

Pre-trip Information for Teachers

Program Description

Foster the young biologists in your students, encouraging them to explore nature through focused observation, playful learning games, and collaborative outdoor activities. As they explore seasonal highlights in the Garden, students identify key parts and functions of plants, play the maple leaf match-up, make earth art, and more!

Learning Objectives

Students will:

1. Describe and compare plants using different resources, including their senses
2. Identify similarities and differences among plants.
3. Identify key parts of a plant (roots, stem, leaves, flowers and fruit)
4. List the basic factors necessary for plants to grow (water, nutrients, air, and sunlight)

Curriculum Connections

Kindergarten

BIG IDEAS

Plants and animals have observable features

CURRICULAR COMPETENCIES

- Observe objects and events in familiar contexts
- Make exploratory observations using their senses
- Discuss observations
- Share observations and ideas orally
- Ask simple questions about familiar objects and events
- Demonstrate curiosity and a sense of wonder about the world
- Experience and interpret the local environment

CONTENT

- Basic needs of plants and animals

Grade 1

BIG IDEAS

Living things have features and behaviours that help them survive in their environment.

CURRICULAR COMPETENCIES

- Make simple predictions about familiar objects and events
- Compare observations with predictions through discussion
- Communicate observations and ideas using oral or written language, drawing, or role-play
- Identify simple patterns and connections
- Ask questions about familiar objects and events
- Demonstrate curiosity and a sense of wonder about the world
- Experience and interpret the local environment

CONTENT

- Structural features of living things in the local environment
-

Grade 2

CURRICULAR COMPETENCIES

- Communicate observations and ideas using oral or written language, drawing, or role-play
- Consider some environmental consequences of their actions
- Identify simple patterns and connections
- Ask questions about familiar objects and events
- Demonstrate curiosity and a sense of wonder about the world
- Experience and interpret the local environment

Preparing students for their visit to a botanical garden

Visiting a botanical garden

A botanical garden is a place of beauty, where students will get to see and learn about a variety of plants. Have a discussion about what the students think a botanical garden is and what they might be able to see at a botanical garden. Refer to our general pre-visit package for more.

Garden Code of Conduct

Refer to our Code of Conduct sheet in our General Pre-visit Information package, and discuss with your students why it is important not to pick any living plants in the Garden:

- If you pick a living plant, it can no longer grow or be enjoyed by other visitors to the Garden
- Plants and their parts, such as seeds, cones and leaves are all food sources for wildlife or a home for insects.

Preparing students for the program

These interdisciplinary activities are designed to integrate math, science and language arts in preparation or as a follow up to your visit to VanDusen. Feel free to adapt the activities to be relevant to the age group and experience of your students.

Activities for exploring nature with all our senses

In the Classroom:

1. **Mystery Bag:** Identify hidden objects in a bag using touch only
2. **Blind Taste Test:** Select a number of healthy snacks and identify without looking.
3. **Leaf Rainbow:** A nature art exercise. In small groups, students search for leaves of different shades and colours and create a "leaf rainbow".
4. **Secret Smells:** Prepare up to 10 different aromatic natural substances (conifer or herb leaves, spices, flowers, fruits, moss, etc.) into cloth sacks, film canisters, or other small containers. Either in groups or as individuals, have the students try to recognize the substance by smell only.

Outdoors:

1. **Nature hunts:**
 - "Alphabet Hike" (list letters A – Z on a page and have your students hunt for items in nature by letter and write them down.
 - Egg carton hunt - each student collects 12 items (or 6, if cartons are cut in ½) - e.g., natural items which are: soft, spiky, something your favourite colour, strong, beautiful, old, fragile, yummy, sharp, smooth, closed, open, wet, dry, from an animal, dead, etc.
2. **Flash cards** of adjectives such as; rough, smooth, bumpy, prickly, pretty and get them to find natural objects with these attributes. Encourage them to think of other words to describe the object they have chosen.
3. **Sound Walk:** Walk around the school grounds and stop at key points and listen, what can they hear?

