

Post Curriculum – Teacher’s Guide

Day 1-2: Introduction

- K-1 LS1F** Most plants have roots to get water and leaves to gather sunlight.
- K-1 INQC** Scientists develop explanations using recorded *observations (evidence)*.
- K-1 LS2C** Humans can change natural *habitats* in ways that can be helpful or harmful for the plants and animals that live there
- K-1 INQA** Scientific *investigations* involve asking and trying to answer a *question* about the *natural world* by making and recording *observations*.
- 2-3 LS3C** Sometimes differences in *characteristics* give individual plants or animals an advantage in surviving and reproducing.
- 2-3 LS2B** All *ecosystems* change over time as a result of natural causes (e.g., storms, floods, volcanic eruptions, fire). Some of these changes are beneficial for the plants and animals, some are harmful, and some have no *effect*.
- 2-3 INQA** Scientific *investigations* are *designed* to gain knowledge about the *natural world*.

Discussion: All of the different types of farms in the world rely on the environment to help provide for the needs of the plants and animals. Land is needed to make sure the animals have enough room to get exercise and plants that grow to feed them with. Plants need the room to grow, certain amount of sun per day and soil to get water from. Weather is very important both for the animals and the plants; farmers will usually choose the location of their farms based upon the needs of the plants they want to grow and the animals they want to raise.

Read: [A Seed is Sleepy](#) by Dianne Hutts Aston or [A Fruit is a Suitcase for a Seeds](#) by Jean Richards

Question: *What is a seed? What types of seeds have you seen? Have you ever eaten a seed?*

Activity: Seeds are very valuable and provide us with our food. We may eat the seed, the plant it grows into, the flower it makes, the fruit that it makes or maybe an animal that eats that plant. Seeds are very important to farmers and their crops. They need great seeds, good dirt and a lot of hard work to make their plants grow. Let’s see if we can be a farmer today and try our hand at gardening.

- Distribute a mixture of seeds (five different types of seeds, two of each kind) ten total to each student pair or group.
- Have students work together and sort seeds; let them choose how they sorted them.

Q: *How did you sort your seed? How are they alike? What’s another way we could sort the seeds?*

- Have students sort seeds by your parameters.

Q: *What kind of plant(s) do you predict each group of seeds will grow into? How big do you think the plants will grow?*

- Use worksheet 1 and have students draw a picture of each of the five groups of seeds in the boxes provided on the right. Then have them draw a picture of what they “predict” their plant to grow into to the left of their seeds.

Q: *What do you need to grow strong? What do you think a plant needs to grow strong?*

- Inform the students that the soil that you planted the seeds in and being in the sun is where the seed and plant can get their food and the seed will need protected from being disturbed. Food, Water and safety are what we need to grow and also someone to watch over us. So ask if the students will watch over their plants as they grow.

- Before planting the seeds soak them in water overnight to speed germination. Poke small holes in the bottom of plastic jars or cups for drainage.
 - Each student work area should have: a clear jar or cup three-quarters full of soil, two seeds for each jar, a popsicle stick to label each plant pot, a marker to write on the popsicle stick, a spray bottle with water, a sandwich bag, and a rubber band.
 - Demonstrate how to correctly plant a seed in a clear plastic jar or cup. Plant the seed near the side of the jar so the growing roots will be visible. The bean should be covered with about one inch of soil, and there should be space between the soil and the top of the cup. Soil should be moist but not wet.
 - Have groups plant their seeds in plastic jars and water the soil.
 - Label the popsicle sticks with the name of the group and the number they gave to those seeds.
 - Place all of the cups or jars on a tray and place the tray in or close to a window to grow.
 - Have students help clean up and clean their hands after touching the soil.

Watch for growth and show the students how their seeds are changing. When big enough have the students start measuring their plants and see how big they are getting. Help students create a simple graph of plant growth. (At this point if no garden area is available at your school you can send your students home with their plants with instruction on how to care for them. Make sure you try and grow one for yourself that if none of the students' plants grow you can show the students growth progress.)

Variations– Do experiments on what a plant needs to grow i.e.: Plant it in different soils and record its growth. Put one plant in a sunny area and one in the dark. Give one ½ c of water a day, give one no water and one 2 tbsp a day...what happens?

Q: How do seasons affect plant growth?

Q: What happens to plants during storms and high winds?

Q: What happens to plants when there is too much or too little moisture?

Q: What happens to plants when there are too many insects and weeds?

