

Oh, Say Can You Seed Bean Dissection - 1st Grade

Purpose

Students will identify the parts of a seed and explore the basic needs of plants for survival.

Subject Area(s)

English Language Arts and Science

Common Core/Essential Standard

English Language Arts

- 1.RIT.1 Ask and answer questions about key details in a text.

Science

- 1.L.1.1 Recognize that plants and animals need air, water, light (plants only), space, food and shelter and that these may be found in their environment.
- 1.L.2.1 Summarize the basic needs of a variety of different plants including air, water, nutrients, and light) for energy and growth.

Math

- Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another

Agricultural Literacy Outcomes

Plants and Animals for Food, Fiber and Energy

- Identify examples of feed/food products eaten by animals and people.
- Explain how farmers/ ranchers work with the lifecycle of plants and animals (planting/ breeding) to harvest a crop

Essential Questions

1. What do plants need to grow?
2. What are the parts of a seed and what role do these parts have in the development of a plant?

Vocabulary

Germination: to begin to grow or develop

Cotyledon: an embryonic leaf in seed-bearing plants, one or more of which are the first leaves to appear from a germinating seed.

Seed Coat: the protective outer coat of a seed.

Embryo: the baby plant, the part of the seed which turns into the leaves, the stem and the roots of the plant

Student Motivator

Show a time elapse video of a growing plant on youtube. One example of an appropriate video can be found [here](#)

Keeping in mind any student with allergies, compile examples of seeds which we eat and arrange these for display. Examples of seeds which we eat are peas, lima beans, peanuts, sunflower seeds, etc. As students observe this display encourage deductive reasoning by asking: *What do all these items have in common?* (They are all things we eat. They are all seeds produced by a plant.)

Background Knowledge

Seeds are the beginning of a new plant. A seed has an embryo which is the baby plant. It has its own food and a protective seed coat. Seeds come in many different sizes and shapes but they all can become plants with the correct conditions. Seeds need light, water, soil and room to grow. With these things a tiny acorn can grow a huge oak tree. Wheat seeds can grow into food which can feed many, many people. While some seeds grow into food, others are food. We eat many different kinds of seeds such as peas, beans, peanuts, and corn. Seeds are so amazing!

Materials

- *The Tiny Seed* by Eric Carle
- Lima beans (two per student)
- Paper towel
- Magnifying glass (one per student)
- *Oh Say Can You Seed* by Bonnie Worth
- Anchor chart
- Post its
- Variiious types of seeds
- Glue
- Construction paper

Procedures

Activity 1

1. Begin by reading *The Tiny Seed* by Eric Carle. Read and discuss the book, pointing out the differen things a seed needs in order to grow. Also point out what happens if these conditions are not met, such as when one seed falls into the ocean and drowns.

2. Display a picture of the parts of a seed and review or introduce the parts of a seed found [here](#):
3. Read pages 6-15 in *Oh Say Can You Seed* by Bonnie Worth. After reading p. 6, stop and ask students the following questions: *What is a seed? Have you ever eaten a seed? How can we use seeds?* Record student answers on post its and place post its on an anchor chart showing the parts of a plant. An example of an anchor chart can be found [here](#):
4. Read p. 7 and allow students time to respond to the question at the end of the page. Again record student answers and continue reading p. 8-13.
5. Stop at page 13 and tell students that they will be dissecting a seed. Explain what dissection means (to take apart) and show students a lima bean. Ask students if they recognize the seed and in what context they remember seeing the seed.
6. Explain to students that they will be given 2 lima bean seeds to dissect and the purpose of the dissection is to explore and identify the three basic parts of the seed. Make sure that you do not read pages 14-15 until after they dissect the seed.
7. Students should be given time to explore the seed and try to find the three parts. Monitor and guide students' explorations. *Do you see different parts of the seed? What do these parts look like? Are there more than one of those parts?* Once students have had time to dissect and explore the parts of the seed ask students to describe what they have observed. Add these answers to the anchor chart.
8. Once students have given their responses read the first paragraph on p.14 and have students find the embryo. Explain that the embryo is the plant baby. If you soak your seeds longer than 24 hours the embryo will be larger and they may be able to see the leaves better. Make sure to change the water that your beans are soaking in each day or it could sour.
9. Then read the next paragraph about the cotyledon and have students find and identify that part.
10. Lastly, read about the coat on page 15. Clarify that this is the seed coat.

