

## Kingdom Animalia – Notes on the 9 Phyla

- Animals are multicellular
- Eukaryotes, cells lack cell walls
- Heterotrophs
- Diploid (except gametes)
- (No cell wall, no alternation of generations, no gametophytes)
- 2 groups: invertebrates & vertebrates

Most have...

- Complex structure (tissues, organ systems)
- Sexual reproduction
- Movement
- Symmetry (radial or bilateral)

### **Invertebrates:**

- No backbone (vertebrae)
- 95% of all animals are invertebrates
- 8 main phyla

<b>Phylum</b>	<b>Major Characteristics</b>	<b>Examples</b>
<b>Porifera</b> (sponges)	<ul style="list-style-type: none"> <li>• No symmetry</li> <li>• No tissue organization, different cells perform different functions</li> <li>• Sac-like bodies – hole in the top leading to open body cavity</li> <li>• Filter feeders – water flows in through pores in body wall and out through top hole</li> <li>• Both sexual and asexual reproduction</li> <li>• <b>Sessile</b> (doesn't move), but larvae do move</li> </ul>	Sponges
<b>Cnidaria</b> (Hydras, jellyfish, sea anemones, corals)	<ul style="list-style-type: none"> <li>• Hollow gut with a single opening</li> <li>• Tentacles with stingers</li> <li>• Prey is stung and stuffed through opening in the gut.</li> <li>• Gets oxygen, water, and gets rid of waste through diffusion</li> </ul>	Hydras, jellyfish, sea anemones, corals
<b>Platyhelminthes</b> (flatworms)	<ul style="list-style-type: none"> <li>• Bilateral symmetry</li> <li>• Most are parasites</li> <li>• Flukes feed on host tissue</li> <li>• Tapeworms feed on materials in the host's gut</li> </ul>	Planarian, tapeworms, flukes  Diseases: Pig/cattle tapeworms Schistosomiasis

<p><b>Nematoda</b> (roundworms)</p>	<ul style="list-style-type: none"> <li>• Most are microscopic</li> <li>• Digestive system: two openings (mouth and anus) – one way digestive system (finally!)</li> <li>• Movement: Muscles run the length of the body, which gives them a whip-like motion when they contract</li> <li>• Reproduction: both sexes are present; female is usually larger than male</li> </ul>	<p>Guinea worm, Ascaris, pinworms</p> <p>Diseases: Elephantiasis (worm in lymph nodes)</p>
<p><b>Annelida</b> (segmented worms)</p>	<ul style="list-style-type: none"> <li>• Segmented bodies help in crawling and burrowing into dirt and holes</li> <li>• Earthworms are hermaphrodites</li> <li>• Most are filter feeders, carnivores or parasites (e.g., leeches feed on animal blood)</li> </ul>	<p>Earthworms, marine annelids, leeches</p>
<p><b>Mollusca</b> (mollusks)</p>	<ul style="list-style-type: none"> <li>• Bilateral symmetry</li> <li>• unsegmented with defined head</li> <li>• Main parts include: a muscular foot, a head, and a visceral mass (contains organs)</li> <li>• Live in oceans, freshwater, and on land</li> </ul>	<p>Snails, clams, squid, octopus</p>
<p><b>Arthropoda</b> (insects, spiders)</p>	<ul style="list-style-type: none"> <li>• Largest animal phylum -- includes 2/3 of all named species</li> <li>• Jointed exoskeletons made of chitin, shed as the animal grows</li> <li>• Segmented –head, thorax, abdomen</li> <li>• Mouth and anus for digestion</li> <li>• Developed special appendages <ul style="list-style-type: none"> <li>○ Antennae for sensing environment</li> <li>○ Legs for walking or jumping</li> <li>○ Wings for flying</li> <li>○ Mouthparts for chewing, piercing, sucking</li> </ul> </li> </ul>	<p>Insects, crabs, lobsters, shrimp, scorpions, spiders</p>
<p><b>Echinodermata</b> (sea stars)</p>	<ul style="list-style-type: none"> <li>• Five-part radial symmetry as adult</li> <li>• Spiny skin, endoskeleton (skeleton inside of skin), water vascular system, tube feet</li> <li>• Able to regenerate</li> <li>• Thousands of feet for moving across the seafloor</li> </ul>	<p>Starfish, sea urchins, sand dollars, sea biscuits, sea cucumbers</p>