

# Notes: Seeds



# What is a seed?



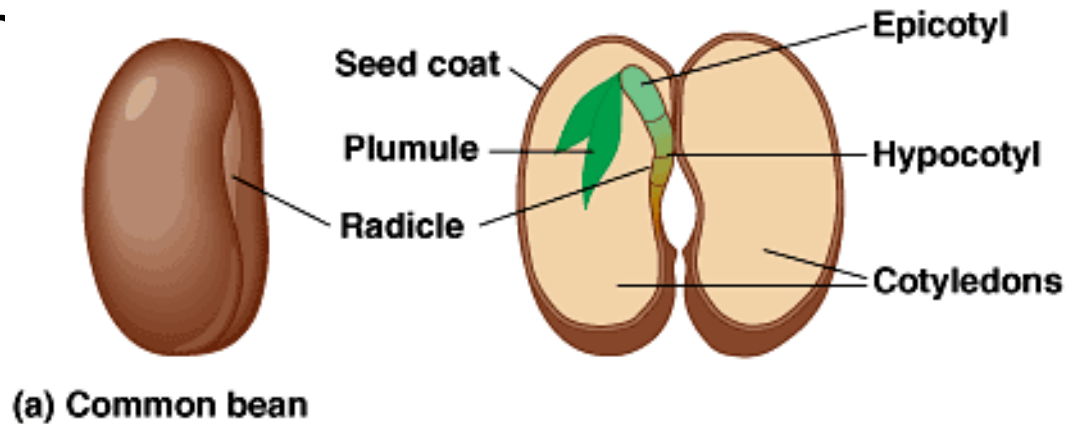
- A **seed** is a small **embryonic plant** enclosed in a covering called the **seed coat**, usually with some **stored food**.
- The formation of the seed completes the process of reproduction in seed plants.

## Why are seeds advantageous for plants?

- maintain dormancy until better environmental conditions arise
- afford protection to young plant at vulnerable developmental stage
- contain adequate food supply until photosynthesis is possible
- dispersal of plants

# SEED STRUCTURE

- External
  - Seed coat (*testa*)
  - Hilum
- Embryo
  - Cotyledon
  - Epicotyl /
  - Plumule
  - Radicle



# Seed Coat

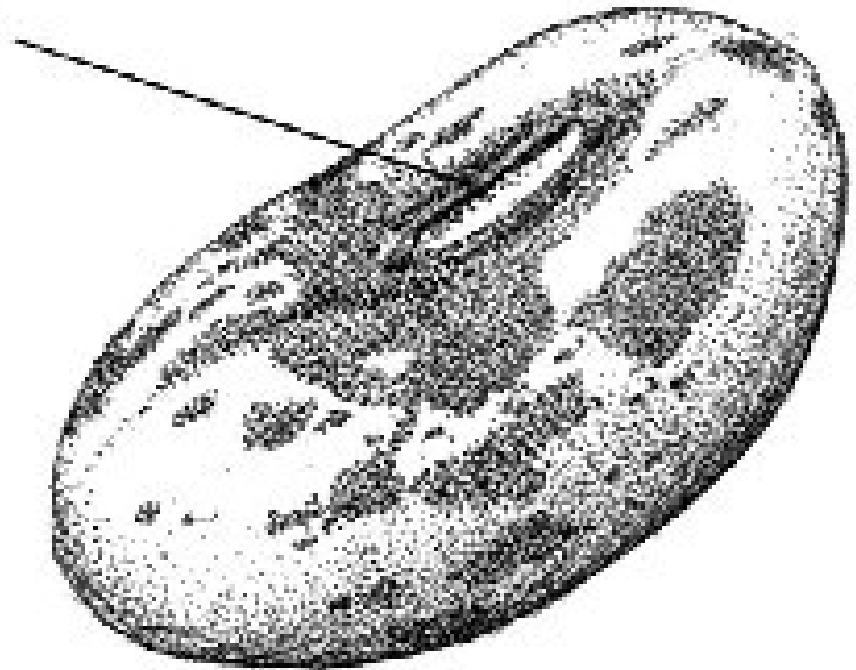
- AKA **testa**
- The seed coat **protects** the embryo
- Can be of varying thicknesses. depending on the seed type.



