



Growing the Future by Teaching Children in the Gardens

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Food Comes from Natural Resources Grade One

Lesson Summary

When to use this lesson

Use this lesson in May to plant warm season foods.

Objective

Students understand that the foods they eat are natural resources or come from natural resources.

Standards

S1L1. Students will investigate the characteristics and basic needs of plants and animals.

a. Identify the basic needs of a plant.

1. Air
2. Water
3. Light
4. Nutrients

b. Identify the parts of a plant—root, stem, leaf, and flower.

SS1E3. Describe how people are both producers and consumers.

Materials

- Seedlings
- Seeds
- Plant markers
- Flour
- Trowels
- Water bottles
- 3 buckets for water
- Water key

Estimated Duration

30 minutes

Planting Tips

- Pick up your seed kits from the barn several days in advance, so you can check them for accuracy.
- Each seed kit includes seed packets for students according to the table in this lesson, pre-labeled plant markers for the garden beds, and a bag of flour to help mark the garden beds.

- Where two or more students are planting the same seed side-by-side, one plant marker is provided, not one plant marker for every seed packet. If a seed is being planted in an area with the same plant from the March planting, no additional plant marker is included.
- Please write the planting date on the plant markers.
- Ahead of time, review the seed planting instructions and map. The position of the seed placement on the maps takes into account companion planting when possible.
- Students should plant all seeds in the packet, and all seed packets should be planted. Since the map plans for 28 students, you may need to adjust the assignments a bit to fit your class size if it is less than a class of 28. For example, instead of two students planting beans in a bed, assign one student to plant both envelopes of beans.
- The small seeds, like carrot, cabbage, kohlrabi, bok choy, and turnip, have sand added to the envelope. These envelopes must be shaken by students before the envelope is opened. The process below includes this.
- Students should plant in the entire area allotted to their seed, i.e., reinforce creating multiple furrows so seeds are not planted only along the edge or in one clumped spot. Show the photos in this lesson to demonstrate overcrowding and correct spacing.
- In advance, prepare your beds to visually show planting areas in your beds. Use flour to line the sections. If your flour is in a zip top bag, cut a very small hole in one corner for pouring flour.
- If weather permits, place the seed packets in the locations you want students to plant according to the map.
- If weather does not permit advance placement of seeds in the bed, make a copy of the planting map for the teacher or another volunteer who will help you, and separate the seeds that go with that bed. Put the seeds in the order that they appear on the planting map. You can work one bed and the teacher or volunteer the second bed.
- Place the seedlings in the location you want them to be planted. Place a trowel for each student who will plant them by the seedlings they will plant. Separate the onion seedlings if they are in one pack/pot and space each where they should be planted.
- In advance, fill three buckets with water for students to use to water their plantings. Collect some empty water bottles for students to share when they water.
- Place your compost and air thermometers in the garden area.

About Natural Resources

- Resources are used to give us things that we want or need. Resources come from living and non-living things.
- Natural resources are found in nature. What are some examples of natural resources?
Water, sun, wind, plants, rocks, animals, land
- How are natural resources used? Solar energy, wind energy, water energy, fuel, food, rocks make soil, wood for furniture and homes
- Why do we need food? We need food for energy. Our food is a natural resource or comes from natural resources. How do we get food?
➤ We grow food.

- Farmers grow plant foods (fruits, vegetables) that they sell to stores and we can buy from grocery stores, or that they take to farmers' markets and food stands to sell to us.
 - Farmers raise animals that are fed from plants and then sold to make meat for us to buy.
 - Farmers sell their food to companies that make other foods from them. Vegetables and fruits are sold to companies that prepare and package foods, like canned foods, frozen foods and meals, juice, food in boxes. Beef is sold to companies that prepare hamburgers, steaks, ready-made frozen foods. Potatoes are sold to make chips, fries, packaged potato dishes. Wheat is sold to make flour for making bread products, cake mixes, cookies. Can students trace a favorite food to its origin?
- Many resources are limited and need to be carefully used. We're familiar with saving water and electricity. The sources of our food require resources from nature. What kind of resources do plants and animals need? Does anything affect their availability?
 - We are dependent on nature for a basic need. When growing food, we have to be careful to have soil with nutrients to grow the healthiest plants. Growing plants take nutrients from soil. In the school gardens, we add compost to add nutrients back to soil. On a farm, crops are rotated and plowed into the soil after harvesting to add nutrients to soil. We need enough water and clean water and air for our food sources.
 - Today we are preparing for the September harvest by planting warm season seeds and plants that need warmer soil to germinate than the seeds we planted in March. Once the plants grow, they need warmer air temperatures during the day, but especially at night, so the plants are not damaged by frost.

