Diversity of Living Things Unit Outline

THE BIG IDEA

All living things can be classified according to their anatomical and physiological characteristics. Human activities affect the diversity of living things in ecosystems.

How do we classify diverse organisms?

- Taxonomy (chapter 1)
  - What is taxonomy?
  - Definition of species
  - Binomial nomenclature
  - Linnean system of classification
    K P C O F G S
- Using dichotomous key
- General characteristics of 6 kingdoms
- Phylogeny
  - What is phylogeny?
  - Why is it important to study?
- Biodiversity and natural selection
- Importance of genetic variation and how it relates to biodiversity

What are the characteristics of each kingdom?

- Prokaryotes: Archaebacteria and Eubacteria (2.1)
  - General characteristics of bacteria
  - Structure and cell shape
  - Gram Stain, Nutrition, Respiration
  - Reproduction: Asexual (binary fission) and Sexual (conjugation, transformation, transduction)
  - Significance of each type of reproduction
  - Examples of useful and harmful bacteria
  - Role in the ecosystem and diseases
- Protists (2.2)
  - Prokaryotic vs. eukaryotic cells
  - Evolution of prokaryotes to eukaryotes
  - General characteristics
  - Reproduction/life cycle
  - Example and description of animal-like, plant-like and fungi-like protists
- Fungi (2.3)
  - Characteristics
  - Classification: case, sac, club, imperfect
  - Reproduction/life cycle
  - Examples of applications and uses
- Plants (3.1)
  - General characteristics
  - Reproduction/life cycle
  - Vascular vs. non-vascular plants
  - Gymnosperm vs. angiosperm
- Animals (3.2)
  - Common characteristics of all animals
  - Characteristics of: porifera, cnidaria, platehelminthes (flatworms), nematoda (round worm), annelida (segmented worm), mollusca, echinodermata, arthropods, chordata
  - Compare the structure, digestive system/methods, and reproduction of each phyulm
  - Human activity affecting diversity of nature

What are viruses? How do humans interact with living things?

- Viruses (2.1)
  - Why are they non-living?
  - Classification
  - Reproduction: Lytic and Lysogenic cycles
  - Significance of each cycle
  - Examples of each virus
  - What is a retrovirus?
- A.I.D.S.: What is it? What causes it? What are the symptoms? How does the virus effect the host? Prevention? Treatment?
- Immune System Response: Ways we defend ourselves from pathogens
- Active and Passive Immunity
- Antibiotic resistance
- Biotechnology involving bacteria and viruses
- Bioremediation involving bacteria