# Hilum

- Scar from the seed being attached to the parent plant

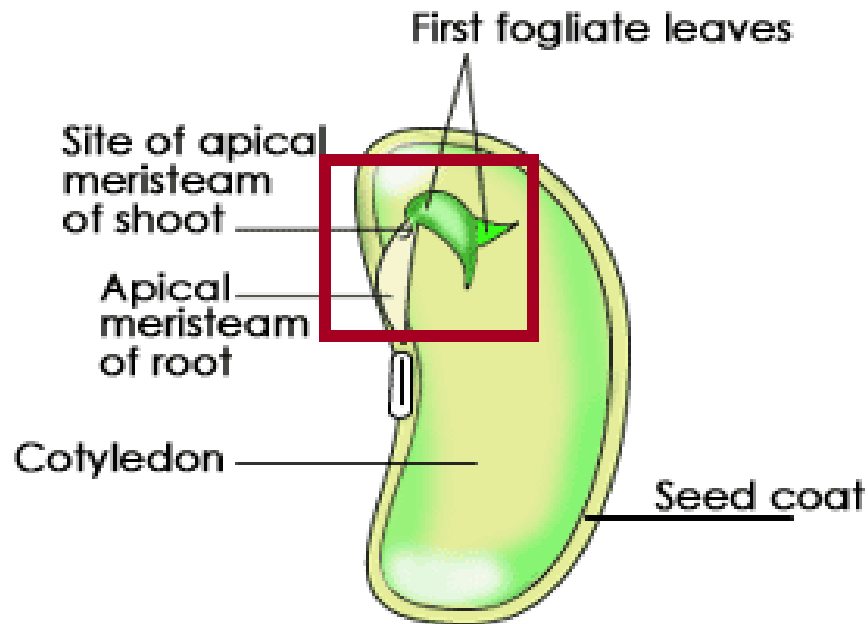
hilum



# Embryo

- The embryo is what forms the new plant once the opportune conditions are present.

