



Social Seeds - Kindergarten

Purpose

Students will be able to sort seeds using student made rules and explain why seeds are important in the plant life cycle.

Subject Area(s)

Language Arts, Math, and Science

Common Core/Essential Standards

- **CCSS.ELA-Literacy.RI.K.10** Actively engage in group reading activities with purpose and understanding.
- **CCSS.ELA-Literacy.RI.K.1** With prompting and support ask and answer questions about key details in a text.
- **CCSS.MATH.CONTENT.K.MD.A.1** Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
- **CCSS.MATH.CONTENT.K.MD.B.3** Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.
- **K.P.2.1** Classify objects by observable physical properties (including size, color, shape, texture, weight, and flexibility).

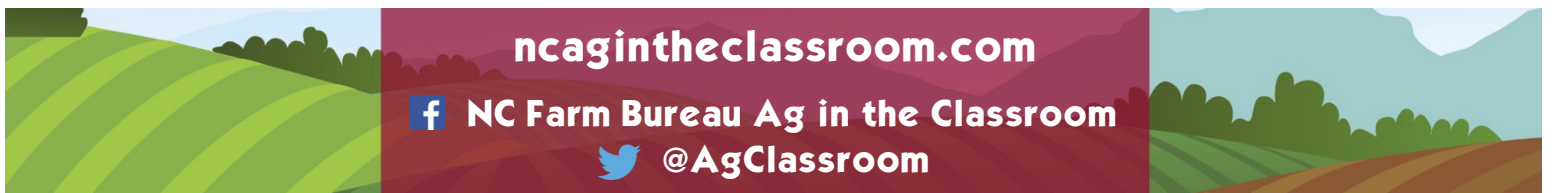
Agricultural Literacy Outcomes

Culture, Society, Economy & Geography

- Trace the sources of agricultural products (plants or animal) used daily.
- Identify plants and animals grown or raised locally that are used for food, clothing, shelter, and landscapes.
- Discuss what a farmer does.

Essential Questions

1. Why are seeds important to the life cycle of a plant?
2. Do seeds look the same or different?
3. What are a few physical characteristics of seeds?
4. What does a farmer do with a seed?



5. What are the names of crops grown on a farm from a seed?
6. Is cotton grown for food or clothing?

Vocabulary

Seed: a flowering plant's unit of reproduction, capable of developing into a new plant.

Physical properties: defining traits or features of a person, place, or thing

Classify: arrange a group of people or things in categories according to shared characteristics

Life Cycle: the continuous sequence of changes undergone by an organism from one primary form as a gamete, to the development of the same form again.

Plants: a living organism that is grown from a seed. A plant contains roots, leaves and sometimes flowers that needs sun and water to survive.

Farmer: a person who owns or manages a farm.

Student Motivator

Ask the students if they have ever planted a seed. Connect to student prior knowledge by surveying types of seeds they have planted. *Do farmers plant seeds on their farms? What kind of crops do farmers plant from seeds? What do seeds need in order to grow into healthy plants?*

Show the video from Brain Pop Jr about the plant life cycle for more interest;

<https://jr.brainpop.com/science/plants/plantlifecycle/>

Background Knowledge

Seeds are the storehouse for the beginning of a plant. Farmers use seeds to produce and grow their crops. Without seeds humans would not have essential products such as food, fiber, fuel, and many other by-products that sustains living organisms. Seeds grow into the same plants that made them and have different physical properties for identification. Some seeds that plants produce can be eaten such as peanuts, sunflower seeds, and soybeans.

Farmers have to purchase their seeds each year for planting. Seed companies such as Monsanto and DuPont/Pioneer spend millions of dollars in research to produce the most productive seeds for high commodity yields. Purchasing seed is costly for the farmer; therefore a prescribed planting process is essential for producing the best yields. Farmers are dependent upon environmental variables such as moisture, light, and soil for the germination and growing process.

Procedures

Activity 1

1. Give each student a seed from the types you have available for the activity.
2. Each student will find the classmates in the class that have the same seed.
3. After each group has formed, ask probing questions. *What does your seed look like? How does it feel? What type of plant or crop do you think it will produce? Is it rough, smooth, fuzzy, or soft?*
4. Focus on questions that will allow students to use their senses to make observations regarding the physical characteristics.
5. Read the book *From Seed to Plant* written by Gail Gibbons to the class.

Activity 2

1. Regroup students so that each group has one seed of each kind.
2. After each group has formed, ask probing questions. *How are the seeds different? How are the seeds the same? If seeds look different do they grown into the same plant or crop? Why is important for farmers to know what their seeds look like? Can you group any of the seeds into the same category, by size, shape, or feel?*
3. Ask students in each group to sort their seeds using their own rules for categories.
4. Have the students explain how they sorted their seeds.
5. Use a lima bean to show the students the three main parts of a seed; embryo, cotyledon (stored food), and the seed coat. An image of these three main parts can be found on page 20 of Gail Gibbon's book, *From Seed to Plant*.
6. Next the students can create their own labeled bean seed while using the Bean Book activity. https://naitc-api.usu.edu/media/uploads/2014/11/26/Bean_Book.pdf

Activity 3

1. Have the students plant their seeds in single pea pots once you have identified each seed.
2. Label the pots with the student's name and place in an area where the seed can receive sunlight.
3. Students will water and investigate their seeds each day and write a sentence that describes what they observed in their science journal. Add a picture or drawing at the end of each week so the students can view the changes over time.
4. Students can use snap cubes to measure their plant height as it grows. They can place their cubes next to one another to compare heights and determine who has the tallest plant and/or the shortest plant.
5. Throughout the growing process, read the book, *From Seed to Plant* written by Gail Gibbons. Help the students understand that without seeds humans would not have the majority of foods and plants that feed and cloth us produced by farmers.

Materials

- Seeds of various kinds: lima bean, green bean, corn, pumpkin, sunflower, cotton, sweet pea, okra, watermelon, squash, soybean, cucumber, barley beets, mustard greens, lettuce
- Paper plates (one per student)
- Crayons
- Science journal
- *From Seed to Plant* written by Gail Gibbons

Suggested Companion Resources

- *A Seed in Need* written by Sam Godwin (Book/Booklet)
- Jr Sprout – Gardening (Activity)
http://www.agclassroom.org/ny/matrix/resource_print.cfm?rid=212
- Farming in a Glove (Activity)
<https://utah.agclassroom.org/cart/Details.cfm?ProdID=275&category=0>
- *The Tiny Seed* written by Eric Carle (Book/Booklet)

Essential Files or Links

- The *Bean Book*
https://naitc-api.usu.edu/media/uploads/2014/11/26/Bean_Book.pdf
- Brain Pop Jr – Plant Life Cycle
<https://jr.brainpop.com/science/plants/plantlifecycle/>

Ag Facts (Did you know)

- Some seeds sprout in the heat of a forest fire.
- Plants account for over 80% of the human diet and nutrition.
- A 60% increase in food production must be attained by 2050 when the global population growth will result in over 9 billion persons inhabiting the planet.
- Temperature, moisture, air, and light conditions must be correct for seeds to germinate. All seeds have optimal levels for growing conditions and they vary depending upon the type of seed

Extension Activities

- Invite a farmer to your class to talk about the seeds that he or she plants.
- Have students make predictions about their plants' life cycle if they were placed under different conditions such as no light, or no water.

- Plant different seeds and chart the amount of time needed for seed to sprout. Plant height can also be measured and compared to each other.

Sources & Credits

- www.fao.org
- www.agclassroom.org