

Multimedia & INTERNET@SCHOOLS™

The Media and Technology Specialists' Guide to Electronic Tools and Resources for K-12

A reprint from
Multimedia & Internet@Schools

PRODUCT REVIEWS

Compiled by Kathie Felix
Managing Editor/News & Reviews Editor

Electronic Resources for Schools

REPORT CARD

- ★★★★★ — Outstanding
- ★★★★ — Highly Recommended
- ★★★ — Good
- ★★ — OK in some cases
- ★ — Don't consider

This section provides concise, original reviews of new or important hardware, software, Web sites, & electronic media that relate to the K-12 curriculum. All reviews are written by practicing educators who, in most cases, have used the software in a school environment. Where grouped into broad, age-appropriate categories, these categories should not be viewed as prescriptive. To facilitate "comparison shopping," these reviews are highly structured. Reviewers prepare a "report card" based on a five-star scale:

HARDWARE

Let's Go! Investigate Temperature

Company: Vernier Software and Technology, 1399 S.W. Millikan Way, Beaverton, OR 97005-2886; Phone: 888/837-6437 and 503/277-2299. Fax: 503/277-2440; E-mail: info@vernier.com; Internet: <http://www.vernier.com/>.

Price: \$39—Go! Temp probe. \$15—Let's Go! Investigating Temperature Lab Book. A Logger Lite software site license is included with the probe at no charge. \$296—Teacher Pack containing eight Go! Temps and software. Additional individual sensors can be purchased, ranging in price from \$45 to \$209.

Audience: K-12.

Format: Temperature probe, CD-ROM: text, graphics.

Minimum System Requirements: Windows 98, 2000, ME, or XP on a Pentium processor or equivalent.

★★★★★ REPORT CARD

Installation	A
Content/Features	A
Ease of Use	A
Product Support	A

MAC OS X (10.2) or newer.

Description: Go! Temp is a science tool that provides students with the opportunity to collect, examine, and calculate data using a sensor probe. The program allows data to be saved, displayed, graphed, analyzed, and recalled.

Reviewer Comments:

Installation: I used this product with G-4 iBook laptop computer running system OSX 10.2. Installation was simple and quick.

Once the software is installed on the hard drive, it is not required each time

students access the program. The probe must be attached to a USB port. More than one sensor can be used if additional USB ports are available. **Installation Rating:** A

Content/Features: The Go! Temp probe is connected directly to a computer. No interface is needed. The included Logger Lite software allows the collection of data with up to six sensors. A menu bar across the top of the main window accesses all of the software's features.

Create a New File offers a blank chart for use with an experiment. Experiment files matching the activities in the Vernier classroom activity book *Let's Go! Investigating Temperature* are available by choosing "Open" from the File menu. The program offers a default setup that automatically determines the collection rate and length or provides a custom setup to customize data collection.



The Store Latest Run option in the Experiment menu saves the most recently collected data in memory so that another collection can be run. Data can be saved permanently by saving to the hard drive.

Data is plotted in the graph window. A button provides easy access for starting and stopping the collection of data. Data is automatically scaled to include all data points, or the user can manually draw data on a graph. A print option prints the screen information displayed on the monitor.

Notes can be recorded for each file. Text annotation permits the user to enter and edit notes about the data on the graph.

The Analyze feature contains functions for examining and analyzing data, including the calculation of statistics related to minimum, maximum, mean, and standard deviation.

Pages offer different layouts of data in a single file. Pages and data can be customized by moving or resizing objects. Graph options allow the appearance of the graph to be changed. The user has a choice of three different styles of meters, with the ability to switch between Celsius and Fahrenheit.

A channel box enables the user to calibrate a sensor, get information, set the current reading to zero, select another sensor, change the current settings, and clear the channel of the sensor.

