**Physics 200**

**Phet Skate Park Simulation – Small Group Questions**

0. Experiment with the simulation. Try out all of the buttons. Add sections to the track, delete track sections, and alter track sections.

1. Describe the energy bar graph when there is no friction.

2. Describe the energy bar graph when friction is introduced.

3. According to an energy vs time graph of a skater experiencing friction, when does thermal energy increase the most?

4. Create a half-pipe and release the skater from a point half-way up one wall. Turn off friction. How can you make the skater go higher by changing only gravity while the skater is skating? How can you make the skater go lower?

5. How can thermal energy be produced when the track friction is set to zero?

6. Why is gravity provided with the units N/kg?

7. When you click “show path,” approximately how many seconds elapse between the appearance of each dot? If we think of the dots as pictures taken by a video camera, what is the camera’s frame rate?

8. Can you calculate the coefficient of friction acting on the skater when the coefficient of friction is raised to its maximum value?