Follow up: relating activities to your trip to VanDusen

- 1) Explain to your students that they will soon be visiting VanDusen to go on a sensory walk around the Garden. Recap on the different senses used to explore your school grounds: Which senses did they make use of? Was there a sense that they didn't use? Why didn't they taste anything in the school grounds?
- 2) Discuss the safety issues when using the senses in the natural environment, for example:
 - Not to taste anything unless an adult known to them says it is ok
 - Look before touching to check for things that may sting/bite or you wouldn't want to touch

Additional Pre or Post-Visit Activities

Favourite Place in Nature: Where is your favourite place in nature? Write a description, draw or picture or describe the place to someone else. What makes it special?

Writing lesson: "You find an odd-looking seed and plant it. Your seed grows into _____." Write an ending to the story.

Categorization: Collect a variety of natural objects such as cones, seeds and leaves. Have your students sort and group their findings into categories and then explain their groupings

Activity: The Interdisciplinary Bean

Materials: Different sorts of bean seeds – pinto, black, kidney, mung, lima, pole; paper towels, plastic cups

Part 1 - Classification:

1. Divide students into small groups (three to four students/group) and distribute an assortment of different types of beans.
2. Have students sort their pile into classification groups based on some characteristic that is logical to them.
3. Have students re-sort their pile using different characteristics. For example, they may initially sort by size, and then by colour or shape.
4. Call on several groups to share with the class what characteristics they used to classify their objects, as different groups may have used different criteria.

Part 2 - Germination:

1. Ask students what part of the plant the beans are. Beans are seeds.
2. Try to germinate the seeds by placing them in around the outside of a clear, plastic cup lined on the inside with a wet paper towel.
3. Make predictions on which beans will germinate first. You may wish to presoak some beans overnight, and see if these ones germinate more quickly.
4. Extension possibilities: beans can be measured daily, and a chart kept on their growth. Beans could be grown with different variables to determine optimal conditions for growth (variations in moisture, light conditions, temperature, using water vs juice or rubbing alcohol)

Part 3 - Art:

1. Create mosaics or other crafts using the beans.

Activity: Natural Orchestra

Creative engagement with nature, musical sense, and group activity

Materials: Small pieces of wood, sticks, stones, dry branches, small branches, cones, blades of grass, hay, etc. These can be gathered ahead of time, or the students can bring them in. Ask participants to suggest what kinds of materials may be appropriate or not appropriate to gather from an environmental point of view e.g., avoid breaking live materials or small habitats. Use only materials lying on the ground, etc. or that which regenerates easily e.g., grass.

Description

1. Students will all try to find/make a musical instrument with a characteristic sound using only natural materials (e.g. clapping with sticks or stones, crackle with dry grass or cones, blow in blades of grass, etc.).
2. Then everyone introduces his/her own musical instrument and sounds that it makes.

You introduce a conductor and have a concert!

Variation

Organize students into small groups to form little ‘bands’ and learn one piece of music. Then they play it to the other groups, which try to guess what it was.

Activity: Observation Counts!

Adapted from *Botany for All Ages* and *Math in the Garden*

Objective: Students use vivid vocabulary to describe an assortment of plant parts and make a bar graph to represent their observations.

Materials: Cue cards, pencils, crayons, graph paper, tape

Procedure:

1) Bring in a large assortment of plant parts and spread them out on a table: leaves of various shapes and textures, fruit, bark, roots, seeds, flowers... You may choose to have your class go out and collect these, or to bring in your own collection.

2) Gather your students in a group to have a look at these items and ask them for words that describe the textures of them. As students suggest words, write them on cue cards (combining similar words onto the same card.) Keep the number of cards down to 6 or less.