Activity 2

1. Pair students for this activity. Collect various kinds of seeds of different shapes and sizes. Some examples of seeds you can use are sunflower seeds, tomato seeds, pumpkin seeds, cucumber seeds, various bean seeds, corn seeds, etc.
2. Separate the seeds into groups with a variety of each kind of seed in each group. Create enough seed groups for each pair of students to have a group.
3. Students will work together to sort the seeds into groups. The students should be able to explain how they sorted the seeds, i.e. by color, size, shape. Students should then sort the seeds a different way and then a third way.
4. Students will write four facts about their seeds such as, "I have more pumpkin seeds than corn seeds." Another example of a fact might be, "I have four more big seeds than small seeds."

5. After sorting their seeds in at least three different ways, students will divide the seeds. Each partner will get half the seeds in their group of seeds. Students should work cooperatively to divide the seeds to each partner's satisfaction.
6. Use the smart board and the internet to do a search for images of mosaics using seeds. Display these images from this search to give the students ideas on the various kinds of pictures the students can make.
7. Students will work independently to create a mosaic picture by gluing their seeds to a piece of construction paper. Students can make a definite picture or a pattern.

Suggested Companion Resources

- *What do Plants Need to Grow?*
<https://www.youtube.com/watch?v=gK70Y1z0oC8>
- *The Back Porch Activity Page*
<http://www.ncagr.gov/markets/kidstuff/backporch/book.htm>

Essential Files

- Parts of a Seed worksheet/ picture
<http://www.hoosierhomesteader.com/2013/04/garden-math-and-science.html>
- Anchor chart
https://www.pinterest.com/pin/55098795413504391/QoA6M%3A&usg=__p6KIqzL7DcesxY95k73jFOT0jqg%3D

Essential Links

- *Sid the Seed* written and illustrated by Daniel R. Pagen
<https://www.youtube.com/watch?v=jm12JKhNnWY>
- Plant Time Lapse
<https://www.youtube.com/watch?v=jyRw597JBVg>

Ag Facts

- In North Carolina the last frost varies in different places from the end of March until mid to late April. The first frost also varies from mid October to early November.
- Farmers in NC have to plan the planting and harvesting of their crops around these dates.
- Beets, broccoli, cabbage, carrots, cauliflower, kale, peas, lettuce, onions and spinach are some of the first crops that are planted in North Carolina. These crops can be harvested and then planted again and harvested a second time before the first frost in the fall.
- Beans, brussel sprouts, corn, cucumbers, and squash are planted later in the season.

Extension Activities

- Students can listen to a story on YouTube, *Sid the Seed*, written by Daniel R. Pagen, found [here](#)
- Students can make a Beanie Baby. The following instructions are specifically for soy beans, but other types of beans can be used to show the germination process. Instructions for making a Beanie Baby are on page eleven of the Ag Mag on Soybeans found on the Illinois Agriculture in the Classroom website [here](#):
- Read the book, *From Seed to Plant* written by Gail Gibbons while stopping to discuss the different parts of the seed and the plant.
- A wonderful and reasonably priced unit can be found on Teachers Pay Teachers [here](#). This unit includes a parts of a plant art project as well as several Language Arts activities and a measurement activity.
- Examples of the Teachers Pay Teachers art activity as well as other ideas for extension activities can be found [here](#)

Sources & Credits

- <https://www.teacherspayteachers.com/Product/Plants-Literature-Art-Unit-125752>
- <http://teacherkimbo.blogspot.com/>
- <https://www.youtube.com/watch?v=jm12JKhNnWY>
- <https://www.youtube.com/watch?v=jyRw597JBVg>
- <http://www.hoosierhomesteader.com/2013/04/garden-math-and-science.html>
- https://www.pinterest.com/pin/55098795413504391/QoA6M%3A&usg=__p6KIqzL7DcesxY95k73jFOT0jqg%3D
- <http://www.agintheclassroom.org/TeacherResources/AgMags/Soybean%20Ag%20Mag%20for%20Smartboard.pdf>
- <http://www.ufseeds.com/North-Carolina-Vegetable-Planting-Calendar.html>