Food Coloring Dropped in Water:

Diffusion:

the process of particles moving from high concentration to low concentration.

food coloring:

Diffusion is a balancing out process that continues until the concentration is even throughout.

Semi-Permeable Membranes

Semi-Permeable means that the membrane allows some things to pass, but not others.

Tea bags allow water to pass through, but do not allow the tea leaves to pass through.

Strainers are semi-permeable.

Selectively permeable membranes allow water through because it is so important for the health of the cell.

When **water** diffuses through a semi-permeable membrane (moves from high concentration to low concentration) we call this **OSMOSIS.**

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How could osmosis explain why plants wilt when the soil isn't watered?

The plant cells have water in them from when they were last watered. So there's a high concentration there. But outside the plant cells, in the soil, it is dry so there is a low concentration of water there. So the water leaves the plant cells to exit the plant to the soil. When water leaves the plant cells, it causes the cells and plant to shrivel up or wilt.

What does the word specialization mean?

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We've learned about two different types of cells, plant and animal cells, that are similar but have some different organelles. When we learned about animal cells, we learned about the organelles and parts they have in common. But do all cells perform the same job?

You and most other multicellular organisms are made up of **specialized cells.**

This means that here are various kinds of cells and each carries out a specific function.

Similar cells group together to form **tissues**.

There are **four different tissue types** in the human body.

For example, your muscle tissue is made up of a bunch of cells that are all specialized to work for your muscles.

The cells that make up your muscle tissue and the cells that make up your blood (blood cells) have different roles in your body.

Cells often have different shapes to help them do their jobs. For example, blood cells are very thin and flexible to help them go through small spaces to oxygen to your other cells.

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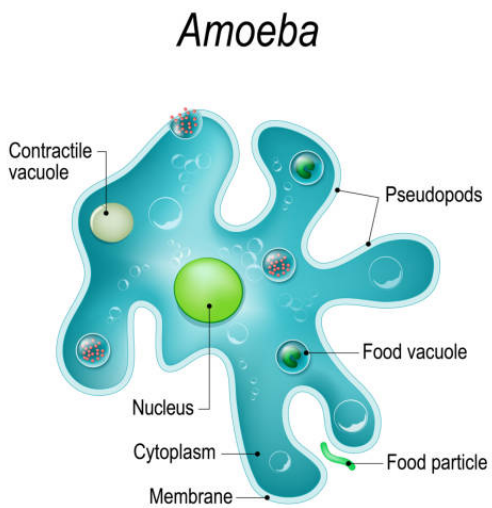
A unicellular organism, like an amoeba, is just one cell. (The entire organism is one cell.)



That one cell has to do ALL the jobs for the organism. So it can't be specialized. Similar to in a big hospital (multicellular) you can have one doctor that only delivers babies and one doctor that does heart surgery. If a hospital is so small it only has one doctor, you'd want it to be a general doctor, not a specialized one. If the only thing the doctor could do is deliver babies, what would happen to male patients or patients that needed heart surgery?

See handout for these definitions so you don't have to write them!

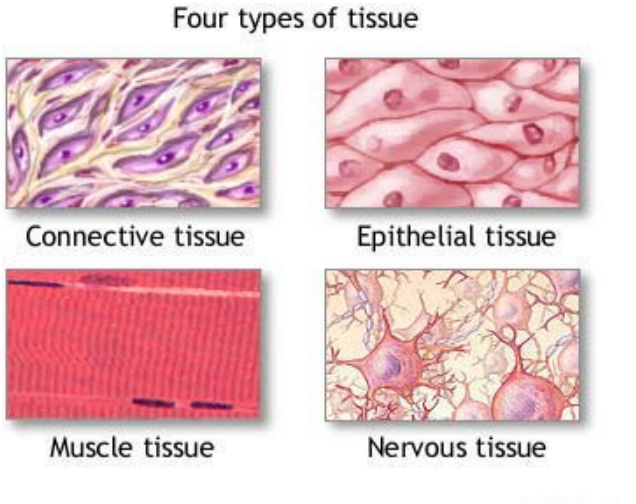
Connective Tissue: supports other tissues and connects different parts of the body.

examples: blood, fat, bones, cartilage, tendons.

Epithelial Tissue: covers the surface of your body and the outside of your organs. The skin and the linings of the various passages inside your body are made of epithelial tissue.

Nervous Tissue: carries messages to and from various parts of the body. Your brain, spinal cord, and nerves are all made of nervous tissue.

Muscle Tissue: allows your body to move. This tissue is specialized for contraction. Different muscle tissues pump blood through your body, push food through your intestines and allow you to move the various structures in your body.



Answer the four questions at the end of your handout in complete sentences **on the back of your page.**

Put your name on the front of your booklet and NOT on your back page.

When we are all done answering, booklets will be switched with others to correct, without being flipped over so students will not know whose they are correcting.

When you're done your questions, while you wait for the rest, choose a specific type of specialized cell to research and tell us about!

You can tell us in just one-three sentences the summary of what this type of cell does for our bodies.

Pick one that interests you!