holes), Six green halogen (1 hole), Three gray metal (1 hole), Three gray metal (2 holes), Two gray metal (3 holes), One gray metal (4 holes), One brown sp<sup>3</sup> (4 holes), One brown dsp<sup>3</sup> (5 holes), One brown d<sup>2</sup>sp<sup>3</sup> (6 holes), 28 mm gray links (20), 43 mm gray links (10), 28 mm purple links (5), Instruction manual

Cat. No.	Description	Price
S96538	54 piece set	\$45.00/Ea
S96539	114 piece set	\$60.00/Ea
S96540	95 piece set	\$64.75/Ea

## Chemistry and Physics Helpers

Inexpensive, yet invaluable information.

These handy laminated sheets are filled with useful technical information. The Chemistry Helper highlights the mole concept, consistency in significant figures, circle formulas, electron placement notations, a solubility chart, and the periodic table.



Cat. No.	Price
S24678	\$4.05/Ea

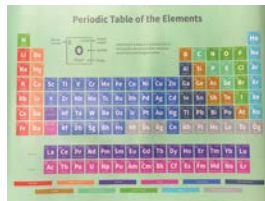
# United Scientific™ Periodic Table Poster



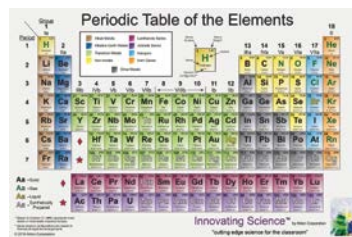
Easy to read poster of the periodic table.

Large Periodic Table of the Elements

- Poster measures 47 in. wide and 35.5 in. tall – easily visible from every corner of the classroom
- Durable material will withstand heavy use
- Includes elements through UUO #118



Cat. No.	Description	Price
S139459	Dimensions: 47 x 35.5 in.	\$43.75/Ea



# Periodic Table Posters

Color printing helps students distinguish between metals, non-metals, and noble gas families as well as allowing them to differentiate types of metals, solids, liquids, and gases from synthetic elements.

### Laminated Periodic Table (S99036A)

- Distinguish between metals, nonmetals and noble gas families
- Differentiate types of metals, solids, liquids and gases from synthetic elements
- Lists name, symbol, atomic number, weight, mass and electron configuration

### Periodic Table Poster (S37730)

- Made from premium matte 100 lb. paper
- Includes name, symbol, atomic number, weight, mass, electron configuration of elements

### Vinyl Periodic Table Poster (S20643)

- Includes name, symbol, atomic number, weight, mass, electron configuration

### Large Periodic Table Poster (S41150)

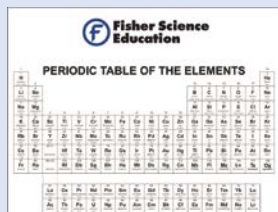
- Color printing helps your students distinguish between metals, non-metals, and noble gas families as well as allowing them to differentiate types of metals, solids, liquids and gases from synthetic elements
- Name, symbol, atomic number, weight, mass, electron configuration are included
- The periodic table poster is made of a durable, light weight, waterproof vinyl with grommets for hanging

Cat. No.	Description	Dimensions	Price
S99036A	Laminated Periodic Table	11 × 17 in. (27.9 × 43.2 cm)	\$13.50/Ea
S37730	Periodic Table Poster	21 × 34 in. (53.3 × 86.3 cm)	\$11.50/Ea
S20643	Vinyl Periodic Table Poster	35 × 45 in. (88.9 × 114.3 cm)	\$88.00/Ea
S41150	Large Periodic Table Poster	4 × 8 ft. (1.21 × 2.43 m)	\$212.00/Ea

# fisherbrand™ Periodic Table of the Elements

Personal-sized periodic table of the elements for the entire class.

- Quality print on standard white paper
- Each sheet is 8.5 x 11 in.
- 25 sheets per package



Cat. No.	Color	Price
S30781	Black, White, Blue	\$27.00/Ea
S30782	Black, White	\$20.75/Ea

# Eisco™ Giant Periodic Table

Periodic table includes elements Nihonium, Moscovium, Tennessine, and Oganesson.

- This table shows the interval atomic mass for select elements.
- Symbol text is 1.125 in. high; text for names and molar masses is 0.375 in. high. Maximum useful viewing distance to read masses is 25 ft.
- Made of tri-fold corrugated plastic board
- Measures 8 x 4 ft.
- All elements are in bold, black lettering
- Includes grommets for easy hanging



Cat. No.	Price
S71879	\$261.00/Ea

# Fisher Science Education™ Periodic Table of Elements Poster

Offers a large format and easy-to-use display.

- Printed on 10 mil indoor/outdoor poster stock material
- Corner grommets for easy display
- Large 48 x 84 in. display



Cat. No.	Price
S07899	\$301.00/Ea

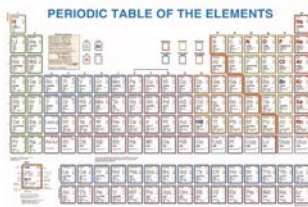


## Advanced Periodic Table of the Elements

Presents far more information than the typical periodic table.

- Identifies elements as noble gases, nonmetals, and various metals classes
- Indication of physical state at atmospheric pressure and temperature by the color of the element symbol
- Separate presentation of important physical constants
- Table indicates the color various elements give off when heated in the flame of a Bunsen burner
- Each element displays IUPAC name, symbol, atomic weight, oxidation states, density, boiling and melting points, number of naturally occurring radioactive isotopes, and pertinent information for the most abundant radioactive isotope

Chart measures 58 x 42 in. (147 x 107 cm); available with or without spring-activated roller. Notebook-sized charts are 11 x 8.5 in. (28 x 21.6 cm).



Cat. No.	Description	Price
S45525	Periodic Table Chart without Roller	\$243.00/Ea
S45525A	Advanced Periodic Table Chart with Roller	\$298.00/Ea

## Periodic Table Pen

This pen holds a double-sided Periodic Table. The back side is a handy miniature reference chart.

- Convenient reference guide at your fingertips
- Pen holds a double-sided Periodic Table

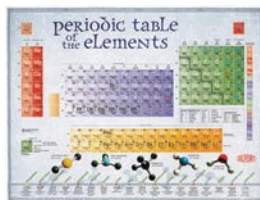


Cat. No.	Price
S05880	\$9.55/Ea

## Colorful Periodic Chart

Shows essential element information clearly and colorfully.

- Different colors highlight group similarities and reinforce different electron configurations
- Contains the element symbol, atomic number, element name, atomic mass and radioactivity



Cat. No.	Height (Metric)	Width (Metric)	Product Type	Price
S63056	21.6 cm	27.9 cm	Periodic Chart Pad (x100 sheets)	\$25.75/Ea
S63055	96.5 cm	127 cm	Periodic Chart Laminated Poster	\$31.75/Ea

## United Scientific™ Chemistry Hardware Assortment, Deluxe

A comprehensive package of the most commonly-used chemistry lab glassware, plasticware, porcelain, and hardware.

### Includes:

- Beaker, glass, 100 mL (1)
- Beaker, glass, 250 mL (1)
- Beaker, glass, 400 mL (1)
- Beaker, glass, 1,000 mL (1)
- Bottle, wash, 125 mL, plastic (1)
- Clamp, Burette (1)
- Clamp, Mohr's pinchcock (1)
- Crucible with cover, 10 mL (1)
- Cylinder, graduated, glass, 10 mL (1)
- Cylinder, graduated, glass, 50 mL (1)
- Cylinder, graduated, plastic (PP), 100 mL (1)
- Evaporating dish, porcelain, 35 mL (1)
- Filter paper, 9 cm dia., 100/pk (1)
- Flask, boiling, 100 mL (1)
- Flask, boiling, 250 mL (1)
- Flask, Erlenmeyer, glass, 250 mL (1)
- Flask, Erlenmeyer, glass, 500 mL (1)
- Flask, volumetric, w/stopper, 250 mL (1)
- Laboratory apron (1)
- Mortar & pestle, 90 mm (1)
- Rubber stopper, #1 solid (6)
- Rubber stopper, #1 one-hole (1)
- Rubber stopper, #2, solid (1)
- Rubber stopper, #2, one-hole (1)
- Rubber stopper, #2, two-hole (1)
- Rubber stopper, #6, solid (3)
- Rubber stopper, #6, one-hole (3)
- Rubber stopper, #6, two-hole (3)
- Spatula, stainless steel (1)
- Test tube, glass, 16 x 150 mm (6)
- Test tube brush (1)
- Test tube clamp (1)
- Test tube rack, 2-tier, wooden (1)
- Tongs, crucible (1)
- Triangle, clay pipe (1)
- Tripod stand, 6 in. (1)
- Stirring rod, glass, 12/pk (1)
- Support stand, with 18 in. rod (1)
- Support ring, 3 in. OD with clamp (3)
- Test paper, litmus, blue (1)
- Test paper, litmus, red (1)
- Test paper, cobalt chloride (1)
- Tubing, glass, assorted, one pound (1)
- Wire gauze, 5 in. square (1)



**WARRANTY:** 1 year

Cat. No.	Price
S23933	\$211.00/Ea



Log in to your account on [fisheredu.com](https://www.fisheredu.com) to see your discounts.

## Electrochemistry

## Ohaus™ Aquasearcher™ Multi-Parameter Analyzer

Easy-to-use and accurate, capable of measuring up to seven parameters including pH, ORP, conductivity, TDS, salinity, resistivity, and temperature.

- Easy to use and accurate, capable of measuring up to seven parameters including pH, ORP, conductivity, TDS, salinity, resistivity, and temperature
- Features two independent measuring channels that can work simultaneously
- Equipped with a large 6.5 in. LCD display and a touch keypad
- Features a 1,000 item memory for measurements and calibration trail
- Provides connectivity and data output capabilities with RS232 and USB interface
- i-Steward monitors the condition of electrodes to ensure repeatable and consistent measurement accuracy
- Intuitive user interface makes changing the parameters, executing setup, and performing calibration as simple as using a smartphone
- Choose between just the AB33M1 meter with electrode holder (S05299) and a full kit (S05298) including AB33M1 meter, ST310 electrode, STCON3 probe, electrode holder, 4 pH buffer mini kits (50 mL), standard conductivity solution kits (1413  $\mu\text{S}/\text{cm}$ , 50 mL)

NEW



Cat. No.	Includes	Price
S05298	AB33M1 Meter, ST310 Electrode, STCON3 Probe, Electrode Holder, 4 pH Buffer Mini Kits (50 mL), Standard Conductivity Solution Kits (1413 $\mu\text{S}/\text{cm}$ , 50 mL)	\$1,131.00/Ea
S05299	AB33M1 Meter, Electrode Holder	\$969.00/Ea

## Thermo Scientific™ Orion Lab Star PH111 pH/mV Bench Meters

Measure pH or ORP with mV and temperature, feature a large backlit display for easy visibility, and offer small footprint to save bench space. Ideal for simplified, budget-friendly lab testing and data recording.

- Budget-friendly pH meter for simplified pH and ORP testing
- Display shows pH, mV and temperature simultaneously for accurate data recording
- Measure -2 to 18 pH, -2000 to +2000 mV and -5 to 105 °C or 23 to 221 °F to ensure comprehensive measurement capabilities
- Perform one to five point pH calibrations, one point ORP calibrations and one point temperature adjustment calibrations for proficient SOP compliance
- Large 5 inch backlit display makes viewing and recording measurements easy
- Small meter footprint saves valuable bench space in your lab
- Onscreen stabilizing and ready indicators help identify when readings are complete
- pH electrode condition icon helps ensure reliable electrode performance
- Date and time data stamped data and calibration logs support GLP compliance
- View active pH, ORP and temperature calibration logs with date and time stamp to ensure accurate, reproducible measurements
- Use 500-point data log with date and time stamp to record key measurements
- Output data and calibration logs to a printer or computer for long-term data storage
- Interchangeable wall plugs for US/Japan, Euro, UK/Singapore, Australia/New Zealand and China outlets

### Meter and Meter Kits

- **LSTAR1110 (S81896)** is the pH meter and stand option, which allows you to purchase your pH electrode separately
- **LSTAR1115 (S81897)** is the standard pH meter kit option, for common pH samples such as drinking water, tap water, buffers (non-TRIS) and general purpose student use
- **LSTAR1116 (S81898)** is the easy-to-clean bio pH meter kit option, for pH samples containing TRIS buffers, proteins, sulfides, halides or other components that can interfere with silver-chloride; included

NEW



refillable pH electrode is easy-to-clean and restore

- **LSTAR1117 (S81899)** is the low-maintenance bio pH meter kit option, for pH samples containing TRIS buffers, proteins, sulfides, halides or other components that can interfere with silver-chloride; included gel-filled pH electrode is low-maintenance and easy to operate
- **LSTAR1118 (S81900)** is the difficult sample pH meter kit option, for pH samples that are thick, viscous or semi-solid including foods, beverages, wastewaters, emulsions, soils, slurries, suspended solids or sludges

**COMPLIANCE:** CE, TUV 3-1, FCC Class A

Cat. No.	Description	Price
S81896	Bench Meter with Stand	\$675.00/Ea
S81897	Bench Meter Standard Kit	\$924.00/Ea
S81898	Easy-to-Clean Bio Kit	\$993.00/Ea
S81899	Low-Maintenance Bio Kit	\$934.00/Ea
S81900	Difficult Sample Kit	\$1,077.00/Ea

## Ohaus™ Aquasearcher™ pH Meters

Advanced, research-grade benchtop pH meters with electrode, offering accurate, repeatable results.

### Aquasearcher™ pH Meter AB41PH (S05294, S05295)

- An advanced, research-grade benchtop pH meter with electrode, offering accurate, repeatable results with selectable resolution and an intelligent i-Steward system
- Equipped with a large 6.5 in. LCD display and a touch keypad
- Features a 1,000 item memory and password management for GLP documentation
- Provides connectivity and data output capabilities with RS232 and USB interface
- i-Steward ensures repeatable and consistent measurement accuracy
- Intuitive user interface makes changing the parameters, executing setup, and performing calibration as simple as using a smartphone
- Choose between just the AB41PH meter with electrode holder (S05295) and a full kit (S05294) including AB41PH meter, ST410 electrode, STTEMP probe, electrode holder, AS20 magnetic stirrer, and 4 pH buffer mini kits (50 mL)

### Aquasearcher™ pH Meter AB33PH (S05296, S05297)

- A highly reliable and user-friendly pH benchtop meter with electrode (ST310) for standard laboratory applications

- Designed to measure pH and oxidation-reduction potential with temperature measurements
- Equipped with a large 6.5 in. LCD display and a touch keypad
- Features a 1,000 item memory for pH measurements and calibration trail
- Provides connectivity and data output capabilities with RS232 and USB interface
- i-Steward monitors the condition of electrodes to ensure repeatable and consistent measurement accuracy
- Intuitive user interface makes changing the parameters, executing setup, and performing calibration as simple as using a smartphone
- Auto endpoint mode and auto buffer recognition makes calibration easy
- Choose between just the AB33PH meter with electrode holder (S05297) and a full kit (S05296) including AB33PH meter, ST310 electrode, electrode holder, 4 pH buffer mini kits (50 mL)

### Aquasearcher™ pH Meter AB23PH (S05302, S05303)

- A simple to use benchtop meter for measuring pH and oxidation-reduction potential (ORP)

**NEW**



- An intuitive design and auto-buffer recognition make measuring pH straightforward and easy
- Equipped with a large 5 in. LCD display and six instructional menu buttons
- Auto buffer recognition and 3-point calibration capability ensures a reliable calibration result
- Features a 99 item memory for measurements and last calibration
- Choose between just the AB23PH meter with electrode holder (S05303) and a full kit (S05302) including AB23PH meter, ST320 pH electrode, and four pH Buffer Mini Kits (50 mL)

Cat. No.	Description	Includes	Price
S05294	Aquasearcher™ pH Meter AB41PH	AB41PH Meter, ST410 Electrode, STTEMP Probe, Electrode Holder, AS20 Magnetic Stirrer, 4 pH Buffer Mini Kits (50 mL)	\$1,314.00/Ea
S05295	Aquasearcher™ pH Meter AB41PH	AB41PH Meter, Electrode Holder	\$1,139.00/Ea
S05296	Aquasearcher™ pH Meter AB33PH	AB33PH Meter, ST310 Electrode, Electrode Holder, 4 pH Buffer Mini Kits (50 mL)	\$758.00/Ea
S05297	Aquasearcher™ pH Meter AB33PH	AB33PH Meter, Electrode Holder	\$681.00/Ea
S05302	Aquasearcher™ pH Meter AB23PH	AB23PH Meter, Electrode Holder, ST320 pH Electrode, 4 pH Buffer Mini Kits (50 mL)	\$536.00/Ea
S05303	Aquasearcher™ pH Meter AB23PH	AB23PH Meter, Electrode Holder	\$470.00/Ea

## Ohaus™ Starter™ pH Meter

Affordable benchtop pH meter that clearly displays information with five distinctly marked keys, allowing users to operate with minimal training.

### Starter™ pH Meter ST2200 (S05306, S05307)

- An affordable benchtop pH Meter that clearly displays information with five distinctly marked keys, allowing users to operate with minimal training
- Equipped with a large 3.5 in. LCD display
- Features a 99 item memory for measurements and last calibration

- Features auto-buffer recognition and auto-endpoint modes that make measurement and calibration simple
- Choose between just the ST2200 meter with electrode holder (S05307) and a full kit (S05306) including ST2200 meter, electrode holder, ST320 electrode, 4 pH buffer mini kits (50 mL)

**NEW**



Cat. No.	Description	Includes	Price
S05306	Starter™ pH Meter ST2200	ST2200 Meter, Electrode Holder, ST320 Electrode, 4 pH Buffer Mini Kits (50 mL)	\$442.00/Ea
S05307	Starter™ pH Meter ST2200	ST2200 Meter, Electrode Holder	\$404.00/Ea



## Ohaus™ Aquasearcher™ Conductivity Meters

Highly reliable benchtop meters designed to measure conductivity, total dissolved solids (TDS), and more.

### Aquasearcher™ Conductivity Meter AB33EC (S05300, S05301)

- A highly reliable benchtop meter designed to measure conductivity, total dissolved solids (TDS), salinity, and resistivity with temperature measurements
- Selectable reading reference temperatures of 20 or 25°C with linear curve options and automatic temperature compensation
- Features auto-stop, auto temperature compensation, adjustable TDS factor, and 2- or 4- cell conductivity probe compatibility
- Equipped with a large 6.5 in. LCD display and a touch keypad
- Features a 1,000 item memory for measurements and calibration trail
- Provides connectivity and data output capabilities with RS232 and USB interface

- i-Steward monitors the condition of electrodes to ensure repeatable and consistent measurement accuracy
- Intuitive user interface makes changing the parameters, executing setup, and performing calibration as simple as using a smartphone
- Choose between just the AB33EC meter with electrode holder (S05301) and a full kit (S05300) including AB33EC meter, STCON7 probe, and 4 conductivity standard kits (84  $\mu\text{S}/\text{cm}$ , 50 mL)

### Aquasearcher™ Conductivity Meter AB23EC (S05304, S05305)

- A simple to use benchtop meter designed to easily measure conductivity, total dissolved solids (TDS), and salinity



- Equipped with a large 5 in. LCD display and six instructional menu buttons
- Features a 99 item memory for measurements and last calibration
- Choose between just the AB23EC meter with electrode holder (S05305) and a full kit (S05304) including AB23EC meter, electrode holder, STCON3 probe, and four conductivity standard kits (1413  $\mu\text{S}/\text{cm}$ , 50 mL)

Cat. No.	Description	Includes	Price
S05300	Aquasearcher™ Conductivity Meter AB33EC	AB33EC Meter, Electrode Holder, STCON7 Probe, 4 Conductivity Standard Kits (84 $\mu\text{S}/\text{cm}$ , 50 mL)	\$763.00/Ea
S05301	Aquasearcher™ Conductivity Meter AB33EC	AB33EC Meter, Electrode Holder	\$613.00/Ea
S05304	Aquasearcher™ Conductivity Meter AB23EC	AB23EC Meter, Electrode Holder, STCON3 Probe, 4 Conductivity Standard Kits (1413 $\mu\text{S}/\text{cm}$ , 50 mL)	\$631.00/Ea
S05305	Aquasearcher™ Conductivity Meter AB23EC	AB23EC Meter, Electrode Holder	\$493.00/Ea

*fisherbrand*

**FE150**

### Benchtop pH Meter 3-in-1 S with 3-in-1 Single Junction Gel pH/ATC Electrode, and Stand



Designed for convenient routine pH measurement. User-friendly features include an attachable electrode stand, efficient sample reading and recording, and flexible display options.

#### The essential functions needed for routine measurements

- Simultaneously displays both pH and temperature or mV-temperature
- One to five point pH calibration
- Automatic buffer recognition with selection of two pH buffer sets
- pH slope and offset display
- One point mV calibration
- One point ATC temperature probe calibration
- Automatic or manual temperature compensation
- Ready icon to indicate measurement stability
- Electrode condition icon to indicate status
- 100 data set storage with non-volatile memory

Cat. No.	Price
S35925	\$611.00/Ea

*fisherbrand*

**FE150**

### Benchtop pH Meter Education Set



Measures the acidity or alkalinity of a sample to a high degree of accuracy. Its intuitive, simple operation, easy-to-use interface and high accuracy measurements ensure maximum productivity in your classroom or lab.

Comes complete with pH meter, single junction gel pH electrode, ATC probe, and stand.

Cat. No.	Price
S35923	\$562.00/Ea

*fisherbrand*  
**FE150  
 Benchtop pH  
 Meter Bio Set  
 with Double  
 Junction Gel  
 pH Electrode,  
 ATC Probe, and Stand**



**Designed for convenient routine pH measurement. User-friendly features include an attachable electrode stand, efficient sample reading and recording, and flexible display options.**

**The essential functions needed for routine measurements**

- Simultaneously displays both pH and temperature or mV-temperature
- One to five point pH calibration
- Automatic buffer recognition with selection of two pH buffer sets
- pH slope and offset display
- One point mV calibration
- One point ATC temperature probe calibration
- Automatic or manual temperature compensation
- Ready icon to indicate measurement stability
- Electrode condition icon to indicate status
- 100 data set storage with non-volatile memory

Cat. No.	Price
S35924	\$575.00/Ea

*fisherbrand* **pH Pen**

**pH measurement is easier than ever with this economical pocket-size tester designed for on-the-go pH measurements.**

Accurate and easy to use, these testers are ideal for quick pH measurements in hydroponic gardening, aquaculture, agriculture, pools, simple lab work and other water/wastewater applications.

- $\pm 0.1\%$  accuracy across full pH range
- Auto-buffer recognition and auto-calibration functions – quick, easy calibrations at the press of a button
- Long-lasting sensor – large volume of polymer gel reference gives longer sensor lifespan, while single Kynar™ reference junction prevents clogging
- Automatic temperature compensation and up to three calibration points for broadened accuracy throughout the pH range



Cat. No.	Price
S35927	\$66.75/Ea

**Ohaus™ Starter  
 pH Pen Meters**

**Convenient pH testing that offer a convenient way to measure pH, or the relative acidity or alkalinity of a sample at a given temperature. The pH pen meters can be completely operated with just one hand, freeing up your other hand to handle samples.**



- Fast, straightforward results
- Durable IP67 waterproof design
- Equipped with wrist strap for security
- Automatic shutdown after six minutes of non-use
- Requires four AG13 1.5V micro alkaline batteries
- Size/weight: 185 x 45 x 38 mm, 110 g
- Includes buffer powder pack (ST20)

Cat. No.	Accuracy (pH)	Range (pH)	Resolution (pH)	Price
S05084	$\pm 0.1$	0 to 14	0.1	\$93.00/Ea
S05085	$\pm 0.01$	0 to 14	0.01	\$153.00/Ea

## Stay Connected with the Fisher Science Education Team

### Follow us on





# Ohaus Starter Pen Meters

## Convenient, Accurate Results in Seconds

- Portable and compact
- Single-hand operation
- Durable IP67 waterproof design
- Include wrist strap for security
- Auto shutdown after four minutes of non-use
- Require four AG13 1.5 V microalkaline batteries (included)
- Size/weight: 185 × 45 × 38 mm; 110 g



ST20

Model	Range	Resolution	Temp. Display	Cat. No.	Price
<b>pH Pen Meters</b>					
ST10	0.0 to 14.0 pH	0.1 pH	No	<b>S05084</b>	\$93.00/Ea
ST20	0.00 to 14.00 pH	0.01 pH	Yes	<b>S05085</b>	\$153.00/Ea
<b>ORP Pen Meters</b>					
ST10R	-1000 to 1000 mV	1 mV	No	<b>S05086</b>	\$163.00/Ea
ST20R	-1000 to 1000 mV	1 mV	Yes	<b>S05087</b>	\$216.00/Ea
<b>Conductivity Pen Meters</b>					
ST10C-A	0.0 to 199.9 µS/cm	0.1 µS/cm	No	<b>S05088</b>	\$105.00/Ea
ST10C-C	0.00 to 19.99 mS/cm	10 µS/cm	No	<b>S05090</b>	\$105.00/Ea
ST20C-A	0.0 to 199.9 µS/cm	0.1 µS/cm	Yes	<b>S05091</b>	\$155.00/Ea
<b>Salinity Pen Meters</b>					
ST20S	0.0 to 80.0 ppt	+/- 1.5% FS	Yes	<b>01-922-070</b>	\$176.00/Ea
<b>TDS Pen Meters</b>					
ST20T-A	0.0 to 100.0 mg/L	0.1 mg/L	Yes	<b>S05098</b>	\$146.00/Ea

Choose from five models in a variety of calibrations.



S05084

S05087

S05088

S05091

S05086

01-922-070

S05098



## Thermo Scientific™ Orion Star™ A121 pH Portable Meter

**Portable, waterproof meter provides simple operation and accurate readings every time.**

Thermo Scientific Orion Star A121 pH Portable Meters combine simplicity with accuracy. A large LCD displays pH or mV readings along with temperature. Icons provide quick updates on battery life, electrode status and calibration information. Simple button layout and onscreen messages help with calibration and setup menu choices.



- Large, informative screen clearly shows the main information, including pH or mV reading, temperature in °C or °F, meter mode, calibration information and battery life
- Don't miss a reading - Auto-Read measurement mode locks in the stable reading on your screen and ready indicator alerts when readings are stable
- Up to 3 point pH calibration
- Automatic recognition of U.S.A./NIST and DIN buffers
- Easily recall calibration slope data for procedure checks
- Non-volatile memory holds up to 50 data points
- Four AA batteries (included) provide over 2000 hours of operation or purchase the universal power adapter (sold separately) to run meter on AC power
- Perfectly portable, waterproof and protected to take anywhere with a IP67-rated housing
- 3 year meter replacement warranty

### Specifications

- Accuracy (mV):  $\pm 0.2$  mV or  $\pm 0.05\%$  of reading whichever is greater
- Accuracy (pH):  $\pm 0.01$  pH
- Battery life: 2000 hours
- Inputs: BNC (pH), 8-pin Mini-DIN (temperature)
- Probe type:  $\pm$ pH electrode, ATC probe, ORP electrode - purchase separately
- Range (mV): 1600.0mV
- Range (pH): -2.00 to 16.00pH
- Relative humidity range: 5 to 85 %, non-condensing
- Resolution (mV): 0.1mV
- Resolution (pH): 0.1, 0.01pH
- Temperature (metric) operating: 5 to 45°C
- Temperature range: -5° to +105°C
- Calibration points (pH): 1 to 3

**Meter Kit (S04968) Includes:** Star A121 pH meter with batteries (S04953), gel-filled epoxy pH/ATC triode with 1.5 m cable (13-642-250), pH buffer 60 mL kit (09-357-72), rinse solution pouches (13-641-273), Star A Series portable meter hard carrying case (13-645-596), Star A Series portable meter protective armor (13-645-599)

**CERTIFICATION:** IP-67, CE, TV, FCC Class A limits

**WARRANTY:** Three-year meter replacement warranty

Cat. No.	Type	Price
S04968	Meter Kit	\$1,188.00/Ea
S04953	Meter Only	\$711.00/Ea

## Ohaus™ Starter Water Analysis Portable pH Meters

**LCD meters combine portability with precise pH measurement.**

- Auto buffer recognition stores calibration data to avoid errors
- Automatic/manual temperature compensation for accurate readings
- ORP or temperature electrode connectivity for additional functionality
- IP54 protection shields water/dust damage
- Size: 90 x 150 x 35 mm
- Weight: 0.18 kg



Cat. No.	Model	Resolution	Price
S05080	ST300	0.01pH; 1mV; 0.1°C	\$547.00/Ea
S05079	ST300-B	0.01pH; 1mV; 0.1°C	\$409.00/Ea

## Ohaus™ Starter™ pH Electrode

**Features a durable shaft built to withstand daily use. Includes a temperature sensor, which powers automatic temperature compensation and ensures accurate measurements.**

- Designed for accurate and precise measurement
- Can be used with both bench and portable meters
- Temperature sensor features automatic temperature compensation



Cat. No.	Junction	Material	pH Range	Price
S05308	Open	Glass	0 to 14	\$305.00/Ea
S05309	Fiber Pin	Plastic	0 to 14	\$170.00/Ea
S05310	Ceramic	Glass	0 to 14	\$233.00/Ea
S05311	Ceramic	Glass	2 to 13	\$358.00/Ea

## Ohaus™ Starter™ Conductivity Electrode

**Features a glass shaft built to withstand daily use. Includes a temperature sensor, which powers automatic temperature compensation for accurate measurements.**

- Designed for accurate and precise measurement
- Can be used with both bench and portable meters
- Temperature sensor features automatic temperature compensation



Cat. No.	Measurement Ranges	Price
S05312	50 to 2000 $\mu$ S/cm	\$228.00/Ea
S05313	0.055 to 300 $\mu$ S/cm	\$311.00/Ea

## Ohaus™ Starter™ Conductivity Electrode STCON8 with Flow Chamber

Features a glass shaft built to withstand daily use. Includes a temperature sensor, which powers automatic temperature compensation for accurate measurements. Flow chamber produces accurate measurements.

