LaMotte

# Environmental Science Education Products

## 2014


Field · Classroom · Outdoor Monitoring · Home School

## Shipping Codes & Weight

Shipping codes and weights for shipping are included in this catalog for your convenience. The shipping code will refer to one of the following in the chart below. Weights will be in pounds and enclosed in [ ].

| | |
|---|---|
| NH | Non Hazardous<br>No Fees |
| R1 | Small Quantity<br>Hazardous Materials<br>No Fees |
| HF | Hazardous Materials<br>Air & Ground Fees |
| R2, R3, LQ | Hazardous Materials<br>Air Fees Only |



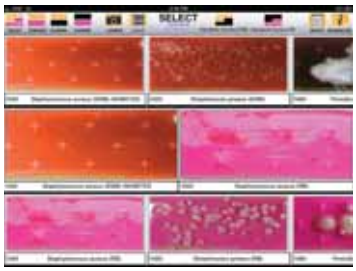
WARNING: Products in this catalog are not toys. Adult supervision is strongly recommended. Products may contain ingredients which require additional safety precautions; refer to all safety guidelines and Material Safety Data Sheets at www.lamotte.com.

LEAD [Pb] weights are used in some water samplers and hydrometers. Weights should not be handled by children under 14. Adult supervision recommended.

This catalog is made from recycled paper. Please recycle catalogs.



Technology is changing the world...and how we learn about it! At LaMotte Company we've blended time-tested educational concepts with innovative new tools like a fine Greek yogurt. Microbes have been around for 3.5 billion years and have been studied for hundreds of years but now **there's an app for that!**



The **BioPaddle® Colony ID™ Lite** app for iPads [Page 24], free with the purchase of any BioPaddles, and the **BioPaddles® Colony ID™** app for iPads [page 24] assist students in the enumeration and presumptive identification of cultured colonies by comparison to a library of standard images of colonies and cells on various agars. Both apps contain valuable references, resources and procedures. An additional camera feature in the BioPaddles® Colony ID™ app captures an image of the colony growth for side-by-side comparison with standard images and inclusion in an emailable report.

The **Microbe Hunter™ Series** [page 23], a growing collection of **STEM-based curricula**, guides students through the culturing and presumptive identification of common microbes on innovative BioPaddles [page 22]. In the **Milk Microbe Hunter** [page 23] student teams design introductory to advanced level experiments using dairy products that develop critical thinking skills and integrate science and engineering. One of many additional activities encourages students to use what they have learned about the role of microbes in the production of dairy products and probiotics to make their own cottage cheese!


The features that have made the **Tour Series** [page 29] a favorite for grades 4 through 8 — large images and graphics, simple instructions, games and puzzles, enrichment activities, safe reagents, and hands on activities — can be **easily adapted for a diverse classroom**. When time and resources are limited, the Tours can easily be modified or expanded to provide a complete classroom curriculum on a variety of subjects to engage students with learning and physical disabilities, who are gifted and talented, or who have English as a second language. Science inquiry can be fun for everyone!


At LaMotte Company we are **dedicated to service and quality** and our technical support and customer service distinguishes us from our competitors. See www.lamotte.com for a list of distributors where you can purchase LaMotte Environmental Education Products. If you don't see a specific LaMotte item listed, contact your preferred vendor's Customer Service Department and ask for a quote for that item. Or call us directly – we'll be happy to help you!

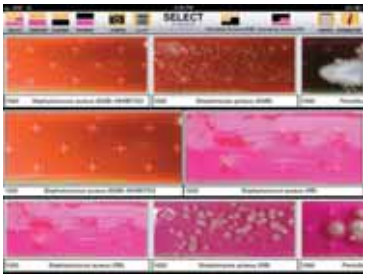
David H. La Motte

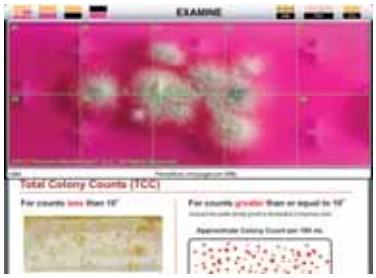
President, LaMotte Company

# NEW Our Innovative Edge

## BioPaddles®

BioPaddles® are flexible dual-sided paddles each containing microbe-specific media enclosed in a sterile vial. Identify and quantify microbes in air, soil, water, or any surface! BioPaddles do not require any other testing equipment – only a magnifier and warm place (35°C or incubator) are needed. (page 22)





## BioPaddles® Colony ID™ Apps

**Now there's an app for that!** All BioPaddles® products include a free app! **Free LaMotte BioPaddles® Colony ID™ Lite** app for iPads lets users compare colony examples on BioPaddle agar types from 5 microhabitats (air, water, soil, surface and food). Also contains information regarding organisms, microbiological techniques and more! **New, full version BioPaddles® Colony ID™** App includes camera and reporting functions! (page 23)


## AP® Environmental Science Water Quality Assessment Curriculum Module

The AP® Environmental Science WATER QUALITY ASSESSMENT MODULE includes an extensive curriculum that uses the exploration of the Water Quality Index to teach students STEM-based skills that they will apply through classroom and field activities to satisfy Section VI (Water Pollution) of the AP® **Environmental Topics** Outline. (page 13)


## Milk Microbe Hunter

Students use STEM-based skills in five MICROBE HUNTER activities to plan and execute experiments to sample, culture, enumerate, and presumptively identify dairy microbes. Background materials, identification guides, resources, and a free app are included. (page 23)


## LRC Low Range Comparator

The innovative optical system in the LRC Comparator makes the determination of slightly colored reactions simple! Viewing the reacted sample down the length of the tube allows precision color matching to liquid color standards in the LRC Bar. The LRC replaces the Axial Reader and can be used with existing reagent systems. Comparators and color bars for the Axial Reader and LRC comparator systems are not interchangeable.

## Octa-Slide 2 Comparator

The top-loaded Octa-Slide bar in the Octa-Slide 2 Comparator system allows the reacted sample to be compared to all eight precision matched color standards at once. This new design replaces both the Octet Comparator and the original Octa-Slide Comparator. Comparators and color bars for the Octa-Slide and Octa-Slide 2 comparator systems are not interchangeable.


## Water Test Strips

Dip a strip into the water and receive accurate, instant results. Test strips are quick and easy with no test tubes or caps to worry about, no need to measure water samples or reagents, and a desiccant liner for a long shelf life and protection from moisture. (page 21)

# Test Methods

## Colorimetric:

Colorimetric means to measure color. Reagents are added to a sample resulting in a reaction that produces a color, the intensity of which is related to the concentration of the test factor. The test factor concentration is then determined by measuring the color, either visually or electronically.

### Visual Methods

Octa-Slide 2 and Low Range Comparators feature eight color standards with built-in filters that eliminate optical distortion. Laminated color charts offer an inexpensive means of measuring color, and are often used with tablet methods and test strips.

### Electronic Methods

Electronic colorimeters or spectrophotometers help eliminate visual inconsistencies and provide a dedicated light source. The light source passes through a sample and is then measured by a photodetector. The results are translated to a digital output in ppm, mg/L, FTU, %T or Absorbance.


Low Range Comparator

Octa-Slide 2


Test Strips


Color Chart


Direct Reading Titrator

Dropper Bottle

## Titrimetric:

Titrimetric analyses are conducted by adding a solution of known strength (the titrant) to a specific volume of a sample in the presence of an indicator. The indicator produces a color change, which shows that the reaction is complete. The following methods are most often used in environmental education.

### Dropper Bottle/Pipet

A pipet or special dropper tip fitted onto the reagent bottle is used to deliver a consistent standard drop size. The number of drops used to complete the reaction in the treated sample is multiplied by a given factor to produce the test result.

### Direct Reading Titrator

The Direct Reading Titrator is a 1.0 mL microburet calibrated to allow direct reading of test results. Each titrator has a specific range, but may be refilled to test higher concentrations.


## Electronic Meter/Probe:

Electronic methods generally use a special electrode for measuring a specific test factor. An electrode is immersed into a sample, and an amplified current or voltage is produced and translated into a digital readout. In a colorimeter, light is passed through a sample and measured by a photodetector.

## Safety

Have questions about the use of any LaMotte testing or sampling product? Call LaMotte's knowledgeable Technical Service Department at 800-344-3100 or send an email to tech@lamotte.com. Follow all field and laboratory safety guidelines as mandated by your school, center, or education/citizen monitoring program. Specific instructions are provided with each LaMotte test kit and sampling equipment. Be sure to follow these carefully.

Some reagents (or specific volumes of reagents), as determined by federal and state government safety and regulatory agencies, require access to a Material Safety Data Sheet. To view or print a MSDS for these reagents go to www.lamotte.com. To obtain a printed copy contact us by email, phone or fax. Follow all safety precautions and procedures as specified on the MSDS.

Additional information for all LaMotte reagents is available in the United States, Canada, Puerto Rico, and the US Virgin Islands from Chem-Tel by calling 1-800-255-3924. For all other areas, call 813-248-0585 collect to contact Chem-Tel's International access number. Each reagent can be identified by the 4-digit number listed on the upper left corner of the reagent label, and in the contents list, and in the test procedures.

**WARNING:** Products in this catalog are not toys. Adult supervision is strongly recommended. Products may contain ingredients which require additional safety precautions; refer to all safety guidelines and Material Safety Data Sheets at: www.lamotte.com.

LEAD (Pb) weights are used in some water samplers and hydrometers. Weights should not be handled by children under 14. Adult supervision recommended.

# The GLOBE Program®

"GLOBE is the quintessentially ideal program for involving kids in science."
— Nobel laureate Dr. Leon Leferman

## GLOBE (Global Learning and Observation to Benefit the Environment)

A hands-on, primary and secondary school-based science and education program which unites students, teachers, scientists and community members around the world in study and research about the dynamics of Earth's environment.

The GLOBE Schools Network consists of over a million GLOBE students in more than 20,000 schools located in 109 countries. GLOBE students have reported over 17 million measurements.

**www.globe.gov**

Code 3-5880

## LaMotte Products for Hydrology & Soil GLOBE Program®

| GLOBE Item | Description | LaMotte Code | Shipping |
|---|---|---|---|
| 100 mL Graduated Cylinder | 100 mL Graduated Cylinder | 2-2079 | NH (1) |
| 500 mL Graduated Cylinder | 500 mL Graduated Cylinder | 2-2081 | NH (1) |
| Alkalinity Kit | Water Alkalinity Kit | 4491-DR-01 | NH (1) |
| Calibration Solution 718 (µmhos/cm), 120 mL | Conductivity Standard | 6417-J | NH (1) |
| Conductivity Meter | Con 6 Meter | 5-0039-02 | NH (3) |
| Conductivity Tester | EC Tester | 5-0082 | NH (1) |
| ConductivityTester | pH/Conductivity/Temp TRACER | 1766 | NH (1) |
| D-Net | D-Net with pole, 500 micron mesh | 0168 | NH (7) |
| Dissolved Oxygen Kit | Dissolved Oxygen Kit (liquid reagents) | 5860-01 | R1(2) |
| Hydrometer Kit | Hydrometer and Jar | 3-0025 | NH (2) |
| Hydrometer Jar | Hydrometer Jar | 3-0024 | NH (1) |
| Hydrometer | Hydrometer | 3-0011 | NH (1) |
| Kick Net | Kick Net, 500 micron mesh | 0021 | NH (4) |
| Macroinvertebrate Classroom Activity | Macro Mania | 5942 | NH (2) |
| Macroinvertebrate Identification Key | Freshwater Aquatic Macroinvertebrate: Insect Identification Flashcards | 5882-SA1 | NH (1) |
| Macroinvertebrate Identification Key | Freshwater Aquatic Macroinvertebrate: Insect Life Cycle & Habitat Flashcards | 5946 | NH (1) |
| Macroinvertebrate Identification Key | Macroinvertebrate Identification: Waterproof Illustrated Sorting Sheets | 5882-SS6 | NH (1) |
| Macroinvertebrate Sorting Dishes | Petri Dish, 25/bag | 31648-25 | NH (1) |
| Nitrate Kit (Cadmium) | Nitrate-Nitrogen 0.2 to 1.0 ppm | 3615-01 | R1 (2) |
| Nitrate Standard | 1000 ppm $NO_3$-N, 50 mL | 5392-H | NH (1) |
| pH 4 Buffer | pH 4.0 Buffer, 120 mL | 2866-J | NH (1) |
| pH 7 Buffer | pH 7.0 Buffer, 120 mL | 2881-J | NH (1) |
| pH 10 Buffer | pH 10.0 Buffer, 120 mL | 2896-J | NH (1) |
| pH Meter | pH 5 Meter | 5-0034-01 | NH (3) |
| pH PockeTester | pH 20 PockeTester | 5-0104 | NH (1) |
| pH Tester | pH/Conductivity/Temp TRACER | 1766 | NH (1) |
| pH Test Strips | pH Test Strips, 100 strips | 3-2950 | NH (1) |
| Salinity Kit | Salinity Kit | 7459-02 | R1 (1) |
| Secchi Disk, Rope | Secchi Disk with Line | 0171-CL | NH (7) |
| Soil Dispersing** | Soil Dispersing Reagent, 250 g | 5184-K | NH (2) |
| Soil NPK Kit** | Soil Nitrate, Phosphorus, and Potassium Kit | 3-5880 | NH (1) |
| TDS Meter | TDS 6 Meter | 5-0036-01 | NH (3) |
| Thermometer, Armored* | Calibrated Thermometer, -5° to 45°C | 1066 | NH (1) |

*Discount on orders of 10 units, **Designed for the GLOBE program

# Earth Force

English & Spanish Instructions!

Code 3-5886

## EARTH FORCE Low Cost Water Monitoring Kit

Ages 8 and up

Order Code 3-5886 NH (1)

Designed as a sampler that is a great introduction to any water quality monitoring program. This kit provides hands-on methods using TesTabs® for brackish, fresh or ocean waters. For long-term monitoring or groups consider the Earth Force Standard Water Monitoring kit, Code 5848. Both kits are ideal for volunteer monitoring, too!

- 8 different test factors: pH, dissolved oxygen, biochemical oxygen demand, temperature, turbidity, nitrate, phosphate and coliform bacteria
- manual with step-by-step diagrammed instructions in both English and Spanish
- safe, non-hazardous TesTabs® to test 10 water samples (3 for coliform)
- laminated color chart
- 20-pack case available

**You Might Also Like:**

Wet Your Waders pg. 7
Tapwater Tour pg. 30
Water Treatment Lab pg. 32
Funky Faucet pg. 33
Science Project Kits pg. 35

Code 5911

## EARTH FORCE Low Cost Estuary & Marine Monitoring Kit

Ages 8 and up

Order Code 5911 NH (1)

Designed to provide simple, economical and non-hazardous methods for testing saline and brackish water.

- same tests as the Low Cost Water Monitoring kit with an additional test for chloride (10) and only two tests for coliform
- 20-pack case available

Code 5906

## EARTH FORCE Elementary Education Watershed Field Trip Kit

Grades 1-5/30 students

Order Code 5906 NH (1)

Everything you need to lead your classoom on a fun-filled exploration of a watershed. This kit tells The Watershed Story: an excellent explanation of a watershed and how it relates to nature around us.

- teacher's manual with guidelines on taking a field trip and conducting water quality tests
- perform an actual field study
- data sheets to reproduce
- tests for pH, nitrate, phosphate, and dissolved oxygen using non-hazardous TesTabs®
- includes all reagents and accessories and one activity from Project WET

English & Spanish Instructions!


Code 5848

AP

## EARTH FORCE Standard Water Monitoring Kit

Grades 4 and up.

Order Code 5848 NH (7)

Design and implement a river study—from acquiring and reading watershed maps to determining and scheduling study sites. Ideal for community groups/volunteer monitoring. Great teacher resource!

You Might Also Like:
Wet Your Waders pg. 7

- 9 test factor modules
- macroinvertebrate bonus module
- instruction manual in both English and Spanish
- each module contains easy-to-read diagrammed instructions
- laminated color chart and instruction flashcards
- test factor flashcard
- all necessary apparatus
- non-hazardous TesTabs® to perform 100 tests (44 tests for coliform bacteria; unlimited for benthic macroinvertebrates and turbidity)

### Test Modules Also Sold Individually

| Factor | Code | Shipping |
|---|---|---|
| Biochemical Oxygen Demand | 5889 | NH |
| Coliform Bacteria | 5850 | NH |
| Dissolved Oxygen | 5889 | NH |
| Nitrate | 5891 | NH |
| pH | 5890 | NH |
| Phosphate | 5892 | NH |
| Turbidity | 5887 | NH |
| Temperature (0-12°C) | 31821 | NH |
| Temperature (14-40°C) | 31822 | NH |

GREAT Teacher Resource!

AP

## EARTH FORCE Advanced Water Monitoring Kit

Grade 7 and up

Order Code 5884-01 HF (18)

Contains all the LaMotte water quality test kits featured and supported in the **Field Manual for Water Quality Monitoring** (13th edition) by Mitchell & Stapp, which is the standard text for school-based water quality monitoring programs.

### Test Kits Included

| Factor | Code | Shipping |
|---|---|---|
| Dissolved Oxygen | 5860-01 | R1 |
| Precision pH | 5858-01 | R1 |
| Phosphate | 3121-02 | R1 |
| Auxiliary Phosphate | 7884 | HF |
| Nitrate-Nitrogen | 3110-01 | R1 |
| Turbidity | 7519 | N |
| Thermometer | 1066 | NH |
| **Field Manual For Water Quality Monitoring** (Mitchell & Stapp) | 3-1508 | NH |

See Individual Test Kit section in Water Quality Monitoring section for kit pricing.

You Might Also Like:
Earth Force Low Cost Kit pg. 6
Earth Force Low Cost Estuary Kit pg. 6
Earth Force Standard Kit pg. 7
Earth Force Watershed Field Trip pg. 6

Code 5884

## Wet Your Waders

Grades 5 and up

Order Code 5929 NH (1)

A unique companion CD-ROM to the Earth Force Standard Water Monitoring Kit (Code 5848) or any kits using TesTabs®. Take a virtual tour prior to field sampling and testing. Students select a location from an on-screen map and select water quality and macroinvertebrate techniques that will be used in the field. QuickTime® Virtual Reality transports students to the area they have selected on the watershed and provides a 360 degree view. Students learn the importance of their chosen test and then perform the technique through interactive procedures. A great pre-lab training tool, this interactive CD-ROM is an ideal choice for any class or monitoring group using tablet methods. For Macintosh 8.1 or higher; Windows 95 or higher.


Code 5929

# Aquatic Macroinvertebrates

Code 5882-SA1


Code 5882

Developed in cooperation with

STROUD WATER RESEARCH CENTER
www.stroudcenter.org

AP GLOBE

## Leaf Pack Experiments Stream Ecology Kit

Students of all ages!

Order Code 5882 NH (10)

Got bugs in your stream? This complete kit helps students discover the value of macroinvertebrates as living indicators of water quality. A totally reusable and flexible tool, this kit can be adapted for varying time limits, number of students, and grade levels.