Additional sensors can be purchased. These include a light sensor to study solar energy; a pH sensor that is an Ag-AgCl (silver-silver chloride) gel-filled combination electrode/amplified magnetic field sensor to measure the Earth's magnetic field; a dual-range force sensor to study friction, motion, impact, and centripetal force; a sound level meter to measure sound in decibels; a differential voltage probe to measure the potential in DC or AC circuits; a conductivity probe to measure the salinity of solutions; a gas pressure sensor; a barometer for weather studies; a force plate to study the dynamics of jumping or walking; a relative humidity sensor as part of a weather station or terrarium; and an ultra-violet A (UVA) sensor and UVB sensor that respond to specific portions of the radiation spectrum. To connect to a USB port, these sensors require a single-channel interface called Go! Link that is available from Vernier.

The *Let's Go! Investigating Temperature* Lab Book, designed for elementary students, is an excellent resource consisting of 10 activities that can be completed individually, in small groups, or as a teacher demonstration. When students have completed an activity, they can turn to the Report Page to record their observations and answer the provided questions. The materials needed for the activities are easy to locate and are generally found in most classrooms. The tips and safety hints were useful and appreciated.

Blackline masters provide graphic organizers to assist students who complete the experiments in small groups or individually. Teacher pages have sample results, answers to questions, and helpful hints regarding the planning and implementation of each activity.

I loved the Lab Book and used five of the activities with my students. The book is written in an easy-to-follow format that saved me a lot of time and effort.

Classroom Applications: The Lab Book presents 10 activities that can be easily implemented in any elementary classroom. I started with the first experiment in which students hold the probe in their hand for 60 seconds to determine their body temperature.

Next, I challenged the students to think of ways to make the temperature of their hands hotter. The students tried sitting on their hands, rubbing them together, covering them with a towel, and other means. Once we completed our investigation on heat, we switched to activities involving cold.

The students were asked to find a container in the classroom and cover it with some kind of material to serve as an insulator. We measured the temperature of each container to see which held heat the best. Students tried different ideas—wrapping a glass in aluminum foil, covering a can with cotton balls, and using different colors of construction paper. We added ice cubes to cups of water to determine how the number of ice cubes would affect the temperature of water.

I challenged the students to come up with their own variations and the resulting experiments were shared over a period of days. The level of enthusiasm for scientific inquiry has never been greater than it was using this software program. During each investigation, there were opportunities to discuss how variables can affect the results of each experiment. **Content/Features Rating:A**

Ease of Use: The software is simple to use, with complete instructions written especially for elementary students available with the software and in the Lab Book. **Ease of Use Rating:A**

Product Support: Product support is provided in the Lab Book with special attention to safety precautions. Support is available online at <http://www.vernier.com/> and by e-mail at info@vernier.com. **Product Support Rating:A**

Recommendation: Go! Temp is an easy and inexpensive way to introduce students to science inquiry using probeware.

I used this program with a small group of first graders who reacted with enthusiasm. They were enthralled watching the computer graph their results as they measured the body temperature of their hands. One experiment led to another and another—the students begged me to keep going and not to quit the lesson. My original intent was to conduct one experiment, but I ended up doing three and, before we were finished, the students were

coming up with their own ideas for experiments.

This program makes it extremely easy to bring meaningful, hands-on science into every classroom. The use of computers assures that students will have a more accurate means of determining measurement. In this way, experiments can be continuously monitored without needing close attention, and the results can be saved, displayed, graphed, analyzed, and recalled with ease. Using computer software also eliminates the need to have students work with mercury thermometers or other glass thermometers that can break.

The additional availability of sensors would most definitely be a welcome asset to middle and high school science classes. Older students will be able to use these tools independently and will therefore require little assistance from the teacher.

Let's Go! Investigating Temperature is a "must have" for every classroom.

Outstanding!

Reviewer: Sally Finley, Gifted/Technology, Country Hills Elementary School, 10550 Westview Drive, Coral Springs, FL 33076; 954/341-0460; sallyfinley1@yahoo.com.