- Designed for accurate and precise measurement
- Can be used with both bench and portable meters
- Flow chamber optimizes the sample flow volume and creates mixing patterns that produce accurate and stable measurements



Cat. No.	Price
S05314	\$499.00/Ea

## Stem Investigations: Create Your Own Power Kit

Teaches students to set up electrochemical cells utilizing different combinations of materials for the anode and the cathode of the cell.

- The voltaic cell is an electrochemical cell that produces electrical energy an oxidation-reduction chemical reaction
- In this activity students will set up electrochemical cells, with each group using a different combination of materials for the anode and the cathode of the cell
- Students will also compare two different styles of cell, one using a salt bridge and one using a semi-permeable membrane
- After determining the voltage output of their unique cells, and comparing their values to the rest of the class, students will be challenged to design an electrochemical cell capable of running a small motor
- Kit contains enough materials for 15 groups
- Teacher's manual and student study guide copy masters are included



Cat. No.	Price
S27135	\$473.00/Ea

## Conductivity Testers

Demonstrates the effects of liquid conductivity.

- Consists of a molded socket mounted on a PVC base with binding posts for quick electrical connection
- Two electrodes are internally connected to the lamp circuit
- Fits a clear tumbler which is the reservoir for the solution
- Size 4 x 4 x 5 in., weight 5 lb.



Cat. No.	Price
S43475A	\$23.50/Ea

## RCI Conductivity Indicators

Ideal for comparing various solutions across a wide range of conductivity levels.

- Simply immerse the probes in the solution and record the display lamp lit
- The higher the numbered display lamp lit, the greater the solution conductivity
- Unique, multiple lamp conductivity display determines the relative conductivity of solutions



Cat. No.	Price
S63198	\$79.20/Ea

## Conductivity Meter

Visually compare conductivity between different solutions.

- This 10 level meter visually compares conductivity between different solutions.
- The green LED, numbered from 1-10 will light up as the probes are dipped into solutions of salts or acids.



Cat. No.	Price
S99639	\$21.25/Ea

## Insta-Chek™ Wide-Range Paper Dispenser

Single color match for each pH value.

- 14 distinct colors match the 14 pH values for accurate readings
- Includes color chart
- Dispenser contains 50 ft. x 0.5 in. roll (15.2m x 1.27 cm)



Cat. No.	Type	Price
S60149	Paper Dispenser	\$20.00/Ea
S60149A	pH Test Strip Refill	\$21.50/Ea

## Fisher Science Education™ pH Buffer Solutions

pH 1 to pH 12, 500 mL



Cat. No.	Quantity	Includes	Price
S25208	500 mL	pH 1	\$18.00/Ea
S25208A	500 mL	pH 2	\$18.75/Ea
S25208B	500 mL	pH 3	\$17.50/Ea
S25208C	500 mL	pH 4	\$16.75/Ea
S25208D	500 mL	pH 5	\$16.50/Ea
S25208E	500 mL	pH 6	\$16.50/Ea
S25208F	500 mL	pH 7	\$17.00/Ea
S25208G	500 mL	pH 8	\$16.25/Ea
S25208H	500 mL	pH 9	\$15.00/Ea
S25208I	500 mL	pH 10	\$16.75/Ea
S25208J	500 mL	pH 11	\$17.75/Ea
S25208K	500 mL	pH 12	\$12.25/Ea
S02641	4 x 500 mL bottle pack	pH buffers 4, 7, and 10, and electrode storage solution	\$68.75/Pk

*This product is for educational use - no Certificate of Analysis is available.*

## fisherbrand Plastic pH Test Strips

Offer excellent color separation in the pH range; 100 pH test strips/vial.

- Packaged in a flip-top, spill-proof vial
- Colorimetric chart is located on the vial label
- Plastic pH test strip construction
- Ideal for lab, field or classroom use
- Instant dip and read result



Cat. No.	pH Range	Price
S04674	0 to 14	\$27.25/Ea
S04676	6.5 to 13	\$27.25/Ea
S04673	5 to 9	\$27.25/Ea
S04677	0 to 6	\$27.25/Ea
S04675	5.5 to 8	\$27.25/Ea

## fisherbrand pH Paper Strips

An easy choice for classroom experiments or demonstrations.

- Packaged in a flip-top, spill-proof vial
- Colorimetric chart is located on the vial label
- Plastic pH test strip construction
- Ideal for lab, field or classroom use
- Instant dip and read result

### Ordering Information:

- Box of 10 vials, 100 low-cost paper strips per vial



Cat. No.	Type	pH Range	Price
S22511	pH Test Paper	0 to 3	\$22.50/Cs
S22508	pH Test Paper	0 to 14	\$22.50/Cs
S22509	pH Test Paper	3 to 5.5	\$22.50/Cs
S22510	pH Test Paper	6 to 8	\$22.50/Cs
S22512	pH Test Paper	8 to 9.5	\$22.50/Cs
S22513	pH Test Paper	10 to 12	\$22.50/Cs
S22515	pH Test Paper Set	0 to 14	\$22.50/Cs

## fisherbrand pH Paper Rolls

General purpose pH papers in efficient 15' rolls.

- Convenient dispenser allows you to select the right amount of pH paper for each application
- Easy-to-use—dip paper in solution to be tested and match to color chart immediately
- Highly accurate and well suited for most applications
- Each SKU is packed in box of five clear plastic dispensers
- Cat. No. S22507 is a pH paper testing set that includes shrink wrapped pack of seven dispensers (one of each SKU)
- Store at room temperature. Keep out of direct sunlight.



### Ordering Information:

- 15 ft. roll provides about 100 tests

Cat. No.	Type	pH Range	Price
S22500	pH Test Paper	0 to 3	\$34.50/Cs
S22507	pH Test Paper Set	0 to 14	\$42.00/Pk
S22506	pH Test Paper	1 to 12	\$34.50/Pk
S22501	pH Test Paper	3 to 5.5	\$34.50/Cs
S22502	pH Test Paper	6 to 8	\$34.50/Cs
S22503	pH Test Paper	8 to 9.5	\$34.50/Cs



## fisherbrand Test Paper

Use these test papers for a variety of applications.

### PTC Taste Test Paper

- PTC (pheythiocarbamide) taste test paper test for the genetically-controlled ability to taste this substance
- This will allow for the development of a Pedigree for an individual
- PTC can taste bland, bitter or even vile depending upon how sensitive your taste buds are to this chemical
- The bitter taste detected by some individuals, and its intensity, depends upon a homozygous dominant or heterozygous condition in the individuals tested
- PTC taste test paper is perfectly safe to use – Phenylthiocarbamide (PTC) is present at only 3-5 micrograms per strip. At this level, the compound is negligible and harmless



### Cobalt Chloride Test Paper

- Detects the presence of moisture
- This test paper is useful in difficult to reach places and recesses
- Cobalt chloride test paper is responsive to 50% relative humidity and above, and any direct measure of an aqueous solution

### Phenolphthalein Test Paper

- Phenolphthalein test paper is sensitive to Ammonia Vapors, and thus is used to detect Ammonia leaks, for example, in refrigerators or air conditioners
- Phenolphthalein detects Ammonia in solution from 3–5ppm
- The test strip will turn a pinkish color if Ammonia is detected

Cat. No.	Description	For Use With	Price
S67171	Litmus Red Test Strip	For all laboratory moisture tests	\$18.00/Pk
S60130	PTC Taste Test Paper	Genetics taste test strips	\$32.50/Pk
S60126	Moisture Detection Test Strip	Quickly detect Ammonia in solution from 3 to 5ppm.	\$32.50/Pk
S60124	Methyl Violet Test Strip	For all laboratory moisture tests	\$32.50/Pk
S60100	Cobalt Chloride Test Paper	For all laboratory moisture tests	\$32.50/Pk
S60125	Lead Acetate Test Paper	Quickly detect Hydrogen Sulfide in water in concentrations as low as 5ppm.	\$63.75/Pk

## Economical Plastic pH Strips

Offer excellent color separation in the pH range; 50 pH test strips/pack.

- Packaged in a zip lock pack
- Colorimetric chart is located on the vial label
- Plastic pH test strip construction
- Ideal for lab, field or classroom use
- Instant dip and read result



**DISCLAIMERS:** This product is not intended to diagnose, treat, cure or prevent any disease or condition. Please contact a medical doctor to diagnose and treat any medical condition.

Cat. No.	pH Range	Price
S21140	0 to 14	\$18.00/Pk

## pH Test Papers, Wide-Range

Select the pH range you need, quickly and inexpensively.



- Type A indicates pH 2, 4, 6, 8 and 10
- Type B indicates pH 1, 3, 5, 7, 9 and 11

Cat. No.	pH Range	Type	Quantity	Price
S60144	1 to 11	Hydrion™ D/R AB Dispenser	Each	\$14.75/Ea
S60152	1 to 11	Type B pH Paper	10/Pk	\$28.00/Pk
S60146	1 to 11	Type A Refill	5/Pk	\$40.00/Pk
S60148	1 to 11	Refill Roll	5/Pk	\$40.00/Pk
S60150	2 to 10	Type A Vial	10/Pk	\$28.00/Pk

## Eisco™ Litmus Test Papers

100 Strips/Vial, 12 Vials/Pk

- **Blue pH paper (S80845)** indicates presence of an acid; pH range 4.0-6.8
- **Red pH paper (S80846)** indicates presence of a base; pH range 6.8-8.1
- **Neutral paper (S80849)** tests for acidity, neutrality or alkalinity; turns red in presence of acid (pH7)



Cat. No.	Description	Price
S80845	Blue Litmus pH Test Paper: Acid Indicator	\$17.25/Ea
S80846	Red Litmus pH Test Paper: Base Indicator	\$17.75/Pk
S80849	Neutral Litmus Test Paper	\$28.50/Ea

## United Scientific™ pH Paper

Determine the pH of wide range of solutions!

- pH range: 1-14
- Each vial includes 5 packs of 20 strips



Cat. No.	Price
S99398	\$3.70/Ea

## United Scientific™ Litmus Paper

Available as Litmus paper and Litmus Granular in bottles.

- 100 strips each in matching color plastic vials
- Individual strips are approximately 2 in. long and 0.25 in. wide



Cat. No.	Type	Quantity	Price
S99399	Red Litmus Paper	100 Strips/Vial	\$3.85/Ea
S99400	Blue Litmus Paper	100 Strips/Vial	\$3.85/Ea
S99401	Neutral Litmus Paper	100 Strips/Vial	\$3.85/Ea

## United Scientific™ Hoffman Electrolysis Apparatus

For qualitative and quantitative study of electrolytic decomposition of electrolytes, such as water and hydrochloric acid.

- Tubes are 2 in. (50 mm) each
- Dimensions: 24 x 12 x 6 in. (61 x 31 x 15 cm)

**INCLUDES:** Support stand, burette clamp, extension clamp, bosshead clamp, pair of platinum electrodes, pair of carbon electrodes, activity guide



Cat. No.	Description	Price
S07009	Hoffman Electrolysis Apparatus	\$204.00/Ea
S07010	Replacement Platinum Electrodes	\$49.00/Pk

## Advanced Placement Chemistry

### AP Chemistry Kits: Complete Set of 22

Be prepared for the entire school year with this complete set of all 22 AP Chemistry lab activities.

- Thermochemistry & Hess Law
- Activity Series
- Mole Ratio Reactants
- Le Chatelier's Principle
- Ester Formation
- Acid-Base
- Reaction Kinetics
- Dissociation of Weak Acids
- Qualitative Analysis
- Beer-Lambert Law
- Stoichiometry
- Equilibrium Constant
- Oxidation-Reduction



- Freezing Point Depression
- Vapor Pressure
- Electrochemical Cells
- Thin-Layer Chromatography
- Molecular Mass of a Liquid
- Thermochromism
- Water Hardness
- Synthesis of Aspirin
- Grignard Method

Cat. No.	Price
S90748***	\$962.00/Ea

### AP Chemistry Kits: *The Electrochemical Series*

Discover electrode potential.

- The electrochemical series is built up by arranging various redox equilibria in order of their standard electrode potentials
- When a strip of metal is placed in water, the metal has a tendency to go into solution as ions with a simultaneous buildup of electrons on the metal strip
- The process produces an electrical potential difference between the metal and solution



Cat. No.	Price
S96899	\$94.00/Ea

### AP Chemistry Kits: *Le Chatelier's Principle*

In this experiment, see *Le Chatelier's Principle* by observing physical changes to solutions as systems are stressed.

Le Chatelier's Principle is a qualitative rule that allows the prediction of the effect of temperature, pressure and concentration changes on chemical reactions. The principle states: a chemical system at equilibrium when stressed by external forces will adjust in such a way as to minimize that stress.



Cat. No.	Price
S90729	\$43.25/Ea



## AP Chemistry Kits: Electrochemical Cells

### Electrolysis of water produces hydrogen and oxygen.

The tendency of oxidation-reduction reactions is to proceed to an equilibrium state. In electrochemical cells, these reactions provide another way for us to express the driving force in chemical reactions.

When reagents that accept or donate electrons are arranged so that the electrons can enter or leave the reaction through a metallic conductor, an electrochemical cell is established. A half-cell contains a metal in contact with a solution of its salt. Each metal will develop a different electrical potential based on its electron configuration.

The standard reduction potential listed in various references is the voltage that a half-cell develops when combined with a hydrogen half-cell. First, construct a simple chemical battery and determine from the standard reduction potentials what the output of the battery will be (if a voltmeter is available the actual and theoretical voltages can be compared). Second, construct an electrolysis cell and demonstrate how hydrogen and oxygen can be produced from the electrolysis of water.

- Electrolysis cell is the reverse of a battery where a voltage higher than the reversible electromotive force of the cell is applied to the electrodes
- In a cell containing water and an electrolyte, the oxidation reaction occurring at the anode produces oxygen gas while the reduction occurring at the cathode produces hydrogen gas
- By the addition of a pH indicator, the oxidation-reduction reactions can be monitored visually
- Gases produced are collected in inverted test tubes and the volumes of hydrogen and oxygen are compared



## AP Chemistry Series Kits

Kits include 16 labs designed to meet the essential laboratory requirements of an AP Chemistry course.



As a series, these labs address the 2013 Essential Knowledge, Science Practices, and Learning Objectives established by the AP College Board. Six labs incorporate specific Inquiry components and all labs contain instructions for optional inquiry adaptations. For planning purposes, each manual contains a complete breakdown of the AP Framework correlations for each of the lab experiments.

### Basic AP Chemistry Series Kit (S07345) includes:

- Statistics: Precision & Accuracy (no glassware S07328)

### Enhanced AP Chemistry Series Kit (S07346) includes:

- Statistics: Precision & Accuracy (with glassware S07329)

### Both kits include the following labs:

- Spectrophotometric Analysis of Copper: Beer's Law (S07330)
- Synthesis and Gravimetric Analysis of Cobalt Oxalate Hydrate (S07331)
- Acid-Base Titrations: An Inquiry Investigation (S07332)
- Separating Substances by Absorption Chromatography (S07333)
- Stoichiometry: Reactions with Copper Compounds (S07334)
- Stoichiometry: Mole Ratio of an Unknown (S07335)
- Determining Molar Mass by Colligative Properties (S07336)
- Determining Molar Mass Using the Ideal Gas Equation (S07337)
- Reaction Rate and Order (S07338)
- Determining Molar Enthalpy Using Hess's Law (S07339)
- Le Chatelier's Principle Featuring Ag<sup>+</sup> reaction (S07340)
- Identifying Weak Acids by pKa (S07341)
- Preparing Buffer Solutions and Determining Their Properties (S07342)
- Determining the Equilibrium Constant (and Temperature's Effect) with Beer's Law (S07343)
- Micro-Scale Electrochemical Cells – Voltaic and Electrolytic (S07344)

Kits are compatible with optional data collection and simulations using TI-Nspire handhelds and software. Both kits include a balance.

Cat. No.	Description	Includes	Price
S07345	Basic AP Chemistry Series Kit	Modules shown above without glassware	\$3,159.00/Ea
S07346	Enhanced AP Chemistry Series Kit	Modules shown above including glassware	\$3,237.00/Ea

## AP Chemistry Kits: Reaction Kinetics

### In this experiment, the time it takes for a reaction to occur is monitored by observing a color change.

Determine the rate law by varying the concentration of reactants. Determine the activation energy by varying temperature. The data should be graphed and analyzed during the lab so additional measurements can be made if necessary.

In a chemical reaction, reactants are converted to product at a given rate. This rate can be changed by alternating either the temperature of the reaction, the form of the reactants, the concentration of reactants or products, or by adding a catalyst.



Cat. No.	Price
S90732	\$50.25/Ea

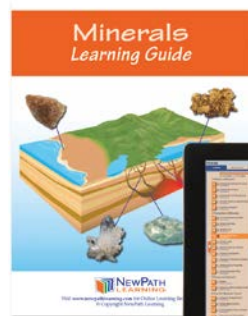




## Student Learning Guides with Online Lesson

An ideal blended learning solution for use in the classroom or for remote learning/home study.

- 36 page colorfully illustrated student learning guide features self directed readings, easy to follow illustrated explanations, guiding questions, lab investigation, key vocabulary, review and assessments.
- Also includes one year access to a corresponding multimedia lesson for a teacher and all of their students. Each lesson features animated, narrated tutorials, interactive exercises and activities, virtual lab investigations, illustrated narrated glossary, visual resource library and an inquiry based student activity guide.
- Developed under sponsorship of the National Institutes of Health (NIH) the lessons are perfect for individual student instruction on any computer or tablet as well as classroom presentation on any Interactive Whiteboard.



### S436022 Minerals – topics include:

- What is a Mineral
- Minerals vs Rocks
- Properties of Minerals
- Crystals and Special Properties
- How do Minerals Form
- Mineral Resources
- Mining and the Environment
- Use of Minerals
- Identifying Minerals

### S436023 Rocks – topics include:

- What is a Rock
- Classifying Rocks
- Igneous Rocks
- Magma, Lava and Igneous Rock
- Sedimentary Rocks
- Metamorphic Rocks
- The Rock Cycle
- Identifying Rocks
- Use of Rocks and Minerals

### S436024 Plate Tectonics – topics include:

- Earth's Interior
- Heat Transfer and Convection Currents
- Continental Drift
- Sea Floor Spreading
- Plate Tectonics
- Plate Tectonic Boundaries
- Changes in the Earth's Surface
- Volcanoes and Plate Boundaries
- Earthquakes and Plate Boundaries

### S436025 Earthquakes – topics include:

- How an Earthquake Occurs
- Types of Stress in Crustal Rock
- Faults in the Earth's Crust
- How the Earth's Surface Changes
- Seismic Waves
- Measuring Earthquakes
- The Richter Scale
- Earthquake Destruction
- Earthquake Safety

### S436026 Volcanoes – topics include:

- What is a Volcano
- Volcanoes and Plate Boundaries
- The Ring of Fire
- Properties of Magma
- Inside a Volcano
- Volcanic Eruptions
- Volcanic Classification
- Life Cycle of Volcanoes
- Volcanic Landforms
- Hot Springs and Geysers

### S436027 Earth's Surface – topics include:

- Weathering and Erosion
- Erosion and Deposition Cycle
- Mechanical Weathering
- Chemical Weathering
- Forces of Erosion and Deposition
- Water, Glaciers, Soil and Landforms
- Topographic Maps

Cat. No.	Description	Price
S436022	Minerals	\$26.75/Ea
S436023	Rocks	\$26.75/Ea
S436024	Plate Tectonics	\$26.75/Ea
S436025	Earthquakes	\$26.75/Ea
S436026	Volcanoes	\$26.75/Ea
S436027	Earth's Surface	\$26.75/Ea

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SCIENCE HAPPENS

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**YOUR STEM PROGRAM**  
MAKE IT AMAZING!

[fisheredu.com/STEM](http://fisheredu.com/STEM): Your source for products, professional development, resources and everything STEM.

### 3-D Model Kits

Assemble and use 3-D models to visualize and investigate key science processes.

- Gain a critical understanding of complex structures & processes through the assembly of 3-dimensional models
- Kit includes enough materials for students to assemble up to 10 paper models by working either independently or cooperatively in small groups
- Also includes comprehensive Teacher Resource Guide outlining opportunities for your students to Engage, Explore, Explain, Extend & Evaluate their understanding of key Scientific concepts
- Satisfies NGSS Standards which encourage students to develop & use models to represent structures, systems & processes, then provide explanations, make predictions or investigate solutions
- Perfect for use in the classroom, lab or at home



Cat. No.	Description	Price
S81479	Climate Change	\$65.75/Ea
S81480	Earthquakes	\$65.75/Ea
S81481	Minerals	\$59.75/Ea
S81482	Rock Cycle	\$65.75/Ea
S81483	Structure of the Earth	\$46.50/Ea
S81484	Tectonics Plates	\$65.75/Ea
S81485	Volcano	\$46.50/Ea

### United Scientific™ Fault Model

A set of six 3D manipulatives for demonstrating normal faulting, reverse (thrust) faulting and horizontal faulting.

- Includes access code to download interactive teacher and student guides, videos, geoinformation data sets, and other resource information
- Demonstrate various faults
- Foam manipulatives



Cat. No.	Price
S89561***	\$159.00/Ea

### Eisco™ Fact and Fault Model

Useful for illustrating important folds and faults found in Earth's crust. Students can understand fold planes, the effect of tectonic stress, and structural elements of a fault.

- Perfect for classroom and laboratory study
- Set includes 5 pieces
- Includes identification key
- Approximate weight: 6.5 lb.



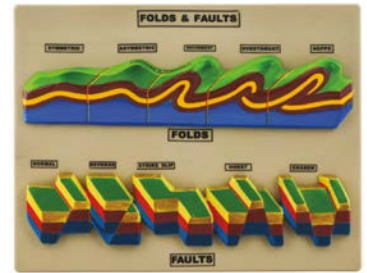
Cat. No.	Price
S27469	\$345.00/Ea

### Eisco™ Fold and Fault Model

Illustrates important folds and faults found in Earth's crust.

Model provides a visual/tactile view of symmetric, asymmetric, recumbent, over thrust, and neppe folds. Normal, reverse, strike slip, horst and graben faults are also represented.

- Perfect for classroom and laboratory study
- Displays the age of different earth bedding and stratification
- Folds: symmetric, asymmetric, recumbent, over thrust, and neppe
- Faults: normal, reverse, strike slip, horst, and graben
- Identifications labeled on model base
- Approximate weight: 1.5 lb.



Cat. No.	Price
S27470	\$287.00/Ea

### Eisco™ Premium Horizontal Strata Model

Demonstrates underlying strata and typical erosion features in Arizona, Utah, the Grand Canyon, and the Grand Staircase. Includes a numbered key card to help students identify 27 distinct geological landscapes.

- Displays the typical phenomenon of water erosion
- Designed for educational use
- Includes a numbered key card
- Created from PVC, mounted on a sturdy wooden base
- Hand painted
- Identify the following features: Mountains, Pink Cliffs, Painted Dessert, North Rim, Grand Canyon, Cape Royal, South Rim, Bryce Canyon, Kaibab Plateau, Colorado River, Kaiparowits Formation, Wahweap Sandstone, Tropic Formation, Dakota Sandstone, Carmel Formation, Kaibab Formation, Sevier Fault, White Cliffs, Badlands, Hoodoo Fields, Tapeats Sandstone, Bright Angel Shale, Muave Limestone, Supai Group, Hermit Shale, Coconino Sandstone, and Toroweap Formation



Cat. No.	Price
S27471	\$287.00/Ea

## United Scientific™ Tectonics Model Set

Demonstrates plate tectonic principles, plate boundary interactions, and the geometry/relative motions of faulting of geological layers.



- Contains a Fault 3D Model Set (5 manipulatives) and a Tectonics Sand Layer Model
- Fault Model Set demonstrates normal faulting (extension), reverse faulting (compression), and horizontal slip faulting (shear)
- Tectonics Sand Layer Model explores orogeny of the Appalachian mountains, including coal formation in the sedimentary Appalachian basin and its coal seam
- Construct a sand layer model system mimicking a subduction zone of oceanic crust (Juan de Fuca plate)
- Simulate the creation of the San Andreas fault
- Includes three hands-on, geoinformation activities for students to work on using metadata (Map the Continental Shelf, Tectonic Plate Movement, Earthquake Prediction)
- Access code is provided to download interactive teacher and student guides, videos, geoinformation data sets, and other resource information

Cat. No.	Product Type	Price
S27858	Tectonics Model Set	\$273.00/Ea

## Landform 3D Models

Investigate geographical and geological features.

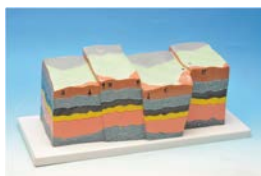


- Eight 3D landform models showing the mountains, lakes, rivers, deserts, glaciers, coastlines, canyons and cultural point
- Includes lesson plan
- Finished size 35 x 35 in.

Cat. No.	Price
S81674	\$319.00/Ea

## Eisco™ Fractures, Faults and Dislocations Model

Excellent way to illustrate various structures related to fault planes and fractures.



- Shows cross section of five different structural features
- Made of colored, unbreakable material
- Mounted on base

Cat. No.	Price
S05844	\$233.00/Ea

## Diversified Spaces™ Augmented Reality Sandbox

Allows users to create topography models by shaping real sand, which is then augmented in real time by an elevation color map, topographic contour lines, and simulated water and lava.



This amazing sandbox uses 3D visualization applications and a hands-on exhibit combining a real sandbox, virtual topography and water created using a closed loop of a Microsoft Kinect 3D camera, powerful simulation and visualization software, and a data projector. The system teaches geographic, geologic, and hydro-logic concepts such as how to read a topography map, the meaning of contour lines, watersheds, catchment areas, levees, and much more.

- Dimensions (W x D x H): 48 x 30 x 36 in.
- Made in the U.S.A.
- Comes complete with the box, camera, projector, wire management, and laptop loaded with visualization software
- Solid oak and oak veneer construction with heavy duty locking casters
- SEFA compliant and MAS Certified Green—Finished with a durable UV earth-friendly finish
- Includes detailed instructions for calibrating the software and running the program
- Features a shelf for laptop with wire management system
- Kit includes Microsoft Kinect 3D camera, powerful simulation and visualization software, and a data projector

**Note:** Sand not included (we recommend 250 lbs. of Sandastik™ sparkling white play sand)

**WARRANTY:** Limited lifetime

Cat. No.	Price
S37563	\$14,048.00/Ea

## United Scientific™ Rock and Mineral Collection



Students can study 20 types of rocks and minerals.

- Collection contains 10 rock specimens including igneous, sedimentary, and metamorphic rocks, and 10 mineral specimens
- **Rock specimens include:** Basalt, Granite, Pumic, Gniess, Marble, Quartzite, Serpentine, Bituminous Coal, Limestone, Sandstone
- **Mineral specimens include** Agate, Calcite, Dolomite, Feldspar, Graphite, Gypsum, Magnetite, Pyrophyllite, Quartz, Tourmaline
- Average size: 2 x 3 x 1.5 cm



Cat. No.	Price
S89547***	\$22.75/Ea





## United Scientific™ Rock Collection



Contains 20 Types of Basic Rocks Specimens of Igneous, Sedimentary, and Metamorphic Rocks Types.

