

CONCEPT: PROKARYOTIC & EUKARYOTIC CELLS

• _____ karyotic & _____ karyotic are the broadest & most distinct groupings of all life.

1) **Prokaryotic Cells:** do _____ have a *nucleus* (includes both _____ & _____).

2) **Eukaryotic Cells:** do have a _____ & other membrane-bound *organelles*.

EXAMPLE: Prokaryotic & Eukaryotic Cells.

Domains of Life	Cell Type	Nucleus	Organelles	Cell Size	Cellularity
Bacteria	 Prokaryotic	_____	Absent	Small 1µm	_____ cellular
Archaea	 _____	Absent	_____	Small 1µm	Unicellular
Eukarya	 Eukaryotic	_____	Present	LARGE 100µm	Unicellular or _____ cellular

PRACTICE: Which domains of life are classified as prokaryotes?

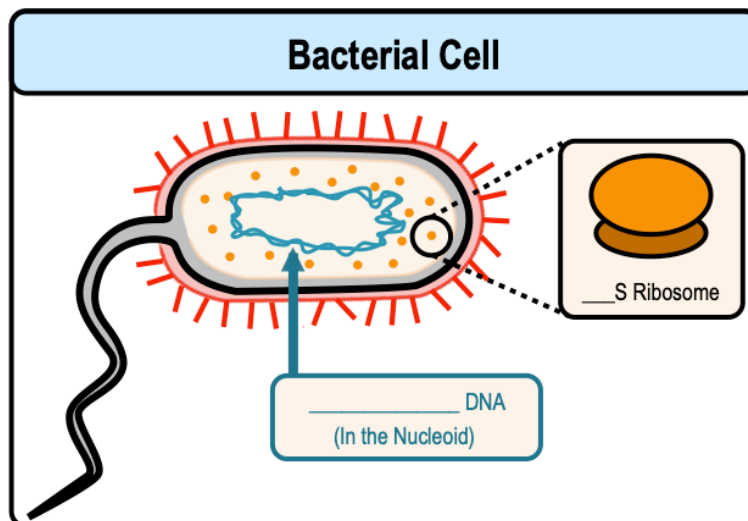
- a) Bacteria & Eukarya. b) Archaea & Fungi. c) Bacteria & Archaea. d) Bacteria & Protista.

Features of Bacterial Cells

• _____ are the most abundant & diverse organism on Earth.

☐ Bacterial DNA is _____ in shape & found in a region called the _____.

☐ Bacteria have small (_____S) *ribosomes* & divide by _____ *fission*.



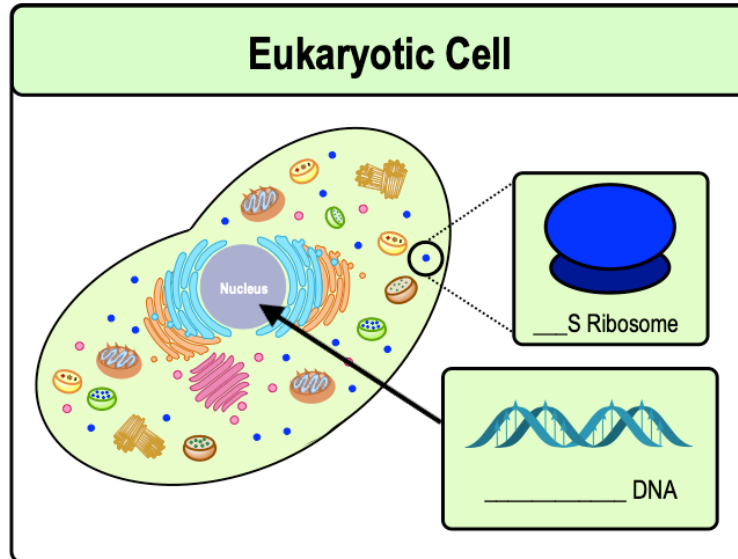
PRACTICE: In bacteria, DNA will be found in _____.

- a) A membrane-enclosed nucleus. b) Mitochondria. c) The nucleoid. d) Ribosomes.

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Features of Eukaryotic Cells

- Eukaryotic cells contain several *membrane-bound* organelles, including a _____.
- Eukaryotic DNA is _____ in shape & found _____ of the *nucleus*.
- Eukaryotes have *large* (____S) ribosomes & divide by _____ & *cytokinesis*.



PRACTICE: Which organelle packages the genetic/hereditary material in eukaryotes but not in prokaryotic cells?

- a) Nucleus. b) Mitochondria. c) Chloroplasts. d) Nucleolus.

Recap: Prokaryotic vs. Eukaryotic Cells

- Prokaryotic & Eukaryotic cells have _____ key differences:

<u>Prokaryotic Cells</u> 	<u>BOTH</u>	<u>Eukaryotic Cells</u> 
1. ____ Nucleus		1. Has a Nucleus
2. Size: Smaller (1-10 μm)	Have a Cell Membrane	2. Size: Larger (10-100 μm)
3. Less Complex	Contain the major Biomolecules:	3. More Complex
4. Only ____ cellular	- Carbohydrates	4. Unicellular or ____ cellular
5. ____ DNA	- Proteins	5. Linear DNA
6. ____ membrane-bound organelles	- Nucleic Acids	6. Has membrane-bound organelles
7. Cell Division: Binary Fission	- Lipids	7. Cell Division: _____
8. Small ____ Ribosomes		8. Larger 80S Ribosomes

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PRACTICE: Which of the following is/are a primary difference(s) between all prokaryotes and eukaryotic cells?

- a) Prokaryotes have DNA that floats freely in the cytoplasm.
- b) Prokaryotes are significantly smaller than eukaryotic cells.
- c) Prokaryotes do not have ribosomes like eukaryotic cells.
- d) a and b.
- e) a, b, and c

PRACTICE: Which of the following is not a common feature shared by all types of cells?

- a) Contains DNA as the genetic material.
- b) Contains a protective cell wall or cell membrane.
- c) Contains a fluid-like portion called the cytoplasm.
- d) Contains a nucleus that stores the genetic material.

PRACTICE: You isolate a cell with the following characteristics: (1) no nucleus, (2) a cell wall, and the cell is (3) 2 μm in size. This cell could be a/an:

- a) Bacterium.
- b) Plant cell.
- c) Animal cell.
- d) Bacterial cell or a plant cell.
- e) Plant cell or an animal cell.