Extension
Nutrition Connections

NEW HAMPSHIRE HARVEST of the MONTH

HARVEST LESSONS

THIS MONTH'S THEME:

CARROTS

Lesson Plan

HARVEST LESSONS ARE A FUN WAY FOR K-4 CLASSROOMS TO EXPLORE, TASTE AND LEARN ABOUT EATING MORE FRUITS AND VEGETABLES EVERY DAY.

ACTIVITY SUMMARY

ACTIVITY	GRADE LEVEL	CURRICULUM CONNECTION	TIME
#1: Carrot Observation	**all**	**Science:** classification, observation, structure of organisms	**15 min.**
#2: Make Carrot Celeriac Slaw or Carrot Salad	**all**	**Math:** measurement, graphing/tallying responses **Science:** observation, inquiry **Literacy:** reading comprehension	**30 min.**
#3: Carrot Literature	**all**	**Literacy:** listening comprehension	**15 min.**
#4: Taste Test	**all**	**Health:** nutrition **Science:** observation, comparison **Literacy:** speaking, listening	**15 min.**
#5: Creating a Carrot Timeline	**3-4**	**Social Studies:** geography, past & present **Literacy:** reading comprehension	**15 min.**
#6: Mapping the History of Carrots	**3-4**	**Social Studies:** history, geography **Literacy:** reading comprehension	**15 min.**
#7: Sprout a Carrot	**all**	**Science:** life cycles, change over time, observation, structure and function of organisms	**15 min.**

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INTRODUCTION ALL GRADES

Play *Crunchy Carrots: from farm to fork* video to introduce carrots. The YouTube video may be found at https://www.youtube.com/watch?v=XQPCn_e8Jjo. Following the clip, ask students the following series of true or false questions. Some answers may be found in the clip, so tell them to listen closely. when a statement is true, students will stand up. When they believe a statement is false, they will sit down. After all students have guessed, reveal the answer.
TRUE or FALSE?

1. Carrot seeds are really large.
   False, Carrot seeds are tiny little seeds and are planted really shallow in the soil to get the sunlight that they need to grow.
2. Carrots are always orange.
   False, Carrots sold in stores are mostly orange, but can also come in purple, yellow, white, and red.
3. Carrots are an excellent source of vitamins and minerals.
   True, Carrots have vitamins and minerals that help keep our eyes and skin healthy.
4. The part of the carrot plant we eat is the stem.
   False, Carrots are the *root* part of the plant.
5. Eating carrots can help you see in the dark.
   False, This popular myth developed during World Wor II, the vitamin A in carrots can have a positive impact on your vision, just not in the dark.

Ask these focusing questions throughout the lesson:

- What is the part of the plant that we eat?
- What color is it usually? What other colors might it be?
- How does it help our body? (vitamin A, fiber, water content)

ACTIVITY #1 (15 MINUTES) ALL GRADES

OBSERVE CARROTS

MATERIALS

- Variety of carrots (whole baby carrots, whole big carrots, orange, yellow, purple, red, and golden carrots or what is available at local markets)
- Cutting board and sharp knife
- Paper and pencils
- Magnifying glasses

PREPARATION Gather the materials.
For more background information visit -
(Source: World Carrot Museum, http://www.carrotmuseum.co.uk/carrotroot.html)

PROCEDURE

Give each group of 2 to 5 students two or more carrots to observe and draw in their journals or on a piece of paper. Use the knife to create a cross section of the carrot so students may observe and draw the interior, which reveals the structure of the vascular bundle. Discuss the different parts of the root.

KINDERGARTEN: Draw pictures of carrots and color them in. Practice writing the letter "C." Ask children to come up with other words that start with "C," and record their ideas on a large piece of paper, hang in the classroom for the month.

GRADES 1-2: Title their drawing, draw carrots and practice writing the word carrot. Write the different colors carrots come in.

GRADES 3-4: Title their drawing, draw and label parts of their drawings.

