

# SEEDS

Plants Unit

# Objective

- Observe and identify plant seeds structures for different types of plants.

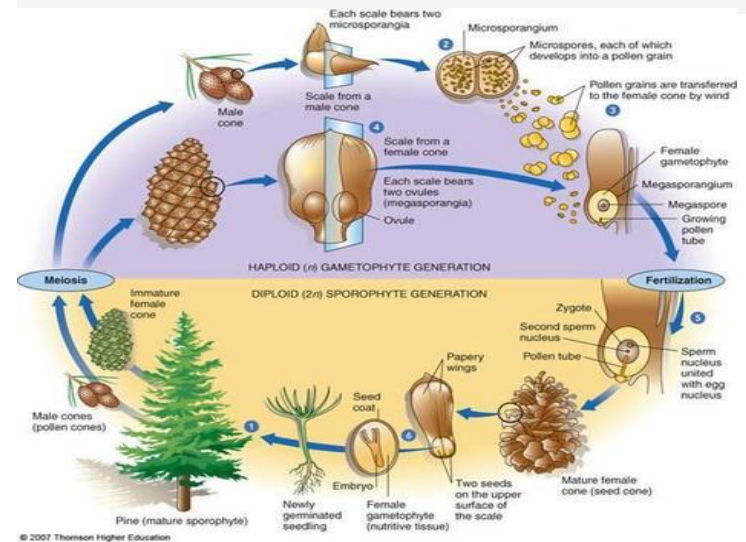
# Research

- Seed: A plant embryo with stored food enclosed in a protective covering.



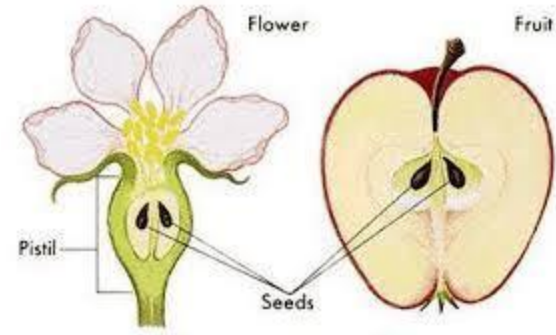
# Research

- Gymnosperm seed: “naked seed” not covered by fruit or a pod.
- Gymnosperm: Most produce cones which contain seeds

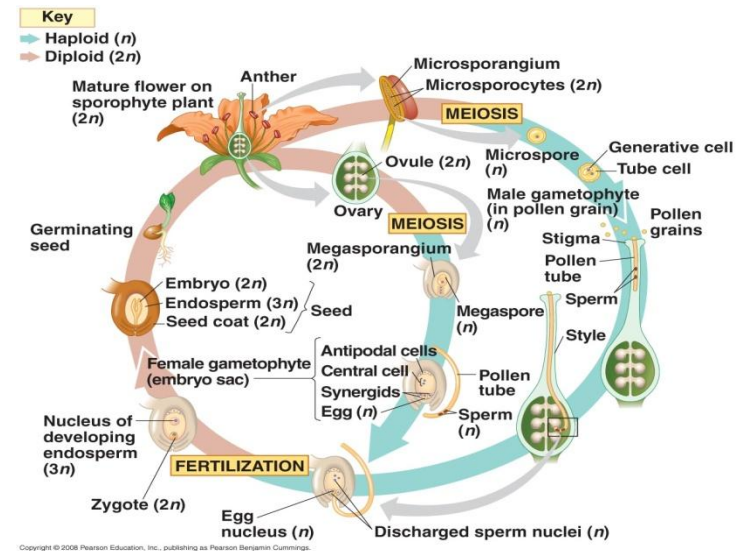


# Research

- Angiosperm Seed: enclosed within a fruit or pod



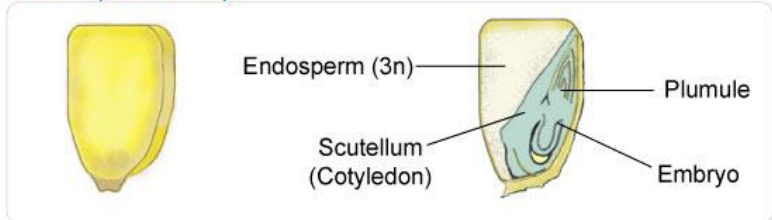
- Angiosperm: flowering plants



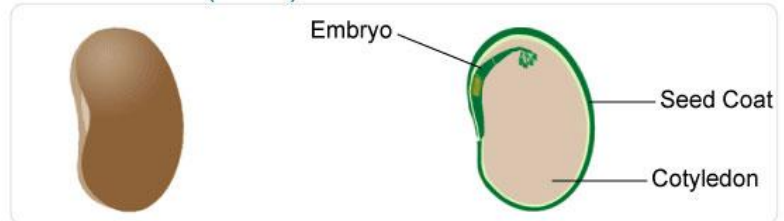
# Research

- There are two types of angiosperms:
- Monocot: 1 cotyledon surrounds the embryo
- Dicot: 2 cotyledon surround the embryos, seeds split naturally into 2 parts

