



Focus: Students begin their plant inquiry by investigating how to identify plants.

Specific Curriculum Outcomes

Students will be expected to:

- 1.0 pose questions that lead to exploration and investigation [GCO 2]

Performance Indicators

Students who achieve these outcomes will be able to:

- ask questions to help them distinguish plants from animals and objects
- list a variety of examples of local plants

NOTES:

Attitude Outcome Statements

Encourage students to:

- recognize the role and contribution of science in their understanding of the world [GCO 4]

Cross-Curricular Connections

Social Studies

Students will be expected to:

- demonstrate an understanding of the geographic features of Newfoundland and Labrador—describe climate and vegetation (examine types of plants that live in their area) [SCO 2.2]

English Language Arts

Students will be expected to:

- communicate information and ideas effectively and clearly, and to respond personally and critically [GCO 2]
- respond personally to a range of texts [GCO 6]
- create texts collaboratively and independently, using a variety of forms for a range of audiences and purposes [GCO 9]

Art

Students will be expected to:

- explore a range of art materials, processes, and vocabulary to develop art making skills [1.3.4]

Getting Organized

Components	Materials	Before You Begin	Vocabulary
• Student Magazine, pages 2–5 • <i>Picture a Tree</i> (Read Aloud) • Anchor Video: <i>Plant Growth and Changes</i> • IWB Activity 1	• modelling clay • classroom plant or plants • plant-related items for Curiosity Centre • students' Science Journals • digital camera (optional)	• Arrange for a classroom visit from a person who works with plants. • Prepare digital slideshow and/or collect from magazines images of plants and other living and non-living things.	• plant

Safety

- Remind students to use appropriate senses (not taste) when exploring objects.
- Students should wash their hands after working with plants.
- Be aware of any plant-related allergies that your students may have.

Science Background

- A plant is a living thing that belongs to the plant kingdom.
- Most plants use energy from sunlight to make their own food. This process is called photosynthesis.
- Most plants remain in one place once they have started growing.
- The variety among plants is astonishing. A towering cedar tree, a soft, green carpet of moss, a floating water lily, a bright poppy, a spiny cactus—these are a small sample of the hundreds of thousands of plant species found on Earth.
- There are many ways to classify plants. One way is to classify plants as vascular or non-vascular.
 - Vascular plants have vascular tissues. These are tubes that transport water and nutrients from soil and leaves to the rest of the plant. These tissues are found in roots, stems, and leaves. Trees, wildflowers, and ferns are examples of vascular plants.
 - Non-vascular plants, such as moss, are very simple structurally. They do not have vascular tissues, seeds, or flowers.
- Another way to classify plants is seed plants and non-seed plants. Among vascular plants, flowering plants, such as roses, and conifers, such as firs, are seed plants. Ferns are an example of non-seed plants.

Possible Misconceptions

- Students may believe that mushrooms are plants since they grow in the ground and stay in one place. But mushrooms belong to their own kingdom, the kingdom fungi. Fungi do not make their own food but get their food from decomposing organic matter. Seaweed also resembles plants in many ways—it can carry out photosynthesis, for example—but is classified as algae, belonging to the kingdom of protists. Other ocean organisms such as sea urchins, coral, or anemone resemble plants but are actually animals.

ACTIVATE



Plants All Around: Brainstorming

Introduce the Student Magazine to students. Have them review the Contents page and remind students that the words in bold, red font throughout the magazine are defined in the Glossary.

Share pages 2–3 of the Student Magazine with students. Allow time for students to read the text and examine the photographs. Ask:

- **What plants do you see in these images?**
- **How do you know if something is a plant?**



Discuss students' ideas about what a plant is. Record their ideas on the board. Invite students to discuss the questions in the magazine with a partner. Then, have them add any questions they have to the I Wonder Wall.

Ask:

- **How many different plants can you name?**

Record the list on the board as students brainstorm different plants. Then ask:

- **How are these plants different?**
- **How are they the same?**
- **Are these plants important to us? Are they important to the environment? How?**



Encourage students to ask their own questions about the plants on the list. Have students add all of their questions to the I Wonder Wall. Add the word “plant” to the Word Wall.

Read Aloud: *Picture a Tree*



Summary

This charming text with delightful Plasticine illustrations invites readers to use their imagination to picture a tree in different ways—in every season and from every angle.

Before Reading

Brainstorm with students what they know about trees. Then ask:

- **Is a tree a plant? How do you know?**

Set a focus for listening and viewing by asking students to note how trees change throughout the months of the year (the four seasons) as well as through the various stages of a plant's life cycle.

During Reading

As you read the book to students, pause frequently to discuss the text and illustrations, and to clarify any concepts. Alternate by asking students to respond in a whole group or with a partner. Prompts for discussion could include:

Pages 2–3:

- **What do you think the author means when she says, “There is more than one way to picture a tree”?**

Pages 4–7:

- **How do the trees look in these illustrations?**
- **What season do you think it is? How do you know?**

Page 8:

- **What does “the first few drops of colour” mean?**
- **How have the trees changed?**
- **What season do you think it is now?** (transition into spring)

Page 9:

- **How do the trees look in this image?**
- **What does the author mean by “all the art supplies at once”?**
- **Why would you need more colours to represent nature?**

Pages 10–11:

- **What are the differences between the illustrations on pages 10 and 11?**
- **How does this show a change of season?**

Pages 12–17:

- **What season do you think it is now?**
- **What clues can you see?**
- **What are some of the different ways trees are important to living things?**
(as a home for animals, a place for children to play, and as shade on hot summer days)

Pages 18–19:

- **How are these trees different?**
- **What do you think these differences represent?** (the trees are at different stages of their life cycle—from small saplings or baby trees, to growing, adult, and mature trees)

Pages 20–21:

- **What do you think the author means when she says, “You may see the end of one thing, or the start of something new”?** (the end of summer—when leaves begin to change colour and drop from the trees, and the beginning of a new season—autumn)
- **What do the yellow leaves suggest?** (moving into autumn)

Pages 22–23:

- **Why is this “a wild goodbye party”?**
- **Is this a good description?**

Pages 24–25:

- **What is the “glow in the darkness” the author refers to?**
- **What does she mean by “skeletons”?**
- **How are the “skeleton” trees different from the other trees in the image?**
(evergreens don’t lose their needles)

Pages 26–27:

- **How do the trees look now?**
- **What season is it?**

Pages 28– 29:

- **What do you think the author means by “Every winter tree holds spring, sleeping like a baby”?**

Page 30:

- **What season is it now?**
- **How do you know?**

After Reading

Invite students to create a “claymation” art project by using modelling clay to illustrate the growth of a flowering plant from seed to flowering.

Classroom Plants

Have one or more plants already growing in the classroom at the beginning of the unit. Be aware of any regulations surrounding plants in the classroom and any allergies that students in your class may have. Some possibilities for classroom plants include the following: cactus, fern, spider plant, peace lily, shamrock plant, Venus fly trap, amaryllis, snake plant, golden pothos, bamboo.

Allow students time to examine the classroom plant or plants. Ask students to describe the plants in their own words.



Have students draw each plant in their Science Journals, giving each plant a double page and allowing space for them to be labelled later on. Have each student generate and record in their journals at least one question about each classroom plant.

Curiosity Centre

Allow students time to explore the plants and plant-related items at the Curiosity Centre. Examples could include some of the following:

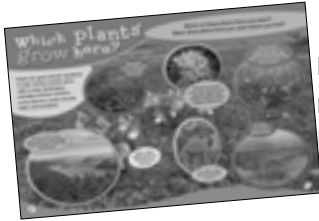
- a variety of non-toxic, uncoated seeds
- dried herbs and dried fruit
- items that are made from plants (e.g., paper, wood, cotton, rubber items, cork, henna dye)
- live flowering and non-flowering plants at various stages
- samples of soil
- items used for working with plants (e.g., pot, trowel, watering can)
- fiction and non-fiction literature about plants
- images of interesting plants



Remind students to use appropriate senses (not taste) when exploring items in the Curiosity Centre and be aware of any allergies in your classroom when choosing items to include.

Invite students to take turns choosing an item to focus on. As a class, discuss if and how the item is related to plants, and why or why not. Do not correct students at this time, or attempt to form a definition of what a plant is. Provide index cards at the Curiosity Centre for students to record questions that arise as they explore. These questions can be added to the I Wonder Wall.

CONNECT



Local Plants

Share pages 4–5 of the Student Magazine with students. Ask:

- Which of these plants have you seen?
- Do any of these plants grow nearby? Which ones?
- What other plants do you see when you go outside?
- What plants do you see at home?

Encourage students to ask questions about the plants in the Student Magazine and to predict what plants grow near the school.



If possible, take students on a nature walk in the neighbourhood. During the walk, have students identify and record in their Science Journals the different plants they see. Students could use digital photography to record images of the different plants.

Students may also collect samples of plants and parts of plants (twigs, fallen leaves, spruce cones, etc.) if it is safe and appropriate for them to do so in the areas you visit. These samples can be added to the Curiosity Centre.

Back in the classroom, have student groups choose a different plant observed on the walk and create a small poster with its name and picture. As a class, generate and record questions about the different plants. Put up the posters along with the questions about each one.

Classroom Visit

Invite a local person who works with plants to visit the classroom. Examples could be someone who works in a nursery, a person who works in the produce section of a grocery store, a florist, an arborist, or an amateur gardener. Before the visit, have a brainstorming session to come up with questions to ask the visitor. Assign each student a question to ask. Encourage students to ask new questions as they arise on the day of the visit.

Anchor Video

Play the Anchor Video: *Plant Growth and Changes*, which is located on the Teacher's Website. Set a focus for viewing by asking students to identify the needs of plants and the different ways that plants help humans and other animals. You may choose to pause the video to allow students to answer questions or to discuss any questions which students may have.



CONSOLIDATE

IWB Activity:

- Challenge students
- to identify which living
- things are plants using
- Activity 1: *Is it a plant?*
- (see the Teacher's
- Website).



Game: Is It a Plant?

Collect pictures of plants, other living things, and non-living things from magazines, or make a digital slide show with images sourced online. Designate one wall “plant” and one wall “not a plant.” As you show the pictures, students move to the appropriate wall when each picture is shown. Include “easy” items such as trees and flowers and cars and people, but also trickier ones such as moss plants and non-plants such as lichen, mushrooms, hydra, stick bugs, coral, anemones, and sea urchins. Encourage students to bring pictures from home to add to each wall.

EXPLORE MORE

Plants at Home

Have students take an inventory of plants and plant-based items at home with the help of an adult. Have them categorize their list. For example, categories could include: houseplants, plants we eat, clothing made of plants, furniture made of plants, other items made of plants. Encourage students to ask questions while performing their inventory, and to record one of the questions and the answer they received.

Poisonous Plants

Have students research to find out what poisonous or otherwise dangerous plants live locally. What are the best ways to identify and avoid these plants?