- all apparatus included for collecting, sorting, bioindex calculation, and identification
- comprehensive instructor's manual includes:
  - reference guide
  - background material
  - stream ecology experiment ideas
  - field and data sheets to reproduce
  - glossary
  - diagrammed instructions

**You Might Also Like:**

D-Net pg. 27
Kick Nets pg. 27

### Kit Includes

| | |
|---|---|
| 6 | Mesh bags |
| 1 | Waterproof marker |
| 1 | Strainer |
| 6 | Sorting trays |
| 60 | Plastic Petri dishes |
| 6 sorting sheets | Waterproof, illustrated |
| 2 | Thermometers |
| 1 | Hand-held scale |
| 12 | Brushes |
| 12 | Spoons |
| 1 set | 20 full color flashcards |
| 6 | Hand lenses |
| 1 | MacroLens™ magnifier |
| 1 | Nylon twine |
| 6 | Zipper-top bags |
| 1 | Tree Finder booklet |
| 1 | Instructor's manual with record sheets |
| 2 | Rulers |
| 6 | Waterproof tags |

### Individual Items Available

| Code | Qty | Description |
|---|---|---|
| 5882-LPB | 30 | Mesh bags |
| 5882-SA1 | 1 set | 20 full-color FreshwaterAquatic Macroinvertebrate: Insect Identification Flashcards each with photos, line drawings and identification tips (see page 9) |
| 5882-SS6 | 6 | Waterproof illustrated sorting sheets |
| 5946 | 1 set | 22-full color Freshwater Aquatic Macroinvertebrate: Insect Life Cycle & Habitat Flashcards. Includes activities. (see page 9) |
| 5508 | 1 | MacroLens, 4 inch diameter, 5X magnification (see page 9) |

GLOBE

## Freshwater Aquatic Macroinvertebrate Insect Identification Flashcards

For all ages

Order Code 5882-SA1 NH (1)

Use this set of 18 full color flash cards alone or as an addition to any macroinvertebrate activity. (Included in the Leaf Pack Experiments Stream Ecology Kit, see pg. 8). The front of each card features a full-color photograph of a common macroinvertebrate in its natural environment. A list of dichotomous characteristics, a measuring scale, and detailed drawings on the back of each card aid in the identification process. Helpful notes prevent confusion between macroinvertebrates with a similar appearance. A hole can be punched in the wide border of the laminated cards so they can be organized on a ring for field or classroom use.


Code 5882-SA1

Developed in cooperation with

STROUD WATER RESEARCH CENTER

www.stroudcenter.org

GLOBE

## Freshwater Aquatic Macroinvertebrate Insect Life Cycle & Habitat Flashcards

For all ages

Order Code 5946 NH (1)

Help kids understand the life cycle and habitats of freshwater aquatic macroinvertebrates with this set of flashcards and manual. The 22 full-color cards feature photos of both immature and adult insect stages, and detailed life cycle and habitat information. The accompanying manual contains facts on insect characteristics, life cycles, taxonomy, classification, food webs, and how macroinvertebrates can be indicators of water quality. Six activities are included with the cards. The Freshwater Aquatic Macroinvertebrate: Insect Life Cycle and Habitat Flashcards can be used as an extension to the Freshwater Aquatic Macroinvertebrate: Identification Flashcards and the Leaf Pack Experiments Stream Ecology Kit.

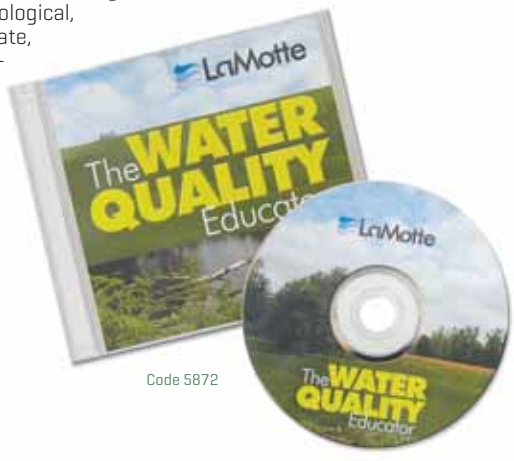

Code 5946

## The Water Quality Educator

Grades 6 and up

Order Code 5872 NH (1)

Teach your students and volunteer monitors all about natural water quality monitoring. Useful for designing a science project, community outreach program, environmental course, classroom or field activity. All three categories of water testing are included —chemical, microbiological, and macroinvertebrate, standard methods— safety, testing hints and interpreting results.




Code 5872

## MacroLens™

Ages 8 and up

Order Code 5508 NH (1)

10 pack Order Code 5508-10 NH (6)

MacroLens with 5X magnification covers the entire Petri dish! 4" diameter.


Code 5508

# Aquatic Macroinvertebrates

GLOBE

## Macro Mania

Grades 3 and up

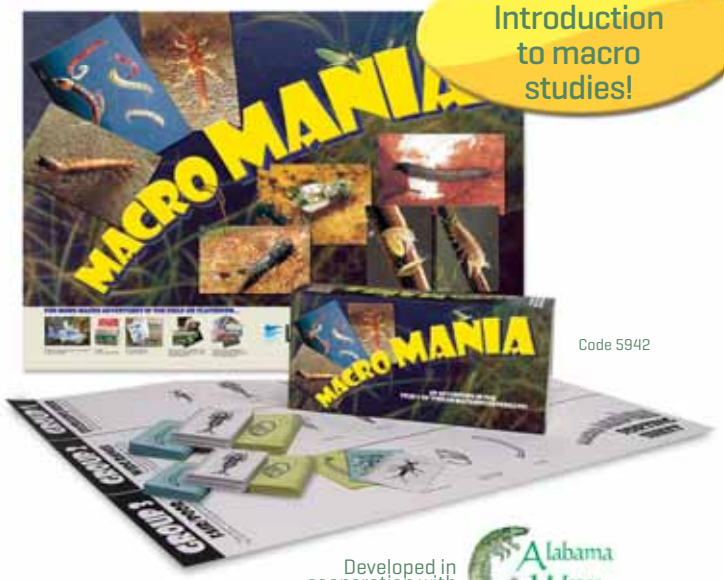
Order Code 5942 NH (1)

Expansion kit
(includes 3 decks, 3 sorting sheets)

Order Code 5943 NH (1)

Macro Mania is a classroom adventure that introduces the use of stream macroinvertebrates to determine water quality. Lecture material sets the scene for the activity. Students will learn about the influence of land use on water quality and the practice of macroinvertebrate sampling to measure water quality. Six teams will be given a deck of macroinvertebrate cards representing a sample of macroinvertebrates from one of three sites, a poster-sized sorting sheet and a map. By sorting the deck of cards onto the sorting sheets, students will determine the water quality at their site from the distribution of macroinvertebrates in their sample. Optional math, public speaking, writing, art and card game extensions will further emphasize the land use/water quality connection. Includes a deck of cards and sorting sheets for six teams. Also includes Macro Mania manual containing background information, step-by-step instructions for activities and extensions. Colorful Macro Mania classroom poster is also included!

GREAT Introduction to macro studies!




Code 5942

Developed in cooperation with Alabama Water Watch


Code 5948


Code 3-0030

## Bugs of the Underworld

Ages 8 and up

Order Code 5948 NH (1)

A 35 minute DVD film showing the real lives of benthic macroinvertebrates in the wild. The secret lives of macros, such as mayflies, damselflies, midges, caddisflies and stoneflies are revealed for the first time. This film could easily fit into a Discovery Channel, PBS or Animal Planet lineup and took 11 years and 8 cameras to film. Their transformation into winged adults, particularly when viewed from underwater, is a marvel of grace and beauty. Upon viewing, the universal statement among flyfishers and students is "I didn't know that!" These insects are far more than simply trout bait; they profoundly influence the aquatic ecosystem, and their presence is an accurate measurement of stream health and water quality.

For all grades especially if they are doing water quality studies using macroinvertebrates.

## Aquatic Bug Kit

Ages 8 and up

Order Code 5950 NH (1)

A creepy-crawly, wet investigation into the health of any freshwater environment. Following the easy-to-read manual, one to two students collect, observe, sort and identify aquatic insects as a guide for establishing water quality. Students complete the activity at home or spend an afternoon outdoors beside a stream or pond.

- mesh leaf bags for collection
- plastic dishes for sorting
- magnifying lens
- BUGGUIDE—a bug-by-bug description
- BUGBOARD identification chart
- manual, including activities, games and web links


Code 5903-03

## Marine Science Outfit

Grades 5 and up

Order Code 5903-03 R1 (13)

Reagent Refills R-5903-02 R1 (4)

Perfect for testing and studying saline systems (oceans, bays, salt marshes) and brackish water.

- individual test modules for 7 key salt water test factors
- water sampling bottles
- data sheets
- three handbooks: **A Laboratory Manual for Marine Science, Limnology,** and **Investigating Water Problems**

### Titration Tests

| Test Factor | Range (# Tests) | Kit Codes | Shipping |
|---|---|---|---|
| Dissolved Oxygen | 0-10.0 ppm (50) | 5860-01 | R3 |
| Hardness | 0-200 ppm (50) | 4824-DR-LT-01 | R1 |
| Carbon Dioxide | 0-50 ppm (50) | 7297-DR-01 | R1 |
| Alkalinity | 0-200 ppm (50) | 4533-DR-01 | R1 |
| Salinity | 0-20 ppt (50) | 7459-02 | R1 |

### Colorimetric Tests

| Test Factor | Range (# Tests) | Kit Codes | Shipping |
|---|---|---|---|
| pH | 7.7-8.4 (100) | 2081-02 | R1 |
| pH | 3-10.5 (100) | 5858-01 | R1 |

## Urban Water Test Kit

Grades 3 and up

Order Code 5918 NH (1)

Test tap water from any source and study the impact of urban water on the city's environment. "Wet in the City," a hands-on kit, introduces the basic concepts of water chemistry—even to kids as young as third grade! Non-hazardous TesTabs® make "Wet in the City" an easy and safe kit that's also portable! Contains a comprehensive handbook and all necessary equipment to test for the following factors, 10 repetitions each, 5 for coliform bacteria.

| | |
|---|---|
| Chlorine | Nitrate |
| Copper | pH |
| Dissolved Oxygen | Phosphate |
| Hardness | Temperature |
| Iron | Coliform Bacteria |


Code 5903-01

**You Might Also Like:**

Tapwater Tour pg. 30
Classroom Studies pg. 32
Funky Faucet pg. 33


Code 5870-01

AP

# The Water Quality Educator & Monitoring Outfit

Grades 5 and up

## The Monitor's Handbook

### A Reference Guide for Natural Water Monitoring

Discusses reasons for monitoring, organizational planning, pre-monitoring activities, site selection, extensive descriptions of the physical, biological and chemical factors, equipment, quality data, analysis and presentation.

## The Water Quality Educator CD (PC or MAC)

Teach your students and volunteer monitors all about natural water quality monitoring. Useful for designing a science project, community outreach program, environmental course, classroom and field activity. All three categories of water testing are included—chemical, microbiological and macroinvertebrate standard methods—safety, testing hints and interpreting results. System requirments: Windows®: 64MB available RAM, Windows 98, 2000, XP or Vista. Macintosh®: 128 MB available RAM, OS X 10.1.5, 10.2.6 or 10.3.

## Water Quality Monitoring Outfit

Complete test kits for seven critical water quality test factors. Includes lesson plans for grades 5-8 and 9-12. Can be purchased alone or with **The Monitor's Handbook** and **The Water Quality Educator** CD.

| Test Factor | Range (# Tests) | Kit Code | Shipping |
|---|---|---|---|
| pH | pH 3.0-10.5 (100) | 5858-01 | R1 |
| Nitrate-Nitrogen | 0-15 ppm (50) | 3354-01 | NH |
| Phosphate | 0-2.0 ppm (50) | 3121-02 | R1 |
| Dissolved Oxygen | 0-10.0 ppm (50) | 5860-01 | R1 |
| Alkalinity, Total | 0-200 ppm (50) | 4491-DR-01 | NH |
| Turbidity | 0-200 JTU (50) | 7519 | NH |
| Temperature | -5° to 45°C | 1066 | NH |
| The Water Quality Educator CD ROM (not sold individually) | | | |
| **The Monitor's Handbook** (see page 52) | | | |

Macintosh and QuickTime are registered trademarks of Apple Computer, Inc.

| | | |
|---|---|---|
| The Water Quality Educator & Monitoring Outfit (Test kits, **The Monitor's Handbook** and CD) | Order Code 5870-01 | R1 (14) |
| Reagent Refill for 5870-01 | Order Code R-5870-01 | R1 (3) |
| **The Monitor's Handbook** and CD only | Order Code 5872 | NH (1) |

Use with the Water Quality Educator for a complete water monitoring package!

## AP® Environmental Water Quality Assessment Curriculum Module

The AP® Environmental WATER QUALITY ASSESSMENT MODULE includes an extensive curriculum that uses the exploration of the Water Quality Index to teach students STEM-based skills that they will apply through classroom and field activities to satisfy Section VI (Water Pollution) of the AP® **Environmental Topics** Outline.

In four classroom activities, students use actual data from the Kansas River watershed to:

- analyze and interpret data
- create spreadsheets
- calculate the Water Quality Index
- generate graphs
- perform statistical analysis
- observe environmental systems
- communicate accurately

In a culminating field activity, students access internet sites to identify their local watershed, choose a sampling site on a local waterway, utilize appropriate techniques to identify their watershed and perform chemical and biological analyses to determine the Water Quality Index.

The following environmental concepts are covered: watersheds, Water Quality Index, physical, chemical and biological water quality parameters, nutrient loading, hydrological variables, watershed ecology and point-non-point pollution sources.

**Now there's an app for that!**
Includes a **Free LaMotte BioPaddles® Colony ID™ Lite App** (page 23) which lets users compare their "unknown" microbe growth on the BioPaddle to a library of photos of "known" microbe colonies.

Code 5845

### Water Quality Assessment Curriculum Module
### Code 5845

Includes:

- Nutrient – TTC/MacConkey BioPaddles (Code 5553) for coliform testing
- Salt/TDS/Temp Tracer (Code 1749) for temperature and TDS determination
- Teacher Resource CD (included with the Water Quality Index Module) contains:
  - Teacher/Student guide
  - water quality test procedures
  - STEM-based extension activities
  - chemical reactions
  - data spreadsheets
  - glossary
  - graphics files
  - PowerPoint presentations and Quick Time iPad/iPod videos

NEW

## AP® The Water Quality Assessment Package

Order Code 5845-PKG NH (16)

Combining the Water Quality Educator (page 12) and the AP® Environmental Science Water Quality Assessment Curriculum Module (above), the AP® Environmental Science WATER QUALITY ASSESSMENT PACKAGE bundles the curriculum above with the test kits to provide a complete package at a reduced price!

Save$$! Bundled Price

Code 5845-PKG

## Acid Rain Study Outfit

### Grades 5 and up

Order Code 3604-01 R1 (3)

Reagent Refills 2218-G R1(1)

Collect precipitation and determine the pH levels of ponds, lakes and streams with this complete outfit—a valuable unit for any environmental science program.

- durable, tapered rain gauge
- easy-to-use pH test kit
- comprehensive study guide
- activity sheets
- 50 tests


Code 3604-01

## Limnology Outfit

### Grades 5 and up

Order Code 5902-02 R1 (13)

Reagent Refill R-5902-01 R1 (4)

This field-friendly outfit contains all that is needed for testing and studying freshwater systems.

- individual test modules for 7 freshwater test factors
- water sampling bottles
- three handbooks: **Limnology, A Study of Water Quality, and Investigating Water Problem** data sheets

### Octa-Slide 2 Comparator Tests

| Test Factor | Range (# Tests) | Kit Codes | Shipping |
|---|---|---|---|
| Nitrate Nitrogen | 0.2-1.0 ppm (40) | 3119-01 | R3 |
| Phosphate | 0.2-1.0 ppm (50) | 3119-01 | R3 |
| pH | 3.0-10.5 pH (100) | 5858-01 | R1 |
| Silica | 0.5-10 ppm (50) | 4463-01 | R1 |

### Direct Reading Titrator Tests

| Test Factor | Range (# Tests) | Kit Codes | Shipping |
|---|---|---|---|
| Carbon Dioxide | 0-50 ppm (50) | 7297-DR-01 | R1 |
| Dissolved Oxygen | 0-10 ppm (50) | 5860-01 | R3 |
| Hardness | 0-200 ppm (50) | 4824-DR-LT-01 | N |


Code 5902-02

Code 5854-02

## Shallow Water Outfit

Grades 5 and up

Order Code 5854-02 R1 (9)

Reagent Refill R-5854-01 R1 (2)

Too shallow for a Secchi Disk? Turbidity is easily measured using a standardized turbidity reagent to match the turbidity of a water sample. All the necessary apparatus and reagents needed to test four basic water quality test factors are included. Economical reagent refill packages are available.

| Factor | Test Method | Range/Sensitivity |
|---|---|---|
| Temperature | Thermometer | –5° to 45° C/0.5 increments |
| pH | 2 Octa-Slide 2 Comparators | pH 3.0-10.5/0.5 increments |
| Turbidity | Drop Count | 0-200 JTU/5 JTU increments |
| Dissolved Oxygen | Direct Reading Titrator | 0-10 ppm $O_2$/0.2 ppm increments |

Code 5855

## Deep Water Outfit

Grades 5 and up

Order Code 5855-01 R1 (8)

Reagent Refill R-5855 R1 (8)

Go deep! Ideal for testing vertical "layers," stratified lakes or for performing a comprehensive survey of deep waters. Turbidity is measured by "Secchi depth," using a 20 cm diameter, black and white Secchi disk and calibrated line. All the necessary apparatus and reagents to test four basic water quality factors and detailed instructions are included. Economical reagent refill packages are available.

| Factor | Test Method | Range/Sensitivity |
|---|---|---|
| Temperature | Thermometer | –5° to 45° C/0.5 increments |
| pH | 2 Octa-Slide 2 Comparators | pH 3.0-10.5/0.5 increments |
| Secchi depth | Secchi Disk | 0-20 m/0.5m increments |
| Dissolved Oxygen | Direct Reading Titrator | 0-10 ppm $O_2$/0.2 ppm increments |

Code 5857

## Tidal Water Outfit

Grades 5 and up

Order Code 5857-01 R1 (10)

Reagent Refill R-5857 R1 (3)

Compare specific gravity of varying concentrations of salt water to freshwater by using a hydrometer and a clear, acrylic hydrometer jar. Turbidity is measured by "Secchi depth," using a 20 cm diameter, black and white Secchi disk and calibrated line. All the necessary apparatus, reagents and detailed instructions to test 5 basic water quality test factors are included. All fit securely within a foam insert and are housed in a rugged field carrying case. Economical reagent refill package available.

| Factor | Test Method | Range/Sensitivity |
|---|---|---|
| Dissolved Oxygen | Direct Reading Titrator | 0-10 ppm $O_2$/0.2 ppm increments |
| Temperature | Thermometer | –5° to 45° C/0.5 increments |
| pH | 2 Octa-Slide 2 Comparators | pH 3.0-10.5/0.5 increments |

| Factor | Test Method | Range/Sensitivity |
|---|---|---|
| Secchi depth | Secchi Disk | 0-20 m/0.5m increments |
| Salinity | Hydrometer | 1.0000 to 1.0700 SG/0.0005 increments; 0.0 ppt to 43.6 ppt salinity/0.2 ppt increments |


Code 5905-02

## Water Pollution Detection Kit

Grades 5 and up

Order Code 5905-02 LQ (14)
Reagent Refill R-5905-02 LQ (6)

Designed to introduce concepts of water pollution detection, this versatile kit includes everything you need for a classroom demonstration.

