

March 4, 2015

Nervous System

Announcements

- Quiz 5 now available
  - Dues Sunday, March 8, 11:59 pm
- Critical Thinking #3 now available
  - Due Monday, March 16, 11:59 pm

Outline

- What is an animal?
  - Invertebrates vs Vertebrates
- Nervous System
  - Sensory Input
  - Integration
  - Motor Output
- Your body on alcohol

What is an animal?

- All animals...
  1. Eukaryotic: cells that have a nucleus
  2. Heterotrophic: Have to rely on some other organism to get their food
    - Have to actively seek out food
- Most animals...
  1. Have nerve cells
    - So they can detect changes in environment

2. Have muscle cells
  - Muscle tissue makes up most of animal so it can move
3. Diploid
  - Two sets of chromosomes
4. Reproduce sexually by producing haploid gametes
5. Multicellular

#### Invertebrates

- Animals without true backbones (no spinal cord)
- Over 95% of all animal species are invertebrates
  - o Terrestrial, marine, freshwater, etc. (large variety)
  - o Echinoderms
  - o Cnidarians
  - o Annelids
  - o Molluscs
  - o Sponges

#### Invertebrates: Arthropods

- Most abundant
  - o About one million species
- 2 out of 3 named species are arthropods
  - o Arachnids
  - o Centipedes
  - o Millipedes
  - o Crustaceans

- o Insects

#### Vertebrates: Chordates

- All chordates have 4 characteristics present in embryos
    - o Some species lose characteristics as organism develops
    - o But common in embryonic stage for all organisms that fall in the Chordate group
1. Dorsal, hollow nerve cord
  2. Notochord
    - o Located between digestive tract and nerve cord within embryo
    - o Develops for organisms with more complicated spinal cord
    - o Creates the spinal disks
  3. Pharyngeal pouches
    - o Throat, jaw, neck area
    - o Fish → develop into gills
    - o Humans → Pharynx and Larynx
  4. Post-anal tail
    - o Being born with partial tail

#### Fishes

- Oldest and most diverse
- Freshwater and Marine
- Ectotherms → have to absorb heat from environment
  - o Core temp varies a lot
- Common Characteristics
  - o Gills