

Prokaryotic Cells

Part 1: General Information about Prokaryotes

1. Prokaryotic cells are capable of a wide variety of metabolic activities. *Define each of the following:*

- Photosynthesis: _____

- Nitrogen fixation: _____

- Fermentation: _____

2. Structures of the prokaryotes. *Describe the structure and function of each of the following with regard to prokaryotes.*

- Ribosomes: _____

- Cytosol / cytoplasm: _____

- Nucleoid: _____

- DNA: _____

- Plasmid (in some prokaryotes, not all): _____

- Capsule (in some prokaryotes, not all): _____

- Cell wall (in some prokaryotes, not all): _____

- Flagellum (in some prokaryotes, not all): _____

- Pili (in some prokaryotes, not all): _____

Part 2: Eubacteria

Using the picture in the textbook or posted on line, draw and label a diagram of a bacteria cell as seen through an electro-micrograph. Draw on the blank portion on the front of this packet.

Part 3: Archaea

Go to the website <http://www.ucmp.berkeley.edu/archaea/archaea.html> and answer the following questions about Archaea.

3. When were archaea first discovered?
4. List five of the extreme environments that archaea inhabit?

Click on the link of the bottom of the page for "More on Morphology" and answer the following questions.

5. How big (or small, depending on how you look at it 😊) are archaea?
6. Describe the structural diversity of the archaea.
7. In what ways are the cellular structures of archaea and eubacteria similar?
8. What general cellular structures do archaea have in common with ALL cells?

Part 4: Cyanobacteria

The largest prokaryotes are cyanobacteria, also called blue green algae. They contain chlorophyll pigments for photosynthesis, but these pigments are not contained in membrane bound chloroplasts. Instead, the pigments are held in photosynthetic membranes called thylakoids. Cyanobacteria are often surrounded by a mucilaginous sheath.

Go to the website <http://www.ucmp.berkeley.edu/bacteria/cyanointro.html> and answer the following questions about cyanobacteria.

9. List two examples of how cyanobacteria have played an important role in the evolution of life on Earth.
10. What is endosymbiosis?
11. Cyanobacteria are also known as blue-green algae. Is the term 'algae' appropriate for cyanobacteria? Why or why not?

Click on the link of the bottom of the page for Life History and Ecology and answer the following questions.

12. Describe the relationship between cyanobacteria and fungi.