



American Heart Association.

Teaching Gardens®

Grade Band

3-5

Time

20 minutes

Season

Any

Location

Indoors or Outdoors

WHAT'S IN A SEED?

Description:

In this activity, students dissect seeds, observe the internal structures of the seed, and make inferences about the function of each structure.

Materials:

- 1 soaked pinto or other large bean for each student, plus a handful of extra beans
- Dark colored construction paper
- Blank white paper, garden journals, or science notebooks for students to use to make scientific illustrations
- *Optional:* 1 magnifying glass for each student

Preparation:

- Soak the beans in water one day prior to the activity so that they are soft and easy to pry open.

Activity:

- 1. Build Anticipation for Seed Dissection:** Hold up a handful of beans and ask students to share with someone next to them: *If you open up a bean, what do you think you'll find inside?* Invite volunteers to share their predictions with the whole group. Then explain: *A bean is a seed. Today, you'll each get to open a bean seed to find out what's inside!*
- 2. Demonstrate Seed Dissection:** Show students how to split a bean open, pressing a fingernail into the outer ridge until it naturally splits into two pieces. Then invite student helpers to distribute the beans and the dark construction paper. Have students dissect their beans, pulling apart each different structure and laying it on the paper. The dark, contrasting color of the paper helps students see the bean and its parts.
- 3. Illustrate Seed Structures:** Have students illustrate the inside of their beans carefully, including every part they see. If you have magnifying glasses, encourage them to use the magnification for a closer look at the smallest structures.

Connections to Content Standards:

Next Generation Science Standards (NGSS):

NGSS Disciplinary Core Ideas:

LS1.A: Structure and Function

Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1)

NGSS Crosscutting Concept: Structure and Function

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WHAT'S IN A SEED?, CONTINUED

- 4. Label Seed Structures:** Ask students to share out some of the things they found inside. As they describe each structure, share the scientific name for that structure and ask students to infer its function, based on what they see. As they share ideas, explain that the embryo is the baby plant. *If you look closely, you can even see the baby leaves and root! The function of the embryo is to grow into a plant; the function of the endosperm is to serve as food for the baby plant; and the function of the seed coat is to protect the seed.* It is like a plant drops off its baby (embryo) at preschool with a lunchbox (the endosperm) and a coat (the seed coat) to feed and protect it until it can grow up and provide for itself! Have students note the scientific names of each structure, and the function of each structure, on their illustrations.
- 5. Wrap Up:** Ask, *How are seeds similar to baby animals? How are they different? How do you think these seeds will change over time if we plant them?* If possible, plant some seeds in your garden following this activity.

BEAN (dicot)