- **Rock specimens include:** Basalt, Gabbro, Granite, Obsidian, Pegmatite, Pumice, Anthracite, Gneiss, Marble, Quartzite, Serpentine, Slate, Chalk Lumps, Conglomerate, Diatomite, Flint, Lime Stone, Rock Salt, Sand Stone and Shale
- Average sizes are 2 x 3 x 1.5 cm



Cat. No.	Price
S89548***	\$22.75/Ea

## Classroom Rock and Mineral Collection

50 rock and mineral specimens.

Samples have been carefully selected to support studies of:

- Rock-forming minerals
- Igneous, metamorphic, and sedimentary comparison
- Ores of common metals
- Sources of uranium
- Hardness scale
- Approximate specimen dimensions: 1 x 1 in.



**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S84011	\$53.50/Pk

## United Scientific™ Mineral Set



Contains 20 Types of Basic Minerals Specimens.

- **Mineral specimens include:** Agate, Amethyst, Barytes, Calcite, China Clay, Dolomite, Feldspar, Fire Clay, Fullers Earth, Graphite, Gypsum, Jasper, Magnetite, Mica, Pyrolusite, Pyrophyllite, Quartz, Soap Stone, Sulphur, Tourmaline
- Average sizes are 2 x 3 x 1.5 cm



Cat. No.	Price
S89549***	\$22.75/Ea

## Washington School Rock and Mineral Collection

40 large, carefully cut, and selected specimens.

- 20 rock-forming, ore-forming, and useful minerals
- 20 igneous, sedimentary, and metamorphic rocks
- Numbered and keyed to an identification list printed on the inside cover of the compartmented storage box
- See S45011 to order a separate matching set of smaller, unmarked specimens
- Approximate size: 1.5 x 2 in.



**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S45010A	\$51.25/Ea

## Learn Your Minerals Kit

Follow step-by-step instructions to easily learn the properties of minerals.

- Specimens clearly illustrate the properties of hardness, cleavage, fracture, tenacity, and streak

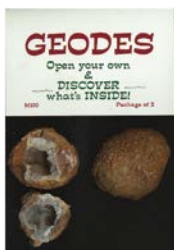


Cat. No.	Price
S67607	\$77.00/Ea

## Open Your Own Geode

Open geodes in the classroom.

- Amaze students when you open geodes and see the magnificent crystals inside
- Specimen size: 1 to 1.5 in. (2.54 to 3.81 cm)
- Includes two unopened geodes and instructions



Cat. No.	Price
S79092	\$36.50/Pk

## Rock, Mineral and Fossil Collections Set

Dig into some serious fun with these fascinating collection kits.

- Each collection features a selection of hand-picked specimens chosen for color, texture and beauty
- Also contains a four-color identification chart, self-adhesive labels, handy storage tray and an information-packed guide
- Students 8+ yrs
- **Includes:** 9 Fossils, 12 igneous rocks, 12 metamorphic rocks, 12 minerals, 12 sedimentary rocks
- Individual kits can be found at fisheredu.com.



**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S96075	\$124.00/Ea



## Introductory Rock Collection

Fifteen specimens that help students compare the three different types of rocks.

- Igneous, metamorphic, and sedimentary rocks are all represented in this classroom collection
- Coded by number in a compartmented container
- Approximate rock size: 1.5 x 1.5 in.



Cat. No.	Price
S45059	\$38.25/Ea

## Introductory Earth Science Rock and Mineral Collection

Designed to match most introductory-level textbooks.

This all-in-one collection covers a broad range of demonstration needs! The 75 specimens for observation, comparison, and testing include 13 igneous rocks; 14 sedimentary rocks; 9 metamorphic rocks; 17 rock-forming minerals; 9 samples from the hardness scale (diamond omitted); and 13 examples of important physical properties (specific gravity, tenacity, cleavage, fracture, luster, streak, refraction, magnetism, and acid test).



Cat. No.	Price
S45051	\$129.00/Ea

## United Scientific™ Sedimentary Rock Set

Explores the deposition of materials on the Earth's surface and within bodies of water.

- The set includes: bituminous coal, breccia, chalk lumps, chert, diatomite, flint, laterite, lime stone black, lime stone siliceous, mud stone, rock phosphate, rock salt, sand stone red, sand stone siliceous, shale
- Average sizes are 2 x 3 x 1.5 cm



Cat. No.	Price
S89551***	\$22.75/Ea

## Eisco™ Sedimentary Rocks Kit

For use in identification of depositional history of sedimentary rocks based on their grain size and composition.

- Contains 12 specimens and specimen key
- Classroom tool for sedimentary rock classification and identification
- Numbered and stored in sturdy, sectioned container for easy access and safety
- Average specimen size: 2-3 cm
- Size and shape of grains can be used to identify what kind of environment would have formed particular rock



Cat. No.	Price
S24665	\$27.75/Ea

## Sedimentary Rock Collection

Fifteen specimens that help students learn the three categories of sedimentary rocks.

Displays sedimentary rocks of all three categories:

- Clastic—accumulation of solid particles
- Chemical—from evaporation of water
- Organic—modified skeletons of plants and animals



Kit details:

- Store in a sturdy compartmented box
- Labeled in both English and Spanish

Cat. No.	Price
S45022A	\$34.50/Pk

## Learn Your Fossils Kit

Learn about and classify fossils that are hundreds of millions of years old.

Includes: 24 fossils, magnifier, numbering kit, compartmented collection box, and detailed study guide with step-by-step instructions



Cat. No.	Price
S67608	\$49.75/Ea



## Introductory Fossil Collection

20 fossils offer broad array of geological time.

With some samples more than 400 million years old, this collection is displayed in a durable, compartmented box.

- Illustrated key gives pertinent facts about each fossil including its geological time
- 20 selected fossils including foraminifer, horn coral, snails, trilobite, shark's tooth, bryozoan, brachiopod, cephalopod, clams, and oyster



Cat. No.	Price
S45057	\$37.75/Pk

## United Scientific™ Metamorphic Rock Set

Learn about the transformation of existing rock types due to extreme heat and pressure.

- Set includes anthracite, biotite schist, gneiss, marble black, marble green, marble pink, marble white, mica schist, phyllite, quartzite gray, quartzite green, quartzite white, serpentine, slate, tiger eye
- Average sizes are 2 x 3 x 1.5 cm



Cat. No.	Price
S89550***	\$22.75/Ea

## United Scientific™ Mineral Activity Kit

A complete solution for young geologists.

This activity kit contains 20 types of minerals specimens that students can investigate the Mohs hardness scale, streak test, magnetism and acid resistance test.

- The minerals specimens include talc, gypsum, calcite, fluorite, apatite, orthoclase, quartz, topaz, corundum, magnet
- Accessory tools: knife, iron nail, magnet, streak plate, glass plate, copper plate, iron plate, garnet board, hand lens, acid drop bottle (acid not included)
- Instruction manual included
- Average sizes are 2 x 3 x 1.5 cm



Cat. No.	Price
S89553***	\$83.00/Ea

## Rock and Mineral Test Kit

Identify rock and mineral characteristics.

Includes:

- Black and white ceramic streak plates
- Glass plate
- Nail
- Penny
- Magnet
- Dropping bottle
- Magnifying lens
- Mohs Hardness Scale chart



Cat. No.	Price
S44872	\$30.00/Ea

## United Scientific™ Mineral Test Kit

For rock, mineral, and fossil identification.

- Includes: hardness scale, dropper bottle, hand lens, glass streak plate, black streak plate, white streak plate, ceramic bar magnet, nail and penny



Cat. No.	Price
S81054	\$8.80/Ea

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# Rock Specimens for Hands-On Learning

To teach your students about rocks, minerals, and geology, you need the right tools. Choose from a full selection of individual rock specimens and rock collections for your classroom.



## Featured Eisco™ Rock Specimens and Kits

Description	Quantity	Cat. No.
Apatite Specimen, 3 cm	Each	S39309
Biotite Mica Mineral Specimen, 2 to 3 cm	12/Pack	S24682
Calcite Specimen, 2 to 3 cm	Each	S24683
Carbonaceous Shale Specimen, 2 to 3 cm	Each	S24742
Granite Specimen, 2 to 3 cm	10/Pack	S26609
Halite Mineral Specimen, 2 to 3 cm	12/Pack	S24692
Hornblende Specimen, 2 to 3 cm	Each	S24695
Limestone Specimen, 2 to 3 cm	12/Pack	S24727
Olivine Specimen, 2 to 3 cm	Each	S24706
Pegmatite Igneous Rock Specimen	12/Pack	S27612
Pyrite Mineral Specimen, 2 to 3 cm	Each	S24708
Sandstone Specimen, 2 to 3 cm	12/Pack	S24739
Physical Properties of Minerals Kit	Each	S24661
Introduction to Minerals Kit	Each	S24662
Eisco™ Rock and Mineral Sample Set, 12 Pieces	Each	S81494

*Most rock specimens are available as both single samples and packs of 10 or 12. Other sample types are available.*

Visit [fisheredu.com](http://fisheredu.com) or contact your Fisher Science Education sales representative to access our full selection of products.

## United Scientific™ Streak Plates

Designed for hardness testing of rocks and minerals.

- Available in black porcelain, white porcelain, or glass
- Size: 1 x 2 in. Glass plates also available in 1 x 1 in.



Cat. No.	Description	Quantity	Price
S81059	Black, 1 x 2 in.	10/Pk	\$5.90/Pk
S81053	White, 1 x 2 in	10/Pk	\$5.90/Pk
S81055	White, 1 x 2 in	12/Pk	\$6.90/Ea
S67817	Glass, 1 x 1 in.	10/Pk	\$13.75/Pk
S67818	Glass, 1 x 2 in.	10/Pk	\$22.00/Pk

## Geology-Paleontology Specimen Cabinet and Trays

Provides an excellent way to store your geology and paleontology collection. Trays (sold separately) have reinforced channel slides with smooth double-thick edges.



### Geology-Paleontology Specimen Cabinet (S51071MF)

- Double-wall, heavy duty steel construction can store heavy specimens
- Elastomeric seal eliminates seepage of dust and foreign matter
- Powder paint finish will not off gas
- Reinforced to allow double stacking of cabinets
- Features two heavy-gauge bar handles and large label holder
- Lift-off door makes it easy to transfer specimens
- Door can be locked with a paracentric lock
- Holds a maximum of 16 trays (sold separately)
- Dimensions (H x W x D): 36.88 x 29 x 31.94 in.
- Gray finish
- Shipped completely assembled

### Cabinet Tray (S51071A)

- For use with Geology-Paleontology Specimen Cabinet above
- Provides an excellent way to store geology and paleontology collection
- With reinforced channel slides and smooth double-thick edges

Cat. No.	Description	Price
S51071MF	Geology-Paleontology Specimen Cabinet (without trays)	\$2,037.00/Ea
S51071A	Tray for S51071MF above	\$211.00/Ea

## Microslide™ – Rocks and Rock Forming Minerals



Microslide strip consists of images photographed through a microscope. Arrows and call outs help the student locate features. This Microslide is accompanied by a detailed lesson plan to stimulate, inform, and question students.



### Image titles on Microslide:

- Sedimentary - red sandstone (50x)
- Sedimentary - shell limestone (50x)
- Igneous - basalt (50x x.n. 50x)
- Igneous - granite - ordinary light (50x x.n. 50x)
- Igneous - proxenite (50x)
- Metamorphic - mica schist (15x)
- Metamorphic - mica schist - x.n. (50x)
- Metamorphic - dolomitic marble - x.n. (50x)

### Includes:

- Lesson plan with Pocket to store Microslide
- Reproducible worksheet with a purchase of 15

Cat. No.	Price
S816742	\$12.25/Ea

## Geography

### Eisco™ Globe Model



Geographical globe with political boundaries.

- Plastic graduated arc
- 30 cm diameter

Cat. No.	Price
S24456	\$89.00/Ea

### Eisco™ Earth Globe Model

Showcases cross-sectional view of interiors of Earth.



- Seven detachable parts
- Different colors for different layers
- Removable upper crust shows inner core with layers

Cat. No.	Price
S24457	\$355.00/Ea

## United Scientific™ Inflatable Geopolitical Globe

Highlights country capitals, important cities, time zones, international boundaries and geographic features.

- Inflatable world globe
- The globe is 10 in. tall and 12 in. wide when inflated



Cat. No.	Price
S89563***	\$21.50/Ea

## Inflatable Globe

Make a game of geography.

- For ages 5 to 13
- Kids can toss this globe and identify continents, countries, capitals, and oceans
- The globe can also be hung up as a display



Cat. No.	Price
S98487	\$10.90/Ea

## Atlantis Globe

Mountains rise from its surface, continental slopes descend to its ocean floor.

- Gyromatic mounting with numbered full-meridian swings up or down to bring any area into closer view
- Raised and depressed relief globe vividly reveals suboceanic mountains, trenches, and fracture zones
- Natural colors illustrate mountains, deserts, forests, and grasslands
- Snow and ice are also depicted
- Globe diameter: 12 in.



Cat. No.	Price
S45159	\$106.00/Ea

## Traveler Political Globe

Scratch-resistant world globe with mountain ranges around the globe rendered in raised relief and crisp, bright colors used to denote each country. This globe is a great tool for helping children of all ages learn world geography.

- 12 in. diameter; 16-in. height
- Blue oceans with brightly-colored land formations
- Scratch-resistant black acrylic base
- Semi-meridian in a smoky-gray finish
- Raised relief surface clearly denotes mountain ranges



Cat. No.	Price
S04401	\$54.25/Ea

## Explorer Political Globe

Experience 3D mountains in raised relief and political regions in vivid, contrasting colors.

- Ideal for the study of geography, history, science and other subjects
- Dimensions: 12 dia. x 16 in. H

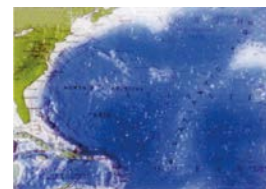


Cat. No.	Price
S45160	\$62.75/Ea

## Ocean Floor Raised Relief Map

Relief map of North Atlantic Ocean showing typical portion of ocean floor.

- Easy to identify all the major ocean features
- Complete with lesson plan



Cat. No.	Price
S81667	\$283.00/Ea

## Write-On Dry Erase Globe

Helps students learn and memorize geographic locations. Globe can be written on with a dry-erase marker.

- Made from dry-erase material
- Set in sturdy plastic base
- Continents outlined
- Latitude and longitude lines shown
- Can be cleaned with soft cloth



**⚠️ ALERTS: Not a toy. Product intended for ages 13 and up.**

Cat. No.	Price
S28100	\$62.25/Ea

## Seasons Globe

Also known as the "The Reasons for the Seasons Globe".

- Specifically designed to model the Earth's seasons
- Shows the exact location of day and night, with 24-hour meridians drawn on the globe's surface
- Useful for setting the time and date
- Features a smoked acrylic hood to aid in the day/night simulation
- Diameter: 6 in. (15.2 cm)



Cat. No.	Price
S4536610	\$156.00/Ea





## Contour Map Making Kit

Learn how to read and make contour maps.

Easy to use



Cat. No.	Quantity	Price
S53005	1/Ea	\$34.25/Ea
S53005B	15/Ea	\$269.00/Ea

## Eisco™ Plotting Compass with Glass Face

This plotting compass with glass face features a dial marked with principal points and features a glass face and aluminum case. It is a great option for students and is economically priced.

- Aluminum case with glass face
- Dial marked with principal points
- High accuracy and sturdy build



Cat. No.	Diameter (Metric) Inner	Price
S27744	100 mm	\$5.20/Ea

## United Scientific™ Liquid-Filled Compass

Durable liquid-filled compass housed in a black rotatable bezel.

- Durable, liquid-filled clear magnetic compass
- Housed in a black plastic rotatable bezel with an outside diameter of 45 mm
- Outer diameter of clear compass is 35 mm
- Graduated in 5° increments
- Includes a lanyard



Cat. No.	Price
S43686	\$2.65/Ea

## Eisco™ Plotting Compass

Dial marked with principal compass points.

- Glass face
- Aluminum case
- Diameter: 0.6 in. (1.3 cm)
- Pack of 10



Cat. No.	Price
S95977	\$8.70/Pk

## Orienteering Compass

Basic, accurate compass to get started with map and compass work.

- Graduated in 2° increments and features four scales
- Black bezel with easy-to-read print
- Has liquid-filled capsule, declination correction scale, luminous points, and 4X magnifier in base
- Acrylic base offers scales in inches, centimeters, 1:25,000, and 1:50,000



Cat. No.	Price
S96996	\$4.00/Ea

## Meteorology

## United Scientific™ Mini Weather Station

**NEW**

Introduce basic weather concepts with this versatile apparatus.

- Measure temperature (in Fahrenheit and Celsius) and wind speed, then reference the screen-printed chart to easily calculate wind chill.
- The device freely rotates to indicate wind direction, and its removable rain gauge allows for the quick assessment of rainfall.
- The product is designed to mount on posts.



Cat. No.	Price
S111030	\$11.50/Ea

## Eisco™ 3 in 1 Weather Station

Measures temperature in Celsius, air pressure, and air moisture levels.

- Acts as a thermometer, barometer, and hygrometer
- Economically priced
- 5.12 in. diameter



Cat. No.	Price
S27651	\$59.00/Ea

## fisherbrand Traceable™ Digital Barometer

A great way to teach students how to monitor barometric pressure, temperature, relative humidity, barometric pressure trend and time-of-day.



- A four-line LCD continuously and simultaneously shows barometric pressure, temperature, relative humidity, barometric pressure trend, and time
- Altitude adjustment: -100 to 2,500 meters
- MIN/MAX readings for barometric pressure, temperature and relative humidity are stored every hour for the last 24 hours, and are available for recall at the touch of a button
- Barometric pressure trend shows the current and past 1/3/6/12 and 24 hour readings in bar chart format
- The unit can be connected to a computer using the accessory Computer Data Acquisition System software (sold separately, cat. no. 14-650-118) to permanently capture the readings

### Specifications

- Barometric pressure range: 500 to 1030mbar
- Barometric pressure resolution: 1mbar
- Barometric pressure accuracy: ±4mbar
- Temperature range: 0° to 55°C (32° to 131°F)
- Temperature resolution: 0.1°C
- Temperature accuracy: ±0.4°C
- Relative humidity range: 5 to 95%
- Relative humidity resolution: 1% RH
- Relative humidity accuracy: ±3% RH between 5 to 75%, otherwise ±5% RH
- Dimensions: 4 x 3 x 1 in. (10 x 7.6 x 2.5 cm)
- Weight: 7 oz. (198 g)

**CERTIFICATION:** An individually-numbered NIST Traceable Certificate is provided which assures accuracy from an ISO/IEC 17025:2005 calibration laboratory accredited by A2 LA.

Cat. No.	Price
S25098	\$203.00/Ea

## fisherbrand Traceable™ Hand-Held Digital Barometer

A Barometer, altimeter, thermometer, stopwatch and time of day clock all in one.



- Rugged shock-resistant case, compact size, and lightweight
- Bar-chart format displays altitude or barometric pressure trends from previous 2, 4, 6, 8, 10, and 12 hours
- Clock displays the time of day in 12- or 24-hour format and shows date and month

### Specifications:

- Barometer range: 15.90 to 31.01 in. Hg and from 400 to 1,070 mbar; accuracy: ±0.2363 in. Hg (±8 mbar)
- Altimeter range: -1,640 to +22,965 ft. (-500 to +7,000 m)
- Thermometer range: -40.0° to +70.0°C (-40.0° to +158.0°F); accuracy: ±1°C
- Stopwatch Range: 1 second to 99 hours, 59 minutes, 59 seconds; accuracy is 0.01%
- Dimensions (L x W x D): 4 x 2.5 x 0.75 in. (10.2 x 6.35 x 1.9 cm)

**CERTIFICATION:** Individually serial-numbered Traceable Certificate is provided from an ISO 17025 calibration laboratory accredited by A2 LA. It indicates traceability to standards provided by NIST.

Cat. No.	Price
S11150	\$290.00/Ea

## Eisco™ Small Anemometer

Simple device for elementary students to determine wind speed. It is simple for students to understand and use.

- Made of corrosive-resistant materials for prolonged outdoor use
- Cups are each mounted on horizontal arms which extends from the axis of rotation
- Includes one red cup and three blue cups
- Red cup is for determining the number of rotations
- Dimensions (L x W x H): 20 x 20 x 7.1 cm (7.9 x 7.9 x 2.8 in.)
- Weight: 0.3 kg (0.6 lb.)



Cat. No.	Price
S23653	\$20.00/Ea

## Eisco™ Aneroid Teaching Barometer

A high quality teaching barometer to demonstrate operation. The exposed aneroid shows the change in barometric pressure when the attached bulb is pumped.



- 13 cm dial numbered in inches and millibars
- Includes a barometer with pump
- Range: 28 to 31 Hg (960 to 1060mbar)

Cat. No.	Price
S23654	\$28.50/Ea

## Durac™ Compact Sling Psychrometer



Measures relative humidity with a weather bureau-type wet and dry bulb.

- Organic liquid-filled thermometers with white back glass are mounted in a pocket-sized self contained plastic case designed with a built-in slide rule
- The slide rule converts wet and dry bulb readings to relative humidity, eliminating the need to use calculating tables

Cat. No.	Price
S02692	\$97.00/Ea

## United Scientific™ Sling Psychrometer

Needs Assembly, Comes with Activity Guide

Use this simple apparatus to measure relative humidity. Includes two plastic-backed Celsius thermometers, one for dry bulb measurements and the other for wet bulb measurements. The thermometers mount on a wooden handle so they can be spun to obtain temperature readings. Includes an activity guide with relative humidity calculation table. Requires assembly.



Cat. No.	Description	Price
S23981	1/Ea	\$6.35/Ea
S23982	15/Pk	\$82.00/Pk

## Eisco™ Universal Laboratory Hydrometer



Measures specific gravity within the range of 0.700 to 2.000 with 0.01 graduations and a dual scale for light or heavy liquids.

- Universal laboratory hydrometer
- Includes hard plastic case
- Measures specific gravity range 0.700 to 2.000
- Dual scale for light and heavy liquids
- Graduations: 0.01

Cat. No.	Price
S80850	\$10.50/Ea

## Exploring Meteorology

This experiment provides students with the experience of being a meteorologist.

- Studies of pressure changes and creating a barometer
- Studies of wind speed and creating an anemometer
- Learn the skills to confidently read a weather map
- Includes a demonstration of how clouds form by allowing the instructor to form a vapor cloud
- Experiment includes material for 15 groups of 2 to perform the tasks
- Demonstration portion has enough material to perform the demonstration 5 times
- Aligned to the Next Generation Science Standards (NGSS)\*
- Disciplinary core ideas: ESS2.C; ESS2.D
- Performance expectations: MS-ESS2-5
- Cross cutting concepts: Cause and effect
- Engineering practices: planning and carrying out investigations



**DISCLAIMERS:** Next Generation Science Standards is a registered trademark of Achieve. Neither Achieve nor the lead states and partners that developed the Next Generation Science Standards was involved in the production of, and does not endorse, this product.

Cat. No.	Price
S40768	\$65.75/Ea

## Astronomy

### Microslide™ – Introduction to Space

Microslide strip consists of images photographed through a microscope. Arrows and call outs help the student locate important features. This Microslide is accompanied by a detailed lesson plan to stimulate, inform, and question students.

Image titles on Microslide:

- The Moon
- The Sun
- Planets
- Meteoroids
- Comets
- Neighboring stars
- Our galaxy
- Other galaxies
- Lesson plan with pocket to store Microslide
- Reproducible worksheet with a purchase of 15



Cat. No.	Price
S816727	\$12.25/Ea





## Elementary Classmate Planetarium

Orrery planetarium demonstrates individual concepts, one at a time



- Earth and moon manually move independently from one another
- Ladder chain and gear drive keeps Earth's axis pointed at a 23.5° angle, toward the North Star

### Dimensions

- Overall height: 12 in.
- Arm length: 17 in.
- Sun: 5.75 in.
- Earth: 4 in.

### Demonstrates:

- Occurrence of night and day
- Variation in the length of daylight
- Movement of the Earth around the sun from west to east
- Why only one side of the moon is seen from the Earth
- Eclipses of the sun and moon
- Phases of the moon

Cat. No.	Description	Price
S45168	Orrery Planetarium	\$239.00/Ea

## Trippensee™ Chain-Driven Illuminated Planetarium

Model sun shines and casts shadows just like the real thing.



The sun, Earth, and moon models have synchronized motions while a model of Venus can be placed anywhere around the sun.

- Solar, lunar and annular eclipses demonstrated by a light in the sun
- Phases of the moon and seasonal changes are also illustrated
- Operates on 110VAC; instruction manual included
- Dimensions: 15 x 20 in.

Cat. No.	Description	Price
S45183	Sun, Earth, and moon	\$693.00/Ea

## Sun, Moon, and Earth Orbiter Models

Understand the sun, moon, Earth and their relationships as they revolve around one another on these models.



- The sun, moon, and Earth manually revolve around one another on these gear-driven models.
- The Earth and moon are shown in true scale.
- The scale of the model is 1 inch equals 2,000 miles. Please note that if the sun were to be shown at the same scale, it would be approximately 36 feet in diameter.
- A detailed, 11-page instruction manual is included.

### Dimensions:

- 15 in. long arm
- Sun: 6 in. diameter
- Earth: 4 in. diameter
- Moon: 1 in. diameter

Cat. No.	Description	Power	Price
S816744	Basic Orbiter Model	n/a	\$279.00/Ea
S816745	Illuminated Orbiter Model: Plug-in	Plugs into standard wall outlet	\$320.00/Ea
S816746	Illuminated Orbiter Model: Battery Operated	4 AAA batteries	\$320.00/Ea

## Celestial Globes

Create your own planetarium and study the stars. This globe is removable from the cradle and makes it easy to demonstrate Earth's apparent relationship to the stars, planets, and galaxies.



A perfect medium to introduce star activities to students, these unique 12 in. celestial globes have a 3.3 in. Earth globe inside. The sun may be set by adjusting the sun knob located near the North Pole. The globe can be set to reflect constellation position according to time and place to show the actual positions of the stars. The outer surface can be marked on and cleaned. This hands-on globe experience makes it more practical and fun to examine the universe.

- Globe-in-globe configuration
- Markable outer surface
- Easily washable
- Milky Way is depicted in white
- Stars are depicted in yellow
- Comes with 19-page activity book and 8-page study guide

### Celestial Globe with Meridian Ring (S816747) additional features:

- Globe may be removed from cradle for closer view
- The meridian may be tilted to adjust the globe for latitude, while the horizon ring indicates the actual horizon in relation to the point of observation on Earth
- Mounted in full horizon and meridian base for stability

Cat. No.	Description	Price
S816747	Celestial Globe with Meridian Ring	\$278.00/Ea
S816748	Basic Celestial Globe	\$269.00/Ea

## Eisco™ Sun, Earth & Moon Orbital Model

Multiple moving axes on this gear driven model demonstrate

daylight, night, seasons, and phases of the moon.

- Mechanical gear-driven model
- Multiple moving axes to demonstrate daylight, night, seasons and phases of the moon
- 12V light bulb inside sun demonstrates sunlight on moon and earth
- Base labeled with the months of the year and seasons for each hemisphere
- Requires 2 AA batteries, not included



Cat. No.  
S12895

Price  
\$171.00/Ea

## Eisco™ 17.5 in. Tall Celestial Star Globe

This model illustrates the Earth's rotation on its axis, and its revolution.

The globe shows the Milky Way, major stars in 3D, and constellations.

- Globe diameter: 12 in. (305 mm)
- Overall model height: 17.5 in. (445 mm)
- Detailed Earth globe is fitted inside the large star globe



Cat. No.  
S12896

Price  
\$108.00/Ea

## United Scientific™ Celestial Star Globe

NEW

A demonstration device that shows the apparent positions of the stars visible from Earth.

The three dimensional representation allows the relative angular positions of the constellations to be visualized and permits students to estimate which stars will be visible from different places on Earth for any rotational position of the planet.