Epidermis: outer protective layer
Root hairs: small roots that increase surface area for more absorption of water and nutrients from the soil
Vascular system: bundle in the middle of stems and roots containing the xylem and the phloem
Xylem: carries food down into the roots
Phleom: carries water and nutrients up through the plant

See activity sheet #1 for labeled drawing of carrot.

ACTIVITY #2 (30 MINUTES) ALL GRADES

MAKE ONE OF THE CARROT RECIPES

PREPARATION

Gather all materials and ingredients and clear a workspace. Make sure all students wash their hands before the activity and wash down the workspace.

You decide how much to involve the students in preparation. Volunteers can prepare ingredients ahead of time and combine the slaw with the class or, depending on timing, prepare the entire recipe ahead of time. If involving the class, this activity may work best by splitting the students into groups and assigning roles. Alternatively, you could split the class into groups and give every group the required ingredients so each person can help complete the process from start to finish. Afterward, create a chart with the categories "liked it", "loved it", and "no, thank you" to record responses.

MATERIALS

Measuring cups
Measuring spoons
Mixing spoons
Large bowl
Small bowl or cups and utensil for each student
Grater

Carrot Celeriac Slaw - Yields 4 servings - 3/4 cup each. Depending on how many students you have, you may want to double or triple the amounts in the recipe. You may even have your students help with this to practice some math.

CARROT CELERIAC SLAW

INGREDIENTS

2 cups carrots, shredded (about 4 medium carrots)
1 cup celeriac, peeled and shredded
1/4 cup raisins
1/4 cup walnuts (check for nut allergies first, eliminate if necessary, or use sunflower seeds
2 Tablespoons canola oil
2 Tablespoons lemon juice
1 Tablespoon honey
1 small shallot, minced
1/2 teaspoon salt
1/4 teaspoon pepper

DIRECTIONS

1. Whisk oil, lemon juice, honey, shallot, salt and pepper in a large bowl.
2. Add carrots, celeriac, raisins, and walnuts or sunflower seeds (if using). Toss to combine.
3. Serve and enjoy!

Carrot Salad - Yields 4 servings - 1/2 cup each. Depending on how many students you have, you may want to double or triple the amounts in the recipe. You may even have your students help with this to practice some math.

This easy salad is like a cross between a slaw and a pickle. It makes a nice, simple snack or side dish, but it's also great in a sandwich or taco or on a burger. This is a versatile recipe - substitute lemon juice and zest for the lime or use vinegar. Also, you can use parsley or cilantro instead of mint. *Source: Chop Chop (www.chopchopmag.org/recipes)*

CARROT SALAD

INGREDIENTS

3 large carrots, scrubbed or peeled
juice of one lime and grated zest of half a lime
1 teaspoon honey
1/2 cup fresh mint leaves, chopped
1/3 cup roasted sunflower seeds (optional)
1/2 teaspoon salt

DIRECTIONS

1. Grate the carrots on the large holes of a box grater.
2. Stir in the lime juice and zest, honey, salt, mint, and sunflower seeds.
3. Serve right away or store, covered in the refrigerator, up to 3 days.

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ACTIVITY #3 (15 MINUTES) ALL GRADES

CARROT LITERATURE

Here are some books with carrot connections:

The Giant Carrot, by Jan Peck - Grade Level - Preschool - 3rd Grade
This story is a variation of the folktale "The Turnip." Papa Joe, Mama Bess, Brother Abel, and sweet Little Isabelle all have plans for the carrot seed they plant. Papa wants juice, Mama hopes to plant her lips on a bowl of carrot stew. Abel is all set for carrot relish, but tiny Isabelle desires carrot pudding, and it is her wondrous singing and dancing that cause the carrot to grow to enormous proportions. Consider following the story with a taste test of the carrot pudding recipe that's included at the end of the story.

Carrot Soup, by John Segal - Grade Level - Preschool - 3rd Grade
Here's a springtime book that's great for kids who love planning and doing projects. Rabbit, a very organized animal, loves carrot soup. He spends the long winter paging through carrot catalogs. Then he plows and plants, waters and weeds, and waits. Finally it's time to harvest, but when he goes to pick the carrots, they are all gone. Disappointed, Rabbit returns home to discover that his friends have organized a party and cooked his favorite soup. Consider following the story with a taste test of the carrot soup recipe that's included at the end of the book.

The Carrot Seed, by Ruth Krauss - Grade Level - Preschool - 3rd Grade
This book was first published in 1945 and tells a story about a little boy who plants a carrot seed, but everyone tells him it won't grow. But when you are very young, there are some things that you just know, and the lilttle boy knows that one day a carrot will come up. So he waters his seed, and pulls the weeds, and he waits... this book could be connected with an activity on growing carrots, either from seed or sprouting from the tops. (See Activity #7 Sprout a Carrot.)

See the Harvest Lesson Activities to Use Again and Again for information and ideas for taste tests.

ACTIVITY #4 (15 MINUTES) ALL GRADES

TASTE TEST

For a taste test, choose from the following activities:

- Compare different colored carrots; orange, yellow (white/golden), purple, and red carrots. See activity sheet #4 for picture of the different colors of carrots.
- Compare carrots prepared in different ways; raw, pickled, steamed, or sautéed.
- Prepare a recipe. (As in Activity #2.)
- Do the Taste and Tell Activity on the next page. (Grades K-1)

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(activity #4 continued)

TASTE AND TELL (Grades K-1)

Gather children in circle time and offer tastes of raw and cooked carrots. Ask questions like:
What do carrots taste like: How do the vegetables taste the same or different?
Are raw carrots different than cooked carrots?
Do the children like the taste?
Record the children's responses on a chart, and hang it in the classroom. To expand this activity, find carrots of different colors (orange, white, red, purple, yellow) and bring into the class. Develop a prediction chart. Ask children to predict how the different colored carrots will taste. Offer tastes of each color, and ask children to describe how they are the same or different.

Source: Harvest of Healthy Kids is a partnership between Mt. Hood Community College Head Start and Early Head Start and the School of Community Health at Portland State University.

ACTIVITY #5 (15 MINUTES) GRADES 3-4

CREATING A CARROT TIMELINE

MATERIALS & PREPARATION

Print out the Carrot History in the appendix. Keep a copy of the facts for yourself as a key and cut apart the rest. Mix them up and place in a bag, hat or basket. Note: You may want to glue each fact to an index card or laminate them to make them easier to shuffle and more durable.

PROCEDURE

Set up an area of the room for a timeline. Give one fact about the history of carrots to a group of 2 or 3 students. Have students read the fact to/with their group members. Then have them share out their fact to the whole class. Ask the class to figure out which order the facts go in, and have them stand with their fact and team in a human timeline to show the order they believe is correct. Let students lead the discussion as much as possible, be prepared to facilitate, this may be a difficult task for some classes, both in terms of the academic skills and the social skills (working as a team.)
See activity sheet #5 for Carrot History.

ACTIVITY #6 (15 MINUTES) GRADES 3-4

MAPPING THE HISTORY OF CARROTS

MATERIALS

- A copy of Harvest Lessons map for each student
- One copy of the Carrots Mapping Directions to project, or one copy per student
- An atlas for each student or pair of students

PREPARATION

Gather materials. This activity pairs well with Activity #5: Creating a Carrot Timeline, so you could do that activity before or after this one.

PROCEDURE

Pass out copies of the Harvest Lessons map to each student. Pass out copies of the Carrots Mapping Directions. Instruct students to follow the directions to map the history of carrots. See activity sheet #6 for Carrot Mapping Directions and Worksheet.

ACTIVITY #7 (15 MINUTES) ALL GRADES

SPROUT A CARROT (GROWING ROOTS)

MATERIALS

Carrots, bowls or saucers, soil or sand, water.

PREPARATION

Gather the materials.

PROCEDURE

First: Explain to students that they will not be growing actual carrots, to ensure that they do not have a misconception about the activity. They are growing tops of carrots to simulate the process.

