

Learning Target: I will be able to describe and explain how roller coasters work through the relationship between gravity, potential energy, and kinetic energy.



How Roller Coasters Work: Gravity, Potential & Kinetic Energy Video Notes

1. Why do most roller coasters start out with a big hill? _____

2. What are the two types of energy conversions on a roller coaster? _____

Quick Check for Understanding! Pause the video and take 2 minutes to analyze the following roller coaster diagram and think, pair, and share your answers.

What do you think would happen if a roller coaster had a hill in the middle of the track that was taller than the first hill of the roller coaster? Explain your answer. _____

3. How do roller coasters demonstrate the law of conservation of energy? _____

4. Gravitational potential energy is the energy an object has as a result of _____

5. A 300 kg roller coaster car is at the top of a 100 ft hill. (Gravity = approximately 10 m/s^2)
(GPE = mass x gravity x height) What is its gravitational potential energy? _____

Learning Target: I will be able to describe and explain how roller coasters work through the relationship between gravity, potential energy, and kinetic energy.

6. Why is gravitational potential energy highest at the top of a roller coaster hill? _____

Why is gravitational potential energy lowest at the bottom of a roller coaster hill? _____

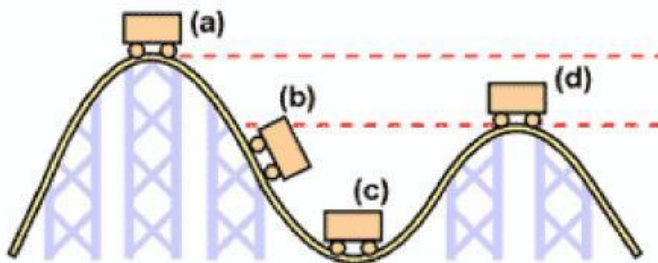
7. When is kinetic energy at its lowest on a roller coaster ride? _____

Explain why. _____

8. What is the relationship between potential and kinetic energy? _____

9. Why do cars on roller coasters move the fastest at the bottom of the hill? _____

Quick Check for Understanding! Take 5 minutes to analyze the diagram and answer the questions.



1. Where is the greatest amount of potential energy? _____

2. Where is the lowest amount of potential energy? _____

3. Where is the greatest amount of kinetic energy? _____

4. Where is the lowest amount of kinetic energy? _____

10. Explain how roller coasters work through the relationship between gravity, potential energy, and kinetic energy. _____
