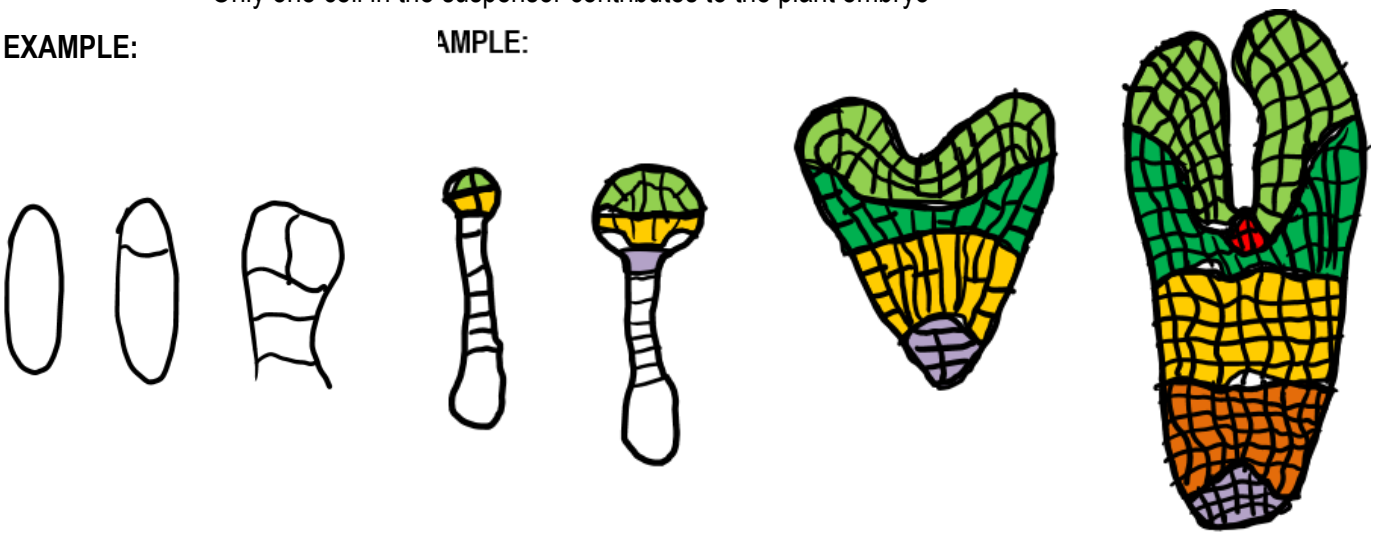
CONCEPT: SEEDS

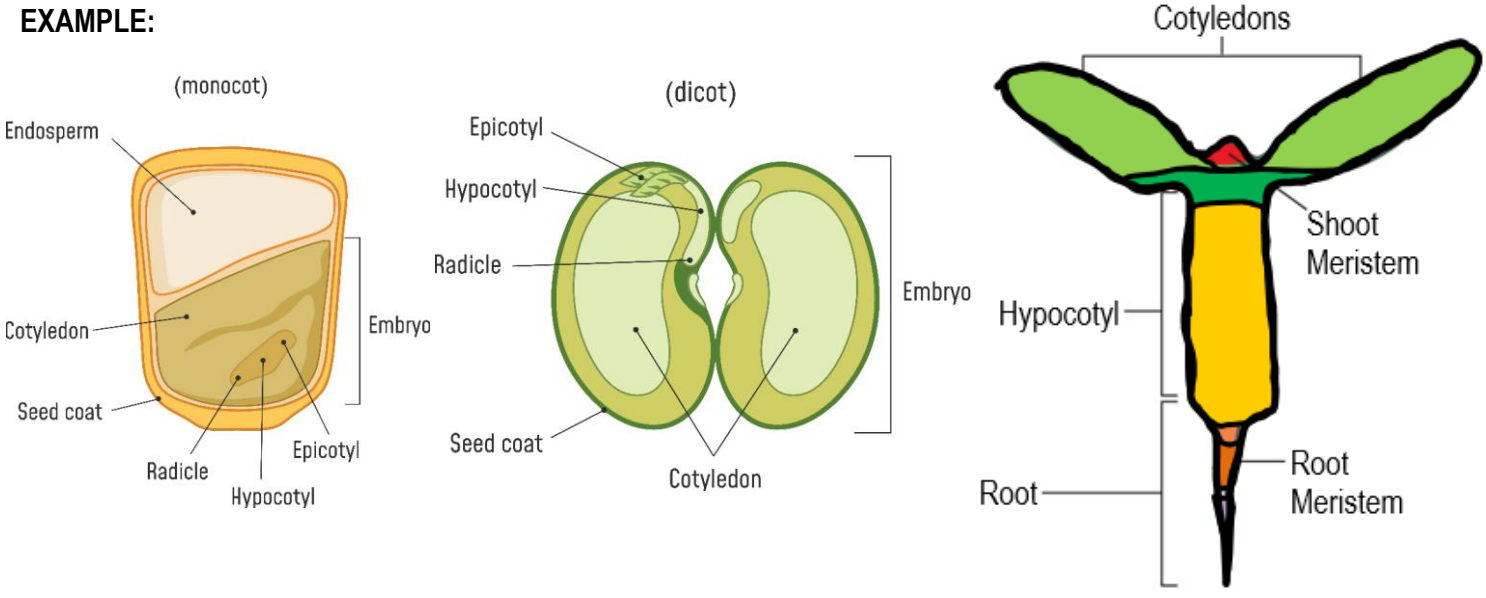
- ***Embryogenesis*** – fertilized ovule develops into a seed containing a plant embryo
- Zygote divides into two daughter cells
    - □ ***Apical cell*** – forms mass of cells that will become the plant
        - Cell mass differentiates into protoderm, ground meristem, procambium
    - □ ***Basal cell*** – forms suspensor that contributes to support structures for the embryo
