

Pre-Lesson: Teacher's Guide

Objective:

Students will be able to

1. List at least three different locations/places food comes from
2. List at least three different types of farms
3. Identify an animal from a plant

Day 1: Introduction

K-1 LS2B A *habitat* supports the growth of many different plants and animals by meeting their basic needs of food, water, and shelter.

2-3 LS2A *Ecosystems* support all life on the planet, including human life, by providing food, fresh water, and breathable *air*.

Question: Who likes to eat pancakes? What would we need to do to make pancakes?

Read: Pancakes, Pancakes! By Eric Carle {all books are available at your local library}

Discussion: That sounds like a lot of work just to get pancakes. Isn't it much easier just to go to the store to get our food? I like to buy my flour in bags instead of having to grind it myself. My eggs usually come in a nice carton just like my milk does. That way it only takes me a few minutes to make my pancakes in the morning. But how did my flour get to the store? How did the eggs get in the carton? Who milked the cow so I could have my milk?

Farmers! Almost all the food in the store came to us because of farmers. Do any of you know a farmer? Do you know all that farmers do? What do you think they grow or raise? What do you think of when you think of a farm?

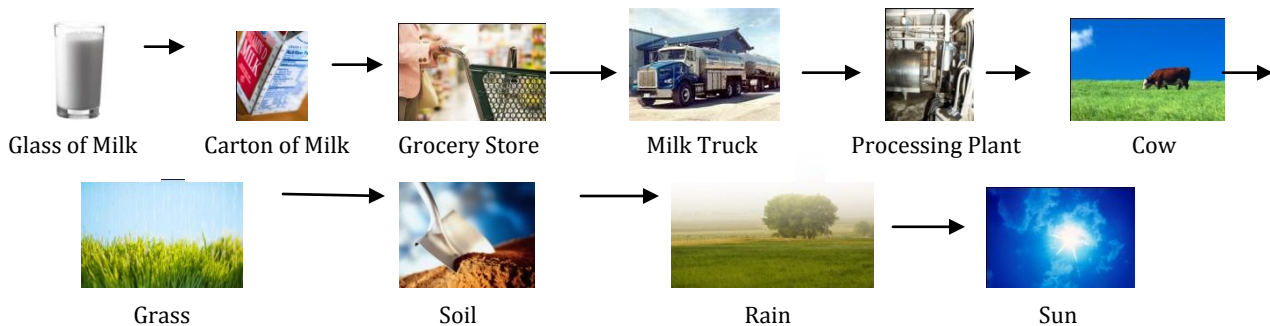
Activity: As a class build a farm: what will grow or live on your farm? What will we need to make it possible for these items to grow or live? Each living thing needs energy to grow, how can we help them get that energy? What food do they eat? Where can they get water? Where will they sleep or find shelter? (Draw or construct the farm as a class)

Higher level Lesson:

Question: What did you eat today? Where did you get that item? How did it get there?

Discussion:

Let's figure this out. (draw or write out the steps) How about we start with a glass of Milk.....



Try a couple more examples with the class as a whole.

(Extension- Take it a step farther....cow exhales carbon dioxide...which feeds the plants; working on making it into a circle)

Explain that this is called a food chain. Every living thing plays into the food chain. They play the role of decomposer, consumers, and producers.

Producers are living things which take non living matter from the environment, such as minerals and gasses and uses them to support life = green plants.

Consumers are living things that need the producers for their food source = herbivores is an example (plant eaters like deer or cows) Also Carnivores (meat eaters) are considered consumers and are a link farther along on the food chain since they need the herbivores for their food. Animals and people who eat both animals and plants are called omnivores, and they are also part of the consumer piece of the ecosystem.

