**Catch a Wave Unit Study Guide Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Complete the following questions, using your notes. This is to prepare you for both the Catch a Wave Unit Test and Quarter 2 benchmark.**

**6. P.1.1 Compare the properties of waves to the wavelike property of energy in earthquakes, light, and sound.**

1. **\_\_\_\_\_\_\_\_\_\_\_\_\_ is transferred by waves. \_\_\_\_\_\_\_\_\_\_\_ is not transferred by waves.**
2. **Name, describe and label** the two types of mechanical waves. Include the following terms:

Compression, amplitude, crest, trough, wavelength, transverse wave, longitudinal wave, rarefaction, resting position.

1. Define frequency. How does this relate to waves?

1. Compare and contrast electromagnetic waves with mechanical waves.
2. Define an earthquake (in general; think about how it relates to energy and waves)
3. **Compare and contrast** longitudinal and transverse waves. Gives example of each.

**6.P.1.3 Explain the relationship among the rate of vibration, the medium through which vibrations travel, sound, and hearing.**

1. Sound is a form of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ produced by the vibration of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Describe, in general, the speed of sound through liquids, solids and gases.
3. You are a sound wave. Explain the pathway you take through the ear. Make sure to include all necessary vocabulary.
4. Describe how energy can affect frequency and amplitude of a wave.
5. Explain how amplitude and frequency compares to loudness and pitch of sound waves.

***6.P.1.2 - Explain the relationship among visible light, the electromagnetic spectrum and sight.***

1. **Explain the relationship between light and the electromagnetic spectrum.**
2. Which type of radiation in the electromagnetic spectrum is related to colors such as red, green, and blue?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Explain the relationship between wavelength and visible light.
4. Describe what happens when light enters the eye.

**6.P.3.2 - Explain the effects of electromagnetic waves on various materials to include absorption, scattering, and change in temperature.**

1. Explain what can occur when light strikes an object.
2. A light colored object and a dark colored object are placed in the sun. What happens to the temperature of the objects?
3. White light shines on an object. What color do we see?
4. Mr. Boayue is wearing a blue sweater. He stands on stage in the auditorium to give his reenactment of the play *Julius Caesar*. The lights shining on his sweater make it appear black. What CANNOT be the color of light shining on his sweater? Explain your reasoning.

**6:P:3:1 - Conduction, Convection and Radiation are methods of energy (heat) transfer.  Heat energy will travel in the direction of high to low temperatures.**

1. If you placed a hot stone in a beaker of cold water, what would happen to stone and water after 10 minutes?
2. As you are cooking, you place a pot on a hot stove. Describes how the energy is moving as it is being conducted?
3. As you are cooking dinner, you boil water on a stove. Describe convection in this scenario.
4. Heating your lunch in the microwave is an example of which type of energy transfer?

**6.P.3.3 – Matter can expand and contract based on exposure to or removal from heat. Materials are chosen based on their response to heat and electrical energy.**

1. Copper is commonly used as a material in electrical wiring. Explain why.
2. Explain why cooking utensils are often made with a rubber or plastic handle?
3. Why are metals used for making pots and pans that are used for cooking? Explain your reasoning.