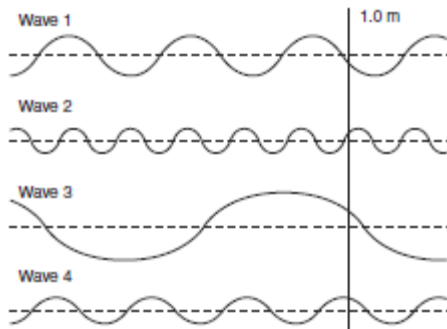


## SOL 5.3 LIGHT

Key Concepts:

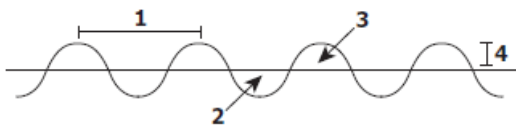
- transverse waves;
- the visible spectrum;
- opaque, transparent, and translucent;
- reflection of light from reflective surfaces;
- refraction of light through water and prisms

### WAVES; WAVELENGTH; FREQUENCY



1. Which of the above waves has the longest wavelength?  
(2003-9)

- Wave #1
- Wave #2
- Wave #3
- Wave #4



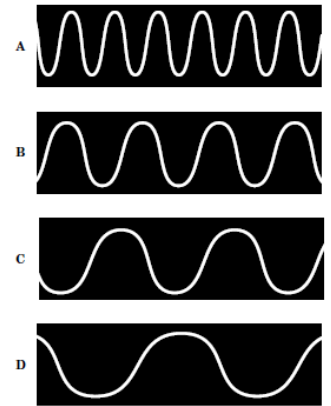
2. Which number on the diagram shows the wavelength?  
(2008-8)

- 1
- 2
- 3
- 4

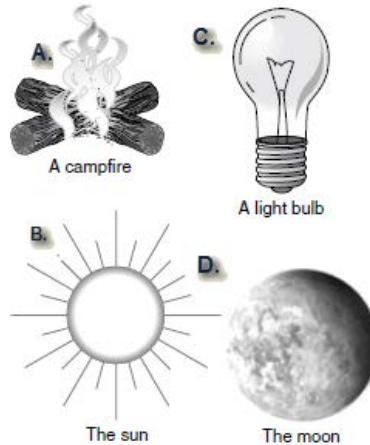
3. A person will see a flash of lightning before they hear the thunder that goes with it because —  
(2003-14)

- the eye is quicker than the ear
- the thunder occurs much later than the lightning
- sound travels faster through the atmosphere than light
- light travels faster through the atmosphere than sound

4. Which diagram shows a wave with the highest frequency?  
(2002-17)



5. Which of these does not emit light waves?  
(2006-2)



### REFRACTION, REFLECTION

6. By passing white light through a prism, you can tell —  
(2003-31)

- that white light is actually a mixture of different colors
- the mass of the prism
- the original source of the light
- that blue light is brighter than white light

7. Which of the following is the best observation of the refraction of light?  
(2011-12)

- Looking at oneself in a mirror
- Looking at a shadow of an object
- Viewing an object through an open window
- Viewing an object partially in water

8. Roger Bacon is credited for developing the magnifying glass. His understanding of which of these was most useful for this development?  
(2010-33)

- Light
- Sound
- Gravity
- Electricity

9. Which explains why the fork looks different under water?

(2010-37)

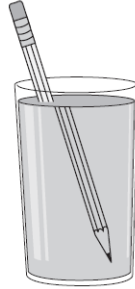
- a. Light is refracted at an angle.
- b. The wavelength of light lengthens.
- c. Light cannot pass through the glass.
- d. The amount of light increases when going through water.



10. Students place a pencil in a glass of water as shown. The pencil in the water looks broken because —

(2009-7)

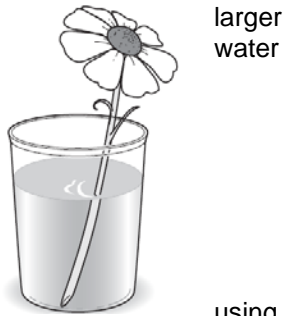
- a. water can dissolve pencils
- b. water is colder than air
- c. light bends when it enters the water
- d. light is absorbed when it hits the glass



11. The flower's stem appears under water because the —

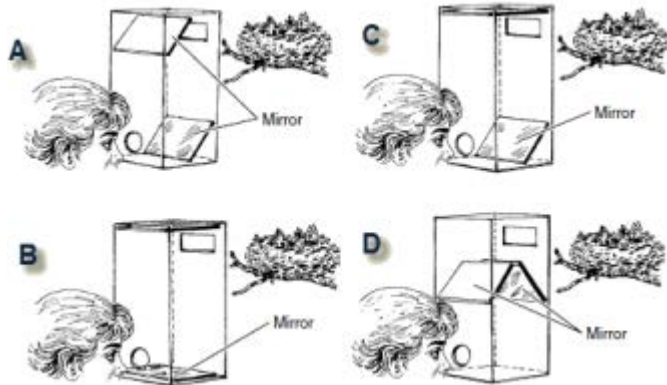
(2007-20)

