Ch 3 3.1 Cell Theory

Cells are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Many \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contributed to the cell theory.

* + Learned about cells as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ improved.
  + The cell theory is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ concept of biology.

The \_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has \_\_\_\_\_ principles.

All \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are made of cells.

All existing cells are produced by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The cell is the most \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of life.

Prokaryotic cells lack a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and most of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ found in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells.

All cells share certain characteristics:

Cells tend to be \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

All cells are enclosed by a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

All cells are filled with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

There are two cell types: eukaryotic cells and prokaryotic cells.

* + \_\_\_\_\_\_\_\_\_\_\_\_ cells have a nucleus, while \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cells do not
  + Prokaryotic cells \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ membrane-bound organelles, while \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ do.

3.2 Cell Organelles

Cells have an internal structure.

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ has many functions.

- supports and \_\_\_\_\_\_\_\_\_\_\_\_ cell

- helps position and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ organelles

* + - provides \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - assists in cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
    - aids in cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Several organelles are involved in making and processing proteins.

* + The nucleus stores \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ information.
  + Many processes occur in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + There are two types of endoplasmic reticulum.
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ endoplasmic reticulum
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ endoplasmic reticulum
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ link amino acids to form proteins.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are membrane-bound sacs that hold materials.

Other organelles have various functions.

* + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ supply \_\_\_\_\_\_\_\_\_\_\_\_\_ to the cell.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are \_\_\_\_\_\_\_\_\_\_\_-filled sacs that hold materials.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to digest material.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are tubes found in the centrosomes.
    - Centrioles help divide \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
    - Centrioles form \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Plant cells have cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* + A cell wall provides \_\_\_\_\_\_\_\_\_\_\_\_ support.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ convert \_\_\_\_\_\_\_\_\_\_\_\_\_ energy to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ energy.

3.3 Cell Membrane

Cell membrane = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that separates a cell from the external environment.

* Cell membranes are composed of two \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layers.
  + The cell membrane has two major functions.
    - forms a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between inside and outside of the cell
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of materials
* Cell membranes are composed of two phospholipid layers.
  + The cell membrane is made of a phospholipid \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + There are other molecules embedded in the membrane.
  + The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ describes the membrane.
  + The cell membrane is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* Chemical signals are transmitted across the cell \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + Receptors bind with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and change \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + There are two types of receptors.
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ receptor
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ receptor

3.4 Diffusion & Osmosis

* Materials move across membranes because of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ differences
* Passive transport does not require energy input from a cell.
  + Molecules can move across the cell membrane through \_\_\_\_\_\_\_\_\_\_\_\_\_\_ transport.
  + There are two types of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ transport.
    - Diffusion
    - Osmosis
* Diffusion and osmosis are types of passive transport.
  + Molecules diffuse \_\_\_\_\_\_\_\_\_\_\_ a concentration gradient
  + Osmosis is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ molecules across a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ membrane.
  + There are three types of solutions.
    - \_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_
    - \_\_\_\_\_\_\_\_\_\_\_\_\_
  + Some molecules cannot easily diffuse across the cell membrane.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ diffusion is diffusion through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ proteins.

3.5 Active Transport, Endocytosis, and Exocytosis

* Cells use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to transport materials that cannot diffuse across a membrane.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ requires energy input from a cell and enables a cell to move a substance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ its concentration gradient.
  + Passive transport requires no energy from the cell.
  + Active transport is powered by chemical energy (\_\_\_\_\_\_\_\_).
  + Active transport occurs through transport protein \_\_\_\_\_\_\_\_\_\_\_\_.
  + Cells use active transport to maintain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* A cell can import and export large materials or large amounts of material in vesicles during the processes of endocytosis and exocytosis.
  + Cells use energy to transport material in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the process of taking material into the cell.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a type of endocytosis.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the process of expelling material from the cell.