


Seeds

SEEDS: Overview

- ▶ Allows for sexual reproduction without water
 - ▶ Provides protection against environmental conditions
 - ▶ Can remain dormant for long periods of time
 - ▶ Allows dispersal over wide areas
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What is a seed?

- ▶ A seed is a plant embryo with a food source
→ “a baby plant in a box with its lunch”

Seed

= embryo, stored food, and seed coat

How is a seed produced?

- ▶ By sexual reproduction in plants

recall:

→ Pollen fertilizes the “eggs” in the ovary to create the plant embryo (inside the seed)

FLOWER

Ovary

Ovule

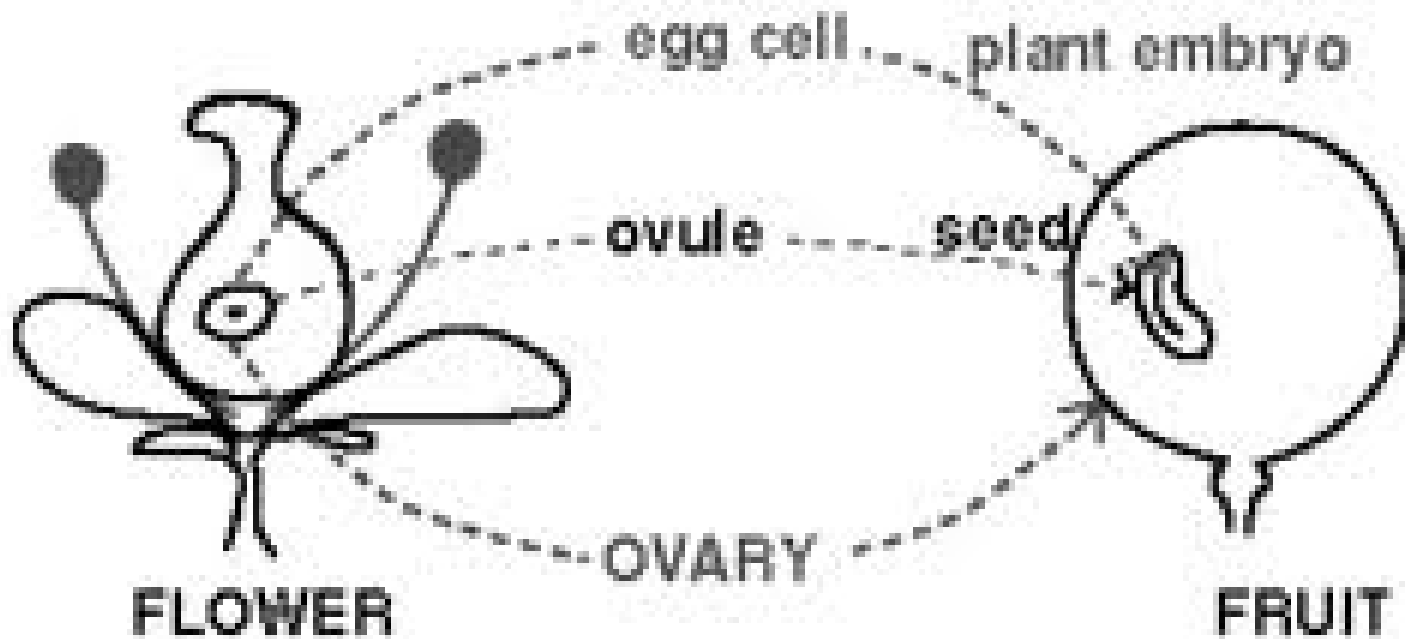
Egg cell

FRUIT

Fruit

Seed

Plant embryo



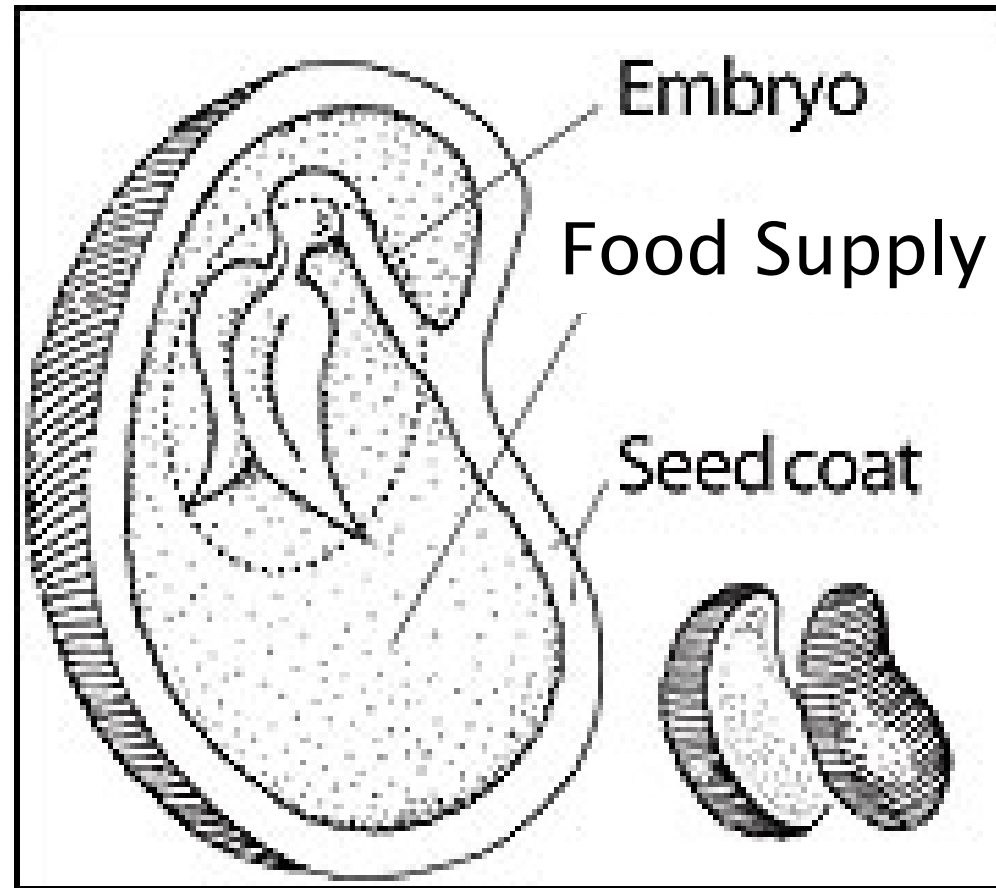
