

## Section 13–3 Cell Transformation (pages 327–329)

### Key Concepts

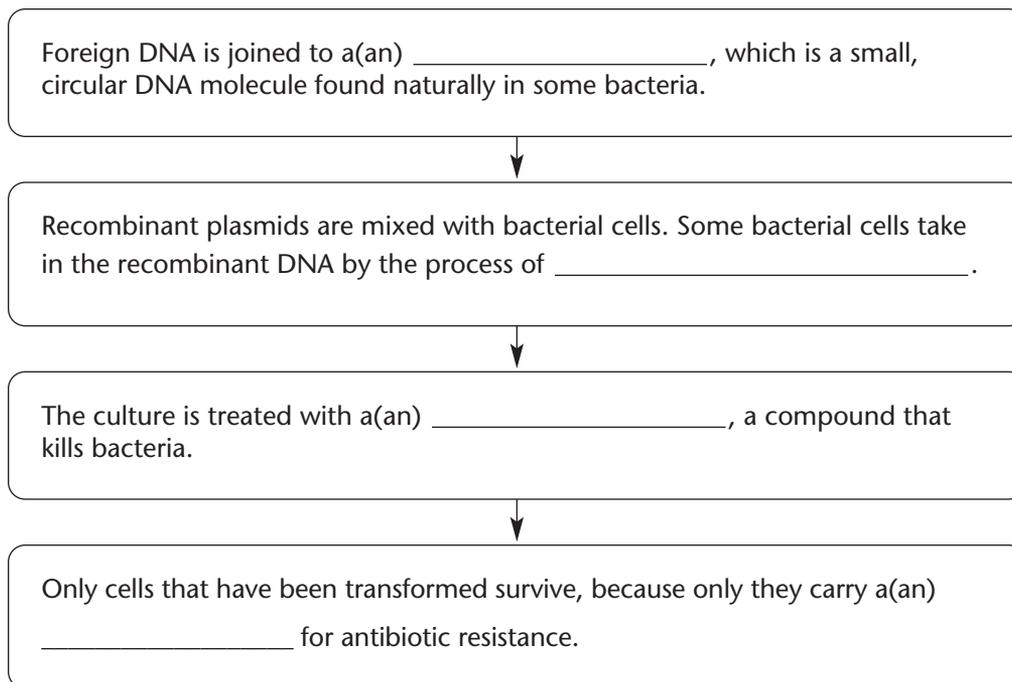
- What happens during cell transformation?
- How can you tell if a transformation experiment has been successful?

### Introduction (page 327)

1. What occurs during transformation? \_\_\_\_\_  
\_\_\_\_\_
2. Is the following sentence true or false? Griffith’s extract of heat-killed bacteria contained DNA fragments. \_\_\_\_\_

### Transforming Bacteria (pages 327–328)

3. Complete the flowchart to show the steps in transforming bacteria.



4. Give two reasons why a plasmid is useful for DNA transfer.
  - a. \_\_\_\_\_  
\_\_\_\_\_
  - b. \_\_\_\_\_  
\_\_\_\_\_

### Transforming Plant Cells (pages 328–329)

5. When researchers transform plant cells using a bacterium that causes plant tumors, how do researchers prevent plant tumors from forming in the transformed cells?  
\_\_\_\_\_  
\_\_\_\_\_

6. Circle the letter of each sentence that is true about transforming plant cells.
  - a. Many plant cells can be transformed by using a bacterium that will, in nature, insert a tumor-producing plasmid into plant cells.
  - b. Sometimes plant cells in culture will take up DNA on their own when their cell walls are removed.
  - c. It is impossible to inject DNA directly into plant cells.
  - d. Plant cells that are transformed cannot develop into adult plants.

7. Describe what occurs in a successful transformation of cells. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

### **Transforming Animal Cells (page 329)**

8. Describe how animal cells can be transformed by directly injecting DNA.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

9. Is the following sentence true or false? The DNA molecules used for transformation of animal cells do not require marker genes. \_\_\_\_\_

10. How is a DNA molecule constructed so that it will eliminate a particular gene?  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. Is the following sentence true or false? Gene replacement has made it possible to identify the specific functions of genes in many organisms. \_\_\_\_\_

### **Reading Skill Practice**

When you read about related concepts, a compare-and-contrast table can help you focus on their similarities and differences. Construct a table to compare and contrast transformation in bacteria, plants, and animals. Look in Appendix A of your textbook for more information about compare-and-contrast tables. Do your work on a separate sheet of paper.