Dicot Seed

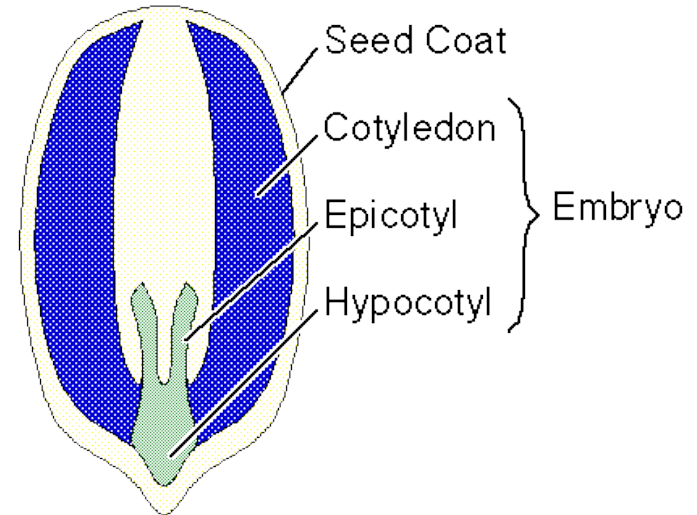




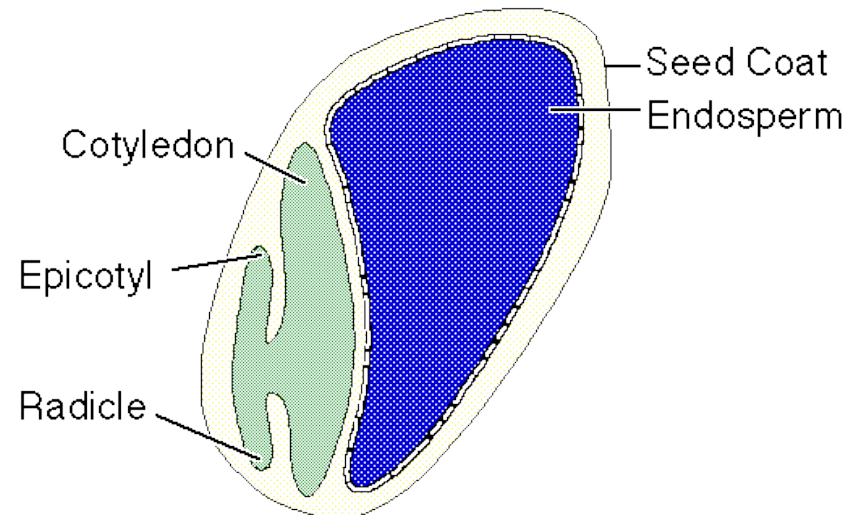
# Cotyledon

- The cotyledon is the **first leaf** that germinates.
- It is filled with **stored food** that the plant uses before it begins photosynthesis.
- Some plants have 1 cotyledon (monocot) and some have 2 cotyledons (dicot).

