3.1

* Plants are adapted to living on land
	+ Plants are a diverse group of organisms
		- Wide variety
	+ Plants share common characteristics
		- Multicellular
		- Plant cells have a nucleus and is surrounded by a cell wall
		- Plants are producers – capture energy from the sun
		- Plant life cycles are divided into two stages (generations)
	+ Plant parts have special functions
		- **Roots** – below ground
		- **Stems and** **leaves** – above ground
	+ Transporting water and other materials
		- **Vascular system** – made up of long, tubelike cells that transport materials
	+ All plants make sugar through photosynthesis
	+ All plants control gas exchange with the environment
		- **Transpiration** – the movement of water vapor out of a plant and into the air
	+ Plants grow throughout their lifetimes
		- Soft stem plants
		- Woody stem plants

3.2

* Most mosses and ferns live in moist environments
	+ Plant species adapted to life on land
	+ Mosses and Ferns
		- Mosses are nonvascular plants
		- Mosses reproduce with spores
		- Ferns are vascular plants
		- Ferns also reproduce with spores

3.3

* Seeds and pollen are reproductive adaptations
	+ Seeds are an important adaptation
		- **Seed** – a young plant that is enclosed in a protective coating with enough nutrients to enable the plant to grow
		- **Embryo** – the immature form of an organism that has the potential to grow and develop
		- **Germination** – the beginning of growth of a new plant from a spore or a seed
	+ Some plants reproduce with seeds
		- \*\*Venn Diagram pg. C99 book 2
	+ Pine trees reproduce with pollen and seeds
		- **Pollen** – a small multicellular structure that holds a sperm cell
	+ Gymnosperms are seed plants
		- Gymnosperm – group of seed plants have existed for more than 250 million years
			* Conifers, cycads, gnetophytes, ginkgoes

3.4

* Many plants reproduce with flowers and fruit
	+ **Angiosperms** are seed plants that produce flowers and fruit
		- **Flower** – the reproductive structure of an angiosperm
		- **Fruit** –after the egg is fertilized, the seed will form and the ovary wall will thicken
	+ All flowers have similar structure
		- **Sepal** – leafy structures that enclose the flower before it opens
		- **Petals** – leafy structures arranged in a circle around the pistil
		- **Stamen** – the male reproductive structure of a flower
		- **Pistil** – the female reproductive structure of the flower
	+ Animals spread both pollen and seeds
	+ Humans depend on plants for survival
		- Oxygen and food
		- Energy resources and soil health
		- Other products – clothing, medicine, etc.