Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Block:\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Unit 13: Light Study Guide**

1. How is a light wave produced?
2. Sketch the electromagnetic spectrum include all 7 regions in order from low frequency to high frequency.
3. Give an application of each region of the electromagnetic spectrum.
4. What is the speed of light in a vacuum?
5. Why does light travel slower through glass than it does through a vacuum?
6. Does light speed up or slow down when it leaves water into the air?
7. Draw a light ray as it passes from air into a piece of glass and back into the air again.
8. What causes the total internal reflection of light as it travels from water to the air?
9. Why is glass transparent for visible light, but opaque for infrared and ultraviolet light?
10. Which color of light travels slowest through transparent materials? which travels fastest?
11. How is white light separated into the various colors of the rainbow by a prism?
12. What are the primary colors of light? What are the primary colors of pigment?
13. What is a complementary color?
14. What color results from the combination of magenta and green light? blue and green light? red, blue and green light?
15. What color results from the combination of yellow and cyan paint? cyan and magenta paint? yellow, magenta, and cyan paint?
16. What color results when a yellow light shines on cyan paper? red light on a green leaf? blue light on magenta handkerchief?
17. Why is it that you can see a faint blue spot after staring at the sun?
18. What part of the human eye absorbs light and sends signals to the brain?
19. What is the purpose of cones and rods on your retina?
20. Why the sky is blue? Why are sunsets red?
21. Why does water look greenish-blue?
22. What do polarized lenses in sunglasses primarily reduce?

**Key Terms Unit 13 Light**

Use your notes or look up the definition of the following key terms for this unit. Include any variables if applicable.

|  |  |  |
| --- | --- | --- |
| **Key Term** | **Definition** | **Memory Clue** |
| Electromagnetic Radiation |  |  |
| Electromagnetic Spectrum |  |  |
| Photon |  |  |
| Opaque |  |  |
| Translucent |  |  |
| Transparent |  |  |
| Light |  |  |
| Pigment |  |  |
| Polarization (light) |  |  |
| Reflection |  |  |
| Refraction |  |  |