

FOUNDATIONS OF PHYSICS

ENERGY



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CHAPTER 1

WHAT IS ENERGY?

A ball rolls. Ice cream melts in the sun. A drop of rain hangs from a leaf. What do these **have** in common? They **all** have **energy**.





**Energy is all around. It is in space.
It is even in you! You need energy
to do things like walk your dog.**



A photograph of a person wearing a red long-sleeved shirt, seen from the side, setting a table. The table is covered with a white tablecloth featuring a blue and gold patterned border. Two white bowls are placed on the table, each with a spoon. The background shows a window with a wooden frame and a view of a building outside.

Energy lets you do work.
Work is needed to move your
body. It is needed to move
objects, too. You move toys
off the floor. You move dishes
to the table. You use energy
to do work every day!

CHAPTER 2

KINDS OF ENERGY

There are two forms of energy.
One is **kinetic energy**. It comes from
movement. People walk. A river flows.



Things we cannot see can move, too. **Atoms** move. This makes heat. **Electrons** move. This makes **electricity**. Heat and electricity are kinds of kinetic energy.



ACTIVITIES & TOOLS

TRY THIS!

PASS ENERGY

See how energy passes from one object to another in this fun activity!

What You Need:

- a flat surface
- chalk or masking tape
- measuring tape
- two tennis balls
- one golf ball or other small ball

- 1 Mark a spot on the ground with chalk or masking tape. This is your starting point.
- 2 Measure a spot 2 feet (0.6 meters) away. Mark it. This is your strike point. Make sure there is plenty of space after this point.
- 3 Place a tennis ball on the strike point.
- 4 Stand on the starting point. Roll the second tennis ball so that it strikes the ball on the strike point.
- 5 Watch how fast the struck ball rolls. Does it roll as fast as the ball you threw? Why do you think this is?
- 6 Repeat Step 3.
- 7 Repeat Step 4, but roll a golf ball instead. Try to roll it with the same amount of force you used in Step 4. This time, does the tennis ball roll as fast? Does it roll as far? Why do you think this is?

