



Middle School Science Virtual Learning

Life Science

Identifying the parts of a cell

April 23, 2020



Life Science
Identifying the parts of a cell

Objective/Learning Target:

I can identify the parts of a cell and their functions.

Let's Get Started

First things first, there's two different types



Please grab a writing instrument and a piece of paper to write down some notes about the different parts of a cell. Feel free to come up with some bars of your own after you listen to this.



PARTS of a CELL

Eukaryotic Cells are more complex cells containing many cell parts. Larger, multicellular organisms contain Eukaryotic cells. Eukaryotic Cells make up both Plants and Animals. Plant cells however, have a few additional structures than Animal Cells. Those structures are a **Cell Wall**, **Chloroplasts** and a single **Large Central Vacuole**. Animal Cells do NOT contain these parts. Most of these cell parts are called **Organelles**, which mean ‘tiny organs’.

Cell Wall - A rigid (non-flexible) layer of non-living material that surrounds the cells of plants and other organisms (bacteria). Cell Wall provides protection, shape and support.

Cell Membrane - Forms the outer boundary that separates the cell from its environment. Located just inside the Cell Wall in plants and bacteria. The Cell Membrane controls what goes in and out of the cell.



Parts of a Cell continued

- Nucleus** - Large, oval structure that directs/controls all of the cell's activities. Located at the center of the cell in animal cells but may be offset of center in plant cells due to the Large Central Vacuole. The outer structure of the nucleus is the **Nuclear Envelope** that contains **Pores** that allow substances to pass in and out of the Nucleus. Chromatin is inside the Nucleus as well.
- Chromatin** - Loosely organized strands of genetic material that contain DNA. The Nucleolus is a small organelle within the Nucleus that produces **Ribosomes**.
- Cytoplasm** - A watery, clear, gel-like substance that is in the area or region between the Nucleus and Cell Membrane. It is constantly moving and helps with the movement of substances around the cell.
- Mitochondria** - The Mitochondria are bean-shaped structures that produce energy for the Cell through a process called Cellular Respiration. Known as the 'Powerhouse of the cell because it can convert food molecules into energy



Parts of a Cell continued

the cell needs to carry out its functions. When you hear Mitochondria, should always think of 'Energy'.

Endoplasmic Reticulum (ER) - A maze of passageways that carries proteins and other substances from one part of the cell to another. There are two (2) types of ER. **Rough ER**, which contains Ribosomes. Rough ER is located around and near the Nucleus. **Smooth ER** does NOT contain Ribosomes and is located away from the Nucleus.

Ribosomes - Very small grain-like structures that are produced in the **Nucleolus** that play a major role in the production of **Proteins**. When you here **Ribosomes**, you should always think 'Proteins'.

Golgi Bodies - Receive proteins and other newly formed materials from the Endoplasmic Reticulum, repackages them and distributes them to other parts of the cell.



Parts of a Cell continued

Chloroplasts - Found in Plant Cells and are green in color due to the green pigment Chlorophyll found inside of them. Chloroplasts play a major role in food-making process of Photosynthesis. With the help of Chlorophyll, Chloroplasts capture the energy in sunlight and use it to produce food for the Cell.

Vacuoles - Simply put, vacuoles are storage tanks of the cell. Plant cells have one (1) Large Central Vacuole. Animal cells have a few small vacuoles or none at all. Vacuoles store primarily water, food and waste material.

Lysosomes - Lysosomes are small round structures in the cell that contain chemicals that break down materials and other debris in the cell. Lysosomes are the little garbage trucks of the cell that keep it clean and functioning properly.



Video Activity and Practice

Click on the link below to see a really cool video about all the basic parts and structures of the cell you just read about. You may stop, rewind and start again as you view to better your understanding.
Enjoy the beautiful graphics in the video too!

[Overview of Cell Structure](#)

Now, click on the link below to see how well you know your parts of a cell! You may print this out and answer directly on the sheet or you may record your responses on a separate sheet of notebook paper. Feel free to review the video or the previous 'Notes' to fill out the document.

[Looking Inside Cells](#)



Practice Answer Key

Looking Inside Cells *Answer Key*

1. *Cytoplasm*
2. *Endoplasmic Reticulum*
3. *Nucleus*
4. *Mitochondria*
5. *Organelles*
6. *Cell Wall*
7. *Cell Membrane*
8. *Nucleus*
9. *Cytoplasm*
10. *Mitochondria*
11. *Endoplasmic Reticulum*
12. *Endoplasmic Reticulum*
13. *Ribosomes*
14. *Golgi Bodies*
15. *Chloroplasts*
16. *Vacuole*
17. *Lysosomes*



Sit back, relax and enjoy the video!

Enjoy this video from the Amoeba Sisters
as they give you a Grand Tour of the Cell!