- Consists of two concentric spheres mounted on a common axle and supported on a frame with a base
- The inner sphere is 4 in. in diameter and represents the Earth. The continents are marked on it in their correct relative positions.
- The outer sphere is transparent. It is 12.5 in. in diameter and has the constellations and their stars marked on it. Yellow shading indicates the Milky Way, the plane of our galaxy.
- The axle that carries both spheres allows them to be rotated independently
- An angle scale is marked on the frame that supports the axle. The angles are marked every degree and extend from zero at the equator to 87° in both directions.
- The frame is fixed to a round base so that the axle is held at an angle of 23.5° to the vertical, representing the inclination of the Earth's spin axis to the axis of its orbit around the sun



Cat. No.  
S89562\*\*\*

Price  
\$101.00/Ea

# HEADLINE Discoveries

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# StarSense Explorer™ Smartphone App-Enabled Telescopes

## Compatible with most modern smartphones

StarSense Explorer™ is the first telescope that uses your smartphone to analyze the night sky and calculate its position in real time. Ideal for beginners thanks to the app's user-friendly interface and detailed tutorials. It's like having your own personal tour guide of the night sky.

### Dock, Launch, Explore

Leave complicated star charts, imprecise planetarium apps, and computerized mounts behind. Locating objects has never been easier, faster, or more accurate. Within minutes of setting up the telescope, you'll be navigating the sky with confidence. Simply place your phone in the unique dock and launch the StarSense Explorer app. After aligning your phone to the telescope's optics (a quick, 2-minute procedure), StarSense Explorer generates a list of celestial objects currently visible. Make your selection and arrows appear onscreen, guiding you as you to move the telescope. When the object is ready to view, the bulls-eye turns green.

### Patent-Pending Sky Recognition Technology

StarSense Explorer™ uses patent-pending technology and your smartphone to determine exactly where the telescope is pointed in the night sky. A Lost in Space Algorithm (LISA), like the ones satellites use in orbit to correctly reorient themselves, helps the app match star patterns it detects overhead to its internal database. While other astronomy apps may claim that they can help you find objects, they rely exclusively on the phone's gyros and accelerometers, which aren't as accurate as LISA technology. No other app can accurately tell you when your target is visible in the eyepiece.

### Dazzling Views with High Quality Optics

You can expect sharp, bright views through this 80 mm refractor. Fully coated glass optics provide increased light transmission, enhancing details in celestial objects. The telescope also includes a 90-degree erect image diagonal, so you can use it during the day to view birds, wildlife, landscapes, and more.

### Perfect for the City or Dark Sky Sites

Even if you live in a light polluted city location, StarSense Explorer™ is advanced enough to be able to pick out Jupiter, Saturn, Venus, the Orion Nebula, double stars, and a few more of the most famous celestial objects. But if you can take the telescope to an even slightly darker location, more objects will become visible. The entire telescope kit weighs just 9.2 pounds, so it's perfectly portable and easy to bring on your next camping trip or to a remote observing site.

### Everything You Need to Observe Immediately

Includes:

- 80 mm refractor optical tube
- StarSense dock for your smartphone
- Low powered (25 mm) and high powered (10 mm) eyepiece
- 2x Barlow lens to double the power of each eyepiece
- 90-degree erect image diagonal
- StarPointer red dot finderscope, perfect for using the telescope during the day or without the StarSense Explorer app
- Altazimuth mount with slow motion control rod
- Full-height tripod with an accessory tray to keep you organized



SMARTPHONE NOT INCLUDED

Cat. No.	Optical Design	Model	Price
S81338	Refractor	LT 80AZ	\$244.00/Ea
S81339	Newtonian Reflector	LT 114AZ	\$250.00/Ea
S81340	Refractor	DX 102AZ	\$506.00/Ea
S81341	Newtonian Reflector	DX 130AZ	\$511.00/Ea



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## NexStar™ SLT Computerized Telescopes

Fully computerized hand control and a database of over 40,000 celestial objects.

- Fully computerized Altazimuth mount
- StarPointer finderscope to help with alignment and accurately locating objects
- Quick-release fork arm mount, optical tube, and accessory tray for quick, no-tool setup
- Sturdy stainless-steel tripod and accessory tray included
- Good for terrestrial and celestial observing
- SkyAlign allows you to align on any three bright celestial objects, making for a fast and easy alignment process



Cat. No.	Description	Price
S93981A	130 SLT Computerized Telescope	\$690.00/Ea

## NexStar™ 4SE Computerized Telescope

Ideal for observing and photographing the wonders of space.

StarBright XLT high-transmission coatings come standard on each model along with the StarPointer finderscope to help with alignment and accurately locating objects.

- Internal flip mirror for convenient viewing straight through (with optional diagonal) or at 90° (4 in. model only)
- Quick-release fork arm mount, optical tube and accessory tray for no-tool setup
- Sturdy computerized altazimuth mount
- Internal battery compartment to prevent cord wrap during use
- Ultra-sturdy steel tripod features built-in wedge allowing 4 in. model to be used for astrophotography
- Nearly 40,000-object database with 200 user-definable objects and expanded information on over 200 objects
- SkyAlign allows you to align on any three bright celestial objects, making for a fast and easy alignment process
- Aperture 102mm (4 in.)



Cat. No.	Description	Price
S93982	4 in. Maksutov-Cassegrain telescope	\$762.00/Ea

## PowerSeeker Telescopes

A great way to open up the wonders of the universe to the aspiring astronomer.

- Aperture: 127 mm (5 in.)
- Focal Length: 1,000 mm
- Eyepieces: 20 mm (50X), 4 mm (250X)
- Coatings: Aluminum



Cat. No.	Model	Price
S98227C	PowerSeeker 127EQ	\$234.00/Ea

## Cometron 114AZ Telescope

This telescope is designed for viewing all types of celestial objects, and is ideal for even beginner stargazers. Features a parabolic mirror to capture the sharpest views of even dim comets.

- Quality optical design--parabolic mirror provides sharp image and eliminates spherical aberration
- Fast focal ratio offers a wide field of view, perfect for observing comets, star clusters, galaxies and more
- No-tool setup means you are up and observing in no time
- Lightweight and portable, a great grab-and-go telescope
- Large aperture collects more light and provides more detail

**WARRANTY:** 2 Year Limited warranty



Cat. No.	Price
S72020	\$250.00/Ea

## Travel Scope Portable Telescope

Telescopes and tripods that fit inside a custom backpack for easy traveling and storage.

- All coated-glass optical elements for clear, crisp images
- Erect image diagonal so that your views are correctly oriented
- Smooth functioning altazimuth mount with easy pointing to located objects
- Preassembled aluminum full-size photographic tripod ensures a stable platform
- Quick and easy no-tool setup



Cat. No.	Model	Price
S01919	Travel Scope 70	\$115.00/Ea

## National Park Foundation Telescopes

Designed with travelers in mind, yet offer high quality optical power

### TravelScope™ 60

- Offers high-quality performance at an exceptional value
- This refractor telescope is perfect for terrestrial and celestial viewing on the go
- Can view the planets, moon, star clusters and brighter deep sky objects like the Orion Nebula and Andromeda Galaxy at night
- Erect image star diagonal makes the optical tube ideal for using as a spotting scope during the day
- Adjustable tripod legs allow you to customize the telescope's height or place it on raised surfaces like a picnic table

### FirstScope

- It doesn't get much simpler or more portable than the FirstScope's tabletop Dobsonian design
- The Newtonian reflector optical system features a spherical glass mirror with a generous 76 mm of aperture
- You'll get bright, sharp views of celestial objects and observe the Moon's mountains and craters in crisp detail
- Wide field of view allows for observation of the expansive views of the sky, which include open star clusters, or favorite deep-sky objects like the Orion Nebula
- Weighing just 4.3 lb. it is the perfect companion for any outdoor adventure



Cat. No.	Model	Price
S81328***	Travel Scope™ 60 Telescope	\$93.00/Ea

## Refracting Telescope Kit

Students make a working refracting telescope

- This kit allows students to repeat Galileo's ground-breaking work, by constructing 16X refracting telescope.
- Along the way, students will be able to identify the elements of a simple refracting telescope, learn how lenses work, and be able to measure telescope magnification.
- No optical benches are required.



Cat. No.	Quantity	Price
S48823	10 kits	\$121.00/Pk

## SkyMaster 12X 60 mm Binocular

Features multi-coated optics and high index BaK-4 prisms for adequate light transmission, increased contrast and resolution.

- 12X magnification porro prism binocular
- Large 60 mm objective lens offers maximum image brightness in low-light conditions
- Multi-Coated optics for sharp, clear views
- Suitable for terrestrial or astronomical viewing
- Protective rubber covering for ultra-firm grip
- Large center focus knob for easy focusing
- Tripod adaptable
- Long eye relief ideal for eyeglass wearers



### Specifications:

- Exit pupil: 5 mm
- Eye relief: 17 mm
- Close focus: 18 m (59 ft.)
- IPD max: 56 mm
- IPD min: 72 mm
- Twilight factor: 27
- Relative brightness: 25
- Prisms: BaK-4

**WARRANTY:** Limited lifetime warranty

Cat. No.	Price
S14066	\$102.00/Ea

## UpClose G2 Binoculars

High-quality binoculars at an affordable price.

### Features:

- Multi-coated optics increase light transmission, resulting in brighter and sharper images with high contrast levels
- Stylish rubber-covered aluminum body protects from rough handling



- Ergonomic thumb indents and finger ridges for extra non-slip comfort and ease of use
- Water resistant
- Soft carrying case
- Binocular straps

### Ideal For:

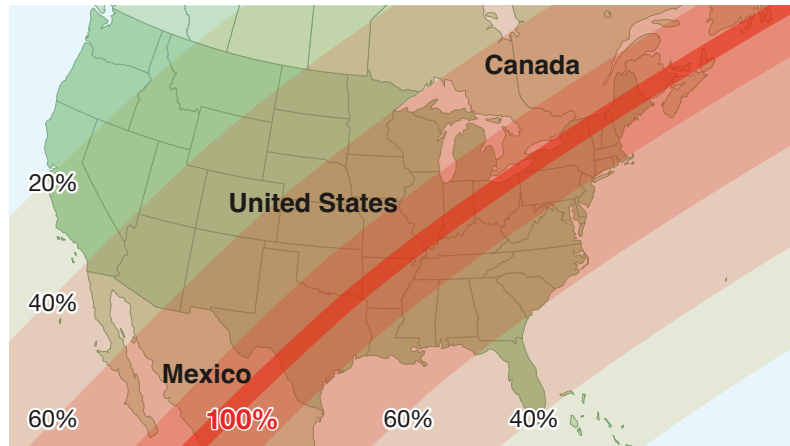
- Bird watching
- Sporting events
- Nature and wildlife
- Hunting
- Travel and adventures
- Concerts and live events
- Boating

**WARRANTY:** Limited lifetime

Cat. No.	Optical Design	Magnification	Price
S28084	Porro Prism	10x	\$51.50/Ea



An **eclipse** is a great learning opportunity for planetary science, physics, and related subjects. A total solar eclipse on April 8, 2024 will be visible over much of the U.S. The Fisher Science Education channel has tools and products to help you and your students understand and experience eclipse events fully and safely.



Path of the **Total Solar Eclipse on April 8, 2024**. Percentages on the map indicate approximate amount of partial eclipse that will be seen.

Description	Cat. No.	Price
Sunspotter Telescope	<b>S01384</b>	\$302.00
Celestron™ Eclipsmart™ Travel Scope 50 Telescope, Includes Tripod, Eyepiece, and Nylon Backpack	<b>S24545</b>	\$140.00
Celestron Eclipsmart Solar Binoculars, Includes Strap and Carrying Case	<b>S24544</b>	\$57.25
Celestron Eclipsmart Solar Shades, Adjustable, 50/Pack	<b>S24538</b>	\$4.05
AquaPhoenix Scientific™ Eclipse Shades, Grades K to 5, Each	<b>S394011XM</b>	\$2.95
United Scientific™ Earth, Sun, and Moon Planetarium, Grades 6 to 14	<b>S111028</b>	\$74.50
Eisco™ Solar System Model	<b>S05842</b>	\$135.00
Eisco Sun, Earth, and Moon Orbital Model, Battery-Operated	<b>S12895</b>	\$171.00
Supertek™ Scientific Solar System Model	<b>S81696</b>	\$129.00

For more information about eclipses and safe viewing, visit [solarsystem.nasa.gov/eclipses](https://solarsystem.nasa.gov/eclipses)



## Hawk Binoculars for Kids

Great for students to use for exploring during outdoor field trips.

- Ultra-deluxe 30 mm pair of field binoculars for students
- Durable, lightweight, easy for students to hold on their own
- For outdoor events, sports, bird watching, camping, and more



Cat. No.	Price
S38810	\$20.50/Ea

## Kids 7-in-1 Spy Gadget

Pocket sized and can be carried anywhere!

- 8x magnification telescope
- 9x magnifier
- 30x magnification microscope
- Pocket sized: Small and portable for use anywhere
- Wrist strap for easy carrying
- CPSIA and ASTM F963-tested
- Age-rated 8+



Cat. No.	Price
S81335	\$18.50/Ea

## MiniMight 6X 18 mm Pocket Monocular with Carabiner Clip

A compact and portable monocular that comes included with an carabiner clip, soft pouch and a lens cloth.

- Comes with a carabiner clip to attach to gear or clothing
- Features fully-coated optics for a crystal clear, precise image
- Field of view is 426 feet at 1,000 yards
- Comes with a soft pouch, carabiner clip and a lens cloth
- Backed by a no fault, no hassle warranty



Cat. No.	Price
S81151	\$22.50/Ea

## Kids 50 nm Newtonian Telescope

**NEW**

This great beginners' scope, with a unique STEM learning element—the side panel detaches so young scientists can explore the telescope's inner workings. It's great for the classroom and young amateur astronomers alike.

- When kids can understand how a telescope works, exploring the sky becomes that much more enjoyable. Simply remove the side panel and you'll be able to show off the telescope's mirrors and demonstrate how they capture light to produce an image in the eyepiece.
- When night falls, enjoy an evening of stargazing with this fully functional telescope. Explore the Moon, stars, planets.
- This Newtonian Reflector telescope comes with an easy to assemble tripod, which you can place on a table. You can also thread the optical tube directly onto a photographic tripod or monopod.
- With your purchase, you'll receive a free download of printable educational material about Sir Isaac Newton, the scientist who invented the Newtonian telescope, and an explanation of how light travels through the optical path. PLUS, enjoy a free Starry Night Special edition software download to teach your little one about the Universe (details on download code insert card included with your telescope).
- 50 mm Newtonian Reflector teaching telescope is great for astronomical viewing, and also includes a removable panel to show the telescope's inner workings
- Kids will learn about how light travels through a Newtonian telescope and the life of the telescope's designer, Sir Isaac Newton
- Easy assemble tripod included for stable viewing and easy transport



Cat. No.	Price
S24644***	\$28.50/Ea



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## NexYZ 3-Axis Universal Smartphone Adapter

Connects a smartphone to a telescope, spotting scope, binocular, monocular, and microscope, to capture images and video through the eyepiece.

### Features:

- Works with a wide range of mobile phone models
- Features three directional knobs that perfectly align the phone camera with the eyepiece in seconds
- Stands up to rigorous field use thanks to its robust, durable construction with a metal frame and polymer body
- Fits any eyepiece from 35 mm to 60 mm in diameter including telescopes with 1.25 in. and 2 in. eyepieces, spotting scopes, monoculars, and binoculars
- Attaches to microscopes with the addition of the included adapter ring, taking the usable diameter down to 25 mm, the size of a standard microscope eyepiece
- Strong spring and a threaded twist lock provide a two-level strong and secure grip on the optical instrument's eyepiece to image with confidence
- Phone platform is fully adjustable to fit most devices, typically with the case on
- Secure platform stands up to the weight of heavier devices
- Spring-loaded clamps make it easy to quickly remove one device and replace it with another
- Switch image from portrait to landscape by turning the padded eyepiece clamp and readjusting the X, Y, and Z axis

### Easy as X-Y-Z

- Three-axis adjustment gives users the power to place a phone on the platform, center it over the eyepiece with the X and Y knobs, and move up or down over the eyepiece until entire field of view is in the shot
- Adjustment is precise, quick and easy
- Switching phones, eyepieces, or optical instruments, only necessitates slight adjustments to re-center the camera over the new eyepiece

**WARRANTY:** 2-Year Warranty



Smartphone and microscope not included

## Environmental Science

## Agricultural Science

## Garden Guide Soil Test Kit

Ideal for checking soil nutrient levels in school gardens and landscapes.



- Measure nitrogen, phosphorus, potassium (15 tests each) and soil pH (30 tests)
- Compare results to a laminated color chart
- Includes diagrammed instructions and all hardware supplies, Garden Guide Manual, Soil Handbook, and free online resource *A Study of Soil Science*



Cat. No.	Price
S89510	\$88.00/Ea

## Water Cycle Model in Action



Make it rain in your classroom. Students can duplicate the individual processes of the water cycle (evaporation, condensation and precipitation) with this ingenious model.

- This hands-on model will keep kids interested in learning about evaporation, condensation and precipitation.
- Requires a heat lamp (not included)
- Ages 9+

### Parts included in this product:

- Vacuum formed model with cover - 17 x 12.5 x 5 in.
- Wire stand
- Cloud (ice holder)
- Ten - 8 x 11 in. full color study cards
- Companion guide



Cat. No.	Price
S89526	\$129.00/Ea

## The Field Explorer Kit

Inspiring Kit for the budding outdoor scientists! The Field Explorer Kit sends you on your way for a perfect field trip by offering all the companion components you will need, including a journal to record all that you find!

- Perfect field trip companion
- Size: 16 x 12 x 8 in.
- Ages 7+

### Backpack filled with:

- 20X stereo microscope, battery operated
- Large insect net with telescoping handle
- Aqua net
- Bug viewer with a measurement grid
- Hand-held magnifier



- Collection tube
- 35 mm petri dishes (3)
- Forceps
- Pencil
- Compass
- Blank journal

Cat. No.	Price
S89528	\$179.00/Ea

## Classroom Aquaponics

Engages students in ecology, biology, earth systems, math, history and literature, while pairing fish and plants in one integrated system.

- Educator can instruct on growing vegetables sustainably, germination rates, fish anatomy and nitrogen cycle
- All acrylic construction is safer than glass for classroom use
- Aquarium covers keep fish from jumping out and reduce evaporation



Cat. No.	Price
S12802	\$808.00/Ea

## Soil NPK Test Kit

Unit dose tablet test for soil macronutrients.

- Simple diagrammed instructions and laminated color chart
- 50 tests each for nitrogen, phosphorus and potassium in soil
- Originally developed for the GLOBE program
- Test results for available nutrients listed as low, medium, and high, with approximations for lb/acre.



Cat. No.	Price
S65951	\$46.00/Ea

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## Teaching Case, Soil Analysis, VISOCOLOR™

Can be used to reliably identify important soil parameters without prior knowledge of chemistry.

- Identify the concentrations of the following substances in the soil: nitrate, nitrite, ammonium, phosphate and potassium
- Determine soil structure, acidity (pH value), density and humidity
- ID cards can be used to make colour comparisons to a high level of accuracy
- Can be used in the classroom
- Thorough introduction in English, French, Spanish and German



Cat. No.	Price
S20744	\$1,678.00/Ea

## Nitty-Gritty Soil Test Kit

Investigate the basics of soil science and healthy plant requirements for proper soil texture, ideal levels of soil pH, and nutrients.

- Learn to properly care for plants and perform pH, nitrate, phosphate and potassium soil tests using nonhazardous TesTabs™ methods
- Ideal demos for elementary students



Cat. No.	Price
S65404	\$43.50/Ea

## Soil Sampling Tube

Easy-to-use, easy-to-clean, galvanized-steel sampling tube.

- Collects soil samples from a depth of up to 12 in. (30.5 cm)
- Cutaway viewing window for inspection of soil stratification 9.75 in. (25 cm)
- Soil core (D x L): 1 x 11.75 in. (2.5 x 30 cm)



Cat. No.	Price
S45110	\$45.50/Ea



## Soil Macronutrients Test Kit

Make detailed evaluations of soil composition.

- Soil analysis outfit includes all of the materials needed for accurate and detailed soil evaluation
- Determines soil pH, nitrogen, phosphorus, potassium content and soil texture
- Each self-contained, individual module contains the necessary materials and equipment to conduct 50 tests
- All components are contained in a specially designed, rugged carrying case
- Includes the *LaMotte Soil Handbook* and downloadable free resource, *A Study of Soil Science*



### Octa Slide Comparator

- Test Factor: pH (40 tests)                      • Range: 3.8-9.6

### Color Chart

- Test Factor: Nitrogen / Phosphorus (50 tests ea.)                      • Range: 10-150 lb/acre / 10-200 lb/acre

### Turbidity Column

- Test Factor: Potassium (30 tests)                      • Range: 100-400 lb./acre

Cat. No.	Price
S17704	\$614.00/Ea

## Small Group Learning: Soil Analysis



Soil composition has been a keystone experiment in earth science classrooms for many years. Our soil analysis kit will teach students the skills needed to properly conduct soil composition tests as well as allow them to collect and evaluate local soil samples.

- Using local soil samples helps students build a stronger connection to their local environment while building on a knowledge base that can be applied to any other environment
- Kit contains enough material for 5 groups
- Teacher's manual and student study guide copymasters are included
- Aligned to the Next Generation Science Standards (NGSS)
- Disciplinary core ideas: ESS2.A
- Performance expectations: MS-ESS2-1
- Cross cutting concepts: stability and change
- Engineering practices: developing and using models

**Note:** This learning activity requires a fume hood (sold separately)

Cat. No.	Price
S40743	\$149.00/Ea

## Determination of Dissolved Carbon Dioxide Concentration



The proper amount of dissolved carbon dioxide in water is critical for maintaining a healthy aquatic ecosystem.

Use up to 40 tests to determine dissolved carbon dioxide concentration from a water source.

- All aquatic life has an impact on and is in turn impacted by the dissolved carbon dioxide concentration in a system, so tracking the concentration and changes in concentration can help scientists to better understand the health of an aquatic system and the organisms that exist within it.



Cat. No.	Description	Price
S139195*	Class Size: 40 Students	\$36.00/Ea

## Plant Tissue Macronutrients



Extract nutrients from plants of your choice and determine if nitrogen, phosphorus, and potassium are present in the plant sample.

- Plants need a variety of nutrients and minerals to grow and maintain overall health. Extract nutrients from plants of your choice and determine if nitrogen, phosphorus, and potassium are present in the plant sample.



Cat. No.	Description	Price
S139196	Class Size: 50 Students	\$139.00/Ea

## Estuary Monitoring Water Testing Kit



Test a water sample of your choice for coliform bacteria, chloride, dissolved oxygen, biochemical oxygen demand, nitrate, pH, phosphate, and temperature.

- Kit contains enough materials to perform 30 tests



Cat. No.	Description	Price
S139197***	Class Size: 30 Students	\$99.00/Ea



## Soil Macronutrient Testing Kit

Plants need a variety of nutrients and minerals to grow and maintain overall health. Extract nutrients from soil of your choice and determine if nitrogen, phosphorus, and potassium are present in the soil sample.

- Kit contains enough materials to perform 50 tests



**NEW**

Cat. No.	Description	Price
S139198***	Class Size: 50 Students	\$99.00/Ea

## Urban Water Investigation Kit

Test water sample for chloride, copper, iron, hardness, nitrate, pH, phosphates, and temperature.

- This kit will allow students to learn how water quality affects urban areas
- Kit contains enough materials for 10 tests



**NEW**

Cat. No.	Description	Price
S139199***	Class Size: 10 Students	\$126.00/Ea

## Total Water Investigation Kit

Test water sample for alkalinity, ammonia, biochemical oxygen demand, chloride, coliform bacteria, copper, hardness, iron, nitrate, dissolved oxygen, pH, and phosphate.

- This kit will allow students to learn about many different factors that affect water quality
- Kit contains enough materials for 10 tests



**NEW**

Cat. No.	Description	Price
S139200***	Class Size: 10 Students	\$218.00/Ea

## The Carbon Cycle in Soil

In this activity, students will learn about the carbon cycle in soil and how soil impacts global warming.

- Changes in the carbon cycle and climate due to human activities have had detrimental effects on the environment. Through 3 different activities, students will investigate one cause of global warming, and the effects of a positive feedback loop.
- Kit contains enough materials for 15 groups of students



**NEW**

Cat. No.	Description	Price
S139201	Class Size: 15 Lab Groups	\$69.50/Ea

## Phenol Red pH Testing Kit

Test water pH within range 6.8 to 8.2 with this phenol red testing kit.

- Kit includes instructions and enough material to repeat the procedure over 50 times

**NEW**



Cat. No.	Description	Price
S139202	Class Size: 50 Students	\$12.75/Ea

## Green Chemistry: Detergents and the Environment

Understand the consequences of cultural nutrient overloading on the aquatic environment.

- Recognize that there may be environmentally-friendly alternatives in consumer chemical goods
- Demonstrate and monitor the effects of two detergent builders on natural water samples
- Visually quantify differences between phosphate and nonphosphate detergent builders on aquatic organisms



Cat. No.	Price
S96401*	\$48.00/Ea

## Environmental Chemistry: Nitrates, Phosphates, and Eutrophication

Understand the role of nitrates and phosphates in the process of eutrophication.

- After completing this lab, students should understand the difference between point source and nonpoint source pollution, and understand the role of nitrates and phosphates in the process of eutrophication
- Observe and examine the effects of nitrates, the effects of phosphates and the effects of a combination of nitrates and phosphates in miniature "ponds"



Cat. No.	Price
S96399*	\$33.50/Ea

## Acid Rain and Environment: Acidity and Plant Grow Kit



In this activity, students will examine detrimental effects of acidic conditions on plants.

- Plants will be grown under normal soil conditions, mildly acidic soil conditions, and very acidic soil conditions
- Students will determine if acidity has any impact on the growth of the plant
- Kit contains enough materials for 15 groups

Cat. No.	Price
S05883	\$85.00/Ea

## Eisco™ Ganong's Potometer with Glass Stopcock

Students will learn how to measure the rate of water uptake of a leafy shoot during transpiration or photosynthesis.



- For demonstration of transpiration rates and rates of water absorption by a cut shoot under various external conditions
- Made from high-quality borosilicate glass
- Mounted on wooden base by clips
- Base, approximately 12.25 in. wide
- Height to top of reservoir is approximately 6.5 in.
- Reservoir Diameter is approximately 0.75 in.
- Capillary bore diameter is 1 mm
- Instruction manual included

**WARRANTY:** 1-year limited manufacturer warranty

Cat. No.	Price
S29355	\$32.75/Ea

## Eisco™ H Type Potometer

Suitable for individual student use to measure the uptake of water by a leafy shoot during conditions that cause transpiration or photosynthesis.

- H Type potometer for measuring rate of water uptake by a leafy shoot
- Cut shoot is attached to the side arm with tubing and the wide glass tube acts as the reservoir
- Made from high-quality borosilicate glass
- Reservoir tube measures 6 in. long, 3 in. wide with side arm
- Capillary tube measures 7 in.
- Great for individual student use

**WARRANTY:** 1-year limited manufacturer warranty



Cat. No.	Price
S29356	\$16.75/Ea

## Brassica Quick Plant™ Seeds

Quick-growing seeds encourage hands-on classroom activities.

- Vial contains 200 seeds



Cat. No.	Price
S05697	\$60.50/Ea

## Thermo Scientific™ Growth Chamber

Versatile, programmable growth chamber is perfect for plants, animals and cultures.



- ON/OFF indicator lights show chamber status at a glance

### Includes:

- One shelf, four fluorescent lights, and manual
- Three incandescent lamps
- Two interior electrical outlets
- Heating cable with temperature sensor
- Watertight removable plastic bottom
- Dual-function panel hygrometer/thermometer
- Chamber volume: 14.2 cu. ft.

- Made of rugged steel construction finished with white enamel inside and brown enamel outside
- Operates on 120VAC 800w
- Bulbs/lights are required but not included

### Single control panel features:

- Main power switch
- Lamp switch
- Thermostat
- 24-hour timer/programmer
- Switches for heater and fan

Cat. No.	Description	Price
S53096MF	Growth chamber	\$9,199.00/Ea
S530961MF	Stand for growth chamber	\$2,023.00/Ea



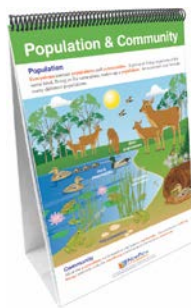
## Ecology &amp; Pollution

## What Are Ecosystems Flip Chart

Graphically introduce, practice and review key-standards-based concepts.

