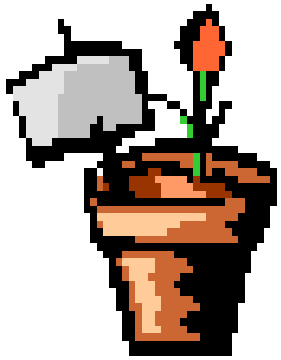
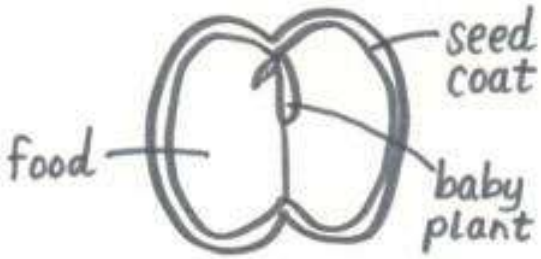
Seed Plants



What is a seed?

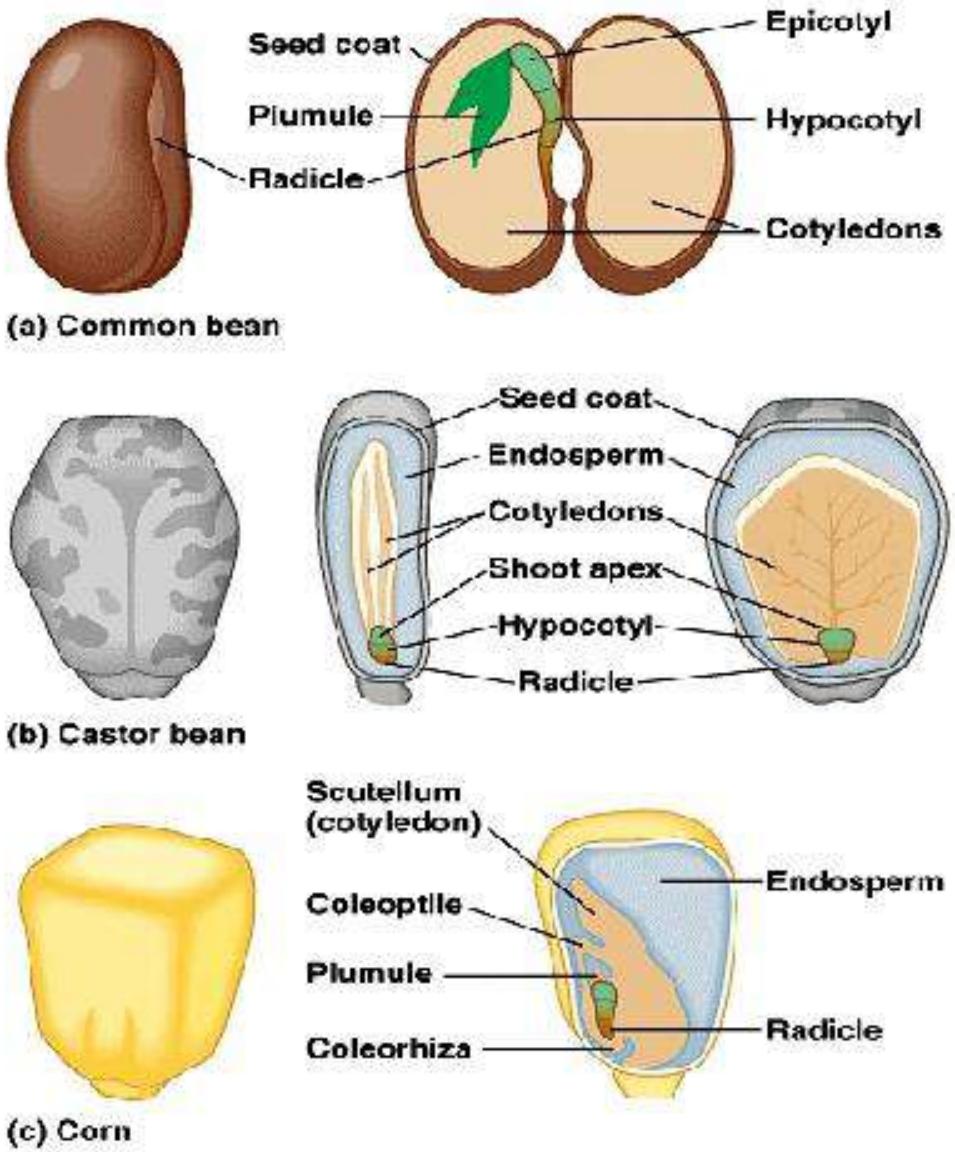
1. A seed is an embryo with a food supply enclosed in a tough coat.



2. Seed plants don't require water for fertilization due to pollen production

3. There are 2 types of seed bearing plants- gymnosperms and angiosperms

Seed Structure

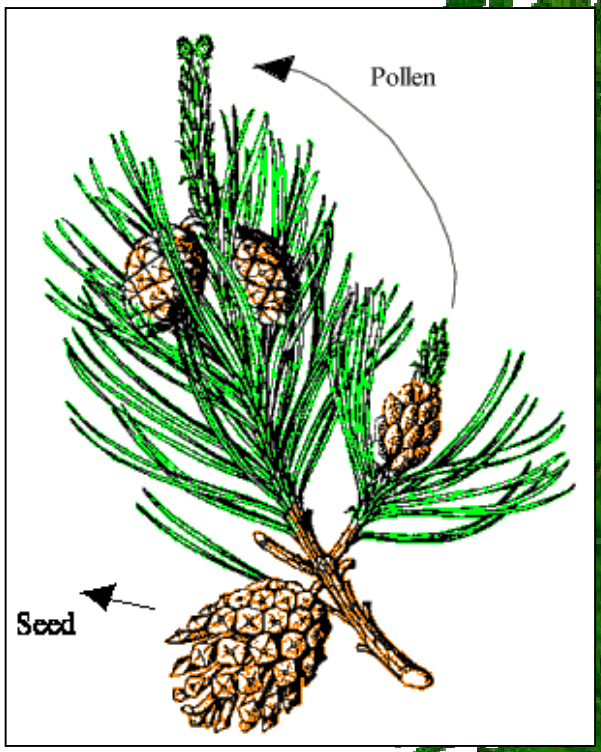


4. **Gymnosperms**;

a. Non flowering vascular plants

b. Example: conifer

1. <u>Cone bearers</u>: seeds found on scales of cone
2. Needle like leaves with tough cuticle
3. Shallow roots
4. Bark to reduce water loss
5. <u>Evergreens</u>: retain leaves all year
6. Male cone produces pollen
7. female cone produces seeds



5. **Angiosperms**: flower producing plants; most successful plant group on earth

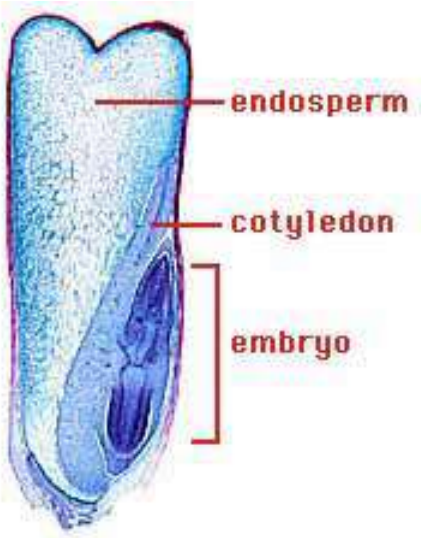





- Two groups: monocots & dicots

a. Monocots

1. Have one <u>cotyledon</u>: food storage organ of plant embryo
2. Parallel veins in leaves
3. Vascular bundles are scattered
4. Netlike roots
5. Examples - grasses, lilies, corn



grasses

lilies

corn

b. Dicots

roses

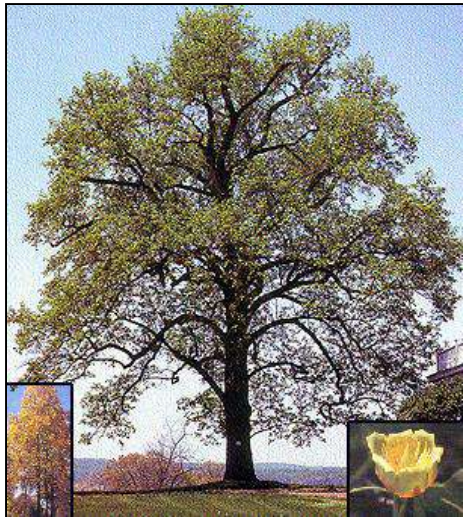
1. Have 2 cotyledons
2. Netlike veins
3. Vascular bundles in a circle
4. <u>Taproots</u>: anchor firmly in the ground
5. Examples: oak , poplar, holly, daisies, and roses

Oak

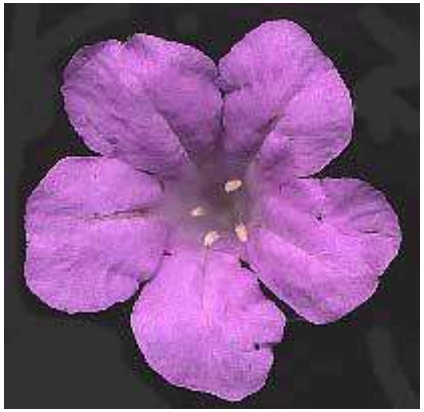
holly

poplars

daisies



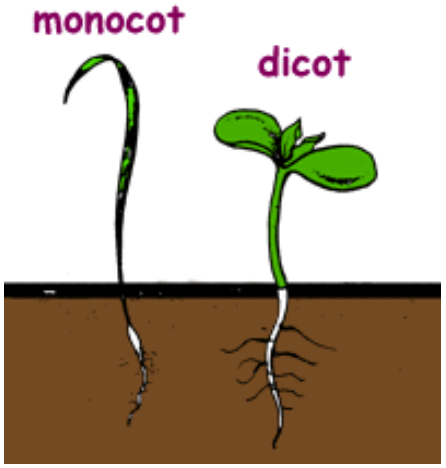
Monocots – flower parts in multiples of three



Dicots – 4 or 5 flower parts, or multiples of 4 or 5

Classification by # of seed leaves (cotyledons):

seeds sprout 1 leaf – monocot,
seeds sprout 2 leaves – dicot



6. Life spans

   a. annuals: live only 1 year, corn, wheat, peas

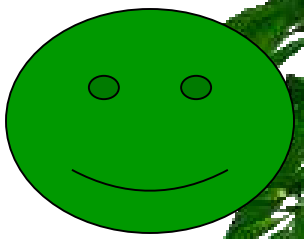
   b. biennials- life span of 2 years, carrots, beets

   c. perennials- life span of several years, leaves die back to soil, daylilies, hydrangea, shrubs, maple trees

	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

Quiz 5

Put your notes away and get ready for your quiz,



Quiz 5

1. ____ is an embryo with food supply and tough coat.

   a. spore b. seed c. sporangia

2. Cone bearers and evergreens are _____.

   a. gymnosperms b. angiosperms c. gametosperm

3. Dicots have ___ cotyledons.

   a. 2 b. 3 c. 5

4. Seeds that sprout one leaf (flower part mult of 3)?

   a. dicot b. monocot c. neither

5. ___ are flowering plants.

   a. angiosperms b. gymnosperms c. ferns

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5. ___ are flowering plants.

   a. angiosperms b. gymnosperms c. ferns

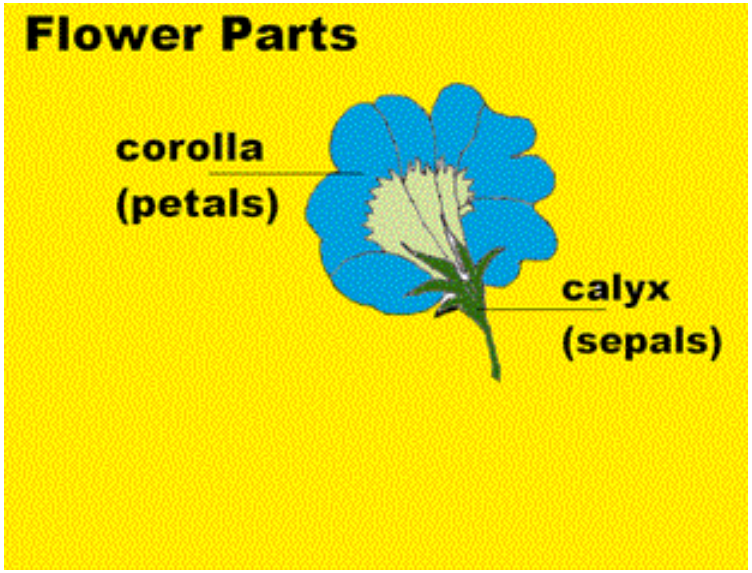
JOURNAL #6

- Compare /Contrast Monocot and Dicot.

Monocot	Dicot
1 cotyldon	2 cotyldon
Veins parallel	Veins netlike
Vascular bundle scattered	VB centered
Fibrous roots	taproot
Mult of threes	Mult 4 or 5


Flowers

1. Functions- reproductive organ of the plant
2. Structures-
   a. petals- colored portion of the flower
   b. Sepals- outermost portion of the flower



Flowers are colorful to attract pollinators such as insects and birds

C. Female parts-Pistil

1. Stigma- sticky top of pistil for pollen to be deposited
2. Style- stalk connecting stigma to ovary
3. Ovary- contains ovule, where eggs are found
4. Ovule- will become seeds if fertilized

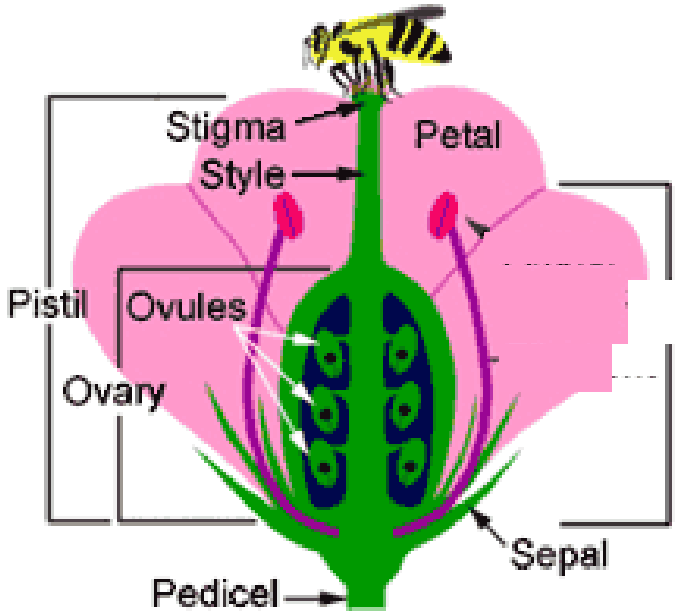


Figure 19. Complete flower structure

D. Male parts- Stamen

1. Anther- top of stamen, releases pollen
2. Filament- stalk attaching anther to stem

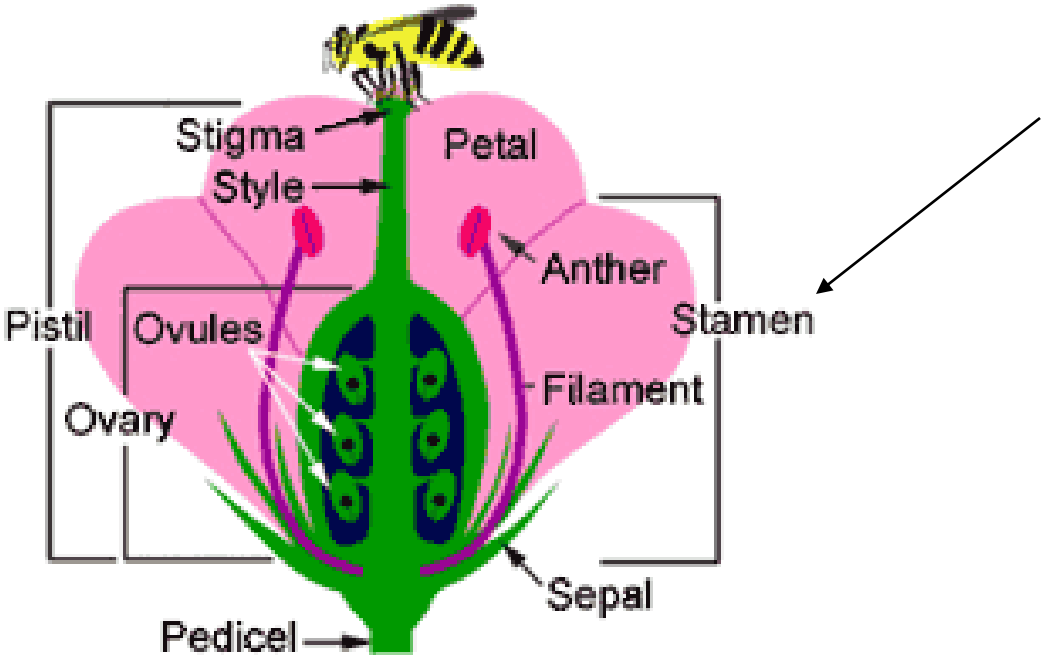
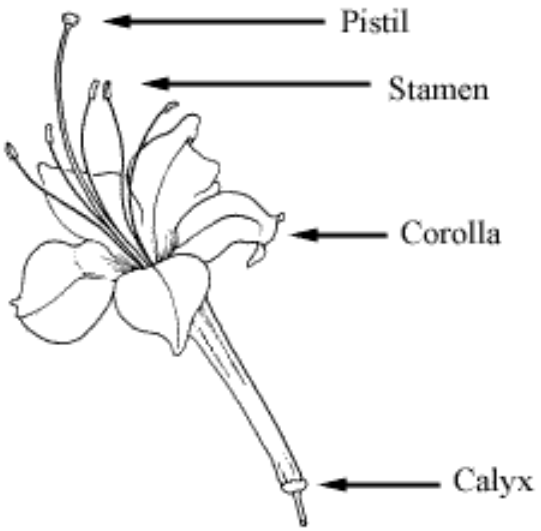
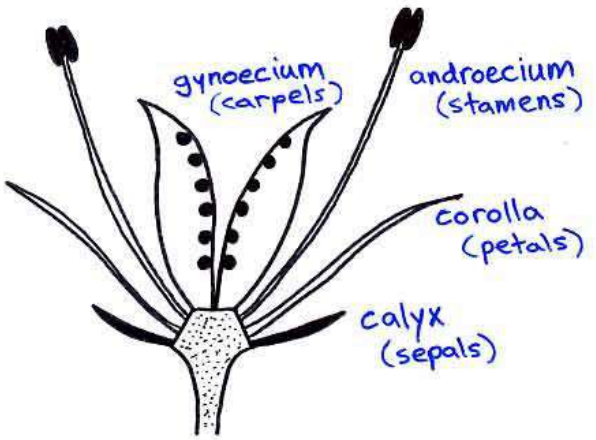


Figure 19. Complete flower structure

Complete flowers- contain sepals, petals, stamens, and pistils



Incomplete flowers- lacking 1 or more organs, may have separately sexed flowers

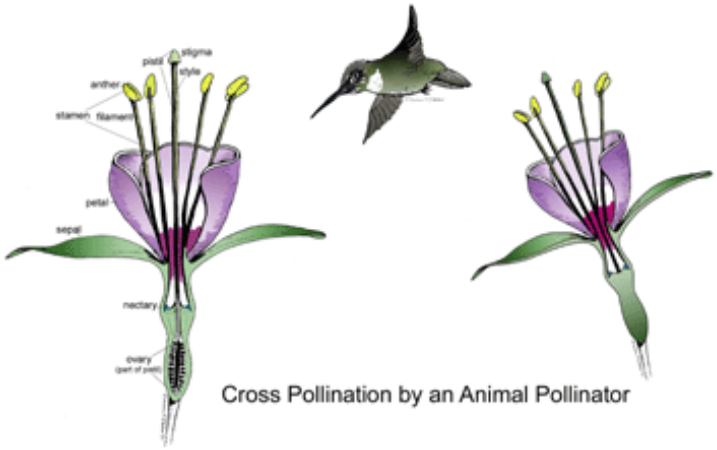


Pollination- transfer of pollen from one plant to another

a. Transferred by animals: usually brightly colored flowers, produce nectar, sweet smell

b. Wind

c. water



Cross Pollination by an Animal Pollinator

Reproduction:

a. Pollen grain reaches stigma, each has 2 haploid sperms cells & tube cell
b. Tube cell forms tube into ovary
c. Double fertilization occurs
d. After fertilization, flower parts die & seed develops

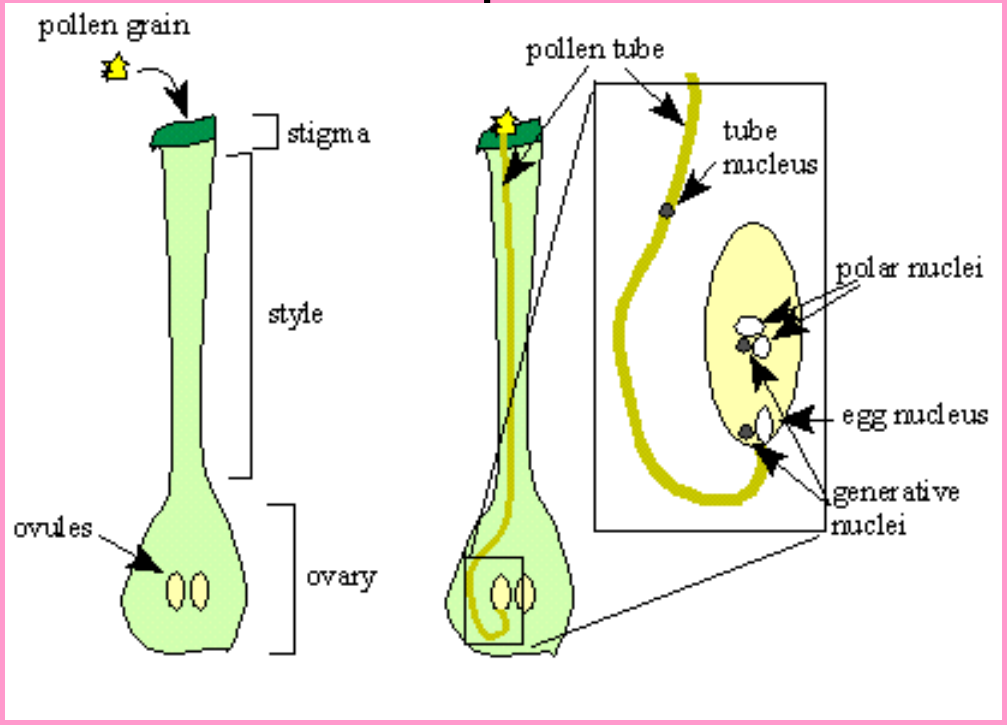
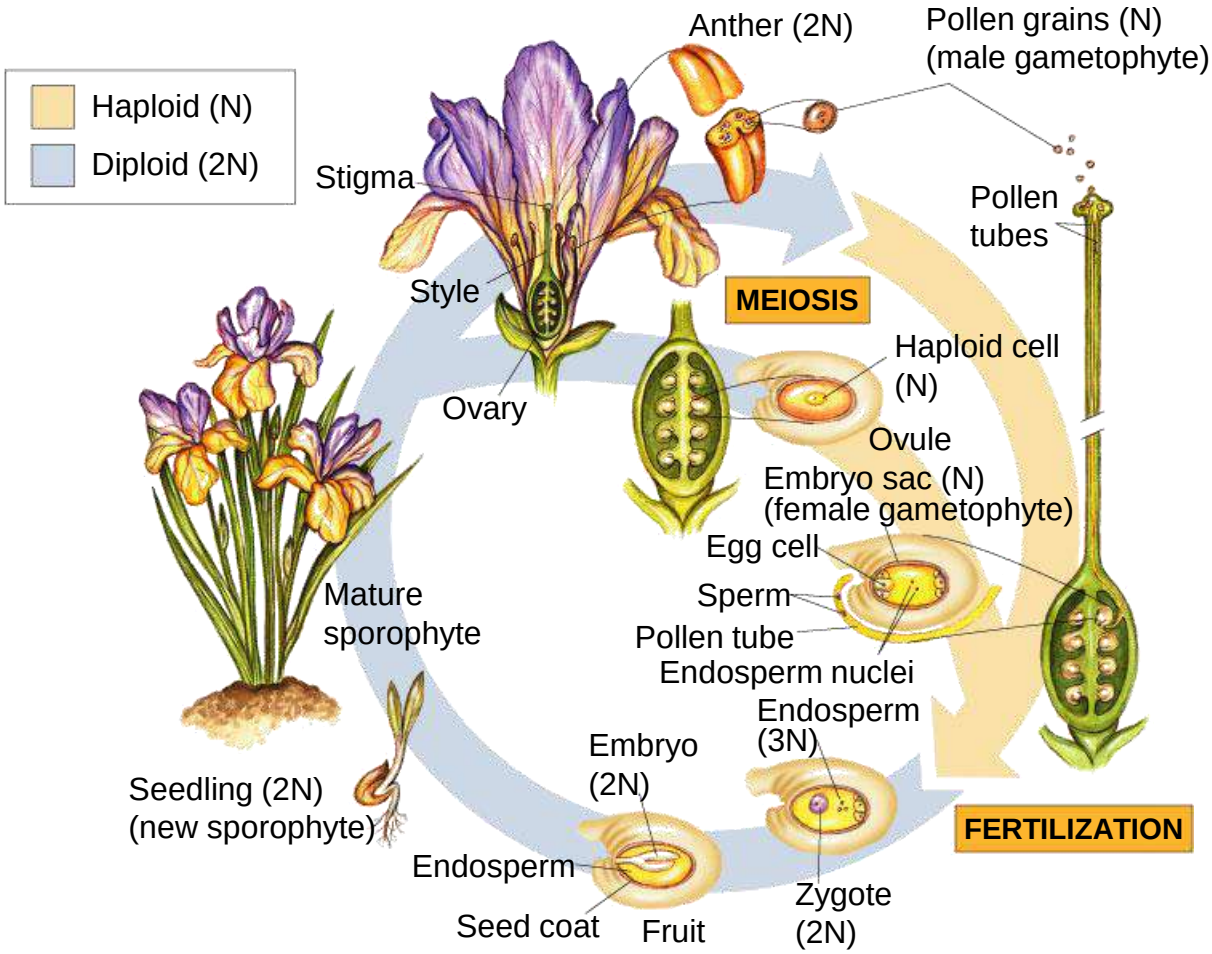


Figure 24–7 The Life Cycle of an Angiosperm

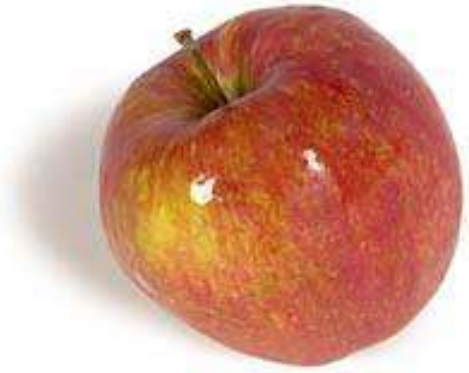


Describe Fruits

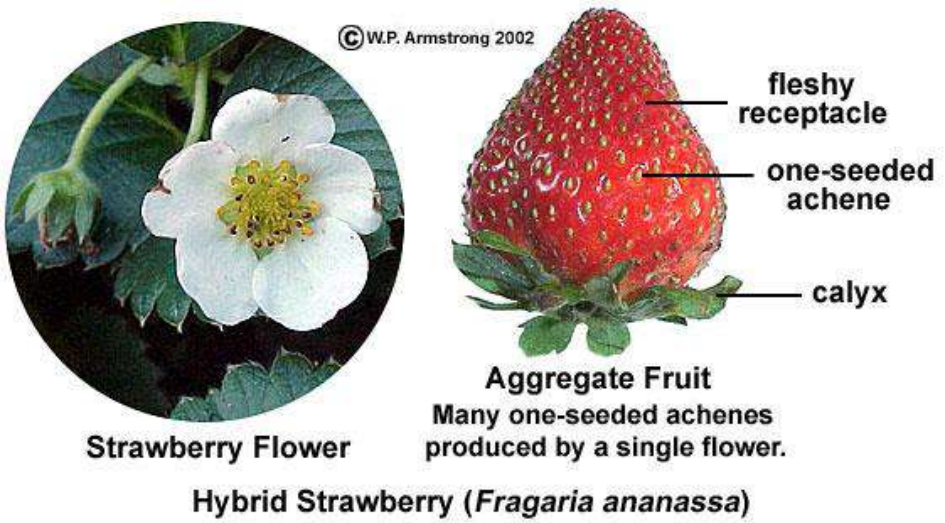
1. A fruit is a ripened ovary containing seeds, protect seed while developing

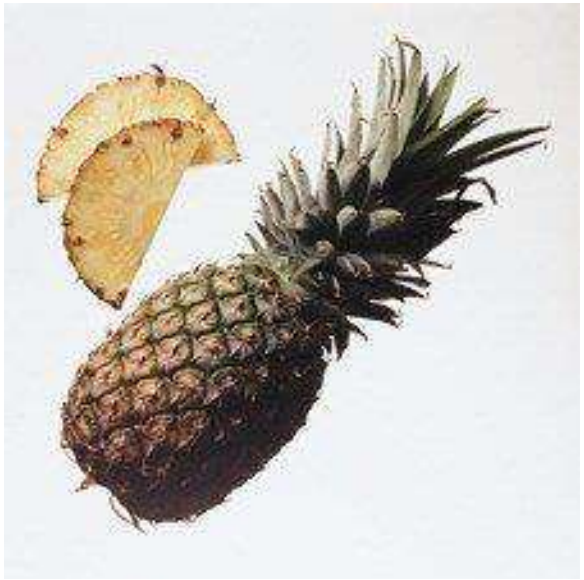
2. Types:

a. Simple- formed from single ovary: examples: apple, pear



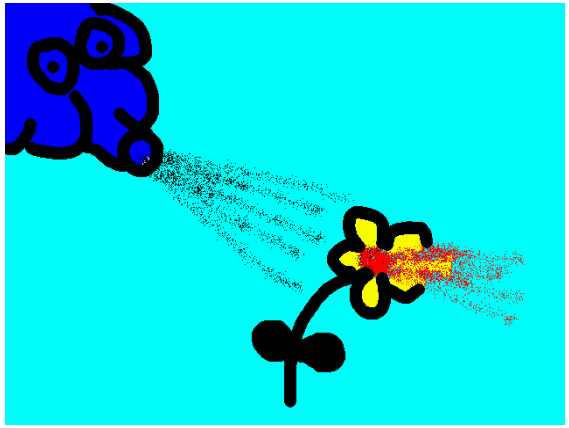
b. aggregate:- formed from flowers with many ovaries; example: blackberry





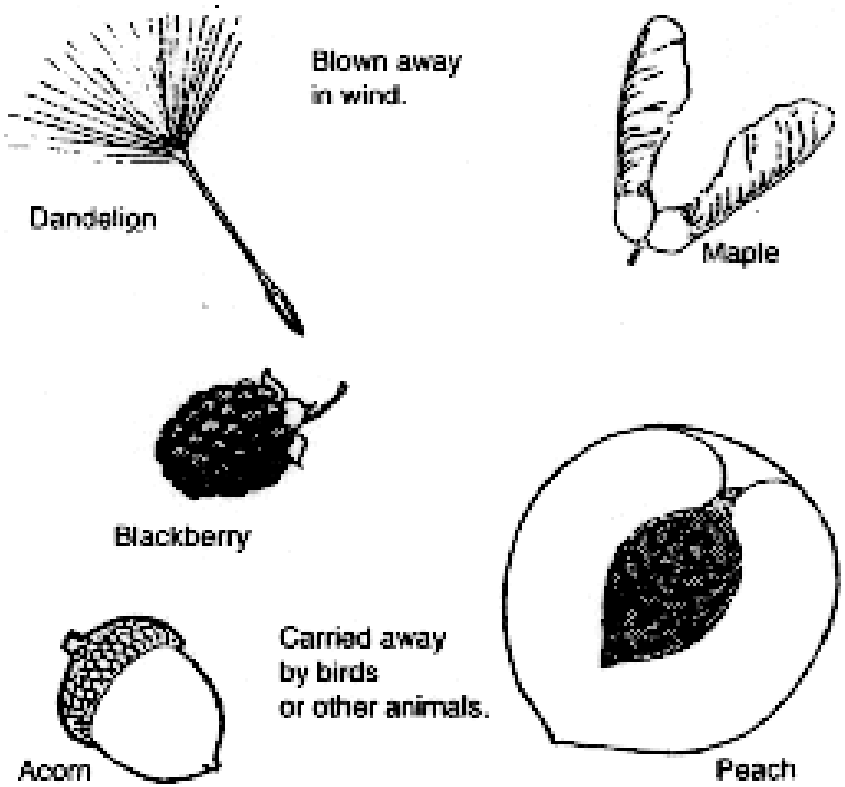
c. Multiple: formed from many fused flowers; examples: pineapple

Describe Seeds



1. Function to start new generations
2. Dispersal by animals(eat fruits & seeds), wind, water

A seed is a baby with its' own food supply enclosed in a tough protective coating



Germination: resuming growth of seeds

a. Seed coat splits

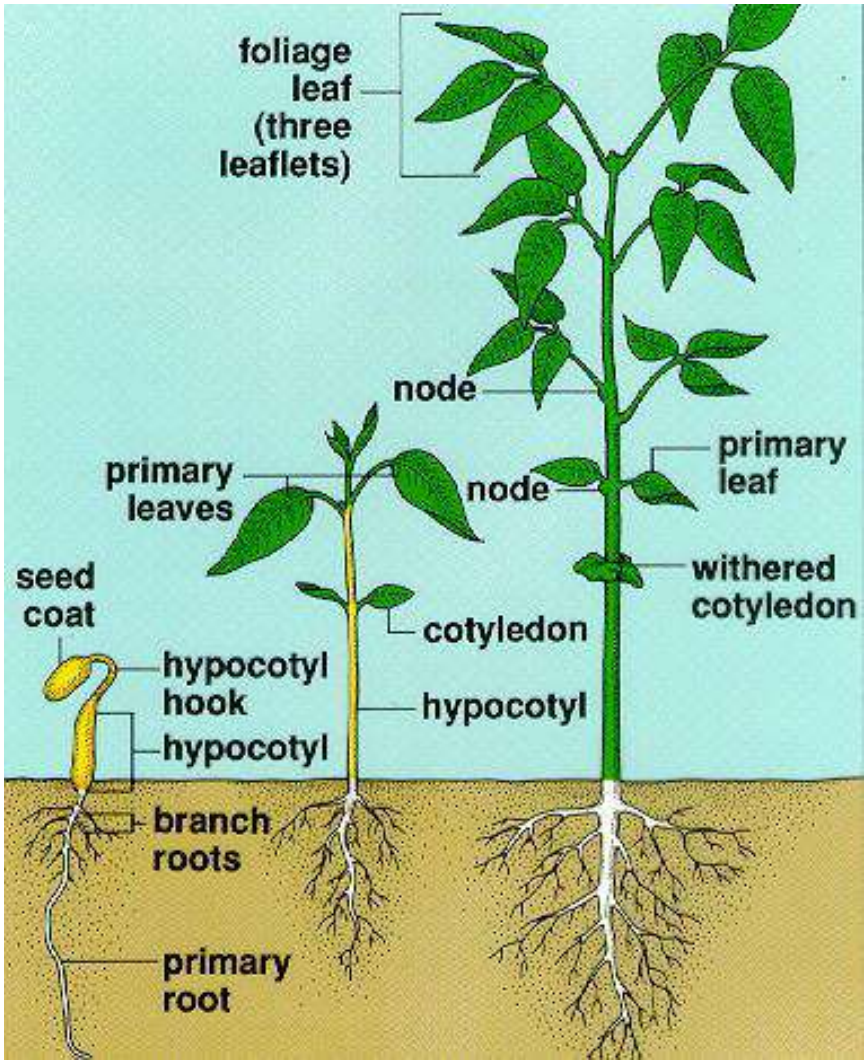
b. cotyledon provides energy source for growth

c. radicle is first plant part to emerge, grows down, & develops into primary root

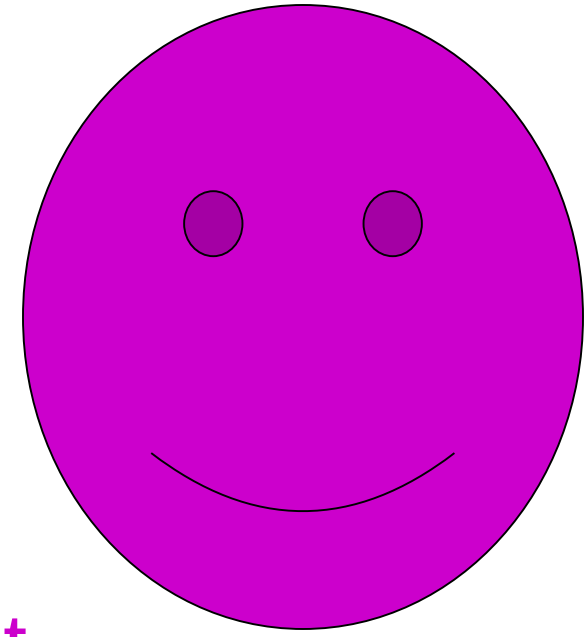
d. hypocotyl lengthens as root grows

e. as growth continues, cotyledon & hypocotyl emerge from soil

f. leaves & stems eventually turns green & begins to photosynthesize



Quiz 6



Put your notes away and get ready for your quiz,

Quiz #6 Flowers

1. The stigma, style and ovary make up the _____ of a flower.

   A. pistil B. stamen C. gametes D. sepals

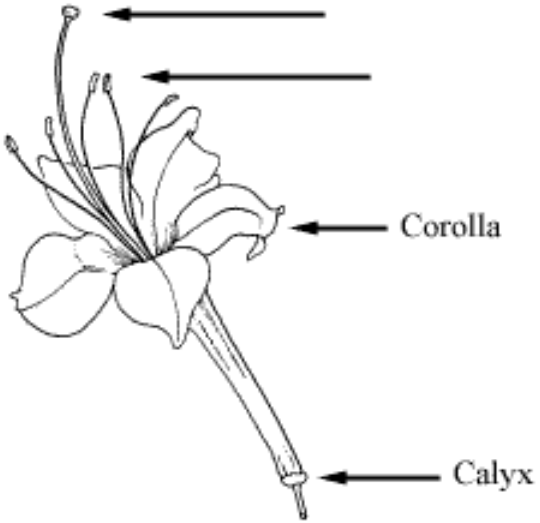
2. Pollination can occur by:

   A. animals B. water C. both of these D. none

3. Identify this flower as either complete or incomplete

   A. complete

   B. incomplete

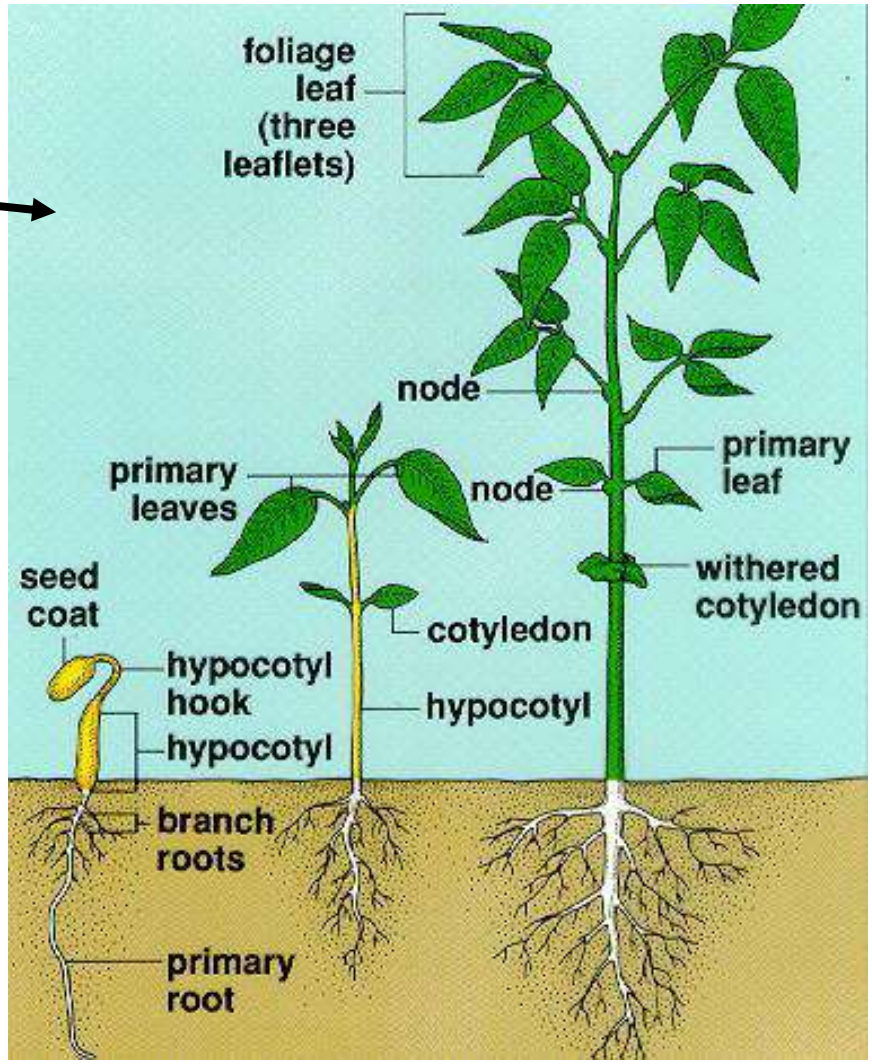


4. _____ occurs when a pollen grain reaches an ovary.

A. mitosis B. ovulation C. meiosis D. fertilization

5. This is called:

A. Fertilization
B. stigmation
C. germination & growth
D. angiofertilization



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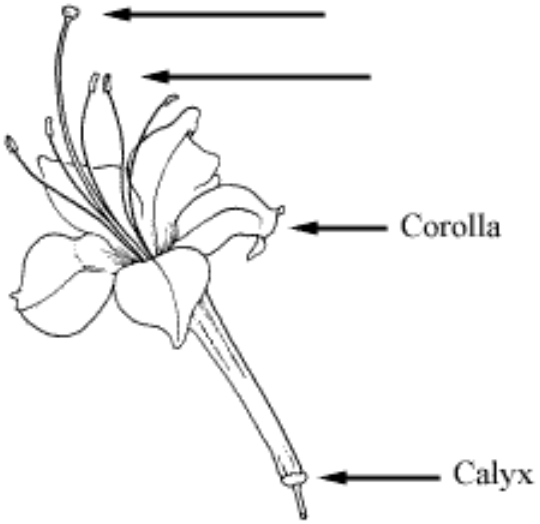

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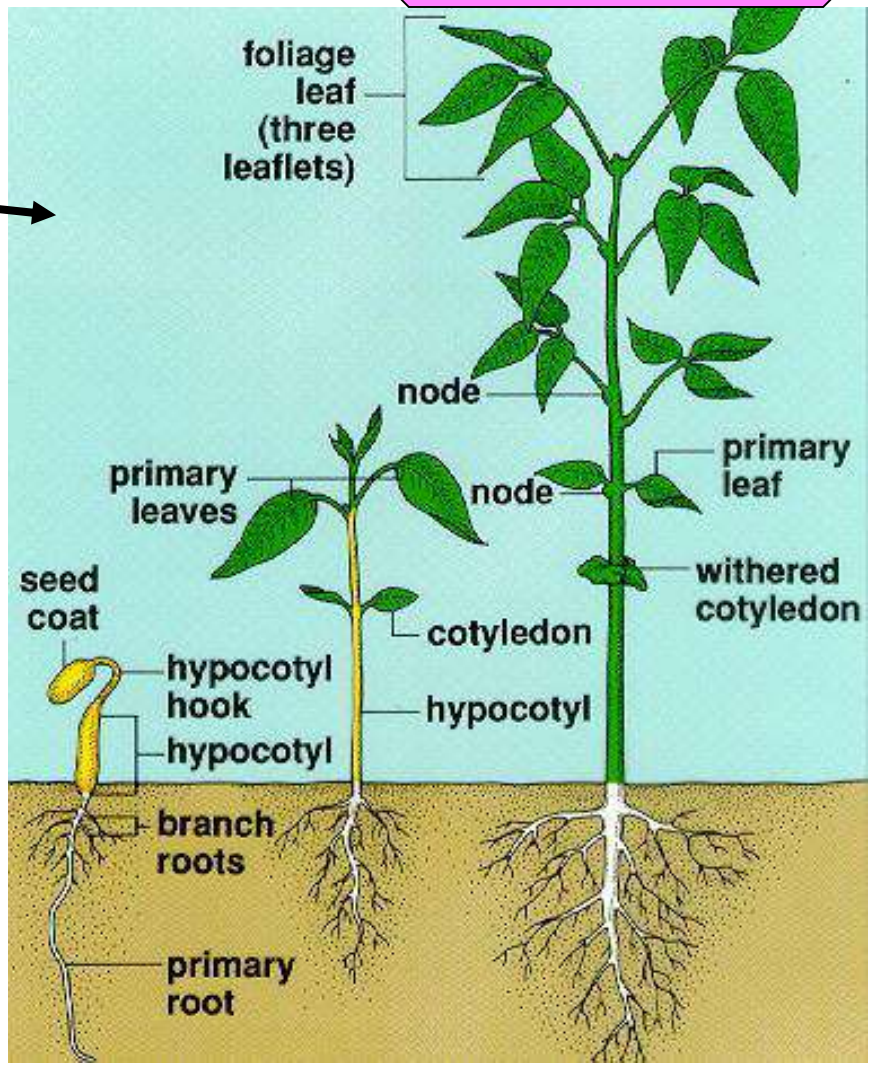


JOURNAL #7

- Explain three ways that plants are beneficial to life on Earth. Use your own paper for this answer.

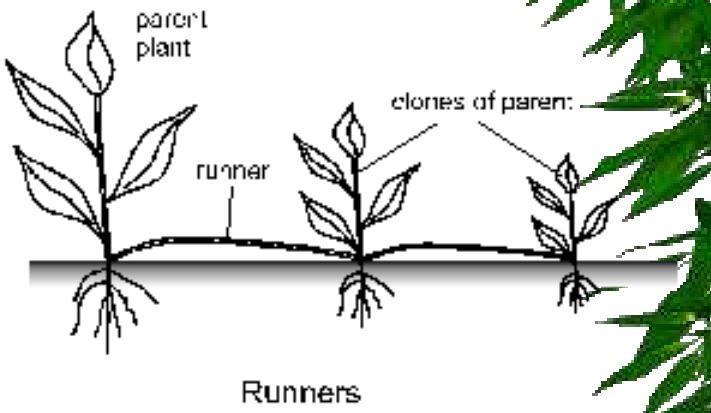
1. **Oxygen exchange**
2. **Food Source**
3. **Building Supplies**
4. **Pencils**
5. **Paper, etc.**

Asexual Reproduction in Plants

1. offspring will have same genes as parents

2. Vegetative propagation:
   a. producing new individuals from roots, stems, or leaves of existing plants

b. Examples:
1. Runners- modified stems that grow along the top of the ground & send out their own roots.

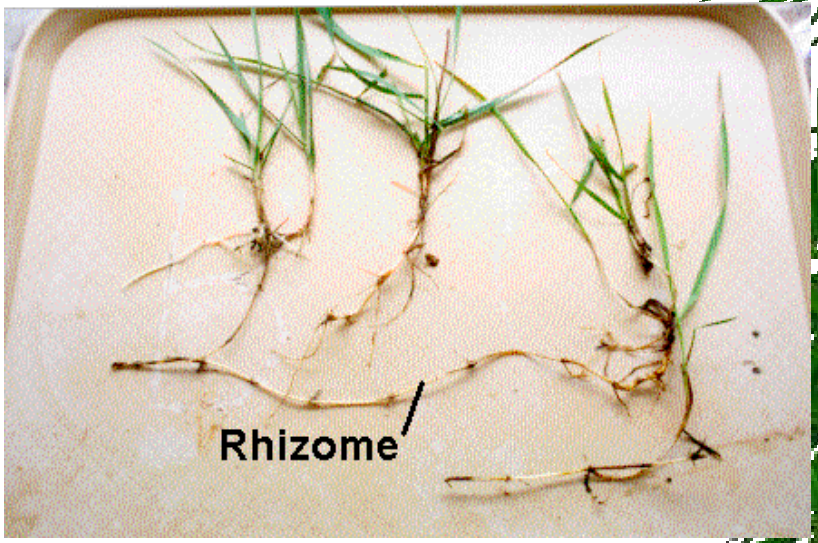


Runners

Strawberries

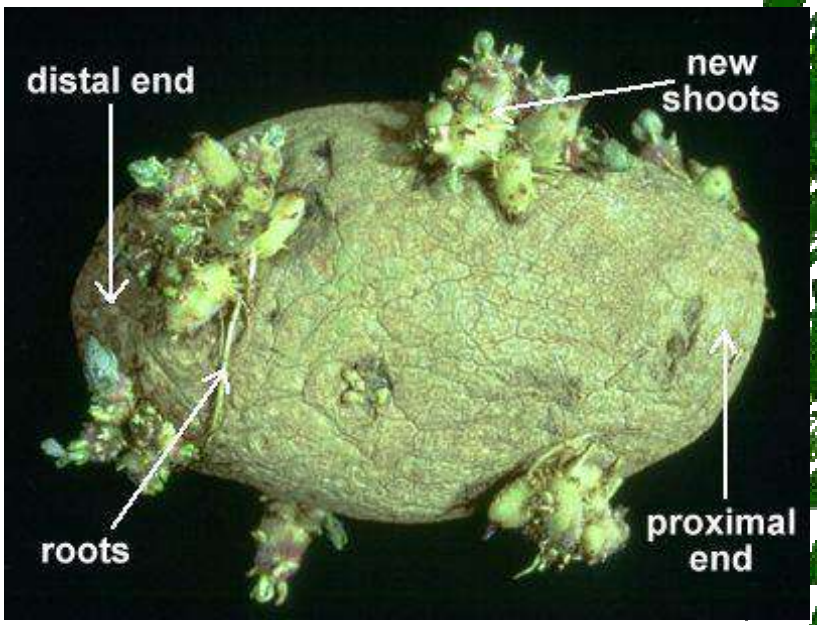
2. Rhizomes- modified stems that grow under the soil, produce new roots from stem.

Ex- grasses



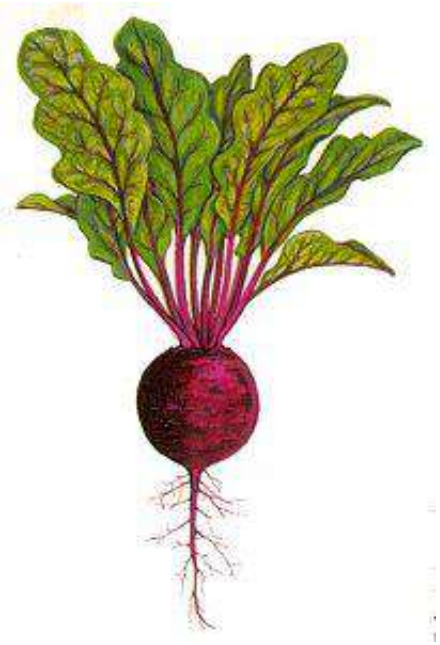
3. Tubers- shorter, thicker stems that produce an "eye" which is capable of producing a new plant.

Ex-Potato



4. Bulbs- stem covered with modified leaves which can produce a new plant. Onion

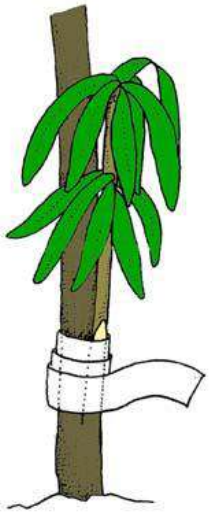
5. Food storing roots- carrots & beets are roots which are capable of producing a new plant.

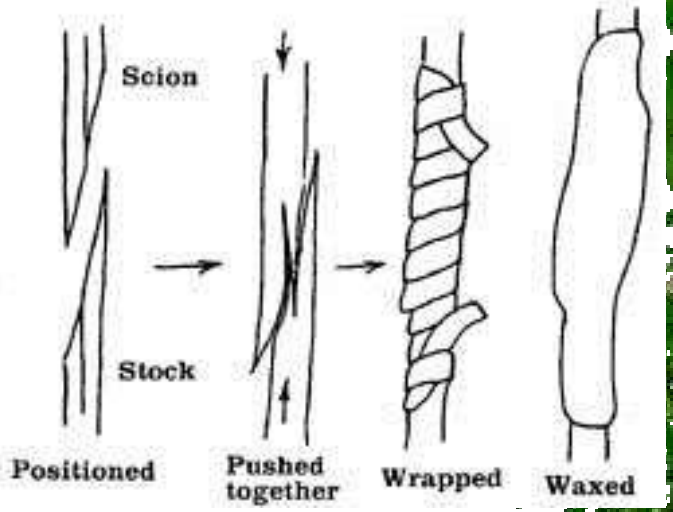


3. Artificial Propagation-
a. Method of asexual reproduction most used in agriculture

b. cuttings- pieces of stem cut from parent kept in water, moist soil or sand will put out new roots. Example- many garden plants

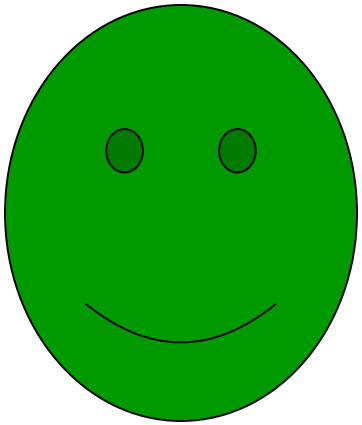
c. Grafting- buds or sections are cut from one plant & attached to another that is already rooted in the soil.
Ex- roses, fruit trees, & grapes





d. Tissue culture- pieces of the center of stem are removed & placed in flasks with growth medium from which a whole new plant will develop

Quiz 7



Haaa, just kidding!

Hang in there! We are almost done