Dicot Seed Structure



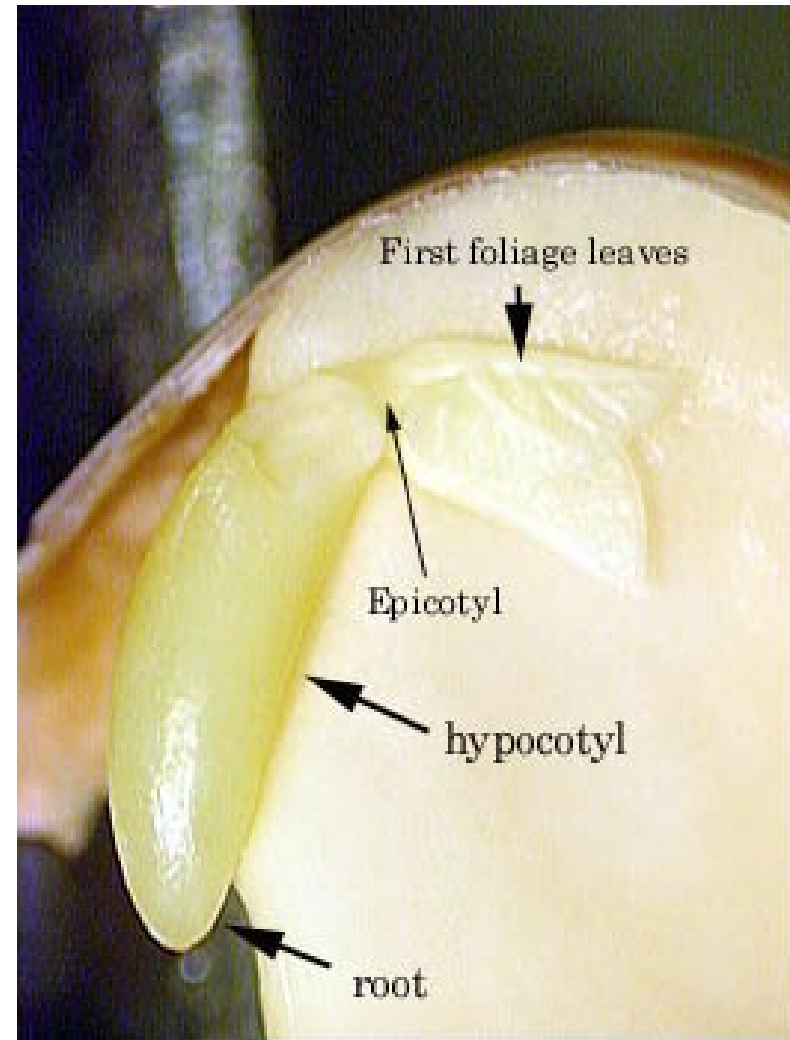
Monocot Seed Structure





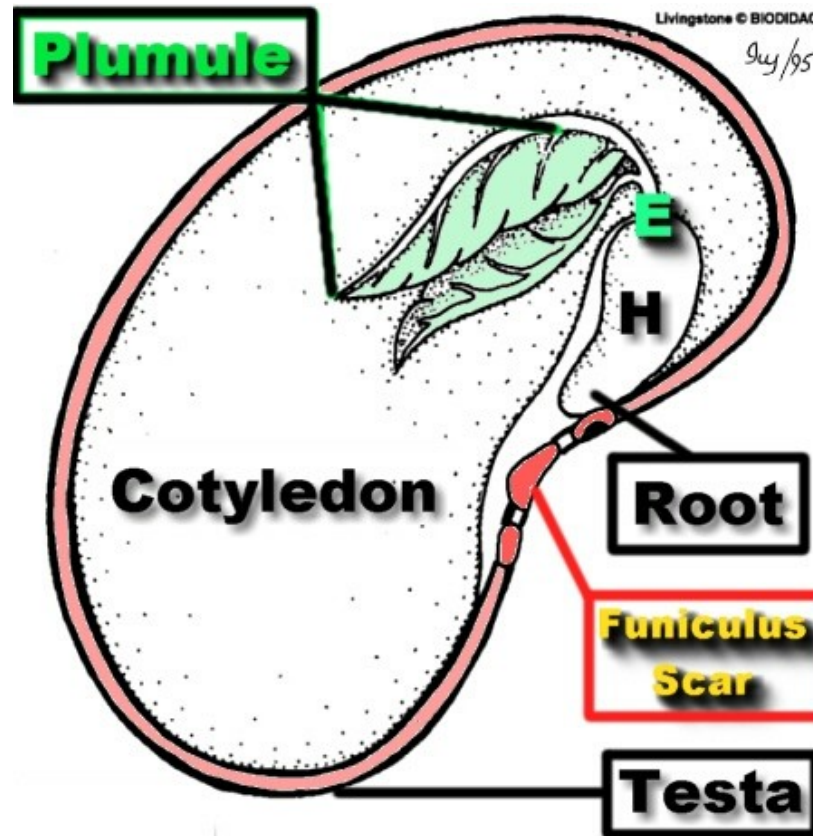
# Epicotyl /Hypocotyl

- The basis for the plant's **stem**.
- *It is known as the epicotyl above the cotyledon and a hypocotyl below the cotyledon.*
- These grow upward in response to light.



