



Environmental Science Education Products

2023



- ▶ Field
- ▶ Classroom
- ▶ Outdoor Monitoring
- ▶ Home School

What's new!



Watershed Tour

A watershed mystery! Students test water samples and evaluate data to identify sites in a virtual watershed.

See
Page 26



Tapwater Tour

What's coming out of your student's tap? Students analyze their tap water and evaluate class results.

See
Page 26



Topsoil Tour

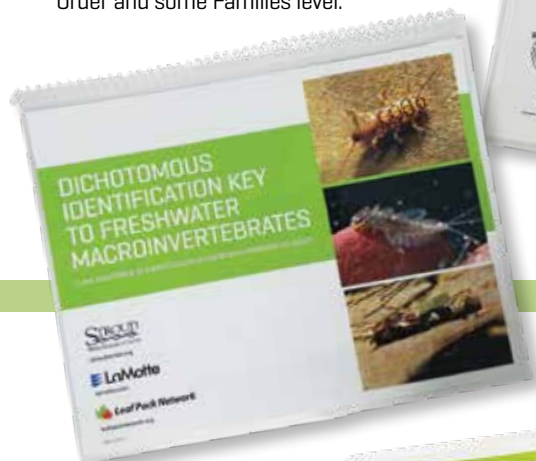
Get the dirt on soil!
An exciting classroom investigation into the physical and chemical properties of soil.

See
Page 27



Dichotomous Identification Key To Freshwater Macroinvertebrates

Spiral bound, color coded dichotomous key for identification of aquatic macroinvertebrates to Order and some Families level.



See
Page 9

Biotic Index Data Sheet

Water resistant data sheets for recording data after sorting and identifying freshwater aquatic macroinvertebrates to Order and some Families level. Set of six.

See
Page 8



Horizontal Water Sampler

Collect water samples quickly and easily!

See
Page 24



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Meets GLOBE protocol.



Please recycle catalogs.

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.

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.

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.

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	R1	HF	LQ
Non Hazardous No Fees	Small Quantity Hazardous Materials No Fees	Hazardous Materials Air & Ground Fees	Hazardous Materials Air Fees Only

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 Safety Data Sheet. To view or print a SDS 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 SDS.

Additional safety 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 reagent label, 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 Safety Data Sheets at www.lamotte.com.



Prop 65: Products that can expose you to chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm. See specific product listings. For more information: www.P65Warnings.ca.gov/product

THE GLOBE PROGRAM

LaMotte Products for Hydrology & Soil GLOBE Program®

GLOBE Item	Description	LaMotte Code	Shipping
Alkalinity Kit	Water Alkalinity Kit	4491-DR-01	NH [1]
Calibration Solution 718 (µmhos/cm), 120 mL	Conductivity Standard	6417-J	NH [1]
Conductivity Tester	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	5860-01	R1 [2]
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 [6]	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 Tester	pH TRACER	1741	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 NPK Kit**	Soil Nitrate, Phosphorus, and Potassium Kit	3-5880	NH [1]
Thermometer, Armored*	Calibrated Thermometer, -5° to 45°C	1066	NH [1]

*Discount on orders of 10 units, \$20.02 each

**Designed for the GLOBE program



Code 5860-01



"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.



globe.gov



Code 5882-SA1



Code 0171-CL

† Prop 65: **C** **WARNING** Cancer - www.P65Warnings.ca.gov/product;
R **WARNING** Reproductive Harm - www.P65Warnings.ca.gov/product;
B **WARNING** Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product



EARTH FORCE WATER MONITORING KITS



Also See: *Tapwater Tour pg. 26 | Funky Faucet pg. 29*

**English,
Spanish & French
Instructions!**



Code 3-5886

**NGSS
ALIGNED**

EARTH FORCE Low Cost Water Monitoring Kit

Grades 3 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 English, Spanish and French
- ▶ TesTabs® to test 10 water samples (3 for coliform)
- ▶ Laminated color chart
- ▶ 20-pack case available

EARTH FORCE Low Cost Estuary & Marine Monitoring Kit

Grades 3 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 5911

EARTH FORCE WATER MONITORING KITS



**English,
Spanish & French
Instructions!**

Code 5848



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!

- ▶ 9 test factor modules with macroinvertebrate bonus module
- ▶ Instruction manual in English, Spanish and French
- ▶ Each module contains easy-to-read diagrammed instructions
- ▶ Laminated color chart and instruction flashcards
- ▶ Test factor flashcard
- ▶ All necessary apparatus
- ▶ TesTabs® to perform 100 tests (44 tests for coliform bacteria; unlimited for benthic macroinvertebrates and turbidity)

Test Modules Also Sold Individually

Test 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

EARTH FORCE Elementary Education Watershed Field Trip Kit

Grades 1-5/30 students working in pairs

Order Code 5906 | \$90.95 | NH [1]

Everything you need to lead your classroom 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 TesTabs®; 10 tests each for temperature and turbidity
- ▶ Includes all reagents and accessories (5 sets of hardware) and one activity from Project WET



Code 5906

AQUATIC MACROINVERTEBRATES

Leaf Pack Stream Ecology Kit

Students of all ages!

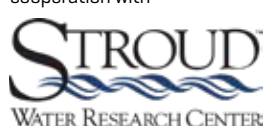
Order Code 5882 | NH (10)



Help 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, biotic index 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
 - » Dichotomous key

Developed in cooperation with



English & Spanish Instructions!

Code 5882

Aquatic Macroinvertebrates

Colonize submerged leaves in stream habitats. The ability of freshwater macroinvertebrates to flourish depends upon the properties of the water and conditions in the environment. The relative abundance and variety of freshwater macroinvertebrates can be used as bioindicators to assess the quality of the water and the effects of land use on the environment.

Individual Items Available

Code	Qty	Description
5882-LPB	30	Mesh bags
5882-SA1	1 set	21 full-color Freshwater Aquatic 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
5882-DK-6	6	Dichotomous Identification Key to Freshwater Macroinvertebrates, laminated, spiral bound
5882-DATA-6	6	Biotic Index Data Sheet, laminated
5508	1	MacroLens™, 4 inch diameter, 4.5X magnification. See page 10
5882-STR	1	6" Plastic 500 Micron Mesh Sieve

Kit Includes

6	Mesh bags	1	Dichotomous Identification Key to Freshwater Macroinvertebrates
1	Waterproof marker	6	Hand lenses
1	Seive	1	MacroLens™ magnifier
6	Sorting trays	1	Nylon twine
60	Plastic Petri dishes	6	Zipper-top bags
6 sorting sheets	Waterproof, illustrated, color coded	1	Tree Finder booklet
2	Thermometers	1	Instructor's manual with record sheets
1	Hand-held scale	2	Rulers
12	Brushes	6	Waterproof tags
12	Spoons		
1 set	21 full color flashcards		



Code 5882-DATA-6

NEW!

Biotic Index Data Sheet

Order Code 5882-DATA-6 | NH (2)

Water resistant data sheets for recording data after sorting and identifying freshwater aquatic macroinvertebrates to Order and some Families level. Includes instructions and formulas for calculating the Pollution Tolerance Index (PTI) Score and Pollution Tolerance Index Rating. Write on, wipe off and re-use. For field or indoor use. English and Spanish. Set of six.

AQUATIC MACROINVERTEBRATES



Dichotomous Identification Key To Freshwater Macroinvertebrates

Spiral bound dichotomous key for identification of aquatic macroinvertebrates to Order and some Families level. Color-coded based on Pollution Tolerance level. Includes glossary, body part illustrations and size reference. Water resistant for field or indoor use. Enhancement to Leaf Pack Stream Ecology Kit. English and Spanish. Set of six.

Order Code 5882-DK-6 | NH [2]

Color Coded!



Freshwater Aquatic Macroinvertebrate Insect Identification Flashcards

Order Code 5882-SA1 | NH [1]

Use this set of 21 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.



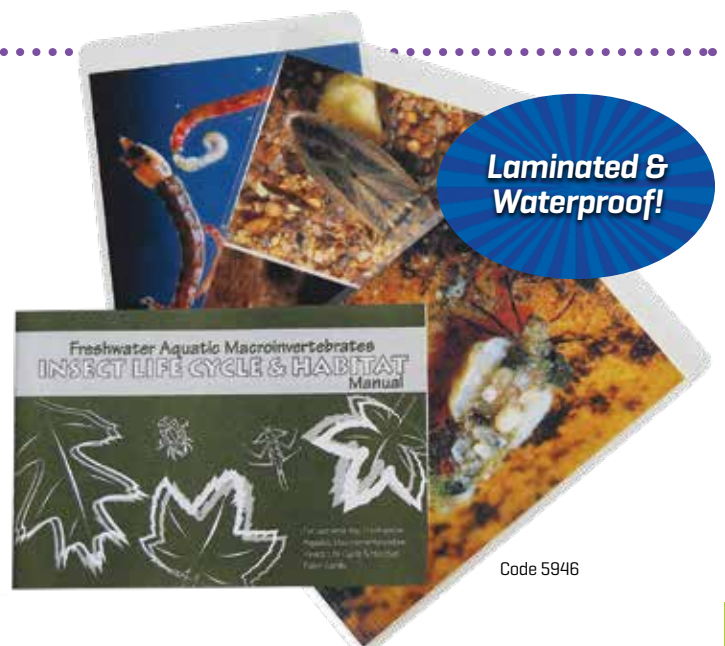
Code 5882-SA1



Freshwater Aquatic Macroinvertebrate Insect Life Cycle & Habitat Flashcards

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



Also See: **D-Net pg. 23 | Kick Nets pg. 23**

AQUATIC MACROINVERTEBRATES

Developed in cooperation with



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! Manual, cards, and sorting sheets printed in both English & Spanish.