Corn - (a monocot)



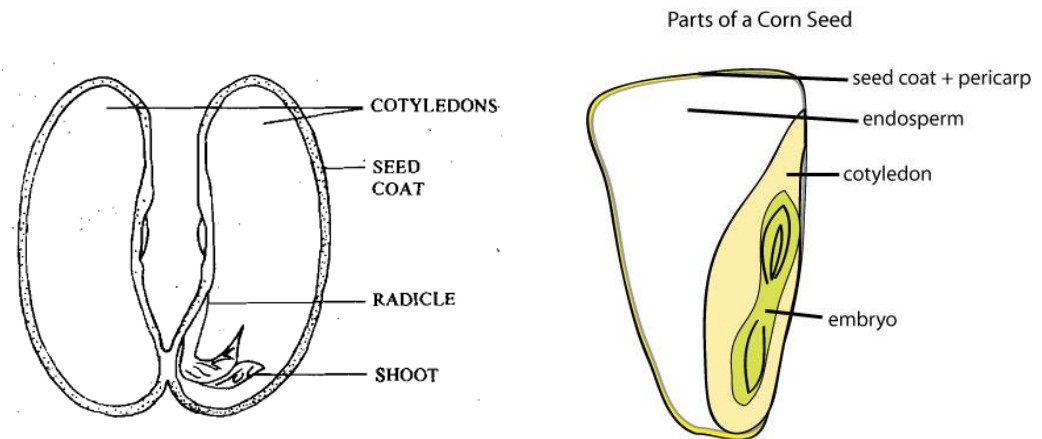
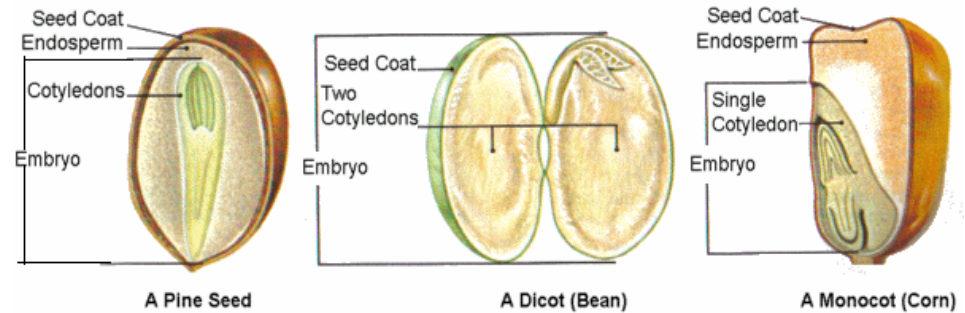
Common bean - (a dicot)



Dept. Biol. Penn State ©2002

# Research

- Seed Parts:
- Seed Coat: outside skin or covering of a seed.
- Embryo: Baby plant
- Cotyledon: large part of the seed that supplies food to the young plant when it starts growing.





# Research

- Seed Dispersal: the way the seed gets from the cone or fruit to the soil.
- Wind: some seeds have “wings” and wind blows them.
- Animals: eat fruit and seeds are dropped with the animals wastes. Some seeds have barbs that cling to animal’s fur and eventually drop off

## Seed Dispersal is Scattering Seeds

Seeds are dispersed or spread out so that they can grow without too much competition from each other. Here are some ways in which the seed can be dispersed:

### 1) Wind dispersal

Dandelion fruit.



Parachutes catch the wind.

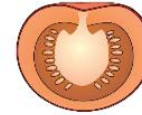
Sycamore fruit.



Wings help it fly away from the parent tree.

### 2) Animal dispersal

Tomato fruit.



Fruit gets eaten. Seeds come out in the animals' droppings.

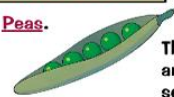
Burdock fruit.



Hooks catch animals' coats.

### 3) Explosions

Peas.



The pods dry out and flick the seed out.

### 4) Drop and Roll

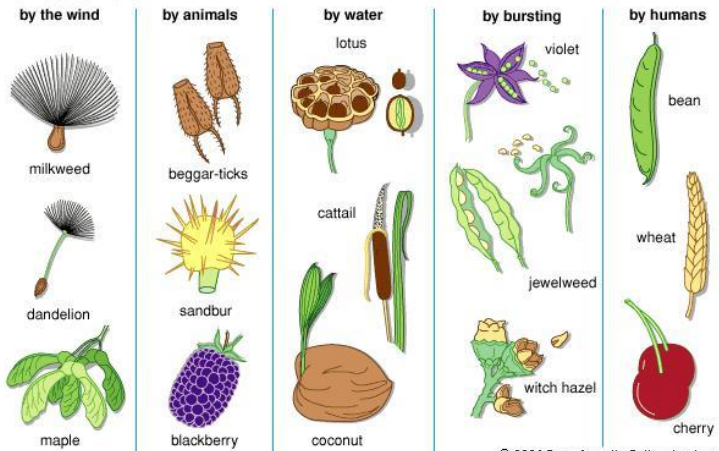
The heavy fruit falls down from the tree. It splits when it hits the ground and the seeds roll out.