- 16 water quality factors: alkalinity, ammonia, carbon dioxide, chloride, chlorine, chromium, copper, cyanide, total dissolved solids, hardness, iron, nitrate, pH, phosphate, salinity and sulfide
- reagents for 20-30 demonstrations of each factor
- procedures can also be performed in 3-cell and 6-cell inert plastic demonstration stages that permit magnification of colorful test reactions with an overhead projector. Color carts included. Also includes field test procedures and manual.
- test report foms
- two handbooks: **Our Environment Battles Water Pollution** and **Investigating Water Problems**


Code 5849

## AM-12 · The TesTabs® Water Investigation Kit

Grades 5 and up

Order Code 5849 R1 (7)

- investigate water pollution using LaMotte's safe, simple TesTabs® reagents.
- 12 individual test modules
- easy-to-read, diagrammed instructions
- color charts
- test factor flashcards
- all necessary apparatus
- non-hazardous TesTabs® to perform
- 100 tests
- **The Monitor's Handbook**

| Factor | Code | Shipping |
|---|---|---|
| Alkalinity | 5893 | NH |
| Ammonia | 5894 | R1 |
| Chloride | 5895 | NH |
| Chlorine | 5896 | NH |
| Chromium | 5897 | NH |
| Copper | 5898 | NH |

| Factor | Code | Shipping |
|---|---|---|
| Dissolved Oxygen/BOD | 5889 | NH |
| Hardness | 5899 | NH |
| Iron | 5900 | NH |
| Nitrate | 5891 | NH |
| pH | 5890 | NH |
| Phosphate | 5892 | NH |

## Water Pollution 1

### Grades 5 and up

Order Code 5917-02 R1 (14)

Reagent Refill R-5917-02 R1 (3)

Ideal for examining water quality in known or suspected polluted aquatic environments.

- individual test modules for 7 key test factors
- complete instructions
- reagents to perform 50 tests for each factor
- all necessary apparatus
- three handbooks: **A Study of Water Quality, Our Environment Battles Water Pollution,** and **Investigating Water Problems**
- new field-friendly tote


Code 5917-02

### Colorimetric Tests

| Test Factor | Range (# Tests) | Kit Codes | Shipping |
|---|---|---|---|
| Chlorine | 0.2-3.0 ppm (50) | 3308-01 | NH |
| pH | 3-10.5 (100) | 5858-01 | R1 |
| Nitrate-Nitrogen | 0.2-1.0 ppm (40) | 3119-01 | R1 |
| Phosphate | 0.2-1.0 ppm (50) | 3119-01 | R1 |
| Ammonia-Nitrogen | 1.0-8.0 ppm (50) | 4795-01 | R1 |
| Temperature | -5°C-45°C | 1066 | NH |

### Titration Tests

| Test Factor | Range (# Tests) | Kit Codes | Shipping |
|---|---|---|---|
| Dissolved Oxygen | 0-10.0 ppm (50) | 5860-01 | LQ |

## Water Pollution 2

### Grades 5 and up

Order Code 5919-02 R1 (15)

Reagent Refill R-5919-02 R1 (3)

For more detailed water testing, this kit is an ideal supplement to our Water Pollution 1 outfit.

- 5 key water quality test factors
- data sheets
- three handbooks: **A Study of Water Quality, Our Environment Battles Water Pollution** and **Investigating Water Problems**
- new field-friendly tote

### Titration Tests

| Test Factor | Range (# Tests) | Kit Codes | Shipping |
|---|---|---|---|
| Alkalinity | 0-200 ppm (50) | 4491-DR-01 | NH |
| Carbon Dioxide | 0-50 ppm (50) | 7297-DR-01 | R1 |
| Chloride | 0-200 ppm (50) | 4503-DR-01 | R1 |
| Color, APHA | 0-100 units (50) | 3528-01 | NH |
| Hardness | 0-200 ppm (50) | 4482-DR-LT-01 | R1 |
| Turbidity | 0-200 JTU (50) | 7519-01 | NH |

## Water Pollution 3

### Grades 5 and up

Order Code 5921-03 R1 (13)

Reagent Refill R-5921-03 R1 (6)

Is there a pond, stream, or river that you suspect might contain industrial pollution? This is the kit to use!

- individual test modules for 6 key industrial pollutants
- data sheets
- three handbooks: **A Study of Water Quality, Our Environment Battles Water Pollution** and **Investigating Water Problems**
- new field-friendly tote

### Colorimetric Tests

| Test Factor | Range (# Tests) | Kit Codes | Shipping |
|---|---|---|---|
| Chromate | 5-40 ppm (50) | 4430-01 | R1 |
| Copper | 0-0.5 ppm (50) | 6616-01 | NH |
| Iron | 0.5-1.0 ppm (100) | 4447-01 | R1 |
| Sulfide | 0.2-20 ppm (40) | 4456-01 | R1 |
| Zinc | 0-10 ppm (50) | 7391-02 | R1 |

### Drop Count Tests

| Test Factor | Range (# Tests) | Kit Codes | Shipping |
|---|---|---|---|
| Cyanide | 0.05 ppm/drop (50) | 7387-02 | R1 |

# Water Monitoring


Code 3308-01

## Individual Test Kits

| Test Factor | Order Code | Test System | Range/Resolution | # of Tests (# Reagents) | Shipping | Reagent Refill |
|---|---|---|---|---|---|---|
| Acidity | 7182-01 | HCl, $H_2SO_4$, $H_3PO_4$ Drop Count | 1 drop = 0.1 or 1.0% (as the particular acid) | 50 at 10% (2) | R1 (1) | ---- |
| Alkalinity | 5893 | Total Alkalinity Add Tablet TesTabs® | 1 tablet = 40 ppm | 100 (1) | NH (1) | ---- |
| GLOBE AP | 4491-DR-01 | Total Alkalinity | Direct Reading Titrator 0–200 ppm/4 ppm as $CaCO_3$ | 50 at 200 ppm (2) | NH (1) | R-4491DR |
| | 4533-DR-01 | P & T Alkalinity Direct Reading Titrator | 0–200 ppm/4 ppm as $CaCO_3$ | 50 at 200 ppm (3) | NH (1) | R-4533-DR |
| Ammonia-Nitrogen | 3304-01 | Salicylate Octa-Slide 2 Comparator | 0.0, 0.05, 0.1, 0.25, 0.5, 1.0, 2.0 ppm $NH_3$-N | 50 (3) | R2 (1) | R-3304 |
| | 5864-01 | Salicylate Color Chart | 0.0, 0.25, 0.50, 1.0, 2.0, 4.0 ppm $NH_3$-N | 50 (2) | R1 (1) | R-5864 |
| | 4795-01 | Nessler Octa-Slide 2 Comparator | 1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0 ppm $NH_3$-N | 50 (2) | R1 (1) | R-4795 |
| | 5894 | Salicylate Color Chart | 0, 1, 2, 4 ppm $NH_3$-N | 100 (2) | R1 (1) | ---- |
| Arsenic | 4053-02 | Test Strip | <4, 4, 8, 10, 12, 14, 16, 20, 25, 30, 50, 85, 100, 150, 175, 200, 300, 400 ppb | 50 | R1 (8) | R-4053-02 |
| | Recommended for high school and university use only. Teacher supervision required. | | | | | |
| Bacteria, Coliform | 4-3616 | Total Coliform LaMotte Tablet | Presence/Absence Drinking Water | 1 (1) | NH (1) | ---- |
| | 5850 | Total Coliform LaMotte Tablet | Presence/Absence Recreational Water | 44 (1) | NH (1) | ---- |
| | 5553 | BioPaddles Nutrient TTC/ MacConkey Agar | E-coli & Coliforms | 10 (1) | NH (1) | ---- |
| Calcium | 3609-01 | Direct Reading Titrator | 0-200 ppm/4 ppm $CaCO_3$ 0-2580 ppm/51.6 ppm $CaCO_3$ | 50 (3) | R1 (1) | R-3609 |
| Carbon Dioxide | 7297-DR-01 | Direct Reading Titrator | 0–50 ppm/1.0 ppm $CO_2$ | 50 at 50 ppm (2) | R1 (1) | R-7297-DR |

Shipping Codes: NH: Non-Hazardous - No Fees R1: Small Qty. Hazardous Materials - No Fees R2 & R3: Hazardous Materials - Air Fees Only HF: Hazardous Materials - Air & Ground Fees
*(NPDWR) EPA Accepted †(NPDES) EPA Accepted ***Frozen products/dated goods. Please specify ship date.

# Water Monitoring

| Test Factor | Order Code | Test System | Range/Resolution | # of Tests (# Reagents) | Shipping | Reagent Refill |
|---|---|---|---|---|---|---|
| **Chloride** | 4503-DR-02 | Direct Reading Titrator | 0–200 ppm/4 ppm $Cl^-$<br>0–20,000 ppm/400 ppm $Cl^-$ | 50 at 200 ppm (4) | R1 (1) | R-4503-DR-01 |
| | 5895 | Turbidimetric Color Chart | 0–24,000/ 400 ppm $Cl^-$ | 100 (1) | NH (1) | ---- |
| **Chlorine Free & Total** | 3308-01* | DPD Tablet Octa-Slide 2 Comparator | 0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2.0, 3.0 ppm Cl | 50 (2) | NH (1) | 6905A-H & 6999A-H |
| | 5896 | DPD Tablet Color Chart | 0, 1, 3, 5 ppm Cl | 100 (1) | NH (1) | ---- |
| **Chromium** | 5897 | TesTabs® Color Chart | 0, 0.2, 0.4, 0.6 ppm Chromium | 100 (1) | NH (1) | ---- |
| **Copper** | 6616-01 | LRC Comparator | 0, 0.05, 0.10, 0.15, 0.20, 0.30, 0.40, 0.50 ppm Cu | 50 (1) | NH (1) | 6446-H |
| | 5898 | TesTabs® Color Chart | 0, 1.5, 2, 4 ppm Cu | 100 (1) | NH (1) | ---- |
| **Cyanide** AP | 7387-02 | Octa-Slide 2 Comparator | 0.0, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40 ppm Free $CN^-$ | 50 (5) | R1 (3) | R-7387-01 |
| **Detergents** | 4507-02 | Drop Count | 1 drop = 1.0 ppm Detergent | 60 at 5.0 ppm (3) | R1 (2) | R-4507-01 |
| **Hardness** | 4482-DR-LT-01 | Total Hardness Direct Reading Titrator | 0–200 ppm/4 ppm $CaCO_3$ | 50 at 200 ppm (3) | R1 (1) | R-4482-DR-LT |
| | 4824-DR-LT-01 | Calcium, Magnesium, & Total Hardness Direct Reading Titrator | 0–200 ppm/4 ppm $CaCO_3$ | 50 at 200 ppm (5) | R1 (1) | R-4824-DR-LT |
| | 5899 | TesTabs® Add Tablet Color Chart | 1 tablet = 40 or 100 ppm | 100 (1) | NH (1) | ---- |
| **Iron** | 4447-01 | Total Iron Octa-Slide 2 Comparator | 0.5, 1.0, 2.0, 3.0, 4.0, 6.0, 8.0, 10.0 ppm Fe | 90 (2) | R1 (1) | R-4447 |
| | 7787-01 | Total Iron LRC Comparator | 0.05, 0.10, 0.20, 0.30, 0.40, 0.60, 0.80, 1.0 ppm Fe | 30 (2) | R1 (1) | R-7787 |
| | 3347-01 | Ferrous/Ferric Iron Octa-Slide 2 Comparator | 0.5, 1.0, 2.0, 3.0, 4.0, 6.0, 8.0, 10.0 ppm Fe | 85 (3) | R1 (1) | R-3347 |
| | 5900 | TesTabs® Color Chart | 0, 1, 5, 10 ppm Fe | 100 (1) | NH (1) | ---- |
| **Manganese** | 3588-02 | PAN Octa-Slide 2 Comparator | 0.05, 0.1, 0.2, 0.4, 0.6, 0.8, 1.0 ppm Mn | 50 (4) | HF (2) | R-3588-01 |
| **Nitrate Nitrogen** | 3519-01 (Includes Nitrite) | Cadmium Reduction Octa-Slide 2 Comparator | 0.25, 0.5, 1.0, 2.0, 4.0, 6.0, 8.0, 10.0 ppm $NO_3$-N | 40 (3) | R1 (1) | R-3519 |
| | 3110-01 | Cadmium Reduction Octa-Slide 2 Comparator | 0.25, 0.5, 1.0, 2.0, 4.0, 6.0, 8.0, 10.0 ppm $NO_3$-N | 40 (2) | R1 (1) | R-3110 |
| GLOBE AP | 3615-01 | Cadmium Reduction LRC Comparator | 0, 0.2, 0.4, 0.6, 0.8, 1.0 $NO_3^-$-N | 40 (2) | R1 (2) | R-3615 |
| | 3354-01 | Zinc Reduction Octa-Slide 2 Comparator | 0, 1, 2, 4, 6, 8, 10, 15 ppm $NO_3$-N | 50 (2) | NH (2) | R-3354 |
| | 5891 | TesTabs®, Zinc reduction Color Chart | 0, 5, 20, 40 ppm $NO_3$ | 100 (1) | NH (1) | ---- |
| **Nitrate/ Phosphate** GLOBE AP | 3119-01 | Cadmium Reduction/ Ascorbic Acid LRC Compratator | 0.2, 0.4, 0.6, 1.0 ppm $NO_3$-N<br>0.2, 0.4, 0.6, 1.0 ppm $PO_4^{3-}$ | Nitrate: 40 (2)<br>Phosphate: 50 (2) | R3 (2) | R-3119 |
| **Oxygen, Dissolved** GLOBE AP | 5860-01 | Winkler All Liquid Reagents Direct Reading Titrator | 0–10 ppm/0.2 ppm $O_2$ | 50 at 10 ppm (5) | R1 (2) | R-5860 |
| | 5889 | TesTabs®Color Chart | 0, 4, 8 ppm $O_2$ | 100 (1) | NH (1) | ---- |

Shipping Codes: NH: Non-Hazardous - No Fees R1: Small Qty. Hazardous Materials - No Fees R2 & R3: Hazardous Materials - Air Fees Only HF: Hazardous Materials - Air & Ground Fees
*(NPDWR) EPA Accepted †(NPDES) EPA Accepted

# Water Monitoring

Economical Refills!

Code 5860-01

| Test Factor | Order Code | Test System | Range/Resolution | # of Tests (# Reagents) | Shipping | Reagent Refill |
|---|---|---|---|---|---|---|
| pH | 2109-01 | Bromthymol Blue Octa-Slide 2 Comparator | 6.0, 6.2, 6.4, 6.6, 6.8, 7.0, 7.2, 7.4 | 50 (1) | NH (1) | 2210-G |
| | 2110-01 | Phenol Red Octa-Slide 2 Comparator | 6.8, 7.0, 7.2, 7.4, 7.6, 7.8, 8.0, 8.2 | 50 (1) | NH (1) | 2211-G |
| | 2111-01 | Cresol Red Octa-Slide 2 Comparator | 7.2, 7.4, 7.6, 7.8, 8.0, 8.2, 8.4, 8.6 | 50 (1) | NH (1) | 2212-G |
| | 2112-01 | Thymol Blue Octa-Slide 2 Comparator | 8.0, 8.2, 8.4, 8.6, 8.8, 9.0, 9.2, 9.4 | 50 (1) | NH (1) | 2213-G |
| AP | 5858-01 | Wide Range Octa-Slide 2 Comparator, 2 bars | 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 10.5 | 100 (1) | R1 (1) | (2 x) 2218-G |
| | 3-2950 | Wide Range Test Strips | 4-indicators, 0-14 pH/1.0 pH | 100 (1) | NH (1) | ---- |
| | 5890 | TesTabs® Color Chart | 4, 5, 6, 7, 8, 9, 10, 11 pH | 100 (1) | NH (1) | ---- |
| Phosphate/ Nitrate GLOBE AP | 3119-01 | Ascorbic Acid/ Cadmium Reduction LRC Comparator | 0.2, 0.4, 0.6, 1.0 ppm $NO_3$-N 0.2, 0.4, 0.6, 1.0 ppm $PO_4^{3-}$ | Phosphate: 50 (2) Nitrate: 40 (2) | R3 (2) | R-3119 |
| Phosphate GLOBE AP | 3121-02 | Ascorbic Acid LRC Comparator | 0, 0.2, 0.4, 0.6, 0.8, 1.0, 1.5, 2.0 ppm $PO_4^{3-}$ | 50 (2) | R1 (1) | R-3121-01 |
| | 7416-02** | Stannous Chloride LRC Comparator | 0.05, 0.1, 0.2, 0.3, 0.4, 0.6, 0.8, 1.0ppm $PO_4^{3-}$ | 50 (2) | R1 (1) | R-7416-01 |
| | 5892 | TesTabs® Color Chart | 0, 1, 2, 4 ppm $PO_4^{3-}$ | 100 (1) | NH (1) | ---- |
| Phosphate, Total | 7884 | Conversion kit, digestion, use with orthophosphate kit for total phosphate measurement, requires heat source (not included). | | 50 (5) | HF (2) | ---- |
| Salinity GLOBE AP | 7459-02 | Direct Reading Titrator | 0–40 ppt/0.4 ppt Salinity | 50 at 20 ppt (2) | R1 (1) | R-7459-01 |
| | 3-0025 | Hydrometer Kit | 0-40 ppt Salinity | Unlimited | NH (4) | ---- |
| Silica | 3321-01 | Octa-Slide 2 Comparator | 0.5, 1.0, 2.0, 3.0, 4.0, 6.0, 8.0, 10.0 ppm $SiO_2$ | 50 (4) | R1 (1) | R-3321 |
| Sulfate | 7778-01 | Tablet Octa-Slide 2 Comparator | 0, 20, 50, 80, 120, 160, 200 ppm $SO_4^{2-}$ | 50 (1) | R1 (1) | R-7778 |
| Sulfide | 3322-01† | Total Sulfide Octa-Slide 2 Comparator | 0.2, 0.5, 1.0, 2.0, 5.0, 10.0, 15.0, 20.0 ppm $S^{2-}$ | 50 (3) | R1 (1) | R-3322 |
| Turbidity | 7519-01 | Drop Count | 5–100 JTU/5 JTU, 10–200 JTU/10 JTU | 50 at 10 or 20 JTU (1) | NH (1) | 7520-H |
| | 5887 | Turbidimetric | 0, 20, 40, 60, 80, 100 JTU | Unlimited | NH (1) | ---- |
| Zinc | 7391-02 | Octa-Slide 2 Comparator | 0, 1, 2, 3, 4, 6, 8, 10 ppm Zn | 50 (2) | NH (1) | R-7391-01 |

Shipping Codes: NH: Non-Hazardous - No Fees R1: Small Qty. Hazardous Materials - No Fees R2 & R3: Hazardous Materials - Air Fees Only HF: Hazardous Materials - Air & Ground Fees
*(NPDWR) EPA Accepted †(NPDES) EPA Accepted **Not for use in salt or brackish waters.

## Water Test Strips

LaMotte test strips are a great way to monitor water without having to measure reagents. Strips are available for the factors below...and we're developing even more!


