

## Friction Lab

Name:

Period:

### Purpose

By observing when an object starts to move, students will understand that different objects will have different amounts of friction.

### Prediction

If I test all of the *objects*, then I believe that the \_\_\_\_\_  
will have the most friction, because...

### Materials

- board with grip pad
- meter stick
- scouring pad
- sponge
- sticky caterpillar
- toy car
- suction cup ball
- rubber ball
- marble

#### JOBS

raising the ramp  
measuring the ramp  
catching the object  
recording the data

### Procedure

1. Place an object at one end of the board.
2. Slowly pick up the board until the object starts to move.
3. At the end of the board, measure how high the board needed to be lifted in cm.
4. Record the height of the board when the object began to move.
5. Repeat the experiment, this time with a grip pad at the end of the board where you place the object.

## Friction Lab

Name:

Period:

### Observations & Data

Record your data for how high the board needed to be for the force of gravity to make the object start to move. Also, write down your observations about the surface of the object. How would it be described in ways that have to do with friction? [rough, smooth, sticky, etc.]

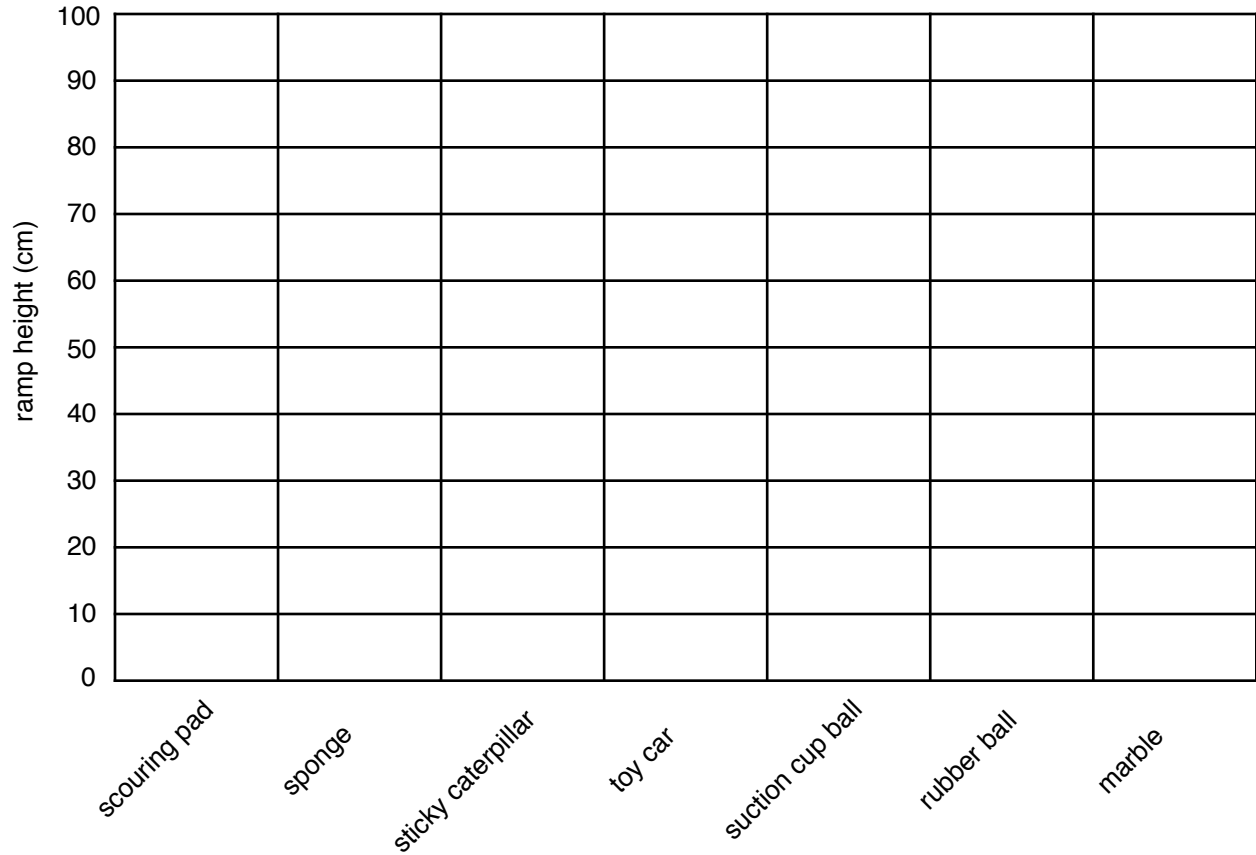
**Table 1—Recorded heights with no grip pad**

<b>object</b>	<b>height in cm</b>	<b>description of object's surface</b>
scouring pad		
sponge		
sticky caterpillar		
toy car		
suction cup ball		
rubber ball		
marble		

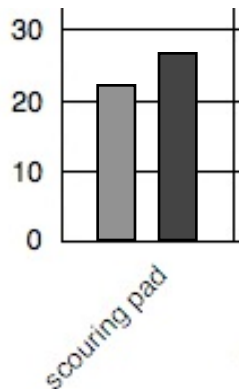
**Table 2—Recorded heights with a grip pad**

<b>object</b>	<b>height in cm</b>	<b>description of object's surface</b>
scouring pad		
sponge		
sticky caterpillar		
toy car		
suction cup ball		
rubber ball		
marble		

**Analysis**



1. To be able to analyze the data you've collected, you need to put it into a graph. For this experiment, it will be most useful if you create a bar graph in the grid above. Read all of the directions below before you start making your graph.
2. For each item you tested, you will make 2 bars, one for data without a grip pad, and one for data with a grip pad. For data from testing without a grip pad, make your bars using a yellow colored pencil. For data from testing with a grip pad, make your bars using an orange colored pencil.
3. When you draw the bars, make sure that there is space on each side (and between the bars) to make the graph easier to read. Set them up like this:



## Friction Lab

Name:

Period:

### Conclusion

- 1) Based upon your measurements, which object had the most friction [was the hardest to move]?  
*Hint: Looking at your graph, this will be the object that has the tallest measurement.*

The \_\_\_\_\_ had the most friction.

- 2) Did this match your prediction or not? [It is OK if your prediction was wrong; don't change it!]

The results \_\_\_\_\_ match my prediction.

- 3) Based upon your measurements, which object had the least amount of friction?  
*Hint: Looking at your graph, this will be the object that has the smallest measurement.*

The \_\_\_\_\_ had the least amount of friction.

- 4) How did adding the grip pad affect your data this experiment?  
*Hint: Looking at your graph, compare the heights of yellow and orange bars for each object. Why aren't the yellow and orange bars for each different object the same height?*

- 5) Why do you think it was important to test multiple different objects when experimenting with friction?