# Chapters 27 – 28 Animalia II

I. Phylum Platyhelminthes (\_\_\_\_\_)

A. Diversity

1. \_\_\_\_\_-living Flatworms in fresh water (Planaria)

2. Predators or scavengers (\_\_\_\_\_ and \_\_\_\_\_)

B. \_\_\_\_\_ Symmetry

C. Organ organization level

1. Have all \_\_ tissue layers

2. (\_\_\_\_\_ 🡪 \_\_\_\_\_derm, \_\_\_\_\_derm, \_\_\_\_\_derm).

D. P\_\_\_\_\_:

1. “\_\_\_\_\_ First" animals.
2. The planarian is a flatworm that has a gastrovascular cavity with \_\_\_ opening that serves as both mouth and anus.

E. \_\_ body cavity – \_\_\_\_\_ (that’s why they are Flat ☺)

1. The space between the gut and the body wall, when present, is filled with a spongy organ tissue of mesodermal cells through which tissue fluids may percolate.

F. First appearance of \_\_\_\_\_ (head).

G. \_\_\_\_\_

1. Free-Living Flatworms or Predators or Scavengers

1. \_\_\_\_\_ Reproduction: Pinch in half and \_\_\_\_\_ the missing parts (“fission”).
2. \_\_\_\_\_ Reproduction:
3. \_\_\_\_\_: each organism possesses both male and female organs.
4. \_\_\_\_\_ fertilization

H. F\_\_\_\_\_:

1. \_\_\_\_\_of various vertebrates.
2. Suckers to attach to their host.
3. Feeds on blood and other host tissues.
4. Schistosoma (Blood Flukes)
5. Nearly 800,000 people die each year from this disease.
6. Middle East, Asia, Africa

I. T\_\_\_\_\_:

1. Are parasitic.
2. Have no \_\_\_\_\_.
3. Inhabits the digestive tracts of vertebrates.



1. Absorbs nutrients from \_\_\_\_’s intestines.
2. Ribbon-like body with repeated units.
3. Anterior \_\_\_\_\_, which bears hooks and suckers that grasp the host.
4. Behind the scolex, a series of reproductive units (Proglottids) that are full of ripe eggs that pass out of the host’s body.
5. When a new host swallows the reproductive structures in contaminated water, the eggs hatch into larvae that colonize and mature in the host’s body.

II. Phylum Nematoda: \_\_\_\_\_ Worms

A. General Features

1. Nematodes are the most numerous multicellular animals on earth.
2. A handful of soil will contain thousands of the microscopic worms, many of them parasites of insects, plants, or animals.
3. Some are free-living, but most are \_\_\_\_\_ (pinworms, ascaris, hookworms, heartworms).

B. \_\_\_\_\_ Worms

C. \_\_\_\_\_ Symmetry

D. \_\_\_\_\_ Tissue Layers

1. “triploblastic”
2. endo-, meso-, ectoderm

E. \_\_\_\_\_

1. “Mouth First" animals.
2. \_\_\_\_\_ digestive tract
3. (\_\_\_\_\_ way: mouth 🡪 intestine 🡪 anus)
4. (\_\_\_\_\_ openings: Mouth and Anus)

F. \_\_\_\_\_

1. Fluid-filled body cavity that functions to distribute nutrients
2. (not fully mesoderm).

G. \_\_\_\_\_: anterior end has a Brain.

H. Formation of Muscle & Nervous Tissue.

I. Reproduce asexually & sexually

1. \_\_\_\_\_ 🡪 (\_\_\_\_\_) new individual developed without fertilization.
2. \_\_\_\_\_ (both male and female gametes).
3. Separate male and female organisms (fertilization).

J. The most familiar nematodes are \_\_\_\_\_

1. such as pinworms, hookworms, heartworms, and the Trichinella worms that are transmitted by eating undercooked pork.

2. Good \_\_\_\_\_, proper disposal of sewage, thorough \_\_\_\_\_ of meat, and regular deworming of pets usually protect people from parasitic roundworms.