Parts of a Seed

▶ See p. 588 in text

1. Embryo

2. Seed coat

3. Food supply
(Endosperm
or Cotyledon)



Cotyledons (“seed leaves”)

Purpose:

- ▶ to absorb nutrients from food supply and/or provide energy to plant embryo.
→ usually becomes the embryonic first leaves of a seedling.

Cotyledons (“seed leaves”)

- ▶ The number of cotyledons present is one characteristic used by botanists to classify the flowering plants (angiosperms).
 - Species with one cotyledon are called monocotyledonous (or, “**monocots**”)
 - Plants with two cotyledons are termed dicotyledonous (“dicots”)

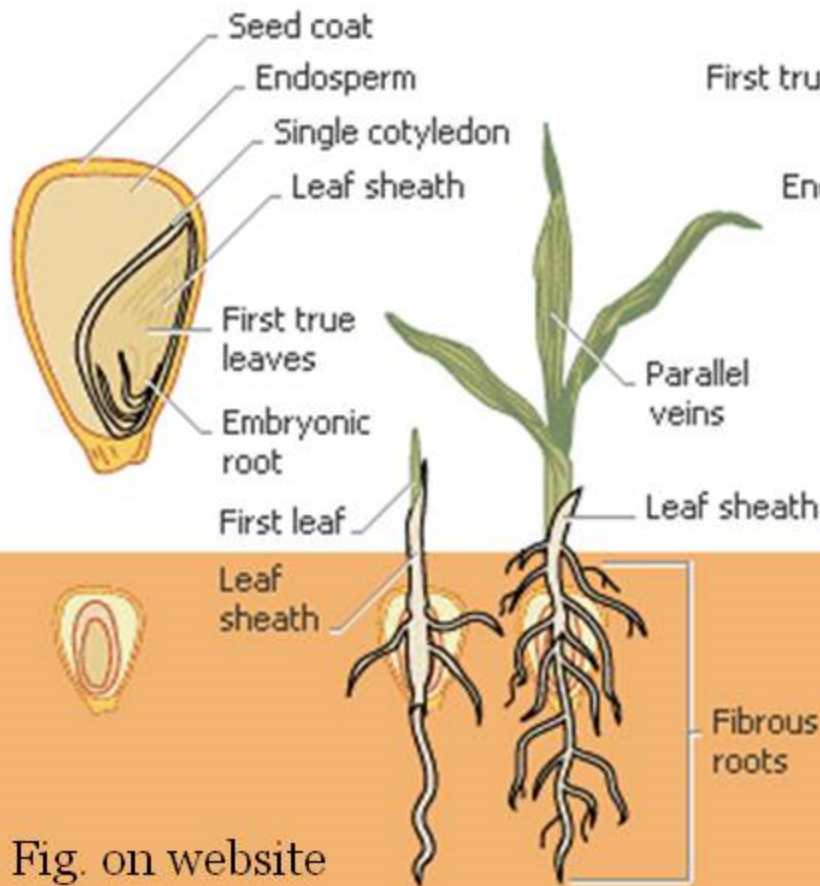
SEED GERMINATION



Monocot vs. Dicot Seeds



Monocotyledon (corn)



