

## PRACTICE: TYPES OF CELLS AND THE ENDOSYMBIOTIC THEORY

### THE CELL THEORY

1. All living things are composed of one or more **CELLS**.
2. Cells are the basic **UNITS** of structure and function in an organism.
3. Cells come only from **PRE-** existing cells.

### TYPES OF CELLS IN TERMS OF COMPLEXITY:

#### 1. PROKARYOTES

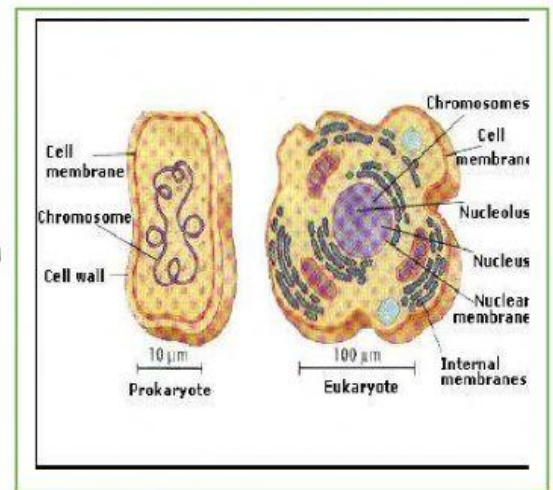
- \_\_\_\_\_ nucleus
- \_\_\_\_\_ membrane-bound organelles
- Lack other \_\_\_\_\_; simple parts

- All prokaryotes are unicellular organisms. Not all unicellular are prokaryotes.
- Examples: Blue-green algae and bacteria

#### 2. EUKARYOTES

- \_\_\_\_\_ nucleus
- \_\_\_\_\_ membrane-bound organelles
- Have more **ORGANELLES**; more complex

- Some eukaryotes are unicellular, some are multicellular.
- Example: plants and animals

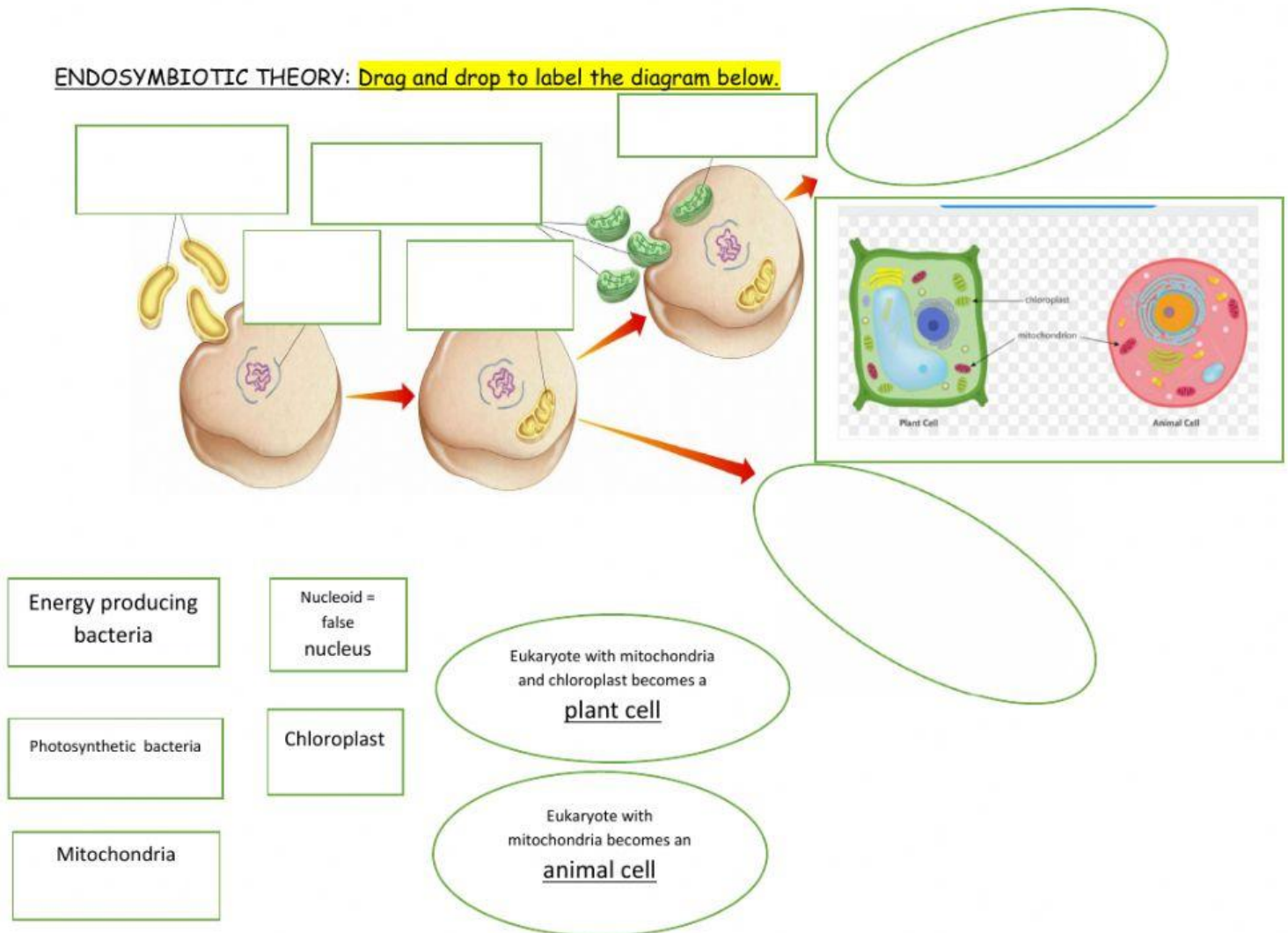


	PROKARYOTE	EUKARYOTE		
	Bacterial Cell	Animal Cell	Plant Cell	All Cells
1. Cell Membrane	—	—	—	—
2. Ribosome	—	—	—	—
3. Cytoplasm	—	—	—	—
4. Mitochondria	NO	YES	YES	NO
5. Nucleolus – (inside the nucleus)	NO	YES	YES	NO
6 Nucleus	—	—	—	—
7. DNA	—	—	—	—
8. Cell Wall	YES	NO	YES	NO
9. Chloroplast	NO	NO	YES	NO
10. permanent or big vacuole	NO	NO	YES	NO

## ENDOSYMBIOTIC THEORY

- The endosymbiotic theory is the idea that a long time ago, prokaryotic cells engulfed other prokaryotic cells using the process of endocytosis. This resulted in the first eukaryotic cells. This explains the origin of certain membrane-bound organelles in eukaryotic cells.

ENDOSYMBIOTIC THEORY: Drag and drop to label the diagram below.



- What evidence support the endosymbiotic theory? Choose all that apply.
  - There are similarities between mitochondria, chloroplasts, and prokaryotic bacteria.
  - Mitochondria, chloroplasts, and prokaryotic bacteria have different sizes and do not resemble similarities.
  - Mitochondria, chloroplasts, and prokaryotic bacteria have almost the same size!
  - Mitochondria, chloroplasts, and prokaryotic bacteria all have their own circular DNA.
  - Mitochondria, chloroplasts, and prokaryotic bacteria have only a single membrane protection.
  - Mitochondria, chloroplasts, and prokaryotic bacteria have ribosomes.
  - Mitochondria, chloroplasts, and prokaryotic bacteria have reproduce using binary fission.
  - Mitochondria, chloroplasts, and prokaryotic bacteria have double membranes.