III. Phylum \_\_\_\_\_ (segmented worms)

1. General Features
2. Inhabit marine, fresh water, and moist terrestrial environments.
3. \_\_\_\_\_ symmetry. A\_\_\_\_\_/p\_\_\_\_\_ ends.
4. Triploblastic 🡪 (\_\_\_\_\_– mouth first)
5. Show \_\_\_\_\_, the subdivision of the body along its length into a series of repeated parts.
6. Three Classes of Annelids: Earthworms, Polychaetes, Leeches
7. True coelom 🡪 (\_\_\_\_\_) … Coelom divided by \_\_\_\_\_
8. \_\_\_\_\_ way digestion
9. Prostomium 🡪 mouth 🡪 pharynx 🡪 esophagus 🡪 crop (\_\_\_\_\_) 🡪 gizzard (\_\_\_\_\_ digestion) 🡪 intestine (\_\_\_\_\_) 🡪 anus
10. Have a Closed \_\_\_\_\_System in which blood remains enclosed in vessels throughout the body.
* Many other invertebrates, such as mollusks and arthropods, have an open circulatory system in which blood is pumped through vessels into open body cavities.
1. Have a Nervous system that includes a simple \_\_\_\_\_and ventral \_\_\_\_\_cord.
2. \_\_\_\_\_is primary gas exchange organ in soil dwellers.
3. All annelids except leeches also have \_\_\_\_\_, hair-like structures, called setae, projecting from their cuticle.
4. They help, for example, earthworms to attach to the surface
5. and prevent backsliding during peristaltic motion.
6. Reproduction
7. Reproduce \_\_\_\_\_ by cross-fertilization, joining at \_\_\_\_\_.
8. Often hermaphroditic.
9. Many reproduce asexually by \_\_\_\_\_.
10. \_\_\_\_\_ / Hermaphroditic (each individual has the reproductive organs of both sexes), but do not fertilize themselves.
11. The \_\_\_\_\_ appears as a thickened sleeve or saddle a few segments in length within the anterior third region of the worm. The clitellum secretes an egg capsule, or cocoon.
12. Annelids have the amazing capacity to regrow segments that break off. This is called \_\_\_\_\_ (anterior to clitellum).
13. Earthworms ingest soil and extract nutrients, \_\_\_\_\_ soil and improving its texture.
14. Polychaetes are the largest group of annelids.
* Polychaetes search for prey on the seafloor or live in tubes and filter food particles.
1. Most \_\_\_\_\_ are free-living carnivores, but some suck blood. Blood-sucking Leeches:
2. Use razor-like jaws.
3. Secrete an anesthetic and an anticoagulant.
4. Suck up to 10 times their own weight in blood.

IV. Phylum \_\_\_\_\_

1. Mostly marine, although some live in fresh water or land.
2. \_\_\_\_\_symmetry
3. True \_\_\_\_\_, \_\_\_\_\_digestive tract, consisting of a mouth where food is ingested, a short connecting tube called the esophagus, a stomach which temporarily holds food, an intestine where food digestion and absorption takes place, and the anus.
4. \_\_\_\_\_that have a Coelom.
5. Triploblastic (\_\_ tissue layers).
6. Reproduction
7. Mollusks are primarily of \_\_\_\_\_ sexes, and the reproductive organs (gonads) are simple.
8. Reproduction via parthenogenesis (an \_\_\_\_\_ gamete matures) is also found among gastropods.
9. Most reproduction, however, is by \_\_\_\_\_ means.
10. Slugs and snails are hermaphrodites (possessing both male and female organs), but they must still mate to fertilize their eggs.
11. \_\_\_\_\_ Fertilization.

E. Anatomy

1. \_\_\_\_\_ Mass - Soft-bodied portion that contains internal organs.
2. \_\_\_\_\_ - strong, muscular portion: locomotion.
3. \_\_\_\_\_ - secretes a shell that encloses the visceral mass.
4. \_\_\_\_\_ - rasping, tongue-like organ bearing rows of teeth; obtain food.

F. Classes:

1. G\_\_\_\_\_

1. The largest group of mollusks and include the snails and slugs.
2. Found in fresh water, salt water, and terrestrial environments.
3. The only mollusks that live on \_\_\_\_\_.
4. Often protected by a single, spiral \_\_\_\_\_.
5. Slugs have lost their mantle and shell.
6. Sea slugs have long, colorful projections that function as gills.