Dicotyledon (bean)

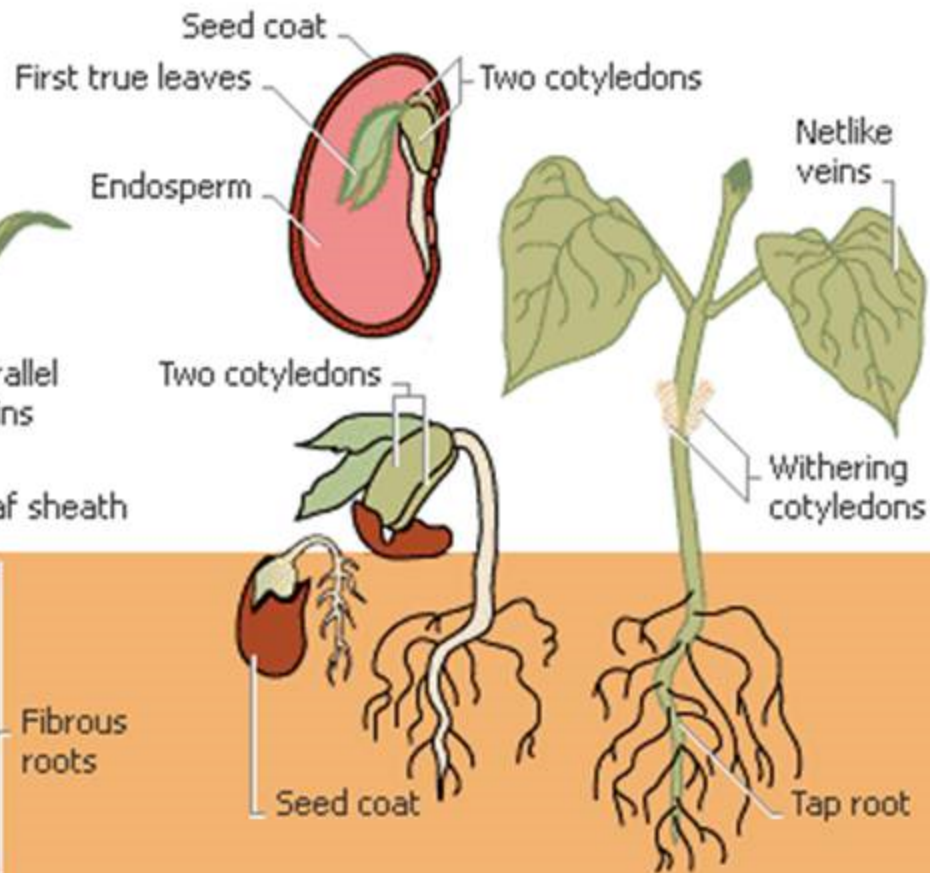
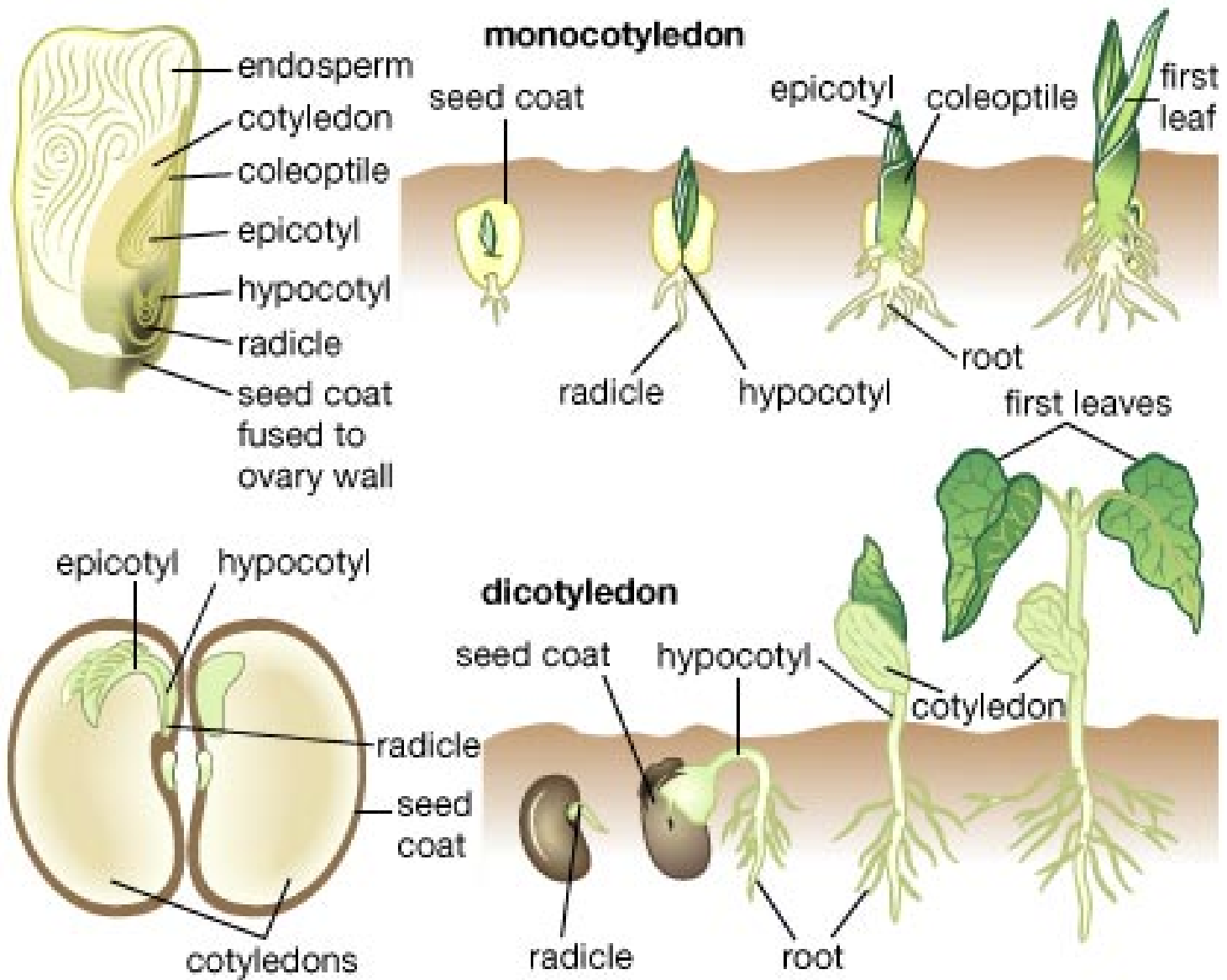


