1 CHAPTER REVIEW

ACHIEVEMENT CHART CATEGORIES

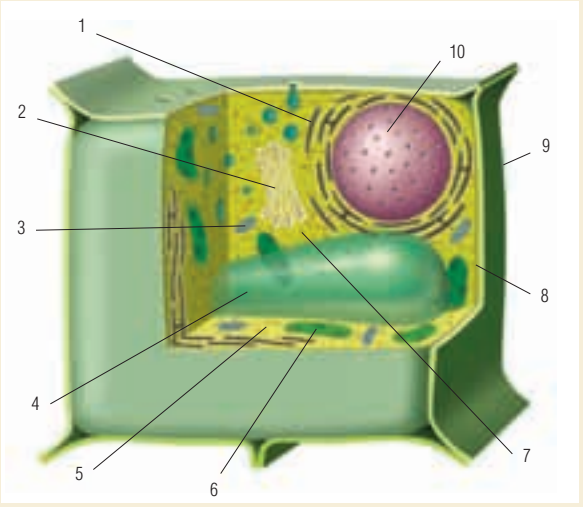
- (k) Knowledge and understanding
- (t) Thinking and investigation
- (c) Communication
- (a) Application

Key Concept Review

1. (a) Identify the type of cell shown below. (k)

(b) Name all the numbered parts. (k)

(c) Describe the function of parts 2, 3, 6, and 10. (k)



Question 1

2. Describe the cell cycle in plant and animal cells. (t)

3. What significant events occur during interphase? (k)

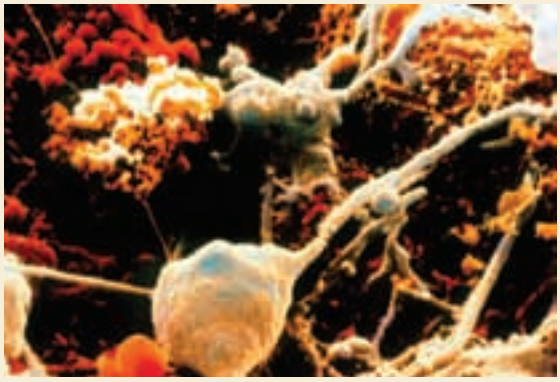
4. Describe the phases of mitosis using sketches and words. (t)

5. Describe some factors that affect the rate of mitosis in plants and in animals. (k)

6. Define the term "apoptosis." (k)

7. Distinguish between embryonic stem cells and adult stem cells. (k)

8. Explain why cells, such as the brain cells shown below, undergo specialization. (t)



Question 8

9. How do cancer cells differ from normal cells? (k)

10. List the four types of animal tissues. (k)

11. What is the function of meristematic tissue in plants? (k)

Connect Your Understanding

12. Explain the role that magnification, resolution, and contrast play when using a microscope to find out about cell structure and function. (a)

13. Why do plant and animal cells have some of the same organelles? Describe these organelles. (t)

14. Why do plant cells have different organelles than those found in animal cells? Describe these organelles, and explain their functions. (t)

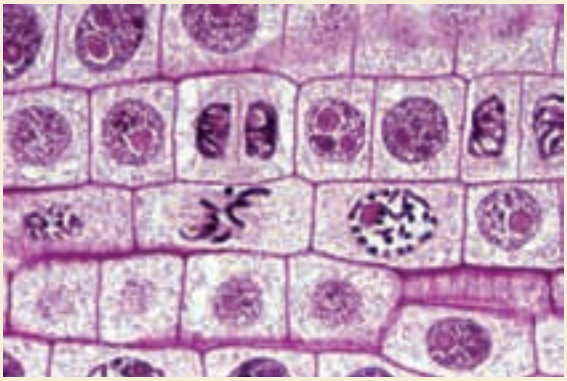
15. Write a short paragraph that defines the words and shows the relationships among the following terms: cell membrane, concentration, water, and solutes. (c)

16. Explain how the development of microscopy has led to an understanding of the cell. (a)

17. For a cell to be able to perform the life processes, it must be able to move materials in and out of the cell. Explain how substances tend to move across the cell membrane. (t)

18. Select one of the life processes of the cell and explain how cell organelles are used to accomplish the process. (t)

19. What stages of mitosis do you see in the following photo? Explain your thinking. (t)

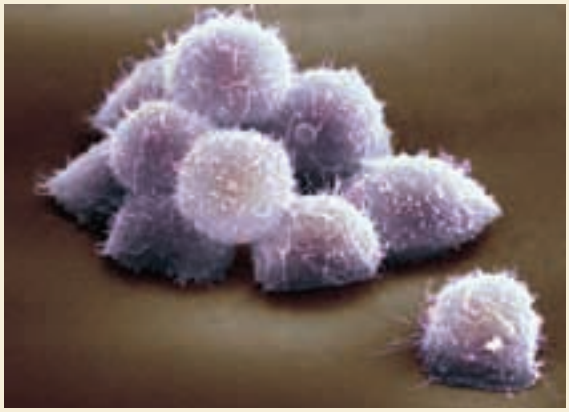


Question 19

20. Explain the role of mitosis in the growth and repair of tissues in plants and animals. (t)

21. Explain the role of cell specialization in the development of tissues. (t)

22. What is a stem cell (shown below)? Explain why these cells are of great interest to researchers. (a)



Question 22

23. Explain the link between the regeneration of tissues and stem cells. (t)

24. Write a short paragraph that shows the relationship between the following terms: embryonic stem cells, adult stem cells, differentiation, and cell specialization. (c)

25. Choose two advances in imaging technology, and explain how they have led directly to a new understanding of cell structure and function. (a)

26. How are adult stem cells used in the process of tissue regeneration? Give examples in your answer. (a)

27. What type of tissue would you expect to find in the stem of a plant? Explain your answer. (t)

Reflection

28. Reflect on what you learned in this chapter. What interested you most about cells, the cell cycle, and tissues? Explain why this topic interested you. (c)

After Reading

Thinking Literacy

Reflect and Evaluate

List the reading strategies recommended in this chapter. Two of them involved using a graphic organizer, and two used pictures or graphics in some way. Rate the helpfulness of each strategy from 1 to 4. Which was most helpful in learning new ideas and terms? Compare your ratings with a partner's, and explain your reasons for the ratings.

Unit Task Link

Review your notes to find information about how the following aspects of cell biology have affected society: cell cycle, cancer cells, and stem cells. You may wish to record your ideas and classify them under the headings "Plus," "Minus," and "Interesting."