



SEEDS, the result of sexual reproduction, can be compared to EGGS of animals. SEEDS and EGGS both have 1) embryo, 2) food supply & 3) protective cover.

✓ X Check X as you go.

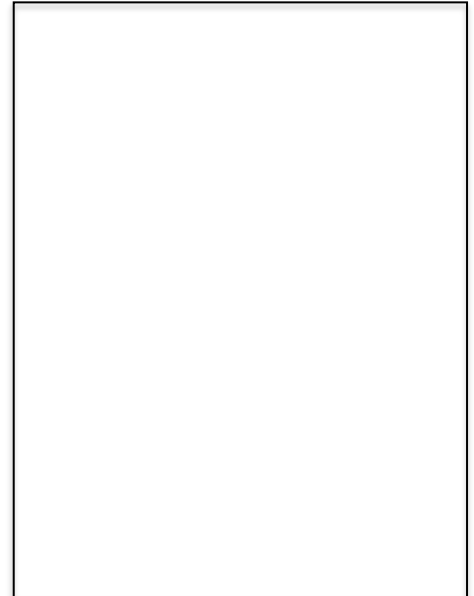
Use a straight edge for labels.

Use your Calendar or other reference for seed parts.

External Bean Seed:

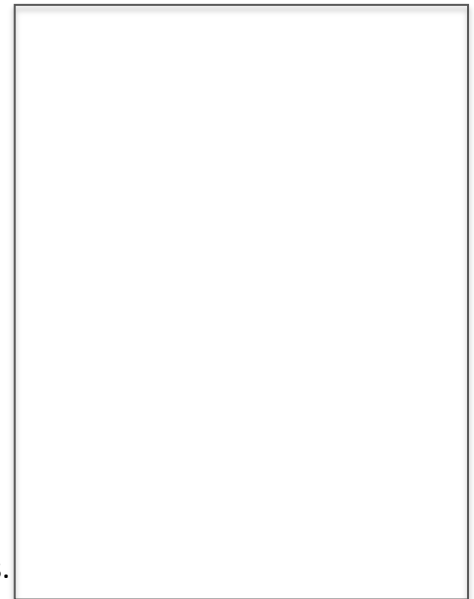
- 1. Examine a bean seed that has been soaked overnight.
2. On the concave (caved in) side find a white HILUM SCAR where the seed was attached to the pod.
3. The outer covering is the SEED COAT.
4. At one end of the HILUM SCAR is a bump. Look at the other end of the SCAR. Find a PORE (hole) for water and oxygen-carbon dioxide exchange.
5. Make a scientific OUTLINE drawing of the External View of the seed, HILUM SCAR UP (toward you).
6. Label: a) HILUM SCAR, b) PORE, c) SEED COAT.

Have checked while you still have the seed.



Internal Bean Seed

- 7. Loosen and remove the SEED COAT.
8. Find the 2 big main parts that are the COTYLEDONS. They contain stored food for the EMBRYO to use to grow before light is available for photosynthesis.
9. Carefully separate the 2 COTYLEDONS.
10. Find the EMBRYO.
a) The EMBRYO should remain attached to one cotyledon.
b) The EMBRYO has a PLUMULE (new leaves) and a RADICLE (root).
11. IF the EMBRYO breaks or comes loose, you need a new bean. START AGAIN!
12. Find the PLUMULE (shoot). It has 2 points (leaves).
13. Draw the Internal View of the COTYLEDON with the EMBRYO attached to it.
14. Label a) COTYLEDON, b) PLUMULE, and c) RADICLE.
15. Use a] to label the EMBRYO as the sum of its two parts.



16. ASK. IODINE STAINS.

Iodine indicates starch by turning black. Test the seed for the presence of starch (stored food) by taking your bean, on a paper towel, to the Iodine container. Carefully touch the seed parts with the Iodine applicator. Please REPORT and clean up stray Iodine with water.

17. The _____ showed more starch than the _____.

Have checked while you still have the seed. THEN, the wastebasket!