Item #: _____ Wave WebQuest Name:_____

Class Demo

1) In what direction did the slinky move in Demo #1 as the wave moved from one end to the other?

2) A dictionary definition of transverse is "in a crosswise direction." Another definition is "at right angles (perpendicular) to the long axis." Why is transverse a good name for the wave from Demo #1?

3) In what direction did the coils of the spring move (Demo #2) as the wave moved from end of the coiled spring to the other?

4) A dictionary definition of compressional is "state of being compressed." A dictionary definition of longitudinal is "placed or running lengthwise." Explain why compressional or longitudinal wave is a suitable name for the type of wave in Demo #2.

Class Web Activity (using PBS Media Learning Media Waves)

1. Describe a wave.

2. What is a medium?

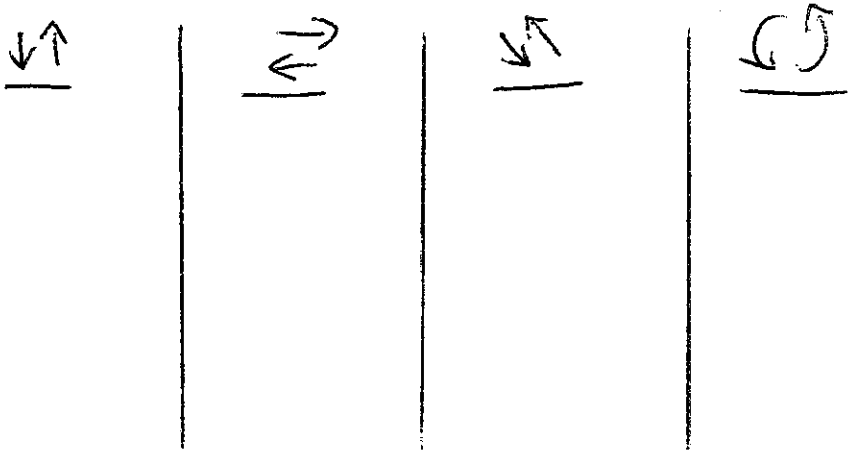
3. Using complete sentences, describe two similarities between the two waves.

4. Describe a difference between these two examples of waves.

5. Knowing what you know so far (with class demos/discussions), what type of wave is being demonstrated in these examples?

Read the two paragraphs on the left side. Explore the different wave controls and the density of the mediums.

6. Record your observations below as you adjust the different variables.



Procedure:

1) Log-in to your Chromebook and go to the internet.
2) Follow the instructions for each section/webpage and answer the questions accordingly.

Two Types of Mechanical Waves

1) Return to the search bar, type: ACS PSU Wave Motion.
2) Click the link that says: "Longitudinal and Transverse Wave Motion" (should be first link again)
3) Read the top paragraph on the page.

Answer the following questions:

7. Describe a mechanical wave (use your OWN words/paraphrase/summarize):

8. How do longitudinal waves differ from transverse waves?

9. Illustrate and label a transverse wave and a longitudinal wave.

10. Notice the particles in each wave. Try to pick ONE particle to watch. Does the particle within the wave "switch spots" with other particles or did the particle stay in the same location (meaning moves but moves back to its original location?) What do you think this represents? (think of energy vs matter)

Parts of a Wave

1) Return to the search bar, type: Parts of a Wave Middle School
2) Click the first link: "Middle School Science Help: Krystal Cortez: PARTS of WAVES"
3) Read the introduction Paragraph.

Answer the following questions:

11. Sketch a transverse wave. Label the crest, trough, wavelength, amplitude and resting point.

12. Describe in your OWN words (does not have to be complete sentences) different parts of a transverse wave:

Crest Trough Wavelength Amplitude Resting Point

13. Sketch a longitudinal wave. Label the compression, rarefaction, and wavelength.

14. Describe in your OWN words: compression, rarefaction, and wavelength in a longitudinal wave.

Compression Rarefaction Wavelength

Frequency and Amplitude in a Transverse Wave

1) Return to the search bar, type: Classzone Frequency
2) Click on the first link: "Frequency and Amplitude-Classzone"
3) Experiment with the wave's frequency and amplitude.

To answer the following questions, please set the **amplitude to the least amount** and just change the frequency.

15. Observing the wave's different frequencies, what relationship does a wave's frequency and its wavelength have? Describe. (Can use pictures/sketches to help explain your answer)

16. How can you define the term "frequency" by using this demonstration?