Q: What happens to plants in soil that is nutrient poor, rocky, sandy or made of heavy clay?

Discuss farmers' and gardeners' work with plants and soil. What elements do farmers and gardeners try to control? (Answer: insects, nutrients, and weeds). What elements can't be controlled? (Answers: rainfall, wind, and temperature)

Alternate Lesson: <https://utah.agclassroom.org/matrix/index.cfm>

Day 3: Food from around the world

K-1 INQA Scientific *investigations* involve asking and trying to answer a *question* about the *natural world* by making and recording *observations*.

K-1 INQD Scientists report on their *investigations* to other scientists, using drawings and words.

2-3 INQA Scientific *investigations* are *designed* to gain knowledge about the *natural world*.

2-3 INQC *Inferences* are based on *observations*.

2-3 INQF Scientists develop explanations, using *observations (evidence)* and what they already know about the world. Explanations should be based on *evidence from investigations*.

Discussion: If you go to the farmers' market, most of the food you purchase comes from area or local farms. However, if you go to the grocery store you will find a wider variety of food because it comes from greater distances.

Questions: Washington is a great place to grow apples, cherries, cranberries, lentils, etc... but you would have a hard time finding rice growing here or how about chocolate? Anyone have a cacao tree in your back yard? How about a rice paddy? How about this?

Activity: What is it? Place a fresh pineapple inside a black plastic bag and secure it so students cannot see what is inside. Explain to students that they will play a guessing game. Ask them to hold the bag and feel what is inside. Remind them that they cannot look inside. Encourage them to guess what is inside of the bag. Ask older students to explain their answers. After concluding the guessing game, pass the pineapple around and encourage students to touch and smell it. Create chart with students to describe the pineapple. Encourage students to notice the texture, size, weight, smell, colors, leaves, and so on. Cut the top part of the pineapple plant, extending 1/2" below the leaf section. Save the leaf section for the planting activity. Cut the pineapple into sections. Give students a small piece of pineapple to taste. Include their descriptions of how a pineapple tastes

Q: How does a pineapple grow? Does it grow on a tree? Does it grow on a vine? Show the students a picture of a pineapple growing.

Q: Shall we try to see if we can grow a pineapple? Usually we need a seed to grow a plant but to grow a pineapple we can just use the tuft or crown of the pine apple.

Q: What do you think the crown is? Show them the top part that you cut off and explain this is how commercial pineapple farms plant their pineapples.

Pineapple planting: Place a layer of pebbles or gravel in the bottom of a planting pot. Mix an equal amount of soil and sand and fill the pot a few inches from the top. Place the pineapple plant into the soil and cover with remaining soil and sand mixture. Water the plant well. Place a plastic bag over the potted plant and secure tightly. Ask students to think about why a pineapple plant must be kept warm and moist. Find a sunny place to put it. Create an observation chart with the students to record the daily growth of the plant. Photographs and drawings can also be used to record the plant growth. Remove the plastic bag once the middle section of the plant begins growing new leaves. The plant will need regular watering and access to a sun.



Day 4: Food from Around the world: Part two

2-3 LS2A

Ecosystems support all life on the planet, including human life, by providing food, fresh water, and breathable *air*.

Grade 3 Geography - 3.2

Understands human interaction with the environment.

Grade 1 Geography- 3.1

Understands the physical characteristics, cultural characteristics, and location of places, regions, and spatial patterns on the Earth's surface.

Discussion: In the past without the ability to send food all around the world where ever you lived dictated what you ate. You only were able to eat the food that could grow around you. As we have developed and made ways to send food around the country and to other countries we have grown in our eating habits.

Question: What is your favorite food? Where would it come from?

Activity: Make a list of students' favorite foods, list what it food items it would take to make their favorite foods, find the locations of where these items grow in the world. Mark their location on a large map so that students can see where all of their food comes from.

Food origins interactive maps: <https://blog.ciat.cgiar.org/origin-of-crops/>

Food time line: <http://www.foodtimeline.org/>

Now we live in a time when food is easy to move around the country and still have it taste good. Now we can eat food from all around the world and have what we like on our plate no matter what season.

www.agclassroom.org/ut Lesson "My Farm Web" great lesson on food to fork and field to fiber.

<http://www.myamericanfarm.org/> Game for kids to play all about agriculture.

What my seeds look like:

What I think my seeds will grow into:

1.	
2.	
3.	
4.	
5.	