### Single Factor Test Strips

| Test Factor | Code | Range (ppm) | Water Testing Application* | # of Tests Per Factor/Per Vial | Values (ppm) |
|---|---|---|---|---|---|
| Alkalinity | 2997 | 0-180 | Drinking, Food/ Beverage, Pool | 50 | 0, 40, 80, 120, 180 |
| Ammonia | 3023-G | 0-6 | Natural Waters | 25 | 0, 0.5, 1.0, 3.0, 60 |
| Chlorine, Free & Total | 3027-G | 0-10.0 | Drinking, Food/ Beverage, Pool | 25 | 0, 0.25, 0.5, 1, 3, 10 |
| Chlorine, Total | 2979 | 0-5 | Drinking, Food/Beverage | 50 | 0, 0.5, 1, 3, 5 |
| Hardness, Low Range | 2981 | 0-180 | Drinking, Food/Beverage | 50 | 0, 30, 60, 120, 180 |
| pH, Wide Range | 2974 | 4-10 (pH) | Drinking, Food/ Beverage, Pool | 50 | 4, 5, 6, 7, 8, 9, 10 |
| Phosphate, Low Range | 3021-G | 0-1000 ppb | Drinking, Food/Beverage | 25 | 0, 100, 200, 300, 500, 1000 |

### Multi-Factor Test Strips

| Test Factor | Code | Range | Water Testing Application* | # of Tests Per Factor/Per Vial | Values (ppm) |
|---|---|---|---|---|---|
| 5 Way for Natural Waters | 3038-G | Nitrate: 0-200<br>Nitrite: 0-10.0<br>pH: 6.0-9.0<br>Alkalinity: 0-240<br>Hardness: 0-180 | Natural Waters<br>Aquariums | 25 | 0, 20, 40, 80, 160, 200<br>0, 0.5, 1.0, 3.0, 5.0, 10.0<br>6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0<br>0, 40, 80, 120, 180, 240<br>0, 30, 60, 120, 180 |
| Iron & Copper | 2994 | 0-5 (Iron)<br>0-3 (Copper) | Drinking, Pool | 25<br>25 | 0, 0.3, 0.5, 1, 3, 50, 0.3, 0.6, 1, 3 |
| Iron, pH, & Hardness | 2980 | 0-5 (Iron)<br>4-10 (pH)<br>0-400 (Hard) | Drinking | 25<br>25<br>25 | 0, 0.3, 0.5, 1, 3, 54, 5, 6, 7, 8, 9, 100, 50, 100, 200, 400 |
| Wide Range (pH & Total Chlorine) | 2987-G | 4-10 (pH)<br>0-50 (TCl) | Drinking, Food/ Beverage, Pool | 25<br>25 | 4, 5, 6, 7, 8, 9, 100, 1, 5, 10, 20, 50 |
| Nitrate & Nitrite | 2996 | 0-50 (Nitrate)<br>0-10 (Nitrite) | Drinking | 50<br>50 | 0, 5, 10, 25, 50 ($NO_3$-N)0, 0.5, 1, 5, 10 ($NO_2$-N) |

*Strips shown have been evaluated for use in these applications. Use in other applications is subject to potential interferences. Contact LaMotte Technical Services for more information.

# Bacteria Studies


## BioPaddles®

Microbiology Simplified!

NEW

- ready to use—saves time!
- reduced cost and waste
- longer shelf-life than traditional treated Petri dishes
- no refrigeration required
- no need for inoculating loops or Bunsen burners
- simple incubation requirements
- unique design enhances colony morphology characterization

BioPaddles are flexible, dual-agar paddles each side containing microbe-specific media enclosed in a sterile vial. Identify and quantify microbes in air, soil, water or any surface! BioPaddles do not require any other testing equipment—only a magnifier and warm place (or incubator) are needed.

Liquid Sampling: Remove the paddle from the vial and fill the vial (approximately 40 mL) with the sample. Insert the paddle, swirl for 15 seconds. Pour out the liquid and replace paddle in the vial and incubate.

Surface Sampling: Remove the paddle from the vial and gently touch each paddle media surface to the sample surface twice per side. Replace paddle in the vial and incubate.

Air Sampling: Remove the paddle from the vial. Invert and mount the circular cap into the vial, exposing the agar covered paddle. Expose for 15 minutes. Replace the paddle in the vial and incubate.

BioPaddles® products—all packaged 10 paddles per box. Includes general instructions and provides access to detailed technical documents for each paddle type.

Watch our website!
NEW Microbe Hunting kits coming soon!
**www.lamotte.com**

All BioPaddles® products include a free app! **Free LaMotte BioPaddles® Colony ID™ Lite** app for iPads(page 23) lets users compare colony examples on BioPaddle agar types from 5 microhabitats (air, water, soil, surface and food). Also contains information regarding organisms, microbiological techniques, and more!

**New BioPaddles® Colony ID™** app for iPads has a library of over 250 images of 30+ microbes, ideal for presumptive identification. Images of microbial growth on BioPaddles® can be captured with the iPad camera and imported for a side-by-side comparison to the images in the reference library. Using the new Report function a report including a full color image can be prepared and distributed directly by email. Expanded resource materials include Fungi and Bacteria Microanatomy and Microbe Exclusionary Charts. Available for purchase through iTunes. Visit our web site at www.lamotte.com and click on BioPaddles for a direct link.

### BioPaddles

| Code | Type of Agar | Description |
|---|---|---|
| 5550 | BioPaddle Nutrient Agar | For routine culture of non-fastidious bacteria. |
| 5551 | BioPaddle Sabouraud Dextrose Agar | For selective cultivation of fungi (yeasts and molds) |
| 5552 | BioPaddle Tryptic Soy (TSA)/Rose Bengal (RB) Agars | For cultivation of a wide variety of microorganisms (TSA) and selective isolation of yeasts and molds (RB). |
| 5553 | BioPaddle Nutrient TTC/MacConkey Agars | For field sampling cultivation and enumeration of coliform bacteria (TTC) and total coliform count (TCC). Gram (-) bacterial colonies appear as red dots. Gram (+) bacteria are usually inhibited.<br>For improved differentiation between coliforms and non-lactose fermenting organisms (MAC). Gram (+) cocci are usually inhibited. |

# Microbe Hunter™ Activities

Grades 5-10

A fun and safe way to bring STEM-based learning into the classroom!

STEM-based activities guide students through the culturing and presumptive identification of common microbes on innovative BioPaddles® - each containing microbe-specific media enclosed in a sterile vial. Students apply science, technology, engineering, and math concepts to the exploration of microbes that they encounter every day. Activities develop critical thinking skills and emphasize engineering as a key component.


Check out our website! MORE Microbe Hunting kits coming soon! **www.lamotte.com** or friend us on **facebook!**

- Complete curriculum
- Five expandable & adaptable activities
- Culture grocery store products and school surroundings
- Organized for classroom use
- Student teams design experiments
- Step-by-step introductory to advanced activities
- Culture bacteria without Petri dishes – no prep time
- Free microbe identification app from iTunes store
- Digital Student Guide and Teacher Guide on CD
- PowerPoint presentations for iPad, ID Guides, resources, links, etc.

Each Microbe Hunter includes a CD, 10 BioPaddles to perform the first two activities, and 10 magnifying lenses. Additional paddles may be purchased to perform the additional three main activities and Going Further activities.


Code 5560

| Activity | Order Code |
|---|---|
| Milk Microbe Hunter Activity | Code 5560 |
| Explore and identify microbes that students culture from popular dairy products like milk, yogurt, and Kefir. Activities and topics include probiotics, fermentation, pasteurization, and shelf life. | |
| Refill TSA/RB BioPaddles | Code 5552 |

COMNG SOON!

| | |
|---|---|
| Surface Microbe Hunter Activity | Code 5561 |
| Air Microbe Hunter Activity | Code 5562 |
| Soil Microbe Hunter Activity | Code 5563 |
| Water Microbe Hunter Activity | Code 5564 |
| Food Microbe Hunter Activity | Code 5565 |


Code 5846

## BioPaddles® Total Coliform Activity

Grades 9 and up

Order Code 5846 NH (2)

Fast and reliable cultivation and enumeration of coliform bacteria. Includes 5553/Nutrient TTC/MacConkey BioPaddles (10 paddles) (page 22). Activity also includes a Teacher Resource CD with a complete coliform test activity, Teacher and Student Guides, PowerPoint and iPad/iPod formatted material that provides helpful background information on coliforms, field testing, Fecal Coliform Count, Total Viable Count (TVC) and Total Coliform Count (TCC) enumeration. Can be used as a demonstration or a classroom activity. Additional BioPaddles are available. Also includes a **Free LaMotte BioPaddles® Colony ID™ Lite** app.

Refill Paddles

Order Code 5553 BioPaddles Nutrient TTC/Maconkey Agar

**You Might Also Like:**
Total Coliform kits pg. 18

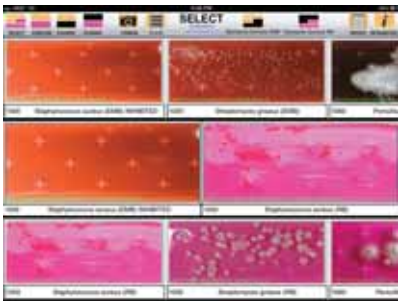
Now there's an app for that!

## BioPaddles® Colony ID™ Apps

All BioPaddles products include a free app! The **FREE BioPaddles® Colony ID™ Lite** app for iPads lets users enumerate and presumptively identify colony growth by comparison to full color images. Lab procedures, identification guides and microbe fact sheets are included. Coming soon, a camera function in the **BioPaddles® Colony ID™** app will capture microbe images for a side-by-side comparison to the library of images and inclusion in an emailable report.

## BioPaddles® Colony ID™ App

The **BioPaddles® Colony ID™** app for iPads expedites the presumptive identification of microbe growth on BioPaddles with a large library of over 250 full-color images of 35 microbes and microbe growth examples in five microhabitats. Use the iPad camera function to capture an image of the growth on your paddle and add it to the library for a side-by-side comparison. Resource materials—including microbe fact sheets, identification guides, and physical characteristics charts – provide a foundation for the determination. Once the microbes have been identified, a report containing the paddle image and pertinent information can be emailed directly from the app. For more information go to the App Store







Available on the App Store

https://itunes.apple.com/us/app/id567584998


Code 3-0026

Code 1054-DO

Code 1097

## Dissolved Oxygen/ Temperature Sampler

Order Code 3-0026 $204.10 NH (5)

Ideal for collecting dissolved oxygen samples at specific depths.

- bottle fills, overflows and flushes more than 3 times to insure a representative sample
- decreasing water pressure prevents exchange of air and water with sample
- interior chamber accommodates our armored thermometer (not included, see page 25) accommodates the same sample bottle used in our popular DO kits use with calibrated line and sounding weight (not included)

Sounding weight (2 lb) and calibrated line unit
Order Code 1064-G NH (4)
Sounding weight (2 lb) only
Order Code 1068 NH (3)

## Dissolved Oxygen Sampler

Order Code 1054-DO NH (3)

Includes the sample bottle used in our popular Dissolved Oxygen Kits, see page 18.

## Bottom Sampling Dredge

Order Code 1097 NH (5)

Need a river bottom sample? Collect it easily!

- stainless steel
- trigger holds the sampler open while lowering
- scissor design closes sampler securely
- 67 cubic inches volume
- designed for soft bottoms (sand or silt)

Code 1069-01

## Sampling & Measurement Outfit

Grades 5 and up

Order Code 1069-01 NH (17)

A necessity for any field sampling effort. Durable, reliable sampling gear and measuring devices are housed within a rugged field carrying case for convenient transport and storage.

### Outfit Includes

| Description | Code |
|---|---|
| Stainless Steel Bottom Sampling Dredge | 1097 |
| Plankton Net | 1063 |
| Sounding Weight and Calibrated Line | 1064-G |
| Armored Thermometer | 1066 |
| Water Sampling Bottle | 1054-DO |
| Forel-Ule Color Comparator | |
| Secchi Disk | 0171 |

# Sampling Equipment


Code 1063

Code 0717-CL

## Deluxe Secchi Disks

Order Code 0171-CL NH (7)

Disk w/ black and white quadrants & calibrated line

Order Code 0171 NH (3)

Black and white Secchi (disk only)

Determine turbidity or degree of visibility in natural waters with this weighted 20 cm diameter disk.

- braided line
- permanent markings every half-meter up to 20 meters that won't bleed or fade

## Plankton Nets

Order Code 1063 NH (2)

15" (38.1cm) tall, 5" (12.7cm) dia. mouth

Order Code 0023 NH (4)

38" (96.5cm) tall, 12" (30.4cm) dia. mouth

Collect minute plankton quickly and easily!

- 10 mesh, 153 micron nylon cloth
- clear, conical tube attached at end of the net allows plankton viewing; includes 2 tubes
- net mouth braced by sturdy stainless steel ring and harness

Code 1077

## Water Sampler

Order Code 1077 NH (9)

Collect water easily with this one-liter sampler.

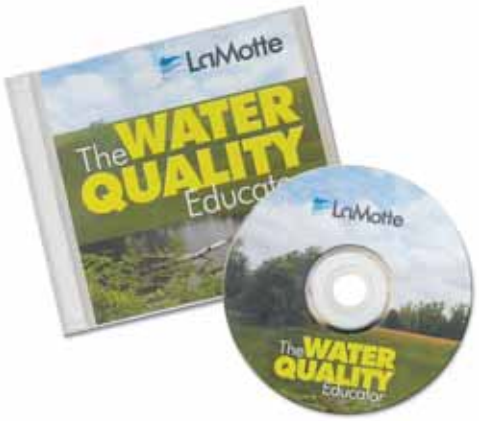
- 20 meter calibrated line
- weighted for rapid descent and minimal drift
- sample chamber seals with two fitted plungers
- side outlet and flexible tube allow for removal of the water sample
- recommended for water over 5 meters deep

⚠ WARNING: Contains lead weights. Weights should not be handled by children under 14. Adult supervision recommended.

## The Water Quality Educator

Order Code 5872 NH (1)

Teach your students and volunteer monitors all about natural water quality monitoring. Useful for designing a science project, community outreach program, environmental course, classroom and field activity. All three categories of water testing are included—chemical, microbiological and macroinvertebrate standard methods—safety, testing hints and interpreting results. Includes **The Monitor's Handbook**, Code 1507.




Code 5872

Code 0021-P

## Student Grade Kick Net

Order Code 0172 NH (4)

This sturdy mesh net is ideal for student macroinvertebrate collection. Durable mesh net measures approximately 35" x 45". Mesh size 1/32". Three-inch pockets on opposite sides hold poles in place. Poles not supplied with unit but can be purchased at any local hardware store.

## Seine Net

Order Code 3-0022-P NH (6)

Seine Net, complete with poles

Collect aquatic orgnaisms from natural waters from the shoreline to 3' depths. Perfect for fish surveys and educational projects.

- 4' x 12' long, .25" mesh
- 36 lb. heavy duty white nylon net
- weighted bottom line and bouyed top line

Code 3-0022-P

GLOBE

## Kick-Net

Kick-Net with poles

Order Code 0021-P NH (8)

Kick-Net Only

Order Code 0021 NH (4)

Performing USEPA Rapid Bioassessment Protocols for benthic macroinvertebrates? You'll need this net!

- 1 x 1 meter square, 500 micron, tan net
- hemmed sides hold poles, reinforced bottom seam helps anchoring

Code 0021

**You Might Also Like:**
Leaf Pack Kit pg. 8
Bug Kit pg. 10
Macro Flashcards pg. 9
MacroMania pg. 10

## D-Net with Expandable Pole

D-Net with Expandable Pole

Order Code 0168 NH (7)

Replacement Bag

Order Code 0167B NH (1)

Twelve-inch rim dip net is fitted with a heavy canvas bag approximately 6.5" deep. Bag attached to metal frame with clamp rings. Bottom of bag is a mesh material of approximately 500 micron nylon. Canvas skirt extends three inches below bag bottom to protect mesh. Aluminum pole extends from 52" to 84". Replacement bags available.


Code 0172


Code 0168

# Sampling Equipment

## Rain Gauges

### Precision Rain Gauge

Order Code 1048 NH (1)

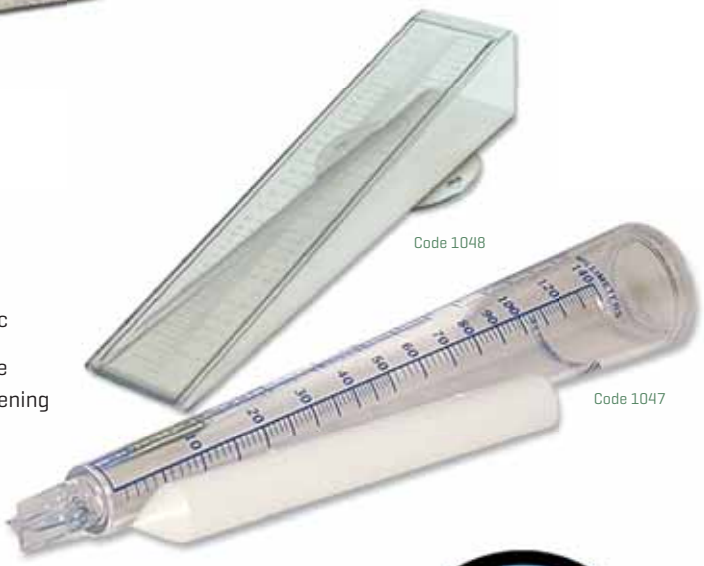
- wedge-shaped rain gauge is easy-to-read!
- large 2.5" x 2.3" opening
- precision-molded graduations
- measures 0.5 mm to 150 mm (or 0.01" to 6" )
- fasteners are included for post or fence mounting

### Tapered Rain Gauge

Order Code 1047 $14.80 NH (1)

10" long, durable clear rain gauge.

- tapered to fit a 6" white plastic ground stake (included), for convenient placement and use
- 31mm diameter collection opening
- includes fasteners for post or fence mounting
- measures rainfall of 1.0 mm to 140 mm or 0.1" to 5.5"



Code 1048

Code 1047

## Salinity Refractometer

Order Code 5-0020 NH (2)

- hand-held and easy-to-read!
- specific gravity (SG) and salinity (0/00) scales
- fully automatic temperature compensation over the range of 10° to 30°C
- rapid, accurate determinations require only a drop of sample

| | |
|---|---|
| Scales: | Specific Gravity, 1.000 to 1.070 Salinity ppt (0/00), 0 to 100 ppt |
| Resolution: | Specific Gravity to 0.001 Salinity ppt (0/00) to 1 ppt |


Code 5-0020

Code 3-0011

Code 1066

GLOBE

## Hydrometer

Order Code 3-0011 NH (1)

Precision specific gravity hydrometer for salinity measurement. Use with Hydrometer Jar and Armored Thermometer.

- graduated glass scale in divisions of 0.0005 from 1.0000 to 1.0700 Specific Gravity (SG)
- measures salinity from 0.0 to 43.6 ppt
- each unit checked against NIST certified standard
- supplied in a plastic tube
- table to convert reading to salinity in parts per thousand (ppt)
- 330 mm (13"), scale length is 140 mm (5.5"). Use with Hydrometer Jar (Code 3-0024) and Armored Thermometer (Code 1066)

### Hydrometer Jar

Order Code 3-0024 NH (3 )

Clear, durable (PMP) cylinder is never slippery—even when wet.

