

## Chapter 27. Bacteria and Archea

### Definitions, explanations, lists (not to be handed in)

Peptidoglycan  
Plasmids  
Binary fission  
Endospores  
Transformation / Transduction / Conjugation  
4 major modes of nutrition of prokaryotes  
Obligate aerobes  
Obligate & facultative anaerobes  
Nitrogen fixation  
Habitats &/or metabolism of 3 main groups of extremophiles  
Bioremediation

### **Assigned Questions (SUBMIT)**

- 1) Rank 3 types of prokaryotes in terms of the amount of peptidoglycan in their cell wall.**
- 2) Why are gram-negative bacteria typically more pathogenic than gram-positive bacteria?**
- 3) How do the flagella of prokaryotes differ from those of eukaryotes?**
- 4) Identify two ways that prokaryotes have affected you positively last week and two ways that prokaryotes have ever affected you negatively.**
- 5) A bacterium requires only the amino acid methionine as an organic nutrient and lives in lightless caves. What mode of nutrition does it employ?**

### Review Exercises

Try the self-quiz & Concept Check 27.2 #1 and Concept 27.3 #1.

- 1) The production of antibiotics by bacteria is the ecological equivalent to what behaviour in some birds?  
(Background in ecology needed)
- 2) Do bacteria have sex? What about sexual reproduction?
- 3) Describe how horizontal gene transfer plays an important role in prokaryote evolution.
- 4) Could eukaryotes live without prokaryotes? Could prokaryotes live without eukaryotes?
- 5) Why are cyanobacteria self-sufficient organisms? (p.604)
- 6) Distinguish between the four major modes of nutrition, noting which are unique to prokaryotes.