

Lesson Plan: Seeds & Growth

Grade Level: Grade 3

Sask Curriculum: Science 3

Expected Total Time: 2 Months

Learning Outcomes (from Sask Curriculum)

Include the Learning Outcomes from the Sask Curriculum and the strategies used.

Life Science: Plant Growth and Changes

PL

Outcomes

PL3.1

Investigate the growth and development of plants, including the conditions necessary for germination. (CP, SI)

Learning Indicators (from Sask Curriculum)

Indicators for this outcome

(a)

Pose questions related to plant growth (e.g., How do very young plants look different from grown plants? How much water do plants need to grow? Do all plants grow in the same way?).

(b)

Observe and explain the function of the major structures (i.e., root, stem, flower, leaf, and fruit or seed) of a variety of plants.

(c)

Relate characteristics such as the number and shape of leaves, flower colour, height, and presence and type of fruit in different types of plants to the plant's environment.

(d)

Sort and classify plants and/or seeds according to one or more student-selected attributes.

(e)

Observe and represent, using written language, pictures, and charts, changes that occur through the life cycle of a flowering plant.

(f)

Compare the basic needs of plants to the basic needs of animals and humans.

(g)

Research ways in which plants rely on animals and abiotic factors (e.g., gravity, wind, and water) to support plant reproduction by dispersing seeds.

(h)

Predict and investigate conditions such as the temperature, available sunlight, available nutrients in soil, and available water, which are necessary for plant germination and growth.

(i)

Care for a flowering plant throughout its life cycle, tracking its growth and changes.

(j)

Estimate, record, and display relevant measurements of plant growth, using rulers, tables, and bar graphs.

(k)

Suggest explanations for patterns and discrepancies in the growth rate of similar plants grown in varying conditions.

(l)

Explain the importance of water and light for plant growth and the mechanisms by which plants obtain water and light from the environment.

(m)

Identify characteristics that remain constant and those that change throughout the life cycle of a flowering plant.

(n)

Pose new questions about conditions necessary for plant growth, based on what was learned.

Purpose/Rationale

Write purpose/rationale in ONE or TWO sentences

To learn what is needed for seeds and plants to grow. To understand what happens when conditions are met for plant growth.

Materials

Provide at least TWO Materials: (appropriate Youtube videos, etc.)

FIELD TRIPS

<https://reginafloralconservatory.ca/educational-tours/>

<https://sherwoodgreenhouses.com/>

<https://condieseeds.ca/>

ONLINE RESOURCES

<https://artsandscience.usask.ca/scienceoutreach/grade-3-resources.php#top> (videos and activities)

<https://www.youtube.com/watch?v=tkFPyue5X3Q> (how do seeds become plants?)

<https://www.youtube.com/watch?v=BDoV4I0XQSs> (farming around the world)

<https://www.youtube.com/watch?v=GMFq1hhNod4> (learning from the land, Indigenous perspective)

BOOKS

National Geographic Readers: Seed to Plant- Author: Kristin Baird Rattini

How Do Plants Grow? Author: Julie Lundgren

Soil - Author: Annette Whipple

From Seed to Plant Author: Gail Gibbons

I See Seeds Author: Tim Mayerling

Plants Need Sunlight Author: Christine Peterson

DK Eyewitness Books: Plant: Discover the Fascinating World of Plants Hardcover – by David Burnie

GUEST SPEAKER EXPERIENCE

<https://aitc.sk.ca/programs/seed-survivor-1> Seed Survivor Mobile is housed in a 36-foot trailer unit that travels to pre-registered schools, offering an immersive, interactive experience. Students learn about plant needs and soil nutrients through an engaging presentation and interactive games.

INITIAL Lesson Plan (Part 1)