2. B\_\_\_\_\_ (Clams, Oysters, Scallops, Mussels)

1. Shells divided into \_\_\_\_\_ halves that are hinged together.
2. Sedentary suspension feeders, \_\_\_\_\_ to rocks by strong threads.

3. C\_\_\_\_\_ (Octopus, Squid, Nautilus)

1. Fast, agile predators.
2. Large \_\_\_\_\_ and sophisticated sense organs, including complex image-focusing \_\_\_\_\_.
3. \_\_\_\_\_ 🡪 large in a nautilus, small & internal in a squid, or missing in an octopus.
4. Squid are fast, streamlined predators that use a muscular siphon for jet propulsion.
5. The so-called colossal squid, which lives in the ocean depths near Antarctica, is the largest of all invertebrates.

V. Phylum \_\_\_\_\_

1. Invertebrates that live virtually everywhere.
2. \_\_\_\_\_Symmetry
3. \_\_\_\_\_ (ecto-, meso-, endoderm tissues)
4. \_\_\_\_\_ (“Mouth First” development)
5. \_\_\_\_\_ (coelom)
6. Coelom works as a shock absorber and protects from any kind of mechanical shock.
7. The coelomic fluid acts as a \_\_\_\_\_skeleton.
8. The coelomocyte cells support the immune system.
9. The coelomic fluid helps in gaseous transport and transport of \_\_\_\_\_ and \_\_\_\_\_ products.
10. Coelom gives the extra space required by organs to develop and function.
11. \_\_\_ Way Digestion with Accessory Glands
12. Mouth & parts (\_\_\_\_\_)
13. Salivary glands (\_\_\_\_\_).
14. Crop (\_\_\_\_\_).
15. Gizzard (\_\_\_\_\_– mechanical digestion).
16. Stomach (\_\_\_\_\_digestion)
17. Gastric Ceca (digestive glands in stomach).
18. Intestine (\_\_\_\_\_)
19. Rectum (\_\_\_\_\_waste)
20. Anus (\_\_\_\_\_)
21. Special Features
22. Arthropods are extremely diverse – over 1 million species discovered (most are insects).
23. \_\_\_\_\_ Organs aide in ingestion, digestion, excretion, hearing, sensory organs, reproduction.
24. Specialized mouth parts (touch, taste); \_\_\_\_\_ eyes, a\_\_\_\_\_.
25. Basic Characteristics of Arthropods



