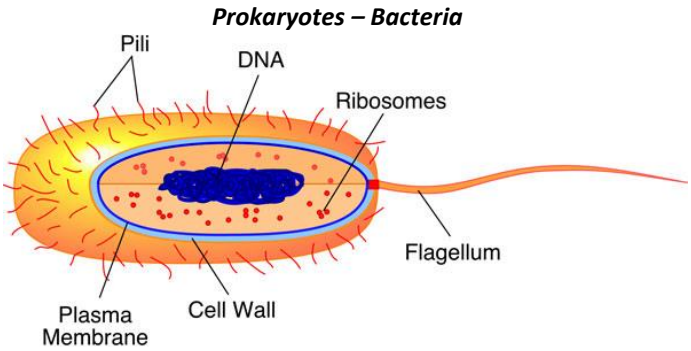
Name: _____ Date: _____ Period: _____

Cell Comparison (Prokaryotes and Eukaryotes)

Prokarvotes

PRO – **NO** Nucleus



Prokaryotes, which include **bacteria**, are the simplest of all the cells. All prokaryotes have **DNA**. They also have **ribosomes** to make proteins. *They do NOT have a nucleus* or "membrane-bound" organelles (organelles surrounded by a membrane). They are surrounded by a **cell membrane** and a **cell wall**. All bacteria are prokaryotes and all prokaryotes are bacteria. They are found everywhere. They are thought to be some of the oldest life forms on earth.

1. What 4 characteristics do all prokaryotes have in common?
   _____,
   _____,
   _____,
   _____

2. What living organisms are prokaryotes and where can they be found?
   _____
   _____

3. What structure is NOT in prokaryotes?
   _____

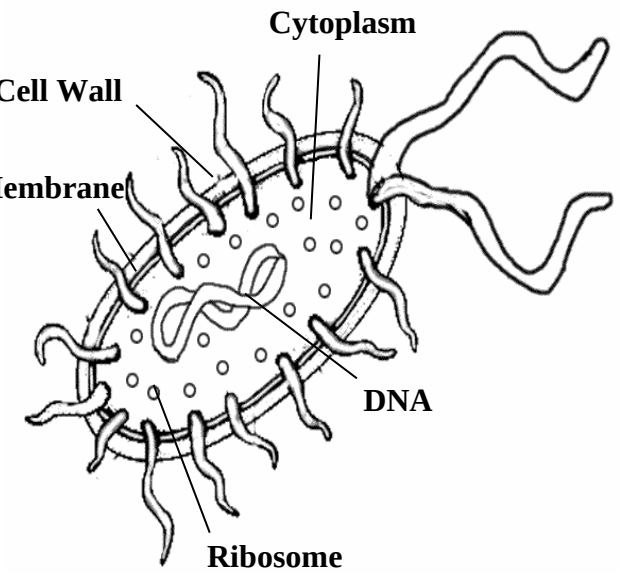
Bacteria (prokaryotes) are **unicellular** and are covered a **cell wall**. Just within the cell wall is the **cell membrane**. Bacteria are prokaryotes, they do **NOT** have a nucleus. They do have **DNA**. The extra space in the cell is filled with a fluid called **cytoplasm**. Sprinkled throughout the cytoplasm of the cell are small, round structures called **ribosomes.** Ribosomes make proteins for the cell.

4. What covers the outside of all prokaryotes?
   _____

5. What structure, if present, let bacteria be motile?
   _____

6. What two structures are found inside the prokaryotic cell?
   _____

7. What do ribosomes make?
   _____



Eukaryotes

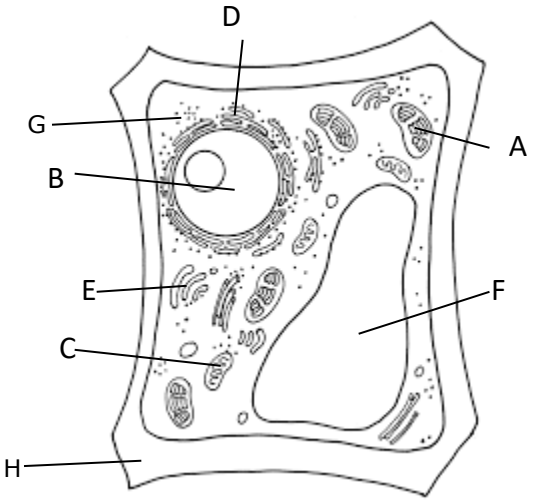
EU – **DO** have Nucleus

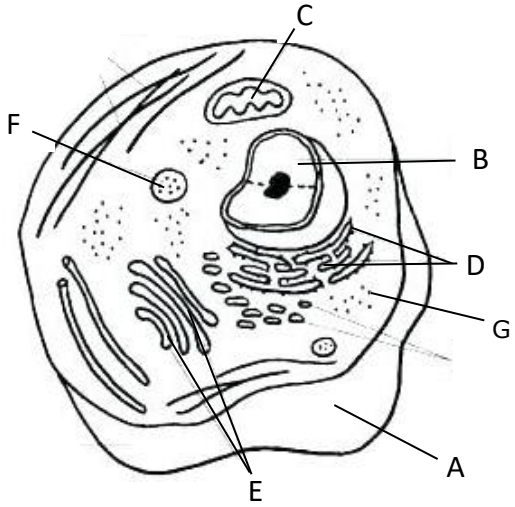
Eukaryotic cells have more structures than prokaryotic cells. Eukaryotes and prokaryotes **both** have a **cell membrane**, **ribosomes** and **DNA**. Eukaryotes also have a **nucleus**! The **DNA** in eukaryotic cells is found in the **nucleus**. Eukaryotes also have organelles. **Organelles** are structures that perform specific functions. **Ribosomes** are very tiny structures found in both prokaryotes and eukaryotes.

Eukaryotes are organisms made of one or more cells. They are **unicellular** or **multicellular**. Every type of multicellular organism that exists is made up of eukaryotic cells. The only living organisms that are not eukaryotes are bacteria (they are prokaryotes).

8. Where is DNA found in a eukaryotic cell? _____
9. What types of organisms are eukaryotic? _____
10. What structures are found in BOTH prokaryotes and ALL eukaryotes?
    _____, _____, _____, and _____

Color the organelles of the eukaryotic *plant and animal* cells below. Color the (A) **chloroplast** green, the (B) **nucleus** red, the (C) **mitochondria** blue, the (D) **endoplasmic reticulum** (E.R.) orange, the (E) **Golgi** yellow and the (F) large **vacuole** purple, the (G) **ribosomes** – draw a pink square around some ribosomes, and (H) **cell wall** grey.





PLANT CELL!

A Chloroplast – makes energy
B Nucleus – contains DNA
C Mitochondria – makes energy
D Endoplasmic reticulum – transports proteins
E Golgi – packages and delivers proteins
F Vacuole – stores water and salts
G Ribosomes – make proteins
H Cell Wall – provides support and structure

ANIMAL CELL!

A Cell Membrane – allows things into & out of cell
B Nucleus – contains DNA
C Mitochondria – makes energy
D Endoplasmic reticulum – transports proteins
E Golgi – packages and delivers proteins
F Lysosome – uses enzymes to clean the cell
G Ribosomes – make proteins