Lesson Components	Lesson Plan	Whole-Group Responding	Visual Strategies	Movement	Student Choice
<p>Outcomes & Indicators (as above)</p>	<p>Everyone will learn: PL3.1 Investigate the growth and development of plants, including the conditions necessary for germination. (CP, SI)</p> <p>Some will learn:</p> <p>(i) Care for a flowering plant throughout its life cycle, tracking its growth and changes.</p> <p>(e) Observe and represent, using written language, pictures, and charts, changes that occur through the life cycle of a flowering plant.</p> <p>(a) Pose questions related to plant growth (e.g., How do very young plants look different from grown plants? How much water do plants need to grow? Do all plants grow in the same way?).</p> <p>A few will learn:</p> <p>(j) Estimate, record, and display relevant measurements of plant growth, using rulers, tables, and bar graphs.</p> <p>(k) Suggest explanations for patterns and discrepancies in the growth rate of similar plants grown in varying conditions.</p>	<p><input checked="" type="checkbox"/> Name whole-group responding strategies</p> <p>-Inquiry based questions</p> <p>-read a book on plants and ask questions throughout</p> <p>-watching plants grow within the classroom, have students telling what they see</p>	<p><input checked="" type="checkbox"/> Name Visual Strategies</p> <p>-Books on subject</p> <p>-Posters on walls</p> <p>-Going on a nature walk to draw pictures of plants/ take pictures of plants</p> <p>-Looking at videos on plant growth</p>	<p><input checked="" type="checkbox"/> List movement strategies</p> <p>-pretend play, being a seed to a flower</p> <p>-Hands on planting seeds and caring for them</p> <p>-Having an invitation set up with dirt, pretend seeds, shovels, pots, gloves etc</p> <p>-nature walk</p> <p>-chop chop timber</p> <p>-just dance body breaks</p>	<p><input checked="" type="checkbox"/> Name ways to included student choice</p> <p>-Choice of seed they plant</p> <p>-Choice of representation of learning, (pictures, verbal retell, writing etc)</p>

<p>Warm-up -Activate Prior Knowledge -Build Background Information</p>	<p>-Start by changing classroom décor -Engage children with inquiry questions about gardens/plants/ farming -fill in K & W of KWL chart</p>	<p><input checked="" type="checkbox"/> Name whole-group responding strategies -Whole class discussion -read allowed book with thinking aloud method</p>	<p><input checked="" type="checkbox"/> Name Visual Strategies -books on plants out in classroom</p>	<p><input checked="" type="checkbox"/> List movement strategies -ask children to demonstrate what they know about plants/ gardening with movement -pretend to be a seed to flower</p>	<p><input checked="" type="checkbox"/> Name ways to included student choice -children can choose to participate in whole group KWL or individual -children can draw a picture if movement activity is not what they like</p>
<p>Teacher-Led Instruction</p>	<p>In this part of the lesson, please include at least SIX steps to actualize the content. (Steps to build upon one another) E.g.</p> <p>Step 1- Think aloud method with book, using inquiring questions- KWL chart for reference</p> <p>Step 2- set up classroom with books about plants/farming/seeds and set up invitation centre for hands on learning</p> <p>Step 3 – nature walk with cameras or clipboards and colouring utensils for students to record their findings of seeds/plants</p> <p>Step 4- Collect data sheet/ pictures from nature walk from students for portfolio & review findings as a class</p> <p>Step 5- watch video on seed growth & discuss what we learned</p> <p>Step 6- Facilitate learning by going to the royal conservatory or invite the seed survival mobile unit</p>	<p><input checked="" type="checkbox"/> Name whole-group responding strategies -whole class discussion -engaging students in conversations about their findings on their nature walk -discussing videos</p>	<p><input checked="" type="checkbox"/> Name Visual Strategies -videos on seed growth/farming -looking at plants at conservatory -books throughout classroom on subject</p>	<p><input checked="" type="checkbox"/> List movement strategies -nature walk -field trip to royal conservatory -seed survival mobile -experiencing hands on learning invitation</p>	<p><input checked="" type="checkbox"/> Name ways to included student choice -draw a picture or take a picture of a plant -write the word for a plant or best guess -what seed they want -work in small group or alone for seed group</p>

	Step 6- small group work with students to explain choices of seeds and assignment				
Student-Led Learning -Independent Work -Partner or Group Work	Step 1 -Students will choose a seed of a certain variety Step 2 – students will work independently to research their seed / plant filling in the information sheet that was created by the teacher Step 3- students will return to class and join the group of other students with the same seed to compare what they have learned Step 4- in the group students will then present their plant to the class. Step 5- students will individually plant their seeds at table groups Step 6- students will take turns watering the seeds & monitoring growth as a class Step 7- Review in group what students think worked and did not work for plants, why some grew why some did not etc	<input checked="" type="checkbox"/> Name whole-group responding strategies -asking if anyone wants to share information about their seed -keeping each other accountable	<input checked="" type="checkbox"/> Name Visual Strategies -information sheet to be filled in -look at and examine seeds -watching seeds grow	<input checked="" type="checkbox"/> List movement strategies -planting seeds in table groups -watering plants and making sure they have sun -playing in invitation	<input checked="" type="checkbox"/> Name ways to included student choice -choice of own seed -choice of sharing information about seeds with students or teacher
Wrap-up/ Closure -Check in with students; repeat main take-away	<ol style="list-style-type: none"> 1. Re watch information video on seeds and discuss whether they agree with the information or if they can build on the information from the video 2. Fill out the L in the KWL chart 	<input checked="" type="checkbox"/> Name whole-group responding strategies -group discussion for KWL chart	<input checked="" type="checkbox"/> Name Visual Strategies -watching information video	<input checked="" type="checkbox"/> List movement strategies -just dance videos for movement break	<input checked="" type="checkbox"/> Name ways to included student choice -student choice on videos -student led discussions

