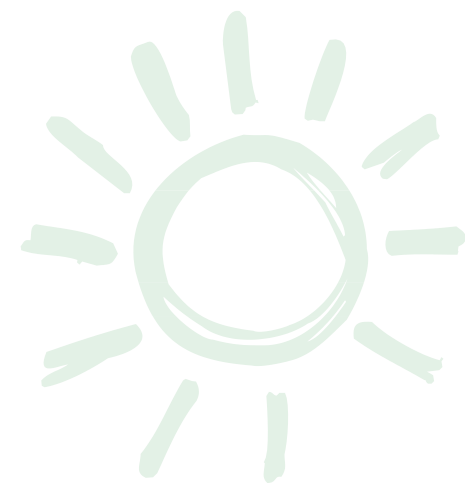




# Contents



## TEACHER GUIDE

- Assessment Rubric ..... 4
- How Is Our Resource Organized? ..... 5
- STEAM & Next Generation Science..... 6
- Vocabulary ..... 6



## STUDENT HANDOUTS

- Reading Comprehension
  - 1. Force and Motion ..... 7
  - 2. Energy ..... 7
  - 3. Light and Sound ..... 7
  - 4. Electricity and Magnetism ..... 7
  - 5. Matter and Materials ..... 7
  - 6. Simple Machines ..... 7
- Hands-on Experiments ..... 12
- Crossword ..... 18
- Word Search ..... 19
- Comprehension Quiz ..... 20



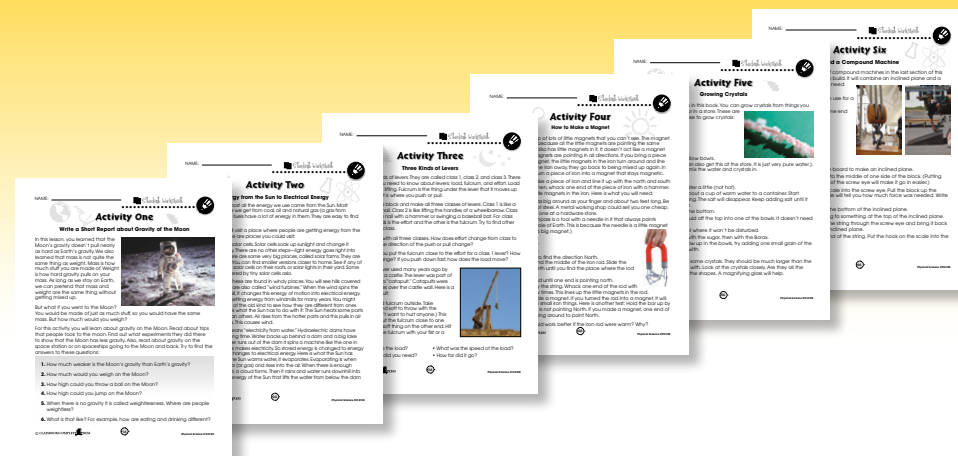
## EASY-MARKING™ ANSWER KEY ..... 22

## COLOR MINI POSTERS ..... 24

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## Matter and Materials

1. Put a check mark (✓) next to the answer that is the most right.

a) All things we can touch are made of \_\_\_\_\_

- A energy
- B force
- C matter
- D solids

b) How many different forms can water have?

- A one
- B two
- C three
- D four

c) These can all be properties of matter, except \_\_\_\_\_.

- A is blue
- B is hard
- C can burn
- D has energy

2. Circle **T** if the sentence is True or **F** if it is False.

- T F a) When wood burns, it turns into ashes and smoke. Cooling the ashes and smoke turn them back into wood.
- T F b) Matter is made of little things too small to see.
- T F c) Heating ice turns it into liquid water.
- T F d) All solid things have the same properties.

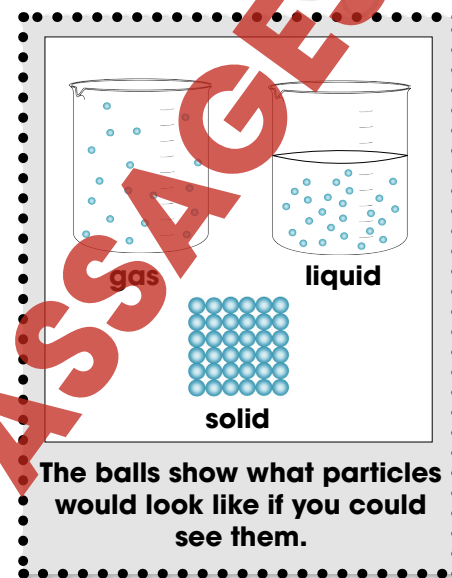


## Matter and Materials

**M**atter is easy to understand. Matter is just *stuff*. Pretty much everything is matter, except energy. We say all matter has **mass** and takes up space. Mass is a measure of how much matter is in a thing. Mass is not the same as weight, but it is what gives a thing weight. Water, rocks, air, and even you are all made of matter.

