

A Hot Hand

In this class, you will often work in a team using a calculator to investigate scientific concepts science. You will measure the temperature of the palm of your hand and the palm temperatures of your teammates in this experiment. In the process, you will learn how to use EasyData, a calculator application you will be using throughout the school year, and how to use Temperature Probes. You will also get to know your teammates better.

OBJECTIVES

In this experiment, you will

- Use a Temperature Probe to measure temperature.
- Calculate temperature averages.
- Compare results.

MATERIALS

TI-83 Plus or TI-84 Plus graphing calculator
EasyData Application
EasyTemp **or**
Temperature Probe and data-collection interface

beaker
water
paper towel

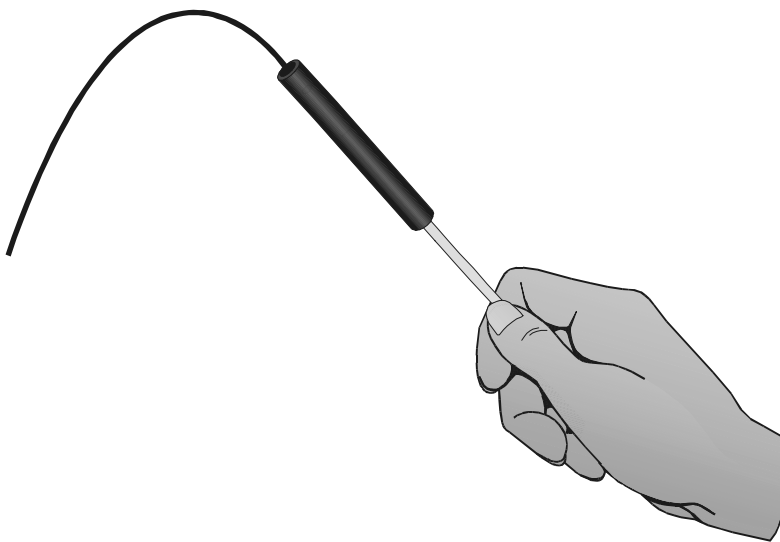


Figure 1

PROCEDURE

1. Turn on the calculator and make sure it is on the home screen. Connect the Temperature Probe to the calculator. (This may require the use of a data-collection interface.)
2. Follow these steps to setup the EasyData application.
 - a. If EasyData is not already running, press **APPS**. Use **▼** to move down the list to EasyData and press **ENTER**.
 - b. You are now at the Main screen of the program. Select **File** from the Main screen, and then select **New** to reset the application.
3. Set up EasyData for data collection.
 - a. Select **Setup** from the Main screen, then select **Time Graph...**
 - b. Select **Edit** on the Time Graph Settings screen.
 - c. Enter **1** as the time between samples in seconds.
 - d. Select **Next**.
 - e. Enter **60** as the number of samples and select **Next**. Data collection will last 60 seconds.
 - f. Select **OK** to return to the Main screen.
4. Measure the temperature of the palm of your hand.
 - a. Select **Start** 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.
5. Record your highest temperature.
 - a. When data collection is complete, a graph of temperature vs. time will be displayed. Use **►** to examine data points along the curve. As you move the cursor right or left, the time (X) and temperature (Y) values of each data point are displayed above the graph.
 - b. In your data table, record your highest temperature (to the nearest 0.1°C).
 - c. Select **Main** to return to the Main screen.
6. 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 at the top of the Main screen.
 - b. Use a paper towel to dry the probe. Be careful not to warm the probe as you dry it.
7. Repeat Steps 4–6 for each person in your team.

DATA

Student name	Highest temperature
	°C
	°C
	°C
	°C
Team average	°C

PROCESSING THE DATA

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

EXTENSION

1. Determine the class average for highest temperature.