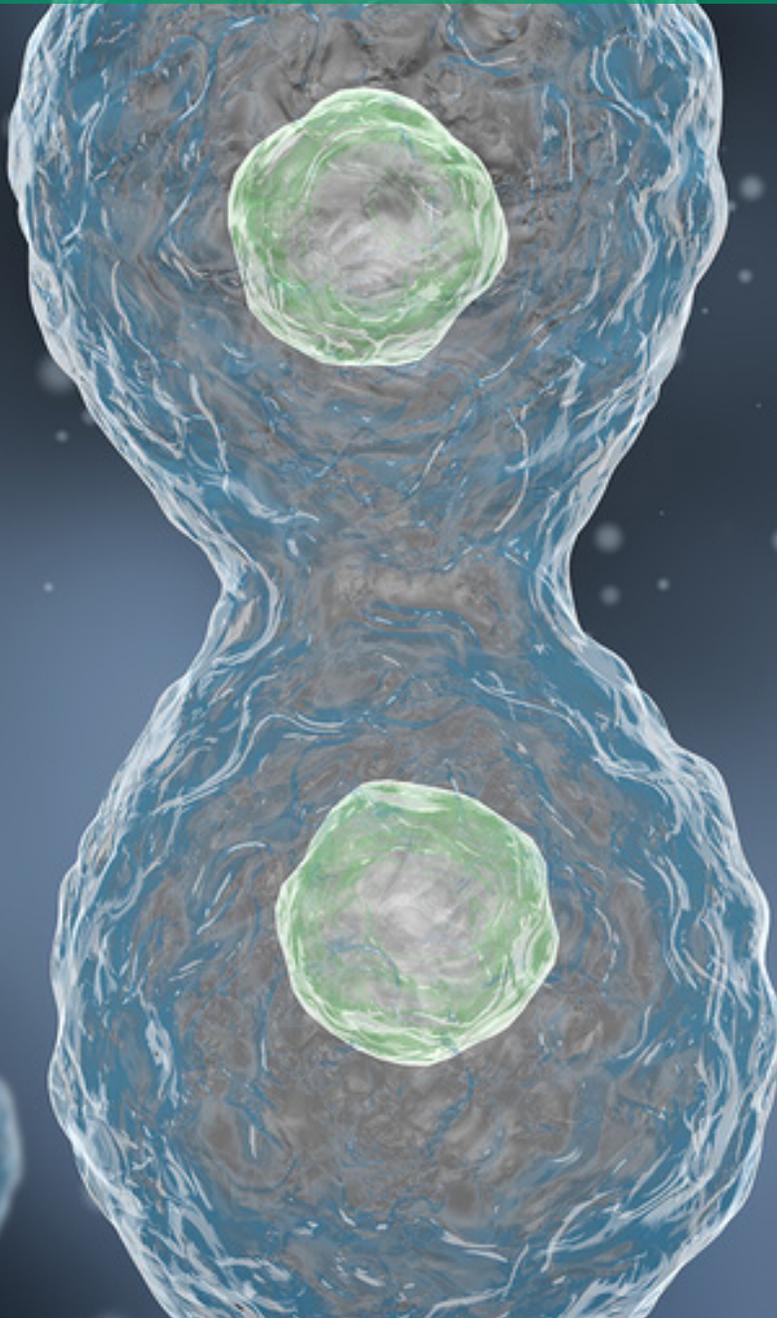


WHAT'S ON THE INSIDE

An Introduction to Plant and Animal Cells

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Share

After all students have found their partner, have each group share their cell part and its definition. As students are completing this, pass out the student handout with the drawings of the cell.

Process

Instruct students that they will now label the parts of the cell on their handout. Students can work in groups to complete this activity. As students are labeling the cell drawings, rotate around the room to help groups that may be having a hard time.

Generalize

Ask students the following question:

What are some differences between plant and animal cells? (Plant cells have chloroplasts and cell walls while animal cells do not.)

Apply

As time allows, have students complete rounds of Cell Pictionary on the white board. You can choose to have one person draw for the whole class, or have multiple teams use multiple white boards in the classroom.

Life Skill(s)

4th Grade

Participate in 4-H club meetings by saying pledges, completing activities, and being engaged (Head)

Follow Instructions (Heart)

Communicate effectively about a given topic (Hands)

5th Grade

Participate in 4-H club meetings by saying pledges, completing activities, and being engaged (Head)

When reading, consider ideas, thoughts, information, or messages that have been written (Heart)

Supplemental Information

Educational Standards Met; Terms and Definitions

GLE 0407.1.1 Recognize that cells are the building blocks of all living things.

