

	<b>Phylum Arthropoda</b> <b>“jointed foot”</b>	<b>Phylum Echinodermata</b> <b>“spiny skin”</b>
Defining Traits	-exoskeleton (molting) -jointed appendages -3 major segments: head, thorax, abdomen (sometimes fused) -specialized sensory structures -respiratory structures	-water vascular system -tube feet -apparent pentaradial symmetry in adults -no brain, heart, or respiratory structures
Symmetry	bilateral	bilateral (pentaradial adult appearance)
Coelom	coelomate	coelomate
Level of Organization	organ-system	organ-system
Nervous	-brain -ventral nerve cord -well-developed eyes -statocyst (balance) -sensory hairs	-no brain -nerve ring and nerve cords -sense organs
Skeletal	exoskeleton	endoskeletal plates
Muscular	paired muscles with tendons	-muscle cells -tube feet -water vascular system
Digestive	-complete: mouthparts →pharynx→esophagus →stomach→intestines →anus -digestive gland	-mouth→esophagus→stomach→anus
Respiratory	-gills in aquatic species -trachea and spiracles in terrestrial species	-no system -diffusion through tube feet and skin gills

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Circulatory	-dorsal heart -open circulatory system	-none
Excretory	-green glands -kidney -malpighian tubes	-diffusion through tube feet and skin gills
Reproduction	-distinct sexes -external fertilization (sometimes internal)	-distinct sexes -external fertilization  -regeneration
Classes	see notes from group activity	1. Asterozoa: Sea Stars 2. Ophiurozoa: Brittle Stars 3. Echinozoa: Sea Urchins, Sand Dollars, Heart Urchins 4. Holothurozoa: Sea Cucumbers 5. Crinozoa: Sea Lilies, Feather Stars
Miscellaneous	-greatest number of species—high diversity -exoskeleton prevents drying out in land dwellers -body segments are fused in some species (crustaceans have a cephalothorax) -metamorphosis (incomplete or complete)	-called the “ultimate animal” because they do not seem to age