

## Roller Coaster Me crazy: Scene 1

*Several tourists in an Orlando restaurant are shocked at what they heard on FOX News at Five. Anchorman Tripp Brewton reported unbelievable news about happenings at the Magic Kingdom's new Michael Jackson theme park.*

**Tripp Brewton:** Good evening Orlando. Today at the Magic Kingdom was supposed to be the Grand Opening for the new Michael Jackson Theme Park. However, the startling discoveries of the malfunctioning roller coasters have put a stop to revealing of the park. For some reason, the roller coasters will not transition past the first hill. The Magic Kingdom's engineers are working very diligently to figure out what went wrong with the construction of the roller coasters. Walt Disney World's CEO, Robert Iger, is calling in roller coaster specialist to solve the problem.

*Tripp walks over to interview some of the roller coaster engineers onsite.*

**Tripp Brewton:** Excuse me sir....Can you tell us what company you represent and describe what you believe to be the problem?

**Roller Coasters Plus Representative:** Yes...Ummm. I'm Brad Ocho-seis and I'm from Roller Coasters Plus Engineering. What we believe to be the problem is the rides weren't constructed correctly. You see....the cars aren't building enough energy to transition from the top of one hill to transition to get over the next hill. Therefore, we need to figure out why.

**Tripp Brewton:** (*Sarcastically*) Wow!! Well that's something we didn't know. Let's go over here to this gentleman. Sir.... Can you tell us what company you represent and describe what you believe to be the problem?

**Roller Coasters Made Easy Company:** (*Excited*) We sure can. Well, I'm Tremiane Fade and this is my partner DeBron Lame. We believe it has something to do with the transformation of energy.

**Tripp Brewton:** (*Curiously*) What types of energy transfer?

**Roller Coasters Made Easy Company:** *DeBron Lame:* We don't yet. We're still trying to figure that out since there are several types of energy transfers. But we don't know what those are either.

**Tremiane Fade:** Oh yeah...we also think that the energy transfer has a lot to do with gravity and made even the friction of the car against the track. But we're still working on that too.

**Tripp Brewton:** (*Disgusted*) And they're wondering why the rides aren't working.

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*(Annoyed)* If you are a roller coaster specialist and have a solution, please call Disney's hotline, 1-999-9090-0000. They need your help bad. Please have your written explanations and blueprints of a new roller coaster ready when you call. Oh and please know what you're talking about or we may never get this problem resolved. I'm Tripp Brewton with today's 5 o'clock news. Thank you and good night.

*Tripp walks off shaking his head.*

## **Roller Coaster Me Crazy: Box Chart**

New Terms and Definitions:

*(Words you do not know the meaning of from the Scene)*

Facts

*(Information found in the Scene)*

Learning Issues

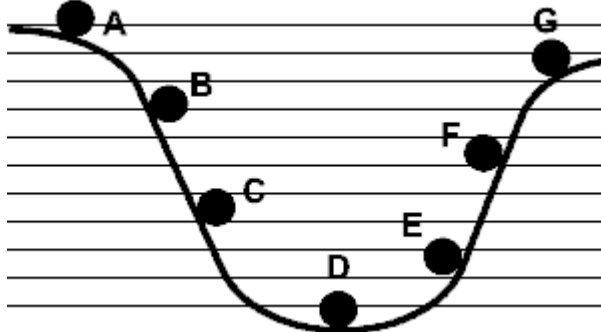
*(Things you need to look up or research)*

Next Steps:

*(What you plan to do to find out information about your leaning issues. Who's going to do what in your group? Group roles? Learning Issue assignments?)*

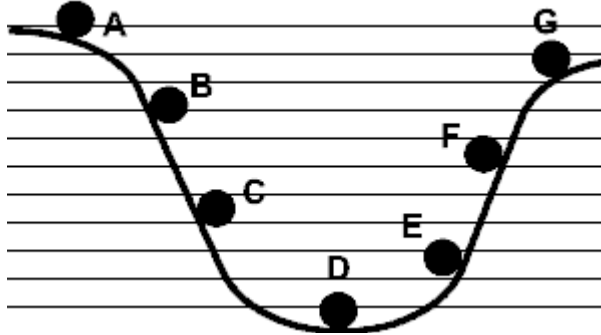
## Roller Coaster Potential and Kinetic Energy

1. This graph shows a ball rolling from A to G.



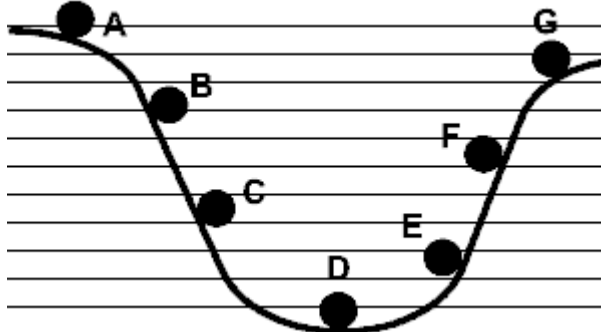
Which letter shows the ball when it has the maximum kinetic energy?

