

PLAY MORE

SAVE MORE



# ENERGY MONSTERS

Fun energy-saving activities you can do at home!





# I'm an Energy Monster

I love to save energy. These are a few of my friends!



There are so many ways to save energy in my house. Let's learn how energy works, and then see where you can save energy in your house!

# ENERGY ACTIVITY: Motion

Circle the objects that burn fuel to move.

Put an X through the objects that need people power to move.

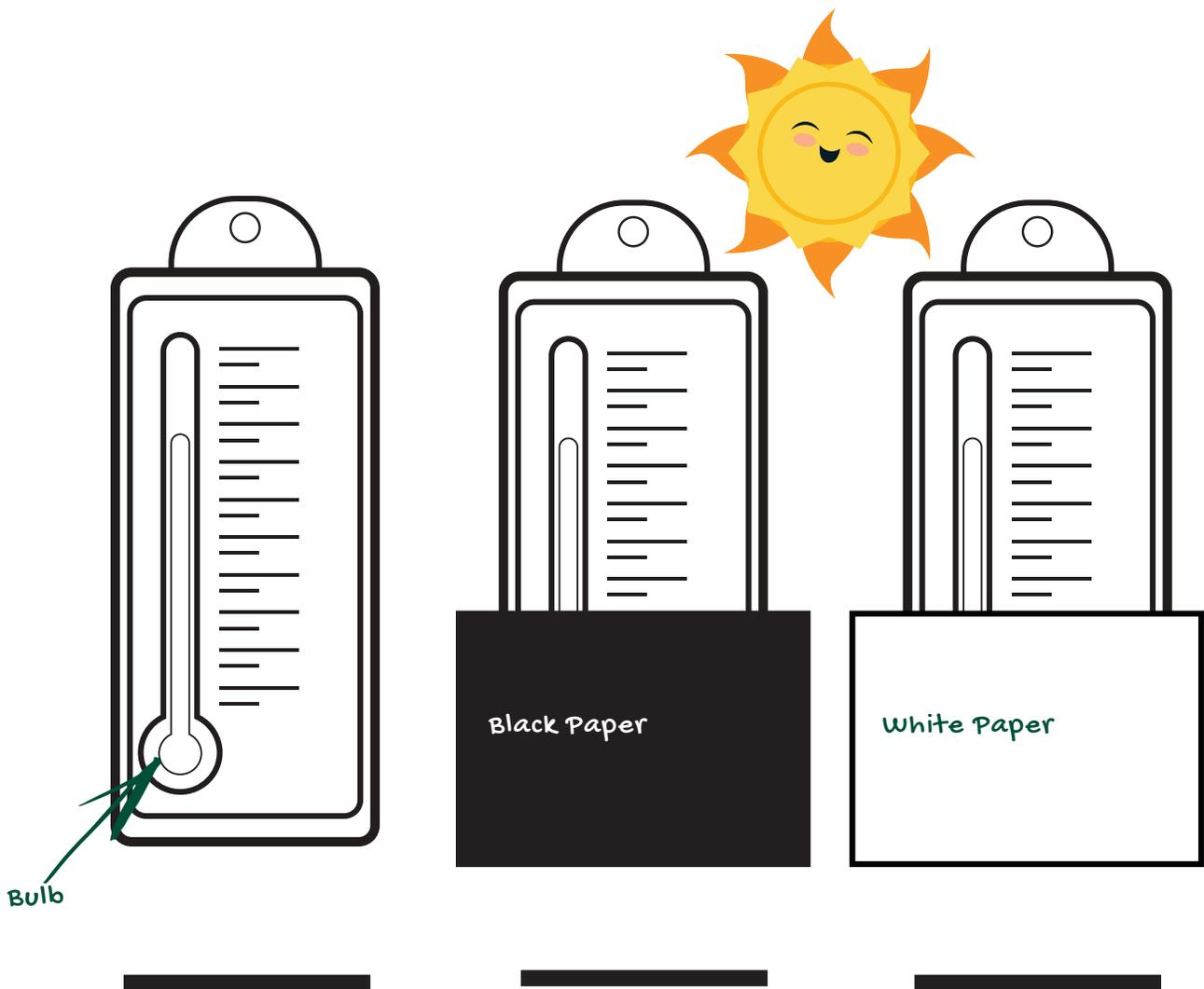


# ENERGY ACTIVITY: Energy From the Sun

When solar energy hits objects, some of the energy is reflected and some is absorbed and changed into heat. Some colors absorb more solar energy than others.

