**Name:**

**Date:**

**School:**

**Facilitator:**

6.02 Friction Lab

**Complete the pre-lab reflection, and then open the PhET Friction Lab linked in the Task area.**

# Part 1: Pre-lab Reflection

1. Rub your hands together for a minimum of 30 seconds and describe what you feel in 2-3 complete sentences.

1. Based on what happens when you rub your hands together and what you’ve learned about friction so far, write a hypothesis for what will happen when you rub two books together, as you’ll do in the simulation in Part 2.

# Part 2: Friction Simulation

**Open the Friction simulation linked in the Task area. This interactive demonstrates surface friction between two objects. Move the books by clicking on the arrows and moving the mouse side to side.**

1. After opening the simulation, review the set up.
   1. Why is a thermometer provided in the simulation?
   2. Are microwelds present?
2. First, move the top yellow book back and forth without it touching the green book on the bottom for a total of 5 seconds. Describe what happens in terms of temperature and particle movement.

1. Next, hit the Reset button. For about 5 seconds, move the yellow book back and forth so that it barely touches the green book. Describe what you see based on temperature and particle movement, compared to before.

1. Click the Reset button again. Now, move the yellow book back and forth as fast you can, making sure it is as close to the green book as you can get it. Try to make the temperature gauge increase as much as possible and make the particles move as fast as they can.
   1. Describe what you see based on temperature and particle movement.

* 1. Are the microwelds still present?

* 1. Describe what happened when you stopped rubbing the books together. Once the temperature returned to a normal level, where were the particles located in relation to their original positions?

1. After completing the scenarios above in this friction simulation, write at least two observations that you made about what happens on an atomic level when you rub two objects together. Your observations can include information about temperature, particle location and movement, or the presence of microwelds.
   1. Observation:
   2. Observation: