

Name:

Teacher:

Class:

Date:

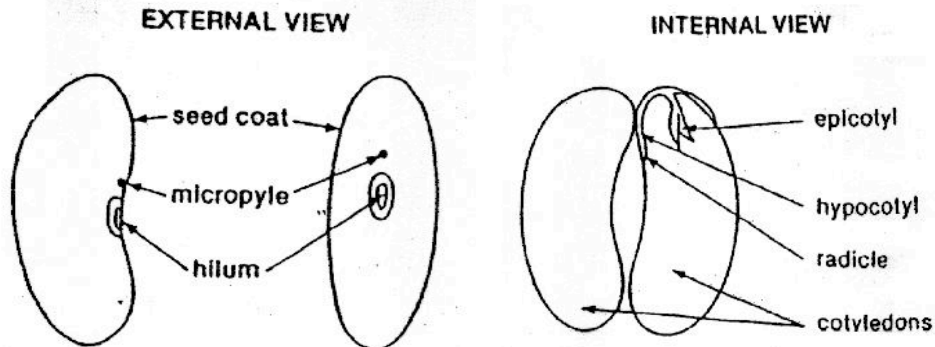
Dissecting a Dicot Seed

Purpose: To observe and identify seed parts.

Materials Needed: Red Kidney bean soaked in water for 24 hours; Iodine solution (Lugol Solution) in a small beaker; Eyedropper; Paper towel

Procedures:

1. Observe the external structures of the red kidney bean. Find, sketch, and label the external (outside) parts of the seed in the bottom margin, using the External View to help you identify them.



2. Using your fingernail, carefully peel off the seed coat. Open the seed like a book to expose the insides. Each half of the seed is the cotyledon. Attached to the cotyledon is the plant embryo, which will become the new plant.
 - a. The epicotyl is the small leaf-like structure that will become the leaves.
 - b. The hypocotyl is the small stem-like structure that will form the stem.
 - c. The radicle is the lower tip of the small stem-like structure that will form the roots.
3. Find, sketch, and label the internal (inside) parts of the seed in the bottom margin, using the Internal View to help you identify them.
4. Put the seed on the paper towel. **CAUTION: Iodine is poisonous, causes stains, and is slightly corrosive. USE CAUTION WHEN HANDLING THIS SOLUTION!**
5. Place one drop of Lugol Solution on each cotyledon and observe what happens. **NOTE: Iodine in solution turns bluish-black in the presence of starch, a form of stored food, used in plants.**
6. Write the answers to the following questions.

QUESTIONS:

7. Was starch present in the cotyledons? _____

8. What does this indicate about the job or function of the cotyledons?

9. Could a seed made up of only cotyledons grow into a new plant? Why or why not?

10. Could a seed made up of only an embryo grow into a new plant? Why or why not?

