

Biology 10

Chapter 22-1

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“What Is a Plant?”

Objectives

- Compare and contrast characteristics of algae and plants.
- List the characteristics of plants that adapt them for life on land.
- Describe the alternation of generations in land plants

Evolution of Plants

- Plants probably evolved from green algae around 500 mya
 - Evidence:
 - Both plants and green algae have _____ in their cell walls
 - Both plants and green algae use the same types of _____ in photosynthesis
 - Both plants and green algae store food in the form of _____

Problems With Land Life

- Plants had to overcome several obstacles to live on land
 - water loss
 - finding water
 - keeping _____ (sex cells) alive
 - withstanding wind/weather
 - _____

Preventing Water Loss

- Plants developed a waxy covering called a _____
 - wax helps keep water from leaving the plant

Making Food

- The _____ of a plant are primarily responsible for producing food
 - sites of photosynthesis
- Some plants use their _____ for photosynthesis too (eg: cactus)

Getting Water

- Plants use their _____ to absorb water from the soil
- Roots also anchor the plant against wind/weather
- Roots are also sometimes used for food storage
 - eg: _____

Transporting Materials

- Food from the leaves needs to be transported to feed the roots.
- Water from the roots needs to be transported to the leaves!
- Transportation is carried out by vascular tissue in plants
 - xylem: cells which _____
 - phloem: cells which _____
 - Plants which have vascular tissue are called vascular plants
- Not all plants have vascular tissue, and this limits their growth
 - rely on _____ to transport materials.
 - Plants of this type are called nonvascular plants

Reproduction

- Some plants use _____ in reproduction
 - Seeds keep plant embryo protected and alive until conditions are favorable
- Some plants use _____ in reproduction
 - spores resistant to drying out, but not as good at protecting the plant!
- Non-seeding plants require water _____ to the egg in.
- Seed plants do not need water for the sperm to swim in.

Alternation of Generations

- Plants have two stages to their life cycle
 - sporophyte generation: consists of _____
 - cells undergo _____ to produce _____ spores
 - gametophyte generation: formed from the haploid spores
 - haploid cells produce _____
 - gametes then fuse (_____) to produce the diploid _____ again

Alternation of Generations diagram (copy below)

Plant Classification: Overview (Copy Chart Below)

- Based on vascularity and how it reproduces