English & Spanish Instructions!

English & Spanish Instructions!

Code 5942



Also See: **D-Net with Expandable Pole pg. 23** | **Student Grade Kick Net pg. 23** | **Kick Net pg. 23**

Aquatic Bug Kit

Grade 3 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

MacroLens™

Grades 1 and up

Order Code 5508 | NH [1]

10 pack: Order Code 5508-10 | NH [6]

MacroLens with 4.5X magnification covers the entire petri dish! 4" diameter.



Fits Over a Petri Dish!

Code 5508

WATER MONITORING KITS

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 FREE on-line resources: *Limnology, A Study of Water Quality*, and *Investigating Water Problems*

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

[†] ⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

Case Includes
Convenient
Shoulder Strap



Code 5902-02



Also See: **Tapwater Tour pg. 26** | **Funky Faucet pg. 29**



Case Includes
Convenient
Shoulder Strap

Code 5903-03

Marine Science Outfit

Grades 5 and up

Order Code 5903-03[†] | R1 [13]

Reagent Refill R-5903.02 | R1 [5]

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 FREE online resources: *A Laboratory Manual for Marine Science*, *Limnology*, and *Investigating Water Problems*

FREE Downloadable Handbooks!
Go to lamotte.com or scan the code

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

[†] ⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product



WATER MONITORING KITS



The Water Quality Educator & Monitoring Outfit

Grades 5 and up

The Water Quality Educator & Monitoring Outfit (Test kits and The Monitor's Handbook)

Order Code 5870-01† | R1 [14]

Reagent Refill for 5870-01

Order Code R-5870† | R1 [3]

English,
Spanish & French
Test Kit
Instructions!



Code 5870-01

Water Quality Monitoring Outfit†

Complete test kits for seven critical water quality test factors. Includes lesson plans for grades 5-8 and 9-12.

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]	7519-01	NH
Temperature	-5° to 45°C	1066	NH

The Monitor's Handbook see page 44

† ⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

The Monitor's Handbook

Start Or Enhance
A Monitoring
Program!

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.

AP® Environmental Water Quality Assessment Curriculum Module



Grades 7 and up

Order Code 5845 | NH [2]

The AP® Environmental Science WATER QUALITY ASSESSMENT MODULE uses the collection and manipulation of data necessary to calculate the WQI as a tool to teach students key STEM-based skills. Instead of directly giving them a math, science, technology, or engineering lesson, it provides data from real life phenomena that is used in the first four guided activities to develop and learn to solve problems, think analytically and work independently. In the fifth field activity, students apply the skills that they have learned and, with their understanding of water quality and the WQI, collect data to evaluate a local waterway 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
- ▶ Communicate accurately
- ▶ Access real-time hydrological data
- ▶ Observe environmental systems

In a culminating field activity, students access internet sites to identify their local watershed, choose a sampling site on a local waterway, and utilize appropriate techniques to identify their watershed. The Water Quality Assessment Package provides support materials and monitoring equipment to perform chemical and biological analyses to determine the water quality index.

WATER MONITORING KITS



AP® The Water Quality Assessment Package

Grades 7 and up

Order Code 5845-PKG† | R1 [16]

Combining the Water Quality Educator, [see page 12] and the AP® Environmental Science Water Quality Assessment Curriculum Module, 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 \$\$\$
On The Bundle!**

**Case Includes
Convenient
Shoulder Strap**

Code 5845-PKG



† ⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

**Use With The
Water Quality
Educator**

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

- ▶ Nutrient - TTC/MacConkey BioPaddles [Code 5553] for coliform testing
- ▶ Salt/TDS/Temp Tracer [Code 1749] for temperature and TDS determination
- ▶ Downloadable Teacher Resource [included with the Water Quality Index Module] contains:

- | | |
|--|----------------------|
| » Teacher/Student guide | » Data spreadsheets |
| » Water quality test procedures | » Glossary |
| » STEM-based extension activities | » Graphics files |
| » PowerPoint presentations and Quick Time iPad/iPod videos | » Chemical reactions |



Code 5845

WATER MONITORING KITS



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.

Test Factor	Test Method	Range/Sensitivity
Temperature	Thermometer	-5° to 45° C/0.5 increments
pH [†]	Two 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

[†] ⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

Case Includes
Convenient
Shoulder Strap



Code 5917-03

Water Pollution 1

Grades 5 and up

Order Code 5917-03[†] | R1 [14]

Reagent Refill R-5917-03[†] | 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 FREE online resources: *A Study of Water Quality*, *Our Environment Battles Water Pollution*, and *Investigating Water Problems*
- ▶ Field-friendly tote with shoulder strap

FREE Downloadable Handbooks!
Go to lamotte.com or scan the code

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 [†]	1.0-4.0 ppm [50]	5864-01	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

[†] ⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product



WATER MONITORING KITS

**English,
Spanish & French
Instructions!**

AM-12 The TesTabs® Water Investigation Kit

Grades 5 and up

Order Code 5849[†] | R1 [7]

- ▶ Investigate water pollution using LaMotte's simple TesTabs® reagents.
- ▶ 12 individual test modules
- ▶ Easy-to-read, diagrammed instructions
- ▶ Color charts
- ▶ Test factor flashcards
- ▶ All necessary apparatus
- ▶ TesTabs® to perform 100 tests
- ▶ *The Monitor's Handbook*

[†] ⚠ **WARNING** Reproductive Harm - www.P65Warnings.ca.gov/product



Code 5849

Test Factor	Code	Shipping
Alkalinity	5893	NH
Ammonia [†]	5894	R1
Chloride	5895	NH
Chlorine	5896	NH

Test Factor	Code	Shipping
Iron	5900	NH
Nitrate	5891	NH
pH	5890	NH
Phosphate	5892	NH

Test Factor	Code	Shipping
Chromium	5897	NH
Copper	5898	NH
Dissolved Oxygen/BOD	5889	NH
Hardness	5899	NH



Also See: **Earth Force Low Cost Kit pg. 6** | **Earth Force Low Cost Estuary Kit pg. 6**
Earth Force Standard Kit pg. 7 | **Earth Force Elementary Watershed Field Trip pg. 7**



Code 5918

Code 3604-01

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. A hands-on introduction to the basic concepts of water chemistry — for kids as young as third grade! TesTabs® make this an easy and portable kit. Contains a comprehensive handbook and all necessary equipment to test for the following factors, 10 repetitions each, 5 for coliform bacteria.

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

[†] ⚠ **WARNING** Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

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










[†] ⚠ **WARNING** Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

WATER MONITORING KITS

Single Parameter Test Kits

Test Factor	Order Code	Test System	Range/Resolution	# of Tests [# Reagents]	Shipping	Reagent Refill
Alkalinity  	5893	Total Alkalinity Add Tablet TesTabs®	1 tablet = 40 ppm	100 [1]	NH [1]	----
	4491-DR-01	Total Alkalinity	Direct Reading Titrator 0-200 ppm/4 ppm as CaCO ₃	50 at 200 ppm [2]	NH [1]	R-4491-DR
	4533-DR-01 ^{1C}	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	3304-02	Salicylate Octa-Slide 2 Comparator	0.0, 0.05, 0.1, 0.25, 0.5, 1.0, 1.5, 2.0 ppm NH ₃ -N	50 [3]	LQ [1]	R-3304
	5864-01 ^{1R}	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
	5894 ^{1R}	Salicylate Color Chart	0, 1, 2, 4 ppm NH ₃ -N	100 [2]	R1 [1]	----
Bacteria, Coliform	4-3616	Total Coliform LaMotte Tablet	Presence/Absence Drinking Water	1 [1]	NH [1]	----
	4-3616-UV	Total Coliform & <i>E. coli</i> 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	<i>E. coli</i> & 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 ^{1B}	Direct Reading Titrator	0-50 ppm/1.0 ppm CO ₂	50 at 50 ppm [2]	R1 [1]	R-7297-DR
Chloride	4503-DR-02	Direct Reading Titrator	0-200 ppm/4 ppm Cl ⁻ 0-20,000 ppm/400 ppm Cl ⁻	200 [4]	R1 [1]	R-4503-02
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 ^{1B}	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]	----
Detergents	4507-02 ^{1B}	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 ^{1C}	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]	----
Lead	5-0140	Immuno Assay	Yes/No at 15 ppb level	10	NH [1]	----
Manganese	3588-02 ^{1B}	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  	3110-01 ^{1B}	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
	3615-01 ^{1B}	Cadmium Reduction LRC Comparator	0, 0.2, 0.4, 0.6, 0.8, 1.0 NO ₃ ⁻ -N	40 [2]	R1 [2]	R-3615-01
	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]	----

Single Parameter Test Kits WATER MONITORING KITS

Test Factor	Order Code	Test System	Range/Resolution	# of Tests [# Reagents]	Shipping	Reagent Refill
Nitrate/ Phosphate  	3119-01 ^{1B}	Cadmium Reduction/ Ascorbic Acid 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⁻	Nitrate: 40 [2] Phosphate: 50 [2]	LQ [2]	R-3119-01
Oxygen, Dissolved  	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]	----
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
	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
	5858-01 ^{1R}	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  	3119-01 ^{1B}	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]	LQ [2]	R-3119
Phosphate 	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
	5892	TesTabs® Color Chart	0, 1, 2, 4 ppm PO ₄ ³⁻	100 [1]	NH [1]	----
	3021-G-ENV	Test Strips	0, 100, 200, 300, 500, 1,000, 2,500 ppb PO ₄ 0, 0.1, 0.2, 0.3, 0.5, 1.0, 2.5 ppm	25	N [1]	----
Salinity	7459-02 ^{1B}	Direct Reading Titrator	0-40 ppt/0.4 ppt Salinity	50 [3]	R1 [1]	R-4456-01
Sulfate	4456-01	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 [1]	R1 [1]	6456-H
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 ^{1C}	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 LQ: 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.

