

Plant Structure and Growth

Now the fun really begins...

Why should we care about plants?

- Do you enjoy breathing?
- Hungry?
- Don't feel well?
- What are you writing on?
- Local uses

Plant evolutionary tree

Angiosperms

Cots

- Cotyledon = seed leaf

"Eats shoots and leaves"

- Two major systems
 - Their roles?
- Three major organs

The root system

- Fibrous roots—role?
- Tap roots—role?
- Root hairs—role?
- Adventitious roots—role?

The shoot system

- **Stems** and **leaves**
- **Vegetative** (leaf bearing) or **reproductive** (flower bearing)
- **Apical dominance**—the terminal bud rules

Modified shoots

- **Stolons**—surface
- **Rhizomes**—underground
- **Tubers**—enlarged ends of rhizomes
- **Bulbs**—enlarged bases of leaves

Leaves

- Leaf = blade + petiole
 - Many monocots lack petioles
- Simple vs. compound
 - The bud always knows: one bud = one leaf

Modified leaves

- Tendrils
- Spines
- Water storage

- Flower-like

Tissue systems

- Leaves, stems, and roots have three tissue systems each

Dermal tissue (1)

- Epidermis
- Root hairs
- Cuticle

Vascular tissue (2)

- **Xylem:** water+ up
- **Phloem:** sugars down and around

Xylem

- Tracheids
- Vessel elements

Phloem

- Sieve-tube members

Ground tissue (3)

- Dicots
 - Pith (internal to vascular tissue)
 - Cortex (external)

Plant cell review

Types of plant cells

- Roles?

Plant life cycles

- Annuals vs. perennials

Plant growth overview

- Most plants have **indeterminate growth**
 - Meaning?
- How is this possible?
 - Perpetually embryonic tissues: **meristems**

Meristems

- Apical
 - Primary growth
- Lateral
 - Secondary growth