

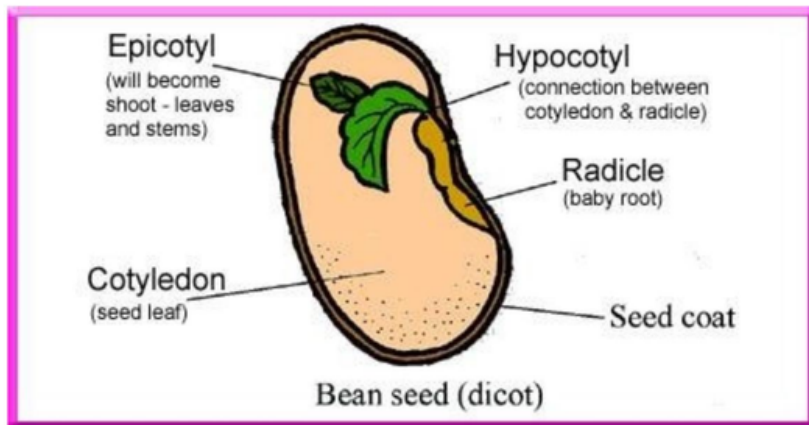
What do I need to know about the seeds I am planting?



When you pour your seed (home-saved or commercial) out of the package, you rarely think of what structures are inside the seed coat you see. The image below shows the major structures of a typical dicotyledonous seed (dicot), such as beans, carrots, and tomatoes. The major structures of corn and other monocotyledons (monocots) are similar but with minor variations.

Parts of a Seed

Cotyledons are embryonic leaves providing water and energy for young plant until true leaves photosynthesize. There may be one (monocot) or two cotyledons (dicot). Water absorption activates enzymes that break down nutrients for the embryonic plant.



Stages of Germination

1. Bean seed containing dormant embryonic plant.



2. Seed coat is rupturing due to water absorption, swelling and activation of enzymes.

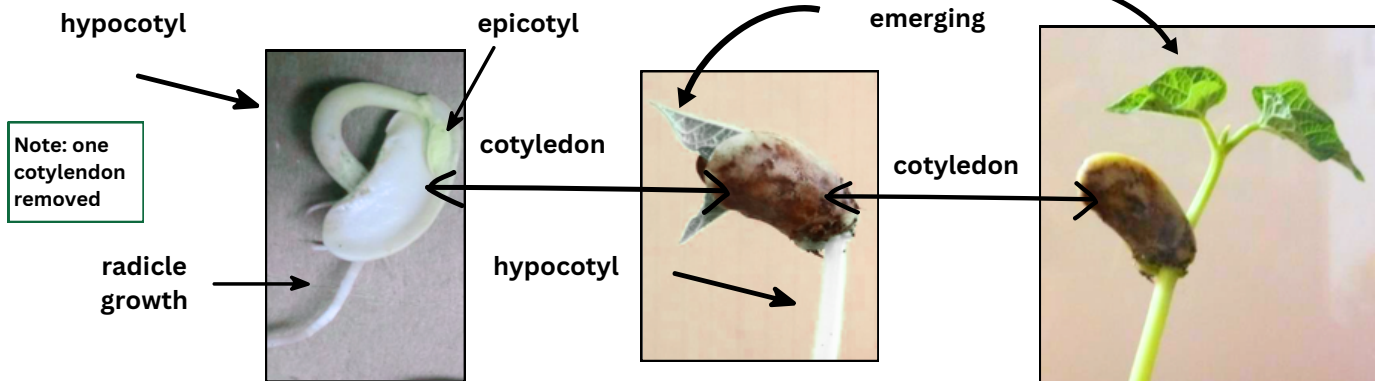
radicle (embryonic root) emergence



3. Shoot emergence

- hypocotyl growth - stem like structure between radicle and cotyledon elongates
- cotyledons separate
- true leaves unfold

4. True leaves are able to photosynthesize



Note: one cotyledon removed

RESOURCES

1. Parramon Editorial Team. (2004). *Essential atlas of botany*. NY: Barron's Educational Series, Inc.
2. Learn Seed Saving. (2025). *Anatomy of a Seed*. <https://www.learnseedsaving.com/seed-anatomy/>