† Prop 65: **C**  **WARNING** Cancer - www.P65Warnings.ca.gov/product; **R**  **WARNING** Reproductive Harm - www.P65Warnings.ca.gov/product;
B  **WARNING** Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product



WATER MONITORING KITS

**Safe & Simple
Test Strips!**



Water Test Strips

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	pH: 4-10	Drinking, Food/ Beverage, Pool	50	4, 5, 6, 7, 8, 9, 10
Phosphate, Low Range	3021-G-ENV	0-2,500 ppb 0-2.5 ppm	Natural Waters	25	0, 100, 200, 300, 500, 1,000, 2,500 ppb PO ₄ 0, 0.1, 0.2, 0.3, 0.5, 1.0, 2.5 ppm

Multi-Factor Test Strips

Test Factor	Code	Range (ppm)	Water Testing Application*	# of Tests Per Factor/Per Vial	Values (ppm)
5 Way for Natural Waters	3038-G	Nitrate: 0-200 Nitrite: 0-10.0 pH: 6.0-9.0 Alkalinity: 0-240 Hardness: 0-180	Natural Waters Aquariums	25	0, 20, 40, 80, 160, 200 0, 0.5, 1.0, 3.0, 5.0, 10.0 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0 0, 40, 80, 120, 180, 240 0, 30, 60, 120, 180
6 Way for Drinking Water	2933-G	Free Chlorine: 0-10 Total Chlorine: 0-10 Total Hardness: 0-400 pH: 4-10 Nitrite-N: 0-10 Nitrate-N: 0-50	Drinking, Food/Beverage	25	0, 0.5, 1, 3, 5, 10 0, 0.5, 1, 3, 5, 10 0, 50, 100, 200, 400 4, 5, 6, 7, 8, 9, 10 0, 0.5, 1, 5, 10 0, 5, 10, 25, 50
Iron & Copper	2994	Iron: 0-5 Copper: 0-3	Drinking, Pool	25 25	0, 0.3, 0.5, 1, 3, 50, 0.3, 0.6, 1, 3
Iron, pH, Hardness & Chlorine	2992	Iron: 0-5 pH: 4-10 Hard: 0-400 Total Chlorine : 0-10	Drinking	25 25 25 25	0, 0.3, 0.5, 1, 3, 5 4, 5, 6, 7, 8, 9, 0, 100, 50, 100, 200, 400 0, 0.5, 1, 3, 5, 10
Wide Range [pH & Total Chlorine]	2987-G	pH: 4-10 TCI: 0-50	Drinking, Food/ Beverage, Pool	25 25	4, 5, 6, 7, 8, 9, 100, 1, 5, 10, 20, 50
Nitrate & Nitrite	2996	Nitrate: 0-50 Nitrite: 0-10	Drinking	50 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.

BioPaddles®

Microbiology Simplified!

- ▶ 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.



BioPaddles

Code	Type of Agar	Description	Shipping
5550	BioPaddle Nutrient Agar	For routine culture of non-fastidious bacteria.	NH [1]
5551	BioPaddle Sabouraud Dextrose Agar	For selective cultivation of fungi (yeasts and molds)	NH [1]
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).	NH [1]
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. For improved differentiation between coliforms and non-lactose fermenting organisms (MAC). Gram (+) cocci are usually inhibited.	NH [1]

NOTE: Dated material. Specify ship date. Orders may be placed in advance. Orders shipped from Maryland on Monday and Tuesday only.



MacroLens™

Grades 1 and up

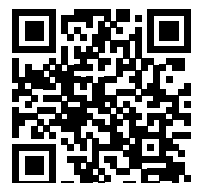
Order Code 5508 | \$17.80 | NH [1]

10 pack

Order Code 5508-10 | 160.20 | NH [6]

MacroLens with 4.5X magnification covers the entire petri dish! 4" diameter.

**Fits Over A
Petri Dish!**



BACTERIA STUDIES



Also See: **Total Coliform Kits pg. 16**



BioPaddles® Total Coliform Activity

Grades 9 and up

Order Code 5846 | NH [2]

Fast and reliable cultivation and enumeration of coliform bacteria from a slant culture (not included). Includes 5553/ Nutrient TTC/MacConkey BioPaddles (10 paddles) (page 19). Activity also includes Teacher Resource download 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.

Code 5846

REFILL: Nutrient TTC/MacConkey Agar BioPaddles

Order Code 5553 | NH [1]



BACTERIA STUDIES

Microbe Hunter™ Activities

NGSS
ALIGNED

Grades 6 and up

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.

Each Microbe Hunter includes content download, 10 BioPaddles to perform the first two activities, and 10 magnifying lenses. Additional paddles may be purchased to perform additional activities, STEM extension activities and Going Further activities.

- ▶ Culture bacteria without Petri dishes—no prep time
- ▶ Four to five inquiry-driven activities
- ▶ Student designed investigations of daily surroundings and natural environments
- ▶ Structured, guided, and open adaptable activities
- ▶ Introductory to advanced level activities
- ▶ Free microbe identification app from iTunes store
- ▶ Structured for classroom use
- ▶ Student Guide and Teacher Guide with examples and answers
- ▶ PowerPoint presentations for iPad, ID Guides, resources, links



Probiotic Dairy Microbe Hunter

Order Code 5560 | NH [1]

Students identify and explore microbes cultured from popular dairy products like milk, yogurt, and Kefir. Teams design a monitoring method to determine when a dairy product is spoiled. Activities and topics include probiotics, fermentation, pasteurization, and shelf life. STEM extension activities include demonstrating the correlation between pH and milk curdling.



See More On
Page 22



REFILL: TSA/RB BioPaddles for all
Microbe Hunter activities

Order Code 5552 | NH [1]

BACTERIA STUDIES



Surface Microbe Hunter

Order Code 5561 | NH [1]

Students discover factors that influence the growth and removal of surface microbes, design and evaluate cleaning protocols, and compare the effectiveness of antimicrobial materials. Activities and topics include surface characteristics, microbial diversity, biofilms, surface microbe identification, sanitizers and disinfectants. STEM extension activities ask *How Clean Are Kitchen Sponges?* And use popular mousepads to answer *Do Antimicrobials Keep Products Cleaner?*



Air Microbe Hunter

Order Code 5562 | NH [1]

Students predict which environmental conditions are favorable to airborne microbes and then propose and carry out a strategy to collect airborne microbes using passive sampling techniques. Students construct and calibrate an impact sampler to sample an airspace and determine airborne microbe contaminate levels. Activities and topics include the presumptive identification of airborne microbes, bioaerosols, cloud chemistry and precipitation, bacterial ice nucleators, and airborne diseases. STEM extension activities include *How Did Fungus Get Into King Tut's Tomb?* and *Dust and Dust Bunnies*.



Soil Microbe Hunter

Order Code 5563 | NH [1]

Students research the process of soil formation, soil characteristics, and the influence of environmental conditions on soil microbe populations. Students assess and sample various soil ecosystems using the surface contact impression technique, dilution technique, root wash technique, and the Rossi-Cholodny buried slide contact transfer technique. Microbes are identified and enumerated to calculate microbial diversity. Activities and topics include the effect of fertilizer on lawn microbe populations, rhizosphere ecosystems, biological soil crusts, and biopesticides. STEM extension activities include *Is There Such a Thing as Sterile Soil?*, *Investigating Soil Inoculants* and *Soil Crust Hunt*.



Food Microbe Hunter

Order Code 5565 | NH [1]

Students determine what factors affect microbe growth in food by designing experiments to control intrinsic and extrinsic factors, predict the probability of microbe growth on foods, and design an experiment to prove their hypothesis about the preservative effects of pickling. Activities and topics include identification of microbes in and on food, food spoilage, moisture equilibrium, water activity, nutrients, and food as an ecosystem. STEM extension activities include evaluating the effectiveness of garlic as an antimicrobial agent and the demonstration of Koch's Postulate.

WATER SAMPLING EQUIPMENT

**Retractable
Pole!**

Code 0168

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.

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.

