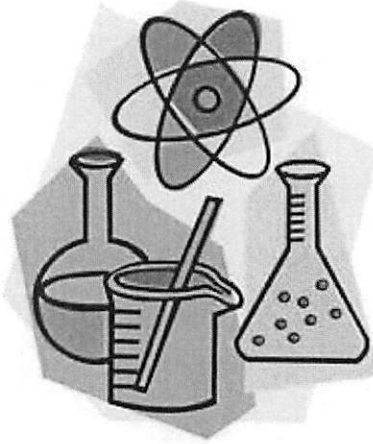


**Road Branch Elementary & Middle School**

# **NTID PACKETS**

**6<sup>TH</sup> GRADE**



**SCIENCE**

**DAY 4**

## Cell Membrane

The cell membrane is made of lipids and proteins. Recall that lipids and proteins are macromolecules that help cells function. Lipids in the cell membrane protect the inside of a cell from the external environment. Proteins in the cell membrane transport substances between a cell's environment and the inside of the cell. Proteins in the cell membrane also communicate with other cells and organisms and sense changes in the cell's environment. ✓

## Cell Wall

In addition to a cell membrane, some cells have a cell wall, as shown in the figure below. The cell wall is a strong, rigid layer outside the cell membrane. Cells in plants, fungi, and many types of bacteria have cell walls. They provide structure and help protect the cell from the outside environment. Most cell walls are made from different types of carbohydrates.

### ✓ Reading Check

**5. Summarize** the major components of cell membranes.

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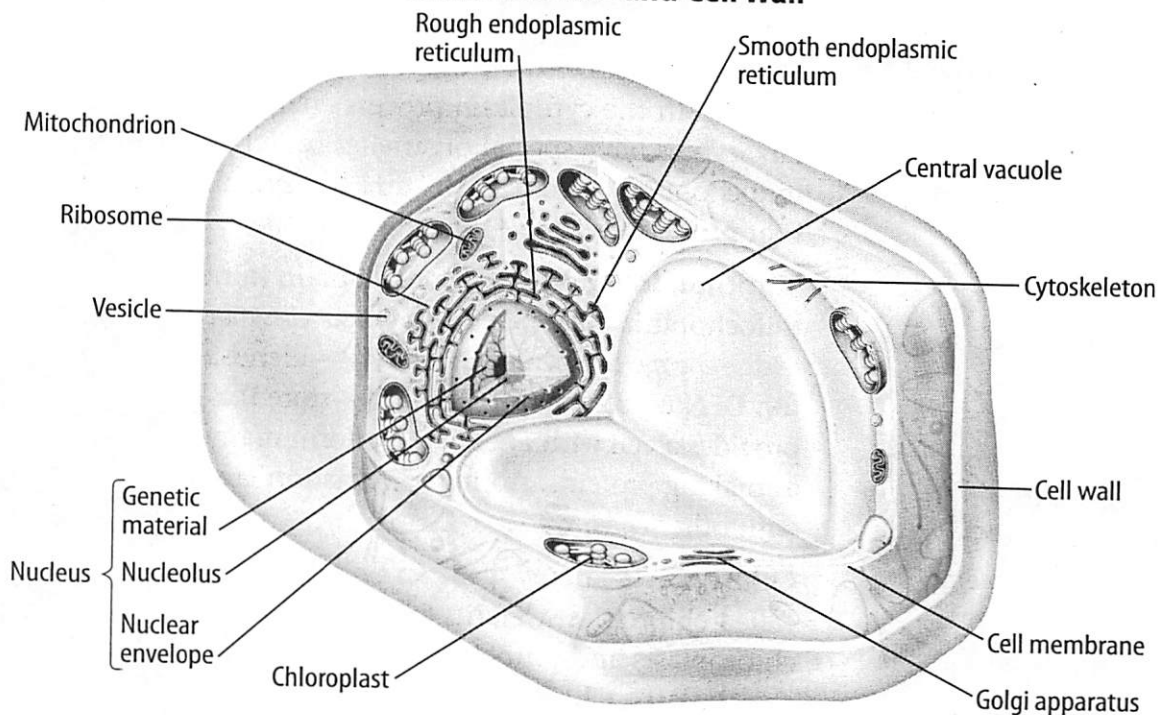
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**Cell Membrane and Cell Wall**



## The Inside of a Cell

Recall that the inside of a cell is mainly water. Many substances used for communication, energy, and growth dissolve in water. This makes it easier for the substances to move around inside a cell. Water also gives cells their shapes and helps keep the structures inside a cell organized. The organelles inside a cell perform specific functions. They control cell activities, provide energy, transport materials, and store materials.

