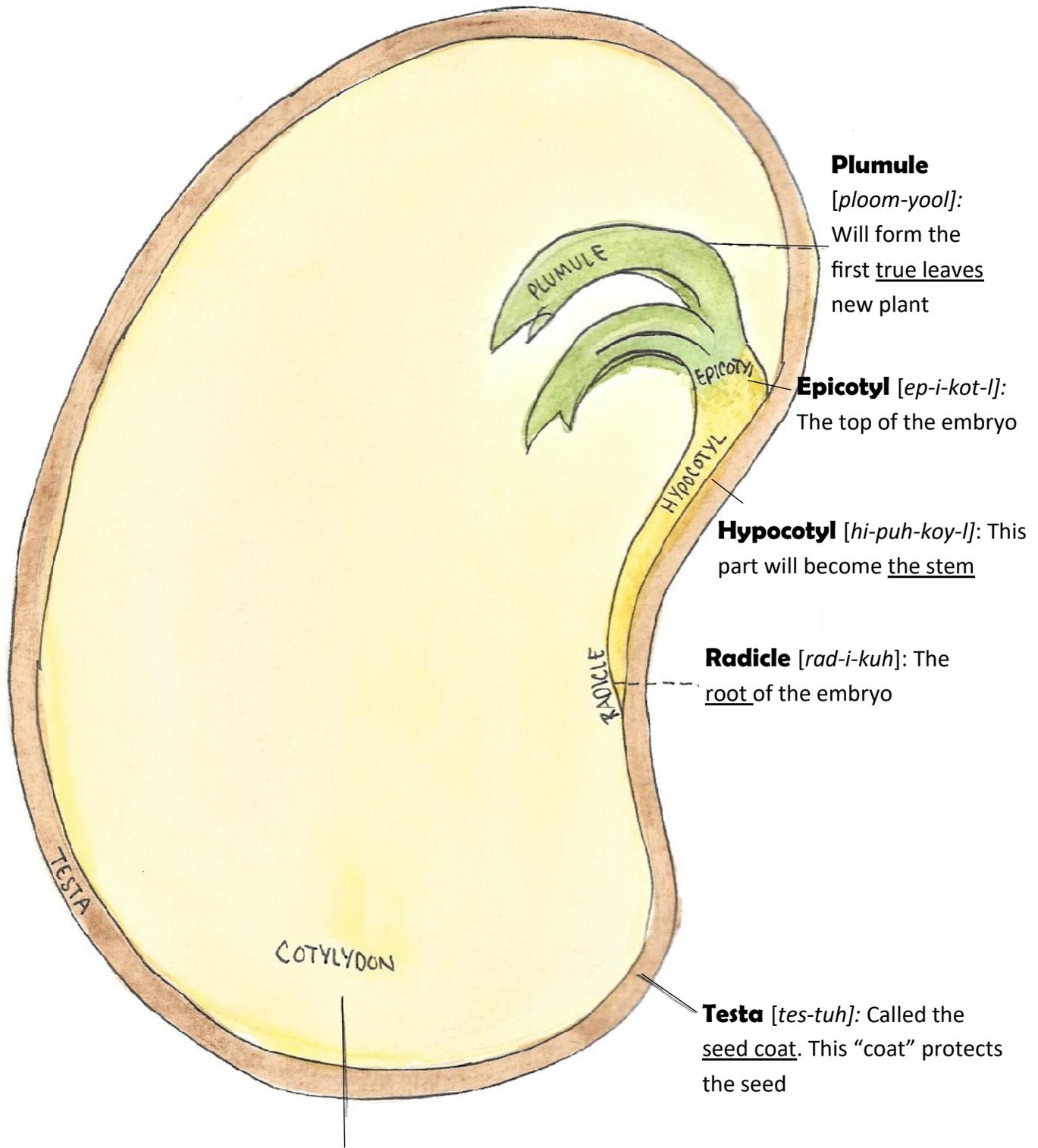


Lesson 1: Seeds

Notes For Parents

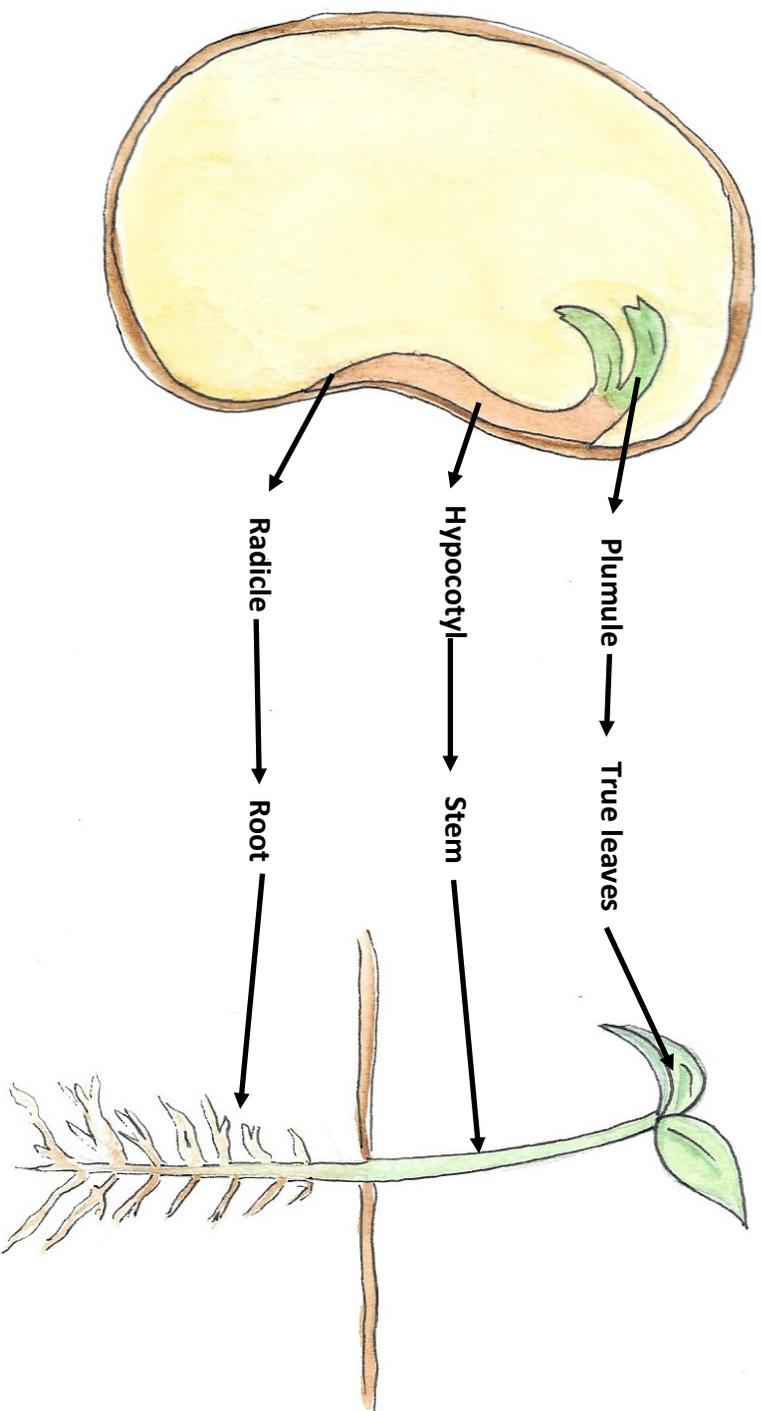
- The day before your lesson have your child place bean seeds in a cup of water over night, leaving at least one seed out. You will need them for growing the “**Growing Bean Seeds**” activity at the end of the lesson.
- This curriculum will use the scientific terms. This will benefit the children with language development by introducing new terms building their lexicon, working with new sounds, pronunciation and word origins. It also introduces creating memory aides because you can link concepts such as a testa being a seed coat, and a coat being worn to protect one from the elements.
- Included are two large graphics for children to reference during the lessons.
- It will be helpful to gather various seeds on a walk or from your kitchen to have available for your child to play with and observe. Examples include: kukui nuts, beans, corn, walnuts, sunflower seeds, coconuts, or any other seed you can acquire. You will want diversity to show that seeds can look and feel different.
- For the “**Seed labeling**” activity you can cut and paste the terms at the bottom of the page which will help develop fine motor skills; however, to advance this activity you can have your child write the terms to practice handwriting and spelling.
- You can use gathered seeds for many learning opportunities across disciplines and cognitive development:
 - SCIENCE: opening the seeds to observe parts
 - MATH and FINE MOTOR SKILLS: learning to separate by size, color and counting the seeds
 - CONCENTRATION and HAND-EYE COORDINATION: using them as pieces for tic-tac-toe
- Always use the natural resources around you to connect concepts. Have children look at plants in the yard or on walks. Talk about their colors, shapes, and similarities.
 - Examples for observation include:
 - Point out the birds that visit your yard
 - The mini beasts in the grass
 - The suns movement across the yard.
- Allow children to make decisions, choices, and mistakes
- Most importantly, have FUN together

Parts of a Seeds



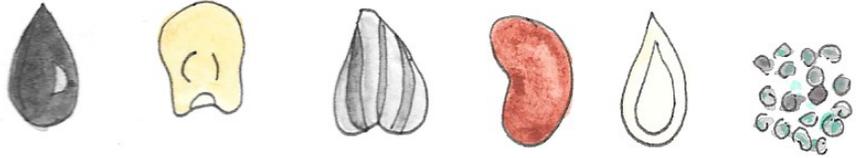
Cotyledon [kot-l-ee-don]: The part stores food and nutrients for the baby plant to grow

From Seed to Plant



Lesson 1: Seeds

Seeds are part of a seed plant that grows into a new plant. There are many different types of seeds.



- Seeds you know:**
- Sunflower seeds
 - Rice
 - Beans
 - Pumpkins Seeds
 - Coconuts
 - Wheat
 - Peanuts
 - Sesame Seeds
- What other seeds can you think of?*

About Seeds

Angiosperms [an-jee-uh-spurm] are flowering plants. In Latin, **angio** means container and **sperm** is another word for seed, so angiosperm is a **seed container**. Angiosperm seeds are carried inside a container which includes apples and other fruit.

Gymnosperms [jim-nuh-spurm] are seeds that are not covered, like pinecones. In Latin **gymno** means **uncovered**, so these are **uncovered seeds**.

What fruits do you know (papaya, mango)? What trees do you know that have cones (cook pines)?

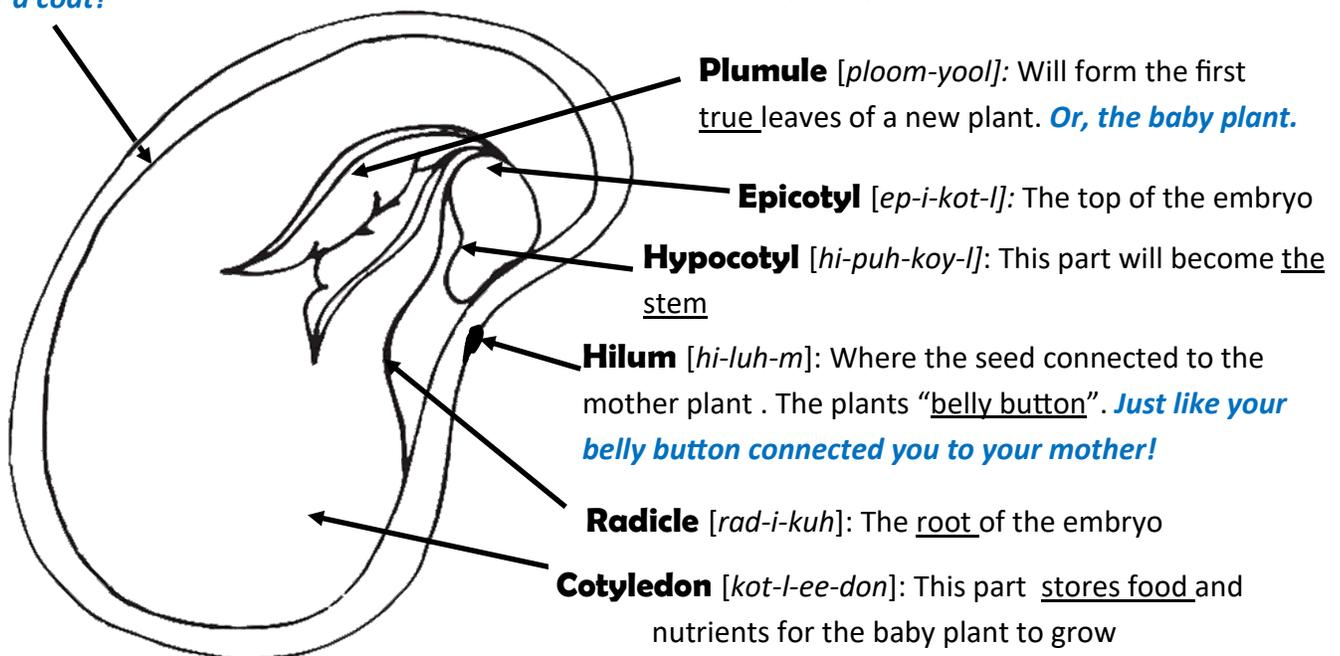
Before seeds begin to grow they are **dormant** which means that the baby plant inside the seed is sleeping. To wake the baby plant up, the seed will need: water, air and warmth; but not sunlight.

