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Let's Grow Carrots

Grades 3-5

Lesson Description: Students will work in small groups to research the life cycle of a carrot and learn about the growing process from a local farmer. Groups will make a poster with the steps for planting carrots in containers; then students will plant carrots and care for them until ready to harvest. After harvesting, students will make a carrot snack for the class to enjoy.

Note to Teachers: Carrot seeds are very small and will be challenging for younger students to handle. Many seed companies offer pelletized seeds to make planting more manageable. Fingerling carrots are small in size and mature faster than other varieties, which makes them a good choice for growing in the classroom. Keep in mind that the small varieties of carrots need 55-60 days to reach maturity. Many schools have outdoor gardens; if planting carrots outside, refer to online catalogs for more information about suitable varieties. See a list of seed sources at the end of this lesson.

Teacher Preparation:

1. Explore a possible partnership with a local farm/farmer. Find one which will be willing to visit your classroom and talk about planting and harvesting carrots on a farm.
2. Gather research materials about carrots.
3. Gather supplies for growing carrots in the classroom.
4. Gather several carrot recipes for simple carrot snacks.

Supplies

- Seeds (pelletized for ease of handling)
- Growing medium (potting soil)
- One plastic shoe box for each group with drainage holes drilled in the bottom. If seeds for longer carrots are to be planted, use deeper containers (such as buckets with drainage holes in the bottom).

Common Core ELA:

W.3.7 Conduct short research projects that build knowledge about a topic.

W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic.

W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

Common Core Math:

3MD.B.4 Generate measurement data by measuring lengths using rules marked with halves and fourths of an inch. Show the data by making a line plot which is marked of in appropriate units – whole numbers, halves, or quarters.



Learning Objectives

The student will:

- Use at least two resources to research carrots. Be sure to note
 - Soil & climate requirements
 - Growing cycle
 - Plant requirements
- Participate in planting, watering, monitoring and harvesting carrots.
- Take weekly measurements of growth of carrot tops and show on either a bar graph or line graph.
- Write a paragraph about the carrot growing experience.

Procedure:

1. Students will work in small groups to research carrots. They will find information about
 - a. Soil requirements
 - b. Climate requirements
 - c. Carrot production in their region
 - d. Life cycle (or growth cycle)
 - e. Uses of carrots
2. Record their findings on chart paper
3. Draw a poster showing the life cycle of their crop
4. Following teacher directions, prepare container and plant carrot seeds. Be sure containers are labeled.
5. After seeds have germinated, measure the tops (the part above ground) once a week, on the same day each week.
6. Plot measurement information on a line graph.
7. Have local farmer come to the classroom to talk about growing carrots and why carrots are an important crop.
8. Participate in the harvest of the crop.
 - a. Students should be able to explain how their harvesting techniques may be different from the farmers.
 - b. Demonstrate food safety techniques (washing and refridgerating the carrots)
9. Prepare carrot snack recipe and enjoy!
10. Write a well-developed paragraph about the carrot growing experience.

Resources

- Johnny's Selected Seeds at www.johnnyseeds.com Carrot variety: *Adelaide*, 55 days to maturity, length: 2 inches, seeds available pelletized.
- Burpee Seeds at www.burpee.com Carrot variety: *Caracas Hybrid*, 57 days to maturity, length: 2-3 inches.
- Parks Seeds at www.parkseed.com Carrot variety: Little Finger Carrots, 60 days to maturity, length: 4 inches.



Let's Grow Carrots Teacher's Planting Guide



Carrots are a popular root crop related to parsnips, parsley, and dill. They come in a variety of lengths, from 2 inches to as long as three feet; as well as a variety of colors: white, red, orange, yellow and purple. They require a loose, not hard-packed, soil in order for the roots to grow straight. When planting carrots in the classroom, the length of time to maturity and size of container will determine what variety of carrot to plant. Fingerling carrots are about the size of a little finger and have the shortest time to maturity, so they make a good choice for classroom growing. If your school has outdoor planting beds, select a larger variety.

You will need one plastic shoe box for each group of 3-5 students. Drainage holes should be drilled in the bottom of each box. If you don't have a drill, drive a nail through the bottom several times. The lid of the box can serve as the "saucer" to catch any excess water. Make sure you buy potting soil intended for vegetables. Potting soil is a mix that promotes seed germination and plant development. It can be found at home improvement stores and nurseries. Do not use loam, as it is too "heavy", do not dig up soil from a garden because it may contain a fungus that will cause *damping-off* of seedlings, and the seedlings will not survive. Pelletized seed will solve a variety of problems making the seeds easier for the children to handle. Pelletized seed is seed that has been coated with an inert substance to make them larger and easier to handle. They tend to need a bit more water for germination than non-pelletized seed.

PLANTING

- Have the students fill their shoebox with potting soil, patting down lightly and smoothing the surface. The top of the soil should be about ½ inch from the top of the box.
- Using the side of a pencil, have students make 3 shallow rows by pressing the pencil into the soil lengthwise. Space the rows evenly.
- Give each group a small paper cup with seeds
- Have students place the pelletized seeds in the rows about ½ inch apart. This will make thinning easier as the plants grow. For non-pelletized seeds, sprinkle as evenly as possible in rows.
- Cover seeds with small amount of soil. Be careful not to plant too deeply.
- **Gently** water. Soil should not be allowed to dry out.
- Place on sunny windowsill or under grow light. Carrots are a sun loving crop. Germination will be in about 10 days provided soil has been kept moist (not soaked).
- As plants grow, they will begin to crowd each other. Thin so that carrots are 1 inch apart in all directions by gently pulling out every other carrot.*

*If you have used non-pelletized seed, it is hard to place the seeds individually in the rows because they are so small. Seeds will germinate in clumps making the removal of some during thinning difficult and disturbs the seedlings left behind. The more carefully the seeds are planted, the better the rest of the process will go.

Additional help: view YouTube video: *Planting from Seed, Carrots/Celery Indoors in Containers*.

