

Name: _____

Electromagnetic Spectrum Computer Lab

Objective: Recognize that light acts as a wave. Show that visible light is part of the electromagnetic spectrum.

Directions: Go to the website and answer the corresponding questions.

Go <http://amazing-space.stsci.edu/>

Click on online explorations

Then click on "Star light, Star Bright"

Click on Catch the Waves and begin

1. Click on the activate button and see what happens. What happens when the light goes through the prism?
2. Click on the next button in the upper right hand corner. Throwing a rock into the pond generates what?
3. What does plucking the strings of a guitar do?
4. Each color of the rainbow has a different what?
5. Click the next button in the upper right hand corner. Click on the waves of the spectrum to answer the following questions. What is the range in size of radio waves?
6. How does a microwave oven work?
7. What beams infrared light to change the channel of your tv?
8. How thick are 50 visible light waves arranged end to end?

9. Why should you use sunscreen?
10. What do doctors use x-rays for?
11. What are the most energetic wavelengths of light? How much do scientists know about these wavelengths?
12. Click on the next button. Click on the different suns to see what each one looks like. What does the sun in radio light look like?
13. What does the sun in infrared light look like?
14. What does the sun in visible light look like?
15. What does the sun in UV light look like?
16. What does the sun in extreme UV light look like?
17. What does the sun look like in soft x-rays?

Go to: <http://science.hq.nasa.gov/kids/imagers/ems/index.html>

1. Scroll down to the bottom of the page Under the spectrum. Click on Radio Waves. What kind of waves have the longest wavelengths in the electromagnetic spectrum?
2. If you have cable, how do you get the broadcast from the tv stations?
3. How long are the wavelengths of some stars and galaxies when they emit light?

Scroll down to the bottom of the page click on **[Next Shorter Wavelength]**

4. Microwaves have wavelengths that can be measured in what?
5. Cosmic Microwave background radiation is said to be a clue to the beginning of the Earth according to what theory?

Scroll down to the bottom of the page and click on **[Next Shorter Wavelength]**

6. We experience infrared waves every day in the form of what?

7. (Circle one) Longer or shorter waves are used by your tv remote.

8. Can humans see infrared light? Is there any animal that can see infrared light?

Scroll down to the bottom of the page and click on **[Next Shorter Wavelength]**

9. Name the colors of the rainbow in order from largest to shortest wavelength.

10. What are the things in our eyes called that are receivers of the tiny light waves?

11. What are the two types of color images that can be made from satellite data?

Scroll down to the bottom of the page and click on **[Next Shorter Wavelength]**

12. Can human's see ultra violet light? What kind of organisms can see ultra violet light?

13. What kind of waves are responsible for sunburns?

Scroll down to the bottom of the page and click on **[Next Shorter Wavelength]**

14. Do X-rays have higher or lower energy than UV rays?

15. Who was the guy who first observed and documented X-rays in 1895?

Scroll down to the bottom of the page and click on **[Next Shorter Wavelength]**

16. Gamma rays are used in medicine to do what?

17. What kind of rays have the most energy?

Next go to the website <http://home.clara.net/darvill/emag/index.htm>

Click on "How the Waves fit into the Spectrum" on the left side of the page

18. Which wavelength has the highest frequency? Which one has the longest wavelength?

Click on "Radio Waves" on the left side of the page

19. What does UHF and VHF stand for?

20. What is said to a harmful effect of large doses of radio waves?

Click on "Microwaves" on the left side of the page

21. Name three uses of microwaves.

Click on "Infrared" on the left side of the page

22. Name a use of an infrared light.

Click on "Visible Light" on the left side of the page

23. What part of the eye may be damaged when looking at very bright light for a long time?

Click on "Ultraviolet" on the left side of the page

24. What do large doses of UV light cause?

Click on "X-rays" on the left side of the page

25. Why do radiographers in hospital wear lead vests when giving someone an X-ray.

Click on "Gamma Rays" on the left side of the page

26. Name some of the uses of Gamma Rays.

27. Name some of the dangers of Gamma Rays.