Biology 10

Ch 25-1, 25-2 (Animal Characteristics)

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Objectives

- Be able to define the general characteristics of animals.
- Distinguish between invertebrates and chordates
- Describe the essential functions animals must perform to survive
- Describe the different body plans of animals.
- Explain the evolution of animals.

Kingdom Animalia

- multicellular, eukaryotic heterotrophs
- most are _____
  - adult stage may be _____ (eg: filter feeders)
- found in almost all habitats on Earth (sea, land, air)

Types of Animals

- Animals can be broken down into two main groups:
  - _____
  - _____

Invertebrates

- Animals _____
- Includes sponges, cnidarians, worms, arthropods, mollusks, echinoderms
- _____ of all animal species

Chordates:

- General Characteristics
  - **notochord**: a flexible dorsal _____
  - **dorsal hollow nerve tube**: most other organisms

have two nerve tubes, which are solid
- **pharyngeal gill pouches**: gill pouches generally form _____ in aquatic chordates, but are reabsorbed in _____ chordates
- _____

Animal Functions for Survival

1) Maintain homeostasis
   - usually use _____ to manage this
2) Gathering and Responding to Information
   - must have ways to sense their environment and promote responses
   - usually the function of the _____
3) Obtaining and Distributing Oxygen and Nutrients
   - oxygen usually obtained through a _____ (gills, skin, lung)
   - oxygen distributed through some sort of _____ _____(blood, water, etc)

Animal Functions for Survival

4) Collecting and Eliminating CO_2 and Other Wastes
   - CO_2 usually eliminated via _____
   - nitrogenous wastes eliminated via _____
   - _____ is also needed to collect and route wastes accordingly
5) Reproducing
   - Animals mostly reproduce _____, but some invertebrates and a few chordates can reproduce _____ as well
   - function of the _____, of course

Patterns of Symmetry

- **asymmetry**- _____ of symmetry
- **radial symmetry**- can be divided into two equal halves along _____ (eg: starfish)
  - allows organism to sense things from all directions
- **bilateral symmetry**- can only be divided into two equal halves _____ (eg: humans)
  - allows specialization of head region for sensing environment (_____)

Patterns of Development

- **zygote**- results from union of _____
- zygote divides, forms a hollow ball of cells (_____)
- One group of cells begins to move inward, forming an opening called _____
  - if blastopore forms a mouth- animal is _____
  - if blastopore forms an anus, animal is _____
- blastula then folds, resembles a cup (_____)
- gastrula gives rise to _____- layers of cells that give rise to future tissues

Germ Layers

- **ectoderm**- _____ (forms outer covering of animal, and nervous system)
  - skin, exoskeleton, shell, etc.
- **endoderm**- _____ (forms digestive cavity)
- **mesoderm**- not present in all animals
  - gives rise to _____

Body Plans

- **<u>coelom</u>**: a body cavity formed _____ of an animal
- Three body plans based on presence of coelom

Acoelomate

- **acoelomate**: have either two germ layers (_____) or three germ layers (_____), but no coelom present

Pseudocoelomate

- **pseudocoelomate**: have ectoderm, mesoderm, then body cavity (_____), then endoderm
  - note: mesoderm only on outside of body cavity, so not a true coelom!

Coelomate

- **coelomate**: have ectoderm, mesoderm, body cavity (_____), then more mesoderm, then endoderm

Segmentation

- **segmentation**: _____
- found in worms, arthropods and vertebrates
- important because mutations can cause the number of segments to change
- segments can be modified to form various body structures (_____, etc)