

Topic One: What are Waves?

WebQuest Steps

A) Click [here](#), then read the information on each page, analyze the animations of waves and answer the questions to the right on your answer sheet (Q1-Q6)

B) View the first 2 animations [here](#) and answer Q7.

C) Explore the website [here](#) and then complete A8-Q11.

Questions & Activities for Answer Sheet

Introduction page:

Q1: What is the motion of a wave described as?

Q2: How are waves on a string and waves of people different?

Demonstration page:

Q3: Waves can carry energy through _____, _____ and _____.

Q4: What is a **medium** and why do waves travel through them?

Q5: After completing the demonstration on this page: How does density relate to waves?

Water Waves page:

Q6: Watch the water waves animation and then explain the motion of a water wave.

Q7: What are the types of waves in these first two animations and how are their motions different?

A8: Sketch a diagram of a **transverse wave**. Be sure to label the crest, trough, positive amplitude, negative amplitude, and wavelength.

Q9: What does the straight line in a transverse wave represent?

Q10: What is **frequency** and what **unit** is it measured in?

Q11: On the website, try adjusting the frequency on the animation. Then explain how **frequency** and **wavelength** are related.

Topic Two: Electromagnetic Spectrum

D) Read NASA's Introduction to the Electromagnetic Spectrum [here](#) and answer the questions.

Q12: How does Electromagnetic Energy Travel?

Q13: What is the Electromagnetic Spectrum?

Q14: What is the source of energy across the entire Spectrum?

Q15: Why and how does our atmosphere protect us from the Spectrum?

E) Visit [here](#) and answer the questions.

Q16: How are Electromagnetic waves different from all other waves (mechanical waves)?

(Hint: there is something they do not need)

Q17: After looking at the diagrams on this page, Electromagnetic waves are formed by the vibrations of _____ and _____ fields.

F) Go to the page [here](#) and complete A18.

A18: Complete the chart on your answer sheet for the different behaviors of waves. Write down ALL important information for each behavior. See my example for reflection on your Answer Sheet.

G) Go to this NASA page [here](#) on radio waves. Then click on each of the pages below the Radio Waves page (on the right bar of the website) as you complete A19.

A19: Complete the chart by filling out the information for each type of wave.

Q20: After going [here](#), describe the Earth's Energy Budget.

H) Read the comic attached below:



comic.pdf

[Download File](#)

Q21: **Just read it, it's a good study tool.**

Quiz:

Take the online Quiz found [here](#) and record your answers on your Answer Sheet. All of the information for the answers can be found in this WebQuest.

Extra Practice Activities:

1. <http://zonalandeducation.com/mstm/physics/waves/waves.html>
2. http://www.iknowthat.com/ScienceIllustrations/sound/science_desk.swf
3. <http://www.quia.com/rr/264064.html>
4. http://www.quia.com/cm/70720.html?AP_rand=1601897449
5. <http://www.physicsclassroom.com/reviews/waves/wavesprint.cfm> (answers are linked at the bottom)
6. http://earthguide.ucsd.edu/eoc/special_topics/teach/sp_climate_change/p_emspectrum_interactive.html