**Laser Alarm System Study Guide**

**Vocab:** Define each word (Best to use your labs, articles and assignments from the class instead of a google search)

-Incident light -refraction of light -Absorption of light

-Scattering light -Transmission of light -Ultraviolet rays

-Reflection of light- -Gamma Ray -X-ray

-Infrared radiation -microwave rays -radio waves

-White light

**Answer the following questions.**

1. When a light passes through a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ it takes parallel light rays and bend them together.

2. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ lens can take parallel light rays and bend them apart.

3. Light is **\_\_\_\_\_\_\_\_\_\_\_\_\_**when it bounces off an object.

4.  What is the light doing?

5. A prism is an example of what kind of light behavior?

6. A magnifying glass is an example of what kind of lens?

7. A telescope has what kind of lens?

8. Which lab demonstration showed refraction?

9. What happens to the light energy when it is absorbed?



10. In the above picture identify where reflection, absorption and transmission is occurring.



11. What is this a picture of?

A. What rays have the longest and shortest wavelengths?

B. Highest and shortest frequencies?

C. Highest and lowest energy?

12. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ mirror reflects light inward to one focal point; used to focus light; curves inward.

13. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ mirror shows different image types depending on the distance between the object and the mirror; curved outward

14. Which color on the visible light spectrum has the shortest wavelength, high energy, and bends at the greatest angle?

15. Which color on the visible light spectrum has the longest wavelength, low energy, and bends at the smallest angle?

16. Which type of radiation is harmful to humans?

17. What can lasers damage?

18. What does color tell us?

19. How are frequency and wavelength related?

20. Compare and contrast lenses and mirrors.

**Written Responses**

1. Imagine you are shining a red light on a blue sheet of paper. Using the following vocabulary words explain what is happening what color light you see and identify the incident light, reflected light, transmitted and absorbed light.

2. How does light behave? When answering this question be sure to describe how and when light is absorbed, transmitted, reflected and refracted. Use examples, and evidence to support your answer.

Claim:

Lab evidence:

Research evidence:

Reasoning:

Include your sources

\*\*There will be images of light passing through concave and convex lenses.