Follow these steps to learn about energy from the sun.

1. Put three thermometers in a sunny place.
2. Cover one thermometer bulb with black paper, one with white paper, and leave one uncovered.
3. Predict which thermometer will get the hottest. On the lines below, number the thermometers 1, 2, and 3, with 1 as the hottest.
4. Wait a few minutes.
5. Look at the results. How well did you predict what was going to happen?



# The Tale of the Fern Fossil



Once upon a time, a beautiful fern tree grew in a swamp. All day, she soaked up sunlight and stored it in her fronds. The sun's energy helped her grow tall.



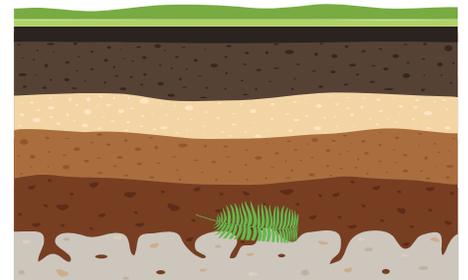
The biggest frond was Fern Fossil. Every day she stretched closer to the sun. She was proud to be the tallest frond on the tree.

One day, the sky grew dark and a strong wind blew. The other fronds huddled together. They gave each other strength. But Fern was too high. She was all alone. There were no fronds tall enough to help her.

The wind blew harder and Fern's stem snapped. She fell from the tree into the dark water. Fern sank to the bottom of the swamp. She thought her journey was over.

Nature had a different plan for Fern. For a long time, she lay in the swamp. More plants fell into the water. They covered Fern like a blanket.

After many years, the water dried up and the swamp turned into land. Dinosaurs roamed over the earth. Fern lay under the ground, buried deeper and deeper.



The weight of the dirt and the heat of the earth changed Fern. She was no longer green. She lost her leafy shape. But she still had the sun's energy stored in her.

Fern Fossil had turned into a shiny black rock full of energy. She was a piece of coal. Fern and many other plants were now a big seam of coal buried under the ground.

One day, a big machine dug into the earth. It took away the dirt on top of the coal. It lifted Fern from the earth and put her into a huge truck. She was taken to a building where she was washed, and then put on a train.

