Energy All Around Us
Potential and Kinetic

Overview
Potential and kinetic energy are only two forms of energy that we encounter in the universe. Potential and kinetic energy work in tandem and are difficult to separate. Both these types of energy are also difficult for students to understand because they can not see it or hold it. Think of potential energy as the energy something has before it starts moving and kinetic as the movement.

Arizona State Standards
SC06 S5C3 PO 2 Identify several ways in which energy may be stored.
SC06 S5C3 PO 4 Compare the following ways in which energy may be transformed.

Objectives
The student will identify the difference between potential and kinetic energy.

Background Information
Everything that occurs in the universe is due to the exchange and transformation of energy. It is difficult for students to understand this since we do not "see" energy. This activity is designed to help students construct their own understanding of energy and how it behaves.

Materials
Rock about 4 inches high
Flat board about 1 foot by 18 inches long
Toy car (a small round ball or marble will work also)
News paper
2 cups of ice cubes

Procedures
1. Brainstorm with students what they think energy is. Ask them if they can see energy? If they can not see energy how do they know it exists?
2. Let the students know that they will be doing a series of activities to deepen their understanding of energy and now it behaves.

3. Place the board over a rock so that one end is higher than the other. Place the toy car on the incline. What happens? Why? What force is causing the car to do what it does?

   _____
   _____
   _____

4. Try placing the car on a flat surface, does it move? Why or Why not.

   _____
   _____
   _____

5. Place the rock on the ground. What happens?

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   _____
   _____

6. Place your hand behind the rock and push gently. The rock moves. What made the rock move?

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   _____
   _____

Teacher explanation: at this point share with students what potential and kinetic energy are. Have the students apply what they saw to the definitions you have provided. Students should write the definition using their own words and illustrate both types of energy.

7. Place a cup filled with ice cubes in the sun. Wrap newspaper around a second cup and place it in the sun. Which cup of ice melts quicker and why?

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   _____
   _____

Teacher explanation: Have the students create their own definition of what insulation is and what it does. Have them illustrate this concept into their journals/notes. Ask the students how they can use the information they have learned about potential and kinetic energy and insulation to make one aspect of their life better.

***Teacher Note- PowerPoint available to go with this activity.