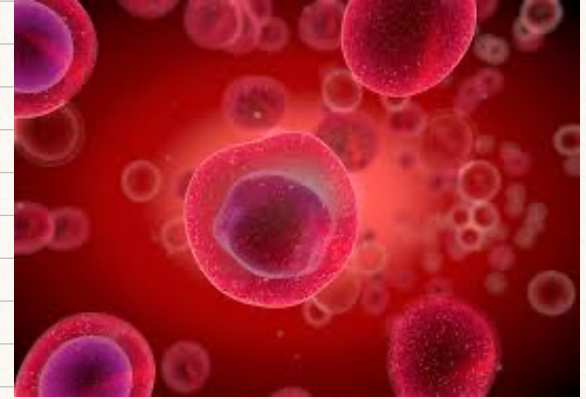


Tour of the Cell

Why do cells matter?

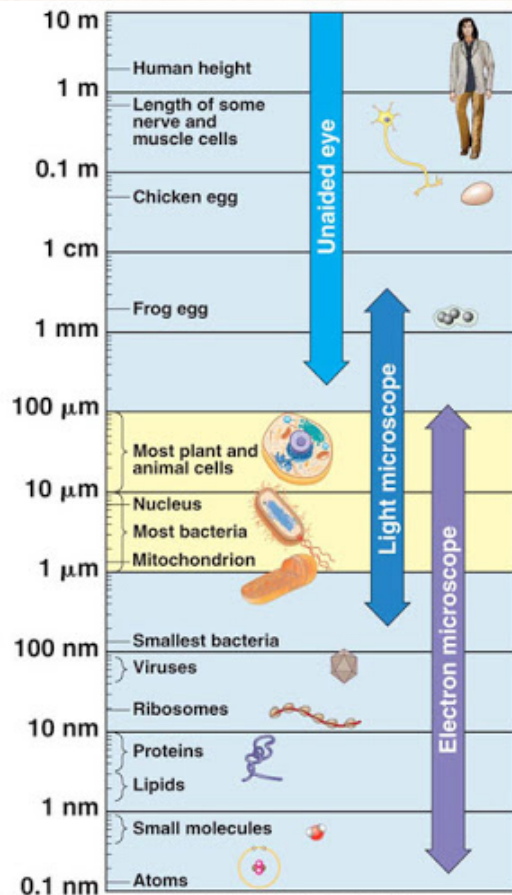
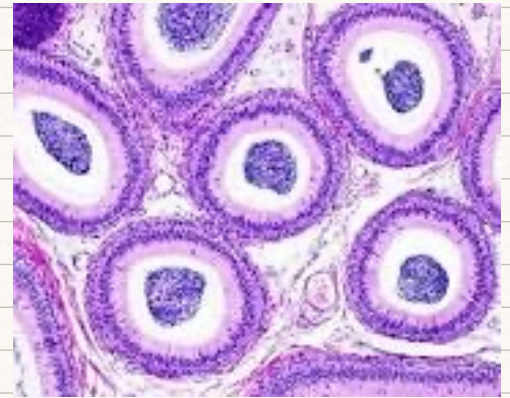
Life begins at the cellular level. Although microscopic, a cell contains complex machinery capable of supporting all of life's processes.

* Any study of biology can therefore benefit from an examination of cellular structures.



The microscopic world of cells

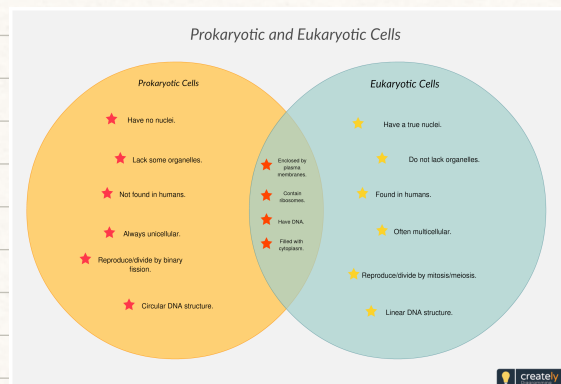
Micrographs = photographs taken w/ microscopes; light microscopes can magnify up to about 1,000-fold. Electron microscopes use beams of electrons rather than light and can show objects about 100 times smaller than light microscopes. Organisms are either single-celled, such as prokaryotes and protists, or multicellular, like plants, animals, & most fungi. Our bodies are a cooperative society of billions of cells of many specialized types.



The cell theory states that all living things are composed of cells and that all cells come from earlier cells → every cell in your body (and in every other living organism on Earth) was formed by division of a previously living cell.

Biologists classify all life into three major groups called domains. Organisms of the domains Bacteria & Archaea are composed of prokaryotic cells (prokaryotes). Organisms of the domain Eukarya - including protists, plants, fungi, and animals - are composed of eukaryotic cells (eukaryotes). Every organism that you can see w/ your own eyes is a eukaryote.

THE 2 MAJOR CATEGORIES of cells



vocabulary

DNA is the self-replicating material present in nearly all living organisms; it is the main constituent of chromosomes and the carrier of genetic information.

A protein-lined channel in the nuclear envelope that regulates the transportation of molecules between the nucleus and the cytoplasm is called a **nuclear pore**.

chromosomes are tightly coiled bundles of DNA and protein found in the nucleus of most living cells.

The **nucleus** is the most prominent membrane-bound organelle in eukaryotic cells, & it houses most of a cell's DNA.

the round body that sits inside the nucleus of a eukaryotic cell and makes ribosomal subunits from proteins and ribosomal RNA is known as the **nucleolus**.

The **nuclear envelope** is the two-layered membrane that encases the nucleus of a eukaryotic cell, separating the nucleus from the cytoplasm.

RNA is used in all steps of protein synthesis and carries the genetic information of many viruses.