

# Science Study Guide

## Chapters 9 and 10 Words to Know:

1. Energy- the ability to do work or cause change.
2. electrical energy- is the movement of electric charges.
3. Light energy- energy we can see. Light travels outward from its source in all directions.
4. heat- is the transfer of energy from a warmer object to a colder object.
5. sound energy- is energy we can hear.
6. mechanical energy – is energy that motion or position gives to an object.
7. potential energy- energy that is stored. It can change into another kind of energy if used to do work or cause a change.
8. kinetic energy- energy of motion.
9. wave- is a disturbance that carries energy from one point to another point.
10. reflects- when light bounces off an object.
11. refract- to bend light.
12. motion- a change in the position of an object.

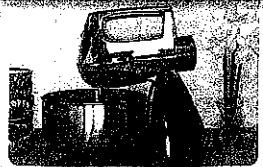
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13. **pitch**- how high or low a sound is.
14. **gravity**- a noncontact force that pulls all objects towards one another.
15. **friction**- a contact force that opposes the motion of an object. It can cause an object to slow down or stop.
16. **absorbs**- taking in something.
17. **force**- a push or a pull.
18. **position**- object's location or where something is.
19. **closed circuit**- a circuit with no gaps or breaks- a light will be on if its circuit is closed.
20. **open circuit**- a circuit with a broken path- a light will be off with an open circuit.
21. **magnetism**- a noncontact force that pulls on or attracts metal objects containing iron.
22. **thermal energy**- the energy of moving particles.
23. **speed**- the rate at which or how fast an object changes position.
24. **volume**- how soft or loud a sound is.
25. **mass**- the weight and space an object takes up.
26. **distance**- how far away something is or travels.

27. weight- how heavy something is; the pull of gravity on an object gives it its weight.
28. shadows- a dark area made when an object blocks light from a light source and an object's surface.
29. vibrating- to move quickly back and forth.



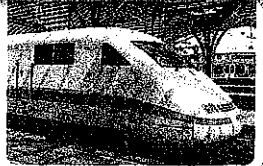
## Lesson 1



## What are some forms of energy?

- Energy is the ability to do work and cause change.
- Energy makes things move, change, or grow.
- People use many forms of energy every day.

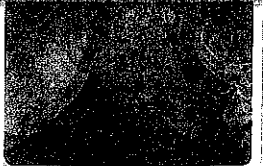
## Lesson 2



## How does energy change form?

- Energy can change from one form to another.
- Energy of motion can be transferred.
- Some energy travels as waves.

## Lesson 3



## How do light and matter interact?

- Objects can reflect light evenly or unevenly.
- Some objects refract light.
- Some objects absorb some of the colors of light that hit them.

## Lesson 4



## What are heat and light energy?

- Things that give off light also give off heat.
- Heat affects the temperature of matter.
- Heat is produced when objects rub against each other.

## Lesson 5



## What is sound energy?

- Sound happens when matter vibrates.
- A sound's energy determines how loud or soft the volume is.
- A sound's pitch is how high or low the sound is.

## Lesson 6



## What is electrical energy?

- An electric charge can attract or repel.
- Electric current is the movement of an electric charge.
- An electric circuit is a path for electric current.



### Lesson 1

#### What are some forms of energy?

1. Determine **Circle** the image that best shows kinetic energy.



2. **Analyze** What is one way that stored energy can change to become energy of motion?



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### Lesson 2

#### How does energy change form?

3. **Cause and Effect** When you turn on an electric toothbrush, chemical energy in the battery changes to electrical energy. List two additional energy changes that happen as a result.

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### Lesson 3

#### How do light and matter interact?

4. **Vocabulary** A blue book \_\_\_\_\_ blue light that strikes it.
  - A. colors
  - B. absorbs
  - C. reflects
  - D. shadows

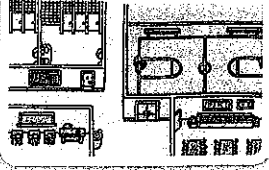
5. **Describe** Why do shadows form behind some objects?

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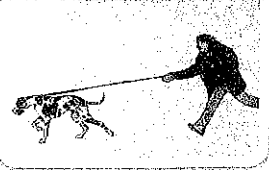
## Lesson 1



## What is motion?

- Motion is a change in position.
- Position is the location of an object, or its place.
- Speed is the rate at which an object changes its position.

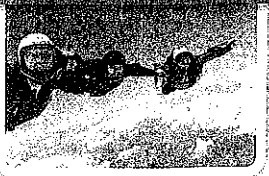
## Lesson 2



## How does force affect motion?

- A force is a push or a pull.
- The amount of force used affects an object's motions.
- Mass and friction affect an object's motion.

## Lesson 3



## What is gravity?

- Gravity is a noncontact force that pulls objects toward one another.
- The pull of gravity on an object gives the object its weight.





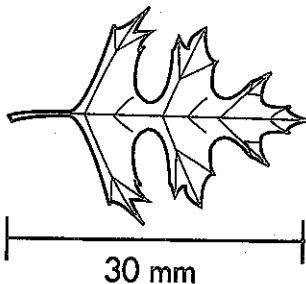
### Lesson 1

#### What is motion?

- Vocabulary** Which word means the same as *position*? Circle the correct answer.
  - A. motion
  - B. location
  - C. direction
  - D. speed

### Do the math!

- Calculate** The caterpillar crossed this leaf in 5 seconds. Use the formula for speed to find out exactly how fast the caterpillar traveled.



$$\text{distance} \div \text{time} = \text{speed}$$

caterpillar's speed =

..... mm  $\div$  ..... s = .....  $\frac{\text{mm}}{\text{s}}$

- Explain** How do you know when an object is in motion?

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### Lesson 2

#### How does force affect motion?

- Predict** What would happen if more force were applied to a moving cart? The force acts in the same direction in which the cart is moving.

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- Write About It** Describe friction and give an example of it.

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- Draw Conclusions** A volleyball is headed toward you. You hit the ball back in the direction from which it came. What can you conclude about force?

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