2. This graph shows a ball rolling from A to G.



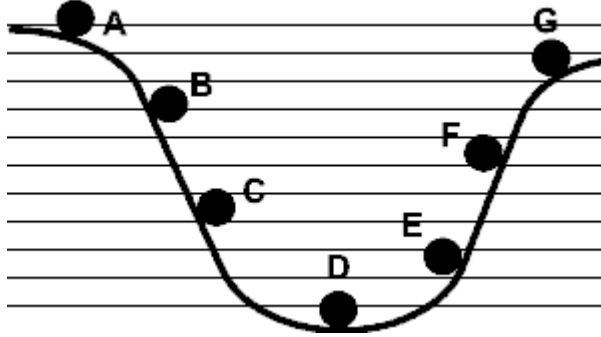
Which letter shows the ball when it has the maximum potential energy?

3. This graph shows a ball rolling from A to G.



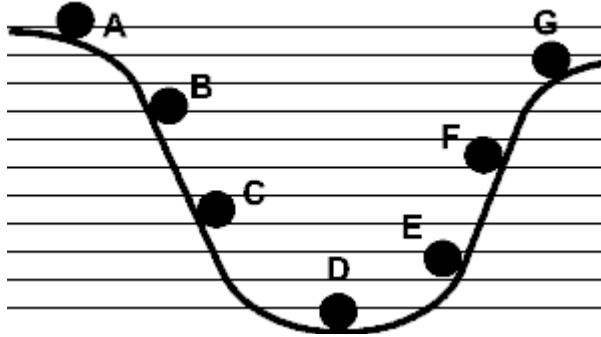
Which letter shows the ball when it has the least potential energy?

4. This graph shows a ball rolling from A to G.



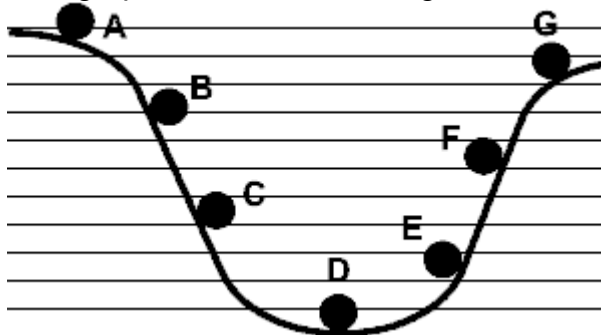
Which letter shows the ball when it has the least kinetic energy?

5. This graph shows a ball rolling from A to G.



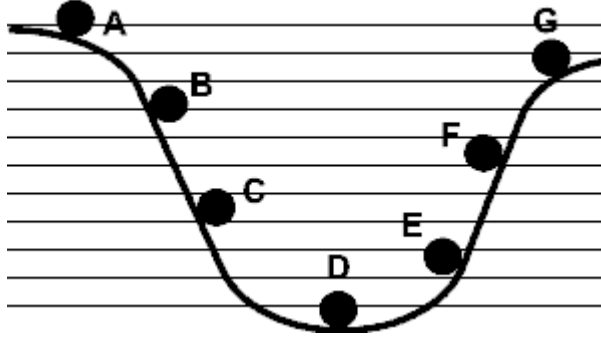
Which letter shows the ball when it has just a little more kinetic energy than A?

6. This graph shows a ball rolling from A to G.



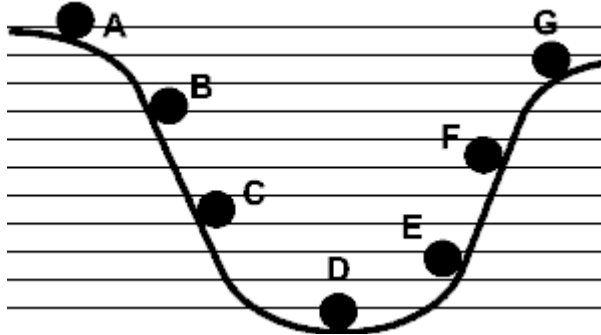
Which letter shows the ball when it has just a little more potential energy than letter C?

