

Grade 3 Science

Grade 3

Cluster 1: Growth and Changes in Plants

Overview

In Grade 3, the study of living things focusses on the characteristics and needs of plants and their growth patterns. Students observe and investigate local plants, but a deeper understanding and appreciation is developed through planting, nurturing, and observing individual plants over time. Connections are made to students' prior knowledge of animal needs (see *Grade 2, Cluster 1: Growth and Changes in Animals*) by identifying needs that are similar between plants and animals and how those needs are met. This cluster addresses the importance of plants to the environment as well as the significance of food, shelter, medicine, and other plant products to humans. Emphasizing the connection between this cluster and *Grade 3, Cluster 4: Soils in the Environment* develops the relationship between plants and the soils in which they are grown.

PRESCRIBED LEARNING OUTCOMES
<i>Students will...</i>
<p>3-1-01 Use appropriate vocabulary related to their investigations of growth and changes in plants. Include: growing medium, nutrient, energy, root, stem, leaf, flowers, pistil, stamen, ovule, pollen, seed, fruit, adaptation, life cycle. GLO: C6, D1</p>
<p>3-1-02 Observe, compare, and contrast the structure and appearance of several types of plants. <i>Examples: plants with different types of roots, trees with needles and trees with leaves...</i> GLO: C2, D1, E1</p> <p>3-1-03 Show respect for plants as living things. GLO: B5</p>
<p>3-0-4h. Follow given safety procedures and rules, and explain why they are needed. GLO: C1</p> <p>3-0-5a. Make observations that are relevant to a specific question. GLO: A1, A2, C2</p> <p>3-0-5b. Use tools to observe, measure, and construct. Include: ruler, metre stick, pan balance, magnifying glass, bathroom scale, thermometer, magnet. (Math SS-I.1.3, SS-III.1.3, SS-IV.1.3, SS-VII.4.3) GLO: C2, C3, C5</p> <p>3-0-6c. Place materials and objects in a sequence or in groups using two or more attributes, and describe the system used. (Math PR-I.1.3) GLO: C2, C3, C5</p>

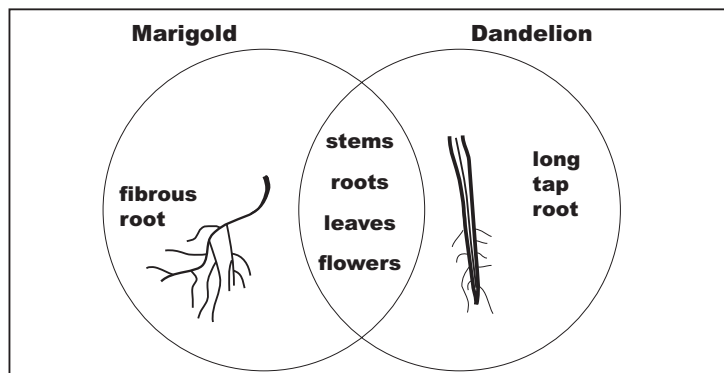
SUGGESTIONS FOR INSTRUCTION

- Introduce, explain, use, and reinforce vocabulary throughout this cluster.
- **Word Cycle**
 Teach students how to use a word cycle to help them become familiar with the specific vocabulary related to the learning outcomes in this cluster. Use the word cycle to assess students' knowledge of terms studied in specific sections of this cluster (see *Success for All Learners*, 6.31).

- **Plant Etiquette**
 Discuss and develop a list of guidelines and safety procedures to follow to ensure students show respect for plants as living things. Guidelines might include: avoid trampling on plants, touch plants only after an adult has given permission, touch and bend the plant gently to avoid damage, observe using sense of sight and sense of smell before using sense of touch, etc.

- **Compare and Contrast**
 Set up a plant observation centre where students sort and classify plants. Have students explain the method used and then resort and relabel the groups. Plants should be provided that show a variety of roots, leaves, flowers, and seeds.

- **Venn Comparison: Plants**
 In small groups, have students select two plants to compare and contrast using a Venn diagram. Students may prefer to draw the parts of each plant to show the differences.



- **Art Connection**
 Have students sketch a plant and/or press a plant to make an environmental note card.

