

Photosynthesis

Data Collection Activity

Photosynthesis: Court Yard Plants

- Collect Data
 - Describe each plant
 - Shape, height, type (tree, bush, shrub), etc.
 - Measure (height, length, circumference)
 - Leaves, Flower, Plant
 - Draw plant
 - Clearly represent shape of leaf & flowers if present
 - Label & color drawings
 - Amount of sunlight
 - Full sun, shade?

Explain...

- What does leaf size have to do with photosynthesis?
- Do larger leaves have any benefit over small leaves? How about shape?
- Do tall trees have any benefit over shorter trees if they are in the same environment?

Medicines Derived from Plants


Name	Original source	Uses
aspirin	willow leaves and bark	relieves pain and reduces fever; is the world's most widely used drug
codeine	poppy fruits	relieves pain
digitalis	foxglove leaves	regulates irregular heartbeat
ephedrine	ephedra stems	relieves high blood pressure and symptoms of asthma and hay fever; acts as a decongestant
hydrocortisone	yam tubers	relieves symptoms of allergies and arthritis
quinine	cinchona tree bark	prevents malaria and relieves symptoms of malaria
reserpine	snakeroot roots	relieves high blood pressure and symptoms of schizophrenia
taxol	yew bark	reduces the size of cancerous tumors
vinblastine, vincristine	rosy periwinkle plants	used to treat cancers such as Hodgkin's disease and acute childhood leukemia

Monocots and Dicots differ in many anatomical details

Embryos	Leaf venation	Stems	Roots	Flowers
Monocots One cotyledon	Veins usually parallel	Vascular bundles usually complexly arranged	Fibrous root system	Floral parts usually in multiples of three
Dicots Two cotyledons	Veins usually netlike	Vascular bundles usually arranged in ring	Taproot usually present	Floral parts usually in multiples of four or five


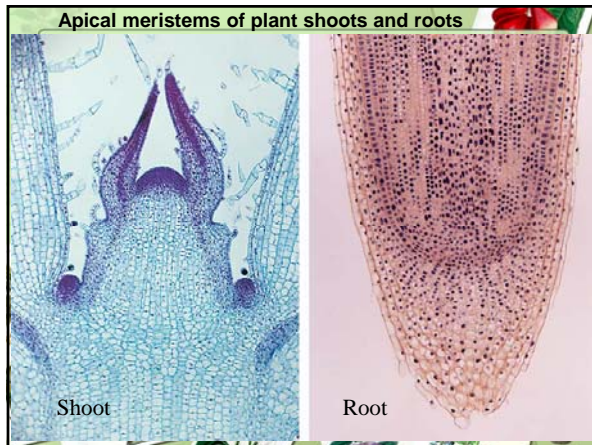
The Root System

- **Functions**
 - anchor
 - store food
 - absorb
 - conduct water and minerals
- **Types**
 - Taproot
 - Fibrous root systems
- **Root hairs**
 - Increases absorption of water and minerals near root tip
- **Adventitious roots**
 - Grows in an atypical location
 - Form above ground from stem or leaf




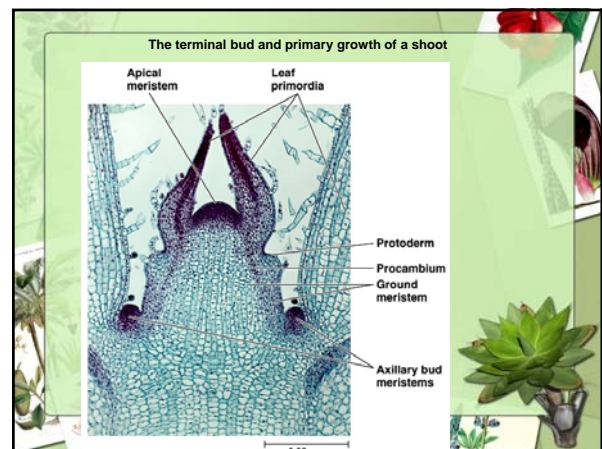
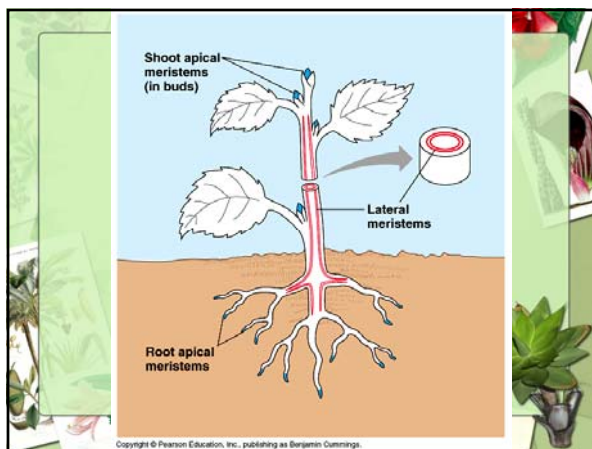
The Shoot System

- Stems, leaves and flowers
- growth occurs at apex
- apical dominance has evolutionary importance
- underground stems
 - bulbs and rhizomes
 - i.e. potatoes; store food
- leaves
 - main photosynthetic organ

Plant Growth

- Meristems generate two types of cells
 - apical and lateral
- Genetically determined lifespans (most)
 - annuals and perennials
- Plants exhibit indeterminate growth
- Types of growth
 - primary
 - secondary

Seed and Fruit

The seed contains:

- Embryo
- Cotyledon(s)
- Seed coat

Function:

- Dispersal
- Protection
- Dormancy

Functions of the fruit:

- Protection
- Dispersal

