CATCH A WAVE UNIT STUDY GUIDE

PART 1: Use the two waves below to answer questions 1 – 6.

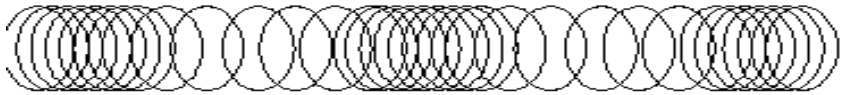
WAVE A

WAVE B

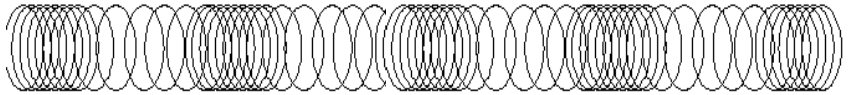
1. Label a crest on Wave A
2. Label a Trough on Wave B
3. Using a ruler to measure in CM, what is the wavelength of Wave A?
4. Using a ruler to measure in CM, What is the Amplitude of Wave B?
5. Which wave has a higher frequency? Does this wave have more or less energy?
6. What is the relationship between wavelength and frequency?

PART 2: Use the waves below to answer questions 7 – 11.

WAVE A



WAVE B



7. Label the compressions on Wave A
8. Label the rarefactions on Wave B
9. Using a ruler to measure in cm, what is the wavelength of each wave?
10. Describe the direction in which energy is traveling in this type of wave

PART 3: Sound & The Ear

12. Write a scientific definition of sound.
13. Which 3 variables have an affect on the speed of sound? Explain HOW they change the speed of sound.
14. Why are space explosions as portrayed in movies scientifically inaccurate?
15. When you're at a sporting event, you can often see fans on the opposite side of the field cheering before you hear their cheers. Explain why this happens.
16. What 2 factors determine how loud a sound is?
17. Describe the difference between loudness and pitch.
18. Where in the pathway of sound are vibrations translated into understandable noises or sounds?
19. What is the function of the pinna?
20. Describe the pathway of sound through the ear.

PART 4: Light & The Eye

21. What is a prism and how does it work?

22. Where can you find prisms in nature, and how do they act like prisms?

23. Describe refraction and how it causes light to behave differently in different substances.

24. What is the difference between translucent, transparent, and opaque materials? Give one example of each.

25. Describe the pathway of light through the eye.

26. Give a synonym for each of the following words:

    a. Reflect _____

    b. Refract _____

    c. Diffuse Reflection _____

PART 5: The Electromagnetic Spectrum

27. What is the electromagnetic spectrum?

28. How is the electromagnetic spectrum organized?

29. What is the type of light energy we can see called?

30. Why do different colors of visible light exist?

31. Draw and label a picture of the electromagnetic spectrum, ranging from greatest wavelength to least wavelength.

PART 6: Reflection

In parts 1-5, review the questions and circle or highlight the most difficult or confusing question for you.

In the space below, write any questions you still have, or concepts that you would like to spend extra time reviewing.