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Cluster Note: Students' achievement of the learning outcomes in this cluster is dependent on having adequate time to conduct experiments on plant growth and to follow a flowering plant through a complete life cycle.

Caution: Ensure that there are no dangerous plants such as poison ivy or poison berries in your local area. Check to make sure that there are no students with plant allergies in your class. (Refer to *Success for All Learners*, 9.5 for details on conducting an ecology walk.)

Have a plant collection already prepared to ensure a wide variety. Students could participate in making plant collections. Alternatives to live plant collections include pictures of plants.

When discussing the Venn diagram introduce the related vocabulary.

Science Journal Entry: Plant Etiquette

Directions to students: In your science journals, finish the following sentence:

I can show respect for plants as living things by _____.

List as many examples as you can.

Look for

- examples related to avoiding damage to plants
- references to safety issues

Student Self-Assessment: Plants

Directions to students: At the plant observation centre you will be comparing plants to determine how they are the same and how they are different. Use this checklist to check your observation skills.

Checklist: How Are My Observation Skills?

I used the following senses to observe:

- sight smell touch hearing

I used the following tools:

- magnifying glass
- centimetre ruler
- other _____

I observed the following properties:

- colour shape texture size

I also observed _____

PRESCRIBED LEARNING OUTCOMES	SUGGESTIONS FOR INSTRUCTION
<p><i>Students will...</i></p>	
<p>3-1-04 Conduct experiments to determine conditions needed for healthy plant growth. Include: light, water, air, space, warmth, growing medium, nutrients. GLO: A1, C2, C5, D1</p> <p>3-1-05 Recognize that a plant uses the Sun’s energy to make its own food. GLO: D1, D2, D4, E4</p>	<p>➤ Investigating Conditions for Healthy Plant Growth</p> <p>To determine students’ prior knowledge (related to the learning outcomes), ask students the following question: What do you think plants need to survive?</p> <p>Discuss with students how to test to determine which conditions are necessary for plant growth. Decide as a class the best procedure to use in conducting the experiment, the materials required, and how to record the observations.</p> <p>This investigation will take place over a two- to three-week period. Ensure that only one variable is changed at a time and that all other conditions remain constant. Include the variables light, water, air, space, warmth, growing medium, and nutrients. Each group of students will be responsible for one of the conditions and must ensure that all the other conditions are kept constant.</p> <p>Have students make predictions about which plants they think will grow best and why.</p> <p>Have students record their observations about each condition in their science journals. Encourage students to take pictures of their group’s plant growth. Have students use Blackline Master 2: Scientific Inquiry Recording Sheet: Grades 3 and 4.</p> <p>At the end of the experiment, have students present their findings to the class. Students can scan pictures, create slide shows, or use software to create multimedia presentations.</p>
<p>3-0-1b. Make predictions based on observed patterns, collected data, or data provided from other sources. (ELA 1.1.1; Math SP-IV.2.3) GLO: A1, C2</p> <p>3-0-3a. Brainstorm, with the class, one or more methods of finding the answer to a given question and reach consensus on which method to implement. GLO: C2, C7</p> <p>3-0-3b. Identify, with the class, variables that have an impact on an investigation. GLO: A1, A2, C2, C7</p> <p>3-0-3c. Create, with the class, a plan to answer a given question. (ELA 3.1.4) GLO: C2, C7</p> <p>3-0-4a. Carry out a plan, and describe the steps followed. (Math SP-V.2.3) GLO: C2</p> <p>3-0-5a. Make observations that are relevant to a specific question. GLO: A1, A2, C2</p> <p>3-0-5b. Use tools to observe, measure, and construct. Include: ruler, metre stick, pan balance, magnifying glass, bathroom scale, thermometer, magnet. (Math SS-I.1.3, SS-III.1.3, SS-IV.1.3, SS-VII.4.3) GLO: C2, C3, C5</p> <p>3-0-5c. Estimate and measure mass/weight, length, volume, and temperature using standard units. (Math SS-IV.1.3, SS-I.1.3, SS-III.1.3, SS-VIII.4.3) GLO: C2, C3, C5</p> <p>3-0-5e. Record observations in a variety of ways. <i>Examples: point-form notes, sentences, simple diagrams, charts...</i> (ELA 3.2.1, 3.3.2, 4.1.3; Math SP-II.2.1, SP-V.2.3) GLO: C2, C6</p> <p>3-0-7a. Draw a simple conclusion based on their observations. GLO: A1, A2, C2</p> <p>3-0-7b. Explain why conclusions related to classroom experiments should be based on multiple trials or classroom data rather than on an individual result. GLO: A1, A2, C2</p> <p>3-0-7d. Examine how new experiences, ideas, and information connect to prior knowledge and experiences, and record these connections. (ELA 1.2.1, 2.1.2, 3.3.3) GLO: A2, C6</p> <p>3-0-7e. Communicate results and conclusions in a variety of ways. <i>Examples: point-form lists, sentences, simple diagrams, charts, demonstrations...</i> (ELA 2.3.5, 3.3.2, 4.1.3; Math SP-III.2.3; TFS 2.1.4) GLO: C6</p>	<p>➤ Math Connection</p> <p>Have students measure plant growth, count leaves, record their data, display their data, and formulate questions to assist in other data collection strategies.</p>

