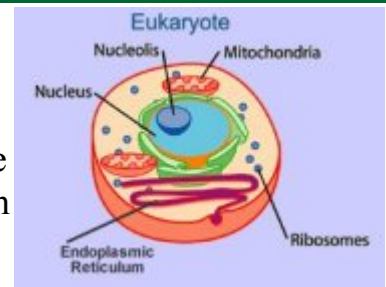


Cells Are Us!

By Cindy Grigg

¹ Did you ever stop to think what your body might be made of? Your body is made of cells. Cells are called the "building blocks" of life. Adults have about ten trillion (10,000,000,000,000) cells in their bodies! Your body was made when one tiny cell from your father joined another tiny cell from your mother. These two cells became one very special cell, and that very special cell became you!



² That very special cell had all the information and "secret codes" to make you the way you are. Those "secret codes" were inside the DNA. DNA stands for deoxyribonucleic (de-ox-e-rye-bo-new-clay-ick) acid. DNA is a very long list of instructions found in the nucleus of the cell that gives each cell in your body its shape and function.

³ But how did you grow from one tiny cell? Cells grow, or multiply, by dividing! First there was only one cell, and then it divided by a process called cell division or mitosis. So then there were two cells. Then each of those cells divided, and then there were four cells. Then each of those cells divided, and then there were eight cells. Then those cells divided, and ... Well, you get the picture.

⁴ Think about building something with plastic blocks. The blocks have different shapes and are different sizes. They look different from each other. Each type of block has a different job, but when you put them all together, you can build a castle! Like the castle, our bodies are made of many different kinds of "blocks." The big difference is that the blocks our body is made of are very, very tiny. They are called cells. How tiny are they? VERY tiny! You could fit about a hundred of them on the period at the end of this sentence.

⁵ **Cells** are the smallest things that can carry out life processes. What are life processes? Living things need to take in food and water, take out wastes, and be able to reproduce themselves. In this way, cells are different from atoms and molecules. Atoms are not living things; they do not need food, water, and air; and they do not reproduce themselves. Cells are alive. Cells are bigger than atoms. We can see cells with a microscope.

⁶ Just as atoms have smaller parts called protons, neutrons, and electrons, cells have smaller parts, too. When you look at cells with a powerful microscope, you can clearly see hundreds of them. With the most powerful lens, you can see a single cell close up. You can see most of the different parts of a cell, called organelles meaning "little organs," with a very powerful microscope. Let's read about some of the different parts.

⁷ First, all cells have a cell membrane. It holds all the parts of the cell together. It lets water and other molecules come and go into and out of the cell. Think of it like your

body's skin.

⁸ Next, all eukaryotic cells have a nucleus. Eukaryotic cells include everything except bacteria and viruses. People have eukaryotic cells. The nucleus of a cell contains the cell's genetic information, DNA, so that the cell can produce more cells like it. This is important because cells don't live very long. Our skin cells die and must be replaced about every thirty days. The nucleus also controls the cell's processes. Think of it like your body's brain. The nucleus is sometimes called the "command center" of the cell.

⁹ Another important part is the mitochondria, called the "powerhouses of the cell." The mitochondria's job is to break down food molecules so that the cell has energy to live. Think of it like your body's stomach. The more energy the cell needs, the more mitochondria it has.

¹⁰ Cells are filled with a liquid called cytoplasm. Cytoplasm fills up the space inside the cell and gives the cell a medium for movement of molecules. Molecules can move more easily in the liquid medium than they could move if the cell had empty space inside it.

¹¹ Vacuoles are storage compartments inside the cell. Cells can store molecules they need or waste products inside the vacuoles until they are needed or eliminated.

¹² There are many different kinds of cells in our bodies. Just as you would need different sizes and shapes of blocks to build a castle, your body's cells are different sizes and shapes, too. Each kind of cell is shaped differently because it has a different job to do. Some of the different kinds of cells we have in our bodies are muscle cells, red blood cells, and nerve cells. We have more than two hundred different kinds of cells! Each of these cells looks very, very different from each other.

¹³ Your body was made from just two cells, one from your mother and one from your father. Those two cells joined together into one special cell, and it held all the genetic information to make you, you. The information in the DNA decided whether you would have dimples or not. It decided your hair color, eye color, and even the shape of your earlobes! You are unique, different from every other human on the earth, because of the information in those two tiny cells. You are made of cells!

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<p>1. What are cells?</p> <p><input type="radio"/> A The smallest things that can carry out life processes</p> <p><input type="radio"/> B Parts of a molecule</p> <p><input type="radio"/> C Parts of an atom</p>	<p>2. Cells are bigger than atoms.</p> <p><input type="radio"/> A False</p> <p><input type="radio"/> B True</p>
<p>3. Atoms have smaller parts called _____.</p> <p><input type="radio"/> A Cell membrane, nucleus, mitochondria</p> <p><input type="radio"/> B Protons, neutrons, and electrons</p> <p><input type="radio"/> C Matter, elements, and molecules</p>	<p>4. Cells have smaller parts called _____.</p> <p><input type="radio"/> A Protons, neutrons, and electrons</p> <p><input type="radio"/> B Cell membrane, nucleus, mitochondria</p> <p><input type="radio"/> C Matter, elements, and molecules</p>
<p>5. What is the cell membrane's job?</p> <p><input type="radio"/> A It holds the cell together.</p> <p><input type="radio"/> B It lets molecules pass into and out of the cell.</p> <p><input type="radio"/> C It has DNA.</p> <p><input type="radio"/> D Both A and B</p>	<p>6. What is inside the cell's nucleus?</p> <p><input type="radio"/> A Water</p> <p><input type="radio"/> B Mitochondria</p> <p><input type="radio"/> C DNA</p> <p><input type="radio"/> D Cytoplasm</p>
<p>7. What are the mitochondria called?</p> <p><input type="radio"/> A The storage area of the cell</p> <p><input type="radio"/> B The command center of the cell</p> <p><input type="radio"/> C The powerhouse of the cell</p>	<p>8. What are cells filled with?</p> <p><input type="radio"/> A Nothing</p> <p><input type="radio"/> B Cytoplasm</p> <p><input type="radio"/> C Water</p>