

February 27, 2015

The Working Plant

Outline

- Announcements
 - o Nothing to worry about this weekend
- Plants- Angiosperms
- Plant Tissues, Organs, Systems
- Adaptations
- Plants and Bees

“Whole is greater than sum of its parts”

- Tissues= group of cells with similar function
- Organs= 2+ types of tissues working together
- Systems= 2+ organs working together

Plants interact with environment

- Influences biosphere
 - o Water cycle
 - o Carbon cycle
 - o Greenhouse gases
 - o Nutrient Cycles

Plant Kingdom 260,000 species

- Spore Bearing Plants
 - o Algae
 - o Mosses or Liverworts

- o Ferns
- Seed Bearing Plants
 - o Flowering Plants or Angiosperms
 - Monocotyledons
 - Dicotyledons
 - Angiosperms are flowering plants
 - Reproduce by seeds inside of an ovary
 - Majority of plants are angiosperms (250,00 species)
 - First fossils= 135 million years ago
 - Cretaceous period
 - o Conifers or Gynosperms

Flowering Plants

- Monocots: Orchids, palms, lilies, grasses
- Cotyledon= seed leaves
- Vascular Bundles= transport system
 - o “veins” of plant
- Dicots: Trees, shrubs, herbs

Monocots (Monocotyledons)	Dicots (Dicotyledons)
Single cotyledon	Two cotyledons
long, narrow leaf	Broad leaf
Veins are parallel	Network of veins
Vascular bundles are scattered	Ring of vascular bundles
Flower parts in multiples of three	Flower parts in multiples of five or four

Plant tissues

- Meristem Tissue: Undifferentiated cells that divide
 - o New growth in stems and roots

- o Produces permanent tissues
- What type of cellular division does meristem tissue use for growth? (Clicker Question)
 - a) **Mitosis**
 - b) Meiosis
- Permanent Tissue
 - o Dermal Tissue: densely packed layer of cells
 - 1. "Skin" of plant
 - Protection Insulation
 - Water conservation
 - o Ground Tissue: composed of multiple types of cells
 - 1. Synthesizes organic molecules
 - 2. Support structures
 - 3. Storage
 - o Vascular Tissue
 - 1. Xylem
 - Transport water and minerals from roots
 - 2. Phloem
 - Transport sugar and nutrients from leaves to rest of plant
 - o Rudimentary Leaf → True Leaf → Shoot Apical Meristem → Axillary (Bud)
Meristem (decreasing level)

Plant Organs

- Collection of tissues
 - o Roots