### ✓ Visual Check

**6. Locate** Is the cell wall found inside or outside the cell membrane?

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## Types of Cells

There are two main types of cells, as shown in the figure below. Structures in the two types of cells are organized differently. **Prokaryotic** (pro kayr ee AH tihk) **cells** *do not have a nucleus or other membrane-bound organelles*. Organelles are structures in cells that carry out specific functions. The few organelles in prokaryotic cells are not surrounded by membranes. Organisms with prokaryotic cells are called prokaryotes. Most prokaryotes are unicellular organisms, such as bacteria.

**Eukaryotic** (yew ker ee AH tihk) **cells** *have a nucleus and other membrane-bound organelles*. Most multicellular organisms and some unicellular organisms are eukaryotes. The eukaryotic cell shown in the figure below contains many structures that are not in a prokaryotic cell. In eukaryotes, membranes surround most of the organelles, including the nucleus. ✓

### ✓ Reading Check

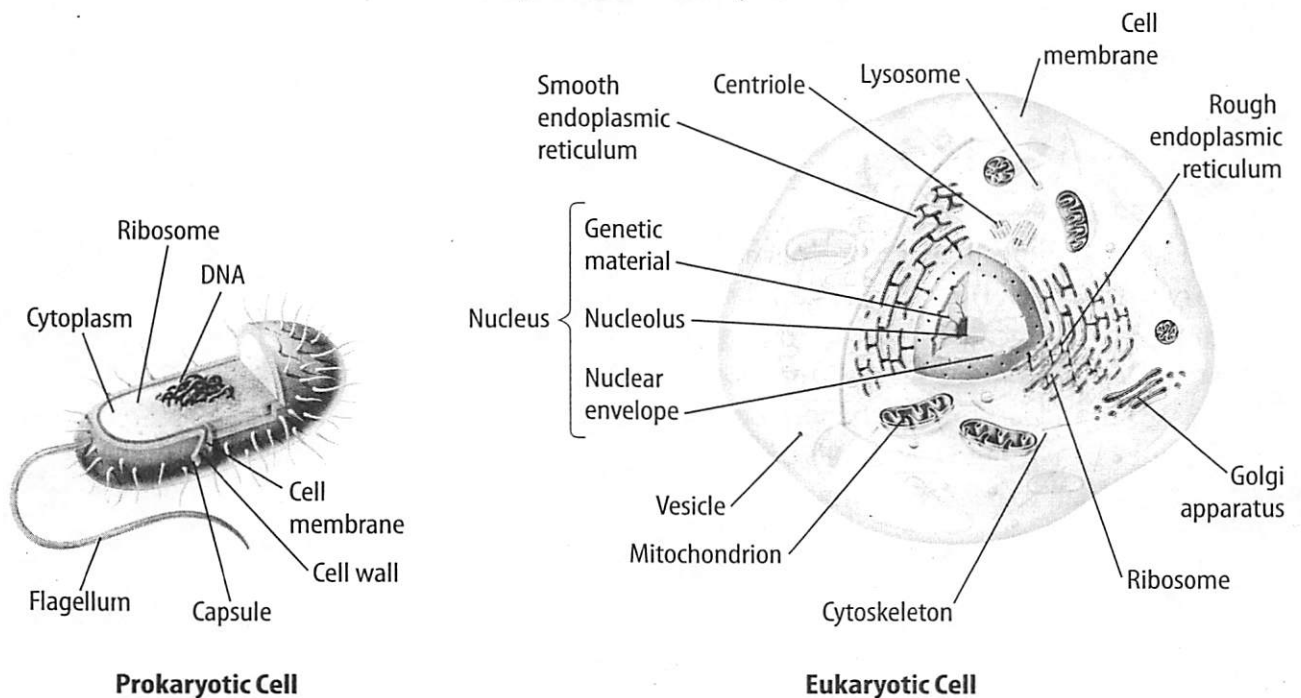
**3. State** What are the two main types of cells?

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### Prokaryotic and Eukaryotic Cells



### ✓ Visual Check

**4. Compare** What structures are in both prokaryotic and eukaryotic cells?

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## The Outside of a Cell

As you have just read, the cell membrane surrounds a cell. Much like a fence surrounds a school, the cell membrane helps keep substances inside a cell separate from the substances outside a cell. A more rigid layer, called a cell wall, also surrounds some cells.