**Science 8 – Unit 2 - Optics Study Guide**  Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block: \_\_\_\_\_\_\_

1. What is the difference between **transparent**, **translucent** and **opaque**?
2. List the **7 regions of waves** found in the ***electromagnetic spectrum***:
	1. Which one can we see? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
	2. Put them in order from highest to lowest **frequency**
	3. Put them in order from largest to smallest **wavelength**
	4. What is the relationship between **frequency** and **wavelength** in the electromagnetic spectrum?
3. List the **visible colours** from **lowest** to **highest frequency**
4. What is the difference between the **wave model** and the **ray model** of light?
5. Identify each of the following on the following diagram: **amplitude**, **trough**, **crest**, **rest position** and **wavelength:**
6. What is **frequency** and what unit is it measured in?
7. Which of the following has **high frequency** and which one has **a higher wavelength**.
8. For each diagram (above) determine the **wavelength** and the **amplitude** (the units are in metres).

Wave X: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ Wave Y: \_\_\_\_\_\_\_\_\_\_\_\_

1. What is **reflection**?
2. Label the following diagram:
3. What is the physical difference between a **plane mirror**, **convex mirror** and **concave mirror**. (*include diagrams*)

|  |  |  |
| --- | --- | --- |
| **Plane** | **Convex** | **Concave** |
|  |  |  |

1. What is **refraction**?
2. ***Label the diagram*** to the right:
3. What is the difference between ***refraction*** and ***reflection***?
4. What is the difference between a ***lens*** and a ***mirror***?
5. What happens to the ***speed and direction of light*** as it travels from a dense material to less dense material?
6. When looking at a fish under water, why does it appear to be in a different location than it actually is?
7. Compare and contrast convex and concave lenses:

1st Draw a diagram of light hitting a: (**make sure to label the focal point for the Convex Lens**)

2nd List some uses of each

|  |  |
| --- | --- |
| Convex Lens | Concave Lens |
| Uses | Uses |

***If you complete this whole document and then read it over and quiz yourself – you should do very well on the unit test.***