Item #: \_\_\_\_\_\_ Waves, Light, and Sound Review Name: \_\_\_\_\_\_\_

**READ (starting on page 211-Chapter 12)**

1. Waves are disturbances that transfer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. The material that a wave travels through is called a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Light can travel through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. The distance from crest to the next crest is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Draw the diagram that illustrates each:
   1. Reflection b. refraction c. diffraction
6. Identify the wavelength then draw an example:

**READ (beginning at “Start Here” –front page through “Kinds of Waves”)**

* 1. Describe the difference between a mechanical wave and electromagnetic wave:
  2. The distance between the resting point of the wave and the height of its motion is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  3. The \_\_\_\_\_\_\_\_\_\_\_\_ the amplitude, the more \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is carried by the wave.
  4. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the number of wavelengths per second.
  5. The higher the frequency, the \_\_\_\_\_\_\_\_\_\_ energy is carried by the wave.
  6. Frequency is measure in \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  7. What are the two types of waves? \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_
  8. Describe and sketch how each wave travels:

Longitudinal-

Transverse-

**READ (continue back to the reading passage: Sound—page 213)**

1. Sound cannot travel through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Sound is caused by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of particles.
3. The speed of light is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ than the speed of sound.
4. Sound travels fastest through \_\_\_\_\_\_\_\_\_\_\_\_\_ materials.
5. Sound travels faster when the temperature is \_\_\_\_\_\_\_\_\_\_\_\_\_.
6. Constant exposure to sounds of more than 90 dB can cause \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**READ- Properties of Sound (pg 313)**

* 1. The loudness of a wave is measured in \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  2. The greater the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the sound.
  3. The frequency of the wave determines the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  4. The average human ear can hear from \_\_\_\_\_\_\_ to \_\_\_\_\_\_\_\_ decibels.
  5. The \_\_\_\_\_\_\_\_\_\_\_\_\_ the frequency the \_\_\_\_\_\_\_\_\_\_\_\_\_ the pitch.
  6. The average human ear can hear from \_\_\_\_\_\_\_ to \_\_\_\_\_\_\_ hertz.

**READ (return to Electromagnetic Energy: page 214)**

1. Electromagnetic waves can travel through a medium or through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Each type of electromagnetic energy has a different \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. Cancer cells are destroyed by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. The only electromagnetic energy that we can see is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Ozone blocks out \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ rays.
6. Heat is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ radiation.
7. Name the energy given off:
   1. Warm kitten \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d. a TV antenna \_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Image of a broken arm \_\_\_\_\_\_\_\_\_ e. cooks food quickly \_\_\_\_\_\_\_\_\_
   3. Sunburn \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ f. the colors we see \_\_\_\_\_\_\_\_\_\_

**READ (next section)**

1. Light can travel through a medium like glass or though a \_\_\_\_\_\_\_\_\_\_\_\_.
2. We see objects because the objects \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light.
3. The bending of light is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. A light colored, smooth surface will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light more than a dark, rough surface.
5. A black shirt will tend to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light energy.
6. Clear glass will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ light.

Complete the multiple choice section.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | 2. | 3. | 4. | 5. | 6. | 7. | 8. | 9. |

**(Grab the Ear/Eye reading passage to complete the back)**

**Read**: The Ear

1. Sounds over \_\_\_\_\_\_ decibels can seriously damage your ears.
2. The three main portions of the ear include: \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ear.
3. Outer ear includes the pinna and the \_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_ which acts as a \_\_\_\_\_\_\_\_\_\_\_\_\_ to collect sound waves and send them to your \_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_.
4. After vibrations vibrate your ear drum, the ear drum then vibrates the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ear.
5. The three tiny bones are called: \_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_.
6. These bones are used to mover the sound waves and vibrations to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. The cochlea likes like a \_\_\_\_\_\_\_\_\_\_\_\_\_.
8. The cochlea contains \_\_\_\_\_\_\_\_\_\_\_ which moves thousands of tiny \_\_\_\_\_\_\_\_\_.
9. These hairs then create an \_\_\_\_\_\_\_\_\_\_\_\_ signal which is sent to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ nerve to the brain.

**Read the passage:** How your Eyes Work

1. Light waves must \_\_\_\_\_\_\_\_\_\_\_\_\_ from an object in order for us to see that object.
2. The cornea is the outer \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the eye which \_\_\_\_\_\_\_\_\_\_\_ the light waves (rays) that pass through.
3. The iris is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ portion of the eye and makes the \_\_\_\_\_\_\_\_\_\_\_ larger or smaller which regulates the \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that passes through.
4. After the pupil, light passes through the \_\_\_\_\_\_\_\_\_\_\_.
5. The lens bends the light onto the back of the eye called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. The retina contains millions of light-sensitive cells call \_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_.
7. Cones detect \_\_\_\_\_\_\_\_\_\_\_ and rods detect motion and helps us see in dim \_\_\_\_\_\_\_\_\_\_\_\_ and at \_\_\_\_\_\_\_\_\_\_\_\_.
8. The rods and cones convert light into \_\_\_\_\_\_\_\_\_\_\_\_\_ impulses.
9. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ nerve sends these impulses to the brain which produces an image.