Organisms are made of different parts that work together to perform life functions.

**KEY CONCEPTS SUMMARY**

1. **Systems help organisms meet their needs.**
   - Multicellular organisms have cells, tissues, organs, and organ systems.
   - Organs and systems respond to changing conditions.

2. **Plants have several levels of organization.**
   - Vascular plants have dermal, vascular, and ground tissues.
   - Plants have root systems and shoot systems.
   - Plants have adapted to many varied environments.

3. **Animals have several levels of organization.**
   - Animals have epithelial, nerve, muscle, and connective tissues.
   - Tissues work together in organs, and organs work together in systems.
   - Systems have adapted in different ways in different animals.

4. **Human health depends on a balance among systems.**
   - Body systems maintain homeostasis.
   - Body temperature, ion concentrations, oxygen and carbon dioxide concentrations, and concentrations of other nutrients are kept at certain levels.
   - The endocrine system helps regulate body conditions.

**VOCABULARY**
- tissue p. 272
- organ p. 272
- organ system p. 272
- hibernation p. 275
- stomata p. 278
- vascular system p. 278
- root system p. 280
- shoot system p. 281
- exoskeleton p. 288
- endoskeleton p. 289
- homeostasis p. 295
- hormone p. 297
- gland p. 298

**Review Concepts**
- Big Idea Flow Chart, p. T57
- Chapter Outline, pp. T63–T64

**Technology Resources**
Have students visit ClassZone.com or use the CD-ROM for a cumulative review of concepts.

Engage students in a whole class interactive review of Key Concepts. Edit content as you wish.

**CONTENT REVIEW**
**CONTENT REVIEW CD-ROM**
**POWER PRESENTATIONS**
Reviewing Vocabulary

Sample answers:
1. several types of tissue working together; The heart is an organ.
2. several organs working together; The respiratory system is an organ system.
3. long period of reduced activity; Bears enter hibernation when food is scarce.
4. openings in dermal tissues of leaves; Stomata regulate exchange with the environment.
5. transports materials in plants. Xylem is part of the vascular system.
6. absorbs water and nutrients from soil; The root system of cacti is often widespread.
7. a plant’s stems and leaves; Parts of the shoot system can be underground or above ground.
8. an internal skeleton; Vertebrates have an endoskeleton.
9. an external skeleton; Insects have exoskeletons.
10. an organ that secretes a hormone; The pituitary gland directs the endocrine system.

Reviewing Key Concepts

Multiple Choice Choose the letter of the best answer.
11. Which of these can an individual organism survive without?
   a. energy c. materials
   b. offspring d. living space
12. What is one difference between a plant and an animal?
   a. a plant’s cells have cell walls, an animal’s cells do not
   b. a plant is unicellular and an animal is multicellular
   c. a plant does not need energy but an animal does
   d. a plant eats soil but an animal eats plants or other animals.

Short Answer Write a short answer to each question.
17. What are the three common needs of all living things?
18. How are the wood of some plants and the ability of some animals to hibernate similar?
19. The prefix homeo- means “same” and the suffix -stasis means “stand still.” How do these word parts relate to the definition of homeostasis?
20. Why are hormones called chemical messengers?
21. How do a plant’s vascular system and an animal’s circulatory system similar?
Thinking Critically

22. Sample: similar—a protective layer between the organism and outside environment; different—leaf has chloroplasts and vascular and ground tissue; skin has hair, fat layers, blood vessels, nerve tissue

23. pores release water and salts from skin; stomata—control exchange of oxygen, carbon dioxide, water with environment

24. adjust to temperature, humidity; provide protection

25. plants—vascular system: xylem and phloem; animals—circulatory system: heart, blood vessels, blood; urinary system regulates fluid levels

26. loss of fluids, infection

27. A broad, thin leaf has much surface area for absorbing and releasing water, oxygen, and carbon dioxide.

28. Tissues: muscle helps shivering; nerve—helps organism respond to touch, pressure, temperature changes, humidity; connective—blood brings nutrients, oxygen, and moisture to the skin; fat layers insulate body; epithelial—forms protective barrier

29. They cannot produce their own energy but must capture energy from other organisms.

30. multicellular; cell walls; photosynthesis or chloroplasts

31. shape, support, attachment for muscles

32. Sample: Lifting arm—muscle tissue pulls bones to lift the hand; the bones are connective tissue; the signal to lift sent through nerve tissue from brain; epithelial tissues of arm lift along with arm.

33. epithelial

34. Sample: nose, windpipe, and lungs bringing oxygen into the body and releasing carbon dioxide

35. replenishes lost water

36. give organism support and shape

37. sweating—increase heart and breathing rates

38. Yes, by turning toward sunlight they maintain growth rates.

39. Sample: The digestive system breaks down foods into nutrients; picked up by circulatory system; levels of nutrients regulated by the endocrine system.

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304  Unit Projects, pp. 5–10

The BIG idea

40. Sample: cells, tissues, organs, and organ systems.

41. Both work by a feedback system.

Unit Projects

Give students Unit Projects worksheets. Directions and rubrics provide a guide.

304 Unit 3: Structure and Function in Living Systems

Monitor and Reteach

If students are having trouble applying the concepts in items 22–28, suggest that they review the Chapter Investigation on pp. 292–293, and the types of tissue described on pp. 278–279 and 286–287. Students may benefit from summarizing one or more sections of the chapter.

Summarizing the Chapter, pp. 79–80