

## UC Davis Arboretum Outdoor Education Program

### "A Coat For a Seed"

**Goals:** Through the exploration of the parts of a bean, students will learn concepts connected to the life cycles of plants.

**Time:** 30 minutes

**Age:** Grades 2-4

**Materials:**

Large beans (lima beans work well)

Bean diagram

**Background:**

Below are some terms that can be used to describe the parts of the bean (see diagram for location of parts).

*Cotyledon* / "seed food" The food storage part of the seed.

*Embryo* / "seed leaves" The 'little plant' that will become the bean plant.

*Micropyle* / "escape hatch" The 'weak spot' of the seed coat that allows the root to push through the protective coat.

*Root* The first part of the young plant to push through.

*Seed coat* The tough, sometimes colorful, coating of the seed that protects the *embryo* from fungus, rot, and insects.

**Advance Preparation:**

Soak the beans for a few hours so that they will be easy to take apart on the day of the activity.

**Procedure:**

- 1) Give each student a bean to take apart. Encourage them to observe each part of the seed closely.
  
- 2) As the students take apart the bean seeds, explain the different parts of the seed.
  
- 3) Give each student a diagram for them to label the parts that they observed.

**Extension:**

Have the students "Grow Bean Seeds!"

**UC Davis Arboretum Connection:**

In the UC Davis Arboretum, students will not only discover that both plants and animals have life cycles that include germination/birth, reproduction, and death, but also that plants and animals interact during the different stages of their life cycles. To connect this theme to "A Coat for a Seed," have students imagine how the bean seed will develop into a bean plant. Encourage them to imagine how different animals might interact with the plant while it is in different stages in its life cycle.

This activity, based on activities in *Botany for All Ages*, was written by Megan Chiosso, UC Davis Arboretum, 2003.

# A Coat For a Seed

## Bean Diagram

