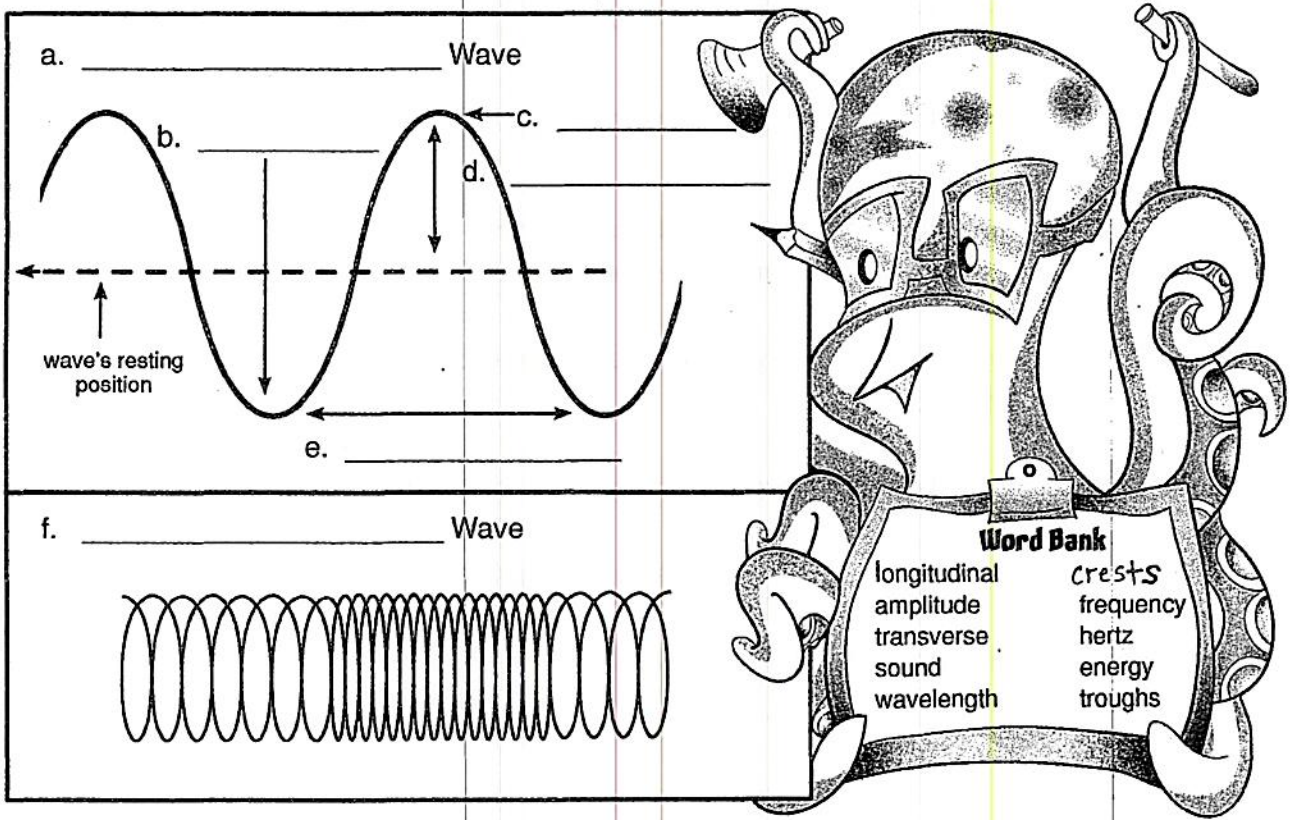
NAME _____ SOUND AND LIGHT

DATE _____ HOW WAVES WORK

Making Waves

Complete each sentence below with a word from the word bank. Then label each diagram.

1. E _ _ _ _ _ _ travels in waves.
2. Transverse waves move up and down in patterns that have high points called _ r _ _ _ _ _.
3. The low points of a transverse wave are called _ r _ u _ h _.
4. The distance between any two troughs or peaks is called the _ _ v _ _ _ n _ _ _ _.
5. The height of a peak or trough is called the a _ _ _ _ _ _ _ d _.
6. _ _ e _ _ e _ _ _ _ is the number of complete waves that pass by in one second.
7. Frequency is measured in _ _ _ t _ (which is written Hz).
8. L _ _ g _ _ _ _ d _ _ _ _ _ waves move by pushing forward and pulling back.
9. _ o _ _ _ waves are examples of longitudinal waves.
10. Waves on the surface of water are examples of t _ _ _ _ _ _ _ _ _ _ waves.