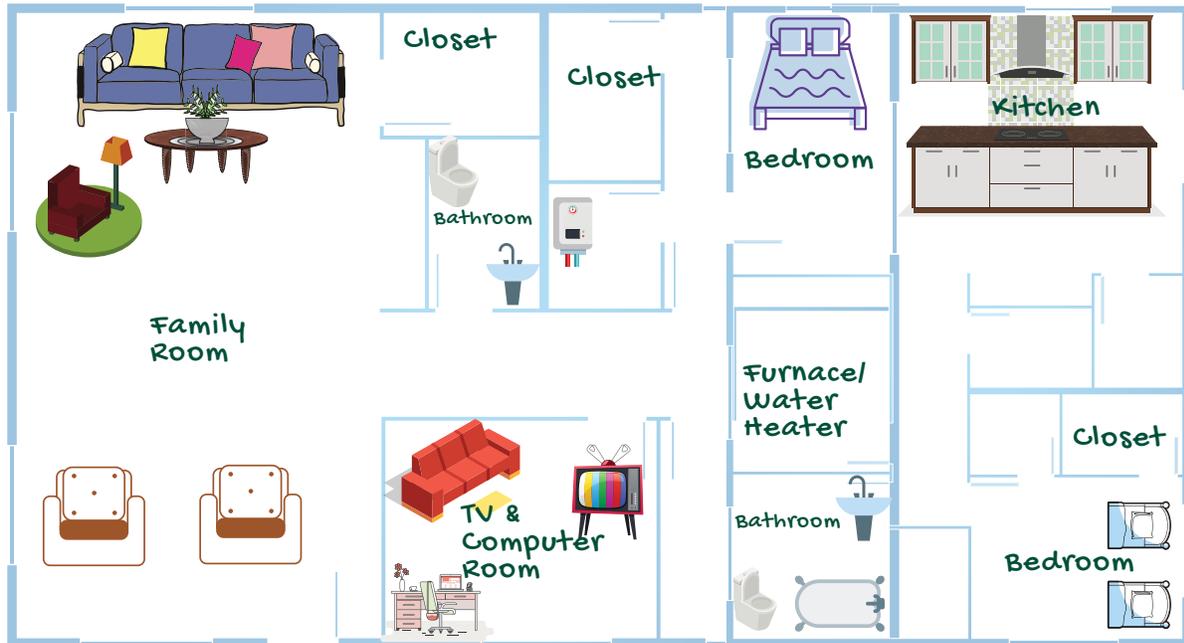


The train chugged through the night to a power plant. Fern was put into a boiler and burned. Her energy produced a lot of heat.

The power plant used Fern's energy to make electricity. The electricity traveled through a power line to a house. In that house, a little boy turned on a light so that he could read.

The energy that Fern had gotten from the sun millions of years ago was lighting the little boy's room. Fern had traveled a long way.

# ENERGY ACTIVITY: Energy at home



- How many  live in this house? (Hint: Count the pillows on the beds.)
- Each bathroom has two . How many  are in all the bathrooms?
- Each bedroom has two  and each closet has one . How many  in all?
- The family room, kitchen, utility room, hall and TV/computer room each have one . How many  are there in the whole house?
- Each  uses one  for four hours each day. How many hours a day are they used in all?
- Each  uses one cent (\$.01) worth of electricity per hour. How much does the family pay for electricity every day?
- Two  take showers every day and two  take baths. Each shower uses 10 gallons of  and each bath uses 20 gallons. The family also uses 20 gallons of  a day to wash dishes. How many gallons of  are used each day?

# The Tale of Annie Soakley



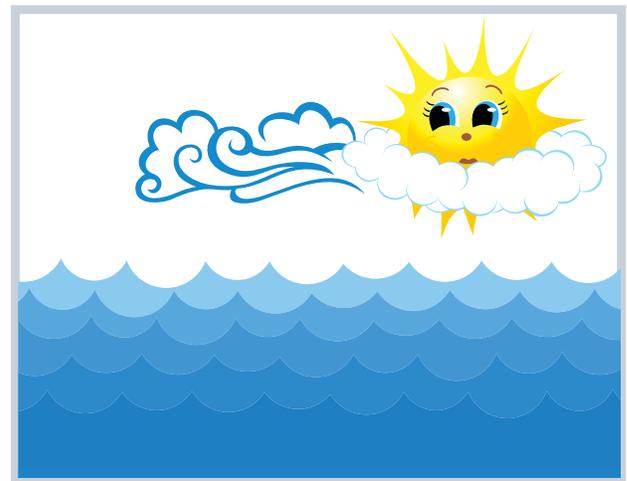
I'm Annie Soakley. I am a world traveler. Let me tell you about my last trip. It began in the Pacific Ocean. I was floating in the waves with my friends. We were bobbing up and down, watching the sun rise over the mountains. What a beautiful sight!

The sun climbed higher in the sky. I began to get warm. I got warmer and warmer. Suddenly, I rose out of the water. I floated toward the sky. I grew bigger. My molecules got farther and farther apart. I expanded.

I didn't look like a drop of water anymore. I was invisible. I had turned into water vapor. I had evaporated! I rose high into the sky. Many of my friends came with me. They had evaporated, too. Together, we formed clouds.

The wind pushed us through the sky. We sailed over the ocean toward land. The people on the beach were sad to see us. We blocked the sun.

We passed over them and headed for the mountains. The wind kept pushing us. We reached the mountains as the sun set. The air over the mountains was cold. It made me cold. As I cooled, I grew smaller. My molecules got closer together. I turned into a drop of water again. I **condensed**.



I was too heavy for the cloud to hold me. I began falling toward the earth. I was a rain drop! My friends condensed, too. The weather person on TV called us **precipitation**, which is water falling to the earth.

