


Grade One	SCIENCE	2 - 30 minute lessons 1 - 4 week experiment
Teacher:	The Characteristics of Carrots 	CHEP Good Food Inc. The Big Crunch Resources
<p><i>Context: The Big Crunch is coming this October - the goals of the program are to engage students in discussions about healthy eating; to explore the journey of food from farm to table; to learn about local agriculture; and to encourage kids to connect with their food! This lesson is designed to allow teachers to build on the Big Crunch carrot theme in their classrooms while meeting SK curriculum outcomes. The following science lessons use healthy, delicious carrots as a foundation for asking questions; making and recording observations; identifying the characteristics of plants; and to experiment with growing and tending live plants in order to develop deeper understandings of the basic needs of living things.</i></p>		
<p>Outcomes & Indicators:</p> <p>Life Science: Living Things in Our Environment</p> <p>LT1.1</p> <p>Differentiate between living things according to observable characteristics, including appearance and behaviour. [CP, SI]</p> <p>Indicators:</p> <ul style="list-style-type: none"> • Make and record observations and measurements about the observable characteristics of plants and animals using written language, pictures, and charts. • Compare observable characteristics (e.g., leaf, root, stem, flower, fruit, and seed) of plants of various types and sizes that live in different habitats. • Respond positively to others' questions and ideas about the observable characteristics of living things. <p>LT1.2</p> <p>Analyze different ways in which plants, animals, and humans interact with various natural and constructed environments to meet their basic needs. [CP, DM, SI]</p> <p>Indicators:</p> <ul style="list-style-type: none"> • Identify the physical needs, (i.e., food, water, air, and shelter) that plants, animals, and humans require for survival. • Pose questions about ways in which plants interact with their environments to meet their basic needs (e.g., How long does it take a seed to start to grow? How does the growth of a plant change if the seed is planted in soil, sand, or rocks? How tall will a bean plant grow?). <p>Go even further with these extensions:</p> <p>1. LT1.1 - Using time intervals of two weeks, plant carrot seeds in small pots. After 8 weeks, remove the 4 sets of plants from the soil - you now have a timeline of the early life cycle of a carrot plant. Compare the early life stages of the plant to each other - what changes happen to the plant over time? You could also consider comparing the young plants to full grown store bought carrots. (Indicator: Compare characteristics of plants and animals at different stages of their lives)</p> <p>2. LT1.2 - Visit a neighbourhood garden or greenhouse and explore how plants are grown there. (Indicators: Investigate, through field trips to natural habitats, nature videos, and community walks, homes and habitats of local plants and animals to determine how they meet their basic needs. Compare ways in which plants and animals that live within the local environment, and plants and animals that live in other environments, meet their needs for food, water, and shelter.)</p>		<p>Materials Needed:</p> <p>Activity One:</p> <ul style="list-style-type: none"> ○ 2-3 Different varieties of carrots (aim for different colours and sizes, include one variety that still has greens), Wash and cut some up for taste testing - consider cooking some and leaving some raw ○ Chart paper and markers <p>Activity Two:</p> <ul style="list-style-type: none"> ○ Carrot diagram blank ○ Crayons <p>Activity Three:</p> <ul style="list-style-type: none"> ○ Plastic cups

Learning Activity One:

1. Introduce the topic to the class, "The Big Crunch is coming up, so today, we will be studying carrots!"
2. As a class, start a short KWL brainstorm on your chart paper – what do we know about carrots? What do we want to know/what questions could we ask about carrots?
3. Working all together, or in small groups, show students several varieties of carrots. Give students time to examine the carrots closely. Record their observations on a chart. Experiment using a ruler to measure the carrots – be sure to also measure and compare the length of the carrot itself vs. the length of the carrot greens.
4. On the chart paper, create a master list of everything the students can observe about carrots. Discuss similarities and differences between the different varieties.
5. Complete the LEARNED section of your KWL chart.

Learning Activity Two:

1. Discuss the parts of a plant (this could be done as part of a lesson earlier in the unit): stem, leaf, root, seed, flower
2. Label and colour the diagram of a carrot. (Or draw your own carrots and label those!) Note: Carrots only have flowers (and therefore only produce seeds) very late in their growth cycle.

Learning Activity Three: (edible carrots take 10-12 weeks to grow – this activity will leave you with small sprouts – to modify the experiment and grow full-sized carrots a larger container planter or garden space is better than individual cups)

1. Discuss as a class the needs of healthy plants: soil, air, water, sunlight
2. Have each student plant some carrot seeds in a small cup of soil (baby carrot varieties work best as they don't grow too big). Water the seeds and place in a sunny spot in the classroom.
3. As a class, brainstorm a list of questions you have about carrots and their seeds. (How tall will the greens grow? How big will the carrots get? Will everyone's carrots grow the same way? Etc.)
4. Watch them grow! (After about two weeks students may have to "thin out" the sprouts in their cup to make room for one or two strong healthy shoots to continue growing.)

Extension: Plant some extra seeds in different growing mediums (peat moss, sand, gravel, a dish of water etc.), or in different locations around your classroom (a dark corner, a colder spot, on the floor, on a high shelf) – these plants can be compared and contrasted to the "regular" carrots later.

5. Once a week, have students measure their plants and record any changes in appearance, size, etc. on a chart or in a science journal.
6. Discuss the changes the plants are undergoing. If you notice some students' plants are larger or smaller than others or healthier, or have more greens, hypothesize about what might be causing the differences.
7. After about 4 weeks discuss your findings and see if you can answer some of the questions you brainstormed at the beginning of the experiment.

- Soil
- Carrot seeds
- Permanent marker (to label the cups)
- Science journals or tracking charts