        - Only one cell in the suspensor contributes to the plant embryo

EXAMPLE: **AMPLE:**



- ***Cotyledons*** – embryonic leaves
    - □ ***Monocots*** have one cotyledon
    - □ ***Eudicots*** have two cotyledons
- ***Hypocotyl*** – embryonic stem
- ***Epicotyl*** – some plants have embryonic stem portions that extend beyond the cotyledons
- ***Radicle*** – embryonic root

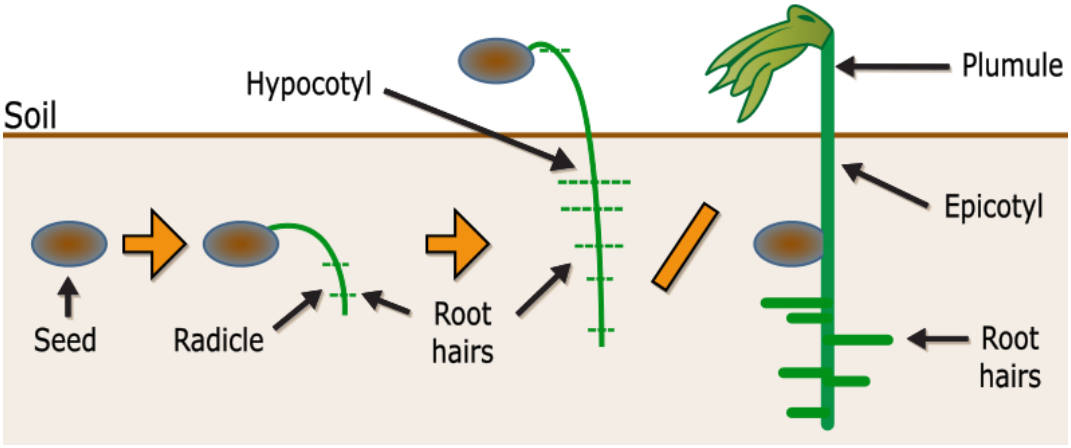
EXAMPLE:

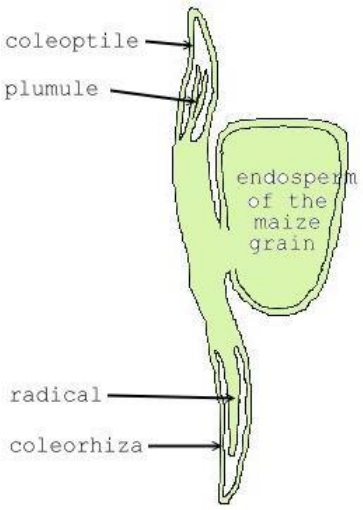


CONCEPT: SEEDS

- ***Germination*** – process by which a plant forms from a seed, occurs after water absorbed through imbibition
    - □ ***Seed coat*** – protective layer covering a seed that forms from integument
        - ***Imbibition*** causes swelling that breaks open seed coat
        - Some seed coats are too thick to absorb water, and require physical penetration for germination
    - □ Eudicots' hypocotyl curves, and grows toward the surface, pushing the cotyledons out of the soil
    - □ Monocots push the shoot and cotyledons straight up through the soil
- Monocots have protective structures to help their emerging roots and shoots
    - □ Coleorhiza – protective sheathe covering radicle, first structure to emerge from the seed
    - □ Coleoptile – protective sheathe covering cotyledon

EXAMPLE:





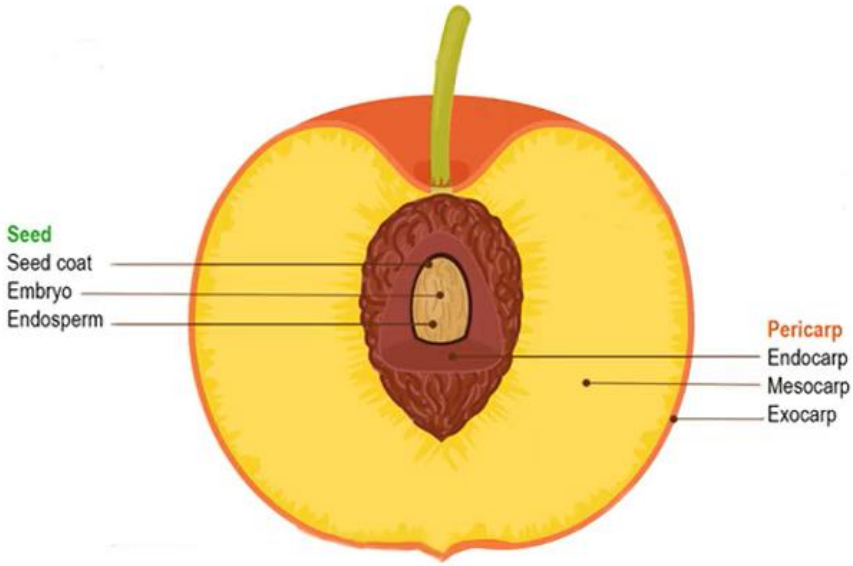
- ***Seed dispersal*** – transport of seeds away from parent plant
    - □ Dispersal vectors include wind, water, and animals
    - □ Seeds may enter a period of dormancy after dispersal, and wait to germinate until conditions are favorable

EXAMPLE:

CONCEPT: SEEDS

- ***Fruit*** – seed bearing structure formed from the ovary after flowering
    - □ ***Pericarp*** – part of the fruit formed from the ripened ovary, surrounds the seeds

EXAMPLE:



- ***Simple fruits*** – develop from a single flower with a single carpel, or fused carpel (single pistil)
- ***Aggregate fruits*** – develop from a single flower with multiple separate carpel

EXAMPLE:

- ***Multiple fruits*** – develop from multiple clustered flowers
- ***Accessory fruits*** – develop from ovary tissues, as well as tissue outside the carpel

EXAMPLE: