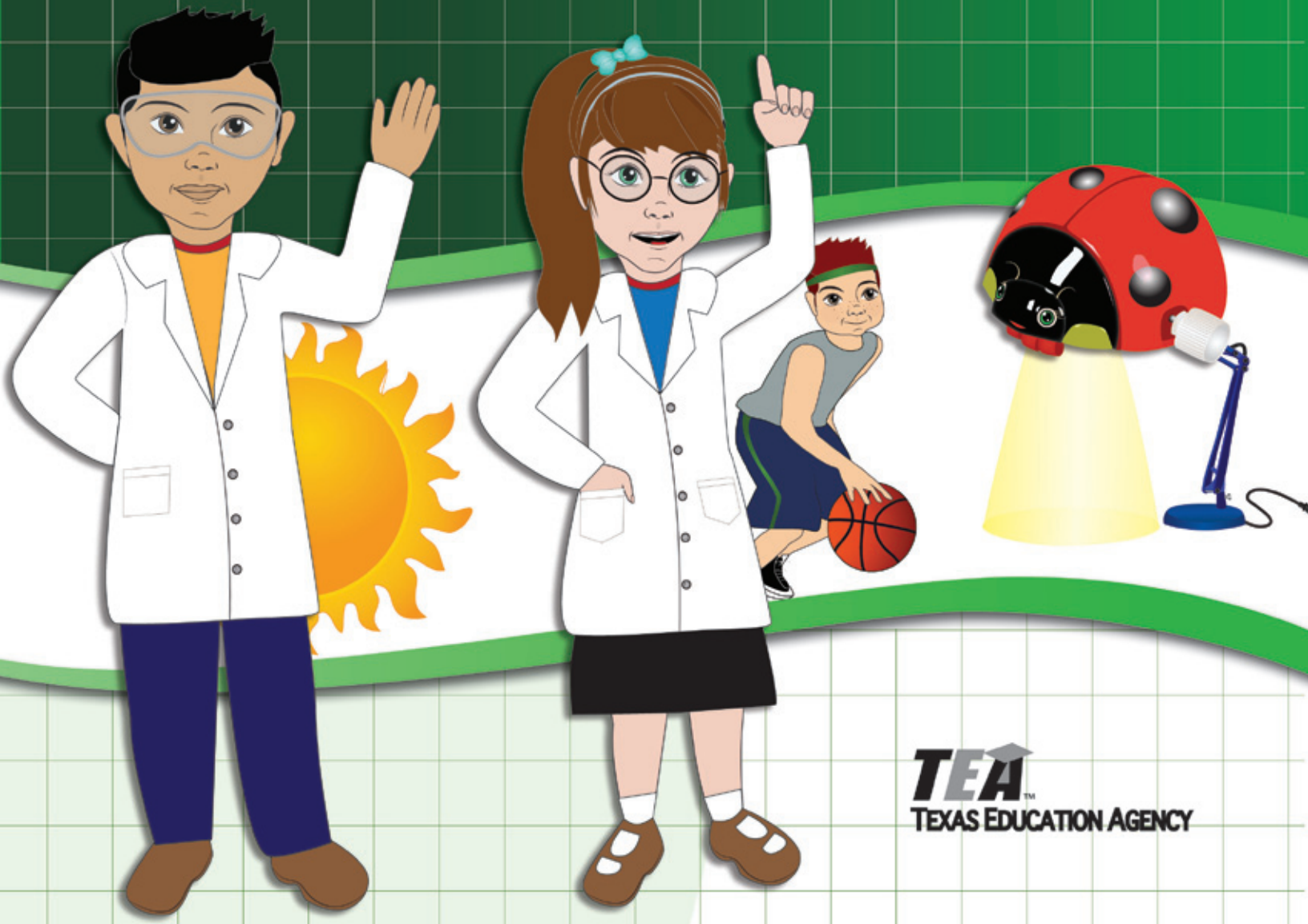
# Energy Made Easy

## by the Energetics



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## by the Energetics

region 4
Educated Solutions

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This book was developed in collaboration with Region 4 Education Service Center, Houston, Texas.

There are many exciting things we can learn in science class.

Do you often read a science book and think, "What are they talking about?" Some books use words that confuse us.

We are called the Energetics. Today we will help you learn about energy in ways that you will understand. Off we go!

Have you ever said or thought, “I don’t have any more energy”? What did you feel like when you said that? Perhaps you were running in PE. You may have felt like flopping on the floor and not moving another centimeter. Just like energy may help you run longer in PE, energy may help—

cook your macaroni and cheese;

give you light in the kitchen while cooking; and

remind you when to wake up.


Now that’s the kind of energy we need to learn more about!

# Light Energy

Scientific Explanation:

Light energy is nature’s method of transferring energy through space very quickly.

Energetics’ Explanation:

If an object lights up or shows light, it has light energy. Light can travel through space. Some examples of objects that have light energy are the Sun, a flashlight, and a lamp.

# Sound Energy

Scientific Explanation:

Sound energy is produced by sound vibrations as they travel through matter.

Energetics' Explanation:

If an object makes a noise, it has sound energy because it is vibrating. Sound can move through solids, liquids, and gases. Some examples of objects that produce sound are basketballs bouncing on a court, musical instruments, and timers.

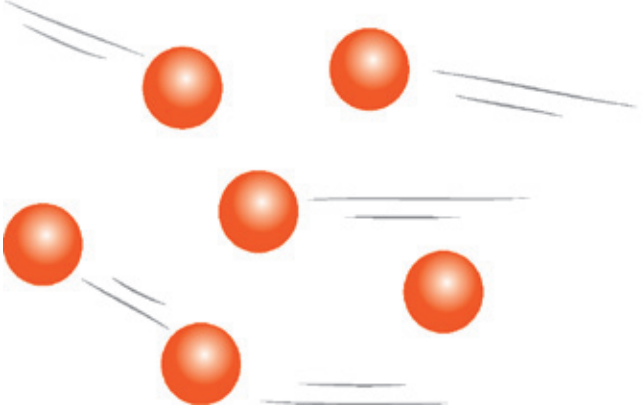

# Heat/Thermal Energy

Scientific Explanation:

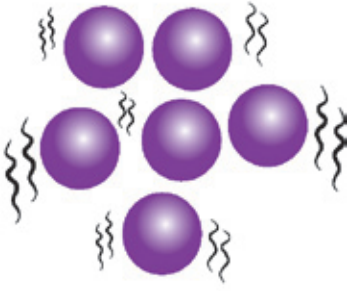
Thermal energy is the result of the movement of tiny particles in solids, liquids, and gases. Heat is the energy transferred from a hotter object to a colder object.

Energetics' Explanation:

If an object gets warmer or colder, it has thermal energy. As an object gets warmer, the particles it's made of move faster and spread out. As an object gets colder, the particles it's made of move more slowly and pack tightly together. How do the particles in the pictures relate to the way you feel when you are hot or cold?



warm, faster moving particles



cold, slower moving particles

Changes in heat can be measured with a thermometer. Thermometers measure temperature in degrees Celsius and Fahrenheit. Notice that the words *thermal* and *thermometer* share the root *therm*-. In Greek, *therm*- means "heat." You may also recognize *therm*- in other words, such as Thermos® and thermal underwear.

Some examples of things that have thermal energy include the Sun and an oven that is baking cookies. People have thermal energy, too.

# Mechanical Energy

Scientific Explanation:

Mechanical energy is energy that is possessed by an object due to its motion or position.

Energetics' Explanation:

If an object moves, it has mechanical energy. Some examples of objects that have mechanical energy include a bicycle, a windup toy, and a merry-go-round.

Did the explanations from the Energetics help you better understand the different forms of energy? We hope they did.

Can you remember each form of energy? Discuss this with your classmates.

- Light energy 
- Sound energy 
- Heat/thermal energy 
- Mechanical energy 

As the famous scientist Albert Einstein once said, “You do not really understand something unless you can explain it to your grandmother.”

Go home tonight and try explaining the different forms of energy to your grandma, grandpa, mom, dad, aunt, uncle, or anyone who will listen. See if you can follow the Energetics’ way by explaining it so that everyone can understand.

Until next time!

Energetics



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