Decomposers are living things that feed off of dead plants and animals and reduce their remains to minerals and gases again = fungi

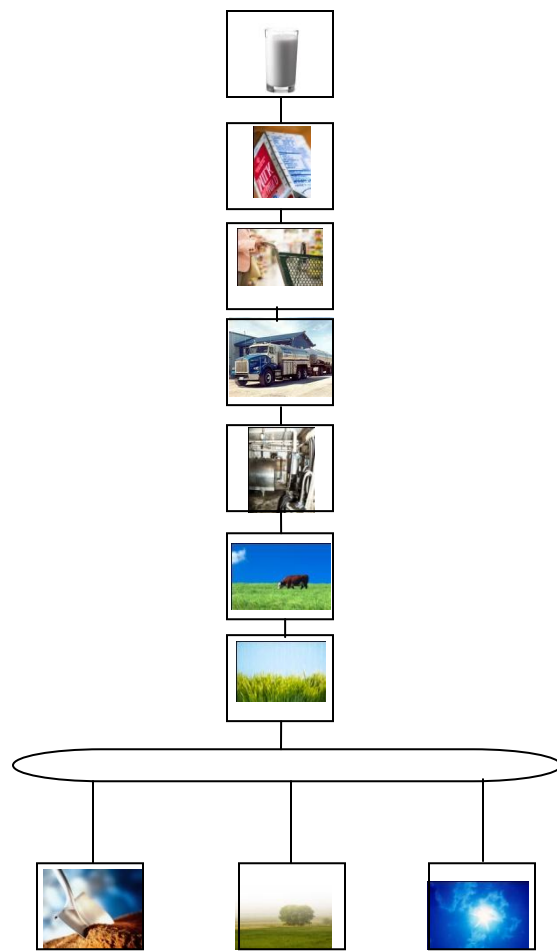
Activity (Basic): Food Chain Mobile

Materials: Index Cards, hole punch, string, scissors, dowel rod or popsicle stick

Have the student work in a group to create their own Food Chain. Have them start with something they eat and follow it back to the basic minerals and gases i.e. sun, rain and soil.

Draw their steps on the index cards, hole punch top and bottom of cards and run string through to attach the steps. The bottom of the mobile will need the dowel rod with sun, rain and soil attached to the rod. See Figure A

Figure A



Activity (Advance):

Food Chain Game -where students will understand the transfer of energy through a food chain from sun to top predator in the water. Game can be found at <http://www.agintheclass.org/Documents/Newsletters/Spring2006.pdf> pg. 5 and 6.

Day 2: Types of Farms

K-1 APPB Different materials are more suitable for some purposes than for other purposes
K-1 LS2C Humans can change natural *habitats* in ways that can be helpful or harmful for the plants and animals that live there.

Question: Do you think our milk and rice come from the same farm?

Discussion: Earlier we discussed where most of our food comes from. We are going to learn more about farms today. Whisper to your partner what you predict you will see on the farms in this video.

Activity: Watch: Food Doesn't grow in the Supermarket; Length: 28:36 minutes -This DVD, follows "The City Guy", an adult who thinks he knows where food comes from (the grocery store) as he visits three different farms to learn where food really comes from and what it takes to produce it. {Video can be borrowed from the Puyallup Fair or purchased for ten dollars at <https://extension.usu.edu/aitc/cart/>}

Draw and label: one product from each of the 3 farms from the video.

Individually students can do the Dairy Farm coloring page from Washington Dairy Farmers: (page 17-18 of Polly's Pride Coloring book) http://www.eatsmart.org/client_images/polly_prides_activity_and_coloring_book.pdf

Higher Level:

Grade 3 Geography 3.2.1 Understands how the environment affects cultural groups and how cultural groups affect the environment.
Grade 3 Communication 1.1.1 Applies a variety of listening strategies to accommodate the listening situations.
1.1.2 Applies a variety of listening and observation skills/strategies to recall and interpret information.

Question: Do you think food is all we get from farms?

Discussion: Earlier we discussed where most of our food comes from. We are going to learn more about farms today. Make a prediction on what you think you will see on the farms in this video. Write down your prediction on a piece of paper turn your paper over when you are done.

Activity: Watch Connecting to Agriculture; Length 16:31 minutes - This exciting, fast-paced video is a great way for students to learn about how agriculture connects to their lives. Animation, fun facts, and farmers tell the story of agriculture and how it relates to economics, science and business. (movie is a bit dated but good) {Video can be borrowed from the Puyallup Fair or purchased for ten dollars at <https://extension.usu.edu/aitc/cart/>}

Turn over your paper and see if what you predicted was right. Write down one new thing you learned or found interesting from the video.