There are three different methods. Choose one, or compare two or all three methods.

1. Water method
   - Cut the top 1 inch off a carrot.
   - Stick a toothpick into either side of the carrot stump and balance it on top of a small glass. (Use an old glass because it may get stained.)
   - Fill glass with water up to and barely touching the bottom edge of the stump.
   - Place glass in a bright area, but not in direct sun.

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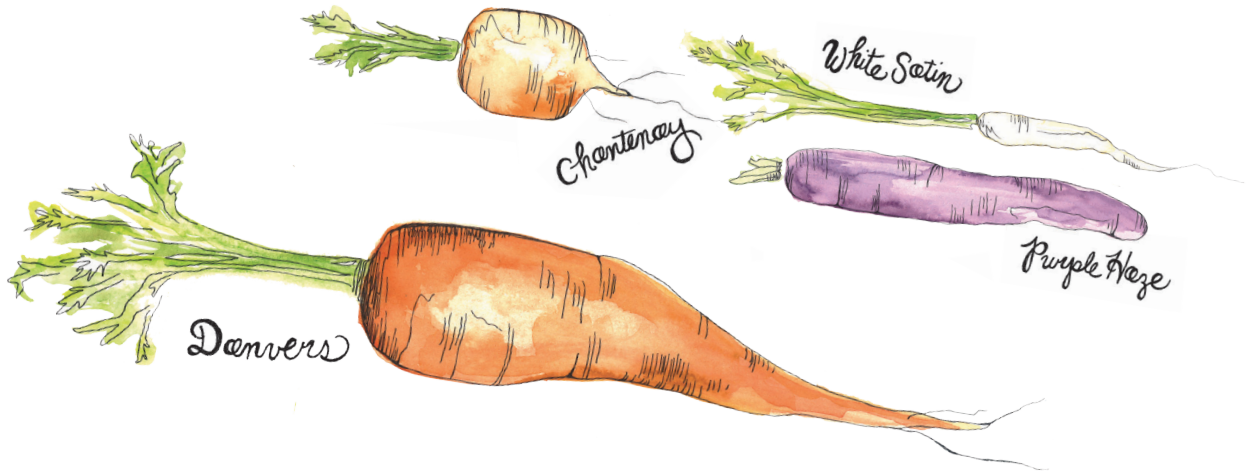
(activity #7 continued)

2. Pie Plate method
   - Fill a glass or ceramic pie plate with a single layer of marbles and set several 1 inch carrot stubs on top of them.
   - Fill the plate with water.
3. Newspaper method
   - Lay newspaper on the bottom of any type of plate. Soak the newspaper thoroughly, making sure there is no standing water.
   - Set your carrot tops on the wet newspaper.
   - After a few days the roots will spread. Make sure the paper stays wet.
   - These can then be planted in soil.



CLOSINGS

ACKNOWLEDGEMENTS

The following people contributed to developing this lesson plan:

- Caylin Gans

BACKGROUND INFORMATION

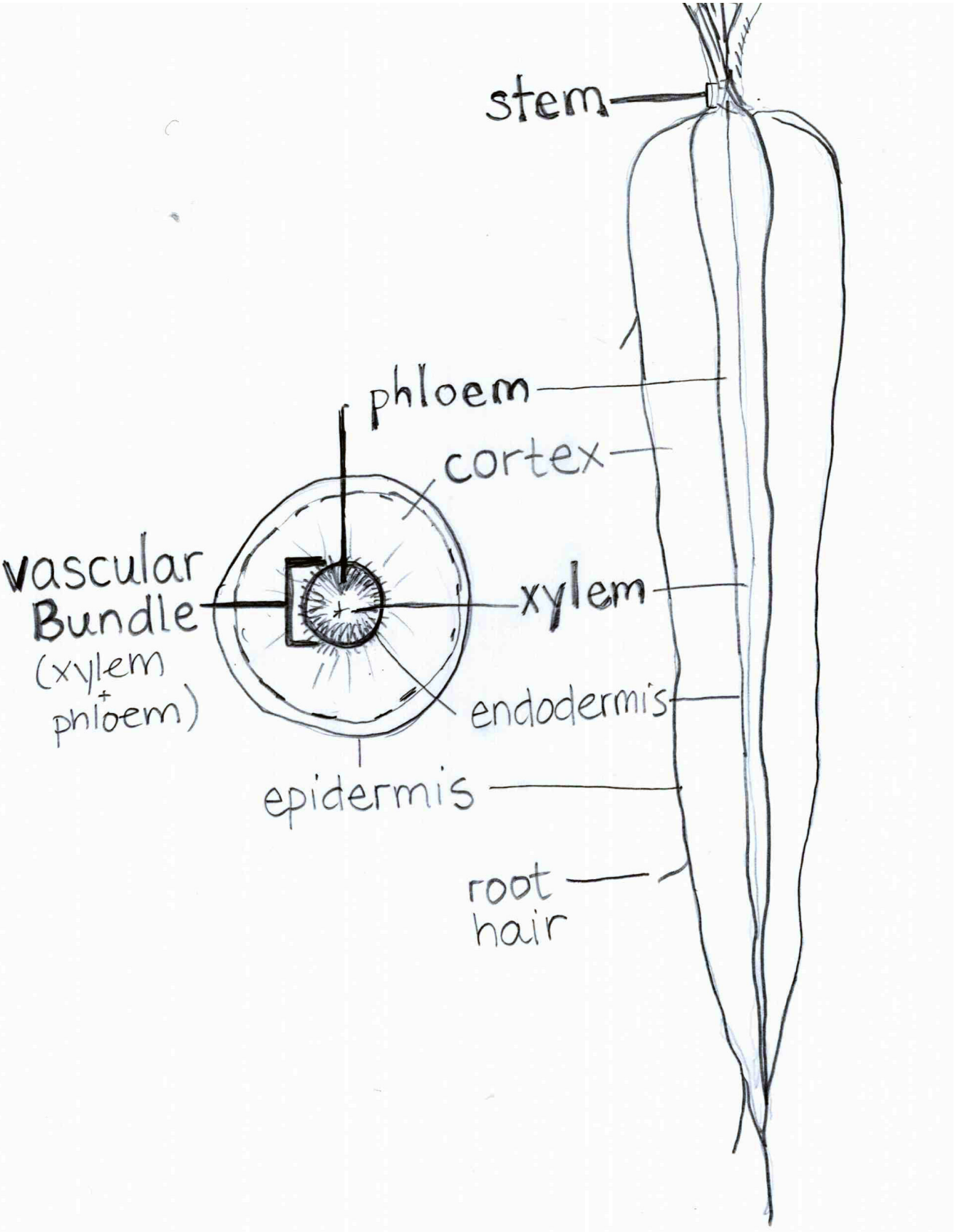
Great information about carrots can be found at these websites:

- http://www.carrotmuseum.co.uk/history.html (The History of Carrots)
- https://snaped.fns.usda.gov/nutrition-through-seasons/seasonal-produce/carrots
- http://www.vegetablefacts.net/vegetable-history/history-of-carrots/
- http://www.rspca.org.uk/adviceandwelfare/pets/rabbits/diet/myths
- http://vitalcommunities.org/valleyfoodfarm/uvfts/harvestlessons/
- http://www.gardeningknowhow.com/special/children/grow-carrot-tops.htm
- http://rabbit.org/suggested-vegetables-and-fruits-for-a-rabbit-diet/
- http://www.carrotmuseum.co.uk/history2.html (Carrots - From Medicine to Food)

APPENDIX SEE WORKSHEETS THAT FOLLOW

CARROTS

Activity #1



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Activity #4

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Activity #5

CREATING A CARROT TIMELINE - CARROT HISTORY

Carrots originated in the dry and hot lands of Iran and Afghanistan. They were brought to neighboring African, Arabian, and Asian lands to be sold and harvested. At this point in time, carrots grew in various colors including black, white, red and purple.