Formative Assessment	Students will present what they know. They can choose to represent their knowledge in a way of their choice ex video, picture, verbal retell, movement presentation etc	<input checked="" type="checkbox"/> Name whole-group responding strategies -students can comment on each others presentation	<input checked="" type="checkbox"/> Name Visual Strategies (if appropriate) -reference books if needed for representation of learning	<input checked="" type="checkbox"/> List movement strategies (if appropriate)	
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DIFFERENTIATED Lesson Plan (Part 2)
(do this after you listen your colleagues' presentations)

Lesson Components	Academic &/or Beh Adaptations to the Lesson Plan	Whole-Group Responding (note changes for exceptional students)	Visual Strategies (note changes for exceptional students)	Movement (note changes for exceptional students)	Student Choice (note changes for exceptional students)
Student 1 ADHD	<p>Teacher led</p> <p>Step 1- Think aloud method with book, using inquiring questions- KWL chart for reference</p> <p>Step 2- Set up classroom with books about plants/farming/seeds and set up invitation centre for hands on learning. Sensory stations will be good for engaging student with ADHD</p> <p>Step 3 – nature walk with cameras or clipboards and colouring utensils for students to record their findings of seeds/plants. Student should be in their element here but may need a buddy to keep them focused on the task at hand. Document at least 10 plants</p>	<p>-allow student to stand or rock in chair during this time if needed</p> <p>-ask questions to student directly to regain focus</p>	<p>-simple work sheet with easy-to-follow directions</p> <p>-easier to follow books if needed</p> <p>-a timer for sensory station</p>	<p>-body breaks as needed</p> <p>-quiet area to relax if needed</p> <p>-nature walk</p>	<p>-work with a partner on seed research project</p> <p>-work at home or at school</p> <p>-choice to show what they know (picture, story, comic, verbal, video etc)</p>

<p>Step 4- Collect data sheet/ pictures from nature walk from students for portfolio & review findings as a class. Exceptional student can help collect</p> <p>Step 5- watch video on seed growth & discuss what we learned. Student with adhd may find it easier to retell teacher after video alone without distractions from other students</p> <p>Step 6- Facilitate learning by going to the royal conservatory or invite the seed survival mobile unit</p> <p>Step 6- small group work with students to explain choices of seeds and assignment, exceptional student will be placed close to teacher to allow for refocusing</p> <p>Step 7- Exceptional student will be paired with a peer to keep focus on seed research project, preferably student choice if teacher deems it will be a good fit</p> <p><u>Student led</u></p> <p>Step 1 -Students will choose a seed of a certain variety, exceptional student will be able to choose a buddy to join a seed group with</p> <p>Step 2 – Student will work independently if desired or with a buddy to research their seed / plant – can work together at school if with a buddy. Information sheet will have fill in the blank sentences that prompt direction of learning.</p>				
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	<p>Step 3- student will return to class and join the group of other students with the same seed to compare what they have learned.</p> <p>Step 4- in the group students will then present their plant to the class.</p> <p>Step 5- students will individually plant their seeds at table groups.</p> <p>Step 6- students will take turns watering the seeds & monitoring growth as a class</p> <p>Step 7- Have students discuss what they think worked and did not work for plants, why some grew why some did not etc *Exceptional student can use rocking chair if needed</p> <p>Step 8- Student will show what they know with either pictures or movement presentation</p>				
<p>Student 2 Gifted</p>	<p>Teacher led</p> <p>Step 1- Think aloud method with book, using inquiring questions- KWL chart for reference. Exceptional student will be asked if they have any additional information for the class, or maybe they could read a story about seeds</p> <p>Step 2- set up classroom with books about plants/farming/seeds and set up invitation centre for hands on learning. Exceptional student could help choose books to put out with me</p> <p>Step 3 – nature walk with cameras or clipboards and colouring utensils for</p>	<p>Whole group responding</p> <p>-opportunity to share with class</p> <p>-choice to read to class</p> <p>-choice to lead discussions in groups</p>	<p>Visual</p> <p>-offer more advanced books on plants</p> <p>-offer examples of charts/ graphs</p> <p>-look at sites for research</p>	<p>Movement</p> <p>-nature walk</p>	<p>Student choice</p> <p>-choice of seeds</p> <p>-choice of independent presentation or group presentation</p> <p>-choice to lead discussions/read</p> <p>-choice to be a buddy</p>

<p>students to record their findings of seeds/plants. Exceptional student will be required to take it one step further, and document at least 20 plants and chart differences/similarities and growth/lack of growth for those plants' surroundings</p> <p>Step 4- Collect data sheet/ pictures from nature walk from students for portfolio & review findings as a class. * Exceptional student will have extra time to work on their sheet as it is more information</p> <p>Step 5- watch video on seed growth & discuss what we learned and how it compares to what we know</p> <p>Step 6- Facilitate learning by going to the royal conservatory or invite the seed survival mobile unit *Exceptional student could buddy with ADHD friend</p> <p>Step 6- small group work with students to explain choices of seeds and assignment *exceptional student may be able to help other students to explain assignment</p> <p><u>Student led</u></p> <p>Step 1 -Students will choose a seed of a certain variety. *Exceptional student will choose 2 seeds</p> <p>Step 2 – student will work independently to research information about both seeds and finding 5 fun facts about each plant.</p> <p>Step 3- student will return to class and can choose which seed group they want to join</p>				
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	<p>Step 4- in the group students will then present their plant to the class. *Exceptional student may choose to present with the group or alone</p> <p>Step 5- students will individually plant their seeds at table groups</p> <p>Step 6- students will take turns watering the seeds & monitoring growth as a class *Exceptional student will keep a chart, filling in growth/ changes of the plant each day</p> <p>Step 7- Have students discuss what they think worked and did not work for plants, why some grew why some did not etc</p> <p>Step 8- Student will create a magazine with pictures on plant growth OR Students will create a video presentation on plant growth</p>				
<p>Student 3 Physical Disability – blindness</p>	<p>Teacher led Step 1- Think aloud method with book, using inquiring questions- KWL chart for reference. *Exceptional student will share what they know about plants, the feelings of plants/ taste etc</p> <p>Step 2- set up classroom with books about plants/farming/seeds and set up invitation centre for hands on learning. *Student will have access to texture books about plants, brail books and audio books. Student will be able to experience sensory table and feel/ smell the dirt and seeds</p>	<p>Whole group responding</p> <p>-use very descriptive language</p> <p>-allow student to share their experiences with plants and how they see them</p>	<p>Visual</p> <p>-brail</p> <p>-if student has some sight, use very big, contrasted books</p> <p>-descriptive audio books on plants and growth</p>	<p>Movement</p> <p>-dedicated space at table activity</p>	<p>Student choice</p> <p>-choice of helper if desired for research</p> <p>-choice of seed</p>

<p>Step 3 – nature walk with cameras or clipboards and colouring utensils for students to record their findings of seeds/plants. * Exceptional student will be paired with an adult and a peer to help guide them on the walk. Student will be able to touch/ smell/ describe feeling or if able what they can make out of at least 10 plants</p> <p>Step 4- Collect data sheet/ pictures from nature walk from students for portfolio & review findings as a class. * Exceptional student can audio record their voice describing the plants</p> <p>Step 5- watch video with descriptive language on seed growth & discuss what we learned and how it compares to what we know</p> <p>Step 6- Facilitate learning by going to the royal conservatory or invite the seed survival mobile unit *Exceptional student will be paired with a buddy who is great at descriptive language</p> <p>Step 6- small group work with students to explain choices of seeds and assignment. *Instructions will be recorded for student to relisten to as needed</p> <p><u>Student led</u></p> <p>Step 1 -Student will choose a seed of a certain variety.</p> <p>Step 2 – Student will have research questions read to them by a</p>				
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	<p>peer/teacher/aid. Student will then have to use voice technology to google search the information. Student will be able to use google read and write to have to answers read allowed to them. The student can choose to have the helper scribe the answers or record them on a voice memo.</p> <p>Step 3- Student will join group of peers to discuss what they learned about their seed</p> <p>Step 4- in the group students will then present their plant to the class. *Exceptional student will be able to have a peer tell them it is their page, and whisper the lines if needed & the student cannot make out the information</p> <p>Step 5- students will individually plant their seeds at table groups. *Exceptional student will have a little more space on the table with dedicated tools within reach.</p> <p>Step 6- students will take turns watering the seeds & monitoring growth as a class. *Class will discuss verbally and descriptively any changes of plants</p> <p>Step 7- Have students discuss what they think worked and did not work for plants, why some grew why some did not etc</p> <p>Step 8- Student will explain what they know verbally</p>				
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Adapted from: [Nagro, S. A., Fraser, D. W., & Hooks, S. D. \(2019\). Lesson Planning With Engagement in Mind: Proactive Classroom Management Strategies for Curriculum Instruction. *Intervention in School and Clinic, 54*\(3\), 131–140.](#)
Lesson Plan Adapted from: http://www.npss.sk.ca/docs/2_pdf/Grade_8_Lesson_Plan.pdf