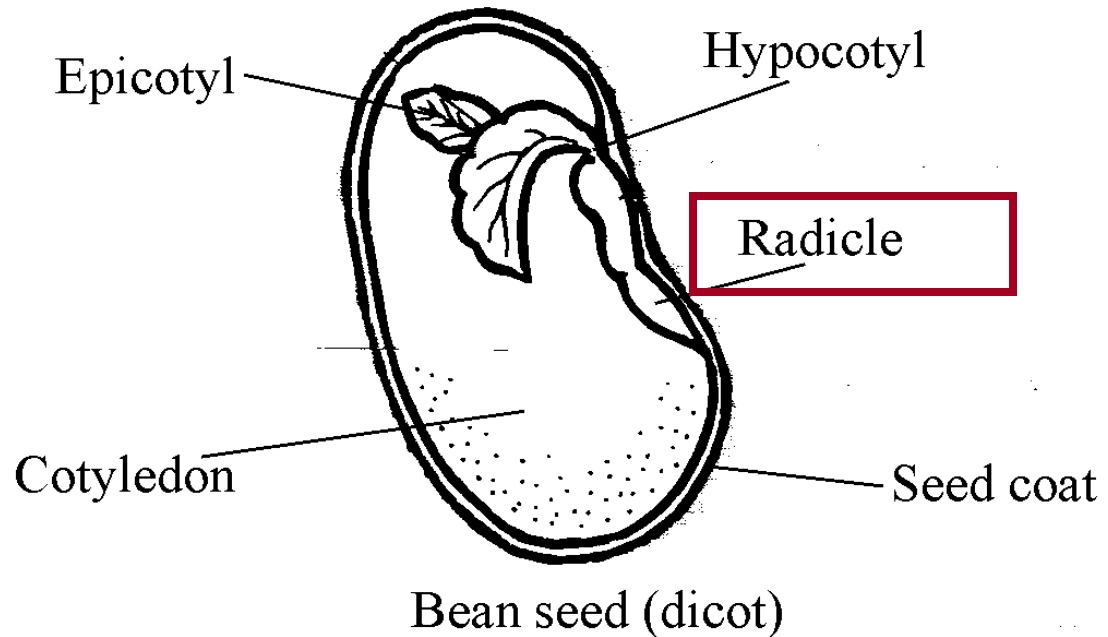
# Plumule

The shoot tip with a pair of miniature leaves.



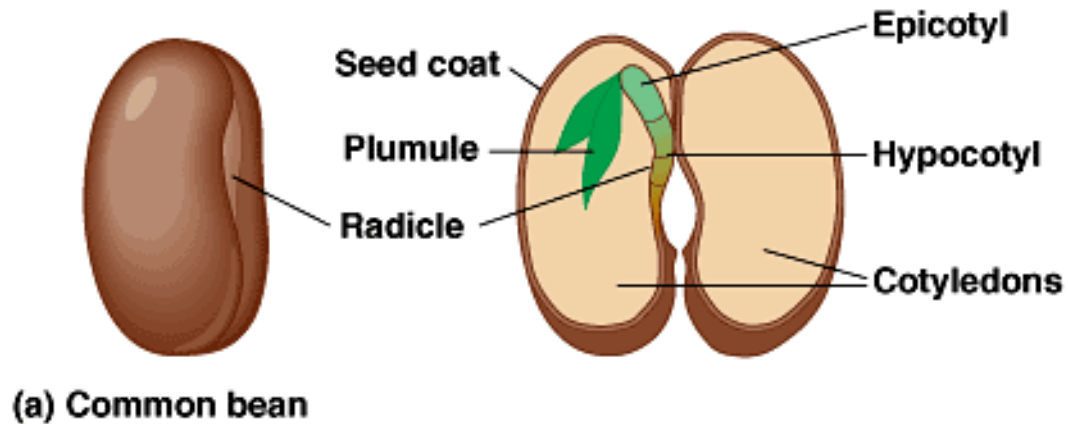
# The Radicle

- The part of the seed where the **root** develops.



# SEED STRUCTURE

- Seed coat (*testa*)
- Embryo
  - Cotyledon
  - Epicotyl / Hypocotyl
  - Plumule
  - Radicle



# SEED DISSECTION

- **MATERIALS**
  - Soaked pinto seed
  - Dissecting microscope
  - Tweezers
  - Ruler