- molded, clear plastic 500 mL cylinder
- broad base for excellent stability

### Hydrometer Kit

Order Code 3-0025 NH (4)

Includes both hydrometer (3-0011) and jar (3-0024).

WARNING: Contains lead weights. Weights should not be handled by children under 14. Adult supervision recommended.

## Armored Thermometer

Order Code 1066 NH (1)

Discount on orders of 10 units, $15.05 each A precision, NON-MERCURY thermometer encased in protective plastic jacket.

- window opening
- engraved graduation on white tubing increases readability
- full range of –5° to 45°C in 0.5° increments

## AP® Environmental Science Water Quality Assessment Curriculum Module

NEW

Order Code 5845 NH (1)

The AP® Environmental Science WATER QUALITY ASSESSMENT MODULE includes and an extensive curriculum that uses the exploration of the Water Quality Index to teach students STEM-based skills that they will apply through classroom and field activities to satisfy Section VI (Water Pollution) of the AP® **Environmental Topics** Outline. Includes 10 Nutrient – TTC/MacConkey BioPaddles™ (Code 5553) for coliform testing, Salt/TDS/Temp Tracer (Code 1749-01) for temperature and TDS determination and Teacher Resource CD-ROM. Module is designed to be used with the Water Quality Educator (Code 5870-01, pg 12.)

Teacher Resource contains: Teacher/Student Guides, water quality field procedures, STEM-based activities, PowerPoint presentations, Quick Time iPad/iPod videos for Watershed Ecology, WQI, Water Pollution and Statistical Analysis. Also includes a **Free** LaMotte BioPaddles® Colony ID™ Lite app. (Page 23)


Code 5845


Code 5939

## The Shore Tour

Living Responsibly on the Edge of the Ocean

Grades 4-8/40 students

Order Code 5939 NH (5)

Refill R-5939 NH (1)

Five units teach students, through classroom lectures and activities, how their everyday actions affect the ocean. Whether they live in an urban, rural or a shore setting, students and their families can do things to help keep ocean and shore ecosystems healthy. Topics include an introduction to coastal ecosystems, energy conservation, pollution, estuaries, beach erosion and restoration, litter, recycling, oil spills, shoreline development and marine debris. Each unit is packed with activities and spotlights a traditional or not so traditional marine career. Real news stories and articles bring the lecture material to life. Includes data sheets and a thought-provoking game to bring it all together at the conclusion of the tour. Help students develop a sense of stewardship toward shores and oceans that will remain with them for the rest of their lives.

- informative lecture material with real life stories
- teacher tested activities from EPA, NOAA and The Marine Mammal Center
- CD with printable handouts, data sheets, and more
- links to activities and information from ocean experts
- complete hands-on curriculum
- spotlights of traditional and non-traditional marine careers
- step-by-step classroom activities, team data sheets and handouts
- incorporates science, math, language arts and social studies
- extensions and "Webquests" for each unit
- links to over 100 ocean-related resources

WARNING: This product is not a toy or game, but does contain small parts/pieces that could become a choking hazard.

**You Might Also Like:**

Marine Science pg. 11
Salinity Refractomer pg. 28
Hydrometer pg. 28

## The Tour Series

This series of complete, hands-on curricula is designed for elementary and middle-school environmental science education. Each Tour is a unique inquiry-based curriculum. They include lecture materials, illustrated hand-outs, teacher tips, test procedures, TesTabs® reagents and test strips, data sheets, and a variety of word puzzles to reinforce key concepts.

Tours may be used from cover-to-cover, or sections or activities may be used to mesh with current curriculum.

The Tours are ideal for use in classrooms with special populations. The flexible curriculum and activities can be adjusted to accommodate students with limited learning abilities, physical limitations, gifted and talented students, and those with limited English proficiency. There is something to keep everybody engaged in a learning activity!

# Curriculum Packages

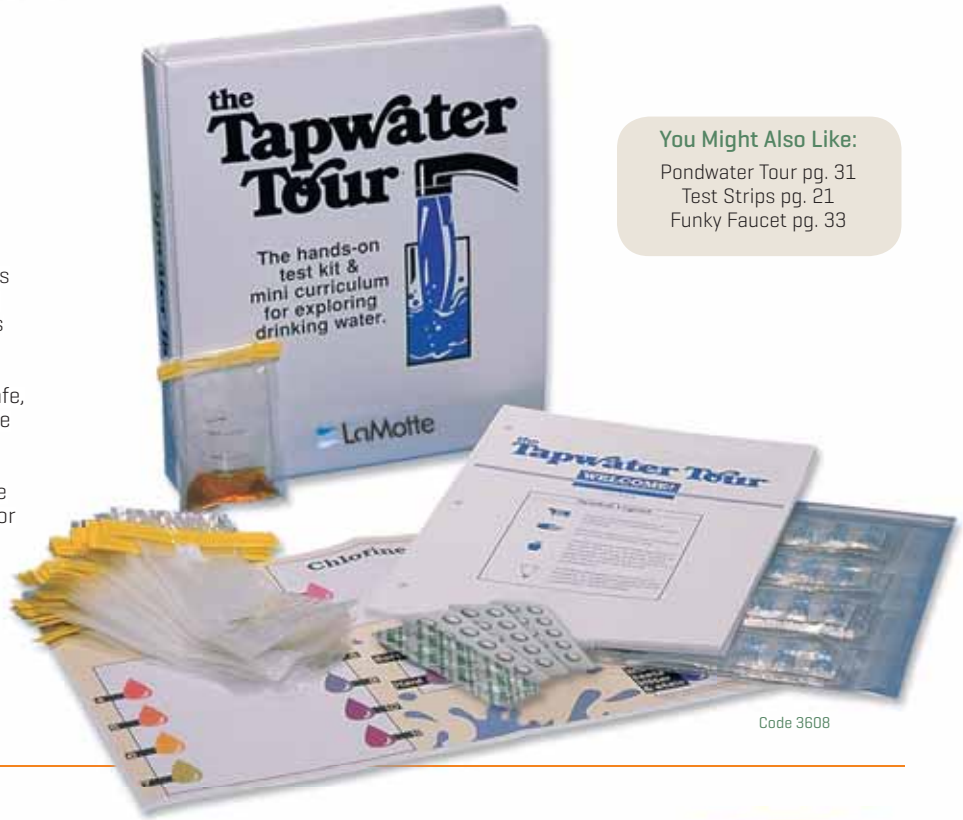
## The Tapwater Tour®

Grades 4-8/50 students

Order Code 3608 NH (4)

Reagent Refill R-3608 NH (1)

What's coming out of your tap? The Tapwater Tour is an exciting classroom investigation of water quality through the examination of the chemical properties of water directly from the tap. Each student on the Tapwater Tour completes several units while conducting his/her own water quality tests using safe, simple TestTabs® reagent tablets. Students learn the relationships between good and poor water quality while examining the pH, chlorine, hardness, copper and iron of water from the tap. Incorporates science and math activities. Tablets and sample test bags for 50 students.




Code 3608

**You Might Also Like:**


Pondwater Tour pg. 31
Test Strips pg. 21
Funky Faucet pg. 33


Study a Watershed in the Classroom!

## The Watershed Tour™

Grades 4-8/30 students

Order Code 5419 NH (4)

Reagent Refill R-5419 NH (1)

Can't get your class to a river? Need a meaningful watershed experience? Study a virtual watershed! Through a week-long series of activities students "test" four sites along a river continuum—from the headwaters to the mouth—to study how the river changes, and how human activities influence water quality. Introduce students to stream and river ecosystems through a classroom-based tour of a virtual watershed. The class will learn about stream ecology, water quality issues and their own connection to a watershed using TesTabs® tablet tests, games and activities. Incorporates science and math and geography activities. Includes lecture materials, illustrated handouts, teacher's tips, test procedures, TesTabs® reagents, data sheets and games. TesTabs® reagents and test tubes for 30 students in groups.


Code 5419

# Curriculum Packages


Code 5418

## Pondwater Tour

Grades 4-8/50 students

Order Code 5418 N (4)

Reagent Refill R-5418 N (1)

Study and measure changes in water quality in any body of water—from lakes to aquariums! The Pondwater Tour is a great classroom introduction into the study and measurement of changes in the water quality of a lake, stream, pond, aquarium or even a fish bowl. Each student on the Pondwater Tour conducts water quality tests for pH, dissolved oxygen, nitrate and ammonia using safe, simple TesTabs® reagent tablets. Students investigate natural processes and variables that create changes in water quality over time. Incorporates science and math activities. Tablets and sample test bags for 50 students.


Code 5425-01

## The Topsoil Tour

Grades 4-8/50 students

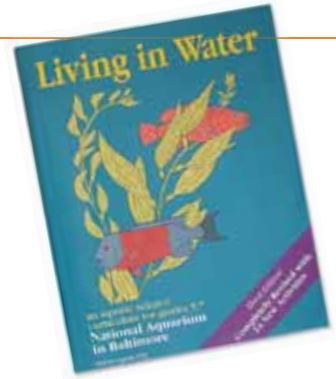
Order Code 5425-01 NH (4)

Reagent Refill R-5425-01 NH (1)

Get the dirt on your dirt! The Topsoil Tour is an exciting classroom investigation into the physical and chemical properties of soil. Each student on the Topsoil Tour completes seven units while conducting his/her own soil tests for soil texture, pH, nitrogen, phosphorus and potassium using safe, simple TesTabs® reagent tablets. Incorporates math and science activities. Tablets and sample test bags for 50 students.

**You Might Also Like:**

NPK Soil Kit pg. 48
Nitty Gritty Soil Kit pg. 34
Soil pH Kit pg. 48
Soil Sampler pg. 49




## Living in Water

Department of Education at the National Aquarium in Baltimore

Order Code 1598

An aquatic science textbook containing 50 activities that integrate physical, earth and life science. It can be used as a complete curriculum or individual activities. Classroom based scientific studies of water, aquatic environments and the plants and animals that live in water. Field studies can be adapted for use in any body of water form the ocean to a fish bowl.

# Curriculum Packages


Code 5962

## Classroom Studies Series

Ten Lab Packages for Water & Soil Demonstrations
Grades 5-8

- teacher manual
- introductory information
- student procedures/data sheets (to reproduce)
- lesson plans included
- soil samples for all soil units
- reagent composition information
- apparatus and reagents for 5 teams to perform 5 demonstrations each, or a total of 25 demonstrations
- reagent refills available

These lab packages are designed to reinforce key concepts introduced in lecture materials on drinking water treatment and water and soil environmental studies. Teacher manual includes tips on organizing the lab demonstration, introductory information on each test factor and suggestions for additional experiments.

| Order Code | Description | | Shipping | Refill | Refill/ Shipping |
|---|---|---|---|---|---|
| 5962 | Water Treatment Lab | Investigate odor, color and turbidity of drinking water and water treatment processes. | NH (2) | R-5962 | NH (1) |
| 5963 | Dissolved Oxygen Lab | Demonstrate the importance of dissolved oxygen in natural waters. Create your own samples, relating the importance of temperature to oxygen saturation. | NH (2) | 3976A-H | NH (1) |
| 5964 | Water pH Lab | Learn the importance of pH and how it is adjusted in various water samples. Create your own demonstrations using various household items. Range 3-8 pH | NH (2) | R-5964 | NH (1) |
| 5965 | Soil pH Lab | Determine the soil pH of known samples as well as your own samples. | NH (2) | R-5965 | NH (1) |
| 5966 | Soil Texture Lab | Separate the sand, silt, and clay fractions of a known soil sample. Determine the soil texture of a soil sample from your garden. | NH (2) | 5644WT-H | NH (1) |
| 5967 | Hardness In Water Lab | Measure the hardness of a known sample and demonstrate the aesthetic effects of drinking water. 1 drop = 1 gpg | R1 (2) | | |
| 5968 | Soil Nutrients – Nitrate Lab | Review the importance of these nutrients and their affect on plant growth and nutrition. Soil samples included. Each lab sold separately. | R2 (2) | R-5968 | R2 (1) |
| 5969 | Soil Nutrients – Phosphorus Lab | | R1 (2) | R-5969 | R1 (1) |
| 5970 | Soil Nutrients – Potassium Lab | | NH (2) | R-5970 | NH (1) |
| 5971 | Nutrients in Water Lab | Measure nitrate and phosphate in prepared samples. Learn the importance of these nutrients as pollution indicators. | NH (2) | R-5971 | NH (1) |

English & Spanish Instructions!


Code 3-5886

## Earth Force Low Cost Water Monitoring Kit

Ages 8 and up

Order Code 3-5886 NH (1)

Need to test fresh, brackish or saline water? Designed as a sampler that is a great introduction to any water quality monitoring program. This kit provides hands-on methods using TesTabs®. For long term monitoring, consider the Earth Force Standard Water Monitoring kit, code 5848, on page 7. Both kits are ideal for citizen monitoring, too.

- 8 different test factors: pH, dissolved oxygen, biochemical oxygen demand, temperature, turbidity, nitrate, phosphate and coliform bacteria
- manual with step-by-step diagrammed instructions in both English and Spanish
- all necessary apparatus
- safe, non-hazardous TesTabs® to test 10 water samples (3 for coliform)
- laminated color chart

**You Might Also Like:**

Wet Your Waders pg. 7
Tapwater Tour pg. 30
Water Treatment Lab pg. 32
Funky Faucet pg. 33
Science Project Kits pg. 35


Code 5918

## Urban Water Test Kit

Grades 3 and up

Order Code 5918 NH (1)

Test tap water from any source and study the impact of urban water on the city's environment! "Wet in the City," a hands-on kit, introduces the basic concepts of water chemistry–even to kids as young as third grade! Non-hazardous TesTabs® make "Wet in the City" an easy and safe kit that's also portable! Contains a comprehensive handbook and all necessary equipment to test for the following factors, 10 repetitions each, 5 for coliform bacteria.

| Test Factors | |
|---|---|
| Chlorine | Nitrate |
| Copper | pH |
| Dissolved Oxygen | Phosphate |
| Hardness | Temperature |
| Iron | Coliform Bacteria |


Code 5914

## Funky Faucet Sink Science

Ages 8 and up

Order Code 5914 NH (1)

What's coming out of your funky faucet? Test tap water for pH, chlorine, hardness, copper and iron. Learn while you laugh with Just for Fun activities including make your own lava lamp and edible experiments like the Pollution Parfait.

- non-hazardous TesTabs reagents to run 10 tests each
- instructions for 5 simple water quality tests
- test tubes
- word search games
- internet connections

GLOBE

## NPK Soil Test Kit

Grades 5 and up

Order Code 3-5880 NH (1)

Specifically designed to meet the needs of the GLOBE Program™, this kit is safe, fun and can easily ship anywhere!

- 50 tests each for nitrogen, phosphorus and potassium
- uses non-hazardous TesTabs®
- all necessary apparatus
- simple, diagrammed instructions
- laminated color chart


Code 3-5880

## Soil pH Test Kit

Grades 5 and up

Order Code 5912 NH (1)

By popular demand, TesTabs® method. Companion to Soil NPK kit (Code 3-5880). Simple diagrammed instructions.

- 50 tests for pH
- Wide range 4-11 in 1.0 pH units
- Distilled or deionized water recommended


Code 5912

## Nitty-Gritty Soil Science

Ages 8 and up

Order Code 5913 NH (1)

Make friends with earthworms, and discover the importance of composting. This kit is a great introduction to the basic concepts of soil science! Investigate healthy plant requirements for proper soil texture, ideal levels of soil pH and nutrients. Learn to perform pH, nitrate, phosphate and potassium soil tests (using non-hazardous TesTab tablet methods). Reagents for 10 tests of each test factor are included.


Code 5913

Under $30

## Aquatic Bug Kit

Ages 8 and up

Order Code 5950 NH (1)

A creepy-crawly, wet investigation into the health of any freshwater environment. Following the easy-to-read manual, one to two students collect, observe, sort and identify aquatic insects as a guide for establishing water quality. Students complete the activity at home or spend an afternoon outdoors beside a stream or pond.

- mesh leaf bags for collection
- plastic dishes for sorting
- magnifying lens
- BUGGUIDE—a bug-by-bug description
- BUGBOARD identification chart
- manual, including activities, games and web links


Code 5950

## Science Project Kits™

Grades 3 and up

It's Science Fair time again, and students need a project. Don't panic! These kits will guide them through the entire process, from choosing a subject, doing research, collecting data and displaying the results. TesTabs®, test tubes and project ideas are included.


Code 3-5874

| Order Code | Description | | Shipping |
|---|---|---|---|
| 3-5873 | pH · Discover The pH of Things Around You | Create an experiment to test household items and make a pH scale. Topics include acid rain, corrosion, acids and bases. 20 tests. | NH (1) |
| 3-5874 | Nitrogen · Find Out About Nutrients In Soil & Plants | Test soil samples for nitrogen or demonstrate the effects of water pollution while learning about plant nutrition, fertilization and pollution of lakes and streams. 20 tests. | NH (1) |
| 3-5875 | Bacteria · Search For Environmental Bacteria | How is water tested to ensure its safety for drinking and swimming? This kit explains how and contains three tests for checking water samples for coliform bacteria. 3 tests. | NH (1) |
| 3-5876 | Chlorine · Explore Clean Water | Use TesTabs® to measure water samples for safe levels of sanitizers in swimming pools and other water samples. 20 tests. | NH (1) |
| 3-5877 | Copper/Iron · Investigate Metals & Corrosion | How does corrosion damage water systems and metal surfaces? Demonstrate corrosion and measure the amount of copper and iron in water samples. 10 tests each. | NH (1) |
| 3-5878 | Dissolved Oxygen · Study Oxygen In Water | Dissolved oxygen is important to healthy aquatic environments—find out why! Perform dissolved oxygen tests on water samples and measure the effects of pollution. 10 tests. | NH (1) |
| 3-5879 | Hardness · Measure & Learn About Hard Water | Soap scum! Learn how hardness affects water systems and determine the hardness level of water samples. 10 tests. | NH (1) |


Water Resistant!

## pH TRACER

Order Code 1741 NH (1)

- read pH from 0.00–14.00 pH to 0.01 pH resolution
- supplied with 4, 7, 10 pH buffer tablets
- automatic self calibration to 1, 2 or 3 points
- extra bold display includes analog bar graph feature
- memory can store up to 15 readings
- chlorine and pH modes also display sample temperature
- unit identifies which probe is in use and retains calibrations
- automatic shut-off and low battery indicator; uses four LR-44 batteries
- optional total chlorine probe makes unit a true ISE; TCl tablets required

### pH TRACER Accessories

| Code | Description |
|---|---|
| 1733 | pH Probe; Range: 0–14.00/±0.01 pH |
| 1734 | ORP probe; Range: ±999mV/±4mV |
| 1732 | $Cl_2$ probe; Range: 0–10.00/±10% of reading |
| 7044A-J | Cl tablets, 100 pack |

## pH/Conductivity TRACER

pH/ConductivityTRACER

Order Code 1766 NH (1)

pH/Conductivity Sensor only

Order Code 1755 NH (1)

- measure 5 parameters including Conductivity, TDS, Salinity, pH and Temperature using one electrode
- units of measure: pH, µS, mS, ppm, mg/L, g/L, °C, °F
- memory stores up to 25 labeled readings
- auto power off and low battery indicator

| Decription | Range | Resolution | Accuracy |
|---|---|---|---|
| Conductivity | 0 to 199.9 µS, 200 to 1999 µS, 2.00 to 19.99 mS | 0.1 µS | ±1% |
| TDS/Salinity | 0 to 99.9 ppm (mg/L), 100 to 999 ppm (mg/L), 1.00 to 9.99 ppt (g/L) | 0.1 ppm (mg/L) | ±2% |
| pH | 0.00 to 14.0 pH | 0.01 pH | ±0.01% |
| Temperature | 32° to 149°F (0° to 65°C) | 0.1°F/C | ±1.8°F/°C |

**Code 1766:**
Use separate pH & Conductivity/TDS meters if sample conductivity is less than 200 µs. High conductivity readings may result using a combined pH/conductivity/TDS meter in low conductivity samples. Separate meters are available.

