

# **Our Environment: Plants**

Grade 1 You and Your World



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## **Learning Objectives**

Our intention with this toolkit is that it would provide a starting point for teachers to bring plants into the classroom. The act of growing plants is a jumping point to discussing the impacts of climate change and our interactions with the natural environment. To start these discussions we have focused on tools that may help an educator feel confident in bringing seeds into the classroom for students to study as they grow.

This toolkit touches on the following New Brunswick Curriculum:

### **You and Your World - Unit 2 - Our Environment:**

- 1.2.1** describe how plants and animals meet their needs in a given environment;
- 1.2.2** plan and conduct investigations that explore the similarities and differences between plants and animals
- 1.2.3** observe and describe how living things respond to changes in solar energy that occur on a daily and seasonal cycle
- 1.2.4** record observations and display data to explain seasonal changes
- 1.2.5** describe how people depend upon and interact with different natural environments
- 1.2.6** take age-appropriate action to practise responsible behaviour in caring for the environment.

### **Visual Arts:**

- 1.1.1** Create art for a variety of reasons and recognize that there are many kinds of visuals art
- 1.1.2** Create art works based on memory, mood, feelings, imagination, and fantasy including responses to music and literature.
- 2.2.1** Explore the elements (colour, shape, line, value, space, form, and texture) and the principles of design with an emphasis on pattern and repetition in the visual environment

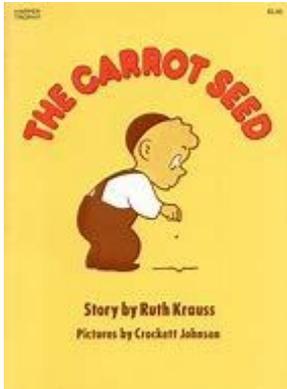
## Art Based Lesson Plan

<b>Art Based Lesson Plan: (1 hour)</b>	<p style="text-align: center;"><b>Creating a representation of the growth of plants over and under the soil.</b></p>
<b>Materials</b>	<ul style="list-style-type: none"> <li>● Chart Paper cut in half - enough for one per child             <ul style="list-style-type: none"> <li>○ Have a horizontal line drawn across the middle of each section of the paper (this line will show the difference between above and below ground)</li> </ul> </li> <li>● Place an assortment of the following materials on each table.             <ul style="list-style-type: none"> <li>○ Markers, Crayons, Glue, Scissors</li> <li>○ String/yarn - green, brown, black, white, orange and as many other colours as you can find</li> <li>○ Tissue paper - green, brown, black, white, orange and as many other colours as you can find</li> <li>○ Feathers - multiple colours</li> </ul> </li> </ul>
<b>Objectives</b>	<p>To start the process of planning a larger investigation through creating predictions.</p> <p><b>Unit 2 - Out Environment</b></p> <p><b>1.2.2</b> plan and conduct investigations that explore the similarities and differences between plants and animals</p>
<b>Introduction (15 minutes)</b>	<p>The lesson will start by sharing two pages from <i>Over and Under the Pond</i> by Kate Messner. Explain that there are things that we do not always see that are under the ground too. An example is what is in the soil, under the ground, when plants are growing. I want each of you to choose a plant. Some plants we are going to look at more later on are carrots, beans, tomatoes, flowers, lettuce.</p>
<b>Main Lesson (30 minutes)</b>	<p>We will be making predictions of what plants will look like after they have grown. These predictions will be of what happens below the ground and above the ground. Make sure to hold up one of the pieces of chart paper and indicate that one section is for above the ground and one is for below the ground. There are many materials at each table that you can choose from to create what you think your plant will look like. Students will then be directed to go to their seats and start creating their plant predictions.</p>
<b>Conclusion (15 minutes)</b>	<p>The class will be asked to help clean up the materials and will leave their representations on the tables. Once the room is cleaned up they will be asked to go back to their tables and share their plant representation with their elbow partner.</p>

## Storybook Summaries

### **'The Carrot Seed' by Ruth Krauss**

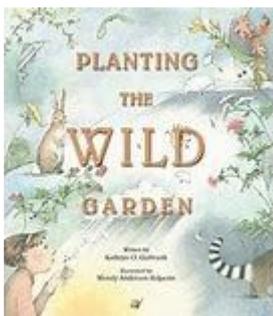
'The Carrot Seed' is a picture book about a little boy who wanted to grow a carrot. He had people explain that it may not grow, but he still wanted to grow the carrot. The boy started off with a seed, as the days went on he took care of the plant. At the end of the book, the little boy's care for the plant was successful and he had a carrot!



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### **'Planting the Wild Garden' by Kathryn O. Galbraith**

'Planting the Wild Garden' is a book geared towards children but can teach people of all ages about the growth of a plant from a tiny seed. The book then takes the seed process further by demonstrating how a single seed can grow, create food/flower/tree and then distributes more seeds. This book captures the relationships of plants and animals and how they work hand in hand. This would be an ideal book to not only explain to children about the stages of a seed growing but also what relationships plants and animals have together and how they help each other grow.



## Online Resources

1. <https://www.youtube.com/watch?v=dUBIQ1fTRzI> (Plants song)

This resource is a song about the 5 essential things plants need in order to survive; water, soil, space, light and air. You could bring this song into the classroom by first having the students talk about what they think a plant needs in order to survive. They could even draw a picture of a plant and depict in the picture what that plant would need. Once they finished that activity, the song could be played so they could see what a plant actually needs in order to survive. If they did not draw everything a plant would need in their picture they can go back and add it. The pictures could then be hung in the classroom and the song could be repeated as needed so the students can remember what plants need.