### Includes:

- 10 laminated, double-sided flip charts with "Write-On/Wipe-Off" exercises
- Mounted on 12 x 18 in. easel
- Teacher's guide with copymasters of review exercises
- Grades 3 – 5



Cat. No.	Price
S13531	\$66.25/Ea

## Ocean Acidification Educational Kit

Provides three different activities that allow students to investigate the cause of ocean acidification, and the effects it can have on the ecosystem and marine life.

- Changes to the carbon cycle and climate due to human activities have had detrimental effects on the environment
- One example of this is known as ocean acidification, which is the changing of the ocean's chemistry due to increased carbon dioxide in the atmosphere and ocean

### Features:

- In this activity, students will learn about the carbon cycle and how it relates to ocean acidification
- Through three different activities, students will investigate the cause of ocean acidification, and the effects it can have on the ecosystem and marine life
- Kit contains enough materials for 15 groups of students
- Teacher's manual and student study guide copymasters are included



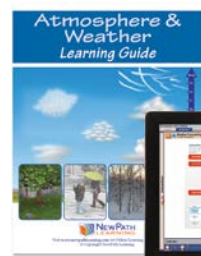
Cat. No.	Price
S802492	\$34.75/Ea

## Atmosphere and Weather Student Learning Guide with Online Lesson

NEW

An ideal blended learning solution for use in the classroom or for remote learning/home study.

- Colorfully-illustrated student learning guide provides 36 pages featuring self-directed readings, easy-to-follow illustrated explanations, guiding questions, a lab investigation, key vocabulary review, and assessments
- Also includes one year access to a corresponding multimedia lesson for a teacher and all their students
- Each lesson features animated narrated tutorials, interactive exercises and activities, virtual lab investigations, illustrated narrated glossary, visual resource library, and an inquiry-based student activity guide
- Developed under sponsorship of the National Institutes of Health (NIH), the lessons are perfect for individual student instruction on any computer or tablet as well as classroom presentation on any interactive whiteboard



**Covers:** Our Atmosphere, Layers of the Atmosphere, Clouds, Precipitation, Weather, Weather Patterns, Air Masses, Weather Patterns, Fronts, Severe Weather, and Predicting Weather

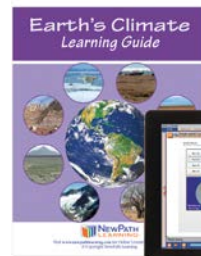
Cat. No.	Price
S436028	\$26.75/Ea

## Climate Student Learning Guide with Online Lesson

NEW

An ideal blended learning solution for use in the classroom or for remote learning/home study.

- Colorfully-illustrated student learning guide provides 36 pages featuring self-directed readings, easy-to-follow illustrated explanations, guiding questions, a lab investigation, key vocabulary review, and assessments
- Also includes one year access to a corresponding multimedia lesson for a teacher and all their students
- Each lesson features animated narrated tutorials, interactive exercises and activities, virtual lab investigations, illustrated narrated glossary, visual resource library, and an inquiry-based student activity guide
- Developed under sponsorship of the National Institutes of Health (NIH), the lessons are perfect for individual student instruction on any computer or tablet as well as classroom presentation on any interactive whiteboard



**Covers:** Climate and Its Causes, Seasons, Climate Zones and Biomes, The Tropical Zone, The Temperate Zone, The Polar Zone, Climate Change, Global Warming, and Ozone Depletion

Cat. No.	Price
S436029	\$26.75/Ea

## Microslide™ – Ecology Under Microscope

Microslide strip consists of images photographed through a microscope.

- Arrows and call outs help the student locate features

**Image titles on Microslide:**

- Algae/diatom(200x)/pediastrium (200x)
- Protozoa/blepharisma (200x)/suctorian (200x)
- Starfish embryos (200x)
- Arthropods cyclops (10x)
- Nematodes (40x)

**Includes:**

- Lesson plan designed to stimulate, inform, and question students

- Virus on *E. coli* (60,000x)
- Fungi (200x)
- Bacteria (400x)
- A pocket to store Microslide
- Reproducible worksheet with a purchase of 15



Cat. No.	Price
S816723	\$12.25/Ea

## Stream Table

Demonstrates stream erosion and deposition of soils either in the classroom, or outside.

- Includes a plastic tray, drain trough, tray support, and siphon tube
- Students will learn the impact water has on the development of land formation
- Allows students create their own landforms while simulating water streams
- Used in the classroom, at home or outdoors
- Sand not included
- For grades 3 to 12 and ages 8 to 18 years
- Dimensions of this table are: 14 x 46 x 2.5 in. deep
- Activity guide included



Cat. No.	Price
S81790	\$133.00/Ea

## Deluxe Stream Table with Pump

With an integrated design, setup is a breeze — simply add water, turn on the pump and teach.

Stream tables are an essential part of the earth sciences class for the study of erosion, sediment deposition and the behavior of rivers and lakes. Use them to unfold these processes inside the classroom at an accelerated rate — easier than observing a real river over the course of decades.

**Features:**

- Rugged plastic construction
- Features five water jets
- One water jet yields one piddly stream, while many jets form tributaries that form rivers
- Integrated reservoir with sediment trap prevents



particulates from clogging the pump

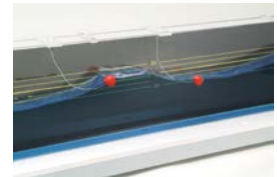
- Clear acrylic sides allow views of sediment layers
- Integrated prop holds the table at several angles
- Removable dam creates a lake to illustrate how sediments form deltas
- Fully watertight
- Folds for storage

Cat. No.	Price
S06669	\$801.00/Ea

## Wave Channel for Water

Investigate the wave properties of water.

- Y-shaped channel made of Plexiglas™ plastic with two wave exciters
- Use for both in-phase and antiphase mode
- Adjustable frequency permits wave generation with varying wavelengths
- Waves can be either absorbed or reflected by inserting or removing the absorber at the end of the channel



Cat. No.	Price
S90356	\$3,871.00/Ea

## Water Cycle Model

This 3D model will show upper level of an underground surface in which soil or rock is permanently saturated with water.

- 3D Water Cycle Model
- The water table separates the underground water zone from the capillary fringe or zone of aeration



Cat. No.	Price
S81680	\$66.50/Ea

## Environmental Extremes Kit Plus

Introduces students to environmental studies through the creation of their own soil erosion model.



- Simulate the conditions of acid rain, saline soils, drought, and erosion
- Uses plant growth models and soil erosion models
- Includes extended erosion activities featuring cost analysis
- Introduce students to scientific process through nine detailed experiments
- Students design their own experiments once familiar with experimental protocols, data collection, and data analysis
- Ideal for biology, agriculture, or general science courses
- Includes pH meters and digital scales
- Acids are not included

Cat. No.	Price
S30829	\$1,014.00/Ea

## Water Cycle 3D Model Kit

Assemble and use 3D models to visualize and investigate key science structures.



- Gain a critical understanding of complex structures and processes through the assembly of 3-dimensional models
- Kit includes enough materials for students to assemble up to 10 paper models by working either independently or cooperatively in small groups
- Also includes comprehensive Teacher Resource Guide outlining opportunities for your students to engage, explore, explain, extend, and evaluate their understanding of key scientific concepts
- Satisfies NGSS Standards which encourage students to develop and use models to represent structures, systems, and processes, then provide explanations, make predictions or investigate solutions
- Perfect for use in the classroom, lab or at home

Cat. No.	Price
S81486	\$46.50/Ea

## Water Treatment and Filtration

Develop a knowledge of the processes performed at a water treatment plant and understand the reasons for each.



- Use "polluted" water to perform several small-scale procedures that occur in a water treatment plant
- Examine the changes in the water after each treatment step is performed
- Observe physical characteristics of water, such as clarity, color, odor, and how each is affected from the beginning of the treatment process until the end

Cat. No.	Price
S97623*	\$85.00/Ea

## Water Pollution Kit

For detecting water pollution in aquatic environments.



### Water Pollution 1 Kit

- Examines water quality in suspected or known polluted aquatic environments
- Contains individual test modules for 11 key test factors: dissolved oxygen, chlorine, pH, nitrate-nitrogen, phosphate, ammonia-nitrogen and temperature
- With complete instructions and reagents to perform 50 tests for each factor
- Grades 5+

**Includes:** A field tote and free downloadable handbooks and teacher resources

Cat. No.	Price
S04351	\$559.00/Ea



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## Ocean Trash Can Kit

**Study effects of pollution on ocean, its inhabitants and surrounding coastline**

This exercise examines various types of pollutants, their sources, and their effects on the ocean, its inhabitants and the surrounding coastline.

- Students classify ocean pollution into five basic categories: debris, toxins, dissolved nutrients, particulates and oil
- Activities include: effect of pH of liquids on calcium carbonate, effects of dilution, buffering capacity, salt and acid runoff, acid rain; ability of water to purify itself, and oil spill clean-up
- Students design and write newsletter containing articles with pertinent pollution topics such as current laws, pollution, effects, bioaccumulation and prevention
- Requires four class periods plus research time
- Grades 7-10
- Class size: 24 students

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S94963	\$135.00/Ea



## Fisher Science Education™ Environmental Engineering Oil Spill Management Kit

**Hands-on oil spill awareness and cleanup kit designed for grades 7 to 12.**

Students simulate deep-ocean and beach crude oil spills as they engage in the work of an environmental engineering team. Students will use models to learn the physical and chemical properties of oil and experience how scientists respond to oil spill disasters.

- Teaches environmental impact, basic oil biology, micelle structures, and chemistry concepts such as hydrophobic and hydrophilic interactions
- Students simulate basic oil containment and removal techniques using their own oil spill models
- Includes a quantitative analysis of absorbent materials, hands on skimming and dispersant activities, and an experimental introduction to concept of bioremediation
- Students work as team to research and systematically design oil spill solution, use iterative cycle to improve their solutions, and learn to argue their points of view
- Great for applying knowledge and teaching higher order thinking skills including creative thinking, reasoning, decision making and problem solving
- Plan to spend several weeks on unit
- Class size: 24 students

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S02643	\$1,020.00/Ea



## Oil Spill Junior Kit

**Teaches young students about basic oil containment and removal techniques.**

- Students can experience how engineers and scientists approach oil spill disasters
- Explore the physical and chemical properties of oil
- Use models to simulate basic oil containment and removal techniques
- Learn to measure data and compare results
- Enhances understanding of scientific process, establishes problem solving skills, and explores inquiry based learning
- Includes multiple sets of worksheets for differentiated K-1, 2-3 and 4-5 learning levels
- The perfect hands on activity to pair with your favorite elementary level oil spill book
- Supports Next Generation Science Standards K-2-ETS1-2, Engineering Design & 3-5-ETS1, Engineering Design and Structure and Properties of Matter, 2-PS1-1 & 2-PS1-2

Cat. No.	Price
S30831	\$210.00/Ea



## Water Testing

## Digital Tapwater Tour Kit

A classroom investigation of how and why the characteristics of tap water can vary and affect every day activities.



- The instructor manual includes background information, set up, and shopping list
- Student Manual including test procedures, data sheets and puzzles
- Students work in groups and individually
- Works on computers or tablets
- Great for inclusion classrooms
- Refill includes reagents and sample bags for 50 students

Cat. No.	Description	Includes	Price
S72761	Digital Tapwater Tour Kit	Instructor Manual, Student Manual, TesTab™ reagents and sample bags for 50 students	\$95.00/Ea
S72762	Refill for Digital Tapwater Tour Kit	TesTab™ reagents and sample bags for 50 students	\$80.00/Ea

## United Scientific™ Water Sampler

Students learn how to capture water samples from specific depths.

- Capture water samples from specific depths. A unique design allows for hassle-free sample collection: when the desired depth is reached, students simply jerk the attached line to close the apparatus.
- Includes PVC collection tube, rubber seals and quick-release pin, Styrofoam winding float with 20 m line
- Made from impact-resistant PVC, with soft rubber seals that hold up to 1.5 liters of liquid
- Unit is 30 cm long, 10 cm in diameter and weighs 2 pounds
- Activity guide included



Cat. No.	Price
S89538***	\$104.00/Ea

## Water Quality Testing I: Chromogenic Analysis of Water Bacteria Contaminants

Students will test for coliforms in simulated contaminated water, and can test water samples from the environment.



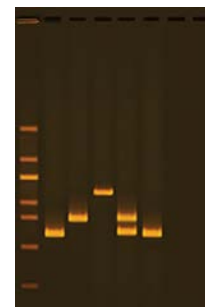
Safe drinking water is vitally important to health. Both pathogenic and harmless bacteria can be found in the guts of mammals and birds. Presence of coliforms in water is an indicator of fecal contamination.

- Testing for coliforms, including *E. coli*, using color and fluorescent reagents
- Extension activity includes Gram Stain test that can be performed on the collected samples
- Test duration: complete in 30 minutes and grow overnight

Cat. No.	Price
S68636	\$156.00/Ea

## Water Quality Testing III: Multiplexed PCR for Testing Water Bacteria

Students will investigate the presence of contaminants in a water sample.



- Drinking water is routinely tested for contamination. If a screening tests positive, more sophisticated tests are required to determine whether harmful microbes are present.
- Students use PCR in multiplex format
- Single PCR test detects presence of three separate, classroom-safe organisms
- Analyzed on agarose gels

### Experiment times:

- Setup: 60 minutes
- PCR: 120 minutes or overnight
- Electrophoresis: 45 minutes

Cat. No.	Price
S95132	\$153.00/Ea



### REMOTE LEARNING ENGAGE YOUR STUDENTS

Find tools and materials to keep your students engaged at [fisheredu.com/remotelearning](https://fisheredu.com/remotelearning).



## Water Quality Educator and Monitoring Outfit

**Ideal for long-term water-quality monitoring.**

- Tests for seven basic water-quality test factors
- Prepares students for field tests or classroom work
- Set up a water-quality monitoring program, procure measurements, and interpret results
- A Soft-sided tote made of durable fabric, solid rubber bottom ready for field work; handy side pockets hold thermometer, pens, writing tablets, and other tools

### Includes:

- *The Monitor's Handbook* (71 pages)
- 100 tests for pH
- 50 tests for the following five factors: nitrate-nitrogen, phosphate, dissolved oxygen, total alkalinity, turbidity, unlimited temperature tests, aquatic macroinvertebrate bioassessment
- Lesson plans for grades 5 to 8 and 9 to 12



Cat. No.	Type	Includes	Price
S66223	Water Quality Educator and Monitoring Outfit	pH, nitrate-nitrogen, phosphate, dissolved oxygen, alkalinity, total, turbidity, temperature test factor, <i>The Monitor's Handbook</i> , 100 tests for pH, unlimited temperature tests, aquatic macro invertebrate bioassessment	\$540.00/Ea

## Earth Force™ Low-Cost Water Monitoring Kit

**Learn the basics of water quality monitoring and testing.**

- Analyze sample water for pH, dissolved oxygen, biochemical oxygen demand, temperature, turbidity, nitrate, phosphate and coliform bacteria
- Each nonhazardous, TesTabs™ reagent tests 10 water samples (three samples for coliform)



Cat. No.	Price
S65401	\$65.75/Ea

## Earth Force™ Low-Cost Estuary Monitoring Kit

**Simple, nonhazardous methods to test saline and brackish waters found in estuaries.**

- Test water samples for coliform bacteria, salinity, dissolved oxygen, nitrate, pH, phosphate, temperature and turbidity
- Supplied with all TesTabs™ reagents and components to test 10 water samples (two samples for coliform)



Cat. No.	Price
S65403	\$73.75/Ea

## Fresh Water Test Kit

**Teaches sampling techniques, careful measurement and data recording.**

- Combines limnology with a water testing kit
- Tests for dissolved oxygen, carbon dioxide, nitrates, phosphates, silica, pH, calcium, magnesium and total hardness
- Soft-side tote is made of durable fabric and a solid plastic bottom ready for field work
- Handy side pockets hold thermometers, pens, writing tablets, and other tools

**Ordering Information:** Grades 5+

### Includes:

- Six individual cases that house components needed for various chemical tests
- Sampling bottles
- Free downloadable handbooks and teacher resources
- Analysis report forms
- 50 tests per factor, except nitrate (40) and pH (100)



Cat. No.	Type	Price
S45078	Fresh Water Test Kit	\$659.00/Ea

## AM-12 TesTabs™ Water Investigation

**Test water quality as a complete experiment or in addition to other water studies.**

- Measures water quality with 12 TesTabs reagents
- Uses easy-to-perform, nonhazardous TesTabs
- Flashcards inform about each test factor, describe the chemical reaction and explain the chemical influence on the environment
- To use: fill tube with water, add necessary tablets, shake tube until each tablet fully dissolves and compare resulting color to the color chart



Cat. No.	Price
S66982	\$348.00/Ea



## Lead Screening Test Kit

An affordable, safe, and reliable screening test to identify lead in drinking water. Ideal for classroom studies.

In 10 minutes students can detect lead levels above 15 ppb—the EPA action level. Just immerse a strip in a water sample and read after a 10 minute waiting period.

- The kit includes 10 test packs with one diagrammed instruction
- Each test comes in a sealed pouch with a test vial and dropper
- Simple test protocol: immerse, wait 10 minutes, and read
- Easy analysis—1 Line or 2 Line result indicates result
- Detects Lead to EPA action level of 15 parts per billion (ppb)



Cat. No.	Price
S29054	\$125.00/Pk

## Urban Water Quality Test Kit

Introduces water chemistry concepts in urban areas.

- Introduces water chemistry concepts in areas where the lifestyle does not often include involvement in outdoor activities, or contact with nature
- Helps urban students understand that environmental issues are a part of their world, and issues involving water chemistry are all around them
- Employs methods suitable for testing drinking water, runoff and street puddles
- Tests for chlorine, copper, iron, hardness, nitrate, pH, phosphates, dissolved oxygen, coliform and temperature using nonhazardous TesTabs™



Cat. No.	Price
S66226	\$73.50/Ea

## Vernier Science Education™ Colorimeter

For Beer's law experiments to determine concentration of unknown solutions, or studying changes in concentration vs. time.

- 4-wavelength colorimeter measures amount of light transmitted through sample at user-selectable wavelength in order to determine concentration of solution
- Features automatic sensor identification and one-step calibration
- Transfer function:  $V_{out} = 0.035 \times (\%T) + 0$
- Power up time: 700ms (maximum)



Cat. No.	Price
S16008ND	\$136.00/Ea

## SMART 3™ Colorimeter Water Quality Analyzer

Multitest colorimeter measures numerous water quality parameters with laboratory accuracy and convenience of a portable, hand-held system.

Captures up to 500 date- and time-stamped data points with the datalogger, then download via USB connection.

- Compact unit with large, backlit display
- More than 80 pre-programmed tests
- Automatic wavelength selection
- Menu-driven operation
- Accepts COD vials and cuvetts
- Waterproof to IP67
- Seven languages — user selectable
- USB port and cable for downloading results and charging
- Multiple LED optical system
- Option of entering up to 25 additional calibrations for analysis with custom reagent systems



**CERTIFICATION:** CE marked

Cat. No.	Price
S66155A	\$1,424.00/Ea

## Wide Range pH Test Kit

This kit tests for pH using the Octa-Slide 2 Comparator with two color bars. Covers a wide pH range from 3.0 - 10.5 pH.

Simply fill the tube to the mark with sample water, add several drops of indicator, and compare the resulting color against the permanent color standards.

- Range: 3.0 to 10.5
- Sensitivity: 0.5



Cat. No.	Price
S96703	\$56.75/Ea

## Turbidity Test Kit

This visual comparison test kit is designed for use in shallow waters where Secchi disc depth reading is not feasible.

- Readings are made by using a standard turbidity reagent to match the turbidity of a water sample
- Measurements are expressed in Jackson Turbidity Units (JTU)
- Reads from 0-200 JTU in 5 JTU steps



Cat. No.	Type	Price
S65414	Turbidity Test Kit	\$103.00/Ea

## Turbidity Tube

Measures the cloudiness of a fluid.

- Fill the tube with water, and drain it slowly by limiting flow with the pinch clamp on the hose
- Stop draining once the black and white Secchi disk on the bottom of the tube becomes visible
- Take note of the water level using the centimeter graduations on the tube



Cat. No.	Price
S38986	\$39.50/Ea

## Eisco™ Transparent Turbidity Tube

Determines transparency of water in lakes, streams, and oceans.

- Contains clear tube with small Secchi disc of alternating black and white quadrant
- Provides quick and easy way to probe turbidity, which is measure of clarity of water, which is in turn is related to amount of sediments or pollutants in water



Cat. No.	Price
S12998	\$78.00/Ea

## Test Tubes, Turbidity

Replacement test tubes for use in LaMotte Turbidity Meters.

- Sample vial for turbidity measurements, 10 mL line



Cat. No.	Quantity	Price
S72729	6/Pk	\$49.50/Pk

## Dissolved Oxygen Kit

Learn how to conduct oxygen-level tests for plants and animals.

- Direct-reading titrator test measures levels of oxygen
- Indicates whether a body of water can sustain healthy aquatic plants and animals
- Low oxygen levels signal contamination from organic wastes
- Measures 0 to 10ppm in 0.2ppm increments
- Azide modification of Winkler method



**Dissolved Oxygen Kit includes:**

- 30 mL manganous sulfate solution
- 30 mL alkaline potassium iodide azide
- 30 mL sulfuric acid
- 60 mL 0.025N sodium thiosulfate
- 30 mL starch indicator solution
- Direct reading titrator
- Glass test tube with cap 5-10-12.9-15-20-25 mL
- 60 mL Water sampling glass bottle

**Dissolved Oxygen Kit Reagent Refill includes:**

- Five reagents; makes 50 tests at 10ppm

Cat. No.	Description	Price
S94979	Dissolved Oxygen Kit	\$78.00/Ea
S81623	Dissolved Oxygen/BOD Testab™ Module	\$52.75/Ea
S45088R	Dissolved Oxygen Kit Reagent Refill, 5 Reagents	\$48.25/Ea

## Nitrate-Nitrogen Kit

Colorimetric test system.

- Range: 0 to 15ppm
- Sensitivity: 1.0ppm
- Number of Tests: 50



Cat. No.	Type	Price
S65410	Nitrate Nitrogen Tablet Test Kit	\$78.00/Ea
S65411	Reagent Refill Test Kit	\$34.75/Ea

## 10 mL Square Test Tube

For use with LaMotte™ water quality monitoring kits.

- 10 mL square test tube with cap



Cat. No.	Price
S72378	\$4.60/Ea

## Insta-Test™ Single and Multi-Factor Test Strips

### For water quality testing.

- No reagents or field kits required for most strips
- Chemically treated pads on plastic strips produce color change
- Pop-top vials have molded desiccant liner and hinged snap cap to protect from moisture
- As little as 10-second development time
- Test strips for testing water: wastewater, industrial water boiling and cooling, drinking water, laundry and sanitation



Cat. No.	Type	Parameter Specifications	Quantity	Price
S72329	Single Factor Test Strip	Chlorine - total, low range	25 Strips/Vial	\$9.70/Ea
S72315	Single Factor Test Strip	Chlorine - free, high range	50 Strips/Vial	\$27.75/Ea
S72330	Single Factor Test Strip	Copper	25 Strips/Vial	\$13.50/Ea

## Eisco™ Cobalt Chloride Paper Test Strips

### For detecting the presence of moisture in a given area.

- Detects the presence of moisture when exposed to humidity of 50% or greater
- Strip will turn from blue to light pink/white color in the presence of humidity
- Great for detecting moisture in hard to reach places
- 100 Strips/Vial, 12 Vials/Pack



Cat. No.	Price
S80840	\$27.00/Ea

## Eisco™ Secchi Disk Including Rope

### Used to determine transparency of water in lakes, streams, and oceans.

- A 9-inch disc of alternating black and white quadrants
- Provides quick and easy way to probe turbidity, which is measure of clarity of water
- Turbidity is in turn related to amount of sediments or pollutants in water



Cat. No.	Price
S13019	\$42.00/Ea

## Turbidity Tubes

### Determine the degree of visibility when a Secchi disk can't be used.

- Clear polycarbonate tubes with a centimeter scale on one side and a Secchi disk design on the bottom
- Secchi design (4.5 cm dia.) is screwed onto a stopper that removes for cleaning
- Drain with the drain hose and attached finger crimp
- In two lengths for different turbidity requirements
- Longer length meets requirements of The GLOBE Program™



Cat. No.	Description	Price
S90543B	Length: 60 cm	\$57.00/Ea

## Windup Meter Tapes

### Durable tapes won't tear, break, rust or stretch.

- High-quality fiberglass in an ABS plastic windup case
- Calibrated on one side in centimeters and on the other in inches
- Great for outdoor activities, track and field, rough terrain, mud and water



Cat. No.	Includes	Length	Price
S94310	ABS Plastic windup case	98.4 ft. (300 cm)	\$21.25/Ea
S94311	ABS Plastic windup case, handle	164 ft. (50 m)	\$35.75/Ea

## Kick-Net

### Strong net designed for rapid bioassessments.

- Use this net for performing USEPA Rapid Bioassessment Protocols for benthic macroinvertebrates
- 1 x 1m<sup>2</sup>, 500 µm, tan net
- Hemmed sides hold poles
- Reinforced bottom seam helps anchoring



Cat. No.	Description	Price
S85005P	Kick-net with poles	\$140.00/Ea

## Student Screen Sieves Set

### Separate soil ranging in size from pebbles to silt.

- Load samples into top sieve, cover and shake vigorously
- Set of four sieves separates the sample based on particle size



Cat. No.	Price
S53020A	\$61.50/Ea



## Eisco™ 8 Piece Plastic Sieve/Strainer Set

Six plastic sieves with stainless steel mesh, cover and bottom collector.

- Each sieve has a plastic frame having an individual size one each (mesh no. 5, 10, 35, 60, 120, 230)
- Complete with plastic lid and bottom collector
- Stackable - diameter of sieves are 6.75 in.
- Total height of stacked sieves approximately 15 in.



Cat. No.	Price
S12897	\$173.00/Ea

## Eisco™ Bottom Sampling Net

Designed specially for collecting animals and vegetation from trees, or pond and stream bottoms.

- Sturdy metal edge net designed for sampling from trees and bottoms of ponds/streams
- Strong cloth backed with metal wire mesh
- Top ring has flattened outer edge to facilitate bottom sampling
- Net collapses completely for carrying and storage
- Net is 10 in. in diameter and is 27.5 in. deep

**WARRANTY:** 1-year limited manufacturer warranty



Cat. No.	Price
S29534	\$37.00/Ea

## Eisco™ Plankton Net with Collection Vial

Features a collection bag made of strong bolting netting cloth suspended by muslin reinforcement and mounted on a wire ring.

- 35 in. deep plankton net
- 12 in. diameter metal ring
- Made of strong muslin netting cloth
- 3 braided leads provide maximum strength during collection
- Strong cloth pocket holds collection vial
- Includes durable plastic collection vial
- Collection vial is 2 in. deep with a 1.5 in. opening

**WARRANTY:** 1-year limited manufacturer warranty



Cat. No.	Price
S29535	\$38.00/Ea

## D-Net with Expandable Pole

Bag attached to metal frame with clamp rings.

- 12 in. (30.5 cm) rim dip net
- Rim fitted with heavy canvas bag, approximately 6.5 in. deep (16.5 cm)
- The bag bottom is made of approximately 500 µm nylon mesh
- Canvas skirt extends 3 in. (7.6 cm) below bag bottom to protect mesh
- Aluminum pole extends from 52 to 84 in. (137.2 to 213.3 cm)



Cat. No.	Product Type	Price
S85027	D-net with Expandable Pole	\$112.00/Ea
S85027B	Replacement Bag	\$24.75/Ea

## Aqua Heterotrophic Count Plates

Sample-ready, eliminating all time-consuming steps of preparing media/agar dishes

- Results in 48 to 72 hours
- Detects heterotrophic bacteria in bottled water
- Compatible with membrane filtration systems



Cat. No.	Price
S30737	\$129.00/Ea

## Biomass Detection Kit ULW10

Water test kit using ATP bioluminescence to detect overall biological load in a sample

- For testing aqueous samples requiring filtration and/or extraction such as viscous samples or ones that contain particulates or fibers
- Assesses amount of biomass in process waters, waste waters, water tanks and cooling towers by determining total ATP present
- Helps determine biological status of process equipment and effects of biocide treatments



Cat. No.	Price
S27253	\$392.00/Ea

## Petrifilm™ E.coli/Coliform Count Plates

Cost effective, convenient and reliable method for testing equipment, raw materials, food products and manufacturing environmental samples

- Confirmed *E. coli* results in 24 to 48 hours
- Provides accurate, efficient, consistent results for food processors and contract labs
- Plates are sample-ready, eliminating time-consuming steps of preparing media/agar dishes
- Interpretation can be done with the 3M™ Petrifilm™ plate reader
- This plate has been awarded Official Methods of Analysis OMA #991.14 for food OMA #998.08 for poultry, meat, and seafood
- **S30692** sold in packs of 500
- **S30729** sold in packs of 50



Cat. No.	Price
S30692	\$999.00/Ea
S30729	\$127.00/Ea

### Alternative Energy

## Alternative Energy Education Kit

A comprehensive educational set for exploring alternative energy that combines horizontal, hydro, and vertical turbines.