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Beans will sprout within a week and can be sprouted in a clear plastic bag. Popcorn also sprouts easily. Marigolds take longer but will produce a flowering plant (see outcomes 3-1-10, 3-1-4).

If the experiments include growth in different types of soil, then outcome 3-4-07 can be addressed here.

Sunlight provides the plant with energy to change carbon dioxide and water into the food substances (sugars) they need. This process is called photosynthesis. **Water** carries nutrients and moisture that the plant requires to make its own food.

Carbon dioxide is required as air for the plants. Plants release oxygen into the air. Plants require ample **space** to grow so that they acquire enough water and can get enough sunlight. Plants need **soil** containing the proper **nutrients** in order to produce their own food.

In experiments it is important to control **variables**. A variable is an object, or quantity that can change. For example, if students are going to test the impact of sunlight on plant growth, they need to ensure that all the other variables such as water, space, warmth, growing medium, etc., are exactly the same for all plants, so that any changes in the plant can be attributed to different amounts of sunlight.

Performance Task

Say to students: You have been given a new plant for your bedroom. How will you make sure that it remains healthy and grows? Be sure to include as much detail as possible.

Scoring Rubric

- 4 Student work demonstrates a solid understanding of the conditions needed for healthy plant growth. At least six conditions are given (light, water, air, space, warmth, growing medium, nutrients). Explanation is clear and complete.
- 3 Student work demonstrates a good understanding of the conditions needed for healthy plant growth. Four or five conditions are given. Explanation is clear.
- 2 Student work demonstrates a basic understanding of the conditions needed for healthy plant growth. Three or four conditions are given. Explanation is unclear or incomplete.
- 1 Student work demonstrates a limited understanding of the conditions needed for healthy plant growth. Two conditions are given. Explanation is unclear or missing.

PRESCRIBED LEARNING OUTCOMES
<i>Students will...</i>
<p>3-1-06 Use the design process to construct an environment that enhances plant growth.</p> <p><i>Examples: window sill garden, terrarium, cold frames...</i></p> <p>GLO: A5, C3, C5, D1</p>
<p>3-0-1c. Identify practical problems to solve in the local environment. GLO: C3</p> <p>3-0-2a. Access information using a variety of sources. <i>Examples: children’s magazines, local farmers, CD-ROMs, Internet...</i> (ELA 1.1.2, 3.2.2; Math SP-I.1.2.3; TFS 2.1.1) GLO: C6</p> <p>3-0-3d. Brainstorm, in small groups, possible solutions to a practical problem, and reach consensus on which solution to implement. GLO: C3, C7</p> <p>3-0-3e. Create, in small groups, a written plan to solve a problem or meet a need. Include: identify steps to follow, prepare a simple diagram. (ELA 1.2.3) GLO: C3, C7</p> <p>3-0-3f. Develop, in small groups, limited criteria to evaluate an object or device based on its function and aesthetics. GLO: C3, C7</p> <p>3-0-4b. Construct an object or device to solve a problem or meet a need. GLO: C3</p> <p>3-0-4c. Test an object or device with respect to pre-determined criteria. GLO: C3, C5</p> <p>3-0-4d. Identify and make improvements to an object or device, and explain the rationale for the changes. GLO: C3</p> <p>3-0-4h. Follow given safety procedures and rules, and explain why they are needed. GLO: C1</p> <p>3-0-5b. Use tools to observe, measure, and construct. Include: ruler, metre stick, pan balance, magnifying glass, bathroom scale, thermometer, magnet. (Math SS-I.1.3, SS-III.1.3, SS-IV.1.3, SS-VII.4.3) GLO: C2, C3, C5</p> <p>3-0-7c. Identify new problems that arise. GLO: C3</p> <p>3-0-8c. Recognize that designing a solution to a simple problem may have considerations, such as cost, materials, time, and space. GLO: B2, C3</p>

SUGGESTIONS FOR INSTRUCTION

➤ **Design an Ideal Growing Environment**

Challenge students to design an ideal growing environment for plants. Provide a context for the design activity. The context can come from a related literature piece or from a specific need such as a school foyer plant-growing area. Although there are numerous resources that describe how to build a terrarium, a windowsill garden, and a cold-frame, it is important for students to use the design process to plan, construct, and evaluate their own designs. Designs could include a self-watering system, or a plant-turning system to keep plants facing the sun.

Have students use Blackline Master 4: Design Process Recording Sheet: Grades 3 and 4.

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Observation Checklist: Design an Ideal Growing Environment

The student

- willingly participates in brainstorming possible solutions
- researches ideas using a variety of sources
- creates a written plan/diagram
- works with a group to develop criteria
- constructs the growing environment
- tests the growing environment
- makes improvements to the growing environment
- communicates results

Group Assessment: Design an Ideal Growing Environment

How Did We Work?

Group Members

Comments

Listened to the ideas of others _____

Shared the work _____

Encouraged other group members _____

Worked cooperatively _____

Stayed on task _____

Followed safety procedures/rules when using materials/tools _____

Next time we should _____

PRESCRIBED LEARNING OUTCOMES	SUGGESTIONS FOR INSTRUCTION
<p><i>Students will...</i></p>	
<p>3-1-07 Identify the basic parts of plants and describe their functions. Include: roots, stems, leaves, flowers, pistil, stamen, ovule, pollen, seeds, fruit. GLO: D1, E2</p>	<p>➤ Plant Observations Provide plant samples for students to observe. Have them identify the basic parts. Focus students’ observations by posing these questions:</p> <ul style="list-style-type: none"> • What are the basic parts of a plant? • What is the function (purpose) of each part? <p>Have students sketch their plant and label its main parts. Drawings should include roots, stems, leaves, flowers/seeds/fruit.</p>
<p>3-0-2a. Access information using a variety of sources. <i>Examples: children’s magazines, local farmers, CD-ROMs, Internet...</i> (ELA 1.1.2, 3.2.2; Math SP-1.1.2.3; TFS 2.1.1) GLO: C6 3-0-2b. Review information to determine its usefulness to research needs. (ELA 3.2.3, 3.3.3) GLO: C6, C8</p>	<p>➤ Plant Discovery: Stems Carry Nutrients Divide students into groups. Provide each group with a cup, water, food colouring, and a stalk of celery or a white carnation. Have students colour the water with food colouring and then place the celery or the carnation in the water, and observe what happens. The coloured water travels to the top, changing the colour of the leaves or flower. This helps to demonstrate that one purpose of the stem is to carry nutrients from the soil to the leaves and flowers.</p>
	<p>➤ Plant Discovery: Leaves Give off Oxygen Put leaves upside down in a clear bowl filled with water. Shine a bright light on the leaves. Have students observe bubbles forming on the leaves. The bubbles are escaping oxygen.</p> <p>➤ Flower Power Have students use videos, CD-ROMs, etc., to identify and describe the purpose of the flower, pistil, stamen, ovule, pollen, seeds, and fruit. Model notetaking during the viewing process.</p>
<p>3-1-08 Explain how different adaptations of plants help them survive in particular environments. <i>Examples: cacti have fleshy stems that store water, allowing them to survive in a dry environment; plants with tap roots can grow well in heavily compacted soil...</i> GLO: D1, D2, E1 3-1-09 Identify plant adaptations that can be harmful to humans, and describe their effects. (continued)</p>	<p>➤ Weed Pull If possible, have students participate in weeding the school flower bed or lawn. Weeds would need to be clearly identified beforehand. Students will need close supervision for this activity and should wear protective gear. Following the weed pull, ask students the following questions:</p> <ul style="list-style-type: none"> • Were the weeds easy to pull or difficult? • What parts of the weeds make them able to spread easily? Why? <p>➤ Plant Adaptation Research Have students find answers to the following questions:</p> <ul style="list-style-type: none"> • How are plants adapted to extreme environments (very hot, cold, wet, or dry)? • In what ways do plants protect themselves? • Which plant adaptations cause harm to humans? <p>(continued)</p>

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Plant Parts

The **roots** are used to: anchor the plant in the soil, bring water and nutrients to the stem, and sometimes store food (e.g., carrot). **Stems** are used to: support the upper part of the plant, carry water and dissolved nutrients to the leaves, and store food. **Leaves** produce the food for the plant through a process called photosynthesis. **Flowers** are the reproductive part of the plant. The **pistil** is the part of the flower that produces the seeds. The **stamen** is the part of the flower that contains the pollen. The stamen is surrounded by the petals. The **ovule** is the part of the plant that develops into the seed. **Pollen** is the yellowish powder that forms in flowers. Grains of pollen carried to the pistils of flowers fertilize them. The seeds contain the embryo for the new plant. The fruit contains the seeds. It is the ripened ovule.

Paper and Pencil Task: Plant Observations

Student directions:

1. Draw a diagram of a flowering plant and label its parts.
2. Explain how each of these parts helps the plant

- roots _____
- stems _____
- leaves _____
- flowers _____
- pistil _____
- stamen _____
- ovule _____
- pollen _____
- seeds _____
- fruit _____

For the assessment of outcomes 3-1-07 to 3-1-09, see **Student Interview** opposite outcome 3-1-11.

Discover Agriculture Science Curriculum Activities, “Grade 5 Lesson Two — Adaptations of Plants,” contains easily adaptable material suitable to address this outcome, with diagrams of common food plants, including the roots. “Lesson Three — Weeds,” addresses the structural adaptations of weeds that make them problematic for farmers. (See the References section for a full citation.) Contact Agriculture in the Classroom, telephone: (204) 487-4029, for further information about materials and speakers.

PRESCRIBED LEARNING OUTCOMES

SUGGESTIONS FOR INSTRUCTION

Students will...

Examples: rose thorns cause painful punctures, poison in rhubarb leaves can cause sickness and death...

GLO: B3, C1, D1

3-0-4a. Carry out a plan, and describe the steps followed. (Math SP-V.2.3) GLO: C2

3-0-5e. Record observations in a variety of ways. *Examples: point-form notes, sentences, simple diagrams, charts...* (ELA 3.2.1, 3.3.2, 4.1.3; Math SP-II.2.1, SP-V.2.3) GLO: C2, C6

Have students work individually or with a partner to research information regarding plant adaptations.

Have students present information in the form of integrated text.

Plant	Adaptation
rhubarb	poisonous leaves
cacti	water-retentive stem and spines
oak tree	hard bark, strong and long taproot
Canada thistle	deep root, prickly leaves, produces milk
rose	thorns, pleasant scent
dandelion	parachute seeds, grow anywhere
sedges	wedge-shaped stem to cut the wind, etc.

3-1-10 Care for a flowering plant throughout its life cycle, tracking its growth and its changes over time.

GLO: B5, C5, D1, E3

3-1-11 Identify characteristics that remain constant and those that change throughout the life cycle of a flowering plant.

Examples: generally, for a given plant, the leaf shape and flower colour stay the same, whereas the leaf size and number of leaves change...

GLO: D1, E3

➤ **Observing Plant Life Cycles**

Use the activity **Investigating Conditions for Healthy Plant Growth** (3-1-04 and 3-1-05). Have students continue their observations until plants reach maturity. Discuss observations and focus discussions on the plants in the control group.

