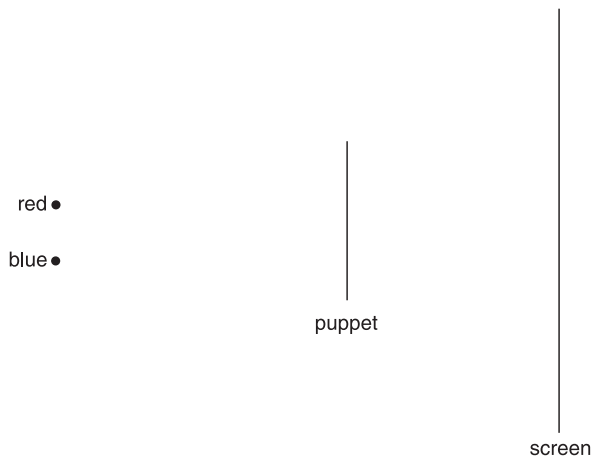


## Alternative Chapter Assessment

1. You shake a Slinky back and forth. No wave moves along the spring. At a few places, the spring does not move at all. You have made a:
  - a) pulse
  - b) frequency
  - c) standing wave
  - d) reflection
  
2. In a wave, the number of cycles per second is called the:
  - a) wavelength
  - b) amplitude
  - c) speed
  - d) frequency
  
3. As you decrease the tension on a string, the pitch it makes:
  - a) is unchanged
  - b) increases
  - c) decreases
  
4. As you decrease the length of a tube, the pitch it makes:
  - a) is unchanged
  - b) increases
  - c) decreases
  
5. You built an electronic circuit that made sound. When you changed the value of a capacitor in this circuit, the sound:
  - a) became louder
  - b) became softer
  - c) stopped
  - d) changed its pitch
  
6. If you walk toward a mirror, your reflection:
  - a) doesn't move
  - b) moves away from the mirror
  - c) moves toward the mirror

7. The image in a convex mirror:
- a) is real
  - b) is virtual
  - c) can be real or virtual
8. At the critical angle, there is:
- a) total internal reflection
  - b) no reflection
  - c) partial reflection
9. You make an image on a card with a convex lens. As the object moves away from the lens, the image:
- a) moves away from the lens
  - b) stays in the same place
  - c) moves closer to the lens
10. One light shines on a screen. If you shine a second light on the screen, the screen looks:
- a) yellow
  - b) dimmer
  - c) brighter
11. You make a spring wave with a wavelength of 1.5 m. You shake the spring with a frequency of 2 Hz. The speed of the wave is \_\_\_\_\_.
12. The distance from one wave crest to the next is called the \_\_\_\_\_.
13. As a wave goes by on a spring, the spring moves from its rest position. The distance from the rest position is called the \_\_\_\_\_.
14. A concave mirror makes an image of a distant light at one point. The location of the image is called the \_\_\_\_\_ of the mirror.
15. The bending of light when it goes from air into gelatin is called \_\_\_\_\_.
16. Explain how to measure the focal length of a lens.

17. a) Explain how to measure the *frequency* of a wave.  
 b) If you have the frequency of a wave, how could you find the *period*?
18. Explain the difference between a *transverse* wave and a *compressional* wave on a Slinky. You can use drawings to give your answer.
19. a) A beam of light hits a flat mirror. Make a drawing to show the angle of incidence, the angle of reflection, and the normal.  
 b) What is the relationship between the angle of incidence and the angle of reflection?
20. a) You are building an organ with pipes that are 3 m, 1.5 m, and .5 m long. Order these tubes according to how high a pitch they will make.  
 b) Label the tube with the highest pitch and the tube with the lowest pitch.
21. a) A beam of light goes from air into a piece of gelatin. Make a drawing to show the angle of incidence, the angle of refraction, and the normal.  
 b) On your drawing, show which way the beam of light bends.
22. a) You shine a red light and a blue light on a screen (see drawing). The puppet casts shadows on the screen. Make a drawing of the lights, the puppets, and the screen to show the different shadows.



- b) Label the drawing to show the color of the screen and the color of each shadow.  
 c) Are the shadows larger or smaller than the puppet?  
 d) Explain your answer to **Part (c)**.