



Digging Deeper

Grade Level: all

Objectives: to discover that there are many varieties of carrots

Materials: access to a computer or an assortment of seed catalogues; optional visit to a year round garden centre (individual or class)

Time Allotment: 30 minutes

Advance Preparation: collect seed catalogues for younger students (ask around, and you should be able to access a collection)

Laying the Groundwork: Varieties of fruits and vegetables are bred by plant scientists working for seed companies and are developed for their different characteristics. Some tomatoes for example, make a big fruit; some resist pests and diseases; some do well in certain climates and poorly in others; some grow longer, shorter, rounder, firmer, redder, bigger, faster, and so on. Many varieties are hybrids and do not reproduce the same seed from season to season to season. However, you can save the seeds of non-hybrid varieties and develop seeds that are especially well-suited to your garden.

Explorations: Discussion: Before we talk about carrots, let's picture an apple as most students would be familiar with a variety of apples. More than one image should come to mind, because there are many different types! Some are green, some red, some are yellow and even others are a mixture of yellow and red. Some apples taste sweet, we know granny smith apples are sour; but all are crunchy. These different types of apples are called *varieties*. Just as a brother and sister are closely related but different, so are different varieties of each fruit and vegetable. Do you think some varieties may taste better than others? Would they grow better in our soil than in others? Let's do some research to discover how many carrot varieties there are and if certain carrot varieties are better for our climate and soil than others.

Some websites: www.prseeds.ca; www.seeds.ca; www.mckenzieseeds.com ; www.gardenersweb.ca. as well as the local garden centres. The University of Saskatchewan GardenLine website has two excellent articles on carrot growing: www.gardenline.usask.ca/vegetables.

Here are some research ideas, make them appropriate to your students and desired outcomes:

- Use old seed catalogues to research varieties and/or cut out pictures and make a collage
- Research what varieties are available for purchase locally from the year-round garden centres, including heirloom and hybrid seeds

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- Research heirloom varieties; suggested sites are Seeds of Diversity Canada, Prairie Seeds (Muenster) and commercial growers such as Early's, McKenzie Seeds, Alberta Nurseries/Bow Seed (Bowden); most heirloom varieties have interesting histories
- Research a definition for 'biodiversity'; 'open-pollinated'; 'days to maturity'; discover Saskatoon's growing conditions such as number of frost free days, soil conditions, precipitation, water acidity
- Research "Hoorn", the oldest variety of an orange carrot is named for a town in the Netherlands; write a story (or a role play) about how the first orange carrot was discovered

Making Connections: Why do we need to be concerned about there being a variety of seeds available to grow? Ask older students to define 'heirloom', 'hybrid', 'open-pollinated' and 'biodiversity'. Do heirloom varieties have to be over a certain age to be called "heirloom"? (not generally, a lot of those seeds come from the 1950's) Which factor is the most important for a carrot? Is it better to have short, sweet carrots or long, bland ones? Which would you rather grow if you were the farmer? Ask the students to vote on the best variety. Would this variety necessarily be the best to grow no matter where you live? Why might another variety do better somewhere else? (different climate, different soil, shorter or longer growing season) How do you decide which carrots would grow best in Saskatchewan? (type of soil and 'days to maturity' are two important facts to consider: Saskatoon has approximately 117 frost free days and the soil is generally clay-based); define 'days to maturity'. Which variety do you think you would like to grow? Why?

Branching Out: The Saskatchewan Department of Agriculture and Food recommends carrot varieties for commercial production on their website www.agriculture.gov.sk.ca/vegetables. Varieties are *Nantes*, *Imperator*, *Chantenay* and *Danvers*. The University of Saskatchewan's Department of Agriculture and Bioresources conducts plant trials on vegetable varieties and has a list called Recommended Vegetable Cultivars: 1989 – 2008. They recommend many options of *Nantes*, *Danvers*, *Imperator Nantes*, *Imperator* and two coloured root types. Check out their latest trial details at www.usask.ca/agriculture/plantsci/vegetables/index.html. What makes a variety the best choice? Did they pick the same vegetable variety that your group did?

- Discover the nutritional value of carrots. See *Carrot Facts*.
- Write a short research paper; find a recipe using carrots; create a poster persuading your school mates to eat your variety of carrots (see activity *Just Eat It!*)
- Use the information found in the research to write a rap song or a type of poem such as acrostic, alliteration, haiku, or cinquain (see *Big Crunch Quickies*)
- Discover a Saskatchewan connection: research the Town of Carrot River and find out how it got its name, and its latest claim to fame.

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