Student Grade

Code 0172



Kick-Net

Kick-Net with poles

Order Code 0021-P | H [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, white net
- ▶ Hemmed sides hold poles, reinforced bottom seam helps anchoring
- ▶ Galvanized chain recommended, not included. Specs provided in instructions for purchase locally



Code 0021-P

WATER SAMPLING EQUIPMENT



Deluxe Secchi Disks

Black and white Secchi (disk only)

Order Code 0171 | NH [3]

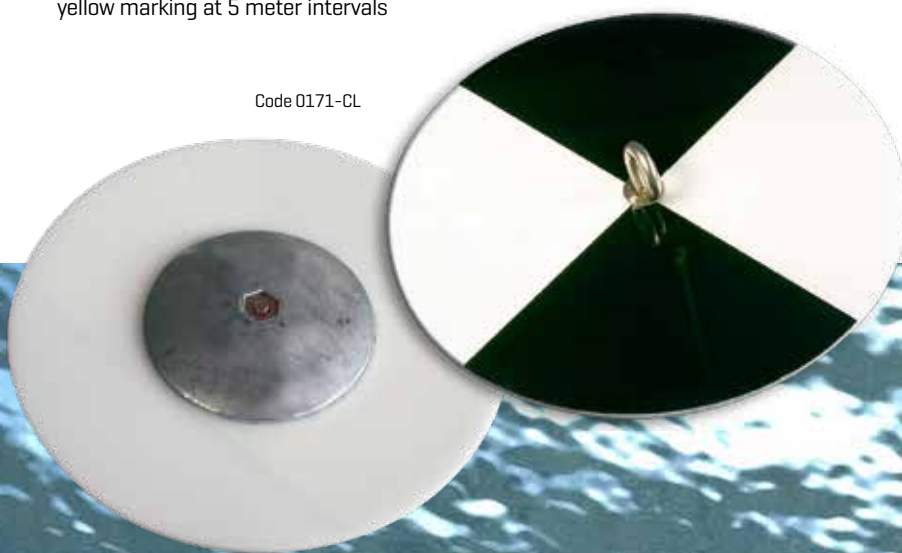
Disk w/ black and white quadrants & calibrated line

Order Code 0171-CL | NH [7]

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

- ▶ Braided line
- ▶ Permanent black markings every half-meter up to 20 meters that won't bleed or fade. Red markings at one meter intervals and yellow marking at 5 meter intervals

Code 0171-CL



Plankton Net

15" [38.1cm] tall, 5" [12.7cm] dia. mouth

Order Code 1063 | NH [2]

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 1063

Horizontal Water Sampler

Grades 5 and up

Order Code 1087 | NH [5]

Collect water samples quickly and easily! This newly designed horizontal water sampler allows water to be sampled at specific depths. A 20 meter calibrated line, marked at one meter intervals, is included. The clear acrylic tube allows a visual inspection of the sample prior to dispensing and holds approximately 1,200 mL of sample.

Send the weighted messenger down the line to trip the closing mechanism at the desired depth. Open one chamber end cap to dispense sample.



Code 1087

Rugged!

WATER SAMPLING EQUIPMENT

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)

Calibrated line only

Order Code 1064-G | NH [1]

20 meter line with brass clamp and foam float.
1 meter permanent markings in red and 5 meter markings in yellow.



Code 1097

Code 1066

Armored Thermometer

Order Code 1066 | NH [1]

A precision, NON-MERCURY thermometer encased in protective plastic jacket.

- ▶ Window opening
- ▶ Engraved graduation on white tubing increases readability
- ▶ Full range of -5° to 50°C in 0.5° increments

Discount available on orders of 10 units



Tapered Rain Gauge

Order Code 1047 | 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 1047



Also See: **Leaf Pack Kit pg. 8** | **Bug Kit pg. 10** | **Macro Flashcards pg. 9** | **Macro Mania pg. 10**

DIGITAL CURRICULUM PACKAGES

NGSS
ALIGNED

The Watershed Tour

Grades 4-8/50 students

Order Code 5974 | NH [1]

Reagent Refill R-5974 | NH [1]

A Watershed Mystery!

The updated digital Watershed Tour introduces students to stream and river ecosystems through a classroom-based exploration of the virtual Big River watershed. Students learn about stream ecology, water quality, and how their own actions can affect a watershed. Through hands on activities, student groups evaluate simulated water samples to collect chemical and biological data from four mystery sites. They apply their knowledge of watersheds to analyze the data to determine the water quality and identity of their site. The groups write an action plan for the Big River river keeper for maintaining or improving the water quality at their site.



Code 5974

Perfect for
Tablets and
Computers!



Code 5972



NGSS
ALIGNED

The Tapwater Tour®

Grades 4-8/50 students

Order Code 5972 | NH [1] Reagent Refill R-5972 | NH [1]

- ▶ Instructor Manual with everything you need from background information and setting up the classroom to a shopping list for everyday items
- ▶ Student Manual including test procedure, data sheets, and puzzles
- ▶ Students work in groups and individually
- ▶ Encourages critical thinking and active learning
- ▶ Flipped learning: Students can read background material before the lesson and apply knowledge to analyze their own classroom data
- ▶ Works on computer or tablet
- ▶ Great for inclusion classrooms

What's coming out of your tap?

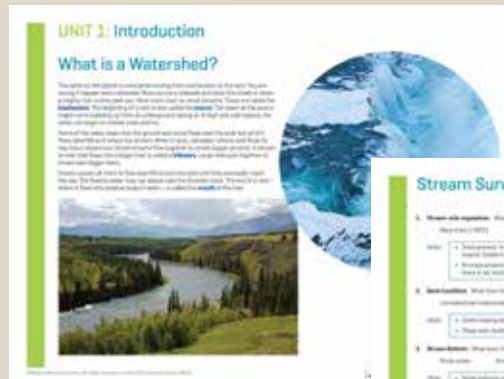
The newly updated electronic version of our ever popular Tapwater Tour® is a classroom investigation of how and why the characteristics of tap water can vary and affect every day activities. After reviewing background material about pH, chlorine, hardness, copper, and iron, students work independently and in teams to test their own tap water samples with simple TesTabs® reagent tablets. Students use observations and analyze shared data from the hands-on activities to explore water quality.

Activities can be modified to fit specific curriculum needs or learning opportunities. Data sheets and puzzles for each unit can be printed or filled electronically by students using a computer or tablet. Includes Instructor Manual, Student Manual with data sheets and puzzles, classroom color chart, and reagents and sample test bags for 50 students.

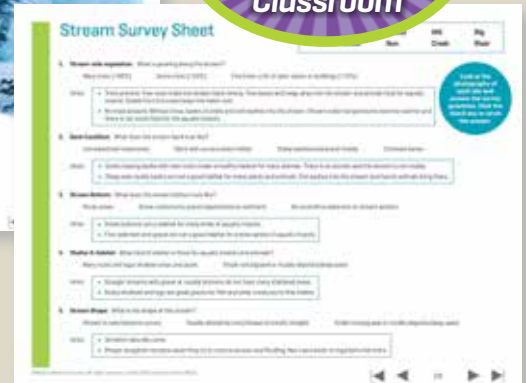
DIGITAL CURRICULUM PACKAGES

Activities can be modified to fit schedules, curriculum needs or learning opportunities. Data sheets and puzzles for each unit can be printed or filled electronically by students using a computer or tablet. Some activity sheets must be printed. Includes Instructor Manual, Student Manual with "On the Way to the Bay" game, classroom color chart, reagents and test tubes for 50 students.

- ▶ Instructor Manual with everything you need from background information and setting up the classroom to a shopping list for everyday items
- ▶ Student Manual including test procedure, data sheets, and puzzles
- ▶ Students work in groups and individually
- ▶ Encourages critical thinking and active learning
- ▶ Flipped learning: Students can read background material before the lesson and apply knowledge to analyze their own classroom data
- ▶ Works on computer or tablet and can also be printed out
- ▶ Great for inclusion classrooms



Study Watersheds in the Classroom



**NGSS
ALIGNED**

The Topsoil Tour

Grades 4-8/50 students

Order Code 5973 | NH [4] Reagent Refill R-5973 | NH [1]

Get the dirt on soil!

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 simple TesTabs® reagent tablets. Incorporates math and science activities.

Activities can be modified to fit specific curriculum needs or learning opportunities. Data sheets and puzzles for each unit can be printed or filled electronically by students using a computer or tablet. Includes Instructor Manual, Student Manual with data sheets and puzzles, classroom color chart, and reagents and sample test bags for 50 students.

Perfect for Tablets and Computers!

- ▶ Instructor Manual with everything you need from background information and setting up the classroom to a shopping list for everyday items
- ▶ Student Manual including test procedure, data sheets, and puzzles
- ▶ Students work in groups and individually
- ▶ Encourages critical thinking and active learning
- ▶ Flipped learning: Students can read background material before the lesson and apply knowledge to analyze their own classroom data
- ▶ Works on computer or tablet
- ▶ Great for inclusion classrooms.