Each kind of matter has its own special **properties**. Properties are how we tell what something is like. To find out what kind of matter a thing is made of, we can look at its properties. Is it hard? What color is it? Does it burn? Does it float? For example, rocks are hard, water flows, and paper burns.

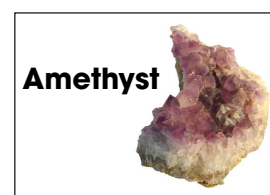
Crystals are solid materials with interesting properties. We can tell a crystal by its color, shape, and hardness. Look at the pictures of three different crystals. How would you describe them?



Diamond



Quartz



Amethyst

Matter is made of little **particles** (bits of matter) much too small to see. It is the particles that give a thing its properties. Properties depend on three things:

- Which kind of particles a thing is made of.
- How tightly they are packed together.
- Whether the particles are stuck in fixed places or can move around.



## Matter and Materials

1. Use the words below to finish each sentence.

solid      gas      mass      liquid      particles

- a) Water can be a \_\_\_\_\_, a \_\_\_\_\_ or a gas.
- b) All matter has \_\_\_\_\_ and takes up space.
- c) All matter is made of \_\_\_\_\_ too small to see.
- d) Water vapor is a \_\_\_\_\_.

2. Put a check mark (✓) next to the answer that is the most right.

a) Water flows because its particles \_\_\_\_\_.

- A are wet
- B are small
- C cannot freeze
- D can move around

b) Which is **always** a sign that a new material has been formed?

- A A flame is seen.
- B A gas is given off.
- C A liquid gets hard.
- D A solid becomes liquid.

c) All these changes can go back the way they were, except \_\_\_\_\_.

- A when a solid melts
- B when a liquid boils
- C when a solid burns
- D when a liquid freezes



## Matter and Materials

3. Answer the questions in full sentences.

- a) Explain what matter is. Explain what mass is.  
 \_\_\_\_\_  
 \_\_\_\_\_
- b) Tell two ways that burning wood is different from boiling water.  
 \_\_\_\_\_  
 \_\_\_\_\_

### Extension & Application

4. Look around your house. Find a solid. Find a liquid. Find a gas. Tell what each thing is like by its properties.

- a) What are the properties of the solid?  
 \_\_\_\_\_  
 \_\_\_\_\_
- b) What are the properties of the liquid?  
 \_\_\_\_\_  
 \_\_\_\_\_
- c) What are the properties of the gas?  
 \_\_\_\_\_  
 \_\_\_\_\_



## How the Sun Warms the Earth

When sunlight strikes the surface of the Earth, some of the energy is changed into heat energy. Light energy goes through Earth's air easily. Heat energy does not go through air as easily. Some of the heat is trapped here. This makes the Earth warmer. This is called the "greenhouse effect." Have you been to a greenhouse? It is a glass house. It works like Earth's air. Light comes in through the windows and warms the inside. The windows then trap the heat. Plants can grow inside the greenhouse that could not grow outside in the winter.

You can make a little greenhouse. This is what you will need:

- a large glass bowl
- something black, like black paper or cloth
- two thermometers (Thermometers measure temperature. Temperature measures how hot something is.)

This is what you do:

1. Go outside on a sunny day.
2. Put the black paper or cloth down and cover it with the bowl.
3. Put one thermometer inside the bowl and one outside.
4. Read the temperature on both thermometers and write down the readings.
5. Come back in an hour and read the thermometers again. Write the readings down.



This is a greenhouse you would see at a store.

What did the temperatures you read tell you? Was it hotter inside the bowl than outside? Explain.



## Crossword Puzzle!

### Across

1. The head of an axe is one.
5. Make one with a board and a block.
9. Not static electricity—the other kind.
11. A ramp is an \_\_\_\_\_ plane.
13. Sound \_\_\_\_\_ come from a ringing bell.
15. It has mass and takes up space.
16. Some of the Sun's energy changes into \_\_\_\_\_ energy.

### Down

2. Some are positive and some are negative.
3. It keeps you from floating off into space.
4. The color of grass is an example of this.
6. This simple machine has a lever that spins all the way around.
7. When light bounces, it is called a \_\_\_\_\_.
8. This simple machine is like a long ramp going in a circle.
10. The kind of force that makes something change how it is moving.
12. A push or a pull.
14. Light and heat are kinds of \_\_\_\_\_.

### Word List

current electricity	inclined	unbalanced
electric charge	lever	waves
energy	matter	wedge
force	properties	wheel and axle
gravity	reflection	
heat	screw	



## Comprehension Quiz

### Part A

Circle **T** if the sentence is **TRUE** or **F** if it is **FALSE**.

- 1) Gravity only pulls on things sitting on the ground.
- 2) If something is moving in a straight line without changing speed, the forces on it are balanced.
- 3) Light is a kind of energy.
- 4) We cannot see sound waves.
- 5) Light travels faster than sound.
- 6) Lightning is a kind of current electricity.
- 7) Particles in ice can change places with each other.

