PhET Simulation: Energy Skate Park:

Part 1:

Go to **MEASURE**:

1- Let the person slide. Pick one point on the path and calculate the kinetic energy on that point.

$$KE = \frac{1}{2} m V^2$$

m = mass in gram

V = speed in m/s

2- Compare your calculated value to the value shown in the simulation

3- Pick two more points and repeat step (1)

4- Calculate the work done between 2 different points. Repeat for other two values.

5- State the work-energy theorem.

6- At what point of the path the speed is maximum (KE is maximum)?

7- At what point of the path the speed is minimum (KE is minimum)?

8- Increase the Friction: How does increasing friction affect the speed? affect the kinetic energy? What is the relationship? Where did the energy get lost?

9- Change the gravity: What is the effect of gravity on the speed?

10- Experiment other changes and share your results.

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Part 2

Go to **MEASURE**:

1- Let the person slide. Pick one point on the graph and calculate the Potential energy (PE) on that point.

$$PE = m\ g\ h$$

m = mass in gram

h = height in meter

g = gravitation acceleration on Earth: 9.8 m/s/s

2- Compare your calculated value to the value shown in the simulation
3- List two ways to measure the height in the simulation?
4- Pick two more points and repeat step (1)
5- Calculate the work done between 2 different points. Repeat for other two values.
6- State the work-energy theorem.
7- At what point of the path the height is maximum (PE is maximum)?
8- At what point of the path the height is minimum (PE is minimum)?
9- Increase the Friction: How does increasing friction affect the PE? What is the relationship?
10- Change the gravity: What is the effect of gravity on the PE? Explain
11- Experiment other changes and share your results.