



Rollback

Primary Audience: 6th – 8th

Description: Make a can that will roll back to you after you have rolled it away.

Key Words: Energy, Potential, Kinetic

Materials:

- Rubber band
- 10 quarter sized washers
- String
- 2 large paper clips
- 18 oz. oatmeal container
- Hammer
- Nail

Instructions:

1. Using the hammer and nail, gently pound a hole through the center of the bottom and top of the container. (Wear your safety goggles!)
2. Thread 10 washers together with a piece of string then tie the string. Then tie the string around the rubber band.
3. Thread the rubber band through the hole in the bottom of the can. Place a paper clip through the rubber band on the outside of the can so the rubber band will not slip through the hole.
4. Center the washers in the container and thread the remaining end of the rubber band through the hole in the lid, securing it with a paper clip.
5. Roll the can away from you on a smooth level surface. What happens? Why?

What's Going On?

When you roll the can the rubber band twists and creates **potential energy** (stored energy). The can stops rolling after the initial energy generated by the push has been expended. The stored energy in the rubber band then unwinds, changing the potential energy to **kinetic energy** (energy of motion). The can

then rolls back toward the starting point. Once the energy is completely used, the rubber band has unwound and the can stops rolling.

Further Exploration:

What would happen if the washers were not centered? What if you used more or less than 10 washers? Try using a see-through container to watch the science in action (a peanut butter jar works great). Experiment with the placement of the holes in the top and bottom of the can. Can you use 2 rubber bands to create a car that will carry an apple? Think about how you might use your knowledge of potential and kinetic energy to construct a successful model.

Relevant Ohio Science Content Standards:

Physical Sciences: 7.2