CURRICULUM PACKAGES



Also See: **NPK Soil Kit** pg. 30 | **Nitty Gritty Soil Kit** pg. 29 | **Soil pH Kit** pg. 30 | **Soil Sampler** pg. 43 | **Funky Faucet** pg. 29

The Pondwater Tour

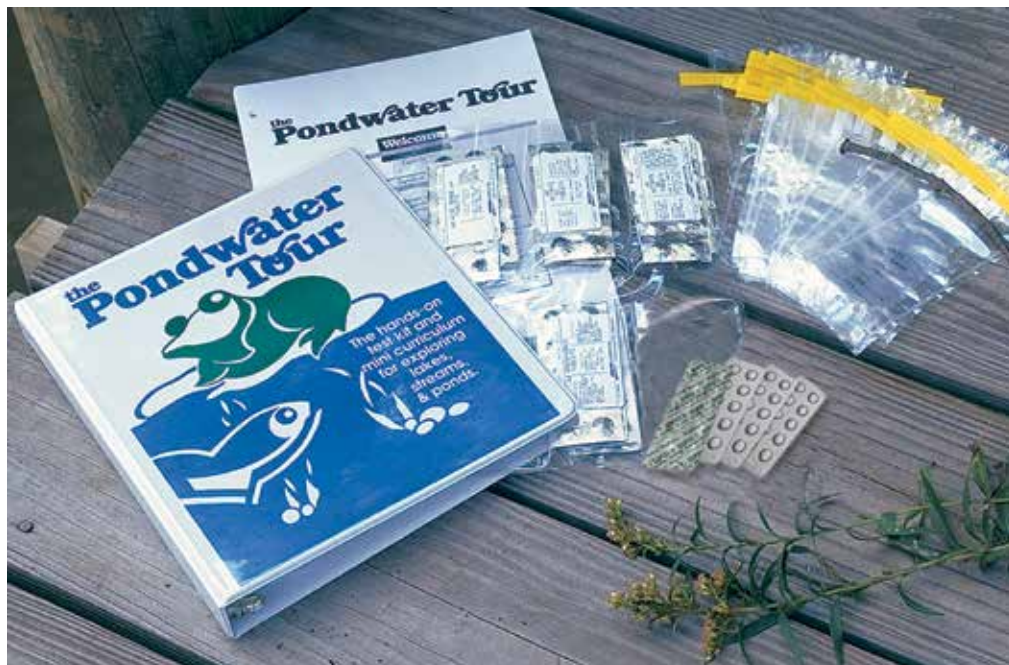
Grades 4-8/50 students

Order Code 5418[†] | NH [4]

Reagent Refill R-5418[†] | NH [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 simple TestTabs[®] 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. Three ring binder printed edition.

† **WARNING** Reproductive Harm - www.P65Warnings.ca.gov/product



Code 5418

AP[®] Environmental Science Water Quality Assessment Curriculum Module

Grades 7 and up

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 download. Module is designed to be used with the Water Quality Educator [Code 5870-01, see page 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. See page 12.



Code 5845

Earth Force Low Cost Water Monitoring Kit

Grades 3 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, see 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 English, Spanish and French
- ▶ All necessary apparatus
- ▶ TesTabs® to test 10 water samples (3 for coliform)
- ▶ Laminated color chart

English,
Spanish & French
Instructions!



Also See: Tapwater Tour pg. 26



Code 3-5886

Nitty-Gritty Soil Science

Grades 3 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 TesTab tablet methods). Reagents for 10 tests of each test factor are included.



Code 5913

Funky Faucet Sink Science

Grades 3 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.

- ▶ TesTabs reagents to run 10 tests each
- ▶ Instructions for 5 simple water quality tests
- ▶ Test tubes
- ▶ Word search games
- ▶ Internet resources



Code 5914

HOME SCHOOL | SCIENCE FAIR



Also See: *Tapwater Tour* pg. 26 | *Funky Faucet* pg. 29



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
- ▶ Simple, diagrammed instructions
- ▶ All necessary apparatus
- ▶ Laminated color chart
- ▶ Uses TesTabs®



Code 3-5880

**English,
Spanish & French
Instructions!**



Free Downloadable Handbooks lamotte.com



Code 5912

Soil pH Test Kit

Grades 5 and up

Order Code 5912 | NH [1]

By popular demand, TesTabs® method. Companion to NPK Soil 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

**English,
Spanish & French
Instructions!**

Aquatic Bug Kit

Grades 3 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

ELECTRONIC INSTRUMENTS



Code 1766



Code 1741



Code 1749



Code 1761

**WATER
RESISTANT**

**English & French
Instructions!**



pH/Conductivity TRACER

Order Code 1766 | NH [1]

pH/Conductivity Sensor only

Order Code 1755 | \$107.80 | 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, $^{\circ}\text{C}$, $^{\circ}\text{F}$
- ▶ Memory stores up to 25 labeled readings
- ▶ Auto power off and low battery indicator

Description	Range	Resolution	Accuracy
Conductivity	0 to 199.9 μS , 200 to 1999 μS , 2.00 to 19.99 mS	0.1 μS	$\pm 1\%$
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)	$\pm 2\%$
pH	0.00 to 14.0 pH	0.01 pH	$\pm 0.01\text{pH}$
Temperature	32 $^{\circ}$ to 149 $^{\circ}\text{F}$ (0 $^{\circ}$ to 65 $^{\circ}\text{C}$)	0.1 $^{\circ}\text{F}/^{\circ}\text{C}$	$\pm 1.8^{\circ}\text{F}/^{\circ}\text{C}$

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.

More on Page 32

ELECTRONIC INSTRUMENTS

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 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 [1732] makes unit a true ISE; TCL tablets [7044A] required

English & French Instructions!



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	TCL tablets, 100 pack

EC/TDS/Salt 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

English & French Instructions!

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]

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

Description	Order Code	Shipping	Price
DO Membrane Kit (6 screw-on membranes and solution)	Order Code 1761M	NH [1]	\$113.35
Weighted Stand w/Sample Cups [5]	Order Code 1746	NH [1]	26.50
Sample Cups w/caps [24]	Order Code 1745	NH [1]	29.60
DO Extension Cable [1 meters]	Order Code 1763	NH [1]	76.85
DO Extension Cable [5 meters]	Order Code 1764	NH [1]	121.45



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
7.00	2881
10.00	2896

Conductivity/TDS Solutions

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

1 µmhos = µS

ELECTRONIC INSTRUMENTS

2020i Portable Turbidity Meter

Order Code 1974-I | NH [6]

New RATIOMETRIC design in one of the most innovative, waterproof, handheld meters available on the market! Perfect for field and laboratory applications, this compact and easy-to-use instrument is an exceptional value.

- ▶ Advanced calibration algorithms
- ▶ Easy menu driven operation and large LCD display
- ▶ 500 point data log

**English,
Spanish & French
Instructions!**



Mode	Nephelometric	Ratiometric	Attenuation
Unit of Measure 2020i	NTU, FNRU, ASBC, EBC	NTU, FNU, ASBC, EBC	NTU, FAU, ASBC, EBC
Range	0-100 NTU/FNU 0-1,750 ASBC 0-25 EBC	0-1,000 NTRU/FNRU 0-17,500 ASBC 0-250 EBC	0-2,000 AU/FAU 0-70,000 ASBC, 0-1,000 EBC
Resolution	0-10.99 NTU/FNU: 0.01 11.0-100.0 NTU/FNU: 0.1	0-10.99 NTRU/FNRU: 0.01 11.0-109.9 NTRU/FNRU: 0.1 110-1000 NTRU/FNRU: 1	0-2000 AU/FAU: 1
Accuracy	0-2.5 NTU/FNU: ± 0.05 2.5-100 NTU/FNU: $\pm 2\%$	0-2.5 NTRU/FNRU: ± 0.05 2.5-100 NTRU/FNRU: $\pm 2\%$ 100-1000 NTRU/FNRU: $\pm 3\%$	0-2000 AU/FAU: ± 10 AU/FAU or 6%, whichever is greater
Detection Limit	0.05 NTU/FNU	0.05 NTRU/FNRU	10 AU/FAU
Reproducibility	0.02 NTU/FNU or 1%	0.02 NTRU/FNRU or 1%	1%
Range Selection	Automatic		
Light Source	IR LED 860 nm ± 10 nm, spectral bandwidth 50 nm		
Detector	Photodiode, centered at 90° and 180°		
Signal Averaging	Disabled, 2, 5, 10		
Power	USB computer cable, wall adapter or Lithium ion rechargeable battery		
Data Logging	500 points		
Auto Shut-Off	Disabled, 5, 10, 30 seconds		
Languages	English, French, Spanish, Japanese, Italian, Portuguese, Chinese		
Response Time	<2 Seconds		
Display	6-line LCD with backlit display		
Size	7.5 x 3.5 x 2.5 inches; 19.05 x 8.84 x 6.35 cm		
Weight	13 ounces		





Colorimetric Testing

Most test substances in water are colorless and undetectable by the human eye. Colorimeters and spectrophotometers are used to measure any test substance that is itself colored or can be reacted to produce a color. The definition of colorimetry is "the measure of color" and a colorimetric method is "any technique used to evaluate an unknown color in reference to known colors". In a colorimetric chemical test the intensity of the reaction must be proportional to the concentration of the substance being tested.

