Chapter 7 PPT notes - Cells

**Early Microscopes**

In 1665, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ used an early compound microscope to look at a thin slice of cork, a plant material.

Cork looked like thousands of tiny, empty chambers.

Hooke called these chambers “cells.”

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_** are the basic units of life.

**The Cell Theory**

In 1838, **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** concluded that all plants were made of cells.

In 1839, **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** stated that all animals were made of cells.

In 1855, **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** concluded that new cells were created only from division of existing cells.

These discoveries led to the **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**.

**The cell theory states:**

* + - **.**
    - **.**
    - **.**

**Prokaryotes and Eukaryotes**

Cells come in a variety of shapes and sizes.

All cells:

* are surrounded by a barrier called a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**
* at some point contain **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Cells are classified into two categories, depending on whether they contain a nucleus.

The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is a large membrane-enclosed structure that contains the cell's genetic material in the form of DNA.

The nucleus controls many of the cell's activities.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** are cells that contain nuclei.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** are cells that do not contain nuclei.

**Prokaryotes**

**Prokaryotic cells have genetic material that is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

* + Prokaryotes do not have membrane-bound organelles.
  + Prokaryotic cells are generally \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and simpler than eukaryotic cells.
  + \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_are prokaryotes.

**Eukaryotes**

Eukaryotic cells contain a nucleus in which their genetic \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_``` `` from the rest of the cell.

* + - Eukaryotic cells are generally \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and more complex than prokaryotic cells.
    - Eukaryotic cells generally contain dozens of structures and internal membranes.
    - Many eukaryotic cells are highly specialized.
    - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are eukaryotes.

7-2 Eukaryotic cell structure

**Eukaryotic Cell Structures**

Structures within a eukaryotic cell that perform important cellular functions are known as **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Cell biologists divide the eukaryotic cell into two major parts: the nucleus and the cytoplasm.

The **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** is the portion of the cell outside the nucleus.

**Nucleus**

The nucleus is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the cell.

The nucleus contains nearly all the cell's DNA and with it the coded instructions for making proteins and other important molecules.

**Ribosomes**

One of the most important jobs carried out in the cell is making proteins.

**Proteins are assembled on ribosomes**.

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** are small particles of RNA and protein found throughout the cytoplasm.

**Endoplasmic Reticulum**

**There are two types of ER—\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

In many plant cells there is a single, large **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** filled with liquid.

Vacuoles are also found in some unicellular organisms and in some animals.

The paramecium contains a **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** that pumps excess water out of the cell.

**Mitochondria**

Nearly all eukaryotic cells contain \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mitochondria \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ stored in food into compounds that are more convenient for the cell to use.

**Chloroplasts**

Plants and some other organisms contain **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Chloroplasts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and convert it into chemical energy in a process called photosynthesis.**

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a network of protein filaments that helps the cell to maintain its shape. The cytoskeleton is also involved in movement.

The cytoskeleton is made up of:

* + - microfilaments
    - microtubules

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are located near the nucleus and help to organize cell division.