## EC/TDS/Salt TRACER

Salt/TDS/Temp TRACER
Order Code 1749 NH (1)
Salt/TDS/Temp Sensor only
Order Code 1765 NH (1)

- easy to use, water resistant design
- 1-2% accuracy for EC, TDS and salt modules
- automatic temperature compensation
- memory can store up to 15 readings
- auto shut off and low battery indicator
- uses four SR-44W batteries

| Description | Range | Resolution | Accuracy |
|---|---|---|---|
| Conductivity | 0 to 199.9 µS, 200 to 1999 µS, 2.00 to 19.99 mS | 0.1 µS | ±1% |
| TDS/Salinity | 0 to 9,999 ppm (mg/L) | 0.1 ppm (mg/L) | ±2% |
| Temperature | 32° to 149°F (0 to 65°C) | 0.1°F/°C | ±1.8°F/°C |

### EC/TDS/Salt TRACER Accessories

| | | |
|---|---|---|
| Conductivity Standard, 1413 µS, 500 mL | Order Code 6354-L | NH (1) |
| Conductivity Standard, 12,880 µS, 500 mL | Order Code 6317-L | NH (1) |
| pH Buffer Solution (See page 39) | | |

## Dissolved Oxygen TRACER

| | | |
|---|---|---|
| Dissolved Oxygen Tracer | Order Code 1761 | NH (1) |
| DO Sensor Module | Order Code 1762 | NH (1) |

- oxygen level displayed as % Saturation from 0 to 200.0% or Concentration from 0 to 20.00 ppm (mg/L)
- adjustable Altitude Compensation (0-20,000 ft in 1,000 ft increments)
- adjustable Salinity Compensation from 0 to 50 ppt
- memory stores up to 25 data sets with DO and Temperature reading
- self-calibration on power up; Data Hold, Auto power off, Low battery indicator
- optional 3 ft (1m) or 16 ft (5m) extension cable
- complete with DO electrode, protective sensor cap, spare membrane cap, electrolyte, four 1.5V SR44W batteries and 48" (1.2m) neckstrap

| Description | Range | Resolution | Accuracy |
|---|---|---|---|
| DO (sat. mode) | 0 to 200.0% | 0.1% | ±2% FS |
| DO (conc. mode) | 0 to 20.00 ppm (mg/L) | 0.01 ppm (mg/L) | 0.4 ppm (mg/L) |
| Temp. | 32 to 122°F (0 to 50°C) | 0.1°F/°C | ±1.8°F (1°C) |

### Optional TRACER Accessories

| | | |
|---|---|---|
| DO Membrane Kit (6 screw-on membranes and solution) | Order Code 1761M | NH (1) |
| Weighted Stand w/Sample Cups (5) | Order Code 1746 | NH (1) |
| Sample Cups w/caps (24) | Order Code 1745 | NH (1) |
| DO Extension Cable (1 meters) | Order Code 1763 | NH (1) |
| DO Extension Cable (5 meters) | Order Code 1764 | NH (1) |

## 2020we Portable Turbidity Meter

Order Code 1970-EPA NH (6)

Perfect for field and laboratory applications, this compact and easy-to-use instrument is an exceptional value. This meter meets or exceeds EPA turbidity testing requirement US EPA 180.1 standard and is waterproof to IP67.

- Waterproof to IP67
- Lithium rechargeable battery
- USB port
- 7 languages
- Backlit display
- Waterproof carrying case

### Specifications

| | |
|---|---|
| Instrument Type: | Nephelometric turbidity; calibrated in NTUs |
| Range: | 0-4000 NTU |
| Resolution: | 0.01 from 0-10.99 NTU, 0.1 from 11-109.9 NTU, 1 from 110-4000 NTU |
| Response Time: | <2 seconds |
| Languages: | English, French, Spanish, Japanese, Italian, Portugese, Chinese |
| Accuracy: | From 0-2.5 NTU/±0.05 NTU; From 2.5-100 NTU/±2%; Above 100/±3% |
| Display: | 6-line with backlit display; 160 x 100 backlit LCD; 20 x 6 line graphics |
| Light Source: | Tungsten (EPA), complies with EPA 180.1 standard |
| Sample Chamber: | Accepts 25 mm diameter flat-bottom, screw-capped, sample tubes |
| Serial Interface: | USB |
| Power: | USB computer/wall adapter or lithium ion rechargeable battery, 3.7V |
| Size (LxWxH): | 7.5 x 3.5 x 2.5 inches |

Code 1970-EPA

Waterproof!


## PockeTesters

They float! These waterproof PockeTesters can be intermittently submerged to a depth of 3 feet and the waterproof feature makes cleanup easy and quick. Replacement electrodes help to reduce long-term costs.

| | TDS PockeTester | EC Conductivity PockeTester |
|---|---|---|
| Model | TDS PockeTester 11 Dual Range | EC PockeTester 11 Dual Range |
| Waterproof | 5-0080 · $87.00 | 5-0082 · $94.35 |
| Range | 0 to 1,990 ppm, 0 to 10.00 ppt | 0-2000 µS, 0-20 mS |
| Resolution | 10 ppm, 0.10 ppt | 10 µS, 0.10 mS |
| Accuracy | ±1%FS | ±1%FS |
| Calibration | Against appropriate calibrating solutions; Single point | One-point, push button calibration using buttons inside battery compartment |
| Operating Temperature | 32 to 122°F; 0 to 50°C | 32 to 122°F; 0 to 50°C |
| Temperature Compensation | Automatic (ATC) 0 to 50°C | Automatic (ATC) 0 to 50°C |
| Special Functions | Full reading displayed | Full reading displayed |
| Power & Battery Life | Four 1.5V batteries (supplied); 100 hrs. continuous use | Four 1.5V batteries (supplied); Eveready A76BP, 100 hrs. use; Eveready 303, 140 hrs use |
| Replacement Electrode | 5-0084 | 5-0084 |
| Shipping | NH (1) | NH (1) |
| Size (LxWxH) | 8.5" x 2.4" x 2.5" (boxed) 6.5" x 1.5" diameter (unit) | 8.5" x 2.4" x 2.5" (boxed) 6.5" x 1.5" diameter (unit) |

## pH PockeTesters

| Model | pH 10 | pH 20 |
|---|---|---|
| Waterproof | 5-0103 | 5-0104 |
| Range | –1.0 to 15.0 pH extended range | |
| Resolution | 0.1 pH | 0.01 pH |
| Accuracy | ±0.1 pH | ±0.01 pH |
| Calibration | Select up to 3 points (4.0, 7.0, 10.0) | |
| Operating Temperature | 32 to 122°F; 0 to 50°C | |
| Temperature Compensation | Automatic (ATC) 0 to 50°C | |
| Special Functions | On/Off or Auto-Off after 8.5 min.; HOLD; CALibrate; CONfirm | |
| Power & Battery Life | Four 1.5 V alkaline cell batteries (supplied), 500 hours use | |
| Replacement Electrode | 5-0097 | |
| Size (LxWxH) | 8.5"L x 2.4"W x 2.5"H (boxed), 6.5"L x 1.5" diameter (unit) | |
| Shipping | NH (1) | |

## Standardized pH Buffer Solutions

For use in calibration of pH meters.
Available in 120 mL (-J) and 500 mL (-L) sizes.

| pH Value | Order Code |
|---|---|
| 4.00 | 2866 |
| 7.0 | 2881 |
| 10.00 | 2896 |


## Conductivity/TDS Solutions

| Value | Order Code |
|---|---|
| 74 µmohs/cm, 52 ppm | 6416-L |
| 718 µmohs/cm, 503 ppm | 6417-L |
| 1,413 µmohs/cm,989 ppm | 6354-L |

1 µmohs = µS

## Digital Dissolved Oxygen & Temperature Meter

Order Code 5-0107-01 $606.25 NH (3)

Portable hand-held dissolved oxygen meter designed to provide measurements for the most critical water quality parameter. Digital readout provides mg/L, % saturation and temperature readings by selecting a mode. Features automatic temperature compensation (ATC) for mg/L and % saturation; salinity compensation is manual by direct dial. Meter comes packaged in a convenient carrying case with 2 replacement membrane cartridges, electrolyte and protective probe storage bottle.

- No meter warm-up required
- Low maintenance probe
- Key in salinity and pressure values manually
- Independent 100% and zero adjustment calibrations
- Offset adjustment capabilities
- Displays electrode diagnostics
- Easily toggle from mg/L (ppm) or % saturation to temperature mode

### Optional Accessories

| | | |
|---|---|---|
| Replacement probe w/3 ft cable | Order Code 5-0129 | NH (1) |
| DO Replacement membranes (2) and electrolyte solution | Order Code 5-0137 | NH (1) |


Code 5-0107-01

| | Range | Resolution | Accuracy |
|---|---|---|---|
| mg/L | 0.00 to 20.00 mg/L (ppm) | 0.01 mg/L (ppm) | ±1.5% FS |
| % Saturation | 0.00 to 200.0% | 0.1% | ±1.5% FS |
| Temperature | -0.5 to 105°C | 0.1°C | ±0.5% C |
| Salinity Correction | 0.0 to 50.0 ppt | 0.1 ppt | Method: Automatic correction after manual input |
| Barometric Pressure Correction | 500 to 1499 mm Hg (66.6 to 199.9 kPA) | 1 mm Hg (0.1 kPA) | Method: Automatic correction after manual input |
| Temperature Compensation | Automatic or manual from 0.0 to 50.0°C | | |
| % Saturation Calibration Points | 100% in saturated air or air-saturated water<br>0% in zero oxygen solution | | |
| Response TIme | 60 seconds to achieve 95% of the reading | | |
| Operating Temperature | 0 to 50°C | | |
| Probe | Galvanic/Thermistor; 3 ft probe cable | | |
| Power | Fout 1.5V AA batteries (included), > 700 continuous use | | |
| Dimensions | 5.5" L x 2.7" W x 1.3" H | | |
| Weight | 1.0 lb (0.45 kg) | | |

# Electronic Instrumentation

Code
5-0038-02

## Conductivity Meters

| Model | CON 6 Plus Meter | TDS 6 Plus Meter | CON 6 Plus & TDS 6 Plus |
|---|---|---|---|
| | (Conductivity) | (TDS) | (Temperature) |
| Order Code | w/out case 5-0038-02<br>w/case 5-0039-02 | w/out case 5-0036-02<br>w/case 5-0037-02 | Included |
| Range: | 0.0 to 20.00, 200.0, 2,000. µS/cm<br>0 to 20.00, 200.0 mS/cm | 0.0 to 10.00, 100.0, 1000 ppm<br>0 to 10.00, 100.0, 200 ppt | -10.0 to 110.0°C |
| Resolution: | 0.01, 0.1, 1µS, 0.01, 0.1 mS/cm | 0.01, 0.1, 1 ppm, 0.01, 0.1, 1 ppt | 0.1°C |
| Accuracy: | ±1% full scale | ±1% full scale | ±0.5°C |
| Calibration: | one point per range (five points if each range is calibrated) | | Offset 0.1°C increments |
| | Auto- or Manual-ranging | | Selectable |
| | Auto Standard Recognition | | Selectable (Con 6 Plus) |
| Temperature Compensation: | Automatic/Manual from 0 to 50°C | | |
| Power: | 4 AAA alkaline batteries (supplied) >60 hours continuous use | | |
| Operating Temperature: | 32 to 122°F; 0 to 50°C | | |
| Shipping | NH (3) | | |
| Size: | 2.8" W x 5.8" H x 1.4" D | | |

## pH Meters

GLOBE

Code
5-0034-01

| Model | pH 5 Plus | | pH PLUS DIRECT 2 | | | |
|---|---|---|---|---|---|---|
| | (pH) | (Temperature) | pH | Temperature | Concentration | mV |
| Order Code | w/out case 5-0034-01<br>with case 5-0035-01 | | pHPLUS Direct 2 meter, liquid buffers (4, 7, 10) w/case Order Code 5-1936-01<br>pH Electrode, gel filled Order Code 1904<br>Temperature Probe Order Code 1909 | | | |
| Range: | 0.00 - 14.00 pH | 0.0 - 100.0°C | 0.00 to 14.00 pH | 001 to 100.0°C | 0.01 to 1999 ppm | -500 to 500 mV |
| Resolution: | 0.01 pH | 0.1°C | 0.01 pH | 0.1°C | 0.01, 0.1, 1 ppm | 0.1 mV |
| Accuracy: | ±0.01 pH | ±0.5°C | ±0.01 pH | ±0.5°C | ±1% of reading | ±0.2, 2 mV |
| Calibration: | Auto Buffer Recognition Up to 3 Buffer Values (USA, NIST, Pb) | 0.1°C increments | 1 to 3 points (USA, NIST, pH) | | 2 to 3 points (min 2 points) | |
| Temperature Compensation: | Automatic/Manual (0 to 100°C) | | Automatic/Manual (0 to 100°C) | | | |
| Power: | 4 AAA alkaline batteries (supplied) 500 hours | | 4 AAA alkaline batteries (supplied) 500 hours | | | |
| Auto shut-off: | After 17 minutes | | After 17 minutes | | | |
| Operating Temperature: | 32 to 122°F; 0 to 50°C | | 32 to 122°F; 0 to 50°C | | | |
| Electrode: | | | Epoxy, Ag/AgCl | | | |
| Shipping | NH (3) | | NH (3) | | | |
| Size: | 2.8" W x 5.8" H x 1.4" D in. | | 2.8" W x 5.8" H x 1.4" D in. | | | |

## Optional ISE Electrodes

Although the pHPLUS Direct reads directly in ppm, an initial calibration is required. The standard solution, replacement electrolyte, ionic strength adjustor and pipet are included in the Accessory Kit. The ammonia accessory kit also contains replacement membranes.

### Accessory Kits

| | |
|---|---|
| Ammonia | Order Code 5-0098 |
| Nitrate | Order Code 5-0100 |

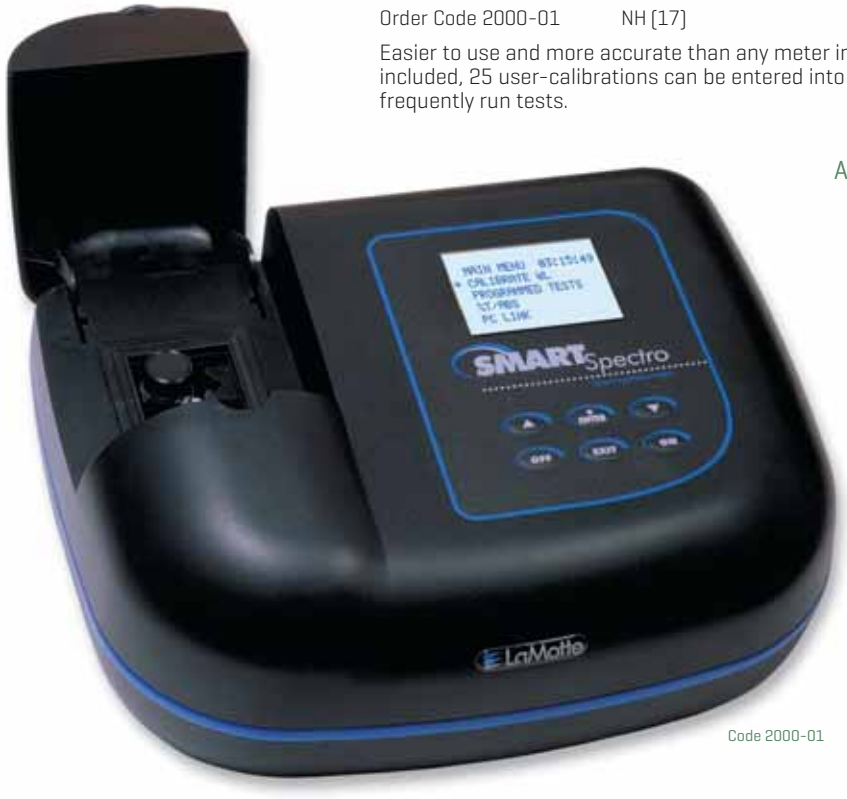
### Ion Selective Electrodes

| | |
|---|---|
| Ammonia | Order Code 5-0043 |
| Fluoride | Order Code 5-0048 |
| Nitrate | Order Code 5-0052 |

# SMART Spectro™ Spectrophotometer

Order Code 2000-01 NH (17)

Easier to use and more accurate than any meter in its price range. Over 80 pre-programmed tests included, 25 user-calibrations can be entered into the memory and sequences can be customized for frequently run tests.




Code 2000-01

## Advanced Features

- wide wavelength range
- menu-driven display
- high resolution, exceptional accuracy
- automatic wavelength selection
- unique optical design system using a 1200 lines/mm grating
- pre-programmed tests
- portable, includes 6 sample tubes (25mm round), 2 sample cell holders (25mm round and COD, 10 mm cuvettes), AC adapter, battery charger, instruction manual including test procedures and Quick Start Guide

Economical reagent systems! Pages 42-43

## Standard Solutions

| Test Factor | Size | Conc. | Code | Shipping |
|---|---|---|---|---|
| Ammonia-Nitrogen | 60 mL | 100 ppm | 3871-H | NH |
| Chlorine | 60 mL | 250 ppm | 6973-H | NH |
| Chlorine | 60 mL | 1000 ppm | 3858-H | NH |
| Nitrate-Nitrogen | 60 mL | 1000 ppm | 5392-H | NH |
| Phosphate | 60 mL | 1000 ppm | 5393-H | NH |
| Sulfate | 60 mL | 2000 ppm | 7120-H | NH |
| pH | 120 mL | 4.0 pH | 2866-J | NH |
| pH | 120 mL | 7.0 pH | 2881-J | NH |
| pH | 120 mL | 10.0 pH | 2896-J | NH |

Shipping Codes listed in front of catalog.

## Specifications

| | |
|---|---|
| Wavelength Range: | 350-1000 nm |
| Wavelength Accuracy: | ±2 nm |
| Wavelength Resolution: | 1 nm |
| Wavelength Bandwidth: | 5 nm (max) |
| Photometric Range: | 0-125%T, -0.1-2.5A |
| Photometric Accuracy: | ±0.005A |
| Photometric Stray Light: | <0.5 %T |
| Light Source: | Quartz halogen |
| Sample Chambers: | 25 mm round cell, 10 mm square cuvette UDV, COD |
| Optical Mount: | Modified Ebert, 1200 grooves/mm ruled grating |
| Modes: | Conc., %T, ABS |
| Power: | 110/220 volt or battery pack (rechargeable) |
| Weight: | 4.65 kg (10.3 lb) |
| Size: | 13.8" x 11" x 6.7" |

Code 5-0102

## Optional Accessories

| Description | Order Code | Shipping |
|---|---|---|
| Carrying Case | 2000-CS | NH (6) |
| Battery Pack with Holder (rechargeable) | 2000-BP | NH (2) |
| SmartLink3 Software with cable (See page 38) | 1912-CD | NH (2) |
| COD Heater Block (for Total N & P analysis) | 5-0102 | NH (15) |

Economical reagent systems!