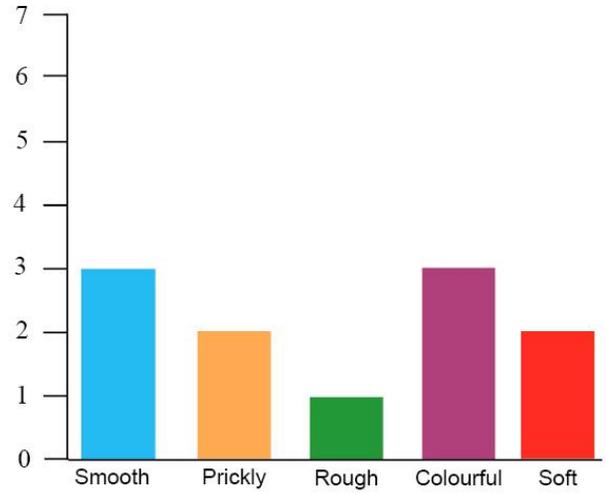
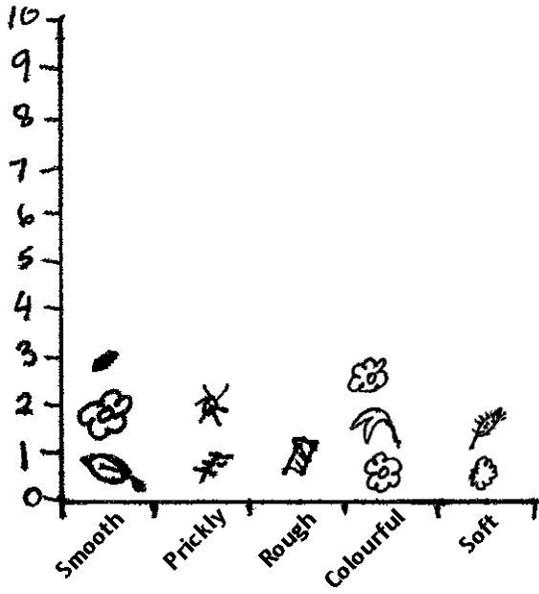
3) Draw an X and Y axis on the chalkboard/whiteboard, and tape each cue card in horizontal row along the bottom of a chalkboard/whiteboard. Write 1,2,3,4 etc.. along the side of the Y-axis.

4) Ask your students to take turns selecting items on the table and placing them above what they think is the appropriate descriptive cue card. You may wish to demonstrate with an example or two to acquaint the children with the process. Every new item is added vertically, so eventually it will resemble a bar graph.

