

TABLE 19.1 Summary Table of Animal Characteristics























Animal	Symmetry	Tissue Organization	Type of Body Cavity	Digestive Openings	Circulatory System	Habitat	Respiratory Organs
Sponge 	no symmetry	loose, aggregate of cells in layers, but no true tissues	none (not applicable)	intracellular digestion	water transported through body	aquatic	cells; directly across membranes
Hydra 	radial	two tissue layers	none (not applicable)	one opening into gastro-vascular cavity	cells come into contact with water	aquatic	cells; directly across membranes
Planarian 	bilateral	three tissue layers	acoelomate	one opening into gastro-vascular cavity	none	aquatic	cells; directly across membranes
Clam 	bilateral	three tissue layers	coelomate	two openings: tube within a tube	open; heart, blood vessels, sinuses	aquatic	gills
Clamworm/earthworm 	bilateral	three tissue layers	coelomate	two openings: tube within a tube	closed circulation with blood vessels	clamworm— aquatic earthworm— terrestrial	skin, parapodia
Roundworm 	bilateral	three tissue layers	pseudocoelomate	two openings: tube within a tube	none; transport in pseudo-coelom	parasitic	none; essentially anaerobic
Crayfish 	bilateral	three tissue layers	coelomate	two openings: tube within a tube	open; heart, blood vessels, sinuses	aquatic	gills
Grasshopper 	bilateral	three tissue layers	coelomate	two openings: tube within a tube	open; heart, blood vessels, sinuses	terrestrial	spiracles; tracheae
Sea star 	bilateral as larva; radial as adult	three tissue layers	coelomate	two	reduced	marine; bottom dwelling	skin gills; extensions of coelomic cavity
Lancelet 	bilateral	three tissue layers	coelomate	two openings: tube within a tube	closed	aquatic	skin (body surface)
Pig 	bilateral	three tissue layers	coelomate	two openings: tube within a tube	closed	terrestrial	lungs

TABLE 19.1 Summary Table of Animal Characteristics (continued)

Animal	Excretory System	Locomotion	Support System	Segmentation	Appendages	Nervous System Organization
Sponge 	none	none; sessile	spicules/ spongin	no	no	none
Hydra 	none	limited locomotion using tentacles	water; hydrostatic skeleton	no	broadly defined, tentacles are appendages	no brain; network of nerve cells
Planarian 	flame cells; two lateral excretory canals	creep over surface, crawling	water; hydrostatic skeleton	no	no	brain; two ventral nerve cords; "ladder- like" nervous system
Clam 	nephridia	foot for digging	external shell	no	no	three ganglia connected by nerves
Clamworm/ earthworm 	nephridia	clamworm— swimming, parapodia; earthworm—setae, crawling from muscle contraction	hydrostatic skeleton	yes	clamworm— parapodia; earthworm— none	dorsal brain, ventral nerve cord
Roundworm 	two lateral lines	live in gut; limited movement	hydrostatic skeleton; external cuticle	no	no	dorsal and ventral nerve cord
Crayfish 	green glands (resemble nephridia)	legs, tail, swimmerets	rigid, jointed exoskeleton	yes	mouth appendages, walking legs, swimming appendages	dorsal brain, ventral nerve cord
Grasshopper 	Malpighian tubules	wings, legs	rigid, jointed exoskeleton	yes	wings, walk- ing legs, mouth appendages	dorsal brain, ventral nerve cord
Sea star 	skin gills	tube feet	endoskeleton of calcareous plates	no	pentamerous arms extend from central disk	nerve ring in central disk; epidermal nerve network
Lancelet 	nephridia	tail, fin for swimming	notochord, an endoskeleton	yes (muscles)	no	dorsal brain and nerve cord
Pig 	kidneys	legs for walking/ running	embryonic notochord; bony endoskeleton	yes (muscles, etc.)	four legs	dorsal brain and nerve cord