## SMART3 Colorimeter

Order Code 1910 NH (6)

The user-friendly waterproof SMART3 Colorimeter is the direct reading colorimeter for complete on-site water analyses. Over 80 pre-programmed tests can be run on this compact instrument and each test features automatic wavelength selection. The entire multi-LED optical system is embedded in the light chamber and optimized for LaMotte test reagent systems. This enables the analyst to select a wavelength and read a reacted sample. The microprocessor, which selects the wavelength, also allows the user to load up to 25 tests for analyzing custom reagent systems. Features seven user selected languages. Comes with 6 sample tubes, USB wall/computer adapter and instruction manual.


Code 1910



### Optional Accessories

| Description | Order Code | Shipping |
|---|---|---|
| Small Field Carrying Case | 1910-GCS150 | NH (7) |
| Large Carrying Case | 1910-GCS440 | NH (9) |
| USB Cable | 1720 | NH (1) |
| USB Wall Adapter | 1721 | NH (1) |
| COD/UDV Adapter | 1724 | NH (1) |
| Car Charger | 5-0132 | NH (1) |

## SMARTLink 3 Program & Interface Cable

Order Code 1901-CD NH (1)

Interface the SMART Spectro and SMART3 Colorimeter with a Windows®-based personal computer. The program can be used to download data stored in the dataloggers of the SMART Spectro and the SMART3 Colorimeter. The program allows the user to identify, organize, view, manipulate and store data as a database on a PC. Data can also be copied and pasted or exported to other applications as a CSV file.


Code 1901-CD

### Specifications

| | |
|---|---|
| Light Source | LED/filter setup at 428nm, 525nm, 568nm, 635nm, 638nm |
| Detector | Photodiode |
| Display | 160 x 100 Backlight LCD, 20 x 4 line graphic display |
| Range | 0-125%T |
| Resolution | 1% FS |
| Accuracy | 2% FS |
| CE Mark | Yes |
| Sample Cell | 25 mm round cell, 10 mm square cuvette, 16mm COD tubes |
| Power | USB computer/wall adapter or lithium ion rechargeable battery |
| Battery Life | Charge Life: Approx. 380 tests with backlight on to 1000 tests with backlight off. (Signal averaging diabled).<br>Battery Life: Approx. 500 charges. |
| Datalogging | Up to 500 data points; USB transfer, time and date stamped |
| Calibration | Factory set-user adjustable |
| Keypad | 6-button mechanical |
| Size | 7.5 x 3.5 x 2.5 inches |
| Weight | 15 ounces |

## SMART Spectro & SMART3 Reagent Systems

| Test Factor | Test Method (# of reagents) | SMART Spectro Range ppm | SMART3 Colorimeter Range ppm | # of Tests | Order Code | Shipping |
|---|---|---|---|---|---|---|
| Alkalinity UDV | Unit Dose Vial (1) | 15-200 | 10-250 | 100 | 4318-J | NH |
| Aluminum | Eriochrome Cyanine R (4) | 0.01-0.30 | 0.01-0.30 | 50 | 3641-01-SC | NH |
| Ammonia Nitrogen (Fresh & Salt Water) | Salicylate (3) | 0.02-1.00/ 0.10-1.00 | 0.05-1.00/ 0.10-1.00 | 25 | 3659-01-SC | R2 |
| Ammonia Nitrogen HR | Nesslerization (2) | 0.05-4.00 | 0.05-4.00 | 50 | 3642-SC | R1 |
| Barium | Turbidimetric with Sodium Sulfate (1) | ---- | 0-200 | 50 | 3638-SC | NH |
| Benzotriazole | UV Photolysis (4) | 1-30 | 0.5-30.0 | 50 | 4047-01 | R1 |
| Biquinide | Colorimetric (1) | 5-70 | 2-70 | 50 | 4044 | NH |
| Borate UDV | Unit Dose Vial (1) | ---- | 5-80 | 100 | 4322-J | NH |
| Boron | Azomethine-H (2) | 0.05-0.80 | 0.05-0.80 | 50 | 4868-01 | NH |
| Bromine LR | DPD Tablets (2) | 0.04-9.00 | 0.10-9.00 | 100 | 3643-SC | NH |
| Bromine UDV | Unit Dose Vial DPD (1) | 0.3-22.0 | 0.1-22.0 | 100 | 4311-J | NH |
| Cadmium | PAN (4) | 0.02-1.00 | 0.04-1.00 | 50 | 4017-01 | R1 |
| Carbohydrazide | Iron Reduction (3) | 0.005-0.900 | 0.01-0.90 | 100 | 4857 | R1 |
| Chloride TesTab | TesTab (1) | 0.5-30.0 | 0.4-30.0 | 50 | 3693-SC | NH |
| Chlorine | DPD Tablets (3) | 0.02-4.00 | 0.03-4.00 | 100 | 3643-SC | NH |
| Chlorine - Free UDV | Unit Dose Vial (1) | 0.01-10.00 | 0.10-10.00 | 100 | 4311-J | NH |
| Chlorine - Liquid DPD | DPD (3) | 0.025-4.000 | 0.03-4.00 | 144 | 4859 | R1 |
| Chlorine - Total UDV | Unit Dose Vial (1) | 0.1-10.0 | 0.10-10.00 | 100 | 4312-J | NH |
| Chlorine Dioxide | DPD tablet/Glycine (2) | 0.04-7.00 | 0.06-8.00 | 100 | 3644-SC | NH |
| Chromium (Hexavalent) | Diphenylcarbohydrazide (1) | 0.01-1.00 | 0.01-1.00 | 100 | 3645-SC | HA |
| Chromium (Total, Hex & Trivalent) | Diphenylcarbohydrazide (5) | 0.03-1.00 | 0.01-1.00 | 100 | 3698-SC | HF |
| Cobalt | PAN (3) | 0.02-2.00 | 0.04-2.00 | 50 | 4851-01 | HF |
| COD LR with Mercury | Digestion (1) | 5-150 | 5-150 | 25 | 0075-SC | R1 |
| COD LR without Mercury | Digestion (1) | 5-150 | 5-150 | 25 | 0072-SC | R1 |
| COD SR with Mercury | Digestion (1) | 50-1500 | 50-1500 | 25 | 0076-SC | R1 |
| COD HR without Mercury | Digestion (1) | 50-15,000 | 500-15,000 | 25 | 0074-SC | R1 |
| COD SR without Mercury | Digestion (1) | 500-1500 | 50-1500 | 25 | 0073-SC | R1 |
| COD HR with Mercury | Digestion (1) | 500-15,000 | 500-15,000 | 25 | 0077-SC | R1 |
| Color | Platinum Cobalt (0) | 15-1000 | 20-1000 | ∞ | NA | NH |
| Copper BCA - LR | Bicinchoninic Acid (1) | 0.05-3.50 | 0.04-3.50 | 50 | 3640-SC | NH |
| Copper - Cuprizone | Cuprizone (2) | 0.01-2.00 | 0.03-2.00 | 50 | 4023 | R1 |
| Copper DDC | Diethyldithiocarbamate (1) | 0.05-6.00 | 0.10-6.00 | 100 | 3646-SC | NH |
| Copper UDV | Unit Dose Vial, Bicinchoninic acid (1) | 0.2-4.0 | 0.1-4.0 | 100 | 4314-J | NH |
| Cyanide | Pyridine-Barbituric Acid (5) | 0.05-0.50 | 0.03-0.35 | 50 | 3660-01-SC | R1 |
| Cyanuric Acid | Melamine (1) | 16-200 | 10-200 | 40 | 3661-01-SC | NH |
| Cyanuric Acid UDV | Unit Dose Vial, Melamine (1) | 5-150 | 10-150 | 100 | 4313-J | NH |
| DEHA | Iron Reduction (3) | 0.005-0.700 | 0.01-0.70 | 100 | 4857 | R1 |
| Dissolved Oxygen (DO) | Winkler Colorimetric (3) | 0.25-12.00 | 0.6-11.0 | 200 | 3688-SC | R1 |
| Erythorbic Acid | Iron Reduction (3) | 0.02-3.00 | 0.020-3.000 | 100 | 4857 | R1 |
| Fluoride | SPADNS (2) | 0.05-2.00 | 0.1-2.0 | 50 | 3647-02-SC | R1 |
| Hardness UDV | Unit Dose Vial (1) | 10-500 | 10-500 | 100 | 4309-J | NH |
| Hydrazine | P-dimethylaminobenzalde-hyde (2) | 0.01-0.75 | 0.01-1.00 | 50 | 3656-01-SC | NH |

*Requires COD Heater Block, not included. See page 38 and COD Adapter Code 5-0087.

## SMART Spectro & SMART3 Reagent Systems

| Test Factor | Test Method (# of reagents) | SMART Spectro Range ppm | SMART3 Colorimeter Range ppm | # of Tests | Order Code | Shipping |
|---|---|---|---|---|---|---|
| Hydrogen Peroxide LR | DPD (2) | 0.02-1.50 | 0.02-1.50 | 100 | 3662-SC | NH |
| Hydrogen Peroxide HR | DPD (2) | 1-60 | 1-60 | 50 | 4045-01 | NH |
| Hydrogen Peroxide Shock | DPD (2) | 4-225 | 10-225 | 100 | 4045-01 | R2 |
| Hydroquinone | Iron Reduction (3) | 0.01-1.80 | 0.01-2.00 | 100 | 4857 | R1 |
| Iodine | DPD Tablets (2) | 0.08-14.00 | 0.2-14.0 | 100 | 3643-SC | NH |
| Iron - Bipyridyl | Bipyridyl (2) | 0.06-6.00 | 0.10-6.00 | 50 | 3648-SC | R1 |
| Iron UDV | Unit Dose Vial Bipyridyl (1) | 0.07-10.00 | 0.1-10.0 | 100 | 4315-J | NH |
| Iron - Phenanthroline | 1,10 Phenanthroline (2) | 0.04-4.50 | 0.1-5.0 | 50 | 3668-SC | R1 |
| Lead | PAR (5) | 0.1-5.0 | 0.10-5.00 | 50 | 4031-01 | R1 |
| Manganese LR | PAN (3) | 0.02-0.70 | 0.01-0.70 | 50 | 3658-01-SC | HF |
| Manganese HR | Periodate (2) | 0.3-15.0 | 0.3-15.0 | 50 | 3669-SC | R1 |
| Mercury | TMK (3) | 0.02-1.50 | 0.01-1.50 | 50 | 4861-01 | HF |
| Methylethylketoxime | Iron Reduction (3) | 0.02-3.00 | 0.01-3.00 | 100 | 4857 | R1 |
| Molybdenum HR | Thioglycolate (3) | 0.2-15.0 | 0.6-50.0 | 50 | 3699-03-SC | R1 |
| Nickel | Dimethylglyoxime (6) | 0.06-8.00 | 0.2-8.0 | 50 | 3663-SC | HF |
| Nitrate Nitrogen LR | Cadmium Reduction (2) | 0.05-3.00 | 0.10-3.00 | 20 | 3649-SC | R1 |
| Nitrate TesTabs | Zinc Reduction (1) | 2.5-60.0 | 5-60 | 50 | 3689-SC | NH |
| Nitrite Nitrogen LR | Diazotization (2) | 0.02-0.80 | 0.02-0.80 | 20 | 3650-SC | NH |
| Nitrate UDV | Unit Dose Vial Zinc Reduction | 0.00-80.00 | 2-80 | 50 | 4321-J | NH |
| Nitrogen, Total* | Chromotropic Acid/ Digestion (6) | 2-25 mg/L | 3-25 mg/L | 25 | 4026-01 | R1 |
| Oxygen Scavengers | Iron Reduction | various | various | 100 | 4857 | R1 |
| Ozone | DPD (3) | ---- | 0.03-3.00 | 100 | 4881 | NH |
| Ozone LR | Indigo Trisulfonate (3) | 0.02-0.40 | 0.010-0.400 | 100 | 3651-SC | NH |
| Ozone HR | Indigo Trisulfonate (3) | 0.05-1.50 | 0.05-2.50 | 20 | 3651-SC | NH |
| pH CPR (Chlorphenol Red) | Chlorophenyl Red (1) | pH 5.0-7.0 | pH 5.0-6.8 | 100 | 3700-01-SC | NH |
| pH PR (Phenol Red) | Phenol Red (1) | pH 6.6-8.4 | pH 6.6-8.4 | 100 | 3700-01-SC | NH |
| pH TB (Thymol Blue) | Thymol Blue (1) | pH 8.0-9.5 | pH 8.0-9.5 | 100 | 3700-01-SC | NH |
| Phenol | Aminoantipyrine (3) | 0.05-6.00 | 0.05-6.00 | 50 | 3652-01-SC | NH |
| Phosphate LR | Ascorbic Acid Reduction (2) | 0.04-3.00 | 0.05-3.00 | 50 | 3653-SC | R2 |
| Phosphate HR | Vanodomolybdovanadate Acid (1) | 1-70 | 1-70 | 50 | 3655-SC | R1 |
| Phosphorus, ppb | Ascorbic Acid/Digestion (5) | ---- | 50-3000 | 50 | 3653-SC | R2 |
| Phosphorus, Total - LR* | Ascorbic Acid/Digestion (5) | 0.07-3.50 g/L | 0.50-3.50 mg/L | 25 | 4024-01 | R1 |
| Phosphorus, Total - HR* | Molybdovanadate/ Digestion (5) | 5-100 mg/L | 5-100mg/L | 25 | 4025-01 | R1 |
| Potassium | Tetraphenylboron (2) | 0.5-10.0 | 0.8-10.0 | 100 | 3639-SC | R1 |
| Silica LR | Heteropoly Blue (4) | 0.03-2.50 | 0.05-4.00 | 100 | 3664-SC | R1 |
| Silica HR | Silicomolybdate (3) | 1-50 | 1-75 | 50 | 3687-SC | R1 |
| Sulfate HR | Barium Chloride (1) | 5-100 | 3-100 | 100 | 3665-SC | R1 |
| Sulfide LR | Methylene Blue (3) | 0.02-1.00 | 0.06-1.50 | 50 | 3654-02-SC | R1 |
| Surfactants | Bromthymol Blue (3) | 0.5-8.0 | 0.5-8.0 | 100 | 4876-01 | HF |
| Tannin | Tungsto-Molybdophosphoric Acid (2) | 0.2-10.0 | 0.10-10.00 | 50 | 3666-01-SC | R1 |
| Tolyltriazole | UV Photolysis (4) | 1-30 | 0.50-30.00 | 50 | 4047-01 | R1 |
| Turbidity | Absorptimetric (0) | 2-400 FTU | 2-400 FTU | ∞ | NA | NH |
| Zinc LR | Zincon (6) | 0.025-3.000 | 0.05-3.00 | 50 | 3667-SC | HF |

*Requires COD Heater Block, not included. See page 38 and COD Adapter Code 5-0087.

Code 1951-03

## SMART3 Water Analysis Laboratory

Order Code 1951-02 LQ (37)
Reagent Refill R-1951-02 LQ (10)

- measure 24 water quality parameters with this versatile portable lab!
- analyzes test sample color and provides direct readouts for 15 factors
- direct reading titrators provide results for 6 additional factors directly in ppm
- includes digital meters to measure pH, conductivity and TDS
- the SMART3 Colorimeter is programmed to provide direct readouts for over 80 factors using optional reagent packages

### Meters

| Factor | Code | Model | Range |
|---|---|---|---|
| pH | 5-0034-01 | pH5 Plus | pH 0-14 |
| Conductivity | 5-0038-02 | CON6 Plus<br>CON6 | 0-1999 µS/cm<br>2.00-19.99 mS |
| Colorimeter | 1910 | SMART3 | See chart |

### Test Factors

| Factor | Test Method | Range (# Test) |
|---|---|---|
| Alkalinity | Neutralization | 0-200 ppm (50 at 200 ppm) |
| Carbon Dioxide | Neutralization | 0-50 ppm (50 at 50 ppm) |
| Chloride/Salinity | Argentometric | 0-200 ppm (50 at 200 ppm) |
| Dissolved Oxygen | Winkler Method | 0-10 ppm (50 at 10 ppm) |
| Hardness (Calcium, Magnesium,& Total) | Complexometric | 0-200 ppm (50 at 200 ppm) |

### Also Available

| Description | Order Code | Shipping |
|---|---|---|
| SMART3 Colorimeter Lab without pH, Cond. Meters | 1991-01 | LQ (34) |
| Reagent Refill | R-1991 | LQ (10) |

### SMART3 Colorimeter Tests

| Factor | Test Method | Range (# Test) |
|---|---|---|
| Ammonia-Nitrogen | Nesslerization | 0-4.0 ppm (50) |
| Chlorine | DPD | 0-4.0 ppm (100) |
| Bromine | DPD | 0-9 ppm (100) |
| Iodine | DPD | 0-16 ppm (100) |
| Chromium (Hexavalent) | Diphenylcarbohydrazide | 0-1.0 ppm (100) |
| Copper | Diethyldithiocarbamate | 0-6.0 ppm (100) |
| Fluoride | SPADNS | 0-2.0 ppm (50) |
| Iron | Bipyridyl | 0-6.0 ppm (50) |
| Nitrate-Nitrogen | Cadmium Reduction | 0-3.0 ppm (20) |
| Nitrite-Nitrogen | Diazotization/Coupling | 0-0.8 ppm (20) |
| Phosphate | Ascorbic Acid Reduction | 0-3.0 ppm (50) |
| Silica | Heteropoly Blue | 0-4.0 ppm (50) |
| Sulfate | Barium Chloride | 0-100 ppm (50) |
| Sulfide | Methylene Blue | 0-3.0 ppm (50) |
| Turbidity | Absorption (no rgts) | 0-400 NTU (∞) |

# Aquaculture/Aquarium

## Every Classroom Should Have An Aquarium!

All the necessary labware, accessories, and reagents for 50 tests of each key test factor are contained in a rugged carrying case. Each outfit provides a diagrammed instruction manual and a handy short form instruction mounted in the case lid.


Code 3635-04

## Salt Water Outfit

Grades 6 and up

Order Code 3635-04 R2 (10)
Reagent Refill R-3635-03 R2 (4)

Contains equipment necessary to monitor the 9 parameters most critical to the salt water analyst. Same packaging as shown, with 50 tests for each factor.

### Octa-Slide 2 Comparator Tests

| Factor | Test Method | Range (# Tests) |
|---|---|---|
| Ammonia Nitrogen | Salicylate | 0.0-2.0 ppm (50) |
| Nitrate Nitrogen | Cadmium Reduction | 0.25-10.0 ppm (40) |
| Nitrite Nitrogen | Diazotization/ Coupling | 0.05-0.8 ppm (50) |
| pH | Wide Range | 5.0-10.0 (50) |

### Direct Reading Titrator Tests

| Factor | Test Method | Range (# Tests) |
|---|---|---|
| Alkalinity | Neutralization | 0-200 ppm (50) |
| Carbon Dioxide | Neutralization | 0-50 ppm (50) |
| Dissolved Oxygen | Winkler Method | 0-10 ppm (50) |
| Salinity | Argentometric | 0-20 ppt (50) |

### Temperature

| Factor | Range |
|---|---|
| Armored Thermometer | –5° to 45°C |


Code 3633-04

## Fresh Water Outfit

Grades 6 and up

Order Code 3633-04 R3 (10)
Reagent Refill R-3633-03 R3 (4)

Healthy aquariums require routine water quality tests to maintain proper water balance. This outfit contains all you need!

