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**EMS/ Light – Study Guide**

**Directions**: Use multiple resources (flexbooks, learning module, science website, etc.) to complete the graphic organizer on light and the electromagnetic spectrum.

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| **Electromagnetic Spectrum:**  Draw and label the electromagnetic spectrum.  http://hubblesite.org/reference_desk/faq/data/70/graphics/qa_emchart.gif  ***\*Sometimes images of the EMS will be in the reverse order*** | **Visible Light:**  What colors are included in visible light (use acronym to help)?  ***R-O-Y-G-B-I-V***  Draw a diagram to show what colors have the largest and smallest wavelength? |
| **Absorption:**  What is absorption?  ***Matter can capture electromagnetic radiation and convert the energy of a photon to internal energy*** | **Scattering:**  What is scattering?  ***When a beam of*light*is redirected in many different directions when it interacts with a particle of matter.*** |
| **What medium does light travel through fastest?**  Light travels the fastest in a ***vacuum***  Light travels slower in ***solids, liquids, and gas***.  Light travels ***faster*** than sound. | **Refraction:**  What is light refraction?  ***When light moves from one substance to another it changes speed and direction***  What happens when white light is refracted?  ***You can see the light spectrum (rainbow) because each color travels at a different speed.*** |
| **Transparent, Translucent and Opaque:**  What is transparent? ***Allow light to pass through easily***  What is translucent? ***Allows light to pass through, but you can’t see the objects behind it clearly.***  What is opaque? ***Allows no light to pass through it.*** | **Why does an object appear black, white, or green?**   * **Black**: All colors from light are ***absorbed*** and no light is reflected. * **White**: All colors from light are ***reflected*** * **Green**: All colors from light are absorbed but only ***green*** is reflected back to your eyes. |