Section 3: Interactions of Light Waves (p. 73)

1. How is the special layer of cells in the back of a cat's eyes useful?

_____

_____

Reflection (p. 73)

2. When you look in a mirror you see light that has been reflected twice. True or False? (Circle one.)
3. What is the law of reflection?

_____

_____

_____

4. In Figure 14, the _____ is the line perpendicular to the mirror's surface.
5. What kind of surface allows you to see your reflection?

_____

_____

Absorption and Scattering (p. 74)

Decide if each of the following refer to scattering or absorption. Write *S* for scattering and *A* for absorption.

6. ____ EM waves transfer energy to particles in matter.
7. ____ Particles of matter that have absorbed energy release light energy.
8. ____ On a dark night, you can see objects outside of a flashlight beam.
9. ____ The sky appears blue.
10. ____ Air particles absorb the energy from light, making it less bright.

Refraction (p. 75)

11. Refraction is caused by a variation in the _____ of light as it passes from one medium to another.
12. The speed of light traveling through glass is slower than the speed of light traveling through air. True or False? (Circle one.)
13. Optical illusions occur because your brain interprets light as traveling in _____ lines.

14. Color separation occurs when light is refracted because light with a long wavelength is bent more than light with a short wavelength. True or False? (Circle one.)

Diffraction (p. 77)

15. The _____ of waves around barriers and through openings is called diffraction.

16. In order for the greatest amount of diffraction to occur, an opening must be the same size or _____ than the wavelength of the light passing through it.

17. A greater amount of diffraction occurs when light passes through a narrower opening. True or False? (Circle one.)

Interference (p. 77)

18. The wave that results from _____ interference has a greater amplitude than the individual waves that combined to form it.

19. The result of _____ interference is dimmer light.

20. Why do you not see constructive and destructive interference of white light?

_____

_____

_____

Use the information in Section 3 to answer the following questions. Choose the word in Column B that best matches the definition or example in Column A, and write your answer in the space provided.

Column A	Column B
____ **21.** transfer of energy from light waves to particles of matter	**a.** interference
____ **22.** bending of light passing through an opening	**b.** scattering
____ **23.** bending of light passing into a different material	**c.** absorption
____ **24.** a wave bouncing off an object	**d.** diffraction
____ **25.** waves overlapping and combining	**e.** refraction
____ **26.** the release of light energy by particles of matter that have absorbed energy	**f.** reflection

Review (p. 78)

Now that you've finished Section 3, review what you learned by answering the Review questions in your ScienceLog.