

Name _____
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Cell Organization
Student #/Teacher _____

Cell Organization

You have learned that all living things are made up of one or more cells. This includes plants, animals, and many microbes. **Microbes**, unicellular organisms made up of only one cell, cause many infectious diseases. **Histologists**, scientists who study cells, have learned many new things. They have noticed that cells have tiny structures inside of them. From studying different cells in different organisms, they discovered that many of these structures are typically found in all cells.

Organelles

Scientists named the tiny organs inside the cell **organelles**. Each organelle performs specific functions for the cell. The cell works in much the same way as a busy manufacturing plant. Anything that works, works best if someone is in control. Most things that work need energy to keep things humming along. A cell, like a manufacturer, transforms simple materials into complex substances and packages them to be delivered where they are needed. These are just a few of the responsibilities of various cell organelles. Organelles are the many tiny parts within a cell that make the cell run smoothly and keep it alive.

Cells

In multicellular organisms, histologists learned that certain cells that did the same job were similar in their size and shape. As an example, nerve cells are like telephone wires inside your body. They carry messages to all parts of the body by an impulse. They are all long and thin and do the same job. Nerve cells make up nerve tissue. A group of cells that are similar and act together to do a certain job make up a larger part of your body called **tissue**.

Tissue

A **tissue** is a group of similar cells that work together to do the same job. Each cell in a tissue does its part to keep the tissue alive. For example, muscle cells are joined together to make muscle tissue. These tissues include leg muscles, arm muscles, and your heart muscle. Cells in your muscle tissue work together to make your body move. You have four main kinds of tissue: muscle tissue, covering tissue, connective tissue, and nerve tissue. Tissues in your body that are similar and do the same job are organized into a somewhat larger part of your body called **organs**.

Organs

An **organ** is a structure that is made up of two or more different types of tissue that work together to do the same job. An organ is the main working part of plants and animals. Each organ does a specific job to make all your systems run smoothly. Your heart is an organ made up of muscle tissue, nerve tissue, and blood tissue. The heart is made up of muscle tissue that contracts, making the heart pump blood. The nerve tissue receives messages from your body that tells the heart how fast to beat or pump the blood. Your body has many organs: stomach, kidneys, and brain to name a few. A group of organs working together to perform a certain job make up an **organ system**.

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How Cells Get Organized

Organ Systems

A group of similar organs doing the same job make up an **organ system**. Your heart, arteries, veins, and capillaries make up your circulatory system. In many-celled organisms, several systems work together in order to perform life functions efficiently. You have various systems that work together to keep you alive. Organelles make up your cells, your cells make up your tissues, your tissues make up your organs, and your organs make up the systems that keep you alive. You have seven main systems: skeletal, muscular, digestive, circulatory, respiratory, excretory, and nervous.

EXAMPLES OF THE WAY CELLS ARE ORGANIZED IN THE BODY

