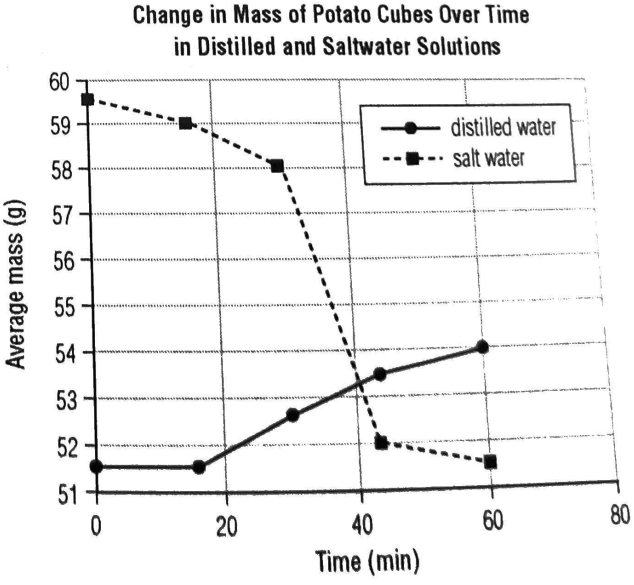
6. As the slide moves toward you, the object that you are viewing appears to move away from you.
7. The objective lens could crack the slide when adjusted. Also, there is a chance of some debris from the sample getting on the lens.
8. A wet mount slide is made by adding a drop of water to the sample before putting on the cover slip.
9. Robert Hooke was the first scientist who used the term "cell."
10. Robert Hooke thought cells looked like the rooms in a monastery. These rooms were called cells.
11. Plants have both chloroplasts and cell walls. Animal cells have neither.
12. The vacuoles store food and waste material.
13. Mitochondria provide energy for the cell.
14. "A" indicates the nucleus of the cell, which controls the cell's life functions.
15. A eukaryotic cell has a membrane surrounding organelles such as a nucleus. A prokaryotic cell does not.
16. Both osmosis and diffusion refer to the movement of particles from areas of high concentration to areas of low concentration. Osmosis is a form of diffusion that involves the movement of water molecules across a selectively permeable membrane.
17. Water enters and leaves the cell through the process of osmosis.

Understanding Key Ideas

18. The cell is the smallest unit of life capable of reproducing itself.
19. Students' answers may vary but could include the following: A car requires gasoline (chemical energy) to run; it seems to respond to stimuli such as traffic lights; and it produces wastes, suchas exhaust. The range of sizes of cars from sub-compacts to trucks might suggest growth and reproduction. I would suggest that the alien remove the driver from the car and see if the car is still capable of responding to a range of stimuli. Since the car would be unable to respond without its driver, the car could not be alive.
20. The actual size of the organism is 0.56 mm.
    $1/3 \times 1.7$ mm = 0.56 mm
21. The student might be seeing air bubbles. She could avoid trapping air bubbles by gently lowering the cover slip from a 45° angle.
22. Respiration and photosynthesis both involve water, carbon dioxide, oxygen, and energy. In respiration, glucose is broken down using oxygen, producing energy, carbon dioxide, and water. In contrast, photosynthesis makes glucose and oxygen using carbon dioxide, water, and the energy in sunlight.
23. The vacuole in plant cells contains water, which helps support the cell.
24. The students are different distances away from the peeled orange. Those farthest away will smell the orange last because of the time the scent takes to diffuse across that extra distance.
25. Yes, you can give a plant too much fertilizer. Fertilizer will dissolve in the water contained in the soil. This will reduce the concentration of water in the soil, perhaps to a level lower than that of the plant cells. If this happens, water will flow by osmosis into the soil from the plant.
26. Since the cells of a saltwater fish likely have the same water concentration as the salt water, water will flow from the fresh water through osmosis into the fish. This could cause the cells of the fish to burst, killing the fish.
27. (a) For salt water: 0 = 59.5; 15 = 59; 30 = 58; 45 = 52; 60 = 51.5
    For distilled water: 0 = 51.5; 15 = 51.5; 30 = 52.5; 45 = 53.5; 60 = 54

    (b)