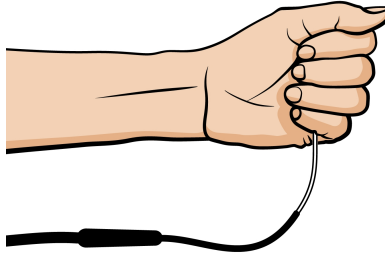


# Body Temperature

You will measure the temperature of the palm of the hand and the crease of the elbow of yourself and of your teammates in this experiment. In the process, you will learn how to use sensors and how to collect and analyze data. You will also get to know your teammates better.



*Figure 1*

## OBJECTIVES

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

## MATERIALS


Chromebook, computer, **or** mobile device  
Graphical Analysis 4 app  
Go Direct Surface Temperature  
beaker  
water  
paper towel

## PROCEDURE

1. Launch Graphical Analysis. Connect Go Direct Surface Temperature to your Chromebook, computer, or mobile device.
2. Click or tap Mode to open Data Collection Settings. Set End Collection to 60 s. Click or tap Done.
3. Measure the temperature of the palm of your hand.
  - a. Click or tap Collect to start data collection.
  - b. Pick up the temperature sensor and hold its tip in the palm of your hand as shown in Figure 1. Data collection will end after 60 seconds.

## Experiment 1

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- Determine the maximum temperature.
  - Click or tap Graph Tools, , and choose Statistics.
  - Record the maximum temperature in Table 1.
  - Dismiss the Statistics box.
- Prepare the temperature sensor for the next run.
  - Cool the temperature sensor by placing the tip into a beaker of room-temperature water until the temperature reading for the sensor reaches the temperature of the water.
  - Use a paper towel to dry the sensor. Be careful not to warm the sensor as you dry it.
- Repeat Steps 3–5 but place the sensor in the crease of the elbow instead of the palm of the hand (see Figure 2).
- Repeat Steps 3–6 for each person in your team.

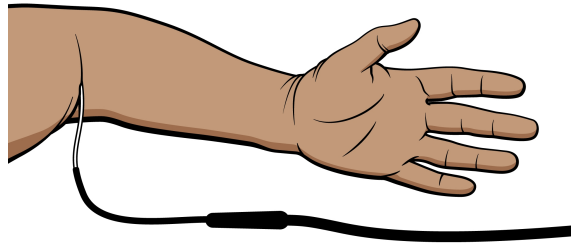


Figure 2

### DATA

Student name	Maximum temperature, hand (°C)	Maximum temperature, elbow (°C)
Team average		

### PROCESSING THE DATA

- Calculate the team average for the highest temperatures for each location. Record the result in the data table.
- How did the maximum temperatures of your teammates compare?
- Which location was warmer, the palm of the hand or the crease of the elbow? Why?

### EXTENSION

Determine the class average for the maximum temperature of each location.