WATERPROOF



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 60 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

Description	Order Code	Shipping
Small Field Carrying Case	1910-GCS150	NH [7]
Large Field Carrying Case	1910-GCS440	NH [9]
USB Cable	1720-01	NH [1]
USB Wall Adapter	1721	NH [1]
COD/UDV Adapter	1724	NH [1]
Car Charger	5-0132	NH [1]
BLE Mobile Printer	5-0067	NH [2]

BLE Mobile Printer

Order Code 5-0067 NH [1]



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 disabled). 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 in / 19.1 x 8.9 x 6.4 cm
Weight	15 ounces





SMART3 Reagent Systems

Test Factor	Test Method [# of reagents]	Range ppm	# of Tests	Order Code	Shipping
Alkalinity, Tablet	Colorimetric [1]	10-250	50	3670-SC	NH
Aluminum ^{†R}	Eriochrome Cyanine R [4]	0.01-0.30	50	3641-01-SC	NH/R
Ammonia Nitrogen LR ^{†R} [Fresh & Salt Water]	Salicylate [3]	0.05-1.00/ 0.10-1.00	25	3659-02-SC	R2/R
Ammonia Nitrogen HR ^{†R}	Nesslerization [2]	0.05-4.00	50	3642-SC	R1/R
Barium	Barium Chloride [1]	5-200	50	3638-SC	NH/R
Biquinide	Colorimetric [1]	2-70	50	4044	NH
Boron	Azomethine-H [2]	0.05-0.80	50	4868-01	NH
Bromine	DPD Liquid	0.10-9.00	144	4859	R1
Bromine	DPD Tablets [3]	0.10-9.00	100	3643-SC	NH
Cadmium	PAN [4]	0.02-1.00	50	4017-01	R1/R
Carbohydrazide	Iron Reduction [3]	0.04-0.90	100	4857	R1
Chloride TesTab	Argentometric [1]	0.4-30.0	50	3693-SC	NH
Chlorine TesTab [Free & Total]	DPD Tablets [3]	0.03-4.00	100	3643-SC	NH
Chlorine - Liquid DPD	DPD [3]	0.03-4.00	144	4859	R1
Chlorine Dioxide	DPD tablet/Glycine [2]	0.06-8.00	100	3644-SC	NH
Chromium [Hexavalent]	Diphenylcarbohydrazide [1]	0.01-1.00	100	3645-SC	HA
Chromium [Total, Hex & Trivalent]	Diphenylcarbohydrazide [5]	0.01-1.00	100	3698-SC	HF
Cobalt ^{†R}	PAN [3]	0.04-2.00	50	4851-01	HF/R
COD LR with Mercury*	Digestion [1]	5-150 mg/L	25	0075-SC	R1
COD LR without Mercury*	Digestion [1]	5-150 mg/L	25	0072-SC	R1
COD SR with Mercury*	Digestion [1]	50-1,500 mg/L	25	0076-SC	R1
COD SR without Mercury*	Digestion [1]	50-1,500 mg/L	25	0073-SC	R1
COD HR with Mercury*	Digestion [1]	500-15,000 mg/L	25	0077-SC	R1
COD HR without Mercury*	Digestion [1]	500-15,000 mg/L	25	0074-SC	R1/R
Color	Platinum Cobalt [0]	20-1,000 Cu	∞	NA	NH
Copper BCA - LR	Bicinchoninic Acid [1]	0.04-3.50	50	3640-SC	NH
Copper - Cuprizone	Cuprizone [2]	0.03-2.00	50	4023	R1
Copper DDC ^{†B}	Diethyldithiocarbamate [1]	0.10-6.00	100	3646-SC	NH/B
Cyanide	Pyridine-Barbituric Acid [5]	0.03-0.35	50	3660-01-SC	R1
Cyanuric Acid, Liquid	Melamine [1]	10-200	40	3661-01-SC	NH
Cyanuric Acid, Tablet	Melamine [1]	10-110	50	3673-SC	NH
DEHA	Iron Reduction [3]	0.01-0.70	100	4857	R1
Dissolved Oxygen [DO]	Winkler Colorimetric [3]	0.6-11.0	200	3688-SC	R1
Erythorbic Acid	Iron Reduction [3]	0.02-3.00	100	4857	R1
Fluoride ^{†R}	SPADNS [2]	0.1-2.0	50	3647-02-SC	R1
Hardness, Total, Tablet	Colorimetric [1]	10-400	50	3671-SC	NH
Hydrazine	p-dimethylaminobenzaldehyde [2]	0.01-0.75	50	3656-01-SC	NH
Hydrogen Peroxide LR	DPD [2]	0.02-1.50	100	3662-SC	NH
Hydrogen Peroxide HR	DPD [2]	1-60	100	4045-01	NH
Hydrogen Peroxide Shock	DPD [2]	10-225	100	4045-01	R2
Hydroquinone	Iron Reduction [3]	0.01-2.00	100	4857	R1

*Requires COD Heater Block, not included. Code 5-0102. | Shipping Codes listed in front of catalog.

ELECTRONIC INSTRUMENTS



SMART3 Reagent Systems

Test Factor	Test Method [# of reagents]	Range ppm	# of Tests	Order Code	Shipping
Iodine	DPD Tablets [2]	0.2-14.0	100	3643-SC	NH
Iron	Bipyridyl [2]	0.10-6.00	50	3648-SC	R1
Iron, Total, Ferrous, Ferric	1,10 Phenanthroline [2]	0.1-5.0	50	3668-SC	R1
Lead ^{†C}	PAR [5]	0.1-5.0	50	4031-01	R1/C
Manganese LR ^{†R}	PAN [3]	0.01-0.70	50	3658-01-SC	HF/R
Manganese HR	Periodate [2]	0.3-15.0	50	3669-SC	R1
Methylethylketoxime	Iron Reduction [3]	0.01-3.00	100	4857	R1
Molybdenum HR	Thioglycolate [3]	0.6-50.0	50	3699-03-SC	R1
Nickel ^{†R}	Dimethylglyoxime [6]	0.15-8.00	50	3663-01-SC	HF/R
Nitrate Nitrogen LR ^{†B}	Cadmium Reduction [2]	0.10-3.00	20	3649-01-SC	R1/B
Nitrate TesTabs	Zinc Reduction [1]	5-60	50	3689-SC	NH
Nitrite Nitrogen LR	Diazotization [2]	0.02-0.80	20	3650-SC	NH
Nitrogen, Total*	Chromotropic Acid/ Digestion [6]	3-25 mg/L	25	4026-02	R1
Oxygen Scavengers	Iron Reduction	various	100	4857	R1
Ozone	DPD Liquid [4]	0.03-3.00	100	4881-01	NH
Ozone LR	Indigo Trisulfonate [3]	0.01-0.40	100	3651-SC	NH
Ozone HR	Indigo Trisulfonate [3]	0.05-2.50	20	3651-SC	NH
pH CPR	Chlorophenyl Red [1]	pH 5.0-6.8	100	3700-01-SC	NH
pH PR	Phenol Red [1]	pH 6.6-8.4	100	3700-01-SC	NH
pH TB	Thymol Blue [1]	pH 8.0-9.5	100	3700-01-SC	NH
pH, Tablet	Phenol Red [1]	pH 6.6-8.4	50	3672-SC	NH
Phenol ^{†C}	Aminoantipyrine [3]	0.05-6.00	50	3652-01-SC	NH
Phosphate LR	Ascorbic Acid Reduction [2]	0.05-3.00	50	3653-SC	R2/C
Phosphate HR ^{†C}	Vanadomolybdovanadate Acid [1]	1-70	50	3655-SC	R1
Phosphorus, ppb	Ascorbic Acid/Digestion [5]	50-3000 ppb	50	3653-SC	R2/C
Phosphorus, Total - LR*	Ascorbic Acid/Digestion [5]	0.50-3.50 mg/L	25	4024-01	R1
Phosphorus, Total - HR*	Molybdovanadate/ Digestion [5]	5-100 mg/L	25	4025-01	R1
Potassium	Tetraphenylboron [2]	0.8-10.0	100	3639-SC	R1
Silica LR	Heteropoly Blue [4]	0.05-4.00	100	3664-SC	R1
Silica HR	Silicomolybdate [3]	1-75	50	3687-SC	R1
Sulfate HR	Barium Chloride [1]	3-100	100	3665-SC	R1
Sulfide LR	Methylene Blue [3]	0.06-1.50	50	3654-02-SC	R1
Surfactants ^{†B}	Bromthymol Blue [3]	0.5-8.0	100	4876-01	HF/B
Tannin	Tungsto-Molybdophosphoric Acid [2]	0.1-10.0	50	3666-01-SC	R1
Turbidity	Absorptimetric [0]	3-400 FTU	∞	NA	NH
Urea	Urease/Salicylate [4]	0.4-6.0	50	3674-SC	LQ
Zinc LR ^{†B}	Zincon [6]	0.05-3.00	50	3667-01-SC	HF/B

*Requires COD Heater Block, not included. Code 5-0102 | Shipping Codes listed in front of catalog.