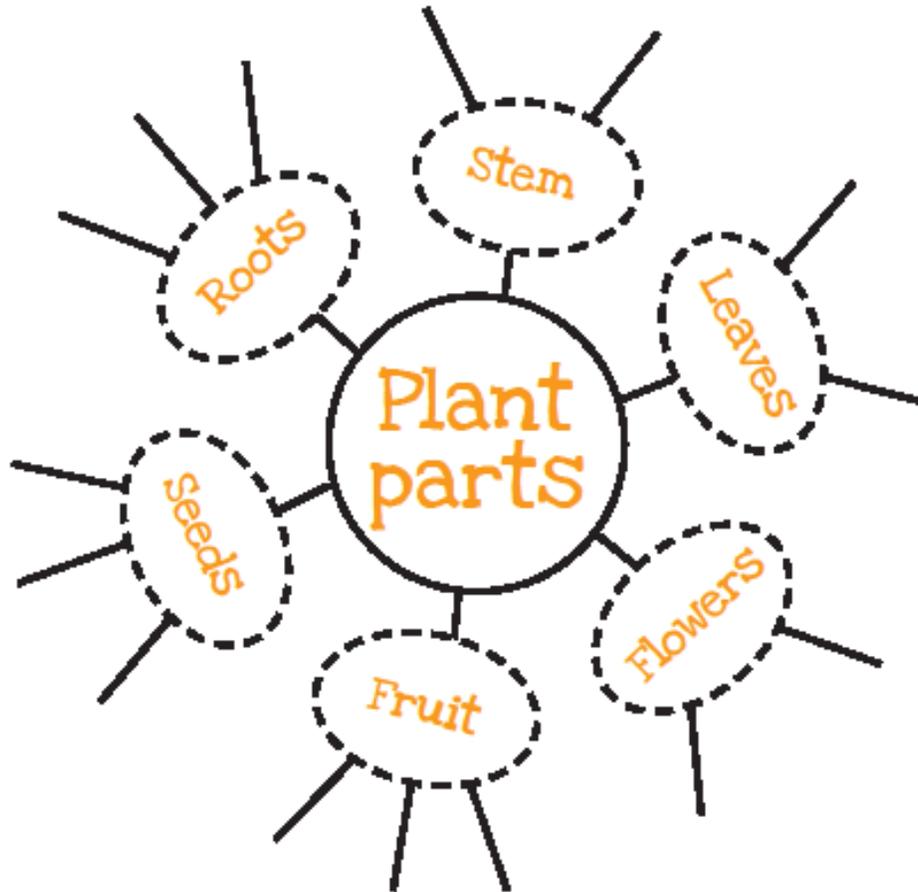
5) After all the students have placed their items, count up each vertical row and write the total on the chalk board. Draw a rectangle around them to make each column resemble a bar. Depending on their age, have your students recreate this bar graph on their own graph paper. See the drawing on the next page as an example.

6) When the graph is complete, have the students make true statements about the information on their graph. Assist by asking questions such as:

- What is the most/least common description for these plant parts?
- What do these parts all have in common, even though they have been divided into categories?
- What other observations can you make about this graph?
- What is a good title for this graph?



