



## BOWLING BALL PENDULUM

### SCIENCE SAFETY

PLEASE follow these safety precautions when doing any science experiment.

- **ALWAYS** have an adult present.
- **ALWAYS** wear the correct safety gear while doing any experiment.
- **NEVER** eat or drink anything while doing any experiment.
- **REMEMBER** experiments may require marbles, small balls, balloons, and other small parts. Those objects could become a CHOKING HAZARD. Adults are to perform those experiments using these objects. Any child can choke or suffocate on uninflated or broken balloons. Keep uninflated or broken balloons away from children.

### INGREDIENTS

- 10 Pound Bowling Ball
- String

### INSTRUCTIONS

**STEP 1:** Securely attach the string to the 10 pound bowling ball.

**STEP 2:** Securely attach the bowling ball to the ceiling.

**STEP 3:** Pull the 10 pound bowling ball to your nose. Let go!

**DO NOT PUSH THE BOWLING BALL OR MOVE! IF YOU PUSH THE BOWLING BALL OR MOVE FORWARD, IT WILL HIT YOU IN THE FACE, CAUSING INJURY.** Use evidence to construct an explanation relating the speed of the bowling ball to the energy of the bowling ball. Predict the outcomes about the changes in energy that occur if the bowling ball were to collide with another bowling ball.

### EXPLANATION

The swinging bowling ball demonstrates the conservation of energy, which says energy cannot be created or destroyed. The total amount of energy the bowling ball has stays the same, until you do something to change this energy. You can change the amount of energy by pushing the bowling ball. This would cause the bowling ball to hit you in the face. Potential energy or stored energy is at its greatest when you are holding the bowling ball to your nose. Once you let go, potential energy changes to kinetic energy, or energy of motion.



### SCIENCE BACKGROUND

Energy is the ability to do work. The faster a given object is moving, the more energy it possesses. Energy cannot be created or destroyed. Energy can be transferred from place to place by moving objects or through sound, light, or electric currents. Energy is present whenever there are moving objects, sound, light, or heat. When objects collide, energy can be transferred from one object to another, thereby changing their motion. In such collisions, some energy is typically also transferred to the surrounding air, as a result, the air gets heated and sound is produced. Potential energy is stored energy and Kinetic energy is energy of motion.

### I CAN STATEMENTS

- ✓ I can use evidence to construct an explanation relating the speed of an object to the energy of that object.
- ✓ I can ask questions and predict outcomes about the changes in energy that occur when objects collide.

### NEXT GENERATION SCIENCE STANDARDS CONNECTION

4 - Energy

