

## KINGDOM ANIMALIA: PHYLUM SUMMARY TABLE

Phylum	PORIFERA	CNIDARIA	PLATYHELMINTHES (flatworms)	NEMATODA (roundworms)	ANNELIDA (segmented worms)
<b>Examples</b>	Sponges	Sea jellies, Hydra, coral colonies, sea anemones	Planaria, tapeworm	<i>Trichinella</i> , hookworm, nematode	Earthworm, polychaete worms, leech
<b>Body type</b> (Symmetry)	Asymmetry	Radial symmetry	Bilateral symmetry	Bilateral symmetry	Bilateral symmetry
<b>Ecological roles</b>	<ul style="list-style-type: none"> <li>• Food source</li> <li>• home / shelter</li> <li>• symbiotic with bacteria</li> </ul>	<ul style="list-style-type: none"> <li>• Food source</li> <li>• Reef- home, protect shores</li> <li>• Chem. – anticancer</li> </ul>	<ul style="list-style-type: none"> <li>• Food source</li> <li>• Parasitic</li> <li>• Eat dead animals – saprophyte</li> </ul>	<ul style="list-style-type: none"> <li>• Food source</li> <li>• Parasitic</li> <li>• Aerate soil</li> <li>• Breakdown material</li> </ul>	<ul style="list-style-type: none"> <li>• Food source</li> <li>• Parasitic</li> <li>• Aerate soil</li> <li>• Breakdown material</li> </ul>
<b>Body organization</b> (# germ layers)	2 germ layers Ectoderm, endoderm	2 layers: ecto & endo With mesoglea between	3 layers: ectoderm, mesoderm, endoderm	3 layers: ectoderm, mesoderm, endoderm	3 layers: ectoderm, mesoderm, endoderm
<b>Body cavity</b>	Acoelom	Acoelom	Acoelom	Pseudocoelom	Coelom
<b>Digestive system</b>	<ul style="list-style-type: none"> <li>• Filter feed: collar cells, food vacuoles, osculum</li> </ul>	<ul style="list-style-type: none"> <li>• Gastrovascular cavity, mouth, and nematocysts to capture food</li> </ul>	<ul style="list-style-type: none"> <li>• Mouth and gastrovascular cavity</li> <li>• Mouth also serves as anus</li> </ul>	<ul style="list-style-type: none"> <li>• Complete digestive system: mouth &amp; anus</li> <li>• Special organs</li> </ul>	<ul style="list-style-type: none"> <li>• Complete digestive system: mouth &amp; anus</li> <li>• Special organs</li> </ul>
<b>Reproduction</b>	<ul style="list-style-type: none"> <li>• <u>Sexual</u>: heramaphroditic – gametes released in H<sub>2</sub>O</li> <li>• <u>Asexual</u>: budding, branching, fragmentation</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Sexual</u>: male &amp; female medusa – gametes fuse</li> <li>• <u>Asexual</u>: budding, regeneration</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Sexual</u>: hermaphroditic – cross fertilization</li> <li>• <u>Asexual</u>: fragmentation</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Sexual</u>: separate sexes = <b>dioecious</b></li> </ul>	<ul style="list-style-type: none"> <li>• <u>Sexual</u>: hermaphroditic – cross fertilization</li> </ul>
<b>Circulation</b>	Diffusion	Diffusion	Diffusion	Diffusion	Aortic arches, blood, blood vessels = closed system
<b>Nervous system</b>	None	Nerve net	<ul style="list-style-type: none"> <li>• Cephalization – brain</li> <li>• Nerves</li> <li>• Eyespots &amp; auricles</li> <li>• Sensory – light , chemicals</li> </ul>	<ul style="list-style-type: none"> <li>• Brain</li> <li>• Ganglion</li> <li>• Nerves</li> <li>• Sensory</li> </ul>	<ul style="list-style-type: none"> <li>• Brain</li> <li>• Ganglion</li> <li>• Nerves</li> <li>• Sensory – light/chemical/mechanical</li> </ul>
<b>Respiration</b>	Diffusion	Diffusion	Diffusion through skin	Diffusion through skin	<ul style="list-style-type: none"> <li>• Land- Pharynx, gulp air</li> <li>• Water - gills</li> </ul>
<b>Excretion</b>	Diffusion	Mouth	Tubes open to outside & mouth	Anus	Nephridia, tubes, anus
<b>Habitat</b>	Water – lakes and oceans	Water – ocean	<ul style="list-style-type: none"> <li>• Host – intestine</li> <li>• Rivers</li> </ul>	<ul style="list-style-type: none"> <li>• Host (blood, intestine)</li> <li>• Soil</li> </ul>	<ul style="list-style-type: none"> <li>• Host (external)</li> <li>• Soil,</li> <li>• Water</li> </ul>