Day 3: Animal or Plant

K-1 LS3A Some things are alive and others are not.
K-1 LS1E Animals have various ways of obtaining food and water. Nearly all animals drink water or eat foods that contain water.
K-1 LS1F Most plants have roots to get water and leaves to gather sunlight.
K-1 LS3C External features of animals and plants are used to classify them into groups.

Question: What is a living thing?

Discussion: Share examples of living and non-living things. Help students see that all living things are “alive” – they are not dead but will die someday. All living things grow, need food for energy and reproduce.

Question: What is an animal?

Discussion: Share examples of animals. Help students see that animals have to eat, but they cannot produce their own food. They eat other animals and plants and need water and air. Most animals can move around from one place to another. Animals don’t all get around in the same way. Some run, while others walk, creep, fly, or hop.

All animals depend on plants whether they eat plants for food or eat other animals that eat plants.

Question: What is a plant?

Discussion: Discuss examples of plants. Then think about what makes all these plants alike or similar. For example, plants all grow and need air, nutrients, water, and sunlight. Plants can produce other plants like themselves.

Many plants are green. Share the idea of that plants get their energy from sunlight – photosynthesis; while animals get their energy from eating plants and other animals. Add that most plants can’t move around and get from one place to another.

Activity: Sort: Print out a selection of animals and plant pictures. Have the students sort the pictures with plants on one side and animals on the other side.

2-3 INQB Investigate A scientific *investigation* may include making and following a plan to accurately observe and *describe* objects, events, and *organisms*; make and record measurements, and *predict* outcomes.

Scientist Walk: Take the students on a walk outside and have them be scientist. Looking for plants and animals around the schools neighborhood, they are all over but so often we do not notice them.

Have the students fold a piece of paper in half and draw a picture of a plant at the top of the left and a picture of an animal at the top of the right. Tell them they are going to record what they see on their walk and if they see an example of a plant draw it or write it out under the plants side of their paper. If they see an animal have them draw it or write it out on the animal side. Work with them to see that animals usually move around and plants usually stay in one spot. Once the students are back in the classroom have them display their discoveries and share with the class what they have learned.

Higher level lesson: Lifecycles

2-3 LS1A Plants have *life cycles* that include sprouting, growing to full size, forming fruits and flowers, shedding seeds (which begins a new cycle), and eventually dying. The details of the *life cycle* are different for different plants.

2-3 LS1B Animals have *life cycles* that include being born; developing into juveniles, adolescents, then adults; reproducing (which begins a new cycle); and eventually dying. The details of the *life cycle* are different for different animals.

Question: As you get older do you change? Do your responsibilities change? Do you think it is the same for other living things?

Read: Life Cycles by Michael Elsohn Ross

Discussion: What is a life cycles? We all go through a life cycle, a life cycle is a series of stages through which a living thing passes through during its lifetime.