† Prop 65: **C**: **WARNING** Cancer - www.P65Warnings.ca.gov/product; **R**: **WARNING** Reproductive Harm - www.P65Warnings.ca.gov/product; **B**: **WARNING** Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product



Also See: **The Water Quality Educator & Monitoring Outfit pg. 12** | **AP® The Water Quality Assessment Package pg.13**

SMART3 Water Analysis Laboratory

Order Code 1951-04† | LQ [37]

Reagent Refill R-1951-03† | LQ [10]

- ▶ Measure 24 water quality parameters with this versatile portable lab!
- ▶ Analyzes test sample color and provides direct readouts for 15 factors
- ▶ Includes digital meters to measure pH, conductivity and TDS
- ▶ Direct reading titrators provide results for 6 additional factors directly in ppm
- ▶ The SMART3 Colorimeter is programmed to provide direct readouts for over 60 factors using optional reagent packages



Code 1951-03

SMART3 Colorimeter Tests

Test Factor	Test Method	Range [# Test]
Ammonia-Nitrogen	Salicylate	0.05-4.0 ppm [50]
Chlorine	DPD	0.03-4.0 ppm [100]
Bromine	DPD	0.10-9 ppm [100]
Iodine	DPD	0.2-14 ppm [100]
Chromium (Hexavalent)	Diphenylcarbohydrazide	0.01-1.0 ppm [100]
Copper	Diethyldithiocarbamate	0.10-6.0 ppm [100]
Fluoride	SPADNS	0.1-2.0 ppm [50]
Iron	Bipyridyl	0.10-6.0 ppm [50]
Nitrate-Nitrogen	Cadmium Reduction	0.10-3.0 ppm [20]
Nitrite-Nitrogen	Diazotization/Coupling	0.20-0.8 ppm [20]
Phosphate	Ascorbic Acid Reduction	0.05-3.0 ppm [50]
Silica	Heteropoly Blue	0.05-4.0 ppm [50]
Sulfate	Barium Chloride	3-100 ppm [50]
Sulfide	Methylene Blue	0.06-1.50 ppm [50]
Turbidity	Absorption [no rgts]	3-400 NTU [∞]

† ⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

Meters

Test Factor	Code	Model	Range
pH	1741	TRACER	pH 0-14
Conductivity	1749	EC TDS Salinity Temperature TRACER	0-199.9 µS/cm 0-19.99 mS 0 to 9,999 ppm (mg/L) 32° to 149°F (0 to 65°C)
Colorimeter	1910	SMART3	See chart

Test Kits

Test 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, Conductivity Meters	1991-02	LQ [34]
Reagent Refill	R-1991-02	LQ [10]



AQUACULTURE | AQUARIUM



Fresh Water Outfit

Grades 6 and up

Order Code 3633-05[†] | LQ (10)

Reagent Refill R-3633-05[†] | LQ (4)

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

Octa-Slide 2 Comparator Tests

Test Factor	Test Method	Range (# Tests)
Ammonia Nitrogen	Salicylate	0.0-2.0 ppm (50)
Nitrite Nitrogen	Diazotization	0.05-0.8 ppm (50)
pH [†]	Wide Range	5.0-10.0 ppm (50)

Direct Reading Titrator

Test 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

Test Factor	Range
Armored Thermometer	-5° to 45°C

[†] ⚠ **WARNING** Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product



Free Downloadable Handbooks!
www.lamotte.com

Salt Water Outfit

Grades 6 and up

Order Code 3635-05[†] | LQ (10)

Reagent Refill R-3635-04[†] | LQ (4)

Contains equipment necessary to monitor the 9 parameters most critical to the salt water analyst.

Octa-Slide 2 Comparator Tests

Test 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	0.05-0.8 ppm (50)
pH [†]	Wide Range	5.0-10.0 (50)

Direct Reading Titrator Tests

Test 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

Test Factor	Range
Armored Thermometer	-5° to 45°C

[†] ⚠ **WARNING** Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

HYDROPONICS | AQUAPONICS

Hydroponics is the growing of plants in a controlled environment with nutrient solutions, but without the use of soil as the supporting medium. Plant roots are fed directly, which is contrast to conventional methods where plant food is applied to the soil and the roots extract the nutrients fromt the soil. Plants are wither grown directly in nutrient solution with only structural support or in beds through which nutrient solutions are periodically recirculated.

Hydroponics 4-Way Kit

Grades 6 and up

Order Code 3561-01[†] | HF [7]

Reagent Refill R-3561[†] | F [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
Potassium	0-250 ppm	50

[†] ⚠ **WARNING** Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

Code 3561-01



Aquaponics Kit

Grades 5 and up

Order Code 3637[†] | LQ [9]

Reagent Refill R-3637[†] | LQ [4]



Aquaponics is growing rapidly as a hobby and industry as the farm-to-table trend continues to spread. Designed for small to mid-size systems, this test kit monitors basic water quality for both the aquaculture and hydroponics segments of your system. A detailed, diagrammed instruction manual is provided along with a quick reference lid instruction. Reagents, labware and accessories are mounted in a foam-lined carrying case. Kit is complete with labware, accessories, and reagents to perform approximately 50 repetitions per test factor. Test chemistries and comparators are compatible with fresh, brackish, or salt water systems.

Octa-Slide 2 Comparator

Test Factor	Test Method	Range
Ammonia-Nitrogen	Salicylate	0-2.0 ppm
Nitrite-Nitrogen	Diazotization	0.05-0.8 ppm
Nitrate-Nitrogen	Zinc Reduction	0-15 ppm
pH	Wide Range Indicator	5.0-10.0
Iron, Ferrous & Ferric	Bipyridyl indicator	0.5-10.0 ppm

Direct Reading Titrator

Test Factor	Test Method	Range
Alkalinity	Acid/Base	0-200 ppm
Dissolved Oxygen	Modified Winkler	0-10 ppm

[†] ⚠ **WARNING** Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product

Code 3637



SOIL SCIENCE



Soil Macronutrients

Grades 6 and up

Order Code 5928-01[†] | F [17]

Reagent Refill R-5928[†] | F [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 Texture Unit (page 43)
- ▶ Soil sampling bags
- ▶ Individual test modules for 4 important soil test factors
- ▶ FREE online resource: *A Study of Soil Science*



Code 5928-02



[†] ⚠ WARNING Reproductive Harm - www.P65Warnings.ca.gov/product

Color Charts

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

Accessories

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

Octa-Slide 2 Comparator

Test Factor	Range	# Tests
pH	3.8 -9.6	40

Turbidity Column

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

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 5938-01



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.

- ▶ FREE online resource: *A Study of Soil Science*



Color Chart

Test 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

[†] ⚠ WARNING Reproductive Harm - www.P65Warnings.ca.gov/product



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
- ▶ Simple, diagrammed instructions
- ▶ All necessary apparatus
- ▶ Laminated color chart
- ▶ Uses TesTabs®

**English,
Spanish & French
Instructions!**



Code 3-5880

Soil pH Test Kit - Tablet Version

Grades 5 and up

Order Code 5912 | NH [1]

By popular demand, TesTabs® method. Companion to NPK Soil 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

**English,
Spanish & French
Instructions!**



Code 5912

Soil pH Test Kit - Liquid Version

Grades 5 and up

Order Code 5024[†] | NH [1]

Reagent Refill 2221-G[†] | NH [1]

Our most popular pH soil kit. 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
- ▶ Range of 4-8 in 1.0 increments
- ▶ Color chart and spot plate

[†] ⚠ WARNING Reproductive Harm - www.P65Warnings.ca.gov/product



Code 5024

SOIL SCIENCE

Plant Tissue 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

† ⚠ WARNING Reproductive Harm - www.P65Warnings.ca.gov/product



Plant Tissue testing provides essential information concerning plant use of nutrients vital to their growth. These simplified field tests for green plant tissue indicate whether growing plants are receiving adequate amounts of nutrients from the soil. All tests give qualitative results for specific nutrients. By comparing test results from healthy and problem plants, it is possible to pinpoint deficiencies or excessive nutrient conditions.



Free Downloadable Handbooks!
www.lamotte.com

Plant Nutrition Solutions

Grades 6 and up

Order Code 5940 | LQ [7]

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

† Prop 65: C: ⚠ WARNING Cancer - www.P65Warnings.ca.gov/product; R: ⚠ WARNING Reproductive Harm - www.P65Warnings.ca.gov/product; B: ⚠ WARNING Cancer and Reproductive Harm - www.P65Warnings.ca.gov/product



English,
Spanish & French
Instructions!

Garden Guide Soil Test Kit

Grades 5 and up

Order Code 5679-02 | LQ (4)
Reagent Refill R-5679 | LQ (3)

Kit measures nitrogen, phosphorus, potassium (15 tests each) and soil pH (30 tests).

All results are compared to a laminated color chart. The kit includes:

- ▶ Diagrammed instructions
- ▶ Graduated tubes for measurement of test reagents
- ▶ Laminated color chart
- ▶ Garden Guide manual
- ▶ LaMotte Soil Handbook
- ▶ FREE online resource: *A Study Of Soil Science*



Code 5679-02



Also See: **NPK Soil Kit pg. 30** | **Soil pH Testabs® Kit pg. 30** | **Soil pH Kit pg. 30**

Soil Texture Unit

Grades 5 and up

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.

- ▶ FREE online resource: *A Study of Soil Science*



See Soil
Sampling
Bags on
Page 40



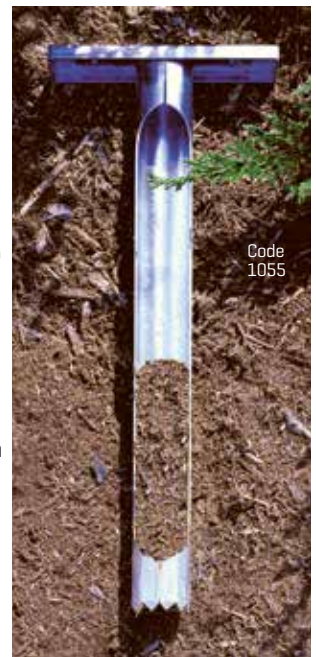
Code 1067



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. Comes with 20 soil sampling bags.



