Roller Coaster Physics Review

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Understanding Energy Transformation

Name: _____ Date: _____

Answer the following questions based on the Roller Coaster Physics lesson.

1. What type of energy does a roller coaster car gain as it climbs a hill?

- **A.** Kinetic energy
- **B.** Potential energy
- **C.** Frictional energy

2. Explain how potential energy and kinetic energy are related in a roller coaster. Include an example from the lesson.

3. Kinetic energy is energy that is stored when an object is at rest.

◯ True ◯ False

4. When a roller coaster car rolls down a hill, its potential energy is transformed into ___ energy.

5. How does friction affect the energy in a roller coaster model?

- **A.** It increases energy
- **B.** It decreases energy
- **C.** It has no effect on energy

6. What does Colossians 1:17 tell us about God's role in creation and energy transformation?

7. The total energy in a roller coaster system changes as it moves along the track.

◯ True ◯ False

8. In our lesson, we learned that total energy remains ___, just changing forms between potential and kinetic energy.

9. What is the main principle that shows God's orderly design in the energy transformations of a roller coaster?

- **A.** Friction
- **B.** Energy conservation
- **C.** Speed of the coaster

10. How does building a roller coaster track help us understand energy transformation?

Answer Key

1. Potential energy 2. Potential energy is stored energy based on position, and kinetic energy is the energy of motion. For example, when the roller coaster climbs a hill, it has potential energy, and as it descends, that energy transforms into kinetic energy. 3. False 4. kinetic 5. It decreases energy 6. Colossians 1:17 shows that God holds all things together, which includes the laws of physics that govern energy transformation. This means that energy changes consistently according to His design. 7. False 8. constant 9. Energy conservation 10. Building a roller coaster track allows us to see how potential energy turns into kinetic energy as the coaster moves. We can observe these changes and understand the concept of energy conservation better.