

Bean Dissection

Traditional Lesson Design

Preparation:

Purchase a bag of large lima beans at the supermarket.

Count out approximately 2 beans for each student who will participate in the Bean Dissection activity.

Place counted beans in a bowl and cover with water.

Soak beans overnight.

Teacher Information:

Introduce the book *Oh Say Can You Seed*, by Bonnie Worth to the class. Read orally pages 6-15 and discuss.

Distribute 2 beans to each student. Place beans on dry paper towels.

Discuss seed parts with students as they investigate the beans,

Ask students to take beans apart and identify the seed coat, cotyledon(s), and embryo.

- You may ask students to observe and record findings as they locate seed parts.
- You may ask students to sketch the seed parts as they locate and identify them.
- Provide “Ag in the Classroom Bean Book” kits for students to construct as a reference tool for future use. To obtain Bean Book plans, visit <http://www.agintheclassroom.org/060605/Teachers/Make%20&%20Takes/Bean%20Book.pdf>.

BEAN SEED DISSECTION

5E Lesson Design

Engagement Activity

Bring a bowl of large lima beans, which have been soaked in water overnight to class. Invite students to work individually or in pairs and to take two beans from the bowl and place them on paper towels in their work space.

Instruct students to take one of the objects and observe.

Ask attention focusing questions such as:

- Describe what you see.
- What clues does this lima bean give you about its growth?

Exploration Activity

Instruct students to investigate one of the beans they have placed on the paper towel. They may use their hands or other simple instruments you may provide. (tweezers, toothpicks, files, etc.)

Encourage the use of process skills by asking students to observe size, shape, number of parts, textures, etc. Ask students to record observations in appropriate ways. Ask students to draw a diagram of the parts of a seed and label it. (See picture of the seed.)

Explanation Activity

Tell students that the bean they have investigated is a part of a plant. Every flowering plant has six parts and their bean is one of them.

Ask students to hypothesize which plant part they think the bean might be and explain why. (It is the seed)

Instruct students to discuss the three different parts they found when dissecting the bean and hypothesize their purpose. (The seed coat protects the seed, cotyledons provide food prior to germination and photosynthesis, and the embryo is a tiny plant) Ask students how they might test hypotheses.

Instruct students to hypothesize as to the needs of the seed in order to germinate/sprout. (water, soil or other medium to hold moisture, warm temperature) Ask students how they might test their hypotheses.

Would the same be true for all seeds?