2. <https://www.youtube.com/watch?v=w77zPAfVTuI> (Bean time-lapse)

Most times when plants are growing, we do not get to see what is happening underneath the soil, we only see the plant once it has come above the soil. However, what happens underneath the soil is quite fascinating. This video is about a bean that has been planted and you see how it is changing above and below the soil over a period of time. It is a time-lapse video so the bean sprouts and moves quite quickly, which is interesting to see because normally we do not see how much a plant moves from day to day. After watching this video and seeing the changes that occur, the class could plant their own bean sprouts and take daily pictures to see the growth progression over time.

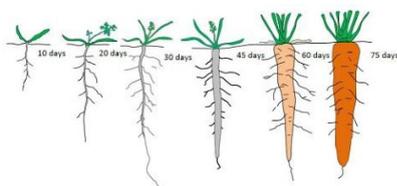
3. Comparing pictures of different plants growing

<http://www.carrotmuseum.co.uk/cultivation.html> (Carrot Picture)

<https://www.dreamstime.com/stock-photo-growth-stages-strawberry-plant-white-background-image73660867> (Strawberry Picture)

<https://www.dreamstime.com/life-cycle-pumpkin-plant-growth-stages-seeding-to-flowering-fruit-bearing-pumpkin-plant-roots-life-cycle-image139722699> (pumpkin picture)

<https://www.vectorstock.com/royalty-free-vector/apple-tree-growth-vector-8348438> (apple picture)



Typical development of the carrot tap root over time. Days to development will vary with environmental conditions, cultivar, and other cultivation practices.



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All plants do not grow in the same way; therefore, it is important to compare how one plant grows compared to another. We can bring this into the classroom by showing pictures of the different growth stages of plants. For example, all plants have roots that reach into the soil to collect water and nutrients, but, take a look at the picture of the carrot plant compared to the strawberry plant. The roots of a strawberry plant stay in the ground and we usually do not eat them, we eat the fruit that blossoms above the ground. However, for a carrot plant, the root is actually the carrot itself, and that is also the part we eat. Again, if we look at how apples grow compared to pumpkins, we can see that they both have roots, but pumpkins stay directly on the ground, whereas apples grow in trees.

4. <https://byjus.com/biology/parts-of-plants/> (Teacher resource)

This website explains the different parts of a plant (i.e: flower, fruits, leaves, stem and roots) and what their functions are. Since this website is mostly text-based, it would be a beneficial resource for the teacher to look at before starting the unit on plants. Although the students may not look directly at this resource, the teacher can take what they learn and create activities based around the parts of a plant and their function. They can bring what they learned into the classroom by creating a learning center about plants. Real plants could be brought into the class and the students will need to identify the parts of the plants and what their function is. A matching game could be created and the students need to match the part of the plant to its function. Students could also be taken outside to find a plant, draw it, label it and show it to the class.

5. <https://harvesttotable.com/> (What's in season)

This website gives details about different fruits and vegetables, offers harvest tips, kitchen tips and recipes. To bring this resource into the classroom, a discussion can be started about the different types of fruits and vegetables that the students like to eat. The class can then go to this website and look at the various fruits and vegetables that were mentioned. By clicking on a specific one, you can see what temperature they grow best in, when to plant them, how to plant them, how to harvest them and much more. This can lead to a discussion about when different types of fruits and vegetables are in season. What does it mean to be in season and not in season? Do they taste different when they are in season versus out of season?

6. <https://kidsgardening.org/lesson-plans-weather-tracking-tools/> (Weather Tracking)

Kidsgardening.org strives to promote gardening and explain how beneficial it can be within a school. As a whole it is a great resource for teachers, but we will focus on one lesson plan entitled Weather Tracking Tools. Since the weather can have a great impact on the growth of plants it is important to show our students how that happens. This lesson plan can easily be brought into the classroom as the students will build their own weather tracking tools and examine how the weather can affect plants. It can also lead to a discussion on climate change and what weather is compared to what climate is and how plants can play a role in that.

## **Final Project Description**

The final project includes having students involved in a community garden where there will be opportunities for a greater understanding on plant growth and a broader knowledge base around issues that have impact on our community. Important aspects of the final project rely on earlier work being done in the classroom during the winter term. As an extension beyond the lesson plan provided earlier in the toolkit students would have the opportunity inside the classroom to plant their own seeds for various different vegetables including carrots, beans, tomatoes and lettuce.

Students will look at several seed packets for various vegetables and spend some time investigating the packets allowing them to gather further information on the planting, care and timeline required for the seeds that they will be planting in the classroom.

From there, time can be given for the students to plant their seeds in peat pots with soil. These peat pots can be taken care of throughout the winter term inside the classroom. This will provide several opportunities for students to take on tasks and responsibilities related to what they have planted. Some of those tasks involve making sure they are receiving proper sunlight, temperature, food and water. Students can also be monitoring the progress of the plants and making adjustments to how they are being cared for throughout the winter term if needed. Students may also look to ensure that appropriate labeling is taking place in order to distinguish between the different vegetables.

Eventually when weather permits, there will be an opportunity to transplant their seedlings into a community garden which will further extend their knowledge on the care involved in growing vegetables and learn more about the impact of important issues such as food insecurity. This will help provide a real-life example where students can reflect on how by just starting with these seeds inside the classroom they have created something more.

Greener Village is an example of an organization in the Fredericton area considered as a “community food centre” with a community garden. Their organization could potentially be welcoming to partnering with students through both providing space and creating learning opportunities beyond planting vegetables. Being able to connect with an organization like Greener Village may make it easier to justify the cost associated with transporting the students to and from the location. This will open up the conversations to take a closer look at several issues that impact a community. Please click on the link for more information on Greener Village <https://www.greenvillage.org/>.