Once a seed gets what it needs, it will begin the process of **germination**.

Parts of a Bean Seed

Testa [tes-tuh]: Called the seed coat. This "coat" protects the seed. *Why do you wear a coat?*

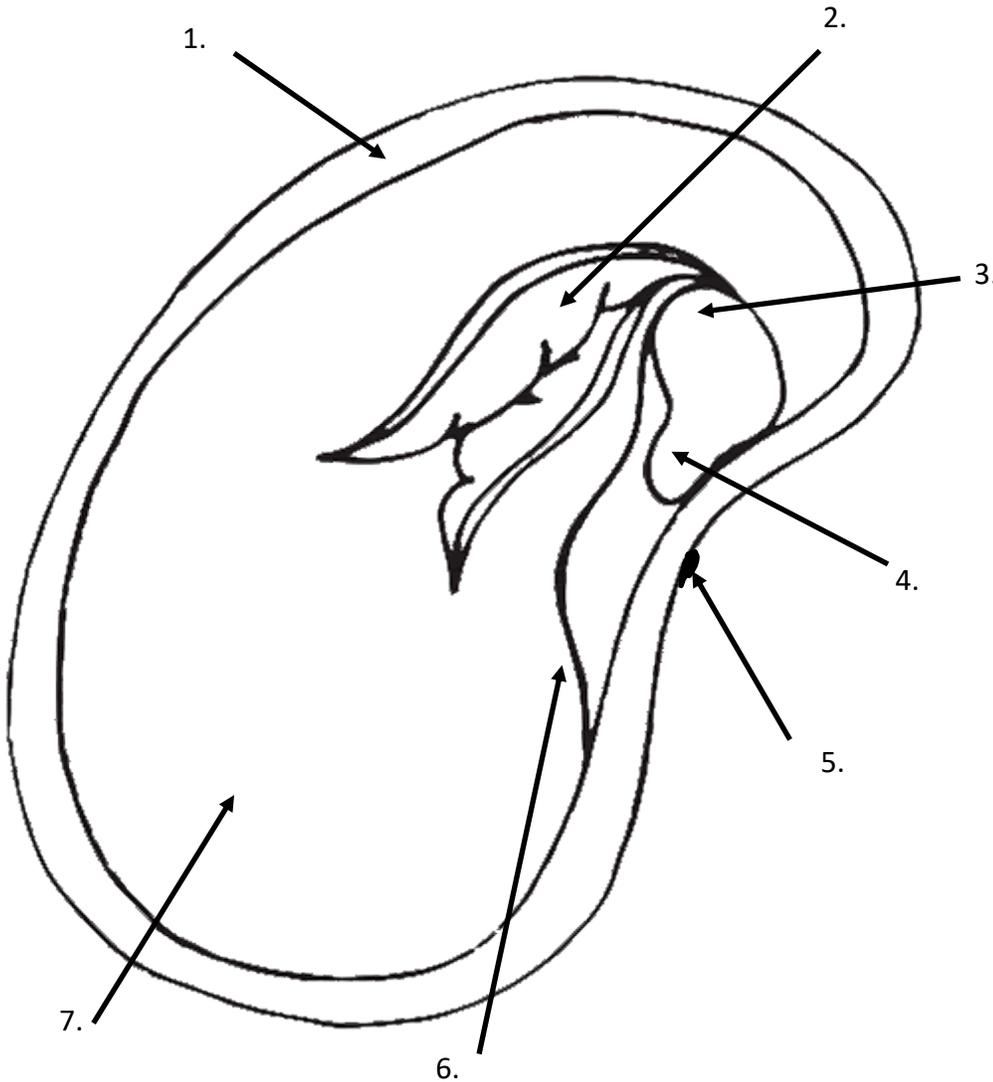
Embryo [em-bree-oh]: Consists of 5 parts: Plumule, Epicotyl, Hypocotyl, Radicle, and Cotyledon.



Give children space to grow and pretend to water them as they stretch arms and legs out of their seed coats. Now that we know the parts, can you be a dormant seed?

