

Name _____

Cells

Date _____

Student #/Teacher _____

Comparing Plant and Animal Cells

All cells are classified into one of four categories. **Free-living plant cells** form single-celled, plant-like organisms. **Free-living animal cells** form single-celled, animal-like organisms. **Associated plant cells** live in communities in association with each other to form the multicellular organism that makes its own food—trees, bushes, and flowering plants make up this group. **Associated animal cells** also live in communities in association with each other to form the multicellular organism that moves about in order to obtain food—dogs, butterflies, elephants, and people make up this group.

Plant cells are different from animal cells. They have a rectangular shape and are more rigid because they have a non-living structure called a **cell wall** that surrounds the cell membrane. They also contain tiny disc-shaped structures called **chloroplasts**. Chloroplasts allow the cell to make its own food by a process called **photosynthesis**. After reading this lesson, you should be able to identify the ways in which plant and animal cells are alike and different.

As you have already learned, all living things are made up of cells. Some living things, such as plants and animals, are made up of many cells. These cells have many similarities as well as many differences.

Similarities: Cell Comparisons

- Both have a cell membrane that surrounds the cell.
- Both are filled with a gel-like substance called cytoplasm that contains all of the materials needed by the cell.
- Both have a nucleus where DNA is stored.
- Both have ribosomes that make proteins needed by the cell.
- Both have mitochondria, or a power source, that breaks down food and releases energy.
- Both have vacuoles that contain food, water, and waste products. Animal cells usually have more and smaller vacuoles than plant cells do.
- Both have endoplasmic reticulum, or ER, a system of tubes that transport proteins.
- Both have Golgi bodies, which package and distribute proteins outside the cell.

Differences: Cell Contrasts

- A plant cell has a cell wall that surrounds the cell membrane and provides shape and support; an animal cell does not.
- Plant cells have chloroplasts for photosynthesis; animal cells do not.
- Plant cells are more rectangular or brick-shaped; animal cells are more rounded.
- Plants use chloroplasts to store energy in sugar; animal cells use mitochondria to release energy stored in food.
- Plants have only one large vacuole; animal cells have several small ones.
- Plant cells lack lysosomes; animal cells have these.