**Introduction to the Animal Kingdom**

Most diverse kingdom in appearance
Each phylum has its own typical body plan (arrangement)

**What is an Animal?**

Animals are heterotrophic, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and multicellular and lack cell walls.

95% = invertebrates (do not have backbone)
5% = vertebrates (have a backbone)

**\*\* Heterotroph:** An organism that cannot manufacture its own food and instead obtains its food and energy by taking in organic substances, usually plant or animal matter.

Physiology = Study of the functions of organs
Anatomy = the structure of the organism/organs
Zoology = the study of \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**What Animals do to Survive**

**There are 7 essential functions of animals:**

1. Feeding:

Herbivore = \_\_\_\_\_\_\_\_\_\_
Carnivore = eats animals
Omnivore = eats plants and animals
Detritivore = feed on decaying organic material
Filter Feeders = aquatic animals that strain food from water
Parasite = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (symbiotic relationship)

2. Respiration:
Take in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and give off \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Lungs, gills, through skin, simple diffusion

3. Circulation:
Very small animals rely on diffusion
Larger animals have \_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Excretion:
Primary waste product is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Liquid waste

5. Response:
Receptor cells = sound, light, external \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Nerve cells => nervous system

6. Movement:
Most animals are motile (can move)
Muscles usually work with a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Reproduction:
Most reproduce sexually = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Many invertebrates can also reproduce asexually = to increase their numbers rapidly

**Trends in Animal Evolution**

Body **Symmetry** -the body plan of an animal, how its parts are arranged

Asymmetry - \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (corals, sponges)

Radial Symmetry - shaped like a \_\_\_\_\_\_\_\_\_\_\_\_\_\_(starfish, hydra, jellyfish)

Bilateral Symmetry - has a right and left side (humans, insects, cats, etc)



**Cephalization** - anterior concentration of sense organs, basically the organism has a head, usually with eyes, nose and other sense organs, plus a brain

Body sides: anterior: \_\_\_\_\_\_\_\_\_\_\_, posterior:\_\_\_\_\_\_\_\_\_\_\_\_\_\_, dorsal:\_\_\_\_\_\_\_\_\_\_\_\_\_\_, ventral:\_\_\_\_\_\_\_\_\_\_\_\_



**Segmentation** - segments of the body become specialized for specific purposes

**Trends in Animal Evolution**

Early Development:

Zygote = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
Blastula = a hollow ball of cells
Blastopore = the blastula folds in creating this opening
Protostome = mouth is formed from blastopore
Deuterosome = anus if formed from blastopore
Anus = opening for solid waste removal from digestive tract

The cells of most animal embryos differentiate into three layers called germ layers

Endoderm = (innermost) develops into the lining of the digestive tract and respiratory tract
Mesoderm = (middle) muscle, circulatory, reproductive, and excretory systems
Ectoderm = (outermost) sense organs, nerves, outer layer of skin

**Kingdom Animalia**

1. Phylum Porifera (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

2. Phylum Cnidaria (sea anemones, jellyfish, coral, hydra)

3. Phylum Platyhelminthes (flatworms)

4. Phylum Nematoda (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

5. Phylum Annelida (segmented worms, earthworms, leeches)

6. Phylum Mollusca (clam, squid, snails, slugs)

7. Phylum Arthropoda (crustaceans, insects, spiders)

8. Phylum Echinodermata (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

9. Phylum Chordata (includes all vertebrates)