- The Alternative Energy education set is the most comprehensive of all our Energy Educational offerings. It combines all our turbines: the Horizontal Turbine, Hydro Turbine, and Vertical Turbine.

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**



Cat. No.	Description	Includes	Price
S4131910	Level 1	1 Solar Panel 7.2V 200mA, 1 Multimeter, 1 Level 1 Vertical Turbine Kit, 1 Level 1 Horizontal Turbine Kit, 6 Hydro Paddles	\$118.00/Ea
S4131912	Level 3	1 Solar Panel 7.2V 200mA, 1 Multimeter, 1 Level 3 Vertical Turbine Kit, 1 Level 3 Horizontal Turbine Kit, 1 Level 1 Hydro Turbine Kit	\$237.00/Ea

## Renewable Energy Kit

Demonstrate the workings of a complete clean energy system on a miniature scale.

- Combines electronics, chemistry, and physics with multiple experiments
- Modular experiment set encourages users to learn the system step-by-step or configure the system in different ways



### Renewable Energy Education CD

- **Renewable Energy Science Education Manual:** introduces renewable energy in seven chapters—Global Warming and Climate Change, Solar Technologies, Wind Technologies, Electrolyzers, Fuel Cells, Hydrogen Storage, and Basic Electronics
- **Experiment Manual:** more than 20 experiments for middle to high school level sciences in several sections—Solar Energy, Wind Energy, Energy from Hydrogen (Fuel Cell), and “Ultra Cool” experiments
- **Animations:** describe and show how a fuel cell works, different types of fuel cells, electrolysis, and various applications for fuel cells
- Assembly guides
- Technical support with videos

Cat. No.	Price
S98609	\$526.00/Ea

## 50 Watt Wind and Solar Hybrid System

A complete hybrid wind and solar system kit that is great for a STEM lab classroom, camp, or scout project.

- Get started with solar and wind energy in one complete kit
- This kit includes a 50 watt solar panel and a 50 watt DIY Wind Turbine Kit
- The system voltage is 12V DC with the solar panel having an average output of 1.2 amps and the wind turbine having a typical output of 1 to 2 amps



### Contents:

- 1 pre-assembled motor (24V)
- 1 motor housing
- 1 housing cap
- 5 50 watt blades
- 1 blade hub
- 1 long tower (14 in.)
- 1 short tower
- 1 base
- 1 weighted insert
- 1 back fin
- 1 fin rod
- 10 nuts 8-32 x 3/4 in.
- 10 screw 8-32
- 1 solar panel (50 watt/12 V)
- 1 battery (12 V)
- 1 inverter (12V DC-110 AC)

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S81193	\$1,008.00/Ea

## Low-Cost Solar Energy Project Kit

Discover how to convert solar energy into electrical energy.

Ideal for basic solar energy demonstrations.



Cat. No.	Price
S63319	\$13.20/Ea

## Eisco™ Solar Furnace

Showcases the transfer of energy between solar radiation and thermal energy.

- Ideal for physics classroom demonstrations on solar energy
- 11.8 in. parabolic mirror to focus the light rays
- Sun's rays effectively heat the copper cup at end of column



Cat. No.	Price
S12958	\$70.50/Ea

## United Scientific™ Basic Solar Kit

A convenient introduction to the conversion of solar light energy into electrical energy

- Convenient kit provides everything needed to convert solar-generated electrical energy into light, sound, or motion
- Observe the correlation between angle of incidence and energy output



Cat. No.	Description	Price
S27844	Solar Kit	\$10.50/Ea

## Eisco™ Solar Cell Unit

Capture the sun's energy with this solar cell and transfer the electricity to the Mini Motor (not included) which generates enough power to operate a small propeller.

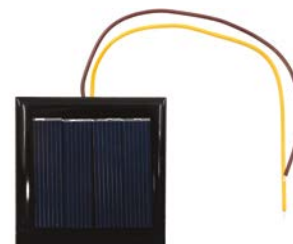


- Single, small sized solar cell unit
- Unit has two 4 mm plug terminals
- Easily connects using standard 4 mm banana plug connection leads
- Capture the sun's energy with the solar cell
- Connect to mini motor (not included) and generate enough power to operate a small propeller
- Great tool for science projects, as well as energy conversion and electrical circuit demonstrations

Cat. No.	Price
S80857	\$36.75/Ea

## Eisco™ Polycrystalline Solar Cell with Wires

Polycrystalline solar cell includes yellow and red leads, and is ideal for use with other 1.5 V devices including buzzers, motors, lightbulbs, and much more.



- Includes yellow and red leads (approximately 5.5 in. each)
- Excellent for use in a wide variety of science fair projects and classroom demonstrations

Cat. No.	Price
S26590	\$13.75/Ea

## Solar Panel with Alligator Clips

Each panel comes with alligator clips to easily hook up and power anything.

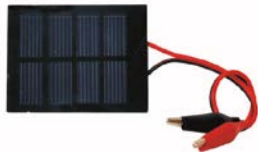


- Typical applications include solar model cars, solar model boats, solar toys, solar scientific kits, solar experimental kits, and solar construction kits
- Panels can be connected in series or parallel to increase voltage or current output
- 20 in. insulated alligator clip lead (1 red, 1 black)
- Solar cell type: polycrystalline

Cat. No.	Price
S81194	\$30.00/Ea



## Vernier Science Education™ KidWind 2V/400mA Solar Panel



For classroom experiments and basic applications that require more power.

- Includes external screw terminals and attached clip cord for easy handling
- Dimensions: 6.2 x 12 cm
- Recommended for college, high school, and middle school science

### Activities performed:

- Build solar fan
- Compare efficiency over time without changing the angle of the panel
- Compare temperature and rate for temperature increase, depending on time of day and ambient air temperature

### Concepts:

- Understanding clean energy, and discovering and discussing solar power as an energy source
- Differences between power and energy
- Learning weather and climate
- Exploring circuits, electricity, and magnetism
- Designing controlled experiments
- Analyzing data

**WARRANTY:** 5-year limited warranty

Cat. No.	Price
S04828ND	\$25.25/Ea

## Solar Car

A great STEM product for K-12 classrooms, camps, or at-home learning about the power of solar energy.

- Made with 3D printed materials and manufactured in the United States, this STEM product will teach your young learner the power of solar energy

- No soldering or batteries are required

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**



Cat. No.	Price
S4131924	\$29.50/Ea

## Eisco™ Energy Conversion Kit

A great tool to discover conversion processes of different types of energy.

- Perfect for hands on experience in the classroom
- 3 different devices are used to generate electricity
- 5 different devices convert the generated electricity into 5 different forms of energy
- Includes 3 different sources for the generation of energy: hand crank (mechanical), cell battery holder (electrical), and a solar cell (light)
- Five circuit elements can each be inserted into the board to observe the use of the generated electrical energy: motor with fan (mechanical), buzzer (sound), LED (light), resistor (heat), and an electromagnet (magnetism)
- Apparatus measures 10 x 8 x 6.75 inches
- Requires 2 C batteries (not included)



Cat. No.	Price
S27886	\$145.00/Ea

## Pre-Marked Ceramic Rare Earth Magnets



The strongest permanent magnet.

- Rare-earth magnets, made from alloys of rare-earth elements are the strongest type of permanent magnet available today.
- Magnetic properties for rare-earth magnets far exceed those of other magnet materials, making them the preferred choice for many commercial, industrial and technical applications.
- Dimensions (H x L): 2 x 3 in. (50.8 x 76.2 mm)

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S81196	\$8.60/Ea

## United Scientific™ Solar Furnace

A graphic demonstration of the sun's radiative energy

- Concentrate solar energy to boil water
- Large convex mirror is adjustable through 180° to follow the sun throughout the day
- Experiment with different liquids to study specific heat
- Activity guide included



Cat. No.	Price
S27843	\$82.00/Ea

# Need help choosing supplies?

Use this curated list of products to restock your physics classroom, and visit [fisheredu.com](http://fisheredu.com) to find even more science education products.



Description	Cat. No.	Quantity
<b>Weight and Density</b>		
Fisher Science Education™ Portable Balances, Capacity: 300 g	S94792C	Each
OHAUS™ Triple Beam Balances, Capacity: 0.61 kg (1.34 lb.)	S40020	Each
Fisher Science Education Analytical Balance with Draftshield, Capacity: 220 g	S72473	Each
Eisco™ Premium Brass Slotted Mass Set	S41488	Each
United Scientific Supplies Properties of Materials Classroom Set	S27839	Each
Eisco Equal Mass Metal Cylinders Set	S07850	Each
United Scientific Supplies Fractional Brass Masses	S40200	Each
<b>Electricity</b>		
Vernier KidWind simpleGEN Easy-to-build AC Generator Kit	S04824ND	Each
Eisco Deluxe Battery Eliminator	S96208	Each
Variable Voltage Power Supply Kit	S46113	Each
Fisher Science Education D-Cell Alkaline Batteries for Science Kits	S05148	8/Pack
Innovating Science™ Stem Investigations: Create Your Own Power Kit	S27135	Each
Heavy-Duty 6V Batteries	S43408	Each
Kemtec™ Series and Parallel Circuits Kit	S27538	Each
Eisco Physics Kit: Electricity System 1	S13471	Each
<b>Magnetics</b>		
United Scientific Supplies Alnico Bar Magnets	S13055	Each
Fisher Science Education Ring Magnet	S04585	Each
Eisco Junior Science Magnet Kit	S13479	Each
Eisco Magnetic Field Demonstrator	S23754	2/Pack
<b>Light</b>		
United Scientific Supplies Prism and Lens Sets	S90324	Each
United Scientific Supplies Whiteboard Optics Set	S05907	Each
Eisco Optics Lens and Mirror Set	S24875	Each
<b>Sound</b>		
Eisco 8 Piece Tuning Fork Sets with Case	S27731	Each
Aqua Phoenix™ Sound and Music Kit	S02092	Each
<b>Mechanics</b>		
Eisco Garage Physics Catapult Kit	S24329	Each
United Scientific Supplies Mini Projectile Launcher	S27831	Each

Physics

Force & Mechanics

## Science Cube Kit – ABCs of Physics

Ever wonder how a clock works? Or how a roller coaster stays on its track? Explore all of this in this kit. Make your own timer as you discover how a pendulum clock works. Find out what  $F=ma$  means as you learn about force, motion, and just how that roller coaster stays grounded.



- Perfect for group experiments
- Perfect for home schooling
- Save space when storing in reusable plastic snap box
- Ages 7+

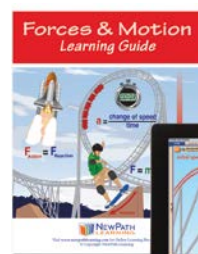
**Includes:**

- 1 reusable plastic snap box
- 1 stop watch
- 1 tape measure
- 1 single pulley
- 1 double pulley
- 1 table clamp pulley
- 1 spring scale
- 1 wooden ball
- 1 steel ball, 3/4 in.
- 1 steel ball, 1 in.
- 1 Hall's carriage
- 1 weight set
- 1 string
- 1 exploration guide

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S89518	\$80.00/Ea

## Forces and Motion Student Learning Guide with Online Lesson



An ideal blended learning solution for use in the classroom or for remote learning/home study.

- Colorfully-illustrated student learning guide provides 36 pages featuring self-directed readings, easy-to-follow illustrated explanations, guiding questions, a lab investigation, key vocabulary review, and assessments
- Also includes one year access to a corresponding multimedia lesson for a teacher and all their students. Each lesson features animated narrated tutorials, interactive exercises and activities, virtual lab investigations, illustrated narrated glossary, visual resource library, and an inquiry-based student activity guide
- Developed under sponsorship of the National Institutes of Health (NIH) the lessons are perfect for individual student instruction on any computer or tablet as well as classroom presentation on any interactive whiteboard.

**Covers:** Motion: Speed and Velocity, Acceleration, Momentum, Force, Friction, Gravity, Newton's First Law of Motion, Newton's Second Law of Motion, and Newton's Third Law of Motion

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S436038	\$26.75/Ea

# Custom-Built Kits for Your Classroom

The Fisher Science Education team is proud to bring you the convenience of custom educational kits for elementary- to college-level instruction.

- 1 Outline the Project
- 2 Review Your Curriculum
- 3 Develop a Plan
- 4 Align on Production
- 5 Place Your Order
- 6 Await Delivery



Visit [fisheredu.com/customkitting](http://fisheredu.com/customkitting) to learn more.





## Work Power and Simple Machines Student Learning Guide with Online Lesson



NEW

An ideal blended learning solution for use in the classroom or for remote learning/home study.

- Colorfully-illustrated student learning guide provides 36 pages featuring self-directed readings, easy-to-follow illustrated explanations, guiding questions, a lab investigation, key vocabulary review, and assessments
- Also includes one year access to a corresponding multimedia lesson for a teacher and all their students. Each lesson features animated narrated tutorials, interactive exercises and activities, virtual lab investigations, illustrated narrated glossary, visual resource library, and an inquiry-based student activity guide
- Developed under sponsorship of the National Institutes of Health (NIH) the lessons are perfect for individual student instruction on any computer or tablet as well as classroom presentation on any interactive whiteboard

**Covers** What is Work?, Power Measuring, Work and Power, Machines and Work, Mechanical Advantage and Efficiency, Simple Machines, Simple Machines in the Body, and Compound Machines

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S436039	\$26.75/Ea

## Simple Machines Set

Build all five simple machines at the same time.



Construct, examine and explain simple machines to develop a deeper understanding of how they make work easier.

- Build a lever, pulley, inclined plane, wheel and axle, and wedge
- Explore effort, force, load, motion and distance by modifying with rubber bands
- Pieces assemble easily, separate for storage

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S95876	\$64.00/Ea

## Physical Science Student Learning Guides with Online Lessons (Set of 10)

NEW

An ideal blended learning solution for use in the classroom or for remote learning/home study.



- Colorfully-illustrated student learning guide provides 36 pages featuring self-directed readings, easy-to-follow illustrated explanations, guiding questions, a lab investigation, key vocabulary review, and assessments
- Each student learning guide also includes one year access to a corresponding multimedia lesson for a teacher and all their students. Each lesson features animated narrated tutorials, interactive exercises, virtual lab investigations, illustrated narrated glossary, visual resource library, and an inquiry-based student activity guide
- Developed under sponsorship of the National Institutes of Health (NIH) the lessons are perfect for individual student instruction on any computer or tablet as well as classroom presentation on any interactive whiteboard

**Covers:** Matter, Atoms and Chemical Bonding, Elements and the Periodic Table, Chemical Reactions, Energy, Work, Power and Simple Machines, Forces and Motion, Electricity and Magnetism, Sound and Light, and Optics

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S436043	\$173.00/Ea

## Eisco™ Newton's Second Law of Motion Apparatus



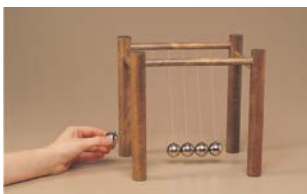
**Demonstrate Newton's Second Law of Motion with a device that can be mounted to a support stand or a table clamp.**

- The apparatus is made of solid metal and designed to last many years in the class room
- Base is painted blue and is 10 in. x 2.5 in.
- Spring-driven and offers two tensions
- Includes 7.5 in. x 0.50 in. diameter rod to be able to mount on a table clamp or fixed to a support stand
- Complete with two steel balls

Cat. No.	Price
S12939	\$43.50/Ea

## Newtonian Collision Ball Apparatus

Classic physics apparatus demonstrates conservation of energy.



Visual demonstration helps students understand properties such as collisions between equal mass bodies, exchange velocities, kinetic energy, and momentum.

- Apparatus comes fully assembled
- Durable, walnut-stained wood frame
- Five nickel-plated, 1 in. diameter (2.5 cm) steel balls
- Dimensions (L x W x H): 9.25 x 7.25 x 8.75 in. (23.1 x 18.1 x 21.9 cm)

Cat. No.	Price
S40976	\$56.25/Ea

## United Scientific™ Force Between Conductors Demonstrator

Reliable, dramatic demonstration of the magnetic forces between two current-carrying parallel conductors.

- Safely applies large current to two pivoting brass tubes
- Fuse protected



Cat. No.	Price
S06986	\$237.00/Ea

## New York Demonstration Balance

A great classroom apparatus to help students understand the principles of torque and its properties. This balance helps demonstrate the relationship between length of the lever arm, moment of force, and amount of force.



- Demonstration kit
- Includes everything needed
- Teachers' instructions included

**⚠️ ALERTS: Not a toy. Product intended for ages 13 and up.**

Cat. No.	Price
S13617	\$54.25/Ea

## Eisco™ Rolling Friction Cars

Students can manipulate four cars to explore the force of friction.



- Each car's wheels are made of different material (wood, fabric, soft rubber, soft silicone), and each have different friction coefficients
- By setting cars in motion at the same speeds, students can qualitatively demonstrate frictional properties of rolling without slipping

Cat. No.	Price
S12997	\$53.00/Ea

## Eisco™ Deluxe Intermediate Inclined Plane

Fully assembled physics lab features an inclined plane with hinged base and pulley.



- Metal arc is graduated to 45°
- Graduations are cast into the aluminum with centimeters as the smallest division
- Adjustable pulley held in position by a friction clamp
- Inclined plane: 0.56 x 1 x 21.2 in. (1.4 x 2.5 x 53 cm)
- Base: 4.5 x 1 x 22 in. (11.4 x 2.5 x 55 cm)

Cat. No.	Price
S96184	\$110.00/Ea

## Eisco™ Inclined Plane and Friction Board

Ideal apparatus to investigate sliding friction.



- Consists of a plane board hinged at the base with a pulley for the force cord at the other end
- Fitted with arc

Cat. No.	Price
S07830	\$108.00/Ea



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## Eisco™ Steel Inclined Plane with Car and Pulley

Steel Inclined Plane with Car and Pulley is 48 in. long, straight as an arrow, and can accommodate any type of car

- Made of heavy steel with rounded corners
- Holes in the supporting flanges fit a 12 mm support rod
- Includes car, clamp pulley, string, and basket
- Stand base, rod, and support clamp are sold separately



Cat. No.	Price
S27663	\$94.00/Ea

## Eisco™ Adjustable Clamp Pulley

To demonstrate a wide variety of mechanics principles.

- Sturdy metal construction
- Metal sheave can be adjusted from flush with tabletop to 13 cm above it
- Pulley can be rotated to 360° to suit any experimental setup



Cat. No.	Price
S23660	\$26.00/Ea

## Eisco™ Economical Force Table

Designed to help demonstrate Newton's first law, and the vector nature of forces and equilibrium.

- Heavy cast base with leveling screws
- 40 cm (diameter) durable polymer tabletop carries angle scale with 0.5° divisions, marked every 10° in both rotation directions
- Includes four pulleys and four sets of chrome plated slotted weights (250 g each set)
- Comprehensive teacher's guide is included containing background info, setup instructions, & student activities
- Assembled size: (W x H) 14 x 17 in.



Cat. No.	Price
S96528	\$288.00/Ea

## United Scientific™ Economy Force Table

**NEW**

This force table takes what was once only able to be used in front of the class as a demo, and puts it in the students' hands.

Explore Newton's laws of motion and demonstrate the equilibrium of forces with this economic tool.

The lightweight design and suction cup feet enable placement on horizontal or vertical surfaces, including whiteboards. Included clamps securely hold spring scales in place while allowing for easy adjustments along the 360° protractor.



### Contents:

- 360° protractor with suction cup feet
- 4 spring scales, 500 g
- 4 clamps
- Centering ring

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S83790***	\$38.00/Ea

## Eisco™ Hall's Car Pair

Essential items for dynamics experiments.

Use in conjunction with an inclined plane, pulley and weights to study the relationship between work and energy.

- Low-friction wheels
- Oil-free sleeve bearings that never need adjustment
- Durable plastic molded body has a deep well for weights and low profile



**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S96317	\$28.75/Pr

## Eisco™ Plastic Dynamic Cart Set

Excellent upgrade from the traditional wooden or metallic carts.

Pair of single-piece, virtually unbreakable ABS carts can be used for a variety of precision experiments.

- The body is mounted on a set of three low-friction nylon wheels to produce straight-line travel over long distances
- Lockable spring-load punch has two levels of compression, activated by a trigger knob on top of the cart
- The cushioned cart surface supports the addition of more masses to increase the effective weight of cart
- Carts are stackable to create a single cart of two or three times the basic cart mass
- Velcro™ rear pads enable study of inelastic collisions



Cat. No.	Price
S05833	\$117.00/Ea





## Eisco™ Wood Dynamics Carts



Ideal for demonstrating Newton's laws of motion.

- Carts are made with low-friction ball-bearing wheels
- The top surface can be loaded with additional masses
- One cart in each set is equipped with an "exploder piston," activated by a trigger on top that can be preset to three positions
- Spring-steel hoop bumpers can be used for collision and energy experiments
- Set of 2

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Description	Price
S96175	3 Wheeled Cart	\$74.50/Ea
S96176	3 Wheeled Cart with Hoop	\$163.00/Ea

## Vernier Science Education™ Dynamics Cart and Track System with Motion Encoder

A revolutionary way for physics students to study dynamics. The Motion Encoder adds an optical position sensing system to record cart motion, and eliminates the need for a motion detector for cart-on-track activities.

- Resolution: 1 mm, maximum useful data rate: 30 Hz

**WARRANTY:** 5-year limited warranty



Cat. No.	Price
S16275ND	\$565.00/Ea

## Eisco™ Hand Held Centripetal Force Kit



Provides necessary tools to discover properties of rotational dynamics.

- The rubber stopper swings around on the end of a string counter balanced by weights
- Allows students to see how mass and radius affect centripetal acceleration and rotational velocity

Cat. No.	Price
S13002	\$9.15/Ea

## United Scientific™ Centripetal Force Kit

**NEW**

Help students to investigate the force on an object in circular motion.



Through a series of simple demonstrations, students will better understand the relationship between the radius of the circular motion, the velocity of the moving object, and the external force required to maintain the motion.

**Contents:**

- Rubber stopper attached to cord approximately 1 m in length
- Plastic tube with beveled ends
- Hanging mass set: 12 aluminum weights - 9 x 20 g, 1 x 10 g, 2 x 5 g
- One 50 g aluminum hanger
- Paperclip (position marker)
- Activity guide included

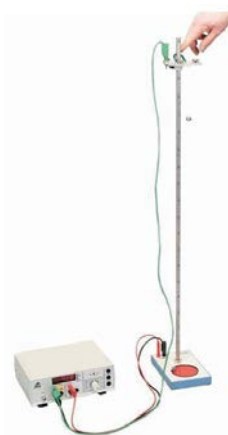
**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S89542***	\$24.50/Ea

## Free Fall Apparatus

This dependably accurate item is easy to set up and use.

- A micro-magnet holds ball in start position
- Three contact pins ensure that the start position can be reproduced, and act as contacts of a switch that opens when the ball is released, triggering the timing measurement
- When the ball strikes the contact plate, the timer stops
- Drop height can be adjusted to a fraction of a millimeter
- Measurement is read off a scale on the column



**Specifications**

- Height scale: 20 to 960 mm
- Scale divisions: 10 mm
- Scale precision: 0.2 mm
- Includes: three steel balls, 16 mm dia.
- Dimensions: 7.875 x 5.125 x 39.375 in. (20 x 13 x 100 cm)
- Weight: 3.5 lb. (1.6 kg)

Cat. No.	Price
S96479	\$766.00/Ea



## Eisco™ Hooke's Law Apparatus

Used to teach Hooke's Law in the classroom.

- A 15 cm mirror scale is marked in millimeters and mounted on a sturdy 30 cm support rod and wooden base
- Mirror adjusts to prevent parallax error
- A hook attached to the rod supports a coiled spring with mass hanger and indicator



Cat. No.	Price
S96529	\$30.00/Ea

## Eisco™ Hooke's Law Apparatus with Weights

Hooke's Law Apparatus with Weights is useful in helping students understand the linear relationship between force and extension.

- Features an adjustable, 15 cm metal scale
- Includes (2) Springs and (9) 10 g weights
- Horse shoe shaped cast iron stand for stability
- Overall Height: 13 in. tall



Cat. No.	Price
S27660	\$63.25/Ea

## Eisco™ Helical Spring Set

Demonstrates the extension of a spring in relation to the force applied to it.

- A helical spring has rings at both ends
- Three masses included: 1.1 lb. (500 g), 4.4 lb. (2,000 g) and approximately 0.52 lb. (237 g)
- All masses have double hooks



Cat. No.	Price
S96185	\$49.00/Ea

## Eisco™ Visual Scientifics Physical Science System Base and Pendulum



A system that allows students to use all technologies available to learn physics through technology, engineering and real-world applications.

### Base (S06893)

A large, robust base with precise magnetic and threaded mounting locations helps students set up experiments easily and quickly with reproducible results.

- Large, magnetic base for sturdily attaching experiments
- High-contrast color grid for easy data collection with video analysis systems
- Each junction in the grid accepts threaded rods for accurate mounting
- Dimensions: 25 × 16 × 2.5 in. (63.5 × 40.6 × 6.35 cm)
- Accepts any probeware system

### Ballistic Pendulum (S06895)

A great demonstration or experiment as students try to derive the velocity of a ball leaving the launcher. Students can calculate velocity and test their calculations using this system with separate video or probeware system.

- Main Lab: find the velocity
- Extension One: photogate verification of muzzle velocity
- Extension Two: damped simple harmonic motion
- Covers 10 Next Generation Science Standards Concepts
- Covers 17 Common Core Standards
- 27 pages total
- Student workbook is a guide for students to fill out as they work through the main lab and lab extensions
- General Theory Section lays out the theory and mathematics behind the lesson plan
- Experimental Teaching Guide helps teachers prepare lesson plans and lead inquiry or step-based activities
- All labs and extensions include recommendations for video analysis setups
- For use with Physical Science System Base (S06893)

### S06895 Includes:

- Spring-loaded launcher, rigid-arm pendulum with barrel, measuring board, ball, small metal rod with handle, extensive instructions to assist with lesson planning, student activities and experimental procedures

**Requires:** Safety glasses (not included)

Cat. No.	Description	Price
S06893	Physical Science System Base	\$208.00/Ea
S06895	Ballistic Pendulum	\$81.00/Ea

## Creation Zone 50 Model Building Set

Set contains 417 pieces to build over 50 unique models.

- Build 50 different models including a dragon, swing ride, robot and more
- Comes in a blue plastic storage tub that holds all K'NEX parts, or partially and fully built models
- Set comes with an easy-to-follow instruction manual. Ideal for kids 5 and up
- STEAMagination - It's the connection of STEAM (science, technology, engineering, arts, and math) with a student's curiosity and creativity. It powers the fun of each K'NEX set
- K'NEX supports the developmental growth of hand-eye coordination, fine motor skills, problem-solving skills, and spatial awareness



Cat. No.	Price
S80753	\$36.75/Ea

## Bridge Building Class Pack

Challenge students' mathematical skills with this analytical exercise in creativity.

- Supports a wide variety of curricula including geometry, physics, technology, mathematics and general science
- Build the strongest bridge with the smallest amount of materials
- Bridge efficiency is judged as the ratio of the weight held by the bridge to the weight of the bridge



Cat. No.	Price
S41893B*	\$130.00/Ea

## Boomilever Test Kit

Includes everything required to test boomilevers for competition, except for the ballast (sand).

- Kit includes a test stand that can fit on any table or lab bench with a lip, a loading block, a boomilever scale, a ballast scale, a scoring sheet, chain, S-hook, bucket, beaker with handle, and plastic tarp
- Meets National Standards for Grades 6-12



Cat. No.	Description	Price
S27541	Boomilever Test Kit	\$406.00/Ea
S27542	Boomilever Test Kit Refill Pack	\$473.00/Ea

## Aerodynamics & Flight

### Eisco™ 'g' by Free-Fall Apparatus Kit

The 'g' by Free-Fall Apparatus Kit demonstrates determination of gravitational constant 'g'.