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Phylum	MOLLUSCA	ECHINODERMATA	ARTHROPODA										
<b>Examples</b>	Snail, slug, clam, mussel, squid, octopus, chitons	Sea stars, sea cucumber, feather stars, sea urchins	Crayfish, insects, spiders, millipedes										
<b>Body type</b>	Bilateral symmetry	Radial symmetry	Bilateral symmetry										
<b>Ecological roles</b>	<ul style="list-style-type: none"> <li>• Food source</li> <li>• Predator – control populations</li> </ul>	<ul style="list-style-type: none"> <li>• Food source</li> <li>• Control animal/algae populations</li> <li>• Recycle nutrients</li> <li>• Chemicals – anticancer/ antiviral</li> </ul>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>• Food source</td> <td>• Predator</td> </tr> <tr> <td>• Pollinator</td> <td>• Control population</td> </tr> <tr> <td>• Parasites</td> <td>• Job</td> </tr> <tr> <td>• Vector for parasite</td> <td>• Honey</td> </tr> <tr> <td>• Destroy crops</td> <td>• Silkworm</td> </tr> </table>	• Food source	• Predator	• Pollinator	• Control population	• Parasites	• Job	• Vector for parasite	• Honey	• Destroy crops	• Silkworm
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• Parasites	• Job												
• Vector for parasite	• Honey												
• Destroy crops	• Silkworm												
<b>Body organization</b> (# of germ layers)	3 layers: endoderm, mesoderm, ectoderm	3 layers: endoderm, mesoderm, ectoderm	3 layers: endoderm, mesoderm, ectoderm										
<b>Body Cavity</b>	Coelom	Coelom	Coelom										
<b>Digestive system</b>	<ul style="list-style-type: none"> <li>• Complete digestive system – mouth &amp; anus</li> <li>• Radula – cephalopoda, gastropoda, polyplacophora</li> <li>• Filter feeding – bivalvia</li> </ul>	<ul style="list-style-type: none"> <li>• Complete digestive system – mouth &amp; anus</li> </ul>	<ul style="list-style-type: none"> <li>• Complete digestive system – mouth &amp; anus</li> </ul>										
<b>Reproduction</b>	<u>Sexual:</u> <ul style="list-style-type: none"> <li>• Dioecious – bivalvia, gastropoda, cephalopoda</li> <li>• Hermaphroditic- gastropoda</li> <li>• Trochophore larvae</li> </ul>	<u>Sexual:</u> <ul style="list-style-type: none"> <li>• Dioecious</li> </ul> <u>Asexual:</u> regeneration – lost arm	<u>Sexual:</u> <ul style="list-style-type: none"> <li>• Dioecious</li> </ul> <u>Asexual:</u> some regenerate parts										
<b>Circulation</b>	<ul style="list-style-type: none"> <li>• <u>Open:</u> gastropoda, bivalvia, polyplacophora</li> <li>• <u>Closed:</u> cephalopoda               <ul style="list-style-type: none"> <li>➤ Accessory heart</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• <b>Closed</b> system</li> </ul>	<ul style="list-style-type: none"> <li>• <u>Open</u> system</li> <li>• Heart</li> <li>• Sinuses – tissue bathed in blood</li> </ul>										
<b>Nervous system</b>	<ul style="list-style-type: none"> <li>• Brain , nerves – cephalopoda</li> <li>• Nerves – bivalvia, polyplacophora</li> <li>• Light receptors</li> </ul>	<ul style="list-style-type: none"> <li>• Nerve cords but <b>NO</b> brain!</li> <li>• Tube feet – sensory</li> </ul>	<ul style="list-style-type: none"> <li>• Brain and nerves</li> </ul>										
<b>Respiration</b>	<ul style="list-style-type: none"> <li>• <u>Aquatic:</u> gills</li> <li>• <u>Land:</u> special mantle with hole</li> </ul>	<ul style="list-style-type: none"> <li>• Tube feet &amp; skin gills – diffusion</li> </ul>	<ul style="list-style-type: none"> <li>• Tracheal system</li> <li>• Book lungs/gills</li> <li>• gills</li> </ul>										
<b>Excretion</b>	<ul style="list-style-type: none"> <li>• nephridia</li> <li>• anus</li> </ul>	<ul style="list-style-type: none"> <li>• Tube feet – diffusion</li> </ul>	<ul style="list-style-type: none"> <li>• Anus</li> <li>• Malpighian tubules</li> <li>• Spiracles</li> </ul>										
<b>Habitat</b>	<ul style="list-style-type: none"> <li>• Water mainly</li> <li>• Land – slug &amp; snail</li> </ul>	<ul style="list-style-type: none"> <li>• Water – ocean</li> </ul>	<ul style="list-style-type: none"> <li>• Water &amp; land – everywhere!</li> </ul>										