

# TechLab Prep: Meet the Force Sensor

PERIOD	1.		
	2.		
GROUP	3.		
	4.		

## • Purpose •

In this investigation, you will learn how to use the force sensor.

## • Apparatus •

- \_\_ computer
- \_\_ force sensor
- \_\_ interface device
- \_\_ rubber band

## • Preparation •

Please read the information regarding the force sensor on "The Fundamentals of Sensor Use."

## • Procedure •

- Start the computer. While it is starting up...
- Connect the force sensor to the interface device (USB Link).
- When the computer has completed its start-up cycle, plug the interface device into the computer.
- When asked what you would like to do with the newly-found sensor, select **EZ Screen**.
- Attach a rubber band to the hook of the force sensor. With no force on the hook, press the ZERO button on the force sensor.
- Click the on-screen **"Start"** button (upper left corner of the screen) to initiate data sampling.
- Pull on the rubber band (**not** the hook of the force sensor) with varying amounts of force.

Watch as the display registers your actions with a force vs. time graph.

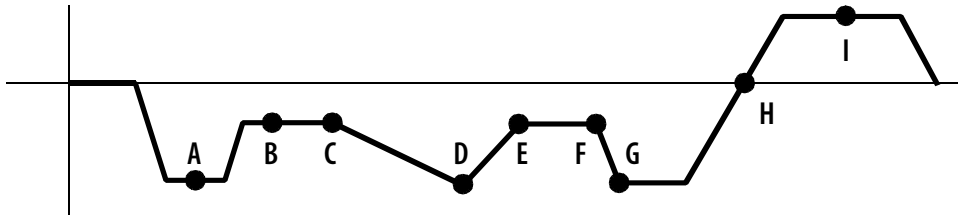
Do not pull so hard as to break the rubber band. The force sensor can only withstand 50 newtons (about 10 pounds) of force. Your rubber band cannot withstand that much force.

You should also try pushing the hook of the force sensor **gently** to see how that registers.

**All members in the group should try this.**

• **Analysis** •

Consider the force vs. time graph shown below. Do not attempt to generate the graph with your apparatus, simply use the graph to answer the questions below. Label the axes (quantity and units, but no scale).



1. What are **two** differences between point A and point B?

2. What's happening during the segment CD?

3. What's happening during the segment DE?

4. What's happening during the segment EF?

5. How is the process during FG different from the one during CD?

6. What is the force at point H?

7. How is the force at I different from the force at A? **Do not use the terms "positive" or "negative" in your response.**