

LIFE SCIENCES 11

SEGMENTED WORMS

Phylum	Annelida
Level of Organization	Organ
Digestive System	Tube
Symmetry	Bilateral
Coelom	Coelomate
Cavity Development	Protostome
Segmentation	Yes

Annelids

- more than 11,000 species
- mostly marine or freshwater, rest are terrestrial earthworms
- most have a larval stage similar to some of the molluscs – probable common ancestor
- segments are fluid-filled and almost completely separated from each other by septa → creates a hydrostatic skeleton that muscles can push or pull against
- each segment contains structures for digestion, excretion and movement → allows for some segments to be damaged since other segments can do the same functions
- digestion
 - food particles and dirt enter through the mouth → pharynx → crop (storage) → gizzard (muscular sac that grinds up the food) → intestine (nutrient absorption) → anus
- circulation
 - closed circulatory system
 - blood transports oxygen and nutrients to body cells and carbon dioxide and wastes away for excretion
 - 5 larger vessels at the anterior end act as hearts
 - ventral vessels move away from the hearts
 - dorsal vessels move blood towards the hearts
- respiration
 - oxygen and carbon dioxide exchange through the moist skin
 - some marine worms have gills
- excretion
 - most segments have 2 nephridia for excretion of metabolic wastes
 - help to maintain homeostasis of body fluid volume and composition
- movement
 - contract circular muscles to lengthen segments and push them forward
 - longitudinal muscles contract to shorten segments and pull the posterior end forward
 - use tiny bristle-like hairs called setae that anchor the segments after lengthening
- reproduction
 - use fragmentation for asexual reproduction

- sexual
 - sperm is passed from one worm to the other near a thickened band of segments called the clitellum
 - sperm and eggs are mixed in a cocoon produced by the clitellum that slides off the worm
- 3 classes
 1. Oligochaeta – earthworms
 - hermaphrodites
 - help to aerate soils as they ingest soils
 - also includes tubifex marine worms and lumbricid freshwater worms
 2. Polychaeta – marine worms
 - free-living bristle worms with well-developed sense organs including eyes that use parapodia used for swimming
 - sessile fan worms that filter feed and retreat into their tubes when threatened
 - release sperm and eggs into the water for external fertilization
 3. Hirudinea – leeches
 - external parasites with no setae
 - use suckers at both ends to attach to a host
 - saliva contains an anesthetic so you don't feel the bite and other chemicals to prevent blood clotting
 - can be used after some medical procedures to prevent blood accumulation in the operated area