Plant Parts web

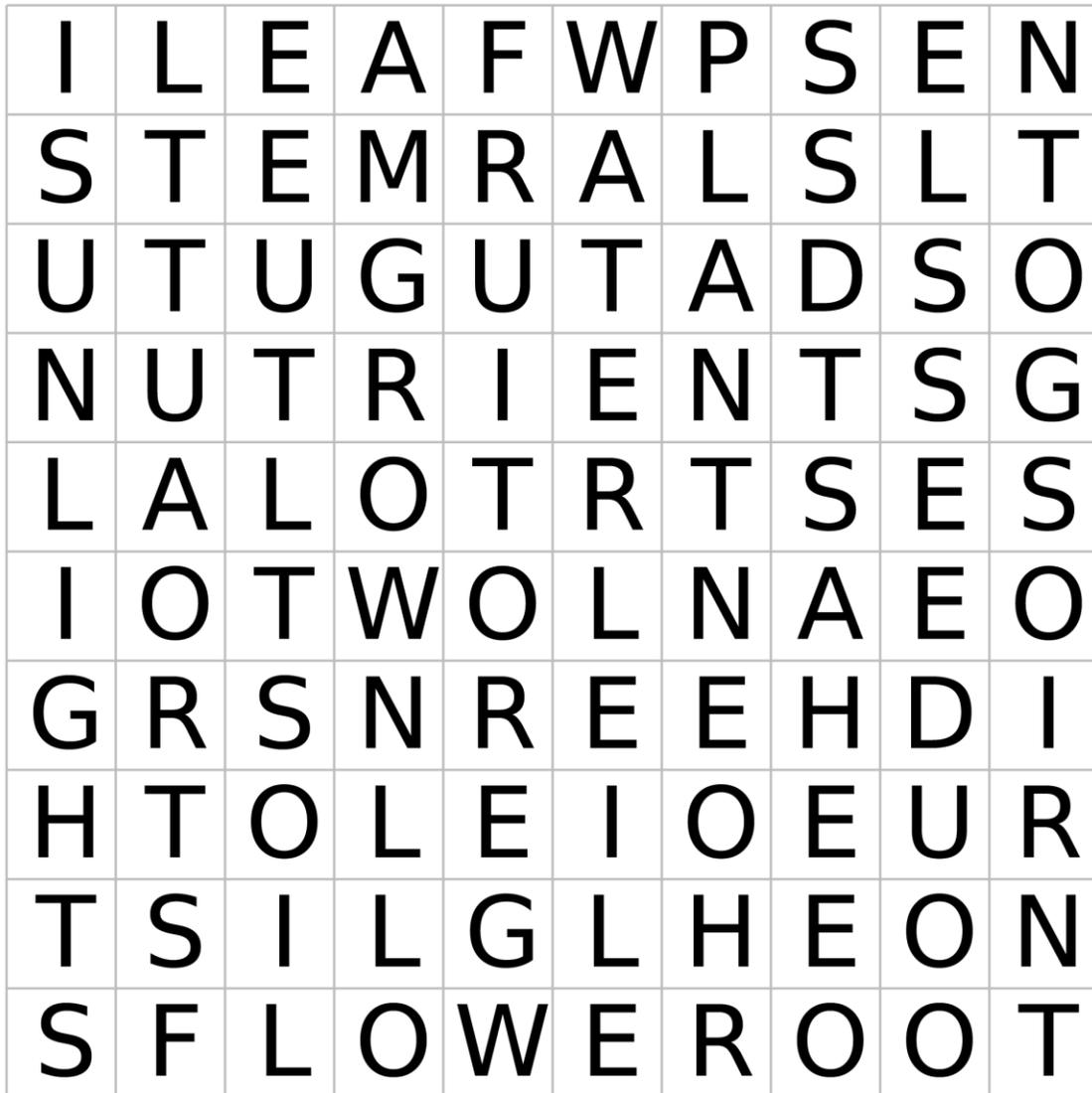


Plant tags:	Corn	Radishes	Sunflower seeds
Carrots	Celery	Asparagus	Lettuce
Spinach	Peppers	Tomatoes	Watermelon
Beet	Wheat	Broccoli	Cauliflower

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Basic Botany Wordsearch

Find these plant related words!



plant
flower
sunlight

root
seed
water

leaf
fruit
nutrients

stem
grow
soil

WORDSEARCH ANSWER KEY

I	L	E	A	F	W	P	S	E	N
S	T	E	M	R	A	L	S	L	T
U	T	U	G	U	T	A	D	S	O
N	U	T	R	I	E	N	T	S	G
L	A	L	O	T	R	T	S	E	S
I	O	T	W	O	L	N	A	E	O
G	R	S	N	R	E	E	H	D	I
H	T	O	L	E	I	O	E	U	R
T	S	I	L	G	L	H	E	O	N
S	F	L	O	W	E	R	O	O	T

Glossary

Botany: The science or study of plants

Botanical: Of or relating to plants or plant life

Botanical Garden: A place where many types of plants are grown, protected, studied and displayed

Growth: An increase in size

Flower: the part of a plant which changes into a fruit holding seeds

Leaf: the part of the plant that produces food (absorbs light for photosynthesis)

Nutrient: A source of food, especially a nourishing ingredient in a food

Photosynthesis: The process in green plants use light as an energy source to create food from carbon dioxide in the air and water in the soil

Observation: Information that is gathered in a scientific way. The act of taking a careful look at something, and describing what you see, feel... etc.

Plant: a living multi-celled organism that usually makes its own food from photosynthesis

Pollen: dust-like particles found on the flower part of a plant that contain reproductive cells

Root: underground portion of a plant that serves as support, draws nutrients and water from the surrounding soil

Seed: the part of the plant from which new plants grow

Shoot: the part of a plant above ground

Soil: The top layer of the earth's surface, consisting of rock and mineral particles mixed with organic matter

Tap root: a large main root that has other small roots spreading out from it

Stem: the part of a plant that supports the buds, leaves and flowers