

Organization

There are different levels of organization in multi-cellular organisms.

We already saw that cells are the basic structural and functional unit of living things.

Many cells working together for a common purpose make up a tissue.

Different types of tissues working together make up an organ.

Different organs working together make an organ system.

Different organ systems working together make an organism.

In addition to the levels of organization, it is important to realize that there are different types of cells.

These different types of cells are **specialized** to perform specific tasks.

Cell specialization or cell differentiation is the process by which cells take on these very specific roles, and often specific shapes as well.

Red blood cells, nerve cells, muscle cells, fat cells, bone cells, epithelial cells – these all have different functions and their different structures are suitable to those functions.

Examples:

Red blood cells contain a protein called hemoglobin that bonds to oxygen so that the cells can transport oxygen throughout the body.

Nerve cells are very long and have receptors at the end so that they can communicate with each other and send messages throughout the body.