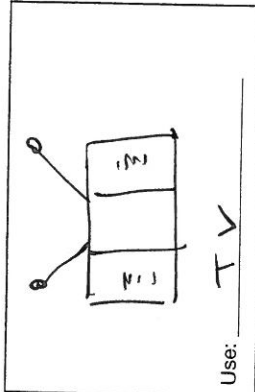


Use with textbook pages 152-160.

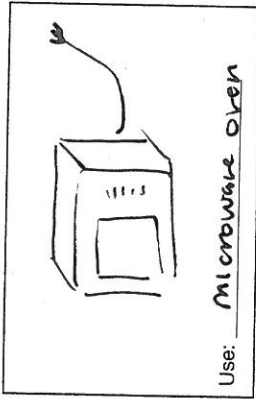
### The electromagnetic spectrum

Write a use for each electromagnetic radiation stated below. In the box provided, draw a picture to illustrate your example.

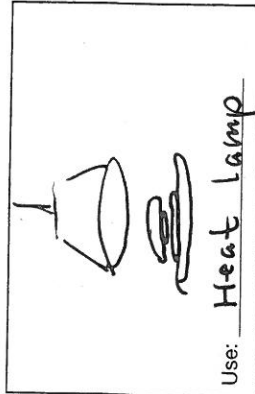
1. Radio waves



2. Microwaves



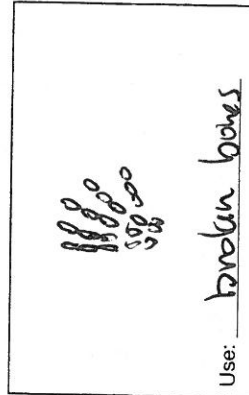
3. Infrared waves



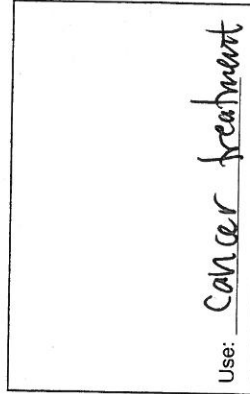
4. Ultraviolet rays



5. X rays



6. Gamma rays



Use with textbook pages 152-160.

### True or false?

Read the statements given below. If the statement is true, write "T" on the line in front of the statement. If it is false, write "F" and rewrite the statement to make it true.

1. T Radiant energy spreads out from its source in all directions.

2. F Electromagnetic radiation includes ~~only visible light waves~~.

radio waves to gamma rays

3. F Microwaves are a type of ~~infrared waves~~.

radio wave

4. F X rays have more energy than gamma rays.

infrared

5. F Radio waves, microwaves, and ~~ultraviolet~~ waves all have longer wavelengths than visible light.

infrared

6. T Both X rays and gamma rays have higher frequencies than ultraviolet rays.

7. F Communicating with satellites is an application of ~~gamma rays~~.

microwaves

8. T The Sun radiates both visible energy and invisible energy.

Use with textbook pages 134-138.

### Properties of waves

Match each Term on the left with the best Descriptor on the right. Each Descriptor may be used only once.

Term	Descriptor
1. <u>E</u> crest	A. height of crest from rest position
2. <u>C</u> trough	B. a movement that carries energy through matter or space
3. <u>A</u> amplitude	C. the lowest point of a wave
4. <u>F</u> frequency	D. trough to trough
5. <u>D</u> wavelength	E. the highest point of a wave
	F. vibrations per second

Circle the letter of the best answer.

6. What happens when the amplitude of a wave becomes smaller?

- A. the frequency increases
- B. the wavelength decreases
- C. the height of the crests increases
- D. the amount of energy that the wave carries decreases

7. Which of the following is not a way to measure wavelength?

- A. the distance from crest to crest
- B. the distance from trough to trough
- C. the distance from the top of a crest to the bottom of a trough
- D. the distance covered by one complete crest plus one complete trough

Use with textbook pages 144-149.

### Properties of visible light

Match each Term on the left with the best Descriptor on the right. Each Descriptor may be used only once.

Term	Descriptor
1. <u>G</u> light	A. explains how light behaves like a wave
2. <u>C</u> spectrum	B. light we can see
3. <u>E</u> reflection	C. a range of colours or frequencies of visible light
4. <u>F</u> refraction	D. occurs when a light wave is absorbed by an object
5. <u>B</u> visible light	E. occurs when a light wave bounces off an object
6. <u>A</u> wave	F. bending of light wave as it passes from one material to another
	G. wave that travels through space

Circle the letter of the best answer.

7. Which of the following statements is true?

- A. White light has no colours in it.
  - B. Sunlight emits only yellow light.
  - C. There are six colours in the rainbow.
  - D. You can see the colours of the rainbow when sunlight is refracted.
8. Which of the following statements is incorrect?
- A. Light travels like a wave.
  - B. Colour is a property of visible light.
  - C. A prism splits light into a spectrum.
  - D. Each colour in the visible spectrum refracts at the same angle.

9. Which of the following correctly places the colours in order of shortest wavelength to longest wavelength?

	Shortest wavelength	Longest wavelength
A.	red	green
<input checked="" type="radio"/> B.	violet	green
C.	green	red
D.	violet	red

10. Which of the following colours has the lowest frequency?

- A. blue
- B. indigo
- C. orange
- D. yellow

11. Why does a blue car appear to be blue in the sunlight?

- A. The car reflects all the colours of the visible spectrum.
- B. The car absorbs the colour blue and reflects colours other than blue.
- C. The car refracts the colour blue and reflects colours other than blue.
- D. The car reflects the colour blue and absorbs colours other than blue.

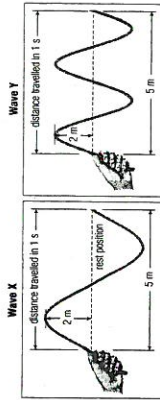
12. Why does the print on this page appear to be black?

- A. The print reflects all the colours.
- B. The print absorbs all the colours.
- C. The print is made up of all the primary colours.
- D. The print is made up of all the secondary colours.

8. Which of the following statements is true?

- A. The wavelength of a wave increases as the frequency increases.
- B. The wavelength of a wave increases as the frequency decreases.
- C. The wavelength of a wave decreases as the frequency decreases.
- D. The wavelength of a wave decreases as the frequency stays the same.

Use the following diagrams to answer questions 9 and 10.



9. Wave X has a higher frequency than Wave Y.

A. The statement is supported by the diagrams.

B. The statement is not supported by the diagrams.

C. You cannot tell by looking at the diagrams.

10. Which statement is correct?

- A. Amplitude and wavelength are the same for both waves.
- B. Amplitude is the same for both waves.
- C. Wavelength is the same for both waves.
- D. Neither amplitude nor wavelength is the same for both waves.