### Octa-Slide 2 Comparator Tests

| Factor | Test Method | Range (# Tests) |
|---|---|---|
| Ammonia Nitrogen | Nessler | 0.2-3.0 ppm (50) |
| Nitrite Nitrogen | Diazotization/ Coupling | 0.05-0.8 ppm (50) |
| pH | Wide Range | 5.0-10.0 ppm (50) |

### Direct Reading Titrator Tests

| Factor | Test Method | Range (# Tests) |
|---|---|---|
| Alkalinity, Total | Neutralization | 0-200 ppm (50) |
| Carbon Dioxide | Neutralization | 0-50 ppm (50) |
| Chloride | Argentometric | 0-200 ppm (50) |
| Dissolved Oxygen | Winkler Method | 0-10 ppm (50) |
| Hardness (Total) | Complexometric | 0-200 ppm (50) |

### Temperature

| Factor | Range |
|---|---|
| Armored Thermometer | –5° to 45°C |


Code 5928-01

## Soil Macronutrients

### Grades 6 and up

Order Code 5928-01 HF (17)

Reagent Refill R-5928 HF (7)

Learn the preparation, extraction and filtration techniques and procedures developed specifically for the testing of soil nutrients. This is a comprehensive introduction to the study of soil properties.

- an easy-to-use soil sampling tube
- soil sampling bags
- Soil Texture Unit (page 48)
- individual test modules for 4 important soil test factors

### Octa-Slide 2 Comparator

| Factor | Range | # Tests |
|---|---|---|
| pH | 3.8 -9.6 | 40 |

### Color Chart

| Factor | Range | # Tests |
|---|---|---|
| Nitrogen | 10-150 lb/acre | 50 |
| Phosphorus | 10-200 lb/acre | 50 |

### Turbidity Column

| Factor | Range | # Tests |
|---|---|---|
| Potassium | 100-400 lb/acre | 30 |

### Accessories

| Description | Code | # Tests |
|---|---|---|
| Soil Texture Unit | 1067 | 50 |
| Soil Sample Bags | 0615-J | 50 |
| Soil Sampling Tube | 1055 | 50 |


Code 5938-02

## Soil Micronutrients

### Grades 6 and up

Order Code 5938-02 R1 (19)

Reagent Refill R-5938-01 R1 (5)

A great supplement to the Soil Macronutrients Outfit includes individual test modules for 9 test factors.

### Color Chart

| Factor | Range | # Tests |
|---|---|---|
| Aluminum | 5-150 ppm | 50 |
| Ammonia | 5-150 ppm | 50 |
| Calcium | 150-2800 ppm | 50 |
| Chlorides | 25-500 ppm | 50 |
| Iron | 5-125 ppm | 50 |
| Magnesium | 5-150 ppm | 50 |
| Manganese | 4-40 ppm | 50 |
| Nitrite | 1-50 ppm | 50 |
| Sulfate | 50-200 ppm | 50 |

# Soil Science

Code 3-5880

GLOBE

## NPK Soil Test Kit

Grades 5 and up

Order Code 3-5880 NH (1)

Specifically designed to meet the needs of the GLOBE Program™, this kit is safe, fun and can easily ship anywhere!

- 50 tests each for nitrogen, phosphorus and potassium
- uses non-hazardous TesTabs®
- all necessary apparatus
- simple, diagrammed instructions
- laminated color chart

Code 5912

## Soil pH TestTabs® Kit

Order Code 5912 NH (1)

TesTab® kit for measuring pH. Ideal for younger students and teachers who would like an alternative to liquid pH indicators. Ideal companion to Soil NPK kit (Code 3-5880).

- simple diagrammed instructions
- laminated color chart
- 50 tests for pH
- wide range 4-11 in 1.0 pH units
- distilled or deionized water recommended

## Soil Sampling Bags

Order Code 0615-J NH (1)

Directions printed right on the bag explain how to collect and to prepare soil samples! The 6 x 4 inch (15 x 10 cm) plastic zipper bags prevent contamination or accidental mixing of samples ensuring accurate test results. Package of 100.


Code 0615-J

AP

## Soil pH Test Kit

Order Code 5024 NH (1)

Reagent Refill 2221-F NH (1)

Our most popular pH soil kit. Supplied with a color chart and plastic spot plate. pH affects all mineral elements and the biological process made available to plants from the soil. Accurate pH testing is essential to determine lime requirements and to insure that a mineral-rich soil is also a fertile one. 100 tests.

Code 5024


Code 5679

## Garden Guide Kit

Grades 5 and up

Order Code 5679-01 R2 (4)

Reagent Refill R-5679-01 R2 (3)

Daffodils drooping? Spinach looking sad? Need to test your garden soil? Use this simple economical kit to measure nitrogen, phosphorus, potassium (15 tests each) and soil pH (30 tests).

- diagrammed instructions
- laminated color charts
- **Garden Guide** manual
- **LaMotte Soil Handbook**
- **A Study Of Soil Science**

AP

## Soil Sampling Tube

Order Code 1055 NH (2)

A 12" galvanized steel sampler with a 1" core diameter, saw-toothed tip. A cut-away side allows examination of core prior to removal for testing. Come with 20 soil sampling bags.

Code 2-2537

## Spot Plate

Order Code 2-2537 NH (2)

Glazed porcelain throughout except bottom surface. The 112 x 92 mm plate is 7 mm thick and has 12 wells, 5 mm deep.

Code 1055

## Soil Texture Unit

Order Code 1067 NH (2)

Reagent Refill R-1067 NH (1)

A great kit for testing and demonstrating different soil textures and properties. Students test soil from the schoolyard, or can compare soil samples brought from home. 50 tests.


Code 1067

## Plant Tissue

Plant tissue testing provides essential information concerning plant use of nutrients vital to their growth. These kits indicate if growing plants are receiving adequate amounts of available nutrients from the soil.

### Plant Macronutrient Kit

Grades 6 and up

Order Code 5026-01 LQ (3)

Reagent Refill R-5026 LQ (2)

Students perform colorimetric tests for nitrogen, phosphorus and potassium from plant tissue liquid extracts. Quantitative results given as abundant, adequate and deficient only. 50 tests per factor.

#### Colorimetric Tests

| | | |
|---|---|---|
| Nitrogen | Phosphorus | Potassium |


Code 5026-01

### Plant Micronutrient Kit

Grades 6 and up

Order Code 5261-01 R1 (3)

Reagent Refill R-5261 R1 (2)

Students extract sap onto filter paper from freshly cut plant tissue, then perform color spot tests for boron, copper, ferrous and ferric iron, manganese and zinc. Indicates presence/absence only. 50 test per factor, 25 for Boron.

#### Color Spot Tests

| | | |
|---|---|---|
| Boron | Copper | Ferrous/Ferric Iron |
| Manganese | Zinc | |

### Plant Nutrition Solutions

Grades 6 and up

Order Code 5940 R2 (7)

Contains 10 stock solutions of macronutrients and trace elements—sufficient to prepare five liters of each mixture. Includes **Plant Nutrition Studies** handbook.


Code 5940

## Hydroponics

Hydroponics is an exciting way to study plant growth and nutrition! Each hydroponics test kit comes with enough reagents for 50 tests per test factor, complete labware, and the helpful **Plant Nutrition Studies** handbook.


Code 3561-01

# Hydroponics 4-Way Kit

### Grades 6 and up

Order Code 3561-01 HF (7)

Reagent Refill R-3561 HF (3)

Maintain proper nutrient balances and achieve optimum growing conditions in soil-less cultures. An abbreviated version of our popular Hydroponics Combination Kit (5406).

- offers tests for pH and three key nutrient factors: nitrogen, phosphorus and potassium
- sufficient reagents for 50 tests per factor
- complete labware in a sturdy case
- **Plant Nutrition Studies** handbook

### Octa-Slide 2 Comparator Tests

| Factor | Range | # Tests |
|---|---|---|
| pH | 4.5-8.0 | 50 |
| Phosphorus | 3-30 ppm | 50 |
| Nitrate Nitrogen | 5-200 ppm, by dilution | 50 |


Code 5406-01

# Hydroponics Lab

### Grades 6 and up

Order Code 5406-01 HF (15)

Our rugged field carrying case is transformed into a classroom laboratory! Students use a variety of testing techniques and procedures by performing nine key tests for hydroponic solutions. Outfit also includes a detailed instruction manual.

### Octa-Slide 2 Comparator Tests

| Factor | Range | # Tests |
|---|---|---|
| pH | 4.8-7.6 | 144 |
| Nitrate | 5-200 ppm | 50 |
| Ammonia | 1-8 ppm | 90 |
| Phosphorus | 3-30 ppm | 60 |
| Sulfate | 0-200 ppm | 50 |

### Direct Reading Titrator Tests

| Factor | Range | # Tests |
|---|---|---|
| Calcium | 0-2000 ppm | 60 |
| Magnesium | 0-1200 ppm | 60 |

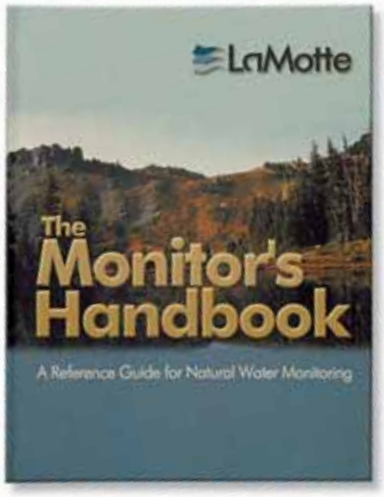
### Spot Test

| | | |
|---|---|---|
| Iron | at 0.25 ppm | 200 |

### Turbidity Test

| | | |
|---|---|---|
| Potassium | 0-250 ppm | 100 |

# Resources/Handbooks

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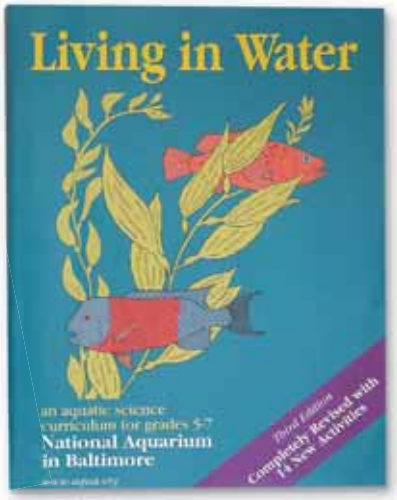


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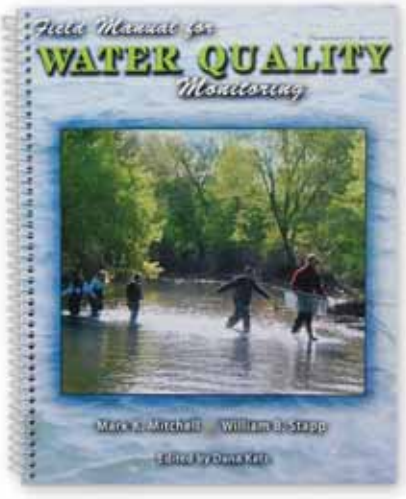



Code 3-1508

## The Monitor's Handbook

### A Reference Guide for Natural Water Monitoring

***Staff, LaMotte Company***
Order Code 1507

A valuable water quality analysis reference guide, providing comprehensive overviews of monitoring streams, lakes, rivers and estuaries. Includes physical, biological and chemical factors of water quality and analytical procedures for their measurements. The basics of waterway surveying, program planning, data reporting and analyzing are also described. 71 pages.

## Living in Water

***Department of Education at the National Aquarium in Baltimore***
Order Code 1598

An aquatic science textbook containing 50 activities that integrate physical, earth and life science. It can be used as a complete curriculum or individual activities. Classroom based scientific studies of water, aquatic environments and the plants and animals that live in water. Field studies can be adapted for use in any body of water form the ocean to a fish bowl.  395 pages.

## Field Manual for Water Quality Monitoring

***Mark K. Mitchell, William B. Stapp***
Order Code 3-1508

Serves as the standard text for school-based water quality monitoring programs in schools around the world. The manual describes nine water quality tests: dissolved oxygen, fecal coliform, pH, total solids, total phosphorus, nitrates, turbidity, biochemical oxygen demand, and temperature. Also includes chapters on heavy metals testing, land use practices and computer networking. The current edition specifically features LaMotte water quality test kits.

## A Study Of Soil Science

***Dr. Henry D. Foth***
Order Code 1530

An introduction to soil formation, soil pH, mineral elements, plant nutrition, the life cycle of growing plants, and soil fertility management. 44 pages.

## The LaMotte Soil Handbook

***Staff, LaMotte Company***
Order Code 1504

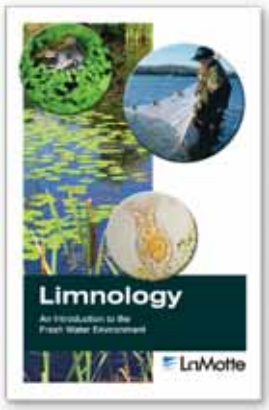
A manual for both "growers" and soil investigators! Provides information on major and minor nutrients, trace elements, soil pH, organic matter and soil texture. Also includes lime and fertilizer recommendations for a variety of crops and plants. 60 pages.

## Plant Nutrition Studies

***Dr. Robert Stegner***
Order Code 1596

A study of hydroponics. Includes a series of laboratory procedures and open-ended investigations. 76 pages.


Code 1530 Code 1504 Code 1596

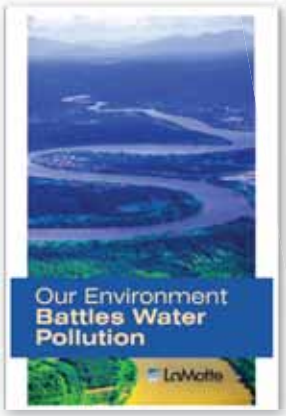



Code 1593

### Limnology: An Introduction To The Fresh Water Environment

***William H. Amos***
Order Code 1593

A concise handbook dealing with biological, chemical and physical processes of fresh water including stream dynamics, plant zonation, energy cycle of ponds and much more. 40 pages.




Code 1592

### Our Environment Battles Water Pollution

***Dr. Charles E. Renn***
Order Code 1592

Follow a theoretical river from its origin to its discharge. Includes discussion of the chemical and biological changes that occur as the river reacts to impurities from natural and industrial sources. 32 pages.


Code 1587

### A Laboratory Manual For Marine Science Studies

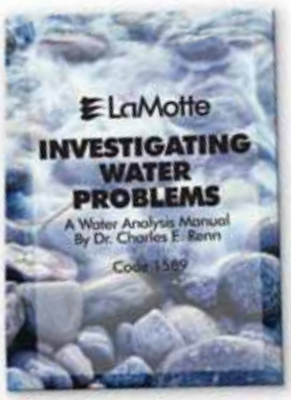
***Staff, LaMotte Company***
Order Code 1587

A detailed guide of sampling procedures and water quality analysis in salt water environments, including description of reagents, labware and test procedures. 32 pages.

### Investigating Water Problems

***Dr. Charles E. Renn***
Order Code 1589

A comprehensive handbook describing 25 water quality test factors including analytical procedures, test result interpretation, illustrations and helpful glossary. 72 pages.

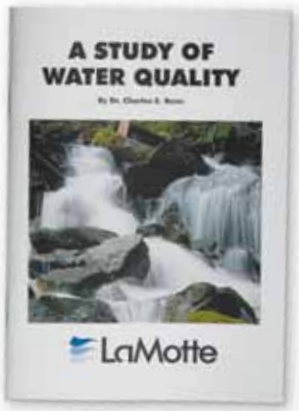



Code 1589

### A Study Of Water Quality

***Dr. Charles E. Renn***
Order Code 1532

Examines in-depth the life cycle of water from natural occurences to treatment for domestic/industrial use. Emphasizing problems such as scaling, corrosiveness, taste and turbidity. 46 pages.




Code 1532

## FREE RESOURCES

### Science Education Products:
Reagent Refills
Parts & Accessories
Order Code 1590-RFB

### Start Monitoring
Order Code 70092

### Are My Reagent s Still Good?
Order Code 70017

### Education Newsletter
www.lamotte.com


Check out our website for New Education/ Environmental Science Grant Sources and deadlines. Learn how to get money for your school from an experienced grant recipient!

### BioPaddles® Colony ID™ Lite app

Free app for iPads lets users compare colony examples on BioPaddle agar types from 5 microhabitats (air, water, soil, surface and food). Also contains information regarding organisms, microbiological techniques, and more!

Now there's an app for that!

# Index

# Photo Contest

The LaMotte Company Science Education **Photo Contest** is an opportunity to **win FREE LaMotte equipment** for your school, educational program or volunteer monitoring group. Many winners appear in upcoming LaMotte catalogs and publications, or on the website. Please read and follow the guidelines below when planning and submitting your entry.

- Photo(s) must show current LaMotte testing products being properly used by students in the classroom, lab or outdoors. Safety equipment must be worn when applicable.
- Please indicate a brief description of how LaMotte products are used in your program.
- Photo(s) should be good quality black and white, color slides, or color prints (please include negatives). Digital files should be high resolution (300 ppi) and supplied on disk or CD. All submissions must be accompanied by a completed entry form and signed photo release. Call LaMotte or visit our website www.lamotte.com for entry and release forms.
- Submissions must reach the LaMotte Company advertising office by the **Friday after Thanksgiving** to be eligible for prizes.
- Prizes will only be awarded to educational institutions and organizations.
- All submissions become the property of LaMotte Company. Please send original photos (please include negatives, if possible), slides or hi-res digital photos. Make copies for your use before submitting. Sorry, but submitted photos and slides cannot be returned.
- Winners will be notified by the end of February.
- All prizes are merchandise certificates for LaMotte equipment.

**First Place!**
**$500** Merchandise Certificate

**Second Place!**
**$250** Merchandise Certificate

**Third Place!**
**$100** Merchandise Certificate

3 Honorable Mentions **$50** Merchandise Certificate (Each)

| | |
|---|---|
| Phone | 800-344-3100<br>410-778-3100 |
| Fax | 410-778-6394 |
| Mail | PO Box 329<br>Chestertown, MD 21620 |

**www.lamotte.com**


## Prices

Are subject to change without prior notice. Prices are f.o.b. Chestertown, Maryland. A $7.50 handling fee and a $7.50 shipping fee are applied to all orders totaling less than $35.00.

## Payment Terms

Are net thirty days to accounts with established credit with LaMotte Company. New accounts should provide credit references or enclose payment with the purchase order. VISA/MasterCard/AMEX accepted.

## Product Code Numbers

Please include product code numbers and quantities.

## Disclaimer

Descriptions and photography within this catalog are believed to be accurate. LaMotte reserves the right to revise products and prices without notification of change.

This catalog is made from recycled paper.
Please recycle catalogs.