

Name: _____ Section: _____
Electromagnetic Spectrum & Light - Webquest

[Electromagnetic Spectrum](http://imagine.gsfc.nasa.gov/docs/science/known1/emspectrum.html) (<http://imagine.gsfc.nasa.gov/docs/science/known1/emspectrum.html>)

Click on the link above and answer the following questions:

1. What is the electromagnetic spectrum?

2. What is radiation?

3. While at the website (<http://imagine.gsfc.nasa.gov/docs/dictionary.html>), roll the mouse over each of the following words and write what comes up in the box to describe each.
 - a. [visible light](#)

 - b. [microwaves](#)

 - c. [gamma-rays](#)

 - d. [infrared](#)

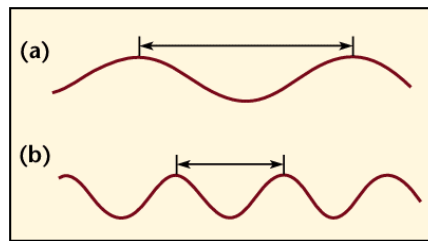
 - e. [ultraviolet light](#)

 - f. [X-rays](#)

 - g. [radio waves](#)

4. What is the order of the electromagnetic spectrum from **highest to lowest energy**?

Use the visual below to answer question 5.



(a) Longer wavelength; (b) shorter wavelength

5. Which has more energy, A or B? Explain your reasoning.
6. Define a wavelength.
7. What is a frequency of a wavelength?
8. For **visible light** (ROYGBIV), which has the shortest wavelength? Which has the longest? Place all the other colors in order based on their wavelength from shortest to longest.

[Electromagnetic Spectrum](http://www.ibl.gov/MicroWorlds/ALSTool/EMSpec/EMSpec2.html) (<http://www.ibl.gov/MicroWorlds/ALSTool/EMSpec/EMSpec2.html>)

9. Click on the link above and answer the following questions:

- a. What kind of electromagnetic radiation has the shortest wavelength? The longest?

- b. What kind of electromagnetic radiation could be used to "see" molecules? A cold virus? Explain your reasoning.

- c. Why can't you use visible light to "see" molecules?

- d. Some insects, like bees, can see light of shorter wavelengths than humans can see. What kind of radiation do you think a bee sees? Explain your reasoning.

[Behaviour of Light](http://camillasenior.homestead.com/optics3.html) (<http://camillasenior.homestead.com/optics3.html>)

10. Click on the link above and answer the following questions:

- a. What is reflection?

- b. Draw a picture of an angle of incident equaling an angle of reflection.

- c. Explain the difference in how light will act on a smooth versus rough surface.

- d. Define refraction.

- e. Using proper terms, explain what is happening to the spoon in the cup as well as the water in the pot.

- f. Click the page forward to see the different lenses as well as how the eye perceives images. Explain the difference between concave and convex lenses. Draw a picture of each and how the light hits it.