Ask students these questions about the plant life cycles:

- What changes happened to the plant?
- When did the plant grow the most?
- How long did it take the plant to flower?
- What do the seeds look like?
- What parts of the plant are the same throughout the life cycle? (leaf shape)
- What parts of the plant changed throughout the life cycle? (roots grew, stem grew, leaves grew, flowers formed, seeds formed, etc.)

3-0-4e. Respond respectfully to the ideas and actions of others, and recognize their ideas and contributions. (ELA 1.1.2, 5.2.2) GLO: C5, C7

3-0-5a. Make observations that are relevant to a specific question. GLO: A1, A2, C2

3-0-7e. Communicate results and conclusions in a variety of ways. *Examples: point-form lists, sentences, simple diagrams, charts, demonstrations...* (ELA 2.3.5, 3.3.2, 4.1.3; Math SP-III.2.3; TFS 2.1.4) GLO: C6

➤ **Art Connection: Flower Printing**

Take a leaf or flower and lay it between a piece of fabric (bottom) and wax paper (top). Use a non-synthetic fabric. Pound the flower or leaf reasonably hard with a hammer so it is imprinted on the fabric. Soak in cold water to set it.

3-1-12 Identify needs common to plants and animals, and contrast how they meet those needs.

GLO: D1, E1

(continued)

➤ **Identifying Needs**

Use a Focused Free Write to activate and extend students' prior knowledge regarding the basic needs of living things and how they meet those needs (see *Grades 1 and 2, Cluster 1*). (Note: the Focused Free Write is discussed in *Success for All Learners*, 6.30.)

(continued)

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Plant Life Cycles

Amaryllis bulbs work well for observing a complete life cycle. Bean plants will also work but require manual pollination using a cotton swab.

Student Interview for Outcomes 3-1-07 to 3-1-11

Before the interview, gather/prepare the following materials: pictures of three different plants such as cactus, dandelion, coniferous tree; and a series of pictures depicting the life cycle of a flowering plant. Ask students the following questions:

1. What are the basic parts of a plant and what does each part do?
 root stem leaves flowers pistil stamen ovule
 pollen seeds fruit
2. Here are three different plants. Can you tell how each of these plants is adapted to its environment?
3. Arrange these pictures in order to show the life cycle of this plant.
4. What characteristics stay the same over this plant's life cycle?
5. What characteristics change over this plant's life cycle?

Record student responses. Note any misconceptions or gaps in their learning.

