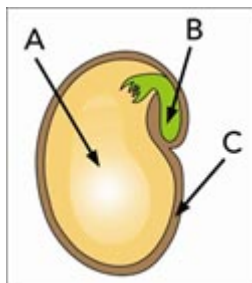


# Seed Surgeon

**Purpose:** Students will dissect a seed, identify the parts, and the importance of each of the parts.

**Grade Levels:** 2-4

## Agricultural Background Connection:



A - Cotyledons - two halves of the seed that provide the first food for the seedling as it grows

B - Embryo - which is the part that grows into the plant

C - Seed coat - protects the seed while it is dormant (not growing)

**Estimated Time:** 30 minutes

## Florida Standards:

SC.2.L.16.1	Observe and describe major stages in the life cycles of plants and animals, including beans and butterflies.
SC.2.N.1.2	Compare the observations made by different groups using the same tools.
SC.3.L.14.1	Describe structures in plants and their roles in food production, support, water and nutrient transport, and reproduction.
SC.3.N.1.1	Raise questions about the natural world, investigate them individually and in teams through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.
SC.3.N.1.2	Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups.
SC.4.L.16.1	Identify processes of sexual reproduction in flowering plants, including pollination, fertilization (seed production), seed dispersal, and germination.
SC.4.N.1.1	Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.
SC.4.N.1.2	Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups.

## Materials for Each Student:

- Kidney, Pinto, or Lima Bean
- Napkin
- Dissection Paper (Listed in the Resources) or Science Notebook
- Pencil
- Option: Hand Lens/Magnifying Glass

## Preparation Before the Lesson:

Soak seeds for 12-24 hours.

## Activity: (30 minutes)

1. Pass out a soaked bean to each student on a napkin. Make observations.
2. Gently rub the seed between two fingers to detach the seed coat.
3. Split the seed in two.
4. Observe what's inside. Option: use a hand lens/magnifying glass.
5. Draw, describe, and label the parts of the seed.

## Bean Facts:

- There are approximately 400 different types of edible beans.
- Dry edible beans, such as pinto, navy, kidney, pink and black beans, are part of the legume family. A legume plant produces seeds in a pod; dry beans are the mature seeds within these pods. Other members of the legume family include lentils, peas, chickpeas, peanuts, and soybeans.
- Dry edible beans are nutrient-rich foods; they contain a variety of vitamins, minerals and other nutrients while providing a moderate amount of calories. Beans provide protein, fiber, folate, iron, potassium, and magnesium while containing little or no total fat, trans-fat, sodium, and cholesterol.

## Resources:

[Seed Dissection: What Does the Inside of a Seed Look Like? — Pennsylvania 4-H \(psu.edu\)](#)

[Dissect a Bean Seed {Science Invitation Saturday} \(buggyandbuddy.com\)](#)

Bean Seed Dissection Recording Sheet: [bean seed dissection.pdf - Google Drive](#)

[All About Beans Nutrition, Health Benefits, Preparation and Use in Menus — Publications \(ndsu.edu\)](#)