- Includes wooden base, 1.1 m rod, movable electromagnet, timer
- Electromagnet powered by timer
- Supplied with manual



Cat. No.	Price
S24852	\$249.00/Ea

### Gravity Well Kit

Allows students to build a large scale demonstration model to explore gravity in the classroom.

- Students model the bending of spacetime by gravity to explore the behavior of gravity on a cosmic scale.
- Simulate the motion of planets, galaxies, star systems, moons, and more.
- Create synchronous orbits and model the Big Bang Theory.
- Materials expansion kit for S27543, Earth's Place in the Universe.
- Meets National Standards for Grades 6 to 12.



Cat. No.	Price
S27544	\$193.00/Ea

### Wind Tunnel

Demonstrates principles of lift and aerodynamic flow.

- With wind tunnel and an accurate balance, the effect of lift can be clearly seen in action



Cat. No.	Price
S98902	\$73.50/Ea

### Bottle Rocket Launcher

Students can observe the effects of varying moments of inertia.

Pressurize a plastic soda bottle with an ordinary bicycle pump (not included). Vary the amount of pressure and/or water fuel to see whose rocket will go the highest. Experiment with different fin styles to observe how changes in design affect flight paths.

- Solid aluminum construction
- Simple triggering mechanism
- Mounting stakes



Cat. No.	Price
S41988	\$49.50/Ea





## Eisco™ Bottle Rocket Launching Platform

Introduces rocket science and concepts involving Newton's laws to students.

- Uses water and pressurized air as fuel
- Bottle rocket launcher attached to sturdy base
- Can launch 2 L plastic soda bottles over 30.4m (100 ft.) in the air
- Using water as liquid fuel, pressurize bottle with bicycle pump (Schafer-type connection, pump not included)
- Bottle is remotely launched from safe distance using corded release mechanism



Cat. No.	Price
S12993	\$81.00/Ea

## Eisco™ Spring-Loaded Projectile Launcher

Launch a projectile at any angle from  $-15^\circ$  to  $+90^\circ$  straight up.

- Solidly built to withstand the rigors of a hands-on lab, and precision machined for reproducible results
- Clamps to any tabletop, compatible with an electronic timer
- Angle adjusts with launcher mount, then locks into place with auxiliary brace
- Combination of launcher mount and brace means maximum flexibility plus great rigidity
- Measure your angle to within  $0.5^\circ$  accuracy with plumb bob
- Range is up to 10 ft. (3 m) and is infinitely adjustable



Cat. No.	Price
S96174	\$161.00/Ea

## Projectile Launcher

Alter the mass of projectiles and observe the effect on their trajectories.

- Students can alter the mass of the ball and observe the effect on the ball's trajectory
- The launcher features a spring loaded trigger and easy to use release mechanism that can be adjusted for tension
- A protractor and plumb bob are fixed to the face of the apparatus for determining the angle of inclination
- The built-in clamp is used to secure the apparatus to a tabletop
- Four holes spaced 5 cm apart are located at the top and bottom edge and are used for attaching a photogate (not included)
- The kit also includes three 25 mm balls, each with a different mass: aluminum, lead, and steel



Cat. No.	Price
S13995	\$119.00/Ea

## Vernier Science Education™ Pneumatic Projectile Launcher

Ideal for investigating important concepts in two-dimensional kinematics.

- Launch steel balls at angles between and 70 degrees and over distances up to 2.5 m
- The solid, heavy base provides an easy-to-use and reliable setup
- A unique pneumatic launching system provides excellent repeatability and allows you to set the launch speed
- Built-in photogates and angle markings provide easy and accurate measurement of the ball's launch velocity, allowing for precise quantitative analysis of projectile motion—Simply plug the device into a compatible data-collection interface



### Specifications:

- Launch angle: 0 to 70 degrees
- Launch speed: 0–6 m/s
- Launch height: 146 mm
- Maximum launch distance: 2.5 m
- Internal photogate interval: 50 mm
- Steel ball diameter: 17.46 mm
- Steel ball mass: 21.8 g

### Data Collection Interface and Software Compatibility

Data collection with the projectile launcher is possible with the following combinations of interfaces and software.

- **Logger Pro 3:** Use version 3.8.5 or newer with LabQuest™ 2, original LabQuest™, LabQuest™Mini, and LabPro™
- **LabQuest App:** Use LabQuest 2 or original LabQuest with version 1.6 or newer when LabQuest is used as a standalone device
- **DataQuest™ Software for TI-Nspire™:** Use this application with TI-Nspire Technology and the TI-Nspire Lab Cradle
- **EasyData App:** Use this app with a TI-83 Plus or TI-84 graphing calculator and LabPro or CBL 2™
- **LabVIEW™** National Instruments LabVIEW software is a graphical programming language and used with SensorDAQ. Contact Vernier for more information concerning compatibility

Cat. No.	Price
S15975ND	\$477.00/Ea

## Volume & Density

### Eudiometers

Measures change in volume of gas mixture following a physical or chemical change.

- Capacity: 50 to 100 mL
- Subdivisions at 0.1 to 0.2 mL



Cat. No.	Price
S32353	\$66.50/Ea

## United Scientific™ Equal Volume Cylinders

Ideal for specific gravity, density, volume and calorimetry experiments.

- Available as individual and set of cylinders
- Made of aluminum, brass, copper, steel, PVC and wood



Cat. No.	Product Type	Material	Price
S07034	Cylinder Set	Aluminum, Copper, Steel, Brass	\$21.50/Ea
S07021	Cylinder	Aluminum	\$4.35/Ea
S07022	Cylinder	Steel	\$4.35/Ea
S07023	Cylinder	Brass	\$5.05/Ea
S07024	Cylinder	Copper	\$6.65/Ea
S07025	Cylinder	PVC	\$4.15/Ea

## Eisco™ Square Density Blocks

Perfect for students studying mass, volume, and density.

- Density Block set consists of 9 blocks 1 in. square blocks
- Materials included brass, iron, copper, aluminum, hardwood, softwood, nylon, PVC and acrylic
- Supplied in 5.75 in. x 5.75 in. x 1.25 in. wooden box with hinges and clasp



Cat. No.	Price
S12916	\$76.00/Ea

## Eisco™ Metal Density Cubes Without Hook

Designed for density exploration and experiments.

- Solid cubes, 20 mm each size
- Stamped with element
- Consists of 6 density cubes
- Materials included brass, lead, zinc, copper, aluminum and iron



Cat. No.	Price
S24860	\$30.50/Ea

## Eisco™ Density Identification Cylinder

Helps students to identify and figure out mass, volume and density.

- 12 density cylinders
- Wooden holder to keep all cylinders together and organized
- This set contains different metal, plastic, and wooden materials



Cat. No.	Price
S12924	\$54.50/Ea

## United Scientific™ Density Cube Sets

Demonstrate a variety of densities with equal sized cubes.

- Each set includes one cube of each material for density studies
- Each cube in the set has equal dimensions



Cat. No.	Description	Includes	Price
S23978	Plastic storage box	One each of acrylic, oak, pine, poplar, steel, aluminum, copper, brass, nylon, PVC, lignum vitae, and polypropylene cubes; Plastic storage box	\$42.50/Ea
S23979	Wooden storage box	One each of acrylic, oak, pine, poplar, steel, aluminum, copper, brass, nylon, and PVC cubes packaged in wooden storage box and a reference table	\$37.75/Ea

## United Scientific™ Density Kit

This kit is ideal for teaching students how to make measurements in the metric system.

- Apply measurements to determine density using the formula Density = Mass/Volume
- Includes metric ruler, aluminum bar (76 x 25 x 6 mm), aluminum cube (13 mm), steel sphere (13 mm) and glass sphere (13 mm)



Cat. No.	Price
S81069	\$11.50/Ea

## Density Rod

To compare the density of different materials.

- Measure mass using scale, volume using graduated cylinder, and density



Cat. No.	Includes	Price
S13642	Set of 12 Aluminum	\$31.25/Ea

## Density Cube Set

Demonstrates density experiment in a dozen ways.

- 12-cube set for density experiments
- Lignum Vitae (ironwood), one of the heaviest and hardest woods, sinks in water, but because it is wood, your students may expect it to float
- Polypropylene floats in water, but because it is dense plastic, your students may expect it to sink
- 12 one-inch cubes, with instructions and storage case



Cat. No.	Price
S96830	\$43.50/Pk

## Eisco™ Specific Gravity Metal Cylinder Set

A set of four different metal cylinders.

- Made of aluminum, zinc, copper, and steel
- L x diameter: 38 x 10 mm
- Supplied in plastic box



Cat. No.	Price
S12803	\$19.25/Ea

## Eisco™ Specific Gravity Cubes

Investigate a range of specific gravities.

- 0.79 in. (20 mm) cubes with hooks
- Set includes brass, iron, aluminum and zinc cubes



Cat. No.	Price
S99390	\$18.75/Ea

### Heat & Thermodynamics

## Heat Transfer Kit

Observe and measure the transfer of heat between two water samples of different temperatures.

- Includes two insulated containers with slotted lids, a U-shaped aluminum transfer bar and two thermometers
- Grades 6 to 12



Cat. No.	Description	Price
S53012	Heat Transfer Kit	\$34.25/Ea

## Energy Transfer Demonstration

Investigate the transfer of heat between hot and cold liquids. Students can observe heat being transferred through an aluminum bar dipping into each of two calorimeters by measuring the temperatures over time in each.

- The heat will flow through a heavy aluminum bar dipping into each of the two liquids
- The liquids will be contained in insulated containers, calorimeters, so that temperature changes you observe will be almost entirely due to heat moving through the aluminum bar
- The cup on the right will contain water and the cup on the left can contain a variety of liquids including salt water and alcohol
- The kit includes two insulated cups, two thermometers, an aluminum heat transfer bar, and instructions



Cat. No.	Price
S13993	\$52.25/Ea

## Eisco™ Heat Transfer Kit

Introduces concepts of thermal energy and heat transfer to students.

- Features an aluminum heat transfer bar to demonstrate the migration of thermal energy between two Styrofoam calorimeters



Cat. No.	Price
S12996	\$35.25/Ea

## Five Metal Heat Conductometer

This tool is perfect for classroom demonstrations of heat conduction principles. Contains one spoke each of aluminum, steel, brass, copper, and nickel extending from a central hub.

- Consists of five different metal spokes that extend from a center hub which is connected to a wooden handle
- When the hub is heated, students watch as wax falls from each spoke in the order of highest conductivity
- Wax and instructions included
- Metals include aluminum, steel, brass, copper, and nickel



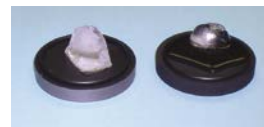
**⚠️ ALERTS: Intended for ages 13 and up.**

Cat. No.	Price
S13644	\$17.25/Ea

## Ice Melting Set

Two black blocks simply and quickly demonstrate differences in heat conductivity.

- One block is made from aluminum, which is an excellent conductor of heat
- The second block is made from plastic foam, which is a poor conductor of heat
- Place an ice cube on each block and watch as one quickly melts away
- The rim on each block prevents spillage



Cat. No.	Price
S68112	\$37.50/Ea

## Eisco™ Glass Steam Trap

Has tubes located at each end

- Made with high quality borosilicate 3.3 glass
- Tubes are located at each end
- Overall Length: 7.5 in.
- Center Diameter: 1 in.
- Stem Diameter: 0.5 in.
- Stem Length: 1.25 in.



Cat. No.	Price
S27682	\$7.80/Ea



## Eisco™ Block Style Calorimeters

Used to determine the specific heat and heat capacity of different materials

- Made of high quality materials
- Each 1 kg aluminum block is drilled with two holes
- Large center hole has a diameter of 12.5 mm for a special immersion heater
- Small hole has a diameter of 7.5 mm for a thermometer or temperature sensor



Cat. No.	Material	Price
S27678	Aluminum	\$51.00/Ea
S27679	Mild Steel	\$27.25/Ea
S27680	Copper	\$154.00/Ea
S27681	Brass	\$115.00/Ea

## Eisco™ Thermal Conductivity Rods

An excellent tool for use in thermal conductivity experiments.

- Set of 6 rods, each made of a different metal: Iron, Copper, Aluminum, Lead, Brass, and Zinc.
- Rod length: 11.88 in.
- Rod Diameter: 0.13 in.



Cat. No.	Price
S27676	\$24.50/Ea

## Eisco™ Equal Mass Density Set

Allows learners to explore specific gravity, specific heat, density, and mass using a variety of materials including aluminum, brass, nylon, acrylic, and polyvinyl chloride (PVC).

- All cylinders have equal masses and measure 0.5 in. (12.5 mm) in diameter
- Cylinder lengths vary from 0.5 to 4 in.
- Set includes a complete instruction manual that provides a background on density, mass, specific gravity, and specific heat
- Includes inquiry based student activities with capture sheets
- Designed to be used in an educational setting
- Expect tolerances in the  $\pm 5\%$  range of any stated dimensions (although they are generally much tighter)



Cat. No.	Description	Price
S27677	5 Cylinders	\$15.75/Ea

## Eisco™ Thermal Linear Expansion Replacement Rods

- For use with Eisco™ Linear Expansion Apparatus (S23742)
- Dimensions: 9.7 x 0.25 in.
- Sold individually



Cat. No.	Material	Price
S27633	Aluminum	\$10.50/Ea
S27634	Brass	\$10.50/Ea
S27635	Copper	\$10.50/Ea

## Waves, Sound, and Light

### All About Sound Student Learning Guide with Online Lesson

An ideal blended learning solution for use in the classroom or for remote learning/home study.

- Colorfully-illustrated student learning guide provides 36 pages featuring self-directed readings, easy-to-follow illustrated explanations, guiding questions, a lab investigation, key vocabulary review, and assessments
- Also includes one year access to a corresponding multimedia lesson for a teacher and all their students. Each lesson features animated narrated tutorials, interactive exercises and activities, virtual lab investigations, illustrated narrated glossary, visual resource library, and an inquiry-based student activity guide
- Developed under sponsorship of the National Institutes of Health (NIH) the lessons are perfect for individual student instruction on any computer or tablet as well as classroom presentation on any interactive whiteboard.

**Covers:** Introduction to Waves, Waves: Length and Frequency, Wave Interactions, Sound Waves, Aspects of Sound, Doppler Effect, Hearing Sound, Musical Sounds, and Applications of Sound Waves

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S436040	\$26.75/Ea



## Light and Optics Student Learning Guide with Online Lesson

An ideal blended learning solution for use in the classroom or for remote learning/home study.



**NEW**

- Colorfully-illustrated student learning guide provides 36 pages featuring self-directed readings, easy-to-follow illustrated explanations, guiding questions, a lab investigation, key vocabulary review, and assessments
- Also includes one year access to a corresponding multimedia lesson for a teacher and all their students. Each lesson features animated narrated tutorials, interactive exercises and activities, virtual lab investigations, illustrated narrated glossary, visual resource library, and an inquiry-based student activity guide
- Developed under sponsorship of the National Institutes of Health (NIH) the lessons are perfect for individual student instruction on any computer or tablet as well as classroom presentation on any interactive whiteboard.

**Covers:** Introduction to Light, The EM Spectrum, Transmission of Light, Light and Color, Interactions with Light, Reflections and Mirrors, Refraction and Lenses, Light and the Human Eye, and Light in Technology

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S436041	\$26.75/Ea

## Light and Sound Activity Stations

Activities help teach middle school students to explain phenomena they observe in terms of the properties of light and sound.



- Includes a wave simulator students can build, activities for modeling the reflection, refraction, and absorption of light, and activities for exploring the relationship between vibration and sound
- Students explore the electromagnetic spectrum, mirrors, prisms, lenses, and digital and analog signaling
- Includes extension activities for demonstrating proficiency
- Meets National Standards for grades 6 to 8

Cat. No.	Price
S27536	\$439.00/Ea

## Science Cube Kit – Discovering Optics

No matter how complicated a camera, a telescope, or a microscope is, it consists of one or more of these basic elements: mirrors, lenses, and prisms. Explore the principles of reflection, refraction, and the physics of how light works, as you discover all about optics.



**NEW**

- Perfect for group experiments
- Perfect for home schooling
- Save space when storing in reusable plastic snap box
- Ages 7+

**Includes:**

- 1 reusable plastic snap box
- 1 flexible mirror
- 1 cylindrical double concave lens
- 1 cylindrical double convex lens
- 1 small equilateral prism
- 1 small mirror
- 1 laser
- 4 cards
- 1 exploration guide

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S89519	\$34.75/Ea

## Eisco™ Visual Scientifics Wave Demonstration Set

Introduces the concepts of standing waves, nodes, tension, and speed.



- Helps students understand various concepts like: effect of amplitude of pulse, length, tension and material of spring on speed of pulse
- Includes 10+ page instruction booklet covering approximately two to three hours of class/lab time material, 10+ Next Generation Science Standards concepts, and 10+ Common Core standards
- Every module includes comprehensive instructions to assist with lesson planning, student activities and experimental procedures
- All labs and extensions feature recommended video analysis, setups, and guides

Cat. No.	Price
S07814	\$49.50/Ea

## United Scientific™ Wave Demonstrator Set

Includes two helical springs and a length of cotton string.

- Long, narrow spring measures 0.75 x 72 in., and can be extended to 5 m
- Larger spring measures 3 x 4 in. and can be extended many times its length without distortion



Cat. No.	Price
S06685	\$31.00/Ea

## Eisco™ Wave Apparatus

Demonstrate both longitudinal and transverse wave motions.

- Consists of a number of eccentric discs supporting a series of metal rods revolving on a handle
- Transverse waves are obtained from the straight rods and longitudinal waves are obtained from the bent rods



Cat. No.	Price
S12967	\$103.00/Ea

## Economy Chromatic Set of 13 Tuning Forks



These economy grade tuning forks illustrate the 12-tone "Well Tempered" musical scale, and are individually tested to assure that the proper pitch is achieved.

Includes 1 each of:

- Middle C; 261.53 Hz
  - C#: 277.18 Hz
  - D; 293.66 Hz
  - D#: 311.13 Hz
  - E; 329.63 Hz
  - F; 349.28 Hz
  - F#: 369.99 Hz
  - G; 392 Hz
  - G#: 415.3 Hz
  - A; 440 Hz
  - A#: 466.16 Hz
  - B; 493.88 Hz
  - C; 523.6 Hz
- Comes in an attractive and practical foam lined wooden storage case

**⚠ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S81831	\$129.00/Ea

## Superior Chromatic Set of 13 Tuning Forks



These tuning forks are tuned to Bach's well-tempered musical scale and are made of heavy gauge aluminum.

Includes 1 each of:

- 261.63 Hz 'Middle C'
  - 277.18 Hz 'C Sharp'
  - 293.7 Hz 'D'
  - 311.13 Hz 'D Sharp'
  - 329.63 Hz 'E'
  - 349.23 Hz 'F'
  - 369.99 Hz 'F#'
  - 392 Hz 'G'
  - 415.3 Hz 'G Sharp'
  - 440 Hz 'A'
  - 468.16 Hz 'A Sharp'
  - 493.88 Hz 'B'
  - 523.26 Hz 'C'
- Each tuning fork is calibrated to within  $\pm 1$  vibration per second
- Kit comes in an attractive and practical foam lined wooden storage case

**⚠ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S81832	\$190.00/Ea

## Adjustable Tuning Fork



One tuning fork can teach so much and save space. Simply slide the weights on each prong of this tuning fork to deliver tones at in a range of specific frequencies.

Includes 1 each of:

- C: 128 Hz
- D: 144 Hz
- E: 160 Hz
- F: 170.7 Hz
- G: 192 Hz
- A: 213.3 Hz
- B: 240 Hz

**⚠ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S81834	\$32.50/Ea

**HEADLINE DISCOVERIES**  
SCIENCE HAPPENS

Keep informed and check out the latest edition at [fisheredu.com/headlinediscoveries](http://fisheredu.com/headlinediscoveries).

## Music Tuning Fork Set of 8 with Activator

This high-quality kit is tuned to correspond to a 'Tempered' C major scale and includes a rubber activator to avoid damaging the forks.

Includes 1 each of:

- 261.6 Hz, 'C'
- 293.7 Hz, 'D'
- 329.6 Hz, 'E'
- 349.2 Hz, 'F'
- Zippered canvas carrying case
- Rubber activator
- 392 Hz, 'G'
- 440 Hz, 'A'
- 493.9 Hz, 'B'
- 523.2 Hz, 'C'

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**



Cat. No.	Price
S81836	\$97.00/Ea

## Aluminum Tuning Fork Set Of 8 with Mallet

These superior grade tuning forks range from 256 Hz to 513 Hz and are individually tested to assure that the proper pitch is achieved.

Includes 1 each of:

- 256 Hz, 'C'
- 288 Hz, 'D'
- 320 Hz, 'E'
- 341.3 Hz, 'F'
- 384 Hz, 'G'
- 426.6 Hz, 'A'
- 480 Hz, 'B'
- 512 Hz, 'C'

- Includes a rubber tipped mallet to serve as an actuator
- Attractive Styrofoam and foam rubber lined wooden storage box

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**



Cat. No.	Price
S81837	\$63.25/Ea

## Aluminum Tuning Forks Set of 13 with Mallet

Tuning forks range from 100 Hz to 4096 Hz. These superior grade tuning forks are individually tested to assure that the proper pitch is achieved.

Includes 1 each of:

- 100 Hz
- 128 Hz, 'C'
- 256 Hz, 'C'
- 288 Hz, 'D'
- 320 Hz, 'E'
- 341.3 Hz, 'F'
- 384 Hz, 'G'
- 426.6 Hz, 'A'
- 480 Hz, 'B'
- 512 Hz, 'C'
- 1024 Hz, 'C'
- 2048 Hz, 'C'
- 4096 Hz, 'C'

- Includes a rubber tipped mallet to serve as an actuator
- Attractive Styrofoam and foam rubber lined wooden storage box

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**



Cat. No.	Price
S81838	\$100.00/Ea

## Aluminum Superior Grade Tuning Forks

Individually tested for accuracy.

- Non-magnetic, corrosion-resistant aluminum alloy construction for light weight and durability
- Delivers clear tone, longer sound, and accurate tuning
- Each tuning fork is stamped with frequency and tone

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**



Cat. No.	Frequency	Price
S81839	100 Hz, low frequency	\$12.00/Ea
S81840	128 Hz 'C'	\$12.00/Ea
S81841	256 Hz 'C'	\$12.00/Ea
S81842	288 Hz 'D'	\$12.00/Ea
S81843	320 Hz 'E'	\$12.00/Ea
S81844	341.3 Hz 'F'	\$12.00/Ea
S81845	384 Hz 'G'	\$12.00/Ea
S81846	426.7 Hz 'A'	\$12.00/Ea
S81847	480 Hz 'B'	\$12.00/Ea
S81848	512 Hz 'C'	\$12.00/Ea
S81849	1,024 Hz 'C'	\$12.00/Ea
S81850	2,048 Hz 'C'	\$12.00/Ea



## Musical Superior Grade Tuning Forks

**Superior performance and consistent frequency accuracy.**

- Non-magnetic, corrosion-resistant aluminum alloy construction for light weight and durability
- Delivers clear tone, longer sound, and accurate tuning
- Each tuning fork is individually tested for accuracy and stamped with frequency and tone

**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Frequency	Price
S81851	261.63 Hz 'C'	\$12.75/Ea
S81852	293.7 Hz 'D'	\$12.75/Ea
S81853	349.23 Hz 'F'	\$12.75/Ea
S81854	341.3 Hz 'F'	\$12.75/Ea
S81855	369 Hz 'F#'	\$12.75/Ea
S81856	392 Hz 'G'	\$12.75/Ea
S81857	440 Hz 'A'	\$12.75/Ea
S81858	493.9 Hz 'B'	\$12.75/Ea
S81859	523.3 Hz 'C'	\$12.75/Ea



## Eisco™ Resonant Tuning Fork Set

**Demonstrates acoustical resonance and sympathetic vibration.**

- Generates 440 Hz vibrations
- Forks mounted on wooden resonance boxes



Cat. No.	Price
S96193	\$226.00/Ea

## Eisco™ Tuning Forks Set

**Demonstrate eight different frequencies with one set.**

- Forks vibrate with these frequencies: 256, 288, 320, 341.3, 384, 426.6, 480 and 512 Hz
- Mallets are made with one hard and one soft end
- Cushioned for safe storage
- Set of 8



Cat. No.	Price
S96194	\$63.00/Ea

## United Scientific™ Optics Set

**Explore the world of light reflection and refraction.**

Basic optics set can be used by itself or with the current optics experiments.

- Two acrylic lenses (one double convex and one double concave)
- Three mirrors (one convex, one concave and one plane)
- Comes in a wood storage box



Cat. No.	Price
S66968	\$46.00/Ea

## Eisco™ Enhanced Optical Bench Set

**For performing experiments in optics.**

- Bench graduated on one side
- Includes halogen lamp



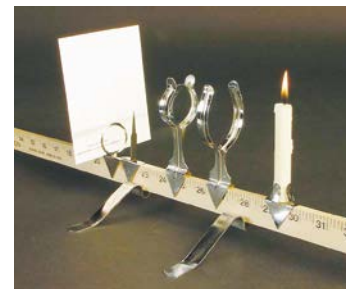
Cat. No.	Price
S13478	\$127.00/Ea

## United Scientific™ Optical Bench Set With Meter Stick

**Contains sufficient equipment for high school physics applications.**

**Contents:**

- 1 meter stick
- 1 screen support
- 2 lens supports for 38 mm and 75 mm lenses / mirrors
- 5 board screens measuring 10 x 12.5 cm with a millimeter scale on both sides
- 1 marker and object
- 2 metal supports for meter stick
- 1 candle holder
- 1 paraffin candle



Cat. No.	Price
S05912	\$33.75/Ea

## Eisco™ Light Box and Optical Set

For reflection, refraction and color mixing experiments.

### Light Box

- Light source produces convergent, divergent or parallel beams
- One end of the box is constructed with adjustable cylindrical convex lens for parallel beams
- Other end has a triple aperture system for color mixing experiments (lateral apertures have an adjustable hinged mirror)
- All apertures designed with vertical channels to hold slit plates and color filters



### Optical Set

- Two black plates supplied with three narrow slits at one end and one narrow slit at the other
- Third black plate provides four narrow slits at one end and one wide slit at the other
- Set of seven mounted color filters

Cat. No.	Price
S96022	\$142.00/Ea

## Light & Color Kit

Includes fourteen activities and four demonstrations to introduce students to the properties of light.

- Kit includes fourteen activities and four demonstrations
- Introduce properties of waves, properties of light, and the electromagnetic spectrum
- Includes reflection of light, pool reflections, reflection from plane mirrors, reflection from concave and convex mirrors, refraction through concave and convex lenses
- Students can use a prism to separate white light into the colors of the visible spectrum
- Teaches how reflection determines color, mixing primary colors of light, and mixing the primary colors of pigments
- Includes the materials needed for a station-based investigation: reproducible student data sheets, assessment questions, and answer keys
- Addresses national standards for grades 5-8



Cat. No.	Price
S30805	\$324.00/Ea

## Eisco™ Newton's Color Disc

Rotating multicolored disc demonstrates that white light is composed of all the spectral colors.

- Multicolored disc is mounted on a driving wheel secured to a metal stand
- Hand crank drives the belt that rotates the color wheel
- Disc dia.: 7.1 in. (180 mm)



Cat. No.	Price
S99384	\$40.00/Ea

## Diffraction Viewing Glasses

See the spectrum with these "specs."

- Cardboard glasses use a small, flexible, diffraction grating that breaks up light into the colors of the spectrum
- Great for classroom spectroscopy experiments and elementary physical science investigations
- Individually sold glasses have green frames; packs have assorted color frames



Cat. No.	Quantity	Price
S48814	1 green frame	\$1.00/Ea
S48814A	10 assorted color frames	\$10.00/Pk

## Eisco™ Boxed Set of Prisms

Variety of shapes for different demonstrations.

- Set of six prisms
- Clear acrylic, all sides are polished



Cat. No.	Price
S96195	\$61.75/Ea

## Eisco™ Equilateral Prisms

Experiment with diffraction, spectrum formation, and more. Ideal for studying the spectrum of light in a kinesthetically and visually effective manner.

- Made with optical quality glass or clear acrylic
- Polished on all faces
- Designed for use in optical experiments
- Will create a nice rainbow
- Length: 100 mm



Cat. No.	Price
S23677	\$8.20/Ea

## Eisco™ Acrylic Equilateral Prism

Experiment with diffraction, spectrum formation, and more. Ideal for studying the spectrum of light in a kinesthetically and visually effective manner.

- Acrylic
- Equilateral
- Perform science experiments with a durable non-glass prism



Cat. No.	Price
S23678	\$11.00/Ea

## Eisco™ Acrylic Equilateral Refraction Prism

Experiment with diffraction, spectrum formation, and more. Ideal for studying refraction and light in classrooms where glass may be an issue.

- Safe for younger classrooms
- Used for studying refraction and dispersion of light



Cat. No.	Price
S23679	\$7.05/Ea

## United Scientific™ Acrylic Prism

Provides excellent clarity for optics demonstrations.

Right angle prisms manufactured from acrylic glass.

- Smooth, polished surfaces
- Available in a variety of sizes



Cat. No.	Description	Length	Thickness	Price
S81067	Acrylic Prism	2 in. (50 mm)	25 mm	\$4.90/Ea
S14900	Acrylic Prism	2.6 in. (67 mm)	47 mm	\$10.75/Ea
S14901	Acrylic Prism	3 in. (75 mm)	25 mm	\$9.45/Ea

## United Scientific™ Glass Equilateral Prism

This prism is of high quality and easy to use.

Equilateral prisms made from high quality glass sheet.

- Highly polished surfaces
- Easy to use



Cat. No.	Description	Length	Thickness	Price
S14902***	Glass Equilateral Prism	1 in. (25 mm)	25 mm	\$12.75/Ea
S14903***	Glass Equilateral Prism	3 in. (75 mm)	25 mm	\$16.00/Ea
S14904***	Glass Equilateral Prism	3.9 in. (100 mm)	25 mm	\$22.00/Ea
S14905***	Glass Equilateral Prism	5.9 in. (150 mm)	25 mm	\$29.25/Ea

## United Scientific™ Prism and Lens Set

Teach a wide variety of optical principles.

Glass and acrylic sets each have seven components.

- Double convex lens
- Double concave lens (can be used together with double convex lens)
- Semicircular lens
- Trapezoidal prism
- Small right-angle prism
- Equilateral prism
- Large right-angle refraction prism

**Specifications:**

- Housed in a wooden case
- Shipping weight: 2 lb. (0.9 kg)
- Box dimensions: 9.25 x 8 x 2 in. (23.1 x 20 x 5 cm)



Cat. No.	Description	Price
S90324	Acrylic Prism and Lens Set	\$92.00/Ea

## Eisco™ Universal Mirror

Helps students perform experiments using light rays with plane, concave, and convex mirrors.

- Made from stainless steel



Cat. No.	Price
S24359	\$6.60/Ea

## United Scientific™ Double Convex Lens

High quality and safe for students.

- Made from plate glass
- Carefully ground and polished optical surfaces, and cleanly ground edges



Cat. No.	Price
S81063	\$4.05/Ea

## United Scientific™ Flexible Acrylic Mirrors

Flexible, double-sided, acrylic mirrors.

- Available in various sizes and assortments



Cat. No.	Dimensions	Quantity	Price
S07369	4 x 6 in.	3/Pk	\$23.25/Pk
S07370	8.5 x 11 in.	4/Pk	\$53.00/Pk

## Vernier Science Education™ Optics Expansion Kit

Add this kit to your Dynamics Cart and Track System to conduct optics experiments, such as image formation with lenses and light intensity vs. distance. You can even use the kit to build a basic telescope.



- Combination LED point and luminous light source with power supply
- Three lenses integrated with holders (100, 200, and 150 mm focal length)
- Screen and holder
- Light sensor holder
- Aperture screen and holder
- Power supply
- The parts of the Optics Expansion Kit snap on to the track, so that the parts can be left in place while the track is moved. The three lenses are permanently mounted in three plastic supports. The light source is LED-based, so that it uses less energy and is cool to the touch. A rotating disc on the light source gives you the option of a radiant object, a point source, an L with 2 by 1 cm dimension, and parallel lines for resolution experiments. The power supply is the same as the LabQuest power supply. An additional aperture plate is included for experiments based on lens diameter and shape.

**WARRANTY:** 5-year limited warranty

Cat. No.	Price
S16054ND	\$216.00/Ea

## United Scientific™ Laser Pointer

Laser pointer designed with safety in mind.

Economical laser pointers are useful for many optical experiments.

- Ideal for middle school and high school classrooms
- Lasers operate on a push-button switch, are housed in a rubberized aluminum pen-style case, and include a pocket clip
- Class 2 Red laser pointer has a maximum output of 1 mW and a wavelength of 650 nm ( $\pm 10$  nm)
- Class 2 Green laser pointer has a maximum output of 1 mW and a wavelength of 532 nm ( $\pm 10$  nm)

Cat. No.	Color	Price
S00354***	Red	\$11.50/Ea
S00355***	Green	\$39.00/Ea



## United Scientific™ Laser Pointer with Holder



Students can securely hold a laser pointer at any angle, and the clip can hold the toggle button in the "on" position for extended demonstrations and experiments.

- The laser support rod is 8 in. long and has a vinyl coated clip to hold the laser pointer securely without scratching
- The heavy cast iron base is 4 x 6 in. with black enamel finish
- The 18 in. long zinc-plated steel rod has a diameter of 5/16 in.
- The swivel clamp gives you the freedom to adjust the angle of the laser pointer 360°
- The clamp is plated steel and accepts rods up to 3/4 in. diameter (19 mm)
- Length across clamps is 4.5 in.
- The red laser pointer operates on a push-button switch and is housed in a rubberized aluminum pen-style case
- The laser is Class 3R and is 6 in. long x 0.5 in. diameter
- Red laser pointer has a maximum output of 5 mW and a wavelength of 650 nm ( $\pm 10$  nm)
- Range of beam is 100 meters
- Expected operating life is 1,000 hours
- Operates on two AAA batteries (which are included)



**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Price
S89543	\$40.00/Ea

## Laser Pointers

Designed for presentations and instructions.

- For indoor and outdoor use
- Batteries included: 2 AAA
- Laser class: IIIA
- Max. power output: 5 mW
- Dimensions (S14229): 0.43 x 5.3 in. (1.09 x 13.4 cm)
- Dimensions (S14230): 0.625 x 5.87 in. (1.5 x 14.9 cm)

**WARRANTY:** One year

Cat. No.	Description	Construction	Range	Price
S14229	Spectra Red Laser Pointer, 650 nm	Aircraft Aluminum, Black	Over 500 yards	\$27.00/Ea
S14230	Sotonic Green Laser Pointer, 532 nm	Brass, Matte Black	Over 1 mile	\$84.00/Ea





## Eisco™ Quantitative Spectroscope

A quantitative spectroscope for measuring wavelength and color of light.

- Diffraction grating with series of parallel slits; 500 lines/mm separates white light into its spectrum
- Measures wavelengths from approximately 400 to 700 nm
- Accuracy of  $\pm 5$  nm for precise measurement
- Versatile for measuring spectras emitted from gas tubes, flame tests and basic astronomy applications



Cat. No.	Price
S07816	\$7.35/Ea

## Mounted Spectroscope

Observe the visible line spectra of metals and gases, as well as the absorption spectra of solutions and gases.



- Replica diffraction grating instrument with a scale shows the approximate wavelengths in nanometers
- Identify elements when vaporized by heat
- Identify colored solutions which produce absorption spectra
- View prominent Fraunhofer lines
- One-piece aluminum casting serves as the body of the spectroscope
- Diffraction grating replica of 15,000 lines per inch
- Use any convenient light for illumination

Cat. No.	Price
S42550	\$635.00/Ea

## Eisco™ Economy Spectroscope Tubes

Designed to let students look through a slit spectrum of light decomposed by an optical system. Students can quickly identify constituent wavelengths of visible light in many sources.



- Basic spectroscopes able to view variable light spectra
- Resulting spectra as viewed through the grating introduces students to many properties of visible light and optics
- Hold it up to different lights to observe which wavelengths are present
- Light enters through the slit and is split by the diffraction grating at the other end
- Perfect activity for students at school or kids at home
- An adjustable thin slit cap rotates to produce diffraction patterns in the desired direction
- Sold in packs of 15

Cat. No.	Price
S14007	\$37.75/Pk

## United Scientific™ Spectrum Tube

The classic demonstration of spectral lines.



Acquaint students with the spectra of common gases in their pure form while demonstrating concept of wavelength.

- 25 cm (10 in.) long
- Capillary portion about 4 in. (10 cm) long

**Note:** For intermittent use only; 30 seconds on requires 30 seconds off while in use.

Cat. No.	Product Type	Price
S06994	Hydrogen Spectrum Tube	\$32.50/Ea
S06995	Helium Spectrum Tube	\$32.50/Ea
S06996	Neon Spectrum Tube	\$32.50/Ea
S06997	Oxygen Spectrum Tube	\$32.50/Ea
S06998	Water vapor Spectrum Tube	\$32.50/Ea
S06999	Air Spectrum Tube	\$32.50/Ea
S13011	Carbon Dioxide Spectrum Tube	\$29.75/Ea
S07001	Chlorine Spectrum Tube	\$32.50/Ea
S07003	Krypton Spectrum Tube	\$32.50/Ea
S07004	Xenon Spectrum Tube	\$32.50/Ea
S07005	Deuterium Spectrum Tube	\$32.50/Ea

## Eisco™ Spectrum Tubes

For demonstrating spectral lines of pure substances.



- For power supplies holding 26 cm spectrum tubes
- Features large 10 cm capillary in center for greater viewing area
- For operation intervals of 30 seconds: 30 seconds on and 30 seconds off
- For intermittent use only, not to be used as lamp source

Cat. No.	Product Type	Price
S13009	Nitrogen Spectrum Tube	\$29.75/Ea
S24910	Iodine Spectrum Tube	\$29.75/Ea
S13012	Hydrogen Spectrum Tube	\$29.75/Ea

## Eisco™ Spectrum Tube Power Supply

The main use of this safe, economical and fun spectrum tube power supply is to provide a view of gas discharge spectral lines that can be viewed with something as simple as a diffraction grating, to as complicated as digital spectrometers.

- Black panel behind the tube eliminates distracting ambient light and protects tube from breakage
- Specially designed box holds tube firmly, preventing student from touching electrodes
- Suitable for 10.25 in. (26 cm) long spectrum tubes



Cat. No.	Price
S96205	\$375.00/Ea

## Vernier Science Education™ Spectrum Tube Single Power Supply

Energizes a single tube to simply view gas discharge spectral lines with any Vernier spectrometer.

- Ultra-safe
- No exposed high voltage
- Energize one tube at a time
- Storage space for an additional six tubes
- Grades 9 and up
- Includes spectrum tube fiber optic holder
- Gas spectrum tubes sold separately



Cat. No.	Price
S16017ND	\$317.00/Ea

## Complete E/M Apparatus for the Electron

Have your students measure the ratio of charge to mass for an electron.

- Provides transverse magnetic field.
- The accelerating voltage can be varied from 100 to 500 VDC and the current varied from 0–3A DC to provide a wide variety of beam energies and deflection fields.
- Accelerating voltage and deflection current values are displayed on three-digit panel meters that allow quick and precise measurements.
- Voltage and current power supplies are controlled by an onboard microprocessor to ensure stable, precise, and highly reproducible results.
- Comes completely assembled with the electron tube, Helmholtz coil, and integral current and voltage power supply.



Cat. No.	Price
S63317ND	\$3,297.00/Ea

## Geiger Counter

Compact, sturdy, digital instrument for field or lab radiation measurement.

- Halogen-quenched, stainless-steel Geiger Müller tube Sturdy and lightweight construction Operates on AC line voltage or with batteries
- Sensitive to low-level detection of alpha, beta and gamma radiation
- Digital readout can be converted to mR/hr. using the scale factor on the unit
- Can take a count over 7.5 seconds or at a 60-second interval



Cat. No.	Price
S441001	\$883.00/Ea

## United Scientific™ Radiation Can Kit

Demonstrate how two identically sized cans absorb and radiate energy differently.

- Includes two cans: one smooth metal can w/screw cap and one black metal can
- Thermal radiation emitted by two cans cools or heats water at different rates



Cat. No.	Product Type	Price
S07396	Lamp Assembly	\$52.75/Ea
S07397	Radiation Can Kit	\$68.75/Ea

## GCA-06W Professional Digital Geiger Counter Radiation Monitor with External Wand

Easy to use, handheld personal nuclear radiation detector. The external wand makes it easier to search materials and surfaces for radioactivity, while the LCD provides a current count, and radiation level readout.



- The GCA-06W Professional Digital Geiger Counter with External Wand is a handheld personal nuclear radiation detector with a proven track record for detecting nuclear radiation in hospitals, medical research, industrial settings, transport containers, topsoil, granite tabletops, scrap metal, oil fields, objects and interior spaces

### Counting Resolution and Range:

- 1 Count Per Minute (CPM) - 1,0000 Counts Per Second (CPS)

### Radiation Resolution and Range:

- 0.001 mR/hr resolution / 1,000 mR/hr Range (Imperial measurements); 0.01 uSv/hr resolution - 10 mSv/hr range (Metric)
- Detector sensitivity: Alpha radiation above 3 MeV, Beta above 50 KeV, X-Rays and Gamma above 7 KeV. The external wand makes it easier to test and measure radioactivity in materials. Contains LND 712 Geiger Mueller (GM) tube detector, which is Ne + halogen filled; has a 0.38 in. effective diameter and a 1.5-2.0 mg/cm<sup>2</sup> mica end window.
- Has the ability to detect a broad spectrum of nuclear radiation, including low energy background radiation and radiation emitted from Naturally Occurring Radioactive Materials (NORM)
- Easy to read LCD is a 2 line by 16 characters that provides a current count and radiation level readout. Simple front panel instrument controls make the Geiger counter easy to use. Toggle switches control all the front panel options.
- User can select a time period, type of measurements (Imperial or metric). Measurements (counts per second) are converted into radiation levels (mR/hr or mSv/hr). Time selection switch allows Counts Per Second (CPS) or Counts Per Minute (CPM) mode.
- Factory calibrated using a NIST traceable source to insure measurements. NRC certification is available at additional cost from the manufacturer. The NRC certification certifies the Geiger Counter has passed ANSI-STD N323A calibration using a NIST traceable source from an independent US licensed laboratory conforming to United States Nuclear Regulatory Commission NRC regulations 10-CFR-34 and 10-CFR-35 standards (available at additional costs through the manufacturer).
- Suitable for regulatory inspections. U.S.A. tech support. Assembled in the U.S.A.
- Options: jack for headphones or external speaker. External power supply included. 3.5 mm data port for Windows PC and microcontroller interface. The Windows PC program requires optional 3.5 mm to USB data cable. Secondary indicators: audio (clicks) and visual (LED) included.
- 9V battery (mobile operation) not included.

Cat. No.	Price
S81625	\$614.00/Ea

## Electricity & Magnetism

### Science Cube Kits

These kits are perfect for group experiments or home schooling. Students learn by using the included exploration guide. Save space by storing kit materials in the reusable plastic snap box. Ages 7+.



#### Telegraph Kit (S89512)

- Students experience a little bit of history, learn Morse Code, and even send a secret message to a friend

- Includes: 1 D-cell battery holder, 1 contact key, 2 light bulbs, 5 alligator connector cords, 1 buzzer

#### Simple Circuit Kit (S89513)

- Students create a simple circuit and learn about electricity, currents, voltages, series circuits, and much more

- Includes: 1 D-cell battery holder, 1 knife switch, 2 light bulb holders, 2 light bulbs, 5 alligator connector cords

#### Conduction Experiments Kit (S89514)

- Students make their own conduction experiment and explore which substances are conductors and which are insulators

- Includes: 2 D-cell battery holders, 1 light bulb, 1 light bulb holder, 4 alligator connector cords, 1 toothpick, 1 penny, 2 paper clips

#### Magnetic Fun Kit (S89517)

- Students make their own magnets and discover their properties, learn what poles are, make that magnet float, and then have fun discovering all there is to learn about magnetism

- Includes: 3 magnetic wands, 36 magnetic marbles, 3 magnetic rings, 1 floating magnet stand, 1 compass

Cat. No.	Description	Price
S89512	Science Cube Kit - Telegraph	\$24.50/Ea
S89513	Science Cube Kit - Simple Circuit	\$24.50/Ea
S89514	Science Cube Kit - Conduction Experiments	\$24.50/Ea
S89517	Science Cube Kit - Magnetic Fun	\$51.50/Ea

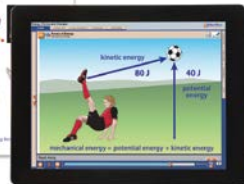
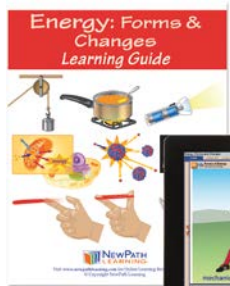


Log in to your account on [fisheredu.com](https://www.fisheredu.com) to see your discounts.

## Energy Forms and Changes and Electricity and Magnetism Student Learning Guides with Online Lesson



An ideal blended learning solution for use in the classroom or for remote learning/home study.



- Colorfully-illustrated student learning guide provides 36 pages featuring self-directed readings, easy-to-follow illustrated explanations, guiding questions, a lab investigation, key vocabulary review, and assessments
- Also includes one year access to a corresponding multimedia lesson for a teacher and all their students. Each lesson features animated narrated tutorials, interactive exercises and activities, virtual lab investigations, illustrated narrated glossary, visual resource library, and an inquiry-based student activity guide
- Developed under sponsorship of the National Institutes of Health (NIH) the lessons are perfect for individual student instruction on any computer or tablet as well as classroom presentation on any interactive whiteboard.

**Energy Forms and Changes Learning Guide (S436037) covers:** Introduction to Energy, Potential Energy, Kinetic Energy, Forms of Energy, Energy Transformation, Conservation of Energy, Heat and Heat Technology, Nonrenewable Energy, and Renewable Energy

**Electricity and Magnetism Learning Guide (S436042) covers:** Electricity, How Objects Become Charged, Electric Current, Electrical Resistance, Electric Power, Electric Circuits, Batteries, Electrical Safety and Magnetism

Cat. No.	Description	Price
S436037	Energy Forms and Changes	\$26.75/Ea
S436042	Electricity and Magnetism	\$26.75/Ea

## Eisco™ Junior Science Magnet Kit

For science experiments.

**Kit Components:**

- 1 pc. each of square iron, aluminum, zinc and copper metal
- 1 horseshoe magnet with keeper (100 mm)
- 2 ceramic bar magnets (75 mm)
- 3 ceramic ring magnets (38 mm dia.) face polarised
- 2 plotting compasses, clear both sides (19 mm dia.)
- 1 pack iron filings



Cat. No.	Price
S13479	\$32.25/Ea

## Vernier Science Education™ Circuit Board 2



A convenient platform for circuit labs, from basic series and parallel circuits to RLC circuits. Many components are provided for experimentation, and additional components can be added to expand the capability of this useful board.

- Size: 10 in. x 6.5 in. (25.5 cm x 16.5 cm)
- Mass: Approximately 0.44 kg
- Optional power sources: up to 4 AA batteries, not included; LabQuest Power Supply, not included (or other 5 VDC adapter with center-positive 1/8 inch connector); DC power supply such as Extech Digital DC power supply Vernier Power Amplifier
- Maximum voltage: 10 V Resettable, fuse opens at 0.8 A, but 0.3 A or less is recommended
- All parts ROHS compliant

**WARRANTY:** 5-year limited warranty

Cat. No.	Price
S15955ND	\$156.00/Ea

## Eisco™ Bar Magnet Set

Alnico bars with keepers.



- Each size sold as set of two magnets

Cat. No.	Size	Price
S95957	Large	\$20.50/Pk
S95956	Small	\$13.25/Pk

## Eisco™ Pair of Chrome Steel Bar Magnets with Keepers

Allows students to perform a variety of activities and experiments involving magnetism.

- The magnet keeper helps preserve the strength of the magnet by completing the magnetic circuit and also prohibits external metal from being attracted to the magnet
- Low magnetic strength for careful experiments
- Includes 2 chrome steel magnets with keepers



Cat. No.	Description	Price
S27736	12 x 5 x 150 mm	\$5.30/Ea
S27737	19 x 6 x 150 mm	\$7.80/Ea



## North/South Bar Magnets

Engraved with North and South markings.

- Two 2 in. long (5 cm) magnets



Cat. No.	Price
S79517	\$19.75/Pk

## Eisco™ Ceramic Magnetic Disk

Economically priced and perfect for student use.

- Ceramic disc magnets

**WARRANTY:** 1-year limited manufacturer warranty



Cat. No.	Dimensions (L x W)	Price
S40914	20 x 4 mm	\$1.10/Ea
S40917	25 x 5 mm	\$1.05/Ea

## Eisco™ Floating Ring Magnets

Demonstrate magnetic repulsion in a colorful and memorable way.

When stacked so they mutually repel, the rings appear to float on the support rod.



Cat. No.	Price
S95967	\$29.75/Ea

## Ring Magnets

Study magnetic attraction and repulsion.

These magnets are used in conjunction with disk magnets (S52174) in collision and scattering experiments. Pack includes 16 magnets.



Cat. No.	Price
S52173	\$38.50/Pk

## Eisco™ Horseshoe Magnets

Chrome steel, with keepers.

Dimensions are nominal.



Cat. No.	Height (English)	Length (English)	Weight (English)	Price
S95963	1.57 in.	8.6 in.	3.5 lb.	\$12.75/Ea

## Eisco™ Bar Magnets

Perfect for classroom experiments.

- Rectangular square-faced chrome steel magnets measure 5.9 x 0.4 x 0.4 in. (15 x 1 x 1 cm)
- Sold package of 2



**⚠️ ALERTS: CHOKING HAZARD. Small parts. Not for children under 3 yrs.**

Cat. No.	Color	Shape	Weight (English)	Price
S95966	Zinc-plated steel	Rectangular	0.95 lb.	\$24.00/Pr

## Eisco™ Magnetizer Box for Bar Magnets

User-friendly magnetizer box for bar magnets has the ability to re-magnetize old magnets and make them like new again.

- Re-magnetizes old magnets
- Blue box with yellow markings and red switches
- Works on 110/120 V, 60 Hz
- Dimensions: 5.88 x 3.5 x 3 in.

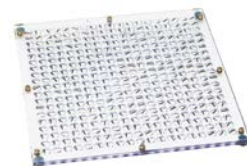


Cat. No.	Price
S80847	\$218.00/Ea

## Eisco™ Magnetic Field Demonstration Plate

Tool used to view magnetic fields.

- Transparent plate having matrix of small circular chambers with iron rod to function as plotting compass
- Suitable for OHPs
- Dimensions: L x W x H: 11.8 x 10.2 x 1.9 in. (30 x 26 x 5 cm)
- Size: 9.8 x 9.8 in. (25 x 25 cm)



Cat. No.	Price
S07851	\$37.00/Ea

## Eisco™ Dry Field Mapping Kit

Makes learning the concepts of electric fields easy. Students use the conductive paper that comes with the kit to draw any electrode configuration and then test it.

- Best experiment for visualizing the electric field
- Easy to find the electric field around any conducting shape
- Conductive paper allows probing of equipotential lines with multimeter (not included)
- Comes with instructions
- Multimeter and D-cell battery not included



Cat. No.	Price
S12984	\$173.00/Ea

## Eisco™ Bread Board & Jumper Wire Set

An ideal tool for carrying out small electronic or electrical experiments

- 1600 Spring Loaded Points
- Useful for fixing the components such as ICs, transistors, resistances, diodes, capacitors etc.
- Interconnecting columns for supply & common/earth points
- Three, 4 mm sockets are mounted on PCB with additional pins for connections
- Includes a set of 150 single strand wires in different lengths



Cat. No.	Price
S27468	\$94.00/Ea

## Air Core Solenoid

Provides a useful magnetic field for many magnetism and electricity experiments.

- Investigate the mass of electron apparatus and experiments using the current balance (S94280)
- Constructed using four layers, approximately 710 turns, of #23 gauge (0.67 mm) polyurethane-enameled copper wire
- Coil is designed to carry 7-10A intermittently, and will sustain a current of 5A



### To use:

- Connect a power supply that does not put out more than 5A to the solenoid
- Coil will generate a magnetic field when current passes through it
- Use a compass, iron rod, or iron filings to study the nature of the generated electric field

Cat. No.	Price
S94209	\$38.00/Ea

## Eisco™ Electrostatic Friction Rod Kit

Use to study static electricity by creating charges with different materials.

- This electrostatic kit provides the necessary tools to free both positive and negative charges for exploration into electrostatic forces.
- Students can experiment with different combinations of cloth and rod materials to explore how each manufactures charge carriers.



Cat. No.	Price
S13000	\$24.25/Ea

## Deluxe Van de Graaff Generator

Demonstrates electrostatic phenomena.

A first-rate apparatus for demonstrating static electricity.

- Generates potentials as high as 400,000 volts
- Produces sparks as long as 15 in. (38 cm)
- Belt current charges the dome at 10  $\mu$ A
- Variable motor speed
- Operates on 110VAC with grounded cord
- Replacement belts are available

### Terminal:

- Located on the 9.8 x 11.8 in. (25 x 30 cm) base
- Grounded to safely produce sparks and discharge the dome

### Aluminum Electrode:

- Highly polished and anodized
- 9.8 in. (25 cm) diameter
- Supported by a sturdy, insulated, polycarbonate column

### Aluminum Sphere:

- 9.8 in. (25 cm) diameter
- Creates sparks of greater intensity
- Mounted on a Lucite™ rod with a metal base
- Overall height: 29.9 in. (76 cm)



Cat. No.	Price
S43207	\$1,001.00/Ea

## United Scientific™ Digital Multimeter

This versatile digital multimeter offers tremendous value.

- This versatile multimeter includes AC voltage, DC voltage, DC current, continuity, resistance, transistor and battery test modes
- Features an easy-to-read 3.5 in. digital LCD display
- Supplied with two 24 in. 18 gauge test leads
- Requires one 9V battery (included)



Cat. No.	Price
S111002	\$10.50/Ea

## United Scientific™ DC Ammeter, 0-1A/0-5A

Ammeter for use in electricity demonstrations.

- Mounted in a black plastic case
- Meters have a scale length of 75 mm
- $\pm 2.5\%$  accuracy and comes with 5-way binding post and external calibrating screw
- Meters are not protected against prolonged or significant overload
- Stackable for storage



Cat. No.	Price
S81078	\$10.50/Ea

## Eisco™ Ohm's Law Apparatus

Effectively demonstrates the interdependence of current, voltage, and resistance on Ohm's Law.

- Includes a DC Voltmeter, DC Current meter, and a built in low wattage rheostat
- DC Voltage is connected from outside at the appropriate sockets
- Measure the values of voltage (V), current (I), and connected external resistance (R) on the meters
- Can be verified using different set of voltage and resistance



**Note:** Comes with a European AC/DC power supply adapter (220V) that uses a Type C Europlug.

Cat. No.	Price
S80856	\$159.00/Ea

## Eisco™ Economy Electricity Kit

Ideal for introductory electronics.

- This kit is a basic assortment of circuit components
- Ideal for introductory electronics



Cat. No.	Price
S23691	\$51.50/Ea

## United Scientific™ Student Electricity Assortment

Conveniently assembles materials for investigation of electricity concepts.



Cat. No.	Description	Price
S96416	Student electricity assortment	\$59.00/Ea

## Series and Parallel Circuits Kit

Teaches students to build parallel and series circuits using electrical components.



- Students begin by following the flow of energy from a battery as it converts to chemical, electrical, light, sound, motion, and heat energy.
- Students observe how energy flow differs when using batteries and loads in series and in parallel.
- Allow for 5 hours of instruction and 5 hours of lab time.
- Meets National Standards for Grades 3 to 6.

**Kit includes:**

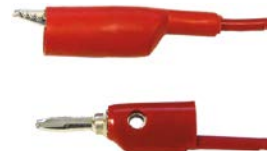
- Battery Holders
- Motors
- Light Bulbs
- Light Bulb Holders
- Alligator Clip Leads
- Buzzers
- Masking Tape
- Propeller
- Optional D-Cell Batteries

Cat. No.	Includes	Price
S27538	No batteries	\$287.00/Ea
S27537	D-Cell Batteries	\$387.00/Ea

## United Scientific™ Red Banana/Alligator Cord

For use with multiple electricity demonstrations.

- Flexible, 18 gauge (SWG) stranded wire cord with a stackable banana plug at one end and an alligator clip at the other end
- Alligator clip has a protective vinyl sheath
- 12 in., 24 in., or 36 in. lengths



Cat. No.	Length (English)	Price
S81062	24 in.	\$2.70/Ea
S81071	12 in.	\$3.70/Ea



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