

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

