OREGON HARVEST for SCHOOLS

CLASSROOM CONNECTIONS

Early Childhood and Lower Elementary:

Putting Down Roots

Connections to Standards:

Science K.2P.1; K.3S.1, 2; K.4D.1; 1.3S.1, 2; 2.3S.1, 2, 3

Materials:

- variety of plants with roots still attached such as carrots, radishes, dandelion, clover (or other commonly found plants that you can dig from the soil carefully to preserve roots), cuttings from houseplants rooted in water, small seedlings that can be gently removed from their containers to observe roots, etc.
- potting soil
- variety of seeds
- variety of clear containers

Observe and explore with students how this collection of roots is alike or different. How is this part of the plant important? Roots hold onto soil and take up water for the plant to use. The taproot (the part of the carrot we eat) stores food for the plant. We eat the roots of some plants. Brainstorm a list of roots we eat.

Guide students to set up a "root lab" where they can observe roots under various growing conditions, based on their own questions and observations about roots. You can plant seeds along the sides of a clear cup filled with soil and measure the root growth regularly. Students can use different kinds of seeds and predict which ones will grow fastest and win the "root race". Consider placing obstacles such as large rocks along the bottom of a shallow clear dish in the path of where a root will grow. Plant seeds on one side of a clear container and water the opposite side to see the direction the roots grow.

Use this exploration of roots as the foundation for further studies into plant parts we eat.

Resources:

Plant Parts We Eat (includes connections to Common Core)
Oklahoma Agriculture in the Classroom
www.oklahoma4h.okstate.edu/aitc/lessons/primary/parts.pdf

Under, On and Above the Ground (includes connections to OR Standards)
Eat. Think. Grow.
www.eatthinkgrow.org/wp-content/uploads/2012/04/KF21.pdf

Upper Elementary: Carrot Compare

Connections to Standards:

Math 3.NBT.1; 3.NF.1; 4.NBT.4; 4.MD.1

Materials:

- variety of carrots (sizes and colors if possible)
- measuring tools: rulers, tape measures, and scales
- paper and pencils for students to record data
- large paper or class board to compile data

Working with food service staff, a local farmer, or a trip to the farmers market, gather a variety of carrots for your class to measure and compare. Try to find out where the carrots were grown, variety names, and any other information that might be of interest to your students.

Working in teams, students will measure weight, length, and diameter of carrots. Have students compile their measurements on a class chart, then calculate the average. Discuss the differences and similarities in measurements. What are some of the factors that may influence these differences?

Save a few of each variety to cut up for a taste test.

Continued on reverse

Adapted from *Parsnips Educators Newsletter*, Vermont Harvest of the Month
http://www.greenmountainfarmtoschool.org/wp/wp-content/uploads/Parsnips-Educator.pdf

Resources:
Network for a Healthy California's Harvest of the Month
www.harvestofthemonth.cdph.ca.gov/download/Spring/Carrots/Carrots%20-%20Educator's%20Newsletter_Final.pdf

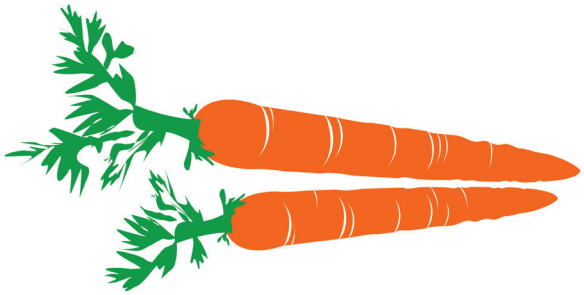
Middle School: What's Growing Down?

Connections to Standards:
Science 6.4D.1, 2; 7.4D.2; 8.4D.1

Adapt this lesson from Kids Gardening and Life Lab to explore plant tropisms (plant movement in response to environmental stimuli). Students can construct various structures for the school garden to track and experiment with plant movement while adding interesting features to the outdoor classroom. Options include supports for vining plants, root view boxes, and plant "houses". There are basic plans and material lists in the lesson. Wherever possible, students can engage directly in the design and construction elements, which creates opportunities to build new skills and make connections with community partners such as landscape designers, architects, and construction professionals.

Root view boxes are excellent for observing carrot growth as well as other roots we eat. If you do not have a school garden, there are instructions on how to build a simple root view box in the classroom.

Lesson: Growing UP (and around, and down...)
Kids Gardening and Life Lab Science Program
www.kidsgardening.org/node/11647



High School: Global Carrots

Connections to Standards:
Social Sciences HS.1, 4, 14, 20, 22, 63
Literacy in History/Social Studies 9-10.RH.3

Carrots have traveled far and wide to become a common ingredient in nearly every type of cuisine. See the Oregon Harvest for Schools poster and Family Newsletter and Network for a Healthy California's Harvest of the Month for more carrot history. Students can use this and other research-based information to create a timeline of carrot travels and uses along with a corresponding world map. If you have a school garden, students can map the country of origin, path to the United States, and interesting historical facts about additional plants and display in the garden area.

See the History of Food lesson plan from Johns Hopkins Center for a Livable Future's *Teaching the Food System* curriculum. This lesson helps students explore milestones in the history of the food system and mark them on a timeline. Compare this broader timeline with the one created for carrots. Can you add to the carrot timeline based on what you know about the overall history of food production?

Lesson: History of Food
Teaching the Food System, Johns Hopkins Center for a Livable Future
www.jhsph.edu/research/centers-and-institutes/teaching-the-food-system/curriculum/history_of_food.html

Resources:
Network for a Healthy California's Harvest of the Month
www.harvestofthemonth.cdph.ca.gov/download/Spring/Carrots/Carrots%20-%20Educator's%20Newsletter_Final.pdf

Food Around the World, California School Garden Network
www.csgn.org/food-around-the-world