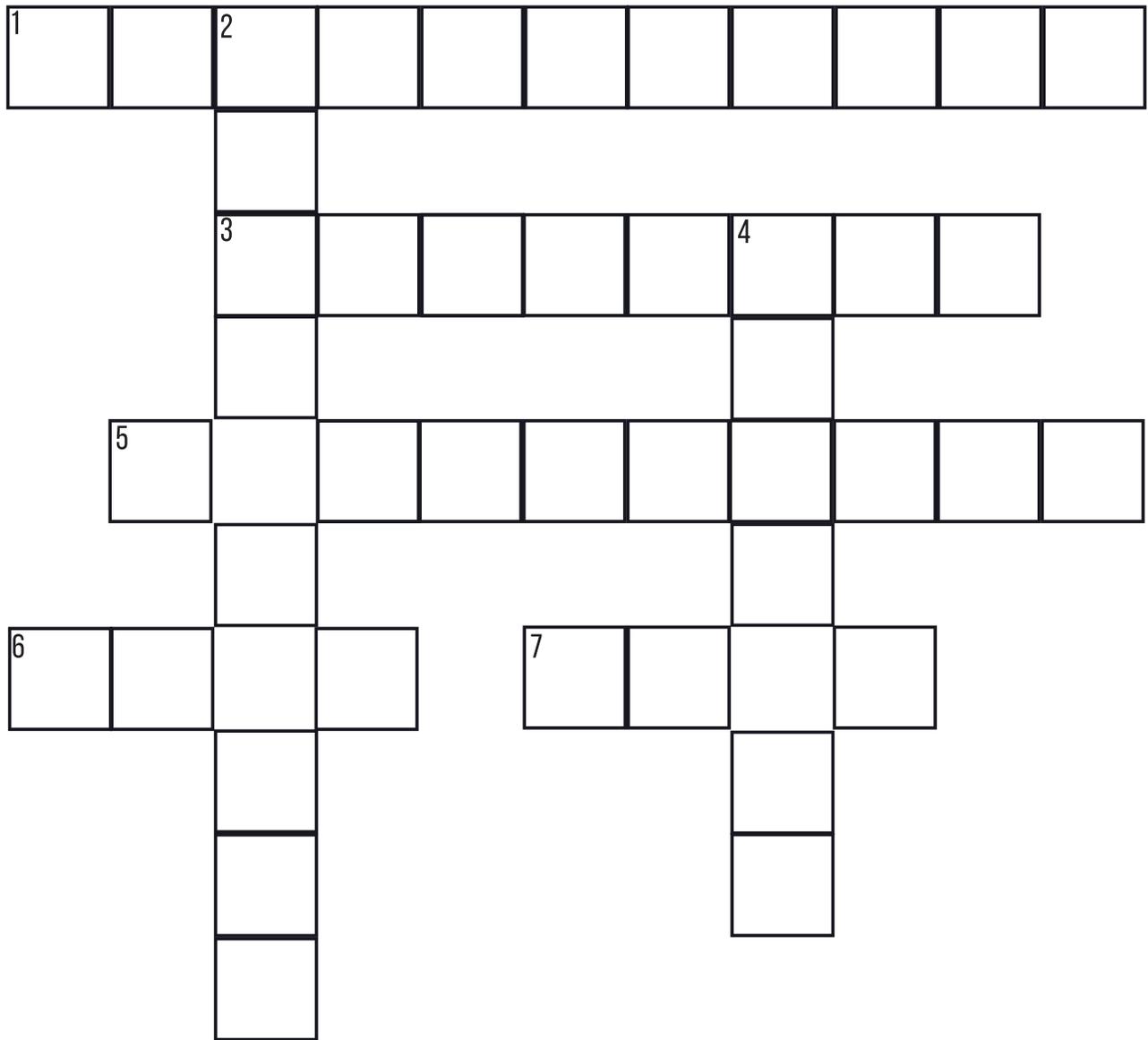


Gravity was pulling us down. Soon, other drops of water joined us and we turned into a small creek. As we flowed down the mountain, more creeks joined us and we grew. We turned into a roaring river. We were moving very fast. We had a lot of energy.

Suddenly, we found ourselves in a long tunnel. A machine called a turbine was at the end of the tunnel. We rushed through the turbine, making it spin. The turbine used our energy to make electricity.

We flowed back into the river. The river made its way through farms and towns until it reached the ocean. I floated out into the waves, glad to be home again. It had been an exciting trip through the **water cycle**.

