**Light and Sound Treasure Hunt**

Use the links below to help you complete this webquest. Record you answers on the worksheet below.

Answer Questions 1,2,3,and 4.

<http://mathxscience.com/wave_travel.html>

<http://zonalandeducation.com/mstm/physics/waves/partsOfAWave/waveParts.htm>

**1st ACTIVITY**:  Experiment with the waves **frequency** and **amplitude**.  Observe what happens to the **wavelength** with each change you make.  Include your observations in your answer to *question 5*.

<http://www.classzone.com/books/ml_science_share/vis_sim/wslm05_pg18_graph/wslm05_pg18_graph.html>

Answer questions 6,7,and 8.

<http://www.schoolphysics.co.uk/age11-14/Sound/text/Sound_waves/index.html>&

Use the pictures at the bottom of the page to answer question 9. <http://science.hq.nasa.gov/kids/imagers/ems/waves3.html>

**2nd ACTIVITY**:  Slide the red switch to change the transparent material.  Use the different speeds to answer *questions 10, 11, and 12*.

<http://micro.magnet.fsu.edu/primer/java/speedoflight/index.html>

**3rd ACTIVITY:**  Use the wavelength to select your favorite color.  Then, change just the amplitude of each wave. Use your observations to answer *question 13*.

<http://micro.magnet.fsu.edu/primer/java/scienceopticsu/interference/waveinteractions/index.html>

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sound and Light Treasure Hunt

!. What is a wave? (Give a Scientific definition and then put it into your own words.)

 Scientific Definition –

 Your Definition –

2. Fill each box with a sentence.

|  |  |  |
| --- | --- | --- |
|  | Transverse Waves | Longitudinal Waves |
| They are the same because |  |  |
| They are different because  |  |  |

3. Define the following terms:

 a. Crest-

 b. Trough –

 c. Amplitude –

 d. Wavelength -

 e. Frequency –

4. What does the abbreviation Hz stand for

5. Write three sentences about what you see when you change the variables

**Part 2: Sound**

6. What is pitch?

7. Draw a wave with a high pitch and one with a low pitch.

8. Observe the graphs on the webpage. What is the difference between a pleasant sound and a noise?

**Part 3: Light**

9.) List the seven types of electromagnetic waves from largest to smallest freguency:

10. What is the speed of light through these different materials? (in miles per second)

Air -

Water –

Crown Glass –

Diamond -

11. What material does light move through the fastest? Why do you think light can move through it the quickest? (Be sure to use the term molecules in your explanation.)

12. List green, blue, and red light in order of their wavelengths from shortest to longest:

13. What effect does amplitude have on color?

14. Write a short reflection (at least one paragraph) about your experience on this web quest. Write it on the back of this page. Be sure to include **TWO THINGS YOU LEARNED** and **TWO THINGS YOU STILL HAVE QUESTIONS ABOUT.**