# SEED DISSECTION

- **EXTERNAL**

- Draw the external pinto bean
- Label structures from notes

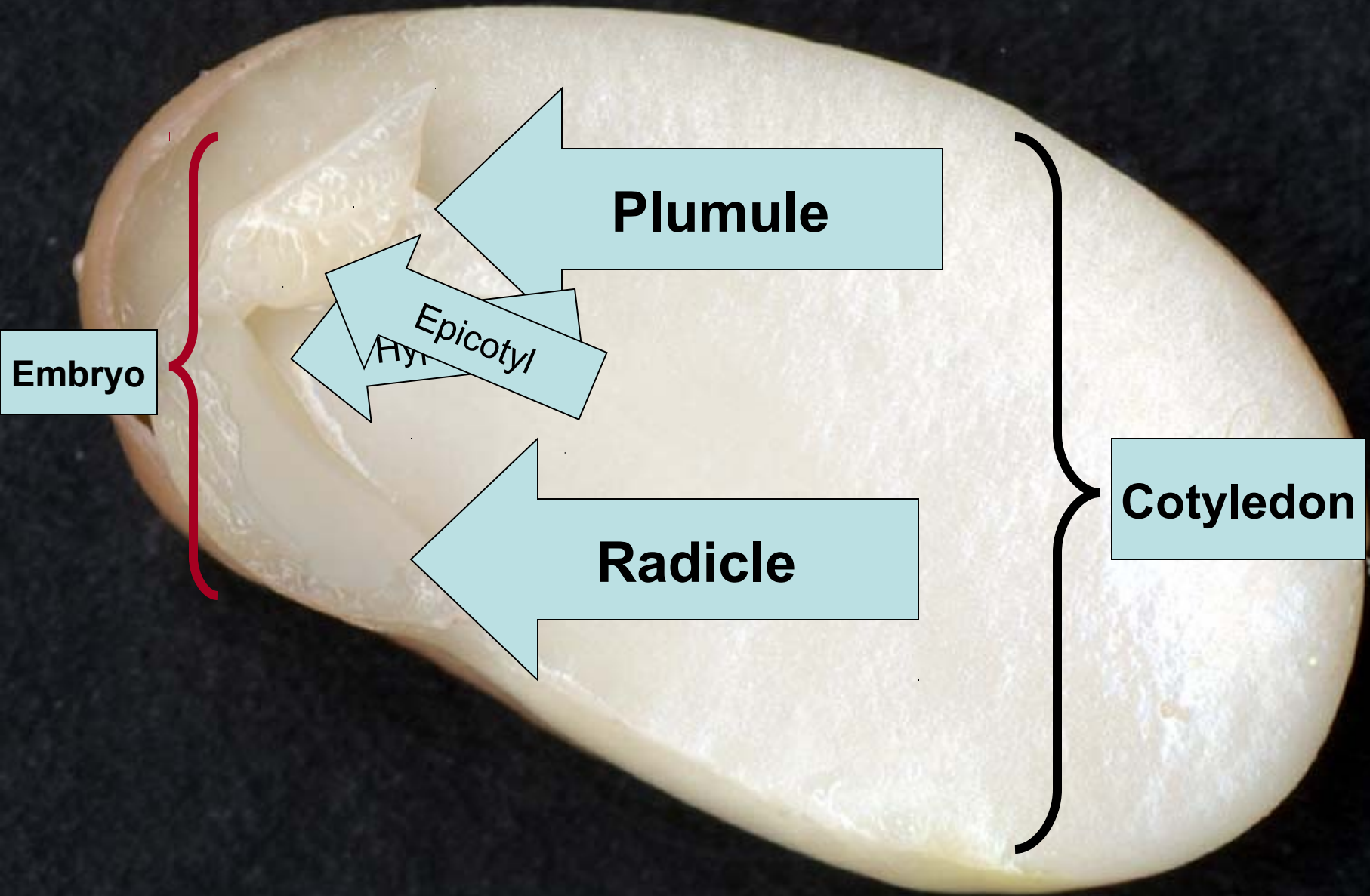
- **INTERNAL**

- Carefully remove the seed coat.
- Gently pull apart the two halves of the seed.
- Examine each half with the dissecting microscope
- Draw what you see inside the bean
- Label structures from notes

**REVIEW THE RULES FOR LAB DRAWING IN YOUR STUDENT GUIDE**

**BE SURE YOU MEASURE AND RECORD THE LENGTH OF YOUR SEED**





Embryo

Plumule

Epicotyl  
Hyp

Radicle

Cotyledon

Phaseolus vulgaris seed; external structure

Drawn at 7.5 times life size

