Benchmark Light and Eye Study Guide

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_

1. The lens of the eye is shaped like a convex lens, thick in the middle and thin at the ends. The advantage in having a lens with this shape is the light can be F\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

2. Describe the functions of rod and cone cells in the eye.

Rods - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Cones - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Arrange these words to show the correct pathway followed by light as it travels through the eye to form images – retina, lens, pupil and cornea. ­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. The protective covering for the eye - C\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. If a person has a problem with their night vision is probably due to a problem with their R\_\_\_\_\_\_\_\_\_\_.

6. Draw the electromagnetic spectrum and circle the area that is visible to the human eye.

7. The range of light in the EM spectrum that honeybees can see but is not visible to humans is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

8. Your dog does not emit light, but you can still see him. Explain, how this is possible? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

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9. Explain why we see a green apple as the color green? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

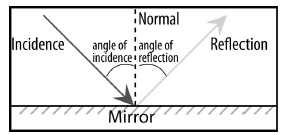
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10. Place these three words in the correct order, so that your eye can perceive an image –

eye – light source – object \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. Light always moves in a S\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ line.

12. A ray of light reflected from a mirror, shows that light travels in a S\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_line.



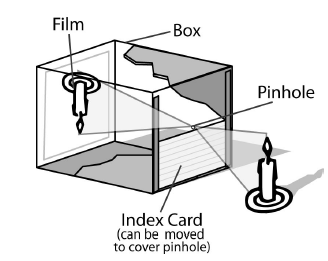
13. A straw in a glass of water will appear broken, when viewed from the side. This is an example of refraction, when light goes through two mediums – air and water. To make the straw appear whole, what should be done? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14. Stars appear to twinkle because the light from the stars changes d\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as it passes through the swirling atmosphere.

15. The c\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ lens is the best lens to use for the objective lens.

16. What is the function (purpose) of the lens of the eye? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

17. In this simple camera, which part functions the same as the lens in the human eye? \_\_\_\_\_\_\_\_\_\_\_\_\_



18. If someone is unable to see black, white and gray, they lack the cells in their eyes that allow them to see different W\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of light.

19. To see different colors, the retina must be able to determine this property of light – W\_\_\_\_\_\_\_\_\_\_\_\_

20. If the cone cells can see three different colors, they are actually seeing different W\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of light.

21. Light that comes out of a prism is a rainbow of colors. What is the source of the colors? W\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that enters the prism

22. White light is a mixture of which colors? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

23. Light passing through a prism changes into a rainbow of colors, because the prism splits the light into D\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ W\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

24. Which part of your eye dilates (larger), when all of the lights are turned off in your classroom? P\_\_\_\_

25. When light hits the lens inside of the eye, the lens causes the light to be \_\_\_\_\_\_\_\_\_\_so the object is brought into focus.

26. The angle of reflection measures 22 degrees. Then, what is the angle of incidence? \_\_\_\_

27. If light is reflected it \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. If light is refracted it \_\_\_\_\_\_\_.

28. On a green leaf, only green light is reflected. What happens to rest of the light? \_\_\_\_\_\_\_\_\_\_\_\_