

Key Concept Builder 

LESSON 2

Energy Transformations

Key Concept What is the law of conservation of energy?

Directions: On each line, write the term from the word bank that correctly completes each energy transformation. Some terms may be used more than once.

electrical energy radiant energy sound energy thermal energy

1. making toast in a toaster

_____ changes to _____.

2. watching television

_____ changes to _____ and _____.

3. using a curling iron to curl hair

_____ changes to _____.

4. turning on a lamp

_____ changes to _____ and _____.

Directions: Respond to each statement on the lines provided.

5. **Describe** another example of energy changing form that does not include electrical energy.

6. What are two statements you can make about energy based on the law of conservation of energy?

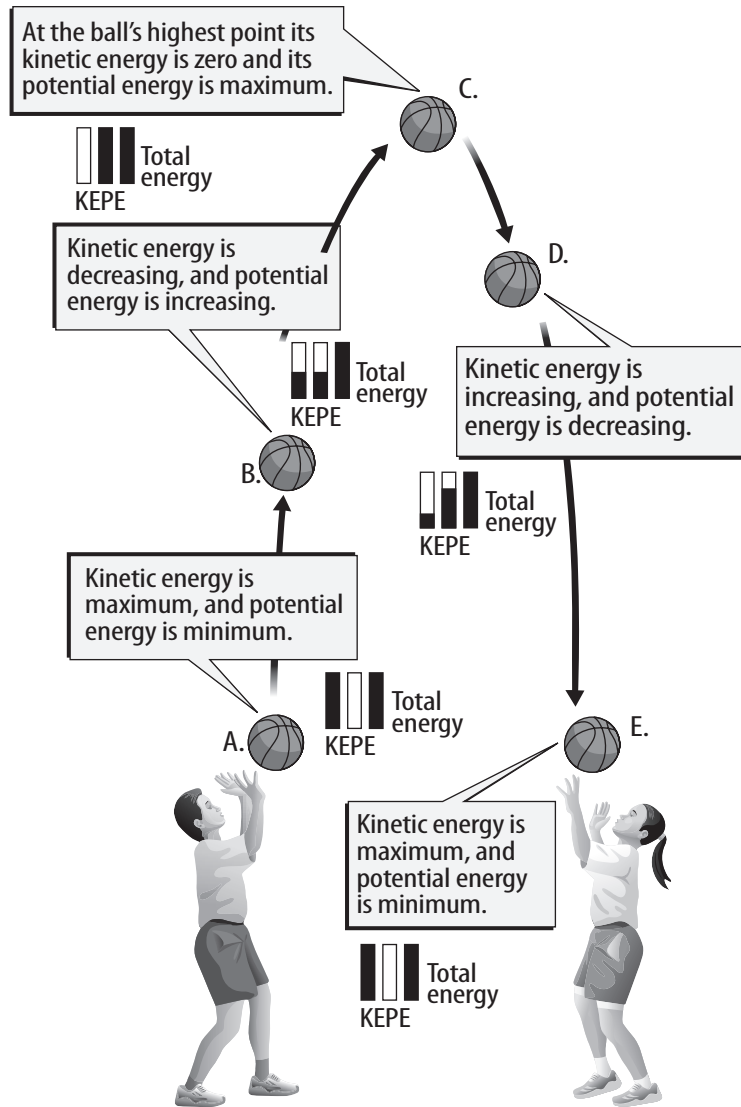
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Key Concept What is the law of conservation of energy?

Directions: In the diagram, a ball has just been thrown and is about to be caught. Use the diagram to answer each question. Write the letter of the correct stage on the lines provided. Some stages may be used more than once.



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1. At which stages is kinetic energy at the maximum value? _____ and _____
2. At which stage is the kinetic energy zero? _____
3. Which stage has increasing kinetic energy and decreasing potential energy? _____
4. At which stage is the potential energy at the maximum value? _____
5. At which stages is potential energy at its minimum? _____ and _____
6. Which stage has decreasing kinetic energy and increasing potential energy? _____

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Key Concept How does friction affect energy transformations?

Directions: Answer each question or respond to each statement on the lines provided.

1. What happens to a bicycle's mechanical energy when you apply the brakes and stop?

2. **Compare** a bicycle's total energy when the rider is coasting, applying brakes, and stopped.

3. Which force resists the sliding of two surfaces that are touching?

4. When you ride a bicycle, when is friction helpful and when is it not helpful? Explain.

5. How can friction between a bicycle's parts be reduced?

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Key Concept How are different types of energy used?

Directions: Respond to each item on the lines provided. Use complete sentences.

1. Give an example of how you might use each form of energy. Include any changes that occur from one form to another.

a. thermal energy _____

b. chemical energy _____

c. radiant energy _____

d. electrical energy _____

2. **Explain** how waste energy is produced when an inefficient lightbulb converts electrical energy into radiant energy.

