

Cells & Cell Division

by: Cindy Gregg

Cells are a part of every living thing. Just like atoms are the building blocks of matter, cells are the building blocks of living things. Some living things are made of only one cell. Most of the living things are made of many, many cells. Trillions of cells come together to build a human being!

Most cells are very small. They are so small that you cannot see them without a microscope. There are a few cells, though, that are big enough to easily see. An egg, like you might eat for breakfast, is one very large cell.

There are many different kinds of cells. Plant cells are different from the cells of animals. Some cells are independent. Some cells work together to perform a job. Some cells can move. Some cells can glow in the dark! Each type of cell is different, but there are some things that all cells have in common. All cells are covered by a membrane that helps to protect the cell and hold it together. All cells are able to reproduce. All cells can take in nutrients and turn them into energy. All cells respond to changes inside and around them. Cells are alive!

Living things grow by cell division. Cell division also replaces dead or worn-out cells. Cells divide to multiply. The process that cells go through when they divide is called mitosis. During mitosis, a single cell splits into two cells. The nucleus of the cell divides first. This is called mitosis. Then the cytoplasm divides. This is called cytokinesis.

The two cells produced by mitosis are called daughter cells. They are identical. Mitosis causes the number of cells to double. At the end of the process, there are twice as many cells. For example, if three cells go through mitosis, six cells are produced. If those six cells go through another cell division, twelve cells are produced.

Cells divide at different rates. Mitosis might take place every minute or every three hours. The rate depends on the type of cell and the type of organism. Chemicals, temperature, and the time of day also affect the rate of mitosis.

If you know the rate at which a cell divides, you can determine the number of cells that will be present after an hour, a day, or a week. Scientists can use the rate of mitosis to calculate how long it will take to grow a certain number of cells. This helps them plan their experiments.

Name: _____

Science Pd: _____

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<p>1. What are cells?</p> <p><input type="radio"/> A The building blocks of living things</p> <p><input type="radio"/> B The building blocks of matter</p> <p><input type="radio"/> C All the same</p> <p><input type="radio"/> D Always able to be seen using a microscope</p>	<p>2. _____ is made up of only a single cell.</p> <p><input type="radio"/> A A rock</p> <p><input type="radio"/> B An egg</p> <p><input type="radio"/> C A human</p> <p><input type="radio"/> D All of the above</p>
<p>3. ____ of cells come together to build a human being.</p> <p><input type="radio"/> A Trillions</p> <p><input type="radio"/> B Millions</p> <p><input type="radio"/> C Billions</p> <p><input type="radio"/> D Thousands</p>	<p>4. All cells _____.</p> <p><input type="radio"/> A Can take in nutrients and turn them into energy</p> <p><input type="radio"/> B Can move</p> <p><input type="radio"/> C Work together to perform a job</p> <p><input type="radio"/> D all of the above</p>
<p>5. Most of the germs that can make us sick are made of only one cell.</p> <p><input type="radio"/> A False</p> <p><input type="radio"/> B True</p>	<p>6. _____ cells are different from animal cells (fill in the correct answer)</p>
<p>7. How do living things grow?</p> <p><input type="radio"/> A By cell division</p> <p><input type="radio"/> B One cell splits into two cells</p> <p><input type="radio"/> C By a process called mitosis</p> <p><input type="radio"/> D All of the above</p>	<p>8. What part of the cell divides first? _____ (fill in the correct answer)</p>
<p>9. Mitosis produces two _____.</p> <p><input type="radio"/> A Father cells</p> <p><input type="radio"/> B Mother cells</p> <p><input type="radio"/> C Daughter cells</p> <p><input type="radio"/> D Brother cells</p>	<p>10. All cells divide at the same rate.</p> <p><input type="radio"/> A False</p> <p><input type="radio"/> B True</p>
<p>11. What things can affect the rate of mitosis?</p> <p><input type="radio"/> A The kind of organism</p> <p><input type="radio"/> B The type of cell</p> <p><input type="radio"/> C Temperature, chemicals, and the time of day</p>	<p>12. Mitosis causes the number of cells to _____.</p> <p><input type="radio"/> A Double</p> <p><input type="radio"/> B Divide in half</p> <p><input type="radio"/> C Multiply by five</p> <p><input type="radio"/> D Triple</p>

D

All of the above