

## Chapter 2

### Animals without a backbone

#### A. Classifying Living Things

1. Classify - to arrange in groups by features that are alike
2. Backbone made up of small bones called vertebrae
3. Vertebrate - animal with a backbone
4. Invertebrate - animal without a backbone

#### Five Kingdoms

- Plant
- Animal
- Fungi - mushrooms, yeast, mold
- Monera - bacteria, blue & green algae
- Protista - protozoa

#### B. Sponges

1. A sponge is an animal.
2. A sponge is an invertebrate that has many cells.
3. Almost all sponges live in oceans. However, some live in lakes.
4. Adult sponges don't move about.
5. For many years scientists thought they were plants.
6. Sponge body contains many small holes called pores.
7. Water carrying food moves through pores. The food is filtered out.
8. Oxygen used to release energy in food, waste, and other materials pass out top.
9. Many shapes based on skeletons shape (hard or soft)

#### C. Animals with Stinging Cells

1. Invertebrates - hydra, jellyfish, sea anemone
2. Hydras live in fresh water.
3. Jellyfish and anemone live in oceans.
4. Bodies - hollow sacs with tentacles
5. Tentacles - long arm-like parts used to catch food by using stinging cells
6. Stinging cells explode sending to poisonous threads into victim causing paralysis or death.

#### D. Worms

1. 3 types of worms - flat, round, and segmented
2. Flatworm - simplest but more complex than sponges and animals with stinging cells
3. Planarian - common flat worm located in fresh water, can regenerate
4. Organ - body part that does a certain job
5. Regenerate - the ability to regrow body parts that are missing
6. Most flat worms are parasites
7. Parasites - an animal or plant that depends on and harms another animal or plant
8. Host - the animal or plant a parasite depends on for food

9. It does not have a digestive system
10. Roundworm - tubular body with a digestive system
11. Some live in soil, others in hosts (dogs)
12. Segmented worms - body divided into segments
13. Most complex of the worms
14. Has a series of hearts, digestive system
15. Bristle - stiff, strong hair used for moving

#### E. Animals with Spiny Skin

1. Echinoderm - spiny-skinned invertebrate
2. Starfish - common echinoderm (sea urchin, sea cucumber, sand dollars)
3. Tube foot - hollow structure with a sucker on the end
4. Starfish regenerate like planarian

#### F. Animals with a Soft Body

1. Mollusks - invertebrates with a soft body (clams, octopus)
2. Some have two shells, others live in one shell or none at all.
3. More complex than echinoderms
4. Have beginnings of a true eye
5. Snails (shell), Slugs (no shell)
6. Squid/Octopus (tentacles)

#### G. Animals with Jointed Legs

1. Arthropods - largest group of animals (10 million types)
2. Arthropods - invertebrate with segmented body and jointed legs
3. Body has two or three segments
4. Number of legs used to divide into groups
5. Exoskeleton - hard outer covering - like skeleton on the outside of animal's body
6. Well developed sense organs, heads with special mouth parts
7. Four main groups
  1. Millipede/centipede
  2. Crustaceans
  3. Spiders/ticks/mites
  4. Insects
8. Crustaceans - lobsters, shrimp, crayfish
9. Have five pairs of legs, two sections, exoskeleton
10. Spiders - two body parts, 8 legs
11. Ticks/mites - parasites
12. Insects - three body parts (head, thorax, abdominal), six legs
13. Most insects have compound eyes
14.  antennae - help insects to smell and feel
15. Insects have special mouth parts
16. Some chew, some suck, some pierce

17. Exoskeleton doesn't grow with insect
18. Insect molts when covering is too small
19. Molt - shed the outer covering
20. Insects are both harmful and helpful.