# **The Cell Cycle Comprehension Check**

Use the vocabulary words in the box to complete the sentences in questions 1-5.

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| cell membrane organelles nucleus  chromosomes DNA cell division |

1. The “control center” of a cell is the \_\_\_\_\_\_\_\_\_\_.
2. \_\_\_\_\_\_\_\_\_\_ is a chainlike structure made of pairs of \_\_\_\_\_\_\_\_\_\_ that carry genes.
3. The \_\_\_\_\_\_\_\_\_\_ is a covering that separates the inside of a cell from the outside environment.
4. The process of \_\_\_\_\_\_\_\_\_\_ splits one cell into two so cells can reproduce.
5. All cells contain \_\_\_\_\_\_\_\_\_\_, structures that have specific jobs within a cell.
6. What gives plants their green color?

1. Sometimes things go wrong during cell division. Provide an example of something that can go wrong and how that might affect the cell(s).
2. How are meiosis and mitosis similar? How are they different?
3. Think about meiosis. Why is it that when sex cells divide, the new cells have only half of the chromosomes that other body cells do?
4. Provide an example of how disease can affect cells.

# **The Cell Cycle Comprehension Check Answer Key**

Use the vocabulary words in the box to complete the sentences in questions 1-5.

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| cell membrane organelles nucleus  chromosomes DNA cell division |

1. The “control center” of a cell is the nucleus.
2. DNA is a chainlike structure made of pairs of chromosomes that carry genes.
3. The cell membrane is a covering that separates the inside of a cell from the outside environment.
4. The process of cell division splits one cell into two so cells can reproduce.
5. All cells contain organelles, structures that have specific jobs within a cell.
6. What gives plants their green color?
   1. Plants get their green color from the chlorophyll inside of their chloroplasts. Chloroplasts are like the food factories for plants. This is where photosynthesis takes place. The chlorophyll inside the chloroplasts is green, giving the plants their green color.
7. Sometimes things go wrong during cell division. Provide an example of something that can go wrong and how that might affect the cell(s).
   1. Sometimes cell division does not work as it should. This can create a variety of problems such as disease. In addition, cells can have too many organelles, not enough organelles, or be different sizes. Any of these issues make it more challenging for the cells to serve their intended purpose.
8. How are meiosis and mitosis similar? How are they different?
   1. Meiosis and mitosis are both processes cells use to reproduce. Both involve a cell splitting to create a new cell. Meiosis is a special type of cell division in sex cells. During meiosis, only half of the chromosomes are carried over into the new cell. Mitosis, on the other hand, is the process by which the nucleus divides and forms two identical nuclei in two new cells.
9. Think about meiosis. Why is it that when sex cells divide, the new cells have only half of the chromosomes that other body cells do?
   1. When sex cells divide, the new cells (gametes) have only half of the chromosomes that other body cells do because fertilized eggs receive chromosomes from two sex cells rather than just one. Each parent sex cell provides half of the chromosomes for the fertilized so it can have a correct total number of chromosomes. For example, in humans, each parent sex cell passes 23 chromosomes to the new cell for a total of 46.
10. Provide an example of how disease can affect cells.
    1. Disease can affect cells in many negative ways. For example, sometimes cells grow and multiply without stopping. This can cause tumors and cancer. In addition, viruses can enter living cells and can take over the cell’s controls. This can make disease spread through the body quickly.