

Chapter 19

The Diversity of Prokaryotes and Viruses

19.1 Which Organisms Are Members of the Domains Archaea and Bacteria?

- Earth's first organisms were prokaryotes, single-celled microbes that lacked organelles
- Prokaryotes are still abundant, forming two of life's three domains
 - Bacteria
 - Archaea
- Bacteria and Archaea are fundamentally different
 - They have a few similarities
 - They are both prokaryotic
 - They are both single-celled organisms

- Differences between Bacteria and Archaea
 - Structural and biochemical features
 - Bacteria and Archaea have different cell walls
 - There are also differences in the plasma membrane composition, ribosomes, and RNA polymerases between the two domains
 - Differences in transcription and translation processes