Name: _____ Date: _____ Period: _____

What Wave Are You On?

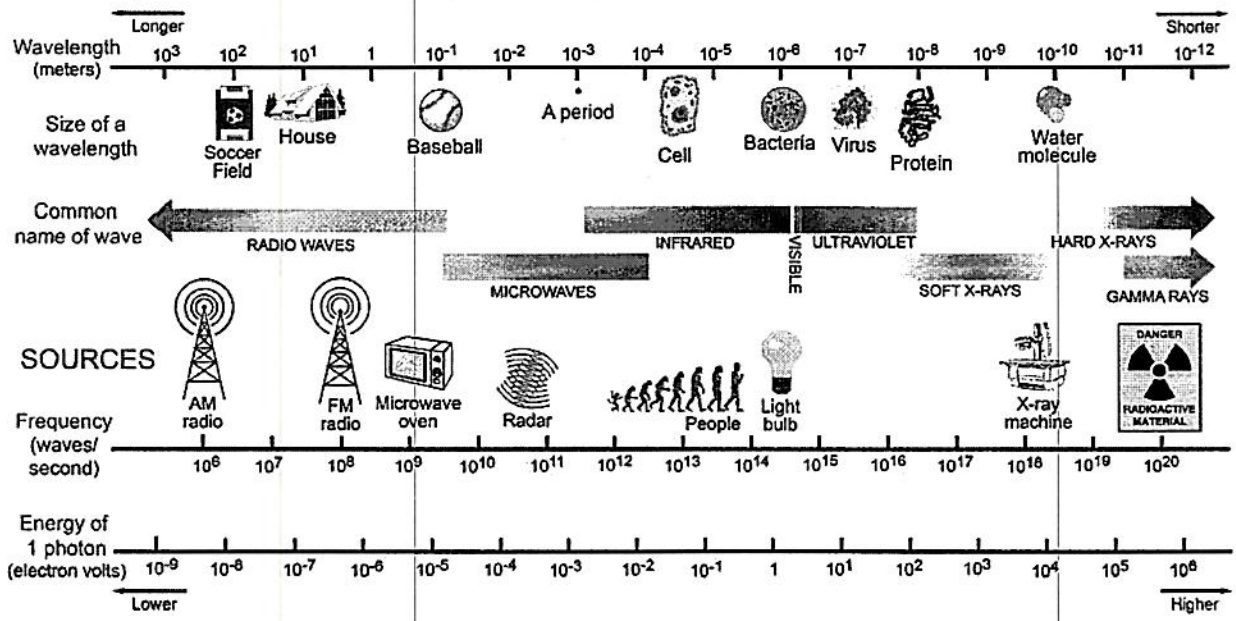
Energy waves are all around you, although the only type humans can see is visible light-as colors from red to violet. But light rays are merely a small part of the electromagnetic spectrum-the entire range of electromagnetic energy, from long radio waves to short gamma rays.

Electromagnetic energy travels through space or matter as waves. Electromagnetic waves are characterized by wavelength and frequency.

Wavelength is the distance between wave crests.

Frequency is the number of waves that pass a given point per second. Increasing wavelengths correspond to decreasing frequencies. For example, infrared radiation has a longer wavelength than ultraviolet light and, therefore, has a lower frequency.

This diagram shows the wavelength and frequencies of the entire electromagnetic spectrum.



Directions: Study the electromagnetic spectrum diagram above to answer the following questions.

1. What kind of electromagnetic radiation has the longest wavelength?

2. Some insects, like bees, can perceive light of shorter wavelength than humans can see. What kind of radiation do you think a bee sees?

3. Which form(s) of electromagnetic radiation has a wavelength less than the size of water molecules?

4. Which form(s) of electromagnetic radiation has a wavelength larger than a baseball?

5. Visible light has wavelengths about the size of what?

6. What is a source of visible light?

7. What type of radio waves has a frequency of 10^8 waves/second?