

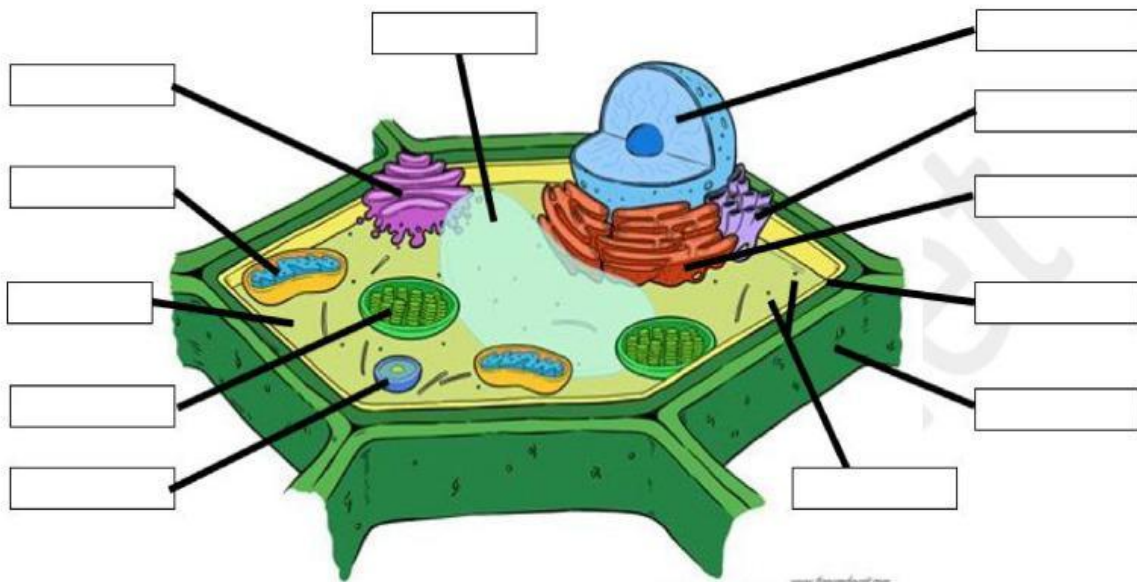
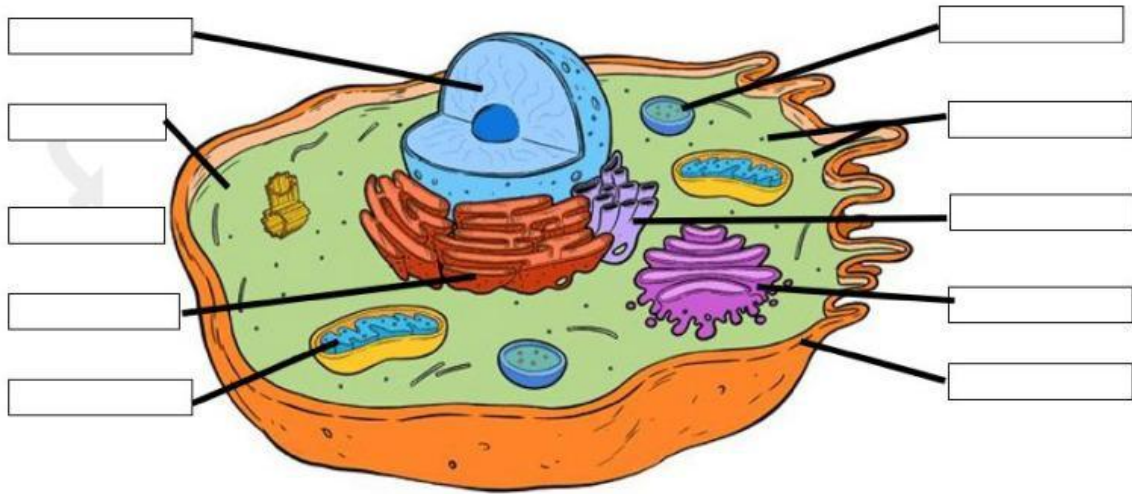
Learning Target: I can compare and contrast the structure and function of prokaryotic and eukaryotic cells.

Cell Structure & Function Interactive Activity



**Part 1: Labeling the Cell Diagram**

**Instructions:** Below is a diagram of an animal cell and a plant cell. Label the following organelles: *Nucleus, Mitochondria, Ribosomes, Endoplasmic Reticulum (Rough and Smooth), Golgi Apparatus, Lysosome (animal cell only), Chloroplast (plant cell only), Vacuole, Cell membrane, Cell wall (plant cell only)*



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### Part 2: Comparing Prokaryotic and Eukaryotic Cells

**Instructions:** Complete the table below by placing a checkmark (✓) under the appropriate column for each characteristic.

Characteristic	Prokaryotic Cell	Eukaryotic Cell
Presence of Nucleus		
Membrane-bound Organelles		
Size (larger or smaller)		
Example (Bacteria, Plant, Animal)		

### Part 3: Organelle Functions

**Instructions:** Match each organelle with its correct function.

Mitochondria	Nucleus	Ribosomes	Vacuole	Cell wall
Golgi Apparatus	Chloroplast	Cell Membrane	Lysosome	

- \_\_\_\_\_ Absorbs sunlight energy to make food, site of photosynthesis.
- \_\_\_\_\_ Converts glucose sugars and oxygen into ATP energy.
- \_\_\_\_\_ Regulates what enters and exits the cell.
- \_\_\_\_\_ Site of protein synthesis.
- \_\_\_\_\_ Controls cell activities and contains DNA.
- \_\_\_\_\_ Modifies, sorts, and packages proteins.
- \_\_\_\_\_ Stores large amounts of water in the cell.
- \_\_\_\_\_ Contains digestive enzymes that break down damaged organelles, debris materials, and foreign invaders that enter the cell.
- \_\_\_\_\_ Protects and helps plant cell stay up right.

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#### Part 4: Data Analysis - Organelle Quantity in Different Cell Types

**Scenario:** Scientists studied the number of mitochondria in three cell types: muscle, skin, and nerve cells. The data is represented in the chart below:

Cell Type	Number of Mitochondria
Muscle Cell	300
Skin Cell	50
Nerve Cell	120

**Instructions:** Use the chart to answer the questions below:

1. Which cell type has the highest number of mitochondria? \_\_\_\_\_  
Why might this be the case? \_\_\_\_\_  
\_\_\_\_\_
2. What is the total number of mitochondria across all three cell types? \_\_\_\_\_
3. Based on the data, which cell type requires the most energy? \_\_\_\_\_  
Explain your reasoning. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

#### Part 5: Reflection

**Instructions:** Write a short paragraph explaining how the structure of a cell organelle relates to its function. Include examples from the worksheet. \_\_\_\_\_

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