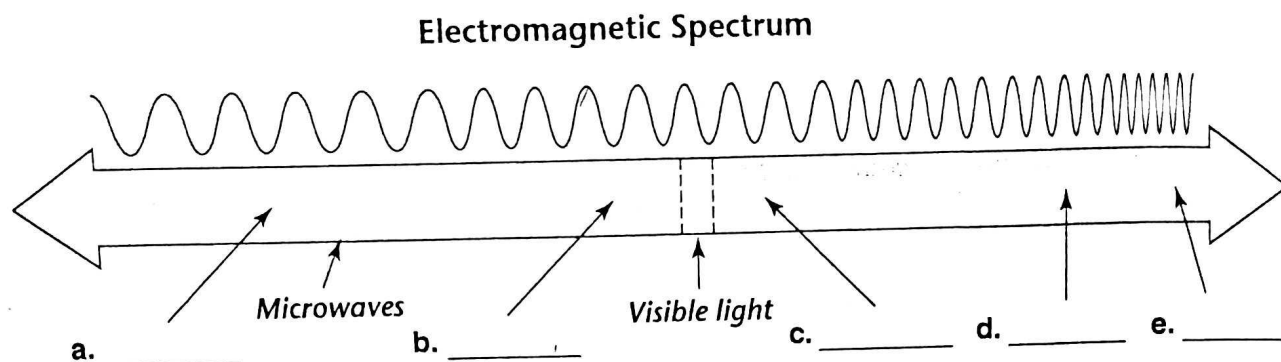


Name _____ Date _____ Class _____

The Electromagnetic Spectrum ▪ Guided Reading and Study

Waves of the Electromagnetic Spectrum (continued)

4. Label the electromagnetic spectrum below with the names of the different waves that make up the spectrum.



Radio Waves (pp. 580)

5. Which type of electromagnetic wave carries television signals?

6. What does a radio transform radio waves into? _____
7. Is the following sentence true or false? Microwaves are the radio waves with the shortest wavelengths and highest frequencies.

8. Is the following sentence true or false? Microwaves are used for cellular phone communication. _____
9. A system that uses reflected radio waves to detect objects and to measure their distance and speed is called _____.

Infrared Rays (p. 581)

10. The energy you feel as heat from an electric burner is carried by electromagnetic waves called _____.
11. Circle the letter of each sentence that is true about infrared rays.
- a. Infrared rays have a higher frequency than radio waves.
 - b. Most objects give off some infrared rays.
 - c. Infrared rays are sometimes called heat rays.
 - d. Heat lamps give off no infrared rays.
12. A picture produced by an infrared camera using infrared rays is called a(n) _____.

13. The part of the electromagnetic spectrum that you can see is called _____.
14. Write the names of the colors of visible light, from longest wavelength to shortest wavelength.
- a. _____ b. _____ c. _____
- d. _____ e. _____ f. _____
15. Is the following sentence true or false? White light is made up of a mixture of many colors of light. _____

Ultraviolet Rays (p. 582)

16. Electromagnetic waves with wavelengths just shorter than those of visible light are called _____.
17. Circle the letter of each sentence that is true about ultraviolet rays.
- a. Too much exposure to ultraviolet rays can cause skin cancer.
 - b. Humans with good vision can see ultraviolet rays.
 - c. Ultraviolet rays cause skin cells to produce vitamin D.
 - d. Lamps that produce ultraviolet rays are used to kill bacteria.

X-Rays (p. 583)

18. Electromagnetic waves with frequencies higher than ultraviolet rays but lower than gamma rays are _____.
19. Circle the letter of the reason why bones show up as lighter areas on photographic plates in an X-ray machine.
- a. Bones absorb X-rays and don't allow them to pass through.
 - b. X-rays pass right through skin and bones.
 - c. Bones cause the photographic plate in an X-ray machine to darken.
 - d. X-rays cannot pass through the skin above the photographic plates.