

UNIT 3
ASSESSMENT
Unit 3 Test
BLM 3-29

Goal • Assess your knowledge of terms and concepts introduced in Unit 3.

What to Do

Carefully read the instructions before answering each set of questions.

Fill in the Blanks

Use the terms at the beginning of each section to complete the sentences that follow.

Light

Sun	lightning	television	streetlights
incandescent	hot	electrical	thermal

- Two natural light sources are the Sun and lightning. Two artificial light sources are streetlights and television.
- An ordinary light bulb is an incandescent light source. An incandescent light source becomes so hot that it glows. Electrical energy is changed into thermal energy.

A Camera and an Eye

aperture	retina	iris flex
diaphragm	iris	

- The pupil is the opening to the human eye. On a camera, the aperture, like the pupil, opens and closes to let in more or less light. In a camera, film is the light-sensitive screen that retains the image. For humans, it is the retina, the light-sensitive, internal screen where the eye focusses the image.
- Just as the diaphragm of a camera controls the aperture (the opening of the lens), the iris of the human eye controls the pupil. The change in the size of the pupil is called the iris reflex.

Colours

spectrum	solar	colour blindness
rods	cones	complementary

- When white light is refracted into different colours, the resulting pattern is called a spectrum. The Sun's spectrum is called the solar spectrum.
- The inability to distinguish between red and green is a form of colour blindness.

7. The two different types of light sensing cells on the retina of the eye are called rods and cones. The cones are the cells that sense colour.
8. Two colours that, when added, produce white are called complementary colours.

Multiple Choice

Circle the best answer.

9. Light _____ from the Sun.
- (a) shines (c) glows
(b) radiates (d) floats
10. Which quality of light determines how much energy a surface will receive?
- (a) intensity (c) source
(b) power (d) weakness
11. Light travels in _____ lines from its source.
- (a) curved (c) straight
(b) infrared (d) wavy
12. Which of these refers to the two predictable behaviours of light?
- (a) laws of incidence (b) axiom of refraction
(c) laws of reflection (d) angles of light
13. As light passes through a lens, it
- (a) retracts (c) reflects
(b) angles (d) refracts
14. If you wanted to see a virtual image (in other words, a "true" reflection of yourself), which type of mirror would you use?
- (a) convex (c) plane
(b) curved (d) weighted
15. What do you call the distance between the top of two crests of a light wave?
- (a) trough (c) light distance
(b) wavelength (d) amplitude
16. *Frequency* is the number of cycles completed by a vibrating object in a unit of time. What SI unit is used to describe frequency?
- (a) ampere (c) newton
(b) watt (d) hertz

Short Answers

Answer the questions below in full sentences.

17. Are concave mirrors or convex mirrors used for security in stores? Explain your answer.

Convex mirrors are used for security b/c they produce smaller, upright images that allow more of the overall scene to be observed.

18. Some people are described as being near-sighted or far-sighted. For each condition, explain briefly what it means. Then describe the shape of the eye for people with each condition. Finally, describe where the images they see form in relation to the retina of the eye.

Near-sighted: Trouble seeing distant objects. The image forms in front of the retina because they have a longer eye-shape.

Far-sighted: Trouble seeing close objects. The image forms "behind" the retina because they have a shorter eye shape.

19. Explain the difference between laser light and the light given off by an incandescent light bulb.

Incandescent gives off many different colours with different frequencies and wavelengths that overlap and cancel each other out, (incoherent light). Laser emits one frequency; one wavelength so it lines up, (coherent light).

20. What are two body parts that can be damaged by too much exposure to ultraviolet (UV) radiation? How can you protect yourself from UV radiation?

Skin when exposed to too much UV radiation can develop skin cancer. The cornea in the eye can be damaged by too much exposure. Sunscreen and sunglasses protect against UV radiation.