Code 1055



Code 5563

Soil Microbe Hunter

Grades 5 and up

Order Code 5563 | NH (1)

Students research the process of soil formation, soil characteristics, and the influence of environmental conditions on soil microbe populations. Students assess and sample various soil ecosystems using the surface contact impression technique, dilution technique, root wash technique, and the Rossi-Cholodny buried slide contact transfer technique. Microbes are identified and enumerated to calculate microbial diversity.

Activities and topics include the effect of fertilizer on lawn microbe populations, rhizosphere ecosystems, biological soil crusts, and biopesticides. STEM extension activities include *Is There Such a Thing as Sterile Soil?*, *Investigating Soil Inoculants* and *Soil Crust Hunt*.



Also See: **Microbe Hunter Activities pg. 21**

FREE ONLINE RESOURCES

lamotte.com/products/environmental-science-education/environmental-education-resources



Environmental Science Education Products: Reagent Refills, Parts & Accessories

A guide for refilling or refurbishing test kits. Organized by kit code number for easy reference. Ordering information for complete kit reagent refills and for individual reagents and components. Includes reagent shelf life information and current pricing.



NGSS Alignment LaMotte Kits			
Code 5560 Probiotic Microbe Hunters			
Performance Level: MS-LSD-1, MS-LSD-2, MS-LSD-3, MS-LSD-4, MS-LSD-5, MS-LSD-6, MS-LSD-7, MS-LSD-8, MS-LSD-9, MS-LSD-10	Disciplinary Core Idea: LSD-1, LSD-2, LSD-3, LSD-4, LSD-5, LSD-6, LSD-7, LSD-8, LSD-9, LSD-10	Cross-Cutting Concepts: Cause and Effect, Stability and Change, Scale, Proportion and Quantity	Engineering Practice: Analyzing and Interpreting Data, Engaging in Argument from Evidence, Constructing Explanations and Designing Solutions, Using Mathematics and Computational Thinking
Code 5561 Surface Microbe Hunters			
Performance Level: MS-LSD-1, MS-LSD-2, MS-LSD-3, MS-LSD-4, MS-LSD-5, MS-LSD-6, MS-LSD-7, MS-LSD-8, MS-LSD-9, MS-LSD-10	Disciplinary Core Idea: LSD-1, LSD-2, LSD-3, LSD-4, LSD-5, LSD-6, LSD-7, LSD-8, LSD-9, LSD-10	Cross-Cutting Concepts: Cause and Effect, Stability and Change, Scale, Proportion and Quantity	Engineering Practice: Analyzing and Interpreting Data, Engaging in Argument from Evidence, Constructing Explanations and Designing Solutions, Using Mathematics and Computational Thinking
Code 5562 Air Microbe Hunters			
Performance Level: MS-LSD-1, MS-LSD-2, MS-LSD-3, MS-LSD-4, MS-LSD-5, MS-LSD-6, MS-LSD-7, MS-LSD-8, MS-LSD-9, MS-LSD-10	Disciplinary Core Idea: LSD-1, LSD-2, LSD-3, LSD-4, LSD-5, LSD-6, LSD-7, LSD-8, LSD-9, LSD-10	Cross-Cutting Concepts: Cause and Effect, Stability and Change, Scale, Proportion and Quantity	Engineering Practice: Analyzing and Interpreting Data, Engaging in Argument from Evidence, Constructing Explanations and Designing Solutions, Using Mathematics and Computational Thinking
Code 5563 Soil Microbe Hunters			
Performance Level: MS-LSD-1, MS-LSD-2, MS-LSD-3, MS-LSD-4, MS-LSD-5, MS-LSD-6, MS-LSD-7, MS-LSD-8, MS-LSD-9, MS-LSD-10	Disciplinary Core Idea: LSD-1, LSD-2, LSD-3, LSD-4, LSD-5, LSD-6, LSD-7, LSD-8, LSD-9, LSD-10	Cross-Cutting Concepts: Cause and Effect, Stability and Change, Scale, Proportion and Quantity	Engineering Practice: Analyzing and Interpreting Data, Engaging in Argument from Evidence, Constructing Explanations and Designing Solutions, Using Mathematics and Computational Thinking
Code 5565 Fresh Microbe Hunters			
Performance Level: MS-LSD-1, MS-LSD-2, MS-LSD-3, MS-LSD-4, MS-LSD-5, MS-LSD-6, MS-LSD-7, MS-LSD-8, MS-LSD-9, MS-LSD-10	Disciplinary Core Idea: LSD-1, LSD-2, LSD-3, LSD-4, LSD-5, LSD-6, LSD-7, LSD-8, LSD-9, LSD-10	Cross-Cutting Concepts: Cause and Effect, Stability and Change, Scale, Proportion and Quantity	Engineering Practice: Analyzing and Interpreting Data, Engaging in Argument from Evidence, Constructing Explanations and Designing Solutions, Using Mathematics and Computational Thinking

NGSS Alignment LaMotte Kits

A listing of LaMotte test kits and their alignment to NGSS standards.



Are My Reagents Still Good?

Informative guide to understanding lot numbers and expiration dates to achieve accurate test results and the most economical use of reagents.

FREE ONLINE RESOURCES

Limnology: An Introduction To The Fresh Water Environment

William H. Amos

Order Code 1593 | FREE

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.

Our Environment Battles Water Pollution

Dr. Charles E. Renn

Order Code 1592 | FREE

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.

Investigating Water Problems

Dr. Charles E. Renn

Order Code 1589 | FREE

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

A Laboratory Manual For Marine Science Studies

Staff, LaMotte Company

Order Code 1587 | FREE

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

A Study Of Water Quality

Dr. Charles E. Renn

Order Code 1532 | FREE

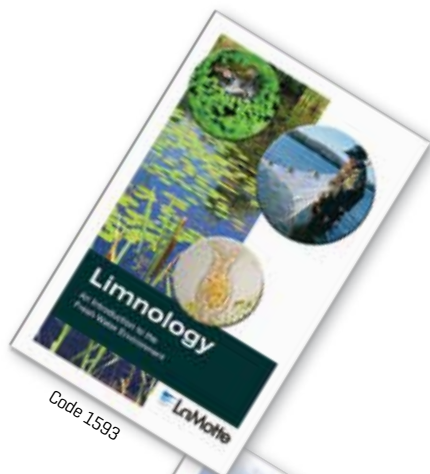
Examines in-depth the life cycle of water from natural occurrences to treatment for domestic/industrial use. Emphasizing problems such as scaling, corrosiveness, taste and turbidity. 46 pages.

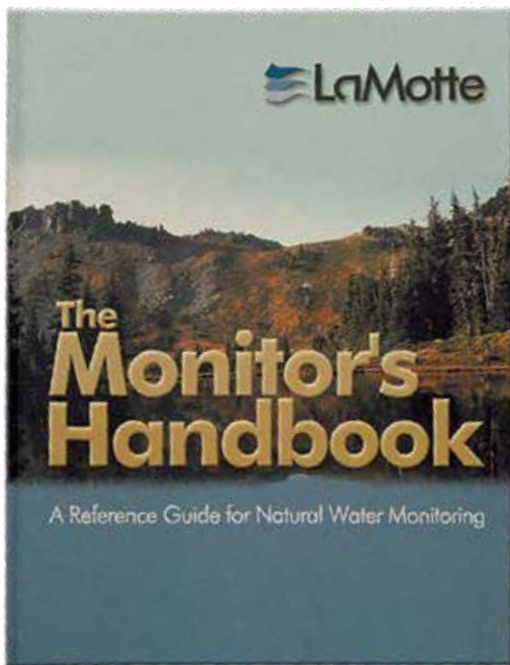
A Study Of Soil Science

Dr. Henry D. Foth

Order Code 1530 | FREE

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





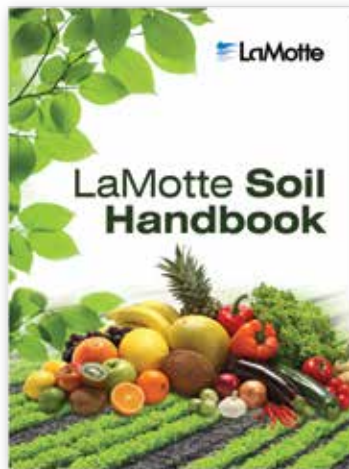
The Monitor's Handbook

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.

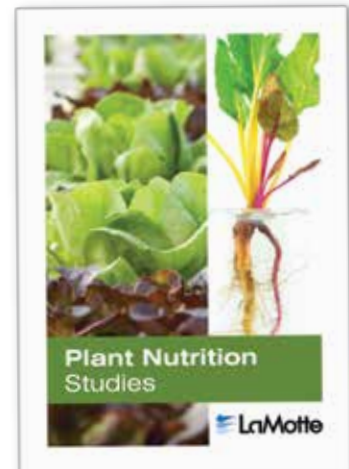


LaMotte Soil Handbook

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.



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Phone 800-344-3100 | +1 410-778-3100

Fax +1 410-778-6394

Mail 802 Washington Avenue | Chestertown, MD 21620 USA

Prices

Are subject to change without prior notice. Prices are f.o.b. Chestertown, Maryland. A \$25.00 fee is applied to all orders totaling less than \$50.00. Flat rate shipping charges apply.

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.

