

Check Your Understanding of Topic 3.1

OP Questioning and Predicting PC Planning and Conducting PA Processing and Analyzing E Evaluating
AI Applying and Innovating C Communicating

Understanding Key Ideas

1. Use the photo to answer the following questions. **PA**



- Identify four types of energy in the photo.
 - Classify each type of energy as either kinetic or potential. Explain your answer in each case.
2. Explain why thermal energy is a form of kinetic energy. **PA**
- Identify an energy transformation that occurs in your daily life.
 - Identify an energy transfer you experience every day.
 - Explain how the energy transformation you described differs from the energy transfer. **PA AI**
4. Why is no process of energy transformation 100 percent efficient? **PA**
5. Draw a sketch and write a caption that relates the properties of an open mug, a travel mug covered by a lid, and a closed, insulated thermos to the three types of systems. Your answer should explain the differences among the three types of systems. **PA C**
6. Imagine that a referee tosses a basketball straight up and it falls to the floor.
- At what point in its journey would the ball's gravitational potential energy be at a maximum?

- At what point would the ball have no gravitational potential energy?
- At what point would the ball's mechanical kinetic energy be at a maximum?
- At what points would the ball have no mechanical kinetic energy? (Hint: This occurs at more than one point.) **OP PA AI**

Connecting Ideas

- Identify a system and surroundings in the photo.
 - Describe how energy enters the system.
 - Draw a diagram to show how energy is being transformed within the system.
 - Describe how energy leaves the system.
 - Explain how the law of conservation of energy applies to the system. **PA AI C**



Making New Connections

8. Explain why the amount of electrical energy generated by a hydro dam depends on both the mechanical kinetic energy and the gravitational potential energy of the water shown in the diagram. **PA AI**

