

**Waves Webquest**

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**Site 1: Characteristics of Waves** [http://mathxscience.com/wave\\_travel.html](http://mathxscience.com/wave_travel.html)

1. What is a wave?
2. Fill in each box below with a sentence.

	Transverse Waves	Longitudinal (Compressional) Waves
Are the same because...		
Are different because....		

**Site 2: Wave Parts:** <http://zonalandeducation.com/mstm/physics/waves/partsOfAWave/waveParts.htm>

3. What is the motion of a wave described as?
4. How are waves on a string and waves of people similar and/or different?
5. Define the following terms:
  - a. Crest:
  - b. Trough:
  - c. Amplitude:
  - d. Wavelength:
  - e. Frequency:

4. What does the abbreviation Hz mean?

**Site 3: The Boat:**

[http://www.classzone.com/books/ml\\_science\\_share/vis\\_sim/wslm05\\_pg18\\_graph/wslm05\\_pg18\\_graph.html](http://www.classzone.com/books/ml_science_share/vis_sim/wslm05_pg18_graph/wslm05_pg18_graph.html)

Experiment with the waves frequency and amplitude. Observe what happens to the wavelength with each change you make. Include your observations in your answer.

5. Write 3 sentences about what you see happening when you change the variables.

**Site 4: Sound Waves:** <http://www.school-for-champions.com/science/sound.htm#.WgIoVYWcE5s>

6. What are sound waves?

7. What do sound waves move or travel through?

8. Sound waves are created by \_\_\_\_\_?

9. What are the characteristics of sound?

10. Describe the Frequency of sound.

**Site 5: Mechanical Waves** <http://www.proprofs.com/quiz-school/quizshow.php?title=mechanical-waves&q=1>

11. Take the quiz, and see how smart you are. Check out the animations!

12. Mechanical wave's require\_\_\_\_\_.

13. What is an example of a mechanical wave?

14. A mechanical wave transmits energy through a vacuum. True or False?

15. What is the #1 difference between mechanical and electromagnetic waves?

**Site 6: EM Spectrum** – NASA [https://science.nasa.gov/ems/01\\_intro](https://science.nasa.gov/ems/01_intro)

16. How does Electromagnetic Energy Travel?

17. What is the Electromagnetic Spectrum? (the second tab "Anatomy of EM waves" will also help you)

18. What is the source of energy across the entire Spectrum?

19. Why and how does our atmosphere protect us from the Spectrum?

*Click on Anatomy of a Wave*

20. How are Electromagnetic waves different from all other waves (mechanical waves)? (Hint: there is something they do not need)

21. After looking at the diagrams on this page, Electromagnetic waves are formed by the vibrations of \_\_\_\_\_ and \_\_\_\_\_ fields.

*Click on Wave Behaviors*

Complete the chart on your answer sheet for the different behaviors of waves. Write down ALL important information for each behavior. Sketch a picture of each wave behavior.

Type of Behavior	Reflection	Absorption	Diffraction	Scatter	Refraction
Description of Behavior					

**Click on Radio Waves**

Complete the chart by filling out the information for each type of wave. (For the frequency, you do not need an exact amount...show how frequency changes throughout the spectrum)

<u>Type of EM Wave</u>	<u>Frequency</u>	<u>Description</u>	<u>Examples (More than 1!)</u>
Radio			
Microwave			
Infrared			
Visible Light			
Ultra Violet (UV)			
X-rays			
Gamma Rays			

**Site 6: Explain that Stuff** - <http://www.explainthatstuff.com/sound.html>

22. Who was the first person to understand that sound needed a medium to travel? \_\_\_\_\_

23. Describe the experiment he did to discover that.

24. What is the difference between compressions and rarefactions?

25. What is a whispering gallery?

26. What are two famous examples of whispering galleries?

27. The loudness of sound is based on a wave's \_\_\_\_\_ and its pitch is based on a wave's \_\_\_\_\_.

28. What is the speed of sound in air?

29. What is a sonic boom?