### Part B

Put a check mark (✓) next to the answer that is the most right.

a) Which two simple machines could you make with just a board and a brick?

- A A pulley and a lever.
- B A lever and an inclined plane.
- C An inclined plane and a screw.
- D A screw and a wheel and axle.

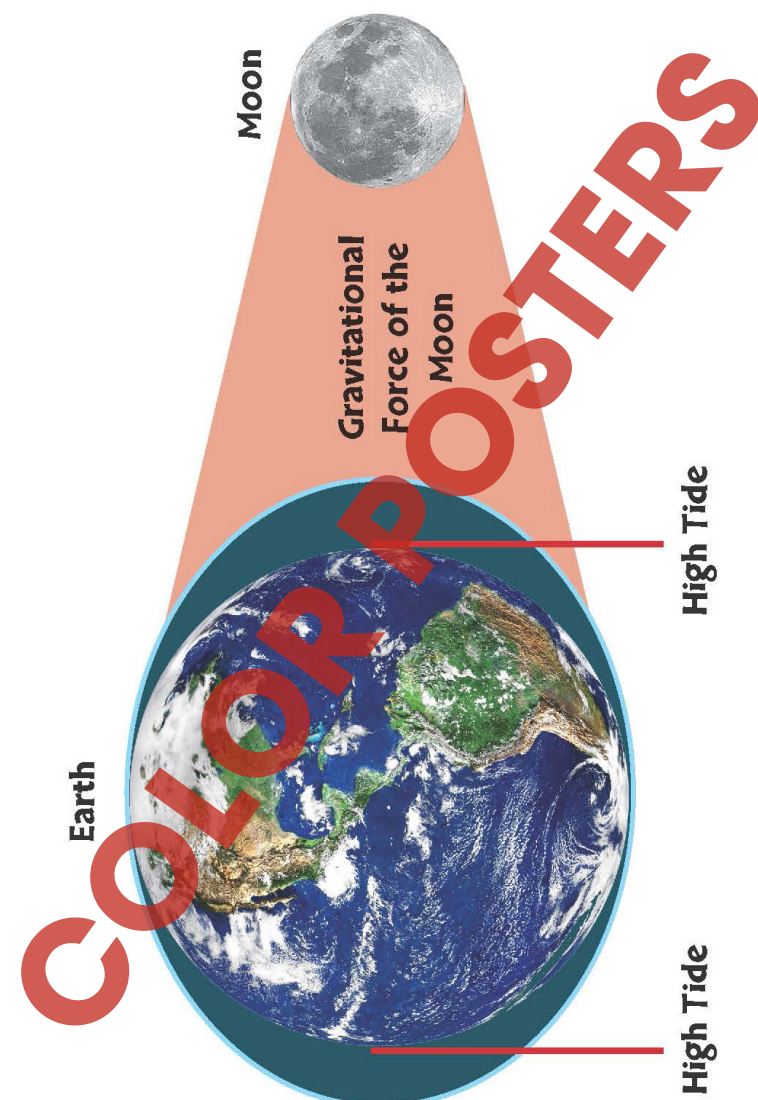
b) What do we know about the forces acting on something that is falling without changing its speed?

- A No forces are acting on it.
- B Only gravity is acting on it.
- C There is no force of air resistance.
- D The forces acting on it are balanced.

SUBTOTAL: /9

## Gravity and Tides

Tides Caused by Gravitational Force of the Moon





# Matter and Materials

1. Use the words below to finish each sentence.

**solid      gas      mass      liquid      particles**

- a) Water can be a \_\_\_\_\_, a \_\_\_\_\_ or a gas.
- b) All matter has \_\_\_\_\_ and takes up space.
- c) All matter is made of \_\_\_\_\_ too small to see.
- d) Water vapor is a \_\_\_\_\_.

2. Put a check mark (✓) next to the answer that is the most right.

a) Water flows because its particles \_\_\_\_\_.

- A are wet
- B are small
- C cannot freeze
- D can move around

b) Which is always a sign that a new material has been formed?

- A A flame is seen.
- B A gas is given off.
- C A liquid gets hard.
- D A solid becomes liquid.

c) All these changes can go back the way they were, except \_\_\_\_\_.

- A when a solid melts
- B when a liquid boils
- C when a solid burns
- D when a liquid freezes

1.

- a) solid, liquid
- b) mass
- c) particles
- d) gas

3.

- a) Matter is anything that has mass and takes up space. Mass is how much matter is in something.
- b) Water vapor can change back to liquid water. Smoke and ashes can't change back to wood. Burning wood makes something new. Boiling water doesn't.

2.

a)  D

4.

Answers will vary, but may include:

a) **Solid:** Hard, smooth, keeps its shape.

b) **Liquid:** Clear, can change shape, wet, flows.

c) **Gas:** No color, flows, can't see it.

c)  C

10

11



# EASY MARKING ANSWER KEY