# ENERGY ACTIVITY: Energy Word Puzzle



## Across

1. This powers our light bulbs.
3. A form of transportation that burns fuel to move. (Hint: It flies.)
5. Propane turns into a liquid after this has been done to it.
6. A black rock full of energy.
7. In the United States, ethanol is made from what plant?

## Down

2. When a drop of water becomes invisible, it does this.
4. The color black does this to solar energy.

# The Tale of Jane Energy Seed



I'm Jane Energy Seed. I plant energy seeds in a big field on my farm.

The sun shines. There is energy in the sun's rays. It helps my seeds grow into tall plants. My plants store the sun's energy in their roots, stalks, leaves, and ears. Soon my energy plants are tall and strong.

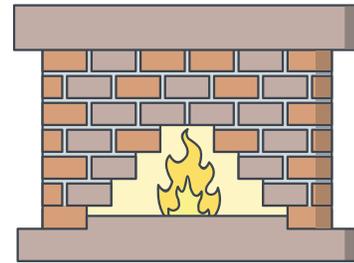


I can use the energy in my plants for many things. I can eat the seeds for energy for my body. This energy will help me grow and move and think.

I can feed my energy plants to my chickens, pigs, cows, and horses. The energy will make my animals grow big and strong.



I can hang my energy plants in my barn to dry. Then I can burn them in my fireplace. The energy in my plants can keep me warm on cold winter nights.



I can put my energy plants into a big container that keeps out the air. As my plants decay, they can make a gas that I can burn in my stove to cook my food.

I can also turn my energy plants into fuel for my tractor. I turn them into alcohol, like grapes are turned into wine. This alcohol fuel, called ethanol, can run my tractor.

As you can see, a seed of corn really is an energy seed. Why don't you plant some corn seeds and explore the ways you can use the energy in the plants you grow?



# ENERGY MONSTER HUNT!

The more you know, the further you will go!



The next page has the Energy Monster Hunt game board.

To play you will need:

- Spinner and Energy
- Paper clip
- Monster player pieces
- Pencil

To play: Cut out the spinner and the Energy Monster player pieces below. Then tape the two pages of the game board together and follow the rules printed on the game board. Have fun, and remember the more you know, the further you will go!

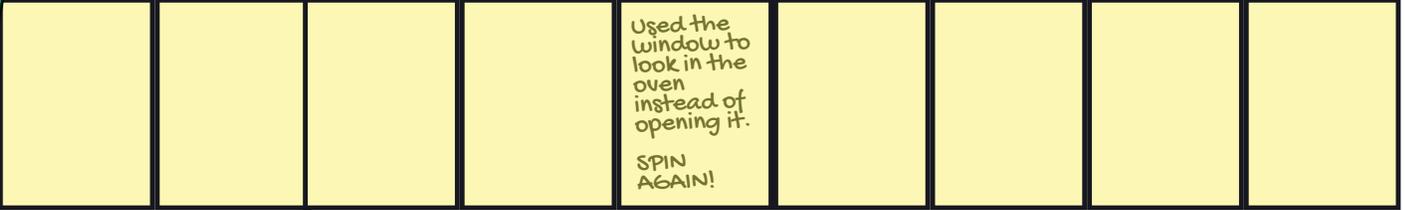


## Energy Monsters

Cut out your energy monster game pieces to play the game.



Cut out the spinner above. Place a paper clip on the point of a pencil and place the point of the pencil (with the paper clip) in the small white circle in the middle of the spinner. Fling the paper clip around and see which section it stops on. Read the comment in that section and follow the rules to move.



