

Name: _____

Electromagnetic Spectrum

This website is designed to help you gain a better understanding of physics. You need to complete the series of activities outlined below and answer any questions on this sheet. Have fun!

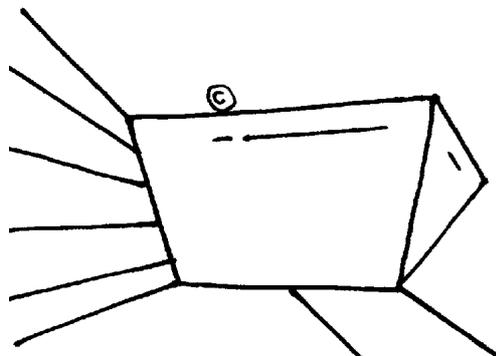
Go to the website: <http://science.hq.nasa.gov/kids/imagers/> or if this fails to load go to www.ask.com and in the question toolbox type "imagers NASA" and select the 1st website from the list generated for you. The website homepage should look like the picture below.



Click on the TV at the bottom that says "EM Spectrum & You"

Q1. What is the electromagnetic spectrum? _____

Activity: use the information on the page to colour the following diagram



Click on the link under the picture of the wave

Q2. What are the three types of waves that are discussed? _____

Scroll down and click on "What are electromagnetic waves?" Complete the following sentence:

Q3. Electricity can be _____, like what holds a _____ to the wall or makes your hair stand on end. Magnetism can also be _____ like a refrigerator magnet. But when they change or move together, they make waves - _____.

Q4. When are electromagnetic waves formed? _____

Q5. Name one scientist who studied how electromagnetic waves are formed and how fast they travel _____.

Scroll down and click on "Different kinds of electromagnetic waves have different wavelengths."

Q6. What is wavelength? _____

(Draw a diagram to help explain what wavelength is)

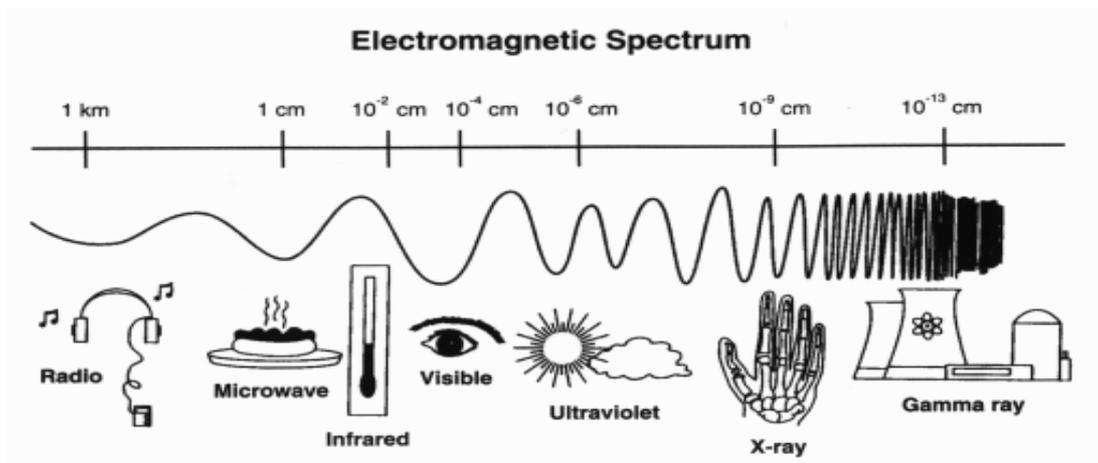
Q7. What is the name of the largest waves in the electromagnetic spectrum? _____

Q8. What is the name of the smallest waves in the electromagnetic spectrum? _____



Q9. What are two other ways that electromagnetic waves can be described? _____

Activity : Use the diagram on your screen to add extra information to this chart



Scroll down and select "Radio Waves"

Q10. Radio waves do more than just bring music to your radio. What else do they do? _____

Q11. The antenna on your television set receives what type of signal? _____

Why are car antennae about the same size as TV antennae? _____

Why are antennae on cell phones smaller than antennae on your radio? _____

Q12. What are radio telescopes? _____

Q13. How do radio astronomers make clearer radio images? _____

Scroll down and click on "return to the electromagnetic spectrum"

Select "microwaves"

Q14. Microwave wavelengths can be measured in what? _____

Q15. Name three things that microwave energy can penetrate. _____

Scroll down and select "RETURN TO THE ELECTROMAGNETIC SPECTRUM"

Select "Infrared"

Q16. What is near infrared light? _____

Q17. What size are the near infrared wavelengths? _____

Q18. What is far infrared light? _____

Q19. What size are the far infrared wavelengths? _____

Q20. Where are special lamps that emit thermal infrared waves used? _____

Q21. How can we "see" using the Infrared? _____

Q22. Can humans see infrared light? _____

Q23. Many things besides people and animals emit infrared light. Name 3 things. _____

Scroll down and select "Return to the Electromagnetic Spectrum"

Select "Visible Light"

Q24. We see electromagnetic waves as the colours of the rainbow. Which colour has the shortest wavelength? _____

Q25. Which colour has the longest wavelength? _____

Q26. Complete the following sentence.

The Sun is a _____ source for visible light waves and our eyes see the _____ of this sunlight off the objects around us. The _____ of an object that we see is the _____ of light _____. All other colours are _____.

Scroll down and select "Return to the Electromagnetic Spectrum"

Select "Ultraviolet"

Q27. Name one animal that is able to see Ultraviolet (UV) light. _____

Q28. What type of electromagnetic wave is responsible for causing our sunburns? _____

Scroll down and select "Return to the Electromagnetic Spectrum"

Select "X-rays"

Q29. What is the main difference between X-rays and ultraviolet waves? _____

Q30. When were X-rays were first observed and documented? _____

Q31. Why is this photo so important? _____



Q32. Complete the following sentence:

Because your bones and teeth are _____ and _____

X-rays then your _____ does, silhouettes of your bones or

teeth are left on the X-ray film while your _____ appears _____

Q33 In astronomy, name one thing that emits x-rays _____.

Scroll down and select "Return to the Electromagnetic Spectrum"

Select "Gamma rays"

Q34. How are gamma-rays generated? _____

Q35. How does medicine use gamma-rays to their advantage? _____

Q36. Gamma-ray bursts can release more energy in 10 seconds than what? _____

END OF WEBQUEST