SCHOOL FRUIT AND VEGETABLE NUTRITIONAL PROGRAM

FRESH STORY | CARROTS

INTERMEDIATE

GRAB A BUNCH ... OR A BAGFUL

Carrots are a root vegetable that come in many shapes and sizes depending on the variety. Some are grown for their sweet flavour, others for their uniform shape. To make baby-cut carrots, BC farmers grow special varieties that are small in diameter and sweeter than regular carrots. Once mature, these carrots are peeled and cut into a smaller, standard size using special machines. They can make three "babies" out of one long carrot. In BC, farmers produce four types of carrots:

Baby-Cut Carrots: extra-sweet and just right for snacking.
Bunch Carrots: slim and smooth and sold with their green tops attached.
Medium Carrots: firm and mature and sold in bags or in bulk.
Jumbo Carrots: large in size and packaged for food processors.

EAT YOUR RED-AND-ORANGE BETA-CARROTENE

Beta-carotene is a natural red-orange pigment found in plants and fruits, especially carrots and other colourful vegetables. When you eat a carrot, your body turns the beta-carotene into vitamin A, which is important for healthy eyes, bones, teeth, and skin.

ASK A CARROT FARMER

Farmers plant tiny carrot seeds in their fields from early spring into summer. By staggering the planting over several months, they can harvest fresh carrots from mid-summer into fall. To protect their soil and get the best yield from their fields, farmers use three important techniques:

COMPANION PLANTING

A plant's growth depends on the other kinds of plants that are growing nearby. Some crops help others by attracting good insects like pollinators, by keeping pests away, or by providing shelter. Onions help repel carrot pests, like aphids, flea beetles, and even rabbits. Planting radishes close to carrots will help them germinate, and tomatoes make carrots grow sweeter.

CROP ROTATION

Carrots, like all crops, need healthy soil to grow well, but soil changes from year to year as nutrients are added or depleted by different plants. Farmers rotate the crops in a field so that they are replacing a plant that takes one kind of nutrient from the soil with another that returns that same nutrient to the soil. By using crop rotation, farmers can keep their fields producing continuously. Rotating crops also helps control pests and diseases in the soil.

SOIL NUTRITION

A carrot crop won't grow if a field's soil is low in any necessary nutrient. Farmers test their soil to find out what is missing, then add fertilizer, kelp, and compost to make sure the soil has what it needs for a good crop. Compost is nature's perfect recycling system: decomposing plants and manure pass their nutrients back into the earth which is then passed onto new, growing plants.

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TEACHER ACTIVITIES

SOCIAL STUDIES & LANGUAGE ARTS ACTIVITY: DIFFUSION EXPLAINED THROUGH SMELL

Curriculum Connection: Science - grades 4 to 7: Demonstrate a sustained curiosity about a scientific topic or problem of personal interest.

Carrots, like most root crops, require a good amount of phosphorus in the soil to perform their best. Because carrots have a single, thick taproot rather than many small fibrous roots, the area from which they can absorb phosphorus is relatively small. And unlike many other nutrients, phosphorus isn't absorbed by a carrot as it draws in water: instead, it's absorbed via diffusion, which is the movement of a substance from an area of high concentration to an area of low concentration.

Use a Strong-Smelling Substance to Explain How Diffusion Works

Have students stand on one side of the classroom, then open an air freshener or essential oil on the opposite side of the room. Tell the students that they are the carrots and the substance they are smelling is the phosphorus. Soon, they will be "absorbing" the smell from across the room through a small area – their noses! This is how carrots absorb phosphorus – from an area of high concentration (the soil) to one of lower concentration (inside the root).

FIRST PEOPLES ACTIVITY: COMPANION PLANTING

Curriculum Connection: First Peoples Principles of Learning: Learning recognizes the role of Indigenous knowledge.

Using "Ask a Carrot Farmer" on the front side of this sheet, review companion planting with students, then discuss why using this farming technique in a smaller garden is a good idea. Pose the following questions:

What benefits of companion planting can you think of?
How does this technique connect to First Peoples' beliefs?
Can you connect companion planting to nature?
How is the growth of plants in the natural environment dependent on the other kinds of plants that are growing nearby?

Students could journal, pair and share, chart, or sketch their ideas.

LANGUAGE ARTS ACTIVITY: SUPPORTING ZERO WASTE

Curriculum Connection: Language Arts - grades 4 to 7: Apply a variety of thinking skills to gain meaning from texts.

When we reduce, reuse, recycle, and compost, we are supporting the idea of zero waste.

For example, if you buy organic carrots at a local farmers' market in walking distance from your house, you are reducing your environmental footprint by decreasing harmful fuel emissions in the air and pesticides in the soil. If you take the carrots home in a reusable cloth bag, you are keeping another plastic bag out of the landfill, and if you compost the carrot tops, you can produce a nutrient-rich soil that can be used to grow your own carrots.

Ask students to write a paragraph about zero waste. Can they think of other situations where they could practise zero waste? For example, growing a vegetable garden at home or using a plot at a community garden. Students can brainstorm with you or pair and share their ideas to generate writing ideas.

MATH QUESTION

Curriculum Connection: Mathematics - grades 4 to 7: Develop, demonstrate, and apply mathematical understanding through play, inquiry, and problem solving.

Using "Ask a Carrot Farmer" on the front side of this sheet, review crop rotation with students, then pose the following Math question:

A backyard gardener wants to plant five plots of vegetables: carrots, potatoes, tomatoes, corn, and onions. Each plot is 36 metres squared. Use graph paper to design a three-year crop rotation plan. Remember that some plants use similar nutrients and will not produce quality crops if planted in the same spot year after year.

Answers will vary:

Year one: Carrots, onions, potatoes, tomatoes, corn.
Year two: Corn, carrots, onions, potatoes, tomatoes.
Year three: Tomatoes, corn, carrots, onions, potatoes.

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