Planting with Students

- Explain that the bed is marked in a way for students to know where to plant. Students plant in the spot they find a packet of seeds (if you were able to distribute the seed packets in the beds) or a seedling. Recall the seed planting steps from spring.
- Show a seed packet and explain that the seed packets will have planting depth and spacing on the envelope.
- **Step #1 make three furrows.** Wood chips or fingers can be used to make three shallow furrows for seed planting. Furrows are an easy way to plant small seeds that are planted $\frac{1}{4}$ to $\frac{1}{2}$ inch deep.
- The furrow is the correct depth if it is not deeper than the distance from the tip of a student's finger to the base of the nail or the first knuckle.
- Emphasize the importance of getting depth and spacing right so the seeds have the right conditions to germinate and grow. Show the pictures of overcrowded seeds that grew and seeds that were spaced apart.
- **Step #2 shake the seed packet and open it.** Sand has been added to many of the seed packets to help students sprinkle and spread the seeds down the furrow. Shake the packets to mix the sand and seeds. Pour all of the seeds into the hand you do not use to write. Keep your hand in a cup so your seeds don't spill.
- **Step #3 plant and pat your seeds.** Sprinkle the seeds down each furrow, or place and space the larger seeds individually. Cover the seeds and pat the soil gently to be sure the soil and seeds make contact.
- Explain the process to plant a seedling.

- **Step A dig a hole that is as deep as the pot of your seedling.** The hole is the right size if the pot fits in the hole.
- **Step B tip the plant into your hand.** Do not pull the plant out of the pot by the stem. This can result in breakage. Hold the container in the hand you do not use for writing. Use your writing hand to remove the plant by placing your index finger and middle finger on either side of the seedling's stem. Your hand is now touching the top of the plant and covering the soil.
- Tip the pot into your writing hand, put the pot down, and use both hands to put the seedling in the hole.
- **Step C fill in the hole around the plant.** Gently pat the seedling in place. Do not compact the soil.
- Remind the students that if there is a plant marker in the pot, the marker should be inserted into the soil near the plant.
- Students water their seeds and seedlings.
- Ask students to read the soil and air temperatures as they finish up. Record the temperature and discuss the plants and animals seen. Make some notes about plants and animals so you can discuss changes as spring progresses in the coming weeks.

Seeds					
Seed	Number of Students = Number of Envelopes Per Class	Plant Labels Per Class	Depth and Spacing	Germination	Notes
Beans, pole, Kentucky Wonder	4 Four seeds inside	2	1 inch deep 3 inches apart	6 to 14 days	
Beets, Detroit Red	1 ¼ tsp	0	½ in. deep 2 in. apart	5 to 10 days	Use existing label in garden.
Beets, Bull's Blood	1 ¼ tsp	0	½ in. deep 2 in. apart	5 to 10 days	Use existing label in garden.
Beets, Chioggia (ki oh' ja)	2 ¼ tsp	1	½ in. deep 2 in. apart	5 to 10 days	A pink swirl design inside
Bok Choy	2 1/8 tsp	1	¼ in. deep 2 in. apart	4 to 7 days	Mild cabbage flavor. Ready to harvest in 50 days. Does not like warm temperatures.
Carrot, Danvers	2 1/8 tsp	2	¼ in. deep 2 in. apart	5 to 14 days	
Carrot, Little Fingers	3 1/8 tsp	2			
Carrot, Cosmic Purple	1 1/8 tsp	1	¼ in. deep 2 in. apart	5 to 14 days	
Carrot, Atomic Red	1 1/8 tsp	1	¼ in. deep 2 in. apart	5 to 14 days	
Cucumber	1 4 seeds	1	½ to 1 inch deep	5 to 10 days	