Carrots were extremely popular. We know this because carrots were found in the tombs of Pharaohs, and drawings of carrots and the harvesting process were found in many hieroglyphic paintings.

In Egypt, the most popular carrot was purple; it was used for medicinal purposes as well as eating. The medicinal use of the carrot spread from Egypt to Greece and Rome in the 1st millennial BC.

By the 13th century, carrots had spread from Persia to Asia and reached Japan. During this same time period, Europeans in France and Germany were also cultivating carrots.

In 1609, the first English settlers in Jamestown, Virginia began cultivating carrots. Over time, they spread to Massachusetts.

In the mid 17th century, Brazil was the first South American country to receive carrots and shortly after Australia.

The more common, modern-day yellow carrot was cultivated in the 17th century in the Netherlands.

Carrots did not really become popular in America until after World War II.

Today your class learned about and tasted carrots!

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CARROTS

Activity #6

CARROT MAPPING DIRECTIONS

Thousands of years ago, the purple colored carrot originated in Afghanistan, where people used the seed as medicine.

#1: Find the Indian Ocean - the water south of Asia, east of Africa and west of Australia. Color the Indian Ocean purple.

Yellow carrots originated soon after in Turkey. They spread quickly to countries surrounding the Mediterranean Seas.

#2: Find Turkey. Color it yellow. Draw an arrow from Turkey to the Mediterranean Sea.

Orange carrots were first cultivated in the Netherlands in the 17th century.

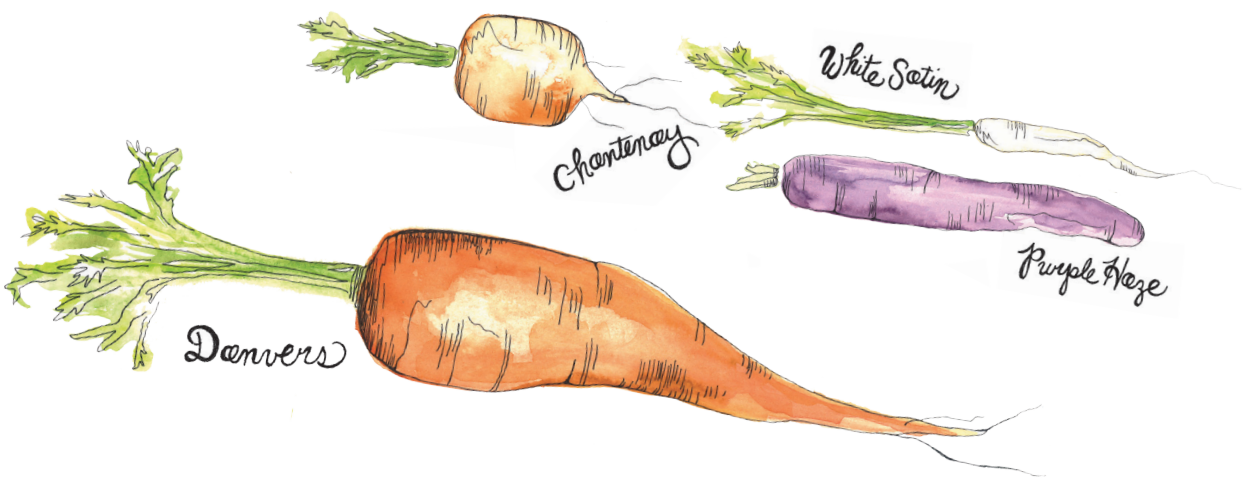
#3: Find the Netherlands. Color the country orange.

Yellow carrots spread to Japan and the Americas by the 17th century.

#4: Find Japan. Color it green.

Today, your class learned about and tasted carrots!

#5: Draw a big red or black star in the part of the USA where you live.



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THIS MONTH'S FOOD:

NEW HAMPSHIRE HARVEST of the MONTH

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