Fig. on website

Seed Germination



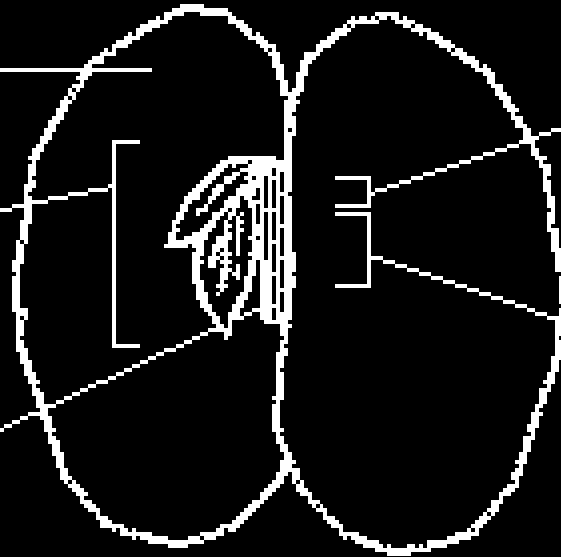
TERMS of Seed Germination

- ▶ **Epicotyl:** cells at the tip of the embryo that form the *leaves* and *upper stem* of the plant.
- ▶ **Hypocotyl:** middle part of the embryo that becomes the *lower* part of the *stem*.
- ▶ **Radicle:** cells on the other *end* of the embryo that develop into the *root system* of the young plant.
- ▶ **Cotyledon:** a source of energy and nutrients for the embryo
- ▶ **Seed Coat:** protects the seed and also controls germination by restricting water and oxygen to the embryo.
- ▶ **Coleoptile:** (*monocots only*) pointed covering that protects first few leaves

**Cotyledon (Comprised
of Endosperm Cells)**

**Plumule (Epicotyl
Together With Young
Leaves)**

**Radical (Embryonic
Root Below Hypocotyl)**



**Epicotyl (Axis of Embryo
Above Cotyledons)**

**Hypocotyl (Axis of Embryo
Below Cotyledons)**