**UNIT 9 Macroorganisms (Plants and Animals) Study Guide**

**FUNGI**

* Fungi are **decomposers** (bread down organic material) – this is a type of heterotroph since fungi get their food from another organism

**PLANTS**

* Plants - multicellular eukaryotes
* Vascular tissue – veins used to move water and sap (sugar) through plant
* Ancestors of plants were most like green algae
* Types of plants:
	+ **Moss** (also called **bryophytes**)– Non-seed, non-vascular plant (which means they do not have vascular tissue); no seeds – only spores
	+ **Fern** – Non-seed, vascular plant; no seeds – only spores
	+ **Gymnosperms** – produce cones (ex. pine trees)
	+ **Angiosperms** – produce flowers (any tree or plant that produces flowers/fruit)
* Order plants appeared on earth: 1. Algae, 2. Moss, 3. Fern, 4. Gymnosperm, 5. Angiosperm
* To increase their chances that the offspring will survive, **seeds**…
	+ Have hooks on them to stick to animal’s fur
	+ Are enclosed in something edible (fruit)
	+ Enter dormancy until conditions are suitable
* Angiosperms – have **fruit** (the ovary of the flower becomes the fruit and surrounds the seeds)
	+ The fruit – provides food for humans and other animals, protects the seeds, and helps to disperse the seeds (ex. animals eat it and poop out the seeds somewhere else)



* + - Photosynthesis takes place in the **Palisade Mesophyll Layer**
		- Water is transported in the **Vein (same as Xylem)**
		- The **Stomata** are holes that regulate the movement of gases (oxygen and carbon dioxide) in and out of the cell to help the plant maintain homeostasis



* StaMEN = male parts
* Pistil = female parts
* The ovary will become the fruit
* Since this plant has a flower, it is an Angiosperm

**ANIMALS**

* All animals are eukaryotic, multicellular, and heterotrophic
* Animal cells do not have cell walls (only plant cells do)
* **Amphibians** – animals including frogs that live in moist environments and must return to the water to reproduce (tadpoles, which are baby frogs, live in water)
* **Metamorphosis** – Caterpillar and butterfly are different life stages of the same organism
* **Systems of the body**
	+ **Circulatory System** – moves materials throughout organism (blood vessels, heart)
	+ **Digestive System** – breaks down nutrients into soluble pieces (mouth, gizzard, stomach, intestines)
	+ **Respiratory System** – exchange of gases oxygen and carbon dioxide (skin, tracheal tubes, lungs)
	+ **Excretory System** – removal of metabolic wastes (bladder, kidneys)

**REVIEW**

* **Crossing over** – when homologous chromosomes exchange pieces of chromosome to mix up the genes
* DNA – remember that Adenine (A) bonds with Thymine (T) and Cytosine (C) binds with Guanine (G)
* DNA molecule – shaped like ladder - backbone is made of deoxyribose sugar and phosphate molecules
* If a person gets a mutation in their egg or sperm, it CAN be passed onto their offspring; if a person gets a mutation in a body cell (such as a skin cell), it CANNOT be passed onto offspring
* If a child is born with a rare genetic disease, but neither parent had the disease, then the parents must have been carriers for the trait
* Gel electrophoresis – a technique used to separate DNA fragments by charge and length
* If insects are treated with an insecticide (kills insects) and their offspring are immune to the insecticide, it means that the insects developed adaptations to the insecticide
* Camouflage – when an organism develops adaptations that cause it to blend into their environment (ex. insects that look like sticks)