Name: _____ Date: _____ Period: _____

Electromagnetic Spectrum Webquest

Go to the following website and answer the questions that follow: **http://tinyurl.com/EMRadiation**

1. What are some examples of electromagnetic waves?

2. How do these examples differ from each other?

3. What produces electromagnetic waves?

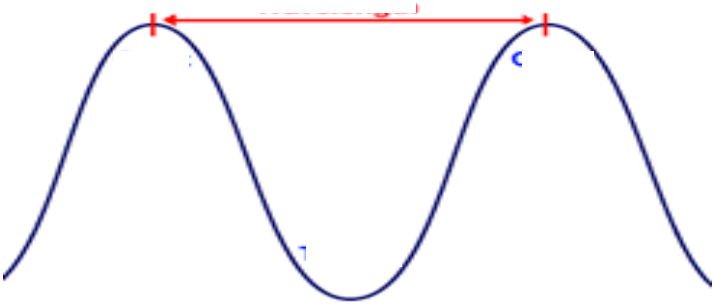
4. Why are these waves also called "electromagnetic radiation?

5. Why does electromagnetic radiation have a "dual personality"?

6. What are the particles of electromagnetic radiation called?

7. Which of these particles have the highest energy?

*Go to the following website and answer the questions that follow:***http://tinyurl.com/PartsOfAWave**



8. What is a crest? What is a trough? Label these on the wave shown above.

9. What is amplitude? Label this on the wave shown above.

10. What is wavelength? Label this on the wave shown above.

11. What is frequency?

12. How is frequency usually described?

13. In what unit is frequency usually stated, and what is the abbreviation for this unit?

Go to the following website and answer the questions that follow: **http://tinyurl.com/WavelengthFrequency**

14. At what speed do electromagnetic waves travel?

15. How are frequency and wavelength related?

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Electromagnetic Spectrum Webquest

Go to the following website and answer the questions that follow: **http://tinyurl.com/PBSSpectrum**

16. What generates electromagnetic radiation?

17. What carries electromagnetic radiation?

18. How fast do these particles travel?

19. How are these particles characterized and how are these characteristics defined?

Click on "Begin the Tour" and answer the questions below.

20. How is the field generated in a radio antenna?

21. How fast does the field radiate out?

22. How is the radio portion of the spectrum divided?

Click "Next: Microwave"

23. What are the uses for microwave?

24. Why did creating microwaves pose a challenge to engineers during the 1930s?

25. How do microwave ovens heat food?

26. What wavelengths do stars emit?

27. How are we able to see pictures of the stellar objects that are in wavelengths other than visual?

Click "Next: Infrared"

28. What is infrared radiation also called?

29. Do all objects give off infrared radiation, and where does this radiation come from?

30. How is the amount of infrared radiation an object emits related to the objects temperature?

31. What happens if an object, like a radiator, continues to heat up?

32. What can you clearly make out when you look at the constellation Orion in infrared?

Click "Next: Light"

33. How much of the electromagnetic spectrum is visible light?

34. How long is the wavelength of visible light?

35. What happens when atoms gain energy then lose it again?

36. Earth's atmosphere is transparent to what parts of the spectrum?

Click "Next: Ultraviolet"

37. What is a good source of ultraviolet light?

38. What can ultraviolet light be used for?

39. Can humans see ultraviolet? What can?

40. Why do we study the Sun in the ultraviolet spectrum?

Click "Next: X-rays"

41. Who discovered X-rays, and why did he name them like he did?

42. What is a good source of x-ray radiation?

Click "Next: Gamma Rays"

43. How are gamma rays are created throughout the universe?

44. What are some uses for gama rays?

45. Why are there not many images of astronomical objects in gamma wavelengths?

46. How long did it take to create a gamma-ray image of the entire sky as seen from earth?