



## MARBLE RUN

### 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 when performing 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

- 2 11/2" x 6' Foam Pipe Insulation
- Marble
- Duct Tape
- Scissors

### INSTRUCTIONS

**STEP 1:** Using the scissors, cut the foam pipe insulation down the center, in half, lengthwise.

**STEP 2:** Using the duct tape, attach one of the foam pipe insulation halves to the wall to design a marble run that converts energy from one form to another. Make sure the start of the foam pipe insulation is higher when compared to the end of the of the foam pipe insulation.

**STEP 3:** Hold the marble at the start of the foam pipe insulation. Release the marble and observe. What happens? Why?

**STEP 4:** Rearrange the foam pipe insulation, on the wall, to design a different marble run that converts energy from one form to another. Make sure the start of the foam pipe insulation is higher when compared to the end of the foam pipe insulation.

**STEP 5:** Hold the marble at the start of the foam pipe insulation. Release the marble and observe. What happens? Why?

### EXPLANATION

When holding the marble at the top of the marble run, the marble experiences potential energy. Potential energy is stored energy. Once the marble is released, gravity pulls the marble down, and potential energy is transformed to kinetic energy. Kinetic energy is energy of motion.



### SCIENCE BACKGROUND

Energy is the ability to work. The faster a given object is moving, the more energy it possesses. Energy cannot be created or destroyed. 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. There are many forms of energy, including mechanical, chemical, electrical, light, sound, and heat, which can transform from one from to another. Mechanical energy is the sum of an objects kinetic energy and potential energy. Potential energy is stored energy and kinetic energy is energy of motion. Mechanical energy is due to the position or movement of an object.

### I CAN STATEMENTS

- ✓ Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.

### NEXT GENERATION SCIENCE STANDARDS CONNECTION

4 – Energy | Energy and Matter