PRESCRIBED LEARNING OUTCOMES	SUGGESTIONS FOR INSTRUCTION
<p><i>Students will...</i></p> <p>3-0-7e. Communicate results and conclusions in a variety of ways. <i>Examples: point-form lists, sentences, simple diagrams, charts, demonstrations...</i> (ELA 2.3.5, 3.3.2, 4.1.3; Math SP-III.2.3; TFS 2.1.4) GLO: C6</p>	<p>➤ Three Differences</p> <p>Have students identify three main differences between the ways in which plants and animals each meet their needs. Example: plants must wait for rain or send roots deep into the soil to reach water; animals can move to where there is a stream or pond.</p> <p>➤ Presentations</p> <p>Have students write a poem, chant, or rap to remember the needs of living things and how plants and animals meet these needs in different ways.</p>
<p>3-1-13 Describe ways that plants and animals depend on each other.</p> <p><i>Examples: plants provide food and shelter for some animals, animals help distribute pollen and seeds...</i></p> <p>GLO: D2, E2</p> <p>3-1-14 Describe ways plants are important to the environment.</p> <p><i>Examples: improve soil, air, and water quality; reduce erosion...</i></p> <p>GLO: B5, D2</p>	<p>➤ Group Inquiry — I Chart</p> <p>Guide the students through an inquiry regarding the interdependence of plants and animals by using an I Chart (Hoffman, 1992). (See <i>ELA, Strategies</i>, pp. 83-87.)</p> <p>Use the following questions to focus students’ research:</p> <ul style="list-style-type: none"> • How do plants help animals survive? • How do animals help plants survive? <p>➤ The Day All the Plants Disappeared</p> <p>Have students write a story describing what the world would be like without plants. Examples: the impact on animals, people, the environment.</p>
<p>3-0-2a. Access information using a variety of sources. <i>Examples: children’s magazines, local farmers, CD-ROMs, Internet...</i> (ELA 1.1.2, 3.2.2; Math SP-I.1.2.3; TFS 2.1.1) GLO: C6</p> <p>3-0-2b. Review information to determine its usefulness to research needs. (ELA 3.2.3, 3.3.3) GLO: C6, C8</p> <p>3-0-4g. Verbalize questions, ideas, and intentions during classroom-learning experiences. GLO: C6</p>	<p>➤ Sketch to Stretch</p> <p>Have students draw pictures of the Earth without plants using a Sketch to Stretch strategy (Short, Harste, Burke, 1996). (See <i>ELA, Strategies</i>, p. 209.)</p> <p>Have each student write an explanation about how the lack of plants has an impact on other living things. Include the role plants play in relation to soil, air, water quality, and erosion. Tie this in with <i>Cluster 4: Soils in the Environment</i> to learn about soil enrichment.</p>
<p>3-1-15 Identify and describe hobbies and jobs involving plants.</p> <p>GLO: B4</p> <p>3-1-16 Identify how humans from various cultures use plant parts for food and medicine.</p> <p><i>Examples: use of roots for food (carrots) and medicine (ginseng)...</i></p> <p>GLO: A4, B1, C5, E1</p> <p style="text-align: right;">(continued)</p>	<p>➤ Brainstorming Hobbies and Jobs</p> <p>With students, brainstorm to list jobs and hobbies related to plants. Post the list in the classroom and allow students to add to the list as they learn about other jobs and hobbies related to plants.</p> <p>From the list, invite a guest speaker (gardener, botanist, farmer, lumber miller, paper maker, fabric maker, doctor, artist, traditional healer, etc.).</p> <p>Help students develop appropriate interview questions.</p>

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

The Manitoba Fisheries website provides teacher background information and instructional suggestions related to how plants help fish. The website is located at <<http://www.gov.mb.ca/natres/sustain/index.html>>

Checklist: The Day All the Plants Disappeared

Story includes:	Impact on animals	Impact on people	Impact on environment	Other	Comments
Student's Name					

Contact your local Manitoba Agriculture office for further information regarding speakers.

PRESCRIBED LEARNING OUTCOMES	SUGGESTIONS FOR INSTRUCTION
<p><i>Students will...</i></p>	
<p>3-1-17 Investigate to determine how humans from various cultures make useful products from plant materials. <i>Examples: lumber milling, paper making, rope making, fabric making...</i> GLO: A3, A4, B1</p> <p>3-1-18 Explain how humans replenish the plants they use and the consequences if plants are not replenished. <i>Examples: after loggers harvest trees, new ones should be planted to ensure a future lumber supply...</i> GLO: B1, B5, E3</p>	<ul style="list-style-type: none"> ➤ Collage Have students work in small groups to create a collage illustrating how various cultures use plants to make many different products. ➤ Research: Plant Uses in Various Cultures Have students investigate the traditional use of a plant for food or medicine. ➤ Making Paper Use a simple paper-making process (soaking scraps, straining on screens, and drying) to make paper. Explore paper-making using vegetable scraps, flowers, etc. ➤ Reforestation Watch a video on reforestation. Have students use their science journals to reflect on why it is important to plant trees to replace those that are harvested or destroyed by fire, etc.
<p>3-0-4f. Assume roles and share responsibilities as group members. (ELA 5.2.1) GLO: C7</p> <p>3-0-9a. Listen to and consider differing opinions. (ELA 5.2.3) GLO: C5, C7</p> <p>3-0-9b. Express enjoyment when sharing and discussing science-related experiences from daily life. (ELA 4.4.3) GLO: C5</p>	

TEACHER NOTES

SUGGESTIONS FOR ASSESSMENT

Paper and Pencil: Cluster Reflection

Complete the following statements:

1. In order to grow, plants need

2. Plant adaptations help a plant by

3. Two ways plants and animals meet their needs differently are

4. Three things that can be made from plants are

5. Plants are important to people and the environment because

6. One think I liked

NOTES