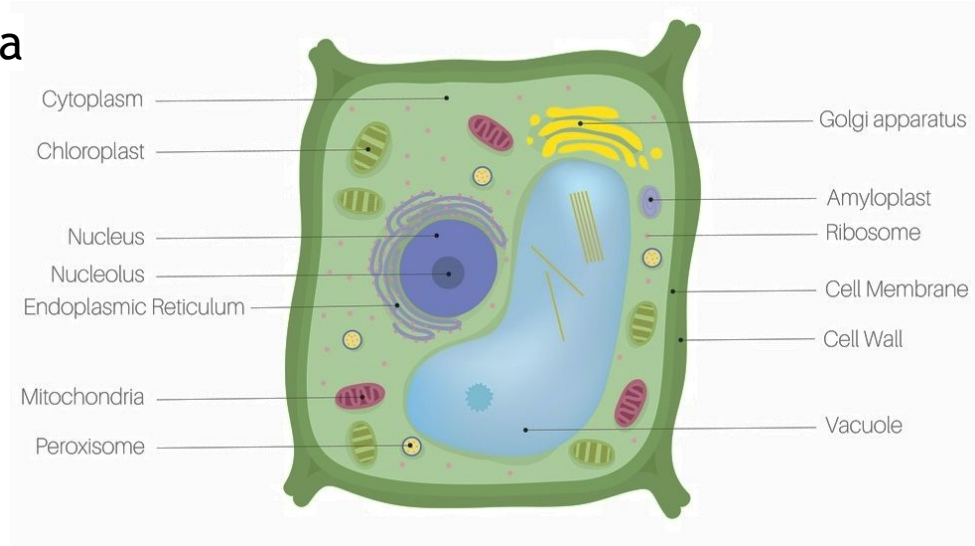
Use the information from the video for the next several slides.

Amoeba Sisters: Grand Tour of the Cell!

Practice Questions

1. Which organelle is only found in a plant cell?

- A. Nucleus
- B. Chloroplast
- C. Mitochondria
- D. Cell membrane



Practice

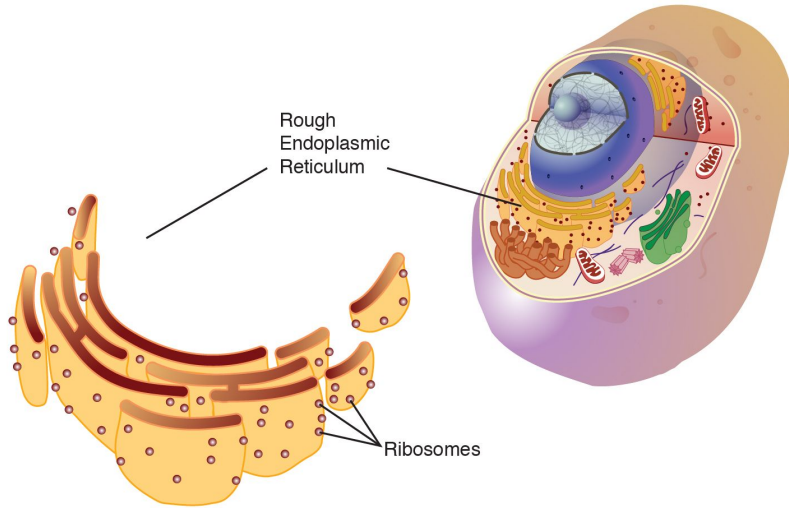
2. If a cell has a nucleus it must have a:

- A. nuclear membrane
- B. capsid
- C. cell wall
- D. central vacuole

3. An organism has a cell membrane, a mitochondria, and many small vacuoles. It is a(n)

- A. Prokaryotic cell
- B. Animal cell
- C. Plant cell
- D. Virus

Practice



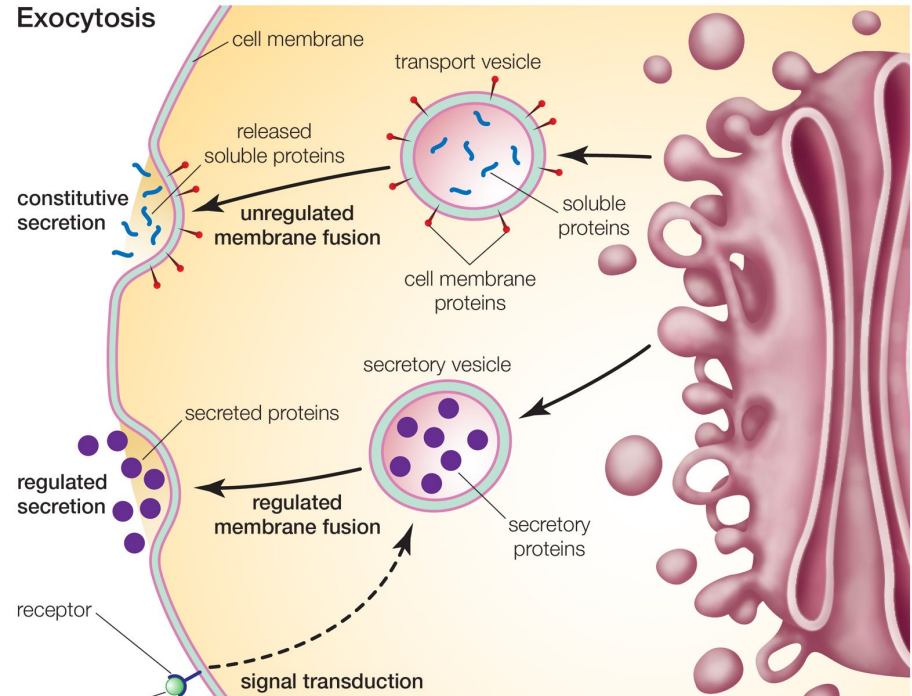
4. The function of the rough ER is to:

- A. Produce and fold lipids
- B. Produce and fold proteins
- C. Produce and fold carbohydrates
- D. Produce and fold Nucleic acids

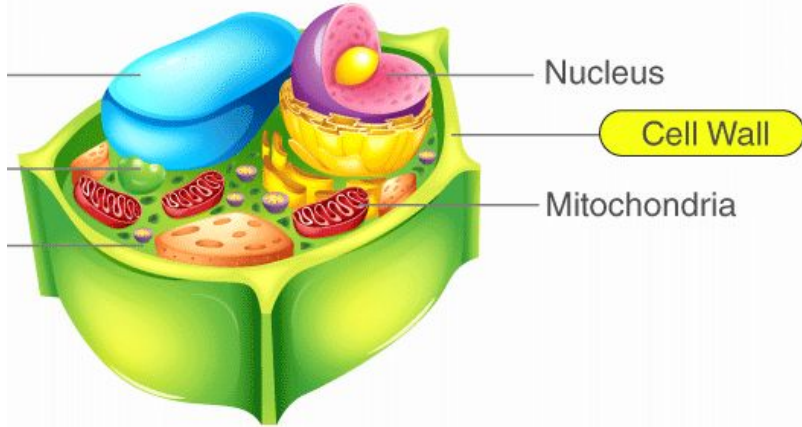
Practice

5. What organelle serves as a primary "packaging" area for molecules that will be distributed throughout the cell?

- A. Golgi Apparatus
- B. Ribosome
- C. Smooth ER
- D. Rough ER



Practice



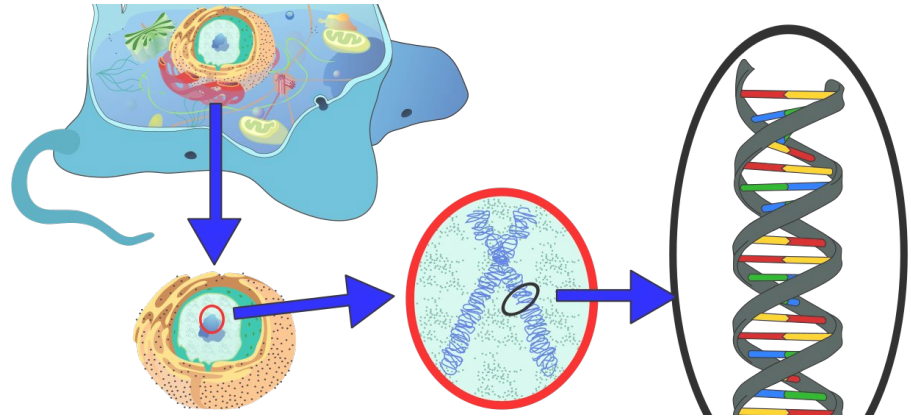
6. What is the function of the cell wall?

- A. To protect and support cell
- B. To perform different functions in the cell
- C. To prevent water from entering the cell
- D. To prevent oxygen from entering the cell

Practice

7. The nucleus of a cell has thin strands of _____ that contain genetic material

- A. Microtubules
- B. Chromatin
- C. Chromosomes
- D. DNA





Practice Answers

Practice Questions Answers

Once you have completed the practice questions check with the **answer** key.

1. B-Chloroplast
2. A-nuclear membrane
3. B-Animal Cell
4. B. Produce and fold proteins
5. A-Golgi Apparatus
6. A- To protect and support the cell
7. D-DNA



Check for Understanding

Go to this [Quizizz](#) to see what you remembered about the parts of the cell.



Additional Practice

Additional Online Practice:
Click on the link below for additional practice.

[Animal Cells](#)

[Plant Cells](#)