

A Hot Hand

In this experiment you will measure the temperature of the palm of your hand and the palm temperatures of your teammates. In the process, you will get to know the computer program *Logger Pro* or *Logger Lite* and how to use Temperature Probes. You will also get to know your teammates better.

OBJECTIVES

In this experiment, you will

- Use a computer to measure temperature.
- Calculate temperature averages.
- Compare results.

MATERIALS

computer
Vernier computer interface
Temperature Probe

beaker
water
paper towel

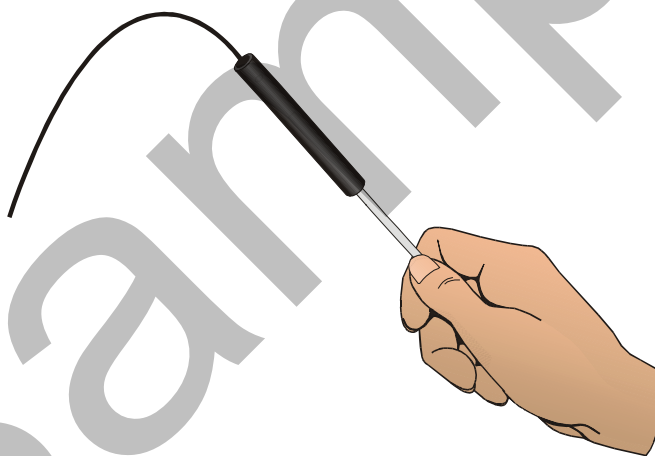


Figure 1

PROCEDURE

1. Connect the Temperature Probe. Start the Vernier data-collection program and open the file "01 A Hot Hand" from the *Middle School Science with Vernier* folder.
2. Measure the temperature of the palm of your hand.
 - a. Click **Collect** to begin data collection.
 - b. Pick up the Temperature Probe and hold its tip in the palm of your hand as shown in Figure 1. Data collection will end when 60 seconds have gone by.

3. Record your maximum temperature.
 - a. Click the Statistics button, . The statistics box will appear on the graph, displaying several statistical values for the data, including the minimum and maximum temperatures recorded during the collection period.
 - b. In your data table, record the maximum temperature.
 - c. Close the Statistics box.
 - d. Choose Store Latest Run from the Experiment menu to store your data.
4. Prepare the Temperature Probe for the next run.
 - a. Cool the Temperature Probe by placing it into a beaker of room-temperature water until its temperature reaches the temperature of the water. The temperature of the probe is displayed in the meter.
 - b. Use a paper towel to dry the probe. Be careful not to warm the probe as you dry it.
5. Repeat Steps 2–4 for each person in your team. However, when you repeat the steps, after clicking the Statistics button, . Choose Latest: Temperature as the run for which you want the statistics. Then, click  to view the statistics for the latest run. Do not choose Store Latest Run after the last run.
6. Print copies of the graph as directed by your teacher.

DATA

Student name	Maximum temperature
	°C
	°C
	°C
	°C
Team average	°C

PROCESSING THE DATA

1. Calculate your team average for the maximum temperatures. Record the result in your data table above.
2. How did the maximum temperatures of your teammates compare?
3. Who had the “hottest hand”?

EXTENSION

1. Determine the class average for maximum temperature.

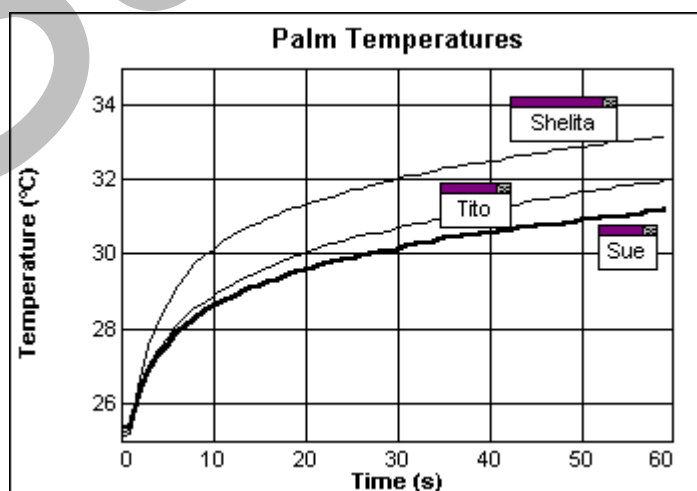
TEACHER INFORMATION

A Hot Hand

1. The student pages with complete instructions for data collection using LabQuest App, Logger *Pro* (computers), EasyData or DataMate (calculators), and DataPro (Palm handhelds) can be found on the CD that accompanies this book. See *Appendix A* for more information.
2. This experiment can be used at the beginning of the school year to introduce your use of computers to collect, graph, display, and analyze data, or it can be used in a life-science setting.
3. You might want your students to label their graphs using Text Annotation from the Insert menu.
4. Any of the following temperature probes can be used in this experiment:
 - Vernier Stainless Steel Temperature Probe
 - A Go!Temp temperature probe
 - EasyTemp temperature probe
 - The earlier Vernier Direct-Connect Temperature Probe can also be used. This sensor is not auto-ID.

SAMPLE RESULTS

Student name	Maximum temperature
Tito F.	32.0°C
Shelita M.	33.2°C
Sue R.	31.2°C
Team average	32.1°C



Experiment 1

ANSWERS TO QUESTIONS

1. See the Sample Results above.
2. Answers will vary.
3. Answers will vary.

Sample