Hands On: Labeling a Bean Seed

Cut and paste the boxes at the bottom, or write the term next to the corresponding number. As the child colors, reiterate the terms i.e.. *"You are coloring the testa red and the plumule pink."*



Testa

Plumule

Epicotyl

Hypocotyl

Radicle

Cotyledon

Hilum

Hands on: Growing Bean Seeds

What you will need:

- Glass jars
- Paper towels
- Spray bottle
- Beans; seed packs or dried beans will work
- Magnifying glass
- Notebook and pencil

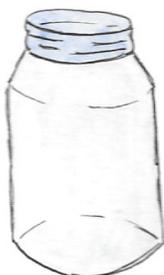


Day 1:

1. Place all seeds in a cup of water overnight. Leave one seed out for observation.
2. Using the one seed you left out, cut open the seed using the side of the knife. Then use a magnifying glass to identify the parts of the seed.
3. Have children feel, draw and point out what they see.

Day 2:

1. Place a layer of paper towels in the jar, spray with water.
2. Place the beans on top of paper towels against the glass.
3. Continue to layer paper towels and seeds, using the spray bottle to soak each layer with water.
4. Once jar is filled, place glass jar with beans in a warm dark closet.
5. Check and spray the seeds with water each day.
6. Once beans sprout move them to a windowsill or somewhere they will receive sunlight.
7. Keep paper towels moist.
8. Use the following sheet to track your seeds growth.
9. After a week or two, plant sprouts root side down, in pots of soil and continue to water.

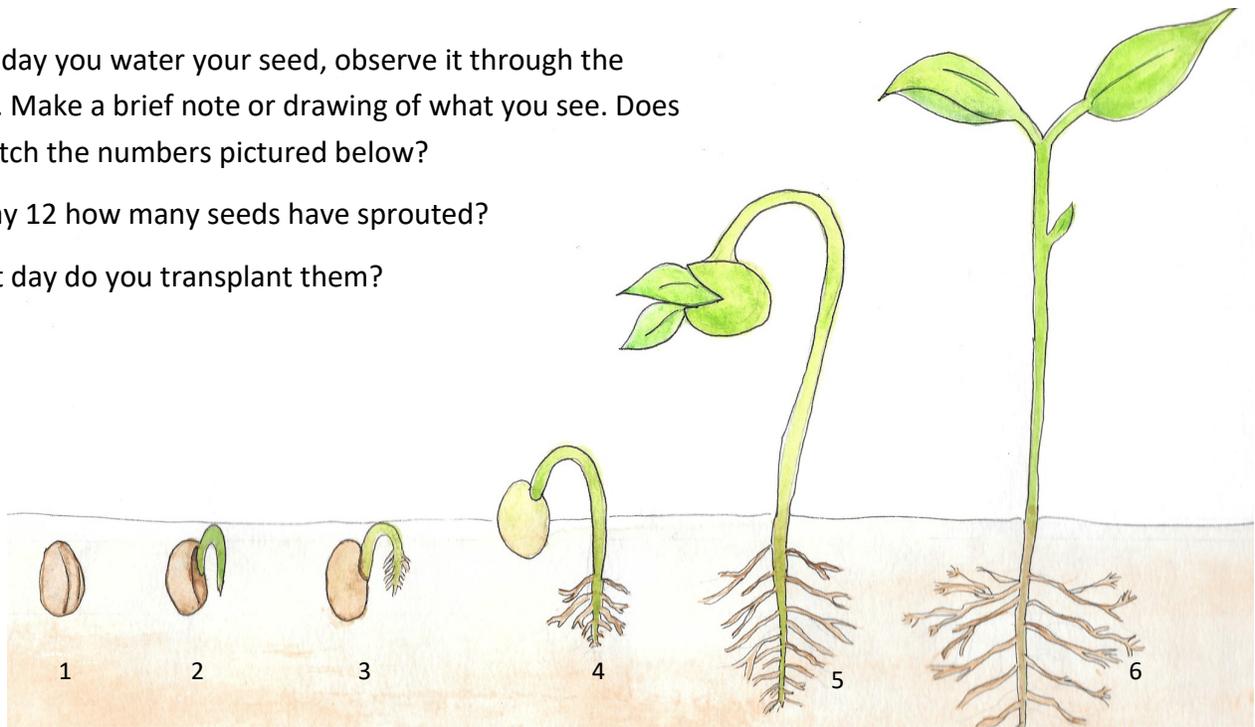


Hands on: Track Your Seeds

Each day you water your seed, observe it through the glass. Make a brief note or drawing of what you see. Does it match the numbers pictured below?

By day 12 how many seeds have sprouted?

What day do you transplant them?



Day 1:		Day 2:	
Day 3		Day 4	
Day 5		Day 6	
Day 7		Day 8	
Day 9		Day 10	
Day 11		Day 12	
Day 13		Day 14	
Day 15		Day 16	
Day 17		Day 18	
Day 19		Day 20	