√**0407.1.1** Use illustrations or direct observations to compare and contrast the basic structures of plant and animal cells.

SPI 0407.1.1 Compare basic structures of plant and animal cells.

GLE 0507.1.1 Distinguish between the basic structures and functions of plant and animal cells.

√**0507.1.1** Label drawings of plant and animals cells.

SPI 0507.1.1 Identify the major parts of plant and animal cells such as the nucleus, cell membrane, cell wall, and cytoplasm.

SPI 0507.1.2 Compare and contrast basic structures and functions of plant and animal cells.

- Cell Theory
 - *All living things are made of one or more cells*
 - *The cell is the smallest unit of a living organism*
 - *Cells come from other cells*
- Parts of a Cell
 - Organelles – small structures inside cell.
 - Cell Membrane – thin, flexible covering that surrounds all types of cells; allows food, water and gases to enter the cell and allows wastes to leave the cell.
 - Cell Wall – the tough outer layer that surrounds the cell membrane; located only in plant cell; protects the cell and helps the plant stand upright; pores, or tiny holes, in the cell wall allow materials to pass in and out of the cell.
 - Nucleus – directs the activities of the cell; stores DNA, which determines an organism’s traits; nucleus is the “brain” of the cell.
 - Cytoplasm – located between nucleus and cell membrane; thick gel-like fluid.
 - Ribosomes – scattered throughout cell; not surrounded by membranes; make proteins, which make up structural components of cells; allow cell to perform chemical reactions.
 - Lysosomes – small, ball-shaped organelles; break down nutrients and old cell parts; common in animal cells but rare in plant cells.
 - Vacuoles – membrane bound sacs filled with fluid; store water, food, waste; small in animal cells; plant cells have one large, central vacuole; when vacuole in the plant is full, plant is rigid (which means it is standing upright). When the vacuole loses water, the plant will wilt.
 - Golgi apparatus – receives proteins, and processes them so they can be shipped outside the cell.
 - Mitochondria – peanut-shaped; found in both plant and animal cells; “power-pants” of the cell; number of mitochondria in the cell depends upon the amount of energy the cell needs (muscle cells require more).
 - Endoplasmic reticulum – system of membranes and tubes that makes twists and turns through the cell, creating passages that materials can pass through. Two kinds:
 - Rough ER - dotted with ribosomes; common in cells that secrete lots of protein.
 - Smooth ER - not covered with ribosomes; breaks down bad substances.
 - Chloroplasts – found only in plant cells; contain pigments that absorb sunlight and use energy to make food in a process known as photosynthesis; only organelles that perform photosynthesis; contain chlorophyll, the pigment that gives plants green color.

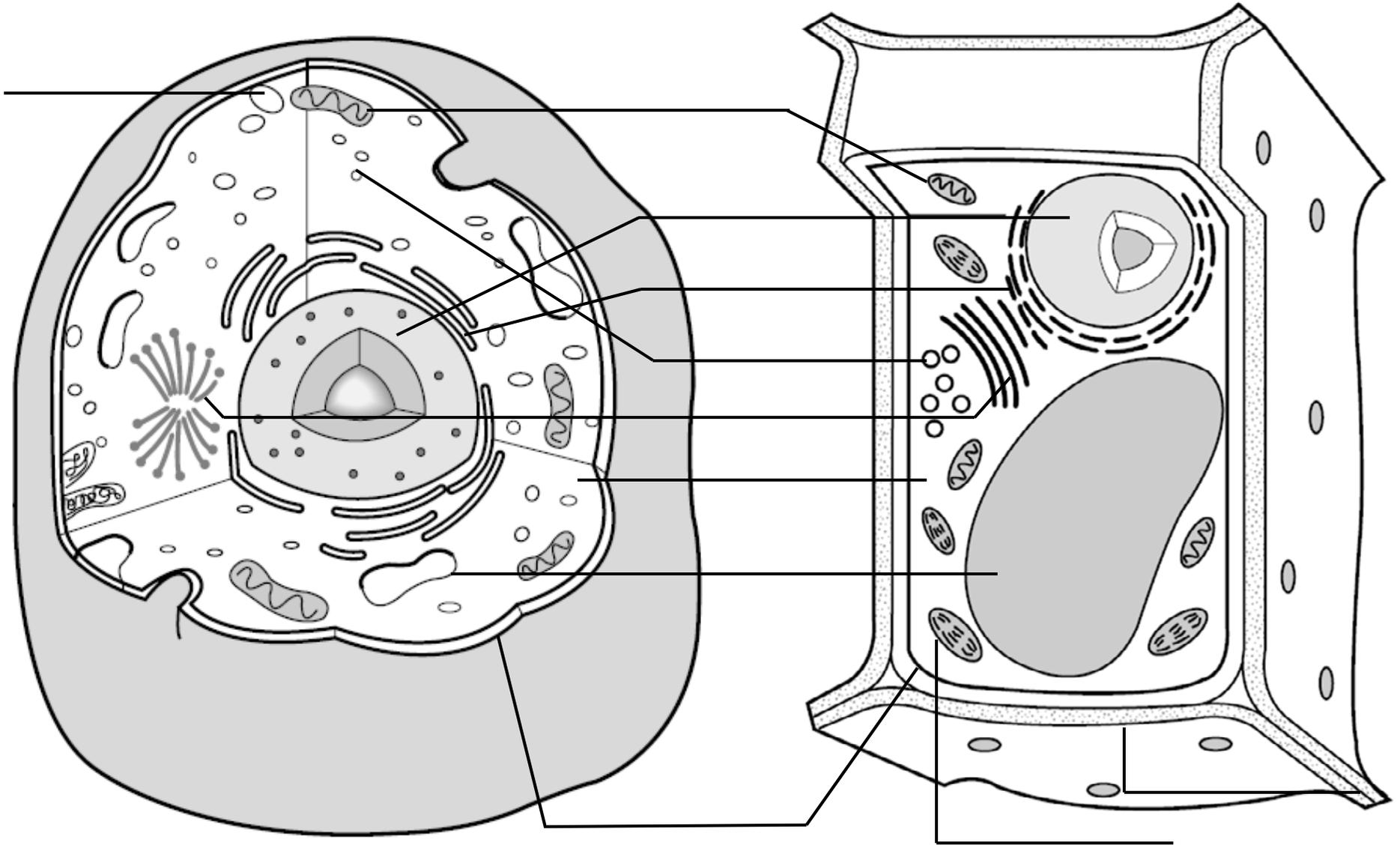
Organelles	Small structures inside the cell.
Cell Membrane	Thin, flexible covering that surrounds all types of cells; allows food, water and gases to enter the cell and allows wastes to leave the cell.
Cell Wall	The tough outer layer that surrounds the cell membrane; located only in plant cell; protects the cell and helps the plant stand upright.
Nucleus	Directs the activities of the cell; stores DNA, which determines an organism's traits; nucleus is the "brain" of the cell.
Cytoplasm	Located between nucleus and cell membrane; thick gel-like fluid.

Ribosomes	Scattered throughout cell; not surrounded by membranes; make proteins, which make up structural components of cells; allow cell to perform chemical reactions.
Lysosomes	Small, ball-shaped organelles; break down nutrients and old cell parts; common in animal cells but rare in plant cells.
Vacuoles	Membrane bound sacs filled with fluid; store water, food, waste; small in animal cells; plant cells have one large, central vacuole; when vacuole in the plant is full, plant is rigid (which means it is standing upright).
Golgi Apparatus	Receives proteins, and then processes them so they can be shipped outside the cell.

Mitochondria	Peanut-shaped; found in both plant and animal cells; “power-pants” of the cell.
Endoplasmic Reticulum	System of membranes and tubes that makes twists and turns through the cell, creating passages that materials can pass through.
Rough Endoplasmic Reticulum	Dotted with ribosomes; common in cells that secrete lots of protein.
Smooth Endoplasmic Reticulum	Not covered with ribosomes; breaks down bad substances.
Chloroplasts	Found only in plant cells; contain pigments that absorb sunlight and use energy to make food in process known as photosynthesis; only organelles that perform photosynthesis; contain chlorophyll, pigment that gives plants green color.

Animal Cell

Plant Cell



Cell Wall

Chloroplast

Nucleus

Ribosome

Cytoplasm

Vacuole

Lysosome

Golgi Apparatus

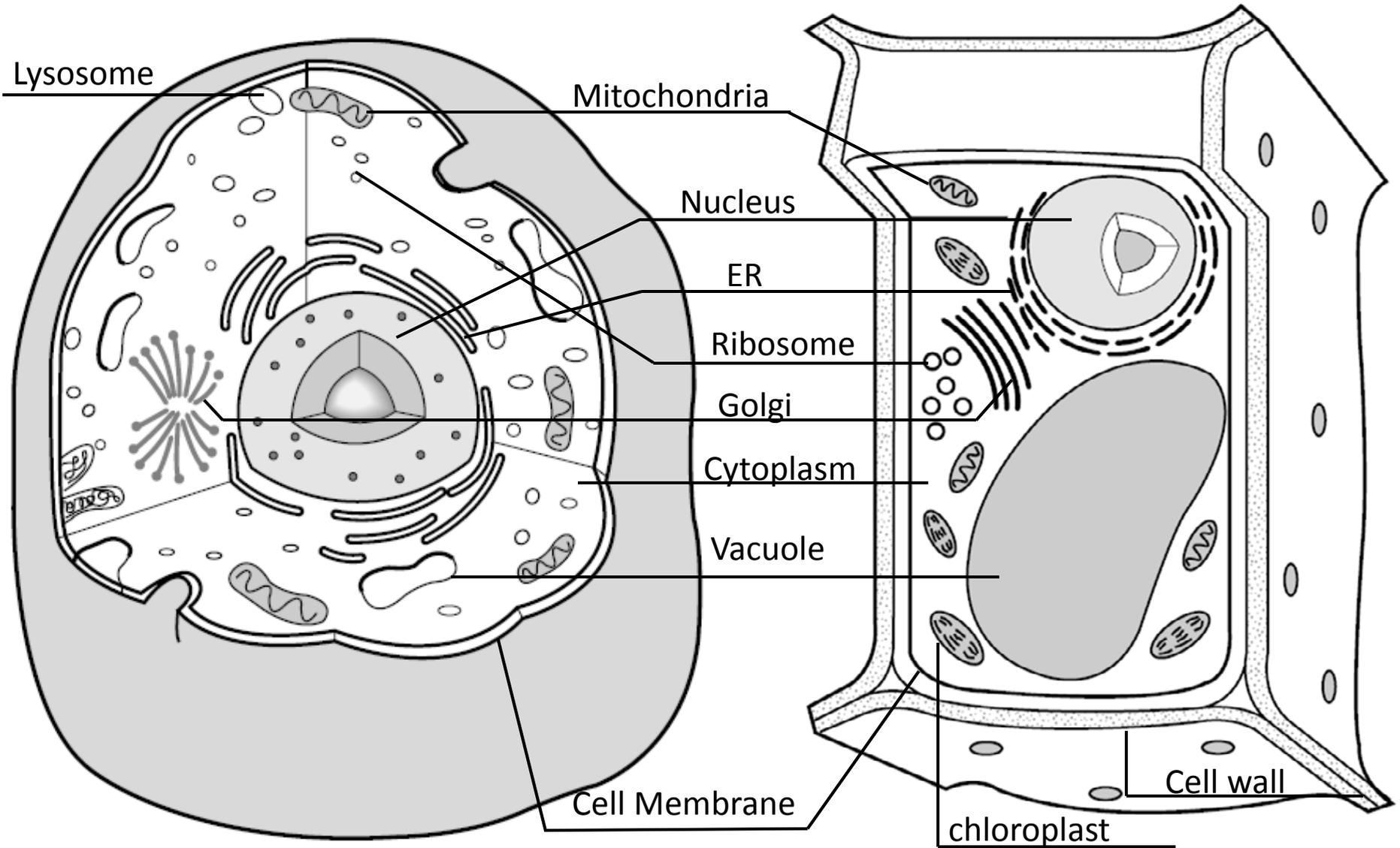
Mitochondria

Cell Membrane

Endoplasmic Reticulum

Animal Cell

Plant Cell



Cell Wall

Chloroplast

Nucleus

Ribosome

Cytoplasm

Vacuole

Cell Membrane

Lysosome

Golgi Apparatus

Endoplasmic Reticulum

Mitochondria

chloroplast

Cell wall

Cell Membrane

Vacuole

Cytoplasm

Golgi

Ribosome

ER

Nucleus

Mitochondria

Lysosome