			12 inches apart		
Kohlrabi, Purple	1 1/8 tsp	1	¼ in. deep 2 in. apart	5 to 17 days	A cross between a cabbage and a turnip
Parsnip, All American	1 1/8 tsp	1	½ in. deep 2 in. apart	12 to 14 days	A carrot relative
Radish, Easter Egg	1 1/8 tsp	1	½ in. deep 2 in. apart	4 to 12 days	
	21	14			

Seedlings				
Plant	Number of Students	Number of Transplants	Number of Labels	Notes
Early Green Broccoli	1	1	1	
Cabbage	1	1	1	
Celery, Afina	1	1	1	
Onion, yellow, Texas Early Grano	2	8	1	Four are planted in each class bed.
Onion, red, Burgundy Red	2	8	1	Four are planted in each class bed.
Peppers, sweet pickle	2	2	2	One is planted in each class bed.
Peppers, sweet jalapeno	2	2	2	One is planted in each class bed.
	11	23	9	

Too crowded cucumber seedlings



Just right



Granny's Garden School - 2014 May Planting

Garden bed is 10' x 3'

Each small square is 6"

Each large square is 18"

When to Plant

Each label is planted by one student unless otherwise noted.

March

May

↔ means that one student plants both crops

Burgundy Red Onion plants	Chinese Napa Cabbage seeds	Mesclun Blend Lettuce seeds	Danvers Carrot seeds	Atomic Red Carrot seeds	Detroit Red Beet seeds	Purple Top White Globe Turnip seeds	Onion sets
	Early Green Broccoli plant	Sweet Pickle Pepper plant	Sweet Jalapeno		Detroit Red Beet seeds	Spacemaster Cucumber seeds	
Burgundy Red Onion plants	Afina Green Celery plant	Little Finger Carrot seeds	Kentucky Wonder Green Pole Bean seeds	Kentucky Wonder Green Pole Bean seeds	Easter Egg Radish seeds	Chioggia Beet seeds (2)	Onion sets
	Little Finger Carrot seeds	Little Finger Carrot seeds	Black Seeded Simpson Lettuce seeds	Super Red Romaine Lettuce seeds	Rainbow Swiss Chard seeds	Superschmelz Kohlrabi seeds	
Texas Early Grano Onion plants	Bib Butterhead Lettuce seeds	Mesclun Blend Lettuce seeds	Danvers Carrot seeds	Cosmic Purple Carrot seeds	Bulls Blood Beet seeds	Purple Kohlrabi seeds	Onion sets
	Cabbage plant	Sweet Pickle Pepper plant	Sweet Jalapeno		Bulls Blood Beet seeds	Purple Kohlrabi seeds	
Texas Early Grano Onion plants	Little Finger Carrot seeds	Little Finger Carrot seeds	Kentucky Wonder Green Pole Bean seeds	Kentucky Wonder Green Pole Bean seeds	All American Parsnip seeds	Pak Choy Bok Choy seeds (2)	Onion sets
	Chinese kale seeds	Little Finger Carrot seeds	Little Finger Carrot seeds	Super Red Romaine Lettuce seeds	Watermelon Radish seeds	Easter Egg Radish seeds	



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Food Comes from Natural Resources Grade One

In science and social studies, students learn about resources needed by living things and the production of goods.

In our garden class, we learned that the foods we eat are natural resources or come from natural resources. We discussed various ways that foods are available to us to meet our needs.

Following our discussion, we planted our warm season plants and seeds in preparation for the fall harvest.

Ask your student to trace the origin of a favorite food. Email granny@grannysgardenschool.org to join us for our next gardening experience!