Consider.....

Teaching Strategies - Nine Types of Adaptations		
<p style="text-align: center;">Quantity*^</p> <p>Adapt the number of items that the learner is expected to learn or number of activities student will complete prior to assessment for mastery.</p> <p>For example: Reduce the number of social studies terms a learner must learn at any one time. Add more practice activities or worksheets.</p>	<p style="text-align: center;">Time*</p> <p>Adapt the time allotted and allowed for learning, task completion, or testing.</p> <p>For example: Individualize a timeline for completing a task; pace learning differently (increase or decrease) for some learners.</p>	<p style="text-align: center;">Level of Support*</p> <p>Increase the amount of personal assistance to keep the student on task or to reinforce or prompt use of specific skills. Enhance adult-student relationship; use physical space and environmental structure.</p> <p>For example: Assign peer buddies, teaching assistants, peer tutors, or cross-age tutors. Specify how to interact with the student or how to structure the environment.</p>
<p style="text-align: center;">Input*</p> <p>Adapt the way instruction is delivered to the learner.</p> <p>For example: Use different visual aids, enlarge text, plan more concrete examples, provide hands-on activities, place students in cooperative groups, pre-teach key concepts or terms before the lesson.</p>	<p style="text-align: center;">Difficulty*^</p> <p>Adapt the skill level, problem type, or the rules on how the learner may approach the work.</p> <p>For example: Allow the use of a calculator to figure math problems; simplify task directions; change rules to accommodate learner needs.</p>	<p style="text-align: center;">Output*</p> <p>Adapt how the student can respond to instruction.</p> <p>For example: Instead of answering questions in writing, allow a verbal response, use a communication book for some students, allow students to show knowledge with hands-on materials</p>
<p style="text-align: center;">Participation *</p> <p>Adapt the extent to which a learner is actively involved in the task.</p> <p>For example: In geography, have a student hold the globe, while others point out locations. Ask the student to lead a group. Have the student</p>	<p style="text-align: center;">Alternate Goals^</p> <p>Adapt the goals or outcome expectations while using the same materials. When routinely utilized, this is only for students with moderate to severe disabilities.</p>	<p style="text-align: center;">Substitute Curriculum^</p> <p>Sometimes called “functional curriculum” Provide different instruction and materials to meet a learner’s individual goals. When routinely utilized, this is only for students with moderate to severe disabilities.</p>

turn the pages while sitting on your lap (kindergarten).	For example: In a social studies lesson, expect a student to be able to locate the colors of the states on a map, while other students learn to locate each state and name the capital.	For example: During a language lesson a student is learning toileting skills with an aide
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From: <http://www.snipsf.org/wp-content/uploads/2011/08/NineTypes.pdf>

* This adaptation is an accommodation if the student can demonstrate mastery of the standard on an assessment. The key concept is: Will the student ultimately master the same material but demonstrate that mastery in alternate ways or with alternate supports? If standards are not fundamentally or substantially altered, then this adaptation is an accommodation to a learning or performance difference.

^This adaptation is a modification if the student will not demonstrate mastery of the standard on an assessment. If routinely utilized, these adaptations are modifications and require individualized goals and assessment. Substantially altered by Diana Browning Wright with permission from Jeff Sprague, Ph.D. from an original by DeSchenes, C., Ebeling, ., & Sprague, J. (1994). Adapting Curriculum & Instruction in Inclusive Classrooms: A Teachers Desk Reference. ISDDCSCI Publication. Diana Browning Wright, Teaching & Learning