## Rules:

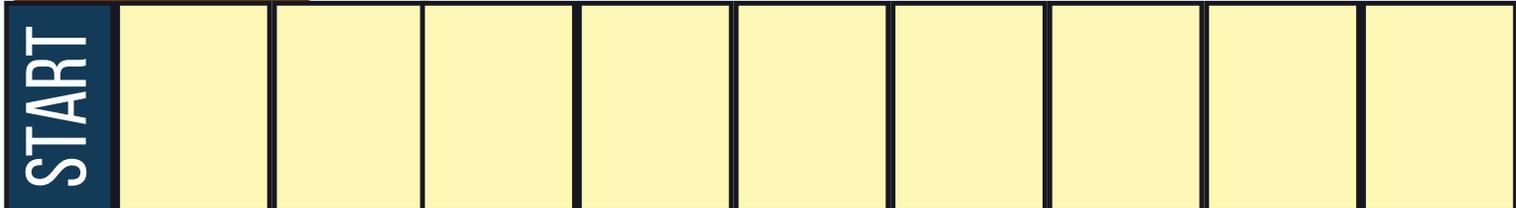
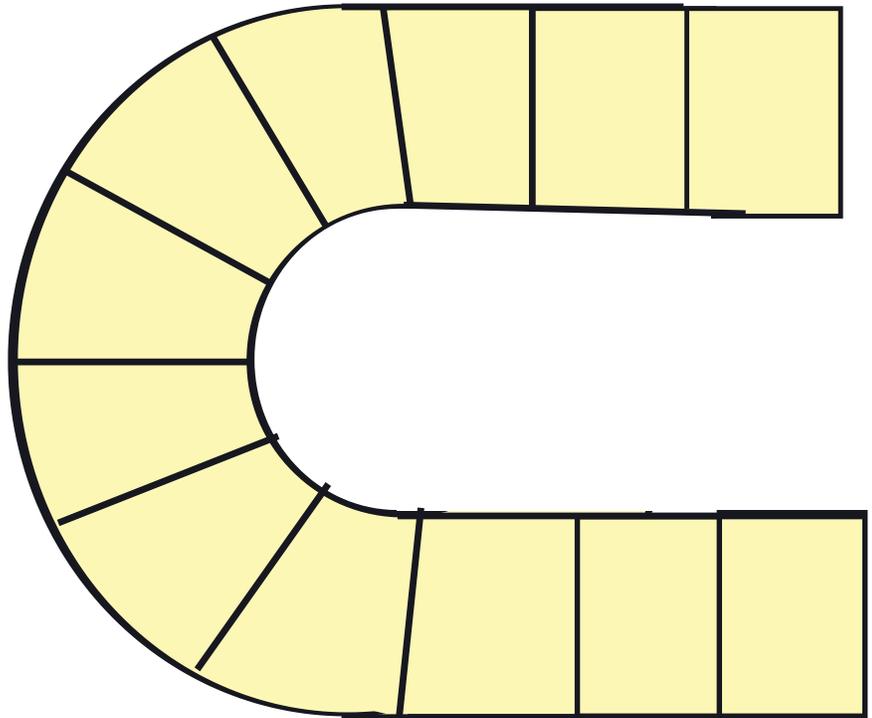
The oldest person goes first.