7. This graph shows a ball rolling from A to G.



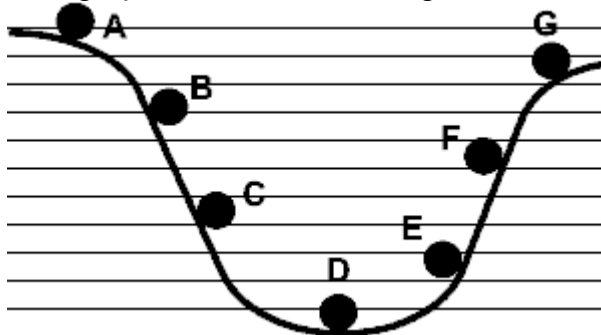
Which letter shows the ball when it has just a little less potential energy than letter F?

8. This graph shows a ball rolling from A to G.



Which letter shows the ball when it has just a little more kinetic energy than letter G?

9. This graph shows a ball rolling from A to G.

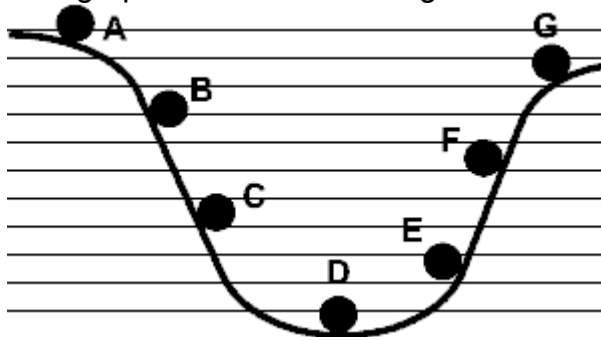


Which letter shows the ball when it has just a little less kinetic energy than letter D?

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10. This graph shows a ball rolling from A to G.



Which letter shows the ball when it has just a little less potential energy than letter C?

## **Law of Conservation of Energy Assessment**

1. Which of the following is a conversion from chemical energy to thermal energy?
  - A. Coal is burned to boil water.
  - B. Food is digested and used to regulate body temperature.
  - C. Charcoal is burned in a barbeque pit.
  - D. All of the above.
  
2. Which of the following is the best example of increasing an object's potential energy?
  - A. rolling a bowling ball
  - B. turning on a light bulb
  - C. stretching a rubber band
  - D. dropping a pencil
  
3. An object that has kinetic energy must be...
  - A. lifted above earth's surface.
  - B. in motion.
  - C. at rest.
  - D. None of the above.
  
4. Thermal energy is...
  - A. kinetic.
  - B. potential.
  - C. both kinetic and potential.
  - D. neither kinetic nor potential.
  
5. Sound energy is...
  - A. the energy of a compound that changes as its atoms are rearranged to form new compounds.
  - B. the total energy of the particles that make up an object.
  - C. The energy caused by an object's vibrations.
  - D. the energy of motion.
  
6. What device converts chemical energy to mechanical energy?
  - A. human
  - B. car
  - C. jet ski
  - D. All of the above.



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7. As height increases, so does...

- A. thermal energy.
- B. mechanical energy.
- C. kinetic energy.
- D. potential energy.

8. The law of \_\_\_\_\_ of energy states that energy cannot be created or destroyed.

- A. transformation
- B. absorption
- C. conservation
- D. stability

9. According to the law of conservation of energy, in theory, a bouncy ball should never stop bouncing. However, we know that it eventually stops. Where does the energy go.

- A. some gets converted into sound energy and escapes into the surroundings.
- B. some gets converted into thermal energy and escapes into the surroundings.
- C. Both A and B

10. Energy is...

- A. when the surfaces of two objects rub against each other.
- B. the ability to do work.

## Unit Self-Reflection

**Directions:** Begin your responses on the last left hand of the unit and continue onto the facing right hand page.

1. Choose 6 items, which represents your best work – 3 from the left side and 3 from the right side. In several REFLECTIVE paragraphs, write specific reasons why you chose the items, why they are your best work, and what these assignments reflect about your skills as a student.

Skills: Organization, analysis, logic, creativity, thoroughness, accuracy of information, ability to put new information together, understanding new concepts, etc.

Reasoning that it was “fun” or just that you “liked” it is NOT an adequate reflection

2. **Using sentences and specifics, respond to the following:**
  - What information did you learn that was new to you?
  - Was the notebook easy or difficult for you? Explain.
  - Has the notebook helped you organize the material? Explain.
3. **What are your goals for improvement in this class?**
  - List specifics areas in which you feel you need to improve or need help improving. **EVERYONE** has something they can improve on.
4. What improvements or areas of change would you like to see in the class? Explain with examples.

## Daily Reflections



- What do you know?
- How can you show or prove what you know?
- Explain how this information relates to the standards?
- Draw a picture or concept map to illustrate what you know or understand about the content.
- Refer to the list of ways to reflect on your learning and complete one?
- Consider Bloom's Level of Questioning develop on question from the lower levels and one from the higher levels?

