

Name _____ Date _____ Period _____



PRODUCING VISIBLE LIGHT

PURPOSE: This section describes different kinds of light bulbs.

OBJECTIVE: Compare and contrast the five types of light bulbs by completing the table below.

Feature	Ordinary Light Bulb	Tungsten-Halogen			
Bulb Material	Glass				
Hot/Cool					

INTRODUCTION:

1. Complete the table below by writing the correct term.

Kind of Object	Description
a. _____ object	b. An object that can be seen because it reflects light
b. _____ object	c. An object that gives off its own light

2. To view the different colors of light produced by a light bulb, you can use an instrument called a(n) _____

INCANDESCENT LIGHTS

3. A light that glows when a filament inside it gets hot is called a(n)

4. What is a tungsten-halogen light bulb?

5. Circle the letter of each sentence that is true about incandescent lights.

- a. Most of the energy produced by incandescent bulbs is given off as infrared rays.
- b. The part of an incandescent bulb that gives off light is the filament.
- c. Incandescent bulbs are very efficient in giving off light.
- d. Most ordinary incandescent light bulbs contain a small amount of gas.

6. Is the following sentence true or false? Less than ten percent of the energy of an incandescent bulb is given off as light. _____

7. Circle the letter of each sentence that is true about tungsten-halogen lights.

- a. Tungsten-halogen lights work like fluorescent lights.
- b. The halogen gas in a tungsten-halogen light helps to keep the filament from breaking down from the heat.
- c. In a tungsten-halogen light, a filament gets hot and glows.
- d. Halogen bulbs become very hot.

OTHER LIGHT SOURCES

8. Long, narrow glass tubes that illuminate schools and stores are _____ light bulbs.

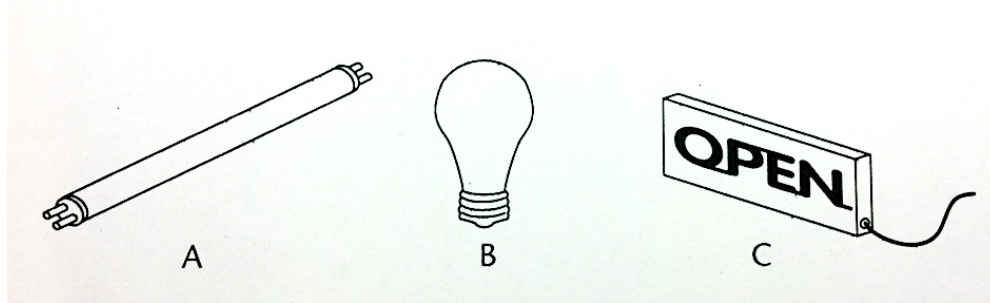
9. Describe how a fluorescent light bulb produces visible light.

10. Circle the letter of each sentence that is true of fluorescent lights.
- a. Fluorescent lights give off most of their energy as light.
 - b. Fluorescent lights emit only red light.
 - c. Fluorescent lights emit only red light.
 - d. Fluorescent lights usually don't last as long as incandescent lights.
11. Circle the letter of each sentence that is true about vapor lights.
- a. Vapor lights require very little electricity for a lot of light.
 - b. In a vapor light, heat from gases changes a solid to a gas.
 - c. Particles of sodium gas give off a greenish blue light.
 - d. Vapor lights are often used for street lighting.
12. A sealed glass tube filled with neon gas that produces light is called a(n)

13. Circle the letter of each sentence that is true about neon lights.
- a. Neon lights are commonly used for bright, flashy signs.
 - b. Pure neon gives out red light.
 - c. Each glass neon-light tube is coated on the inside with a powder.
 - d. Often, what is called a neon light contains a gas other than neon or a mixture of gases in the tube.

ANALYSIS AND CONCLUSION:

Use the diagram to answer the following questions in the spaces provided.



1. What are the three types of light bulbs shown? _____
2. Which of the three types of light bulb shown is not efficient? _____
3. Which of the three types of light bulb shown is mostly commonly used to light schools and stores? _____

BUILDING VOCABULARY

4. What is the spectroscope?

5. Explain the difference between an *illumination* and a *luminous* object.

Match each term with its definition by writing the letter of the correct definition in the right column on the line beside the term in the left column.

- | | |
|----------------------------------|--|
| _____ 6. incandescent light | a. Often used for street lights, this kind of light bulb contains a solid and gases. When the gases are made to glow, the solid change to a gas and gives off light. |
| _____ 7. fluorescent light | b. When an electric current is passed through this kind of light bulb, the gas inside emits red light. |
| _____ 8. neon light | c. Light is produced when a filament in this kind of bulb becomes very hot. |
| _____ 9. vapor light | d. This type of bulb contains a filament and a halogen gas such as iodine or bromine. |
| _____ 10. Tungsten-halogen light | e. When an electric current is passed through a tube, gas inside emits ultraviolet waves that cause a powder to glow. |