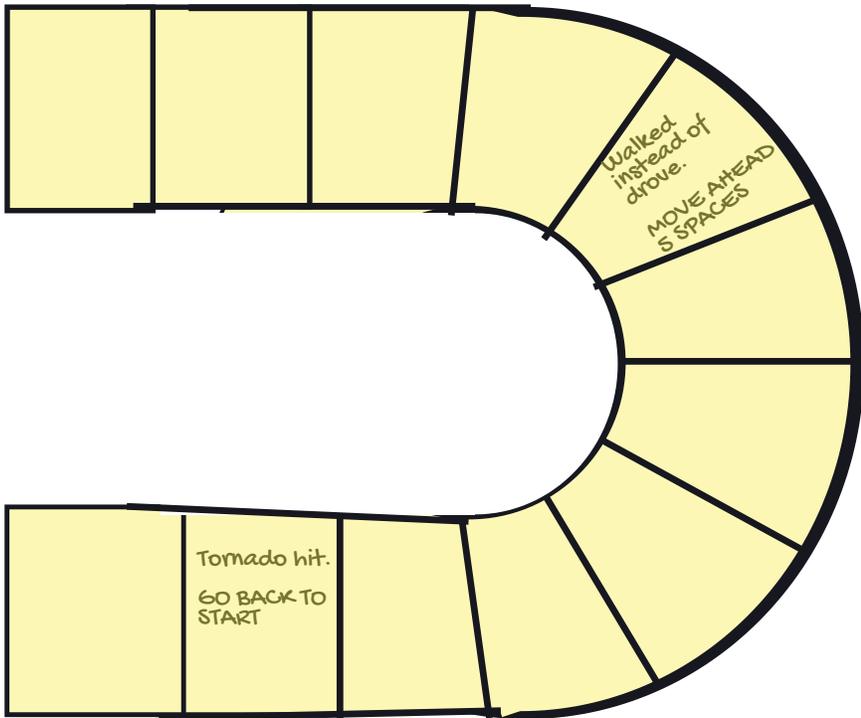
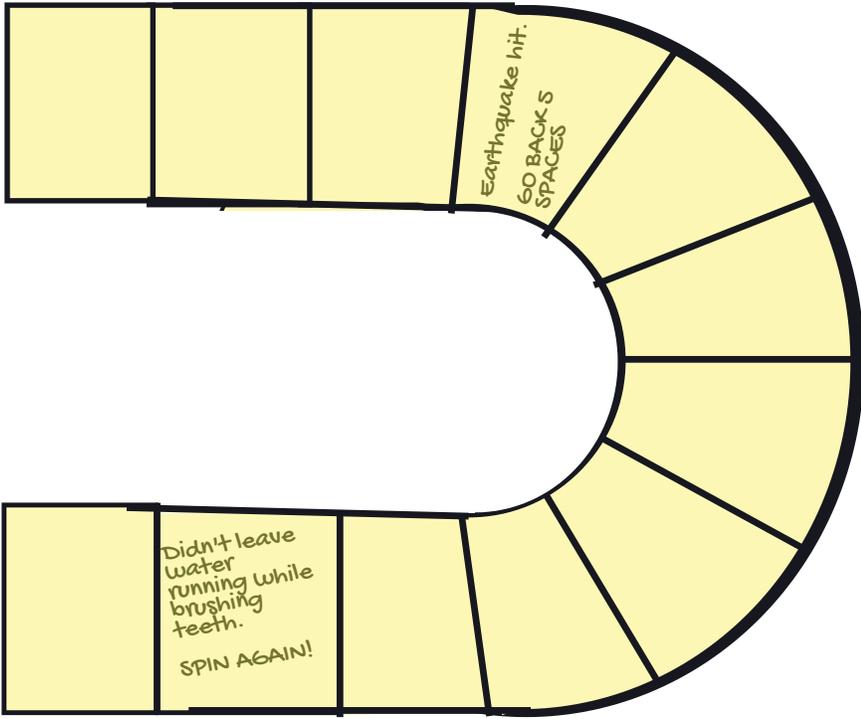
Everyone should have an energy monster game piece or something else to use as their playing piece.

Now, spin!

- If the paper clip lands on a conservation tip, move forward two spaces.
- If the paper clip lands on something that uses energy, move back one space.

The first player to the energy-saving house wins!





# ENERGY ACTIVITY:

## Energy-Saving Scavenger Hunt

Saving energy is great for the earth, and saves money on our electricity bills. Use the scavenger hunt activity below to find out how you are already saving energy and to look for ways you can save even more!

### ENERGY STAR Appliances

If you have ENERGY STAR appliances in your home, you're already saving energy!

(Hint: Look in your living room and kitchen.)



How many appliances can you find in your house with the ENERGY STAR symbol? You get 2 points for each appliance with the ENERGY STAR symbol!

How many points did you get?

### Energy-Saving Habits

When lights burn out do you replace old light bulbs with CFL or LEDs?

Always Sometimes Never

Do you turn off your lights when you are not using them or leave the room?

Always Sometimes Never

Do you turn off ceiling fans when you leave the room?

Always Sometimes Never

Do you leave the doors open when you go outside?

Always Sometimes Never

Do you turn off the TV when you leave the room?

Always Sometimes Never

Do you have blinds or curtains on your windows?

All

Some

None



### How did you do?

20 or more points - You're an Energy-Saving Monster!

10-19 points - You get energy efficiency!

0-9 points - You have now learned some great ways to save energy.

Any ideas on ways you can save more energy at home?



How many points did you get? Green answers get 2 points, blue answers get 1 point, and red answers get 0 points.





# ENERGY MONSTERS

Activity Book



This activity book is a collaborative project developed by ICF, SMECO, EmPOWER Maryland, and the National Energy Education Development (NEED) Project.