

GENERAL BIOLOGY Lecture 25 - Animal Diversity

- I. Generalized trend in rise of major groups of living organisms
  - A. Bacteria & protists =====> fungi, plants, and animals  
i.e., bacteria - aquatic plants (algae), early fishes - ferns, vascular land plants - land invertebrates - gymnosperms - amphibians - reptiles - marine reptiles - mammals - birds - flowering plants - marine mammals
  - B. Where do animals fit into the scheme of evolution?
    - 1. Probably as one of the branch points in the diversity of life
- II. Characteristics of the Kingdom Animalia - "the animals"
  - A. Multicellular (except for sponges) - cells, tissues, and organs
  - B. Heterotrophs - get food from other organisms
  - C. Diploid - reproduce sexually (or asexually)
  - D. Life cycle includes embryonic development - embryo develops to make ectoderm, mesoderm, and endoderm - which eventually makes tissues and organs
  - E. Motility - most animals can move
- III. Body plan of the animal - classification characteristics
  - A. Body symmetry (except sponges) - radial or bilateral
  - B. Gut - a food tube (can be just a mouth)
  - C. Body cavity - a place for organs (coelom in vertebrates)
  - D. Segmentation - body sections, i.e., worms and insects
  - E. Cephalization - definition of a head
- IV. Some Interesting Phyla ( a few of more than thirty)
  - A. Mollusca (soft-bodied animals) - snails, slugs, clams, squids
  - B. Arthropoda (exoskeleton, segments) - crabs, spiders, millipedes, insects
    - 1. Insects - most successful invertebrates on land
  - C. Chordata (spinal cord) - fish, amphibians, reptiles, birds, mammals
- V. A closer look at Chordata
  - A. Most are vertebrates
    - 1. Brain and nerve chord are protected by a column of cartilage or bone
  - B. Evolutionary trend (?): fish - amphibians - reptiles - mammals
  - C. Examples of amphibians - salamanders, frogs, toads
  - D. Examples of reptiles - turtles, crocodiles, snakes, and lizards
  - E. Examples of mammals - dog, cat, man
    - 1. Note: birds are not mammals
- VI. Characteristics of mammals
  - A. Young are nourished by milk-secreting glands of the adult
  - B. Most have hair
  - C. Lungs
  - D. Four-chambered heart
  - E. Well-developed cerebral cortex