**Electromagnetic Spectrum and Visible Light Study Guide - 2017**

**A proficient student will be able to explain how the electromagnetic spectrum is organized and describe the types of electromagnetic waves that make up the spectrum.**

1. Define the following : electromagnetic spectrum
2. Describe the different types of electromagnetic waves in the electromagnetic spectrum, in order, from shortest wavelength to longest wavelength. Be sure to include examples of how each type of electromagnetic wave is used.
3. How are energy and the different types of electromagnetic waves related?
4. What kind of waves do not require a medium to travel through?
5. What kinds of electromagnetic waves are invisible to us? What kinds are visible to us?
6. How does the color of an object affect the amount of energy it receives from sunlight?

**A proficient student will be able to explain the relationship between visible light and sight.**

1. Define the following light vocabulary: absorption, reflection, refraction, visible light, scatter, transmit, opaque, translucent, transparent, prism, white light
2. Describe the order light travels in order for us to see (hint: it starts at the light source)
3. Give examples of opaque, translucent and transparent objects.
4. Why does a red shirt look red to us?
5. What types of waves are visible light waves?
6. What does a prism do?
7. How does the speed of light compare to the speed of sound?
8. How do the types of matter a medium is made of affect the speed of light?
9. How are colors and wavelengths related? Name the colors in order, from shortest wavelength to longest wavelength.
10. Why does a pencil in a glass of water appear to be bent or broken?
11. What is the absence of color?
12. What is the combination of all the colors?
13. Give examples of opaque, translucent and transparent objects.
14. What is the acronym for the colors of visible light
15. Why do light waves get refracted?
16. What process forms an image in a mirror?
17. Explain how we see, being sure to mention: cornea, iris, pupil, lens, retina, optic nerve,
18. What do rods and cones in our eyes do?