

Name: _____

Energy Skate Park Basics PhET Activity

Review: (fill in the blanks)

Potential Energy is the energy _____ in an object because of its _____.

Kinetic Energy is the energy of _____.

1. **Explore** the simulation.

Question: What can you change about the simulation?

2. **Investigate** how the potential and kinetic energy of the skater change as the skater moves from the top of the ramp to the bottom.

Fill in the blanks based on your observations:

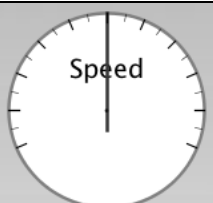


As the skateboard rolls down the ramp it loses _____ energy and gains _____ energy. The total energy of the skateboarder remains _____.

3. **Explore** how the potential and kinetic energy change as the height of the skateboarder changes. Fill in the table based on your observations.

Height of Skater (m)	What is greater? (circle your answer)	
	Kinetic Energy	Potential Energy
	Kinetic Energy	Potential Energy
	Kinetic Energy	Potential Energy
0	Kinetic Energy	Potential Energy

Question: What conclusions can you make about how the height of the skater influences the *potential* and *kinetic energy* of the skater?

4. **Explore** how the skater's change in speed relates to the *potential* and *kinetic energy* of the skater. Fill in the table based on your observations.

Speed	What is greatest? (Potential or Kinetic Energy)	What is lowest? (Potential or Kinetic Energy)
		
		
		

Question: How does the speed relate to the *potential* and *kinetic energy* of the skater?

5. Find ways to change the **total energy bar**. If you change the track, explain what makes the track different from the others (Hint: where does the skate boarder start?). Use the table below to record your observations.

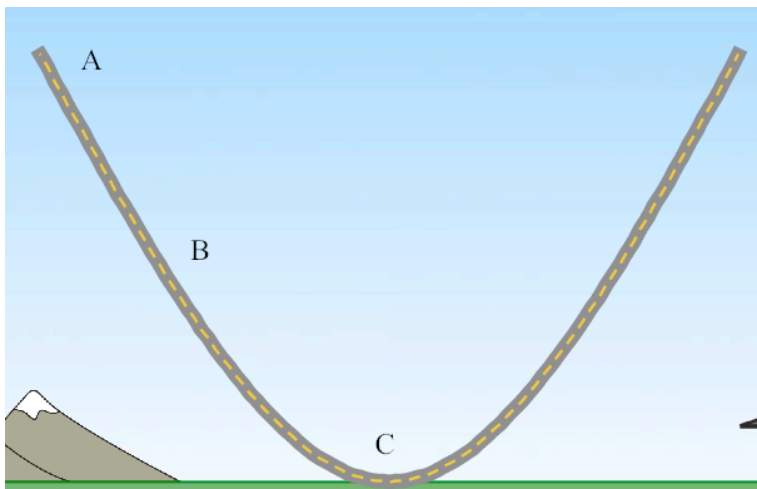
What did you do?	The total energy.... (circle your answer)	
Increase the mass of the skater	Increases	Decreases
	Increases	Decreases
	Increases	Decreases

Conclusion: In a few sentences describe what you think the total energy of the skater depends on. Use the tables you filled in during this activity as your evidence.

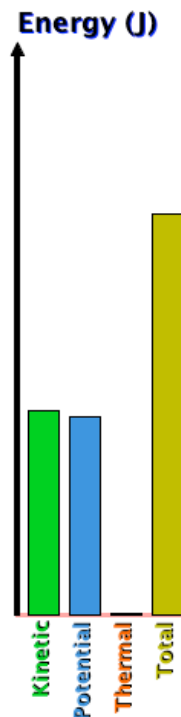
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Show off what you know!

1. What does *gravitational potential energy* depend on?
 - a. Position
 - b. Air Resistance
 - c. Gravity
 - d. Both a and c
2. A tiny pig is dropped from the top of a building and lands safely on a trampoline. The tiny pig will have an **increase** in what type(s) of energy as it falls?
 - a. Gravity
 - b. Potential energy
 - c. Kinetic energy
 - d. All of the above
3. The following is a graph of the energy of a skateboarder as he travels down a track. Using the diagram on the left, at which point on the track does the graph correspond to?



- a. Point A
- b. Point B
- c. Point C



4. Katy wants to design a rollercoaster where the passenger is traveling super fast at the bottom. What characteristics should the rollercoaster have?
 - a. It should be flat and close to the ground. This way the passenger will have an increase in speed because he/she starts out close to the ground.
 - b. It should have no friction and the passenger should start off high above the ground. This way the passenger starts out with a lot of potential energy that can be transformed into kinetic energy.
 - c. It should have lots of friction and be very tall. This way the passenger will speed up because of the large amount of friction.
 - d. It doesn't matter how you design the rollercoaster the passenger's speed will be the same at all points on the rollercoaster.