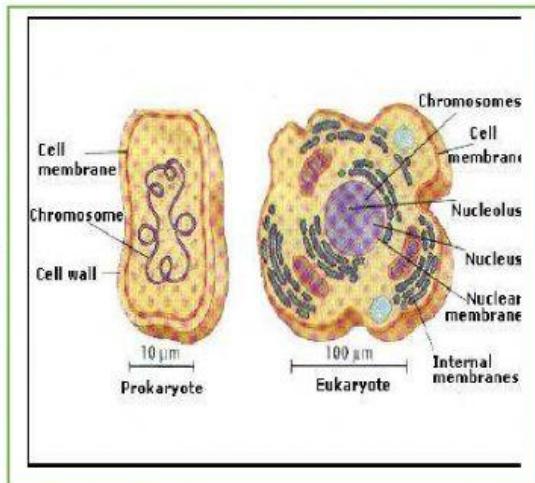


## PRACTICE: TYPES OF CELLS AND THE ENDOSYMBIOTIC THEORY

### 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

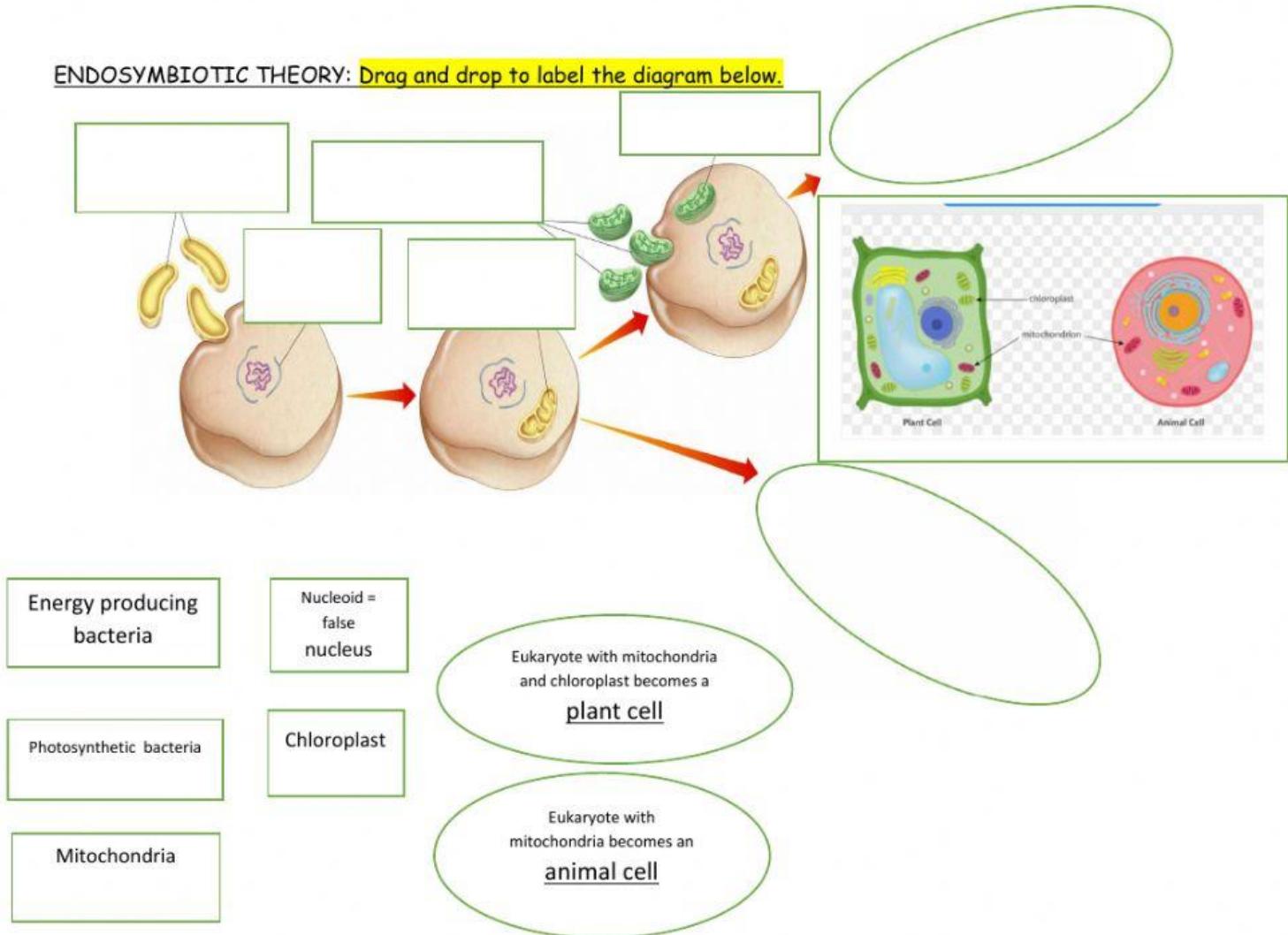
- Some eukaryotes are unicellular, some are multicellular.
- Example: plants and animals

	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.