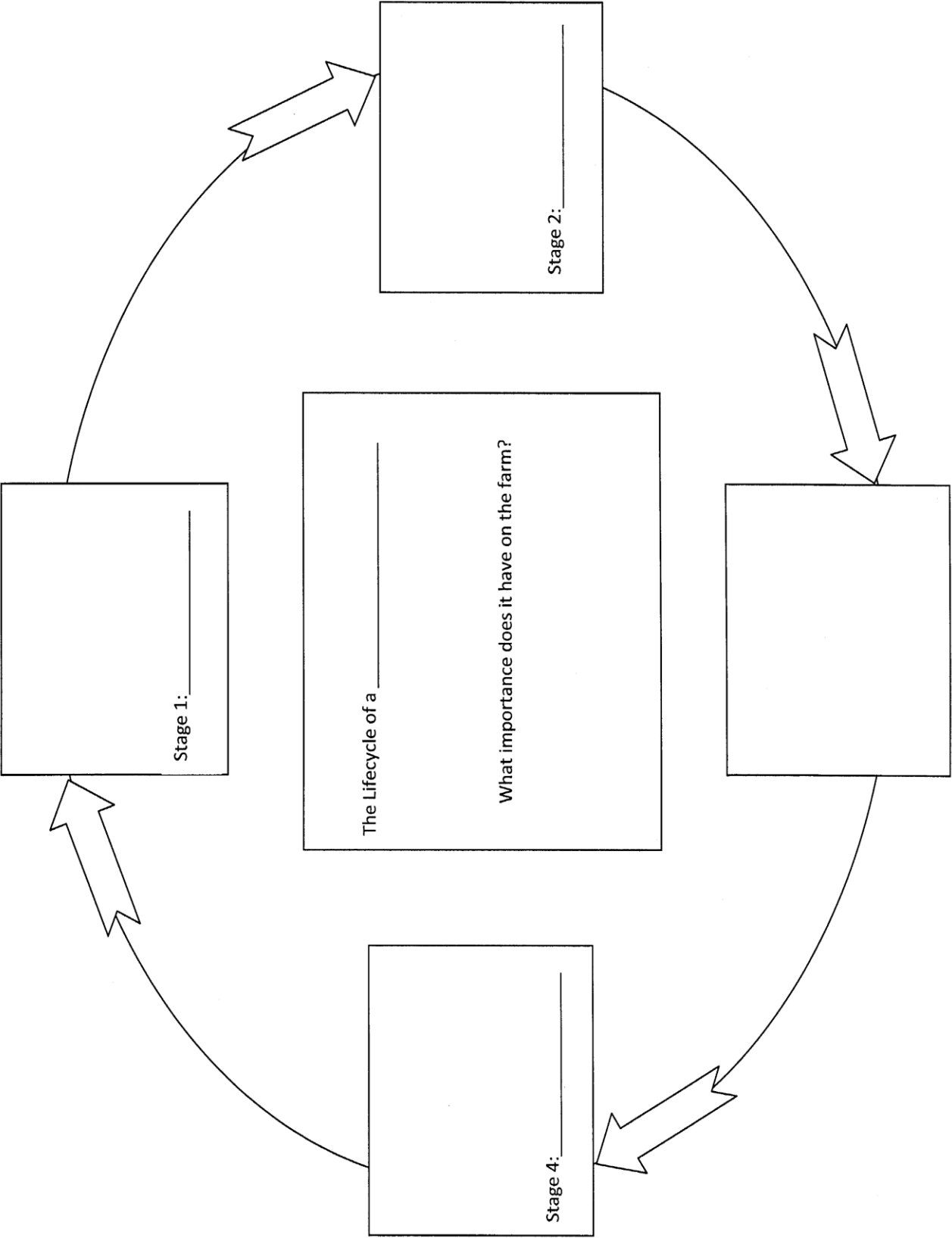
Read: The Honey Makers by Gail Gibbons or The Magic School Bus Inside a Beehive by Joanna Cole

Activity: Now that we know a little more about the honey bee. Let's see if we can map out the honey bee's lifecycle. As a class work through worksheet 1 to draw out the honey bees lifecycle.

Extension: Assign groups different living things and have them map out the lifecycle of the item. There are great books on Chickens, Apple Trees, etc... life cycles to assign the groups to go off of. Have each group present their findings. At this point the whole class can pick two different living things and do a Vin Diagram to see the differences and similarities.

Preparing to visit the Puyallup Fair Traveling Farm

- Things to Discuss or talk about prior to visit:
- Working with a partner
- Sharing: ideas, thoughts and activities and taking turns
- Using time wisely: make sure to spend time at each exhibit; also do not spend too long at one place
- Walking vs. running
- Touching Animals: Be sure not to touch your face or your clothes after touching animals; **wash your hands as soon as you are done with visiting the animals** (Hand washing area will be right next to animal encounters area); if you do a germ lesson prior to the visit remind them about what they learned.
- The students will be entering the pen and then stepping out on a disinfection mat as the leave, please suggest they wear appropriate foot wear.



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

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 2tbsp 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: http://extension.usu.edu/aic/lessons/pdf/growing_plants.pdf

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.

<http://www.menmagazine.co.uk/book/foodorigins.html>

<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