1. \_\_\_\_\_ Appendages
2. Hollow tubes moved by muscles.
3. Help in locomotion, food gathering, and reproduction.
4. E\_\_\_\_\_
5. Rigid, but jointed; composed of \_\_\_\_\_ (polysaccharide).
6. Protection, prevention of desiccation, attachment for muscles, locomotion.
7. Because is hard and non-expandable, they undergo \_\_\_\_\_, shedding of the exoskeleton, as they grow larger.
8. S\_\_\_\_\_ Body
9. In some species, repeating units of the body have a pair of jointed appendages.
10. In others, segments are fused into head, thorax, and abdomen.
11. Well-developed \_\_\_\_\_ System
12. Brain and Ventral Nerve Chord.
13. Head bears various types of sense organs, including compound and simple eyes.
14. Many have well-developed touch, smell, taste, balance, and hearing capabilities.
15. Display many \_\_\_\_\_ behaviors and \_\_\_\_\_ skills.
16. Respiratory Organs
* \_\_\_\_\_ – air tubes with spiracles to allow air to enter the trachea.
1. \_\_\_\_\_ Circulatory System
* The Circulatory System is Open, with a dorsal heart pumping blood that circulates freely around the animal’s organs.
1. Reproduction
2. Most arthropods are either male (sperm) or female (egg), and they undergo \_\_\_\_\_ fertilization.
3. Most fertilization is internal.
4. \_\_\_\_\_ (asexual) – offspring develops from unfertilized egg.
5. G\_\_\_ (Arachnids)
6. Gills are found in marine arthropods and greatly increase the efficiency of gas exchange.
7. Book lungs - \_\_\_\_\_ organs used for atmospheric gas exchange that are present in many arachnids, such as scorpions and spiders.
8. Main Groups
9. C\_\_\_\_\_
10. Spiders, Scorpions, Ticks, Mites, Harvestmen (“Daddy Longlegs”), Horseshoe Crabs
11. CHELICERAE: \_\_\_\_\_-like mouthparts
12. NO antennae
13. Two body regions: Cephalothorax and Abdomen
14. \_\_\_\_\_ \_\_\_\_\_ of legs
15. \_\_\_\_\_ inject venom into their prey and digest the food externally before sucking it into the stomach.
16. Spiders use Silk Threads for all sorts of purposes, from lining their nests to catching prey.
17. Presence of “Book Lungs” that aid in gas exchange.
18. \_\_\_\_\_ and \_\_\_\_\_ are parasites.
19. Ticks suck the blood of vertebrates and sometimes transmit diseases, such as Rocky Mountain Spotted Fever or Lyme Disease.
20. Chiggers, the larvae of certain mites, feed on the skin of vertebrates.
21. M\_\_\_\_\_
22. M\_\_\_\_\_ and C\_\_\_\_\_
23. Terrestrial Creatures identified by the number of jointed legs per body segment.
24. Millipedes are \_\_\_\_\_ that have \_\_\_\_\_ \_\_\_\_\_ of short legs per body segment.
25. Centipedes are \_\_\_\_\_ that have one pair of legs per body segment.
26. C\_\_\_\_\_
27. Mostly marine arthropods, that include barnacles, \_\_\_\_\_, lobsters, and \_\_\_\_\_.
28. Freshwater: Crayfish
29. Terrestrial: Pillbugs
30. Head has pair of compound eyes and \_\_\_ pairs of appendages.
31. First two pairs are Antennae.
32. Other 3 pairs are mouthparts used in feeding.
33. Play a vital role in the food chain (Ex. Krill eaten by large marine mammals).
34. I\_\_\_\_\_
35. “Entomology” (Study of Insects)
36. Largest group of Arthropods
37. Remarkable behavior adaptations; Ex. Social Insects: Ants, Bees, Termites
38. Body: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.
39. Mandibles and One pair of Antennae present.
40. \_\_\_\_\_ Legs attached to the Thorax and Two pairs of Wings. \_\_\_\_PODS.
41. M\_\_\_\_\_
42. CHANGE IN FORM FROM EGG TO ADULT.
43. \_\_\_\_\_ metamorphosis
44. 4 stages that all look different
45. \_\_\_\_\_ 🡪 \_\_\_\_\_ 🡪 \_\_\_\_\_ 🡪 \_\_\_\_\_
46. Butterfly
47. \_\_\_\_\_ metamorphosis
48. 3 stages that all look different
49. Egg 🡪 nymphs 🡪 adult
50. No \_\_\_\_\_ stage
51. dragonfly

VI. Phylum E\_\_\_\_\_

1. Echinodermata means “\_\_\_\_\_ \_\_\_\_\_”.
2. Echinoderms usually inhabit shallow. coastal waters and ocean trenches. \_\_\_\_\_ Habitat.
3. Slow-moving or \_\_\_\_\_.
4. \_\_\_\_\_ symmetrical as adults (body divided in 5 parts).
5. Triploblastic & \_\_\_\_\_ (“anus first” development … along with chordates).
6. Have an \_\_\_\_skeleton of hard calcium-containing plates under a thin skin.
7. Water \_\_\_\_\_ System
8. Echinoderms have a unique system for gas exchange, nutrient \_\_\_\_\_, and \_\_\_\_\_ called the water vascular system.
9. The system consists of a central ring canal and radial canals extending along each arm.
10. Water circulates through these structures allowing for gas, nutrient, and waste exchange.
11. Reproduction
12. In echinoderms reproduction is typically by \_\_\_\_\_ fertilization; eggs and sperm are freely discharged into the water.
13. Echinoderms are capable of \_\_\_\_\_ reproduction by \_\_\_\_\_ by cloning themselves to produce 2 embryos.
14. They also have the ability to \_\_\_\_\_ lost arms.