Horse Chestnut fruit.

The seeds then tend to be further dispersed by animals.

## How Seeds Travel





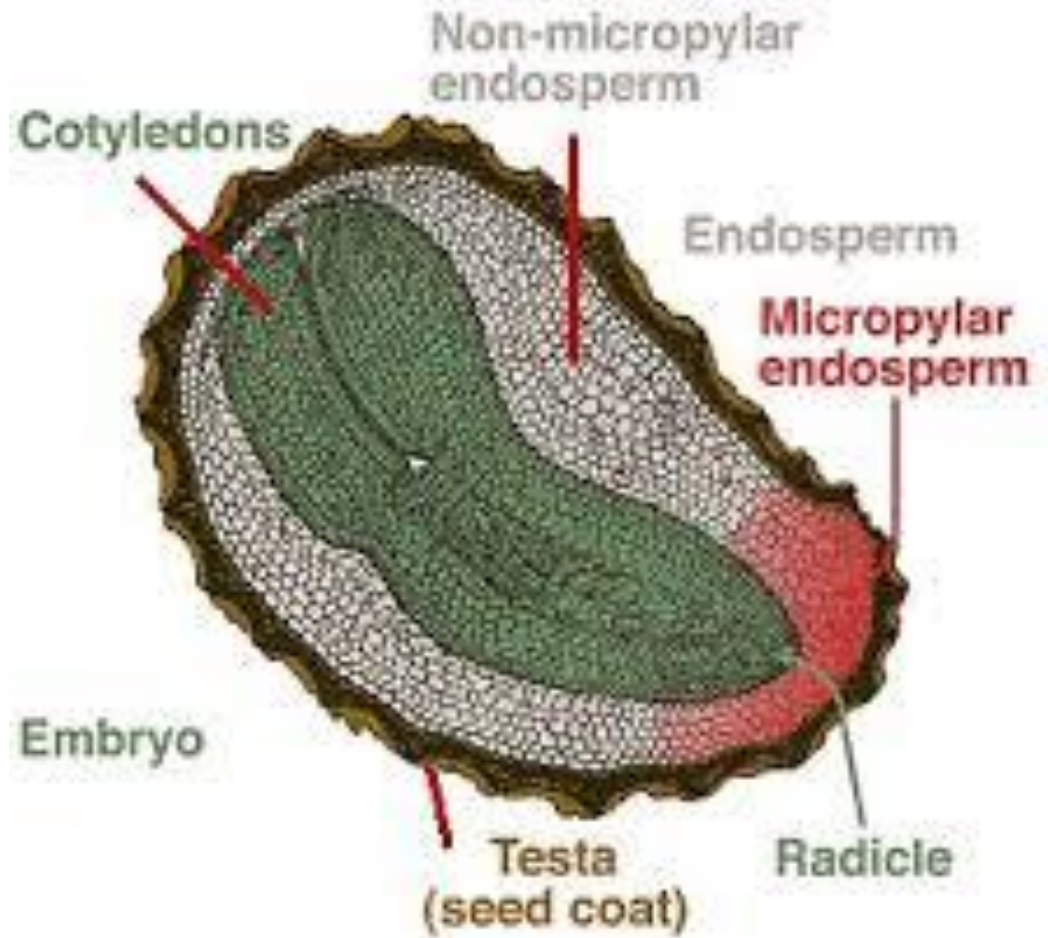
# Hypothesis

- Circle one of the two choices to complete the hypothesis sentences.
- All seeds are/are not the same.
- Seed are/are not alive.
- Seeds are produced in the roots/stems/leaves/flowers.

# Experiment

1. Make drawings of all of the following (seeds).
2. Label the parts of the seed of each drawing.
  1. Seed Coat
  2. Cotyledon
  3. Embryo
3. Fill in the data table by identifying the following:
  1. whether the seed is from an angiosperm/ gymnosperm?
  2. Monocot or dicot?
  3. how is it dispersed?
4. Answer the conclusion questions

# Radish Seed



# Questions

- Which seeds had two halves?
  - Bean, Pea, and Radish
- Seeds with two halves are call \_\_\_\_\_.
  - Dicots
- Which seeds did not split in half perfectly?
  - Corn
- Seeds that don't split perfectly in half are called \_\_\_\_\_.
  - Monocots

# Questions

- What did you find on the inside of the seeds?
  - Embryo or the baby plant
- Why do you think the seed were soaked in water (or are fresh) overnight?
  - To make them easier to break apart to see inside the seed
- What do you think happens to the seed when it is planted?
  - The embryo breaks the seed coat to start forming the plants when the seed comes in contact with water

# Questions

- What do you think all the materials inside the seed is needed for?
  - Food and energy for the embryo before it reaches the surface
- Why do you think the outside of the seed (Bean Seed) is so hard before it is soaked?
  - Protection for the plant embryo
- What is the difference between angiosperm and gymnosperm seeds?
  - Gymnosperms have little protection or covering while the angiosperm seeds have a covering for some protection.

# Monocot (Corn) and Dicot (Flowering plants) Seed Anatomy

Bean = Dicot

Corn = Monocot