- a. absorbs light
- b. produces light
- c. repels light
- d. refracts light



12. A periscope works by the reflection of mirrors. Tama made several periscopes for watching baby birds in a nest. Which periscope will work? using

(2001-25)



13. When light hits an object, the rays can pass through it, bounce off it, or be absorbed by it. Light rays that bounce back are —

(2002-40)

- a. radiant
- b. reflected
- c. refracted
- d. radar

14. Which of the following materials is transparent?

(2002-6)

- a. Clear window glass
- b. Your eyelids
- c. Solid wood door
- d. White paper

15. Which of these objects is opaque?

(2008-10)

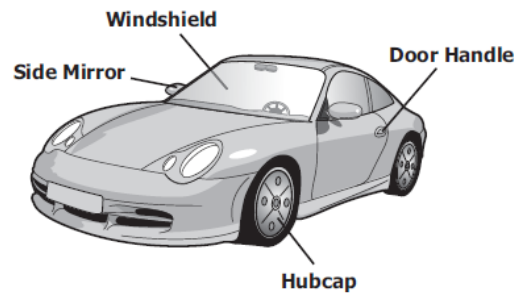
- a. A brick wall
- b. Eyeglass lenses
- c. Liquid water
- d. Stained glass windows

16. Which of these objects is translucent?

(2009-30)

- a. A student's notebook
- b. A mirror on the bus
- c. A brick wall of the school
- d. A student's sunglass lenses

**Automobile**



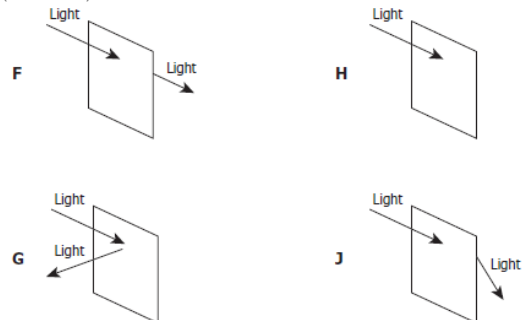
17. Which part of an automobile is transparent?

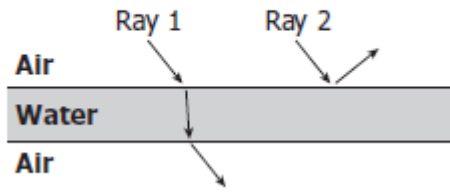
(2011-24)

- a. Door Handle
- b. Side Mirror
- c. Hubcap
- d. Windshield

18. Which of these correctly shows how light acts when it hits a mirror?

(2009-16)





19. Two flashlights are turned on. The light rays they create are shown in the diagram. These light rays best illustrate that —

(2008-35)

- a. both rays are reflected
- b. both rays are refracted
- c. Ray 1 is reflected and Ray 2 is refracted
- d. Ray 1 is refracted and Ray 2 is reflected

20. Which object helps people understand what makes up white light?

(2007-10)

- a. Barometer
- b. Prism
- c. Microscope
- d. Thermometer

21. A shiny aluminum screen can be placed on the windshield of a parked car. This screen helps to keep the car cool because it —

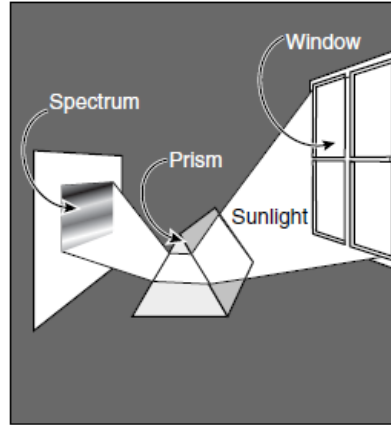
(2007-35)

- a. reflects the sunlight
- b. absorbs heat
- c. causes evaporation
- d. conducts electricity

22. Which of the following would reflect rather than refract light?

(2005-2)

- a. Magnifying glass
- b. Mirror
- c. Prism
- d. Lens



23. The picture shows a study that Isaac Newton made with a prism to produce a spectrum. Newton's discovery led most directly to an understanding of the cause of —

(2005-23)

- a. x-rays
- b. spots
- c. rainbows
- d. starlight

24. Which tool is used to separate white light into the color spectrum?

(2004-36)

