

1.2 My Pet Planty

Story Extension for This Lesson:

This lesson can be used in the beginning of the story when Alex and Sam are curious about what is in the forest. Both children are aware of the trees in the forest, but have yet to be exposed to the other plants that live in the forest. This lesson will help students discover what plants need to grow and stay healthy.

Grade: 1

Strand: Needs and Characteristics of Living Things

Big Ideas:

- Living things grow, take in food to create energy, make waste, and reproduce. (Overall expectations 2 and 3)
- Plants and animals, including people, are living things. (Overall expectations 2 and 3)

Overall Expectations:

2. investigate needs and characteristics of plants and animals, including humans
3. demonstrate an understanding of the basic needs and characteristics of plants and animals, including humans

Specific Expectations:

- 2.1** follow established safety procedures and humane practices during science and technology investigations
- 2.6** use appropriate science and technology vocabulary, including investigation, explore, needs, space, and food, in oral and written communication
- 3.2** identify the physical characteristics of a variety of plants and animals
- 3.4** describe the characteristics of a healthy environment, including clean air and water and nutritious food, and explain why it is important for all living things to have a healthy environment
- 3.5** describe how showing care and respect for all living things helps to maintain a healthy environment
- 3.6** identify what living things provide for other living things

Inquiry Skills:

Predicting, Recording, Comparing, Contrasting

Instructions:

The purpose of this activity is to compare and contrast the different needs of plants. For those who want to try an open inquiry activity, please go to the Extension section of this lesson.

It is recommended students work in groups of three, where each student is responsible for their own plant.

NOTE: To save money, you can use potting soil and 24 single-serve yogurt containers in lieu of Jiffy-7 pellets and Jiffy pots. Jiffy-7 pellets, pots and trays are found in most home and garden centres.

Procedure:

If using Jiffy-7 pellets to germinate seeds:

1. Give each student a Jiffy pellet and have them place them in a baking pan.
2. Pour water over the Jiffy pellets and have your students observe and record or share what they are seeing. After all Jiffy pellets have been expanded, students are to take their pellet, place it inside their empty Jiffy pot, and return to their workstation or desk.
3. Each student in their group of three will select different seeds (e.g., first student selects a tomato seed, second student selects a lima bean seed, and the third student selects a sunflower seed).
4. Students will take their seed, gently push their seed into the Jiffy pellet, and cover the seed with peat. NOTE: You can break apart one the extra Jiffy pellets and use the peat to top up Jiffy pots when required.
5. Students will take their Jiffy pots and placed them on a window sill or any area of the classroom that receives the most light.
6. Have each student make and record their observations as to what is happening in their container. (My Pet Planty)

If using soil and empty single serve yogurt containers:

1. Fill each yogurt container 3/4 full with potting soil. Moisten soil with water.
2. Each student in their group of three will select different seeds (e.g., first student selects a tomato seed, second student selects a lima bean seed, and the third student selects a sunflower seed).
3. Students will take their seed, gently push their seed into the container, and cover the seed with soil.
4. Add water to moisten soil and place their containers on a window sill or any area of the classroom that receives the most light.
5. Have each student make and record their observations as to what is happening in their container. (Mt Pet Planty)

Extension:

To convert this activity from guided inquiry to open inquiry, have students select variables they can change and measure and redo the experiment. Common variables students have suggested are: water, sunlight, artificial light, etc. Some classes have completed a study to determine the difference between plants growing in potted soil versus peat. Let your students decide what they want to investigate. It is recommended you use the Smarter Science framework to help students develop their own inquiry questions.

Steps to Inquiry Level 1 for framework posters - Primary Level
Log Book.

Additional Resource:

If you have a Gizmo account from www.explorellearning.com, go to “Find Gizmos” and enter search for “Growing Plants.” This is an excellent tool to help students understand what variables affect plant growth and overall health.

Materials List:

- 24 Jiffy-7 pellets
- 24 Jiffy pots
- three types of seeds: tomato, lima bean, sunflower
- water
- baking pan
- beaker (250 mL)

Connections:

This lesson can be used in conjunction with the Mathematics curriculum under the Measurement or Data Management strand. To complete this activity, students are required to make careful measurements, graph the results, and analyze the data collected.

Subject Area:

Math

Connects to:

Grade 3, Grade 6

Assessment Strategy:

It is recommended you focus your assessment on process skills. To help get you started on this path, a series of charts have been provided for you.

Handouts/Assessments:

- My Pet Planty
- Steps to Inquiry Level 1
- Primary Level Log Book
- Process-Skill-Predicting-1
- Process-Skill-Recording-1
- Process-Skill-Comparing-10
- Process-Skill-Contrasting-10

Handouts:

My Pet Planty.pdf

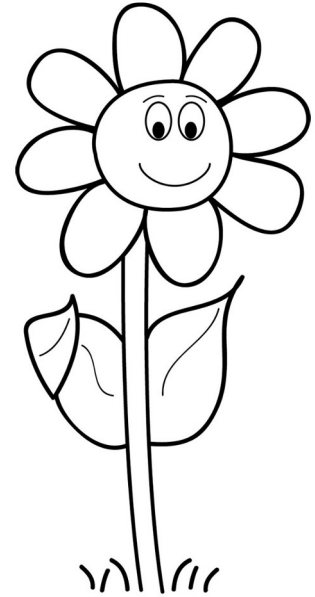
Steps to Inquiry Level 1.pdf

Primary Level log book.pdf & Assessments Process Skills – Predicting, Recording, Comparing & Contrasting (4 pages)

My Pet Planty

Prior Knowledge:

What do you think plants need to grow and stay healthy? Write or draw your answer.



How do you think potting soil or peat help plants grow?
Write or draw your answer.

Predictions:

I predict _____ will sprout first because

I predict the _____ will grow the
tallest because _____

Observations:

Plant Type	Height in cm on Day 1	Height in cm on Day 5	Height in cm on Day 10	Height in cm on Day 15	Height in cm on Day 20
Lima Bean					
Sunflower					
Tomato					

Name: _____

Conclusions:

What did you discover?

Picture:

Why do you think it happened that way?

Picture:

Planning Our Investigation

Step 1: Observing & Questioning

Place sticky notes of the same colour in the space below.

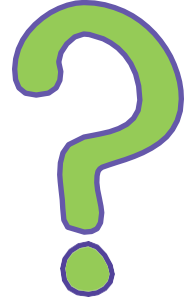
Place sticky notes of a new colour in the space below.

OBSERVE

See Smell Hear Touch Taste



WONDER



Level: 1

Planning Our Experiment

Step 2(a): What could we measure or observe about the object, or event?

Brainstorm (Place sticky notes of the same colour in the space below.)

Measure or Observe

Step 2(b): What could we change or vary about the object or event that may affect what we could measure or observe?

Brainstorm (Place sticky notes of a new colour in the space below.)

Variables

Level: 1



Planning Our Experiment

Step 3(a): What will we change?

ONE VARIABLE WE WILL CHANGE:

WE WILL MEASURE OR OBSERVE THIS RESULT:

Changed
Variable

(Place a sticky note from Step 2(b))



Measure
or Observe

(Place a sticky note from Step 2(a) here)

Step 3(b): What will we not change?

VARIABLES WE WILL NOT CHANGE:

What conditions will be held constant so it is a fair test? Place remaining sticky notes from Step 2(b) here.

Unchanged Variables

Level: 1

Planning Our Experiment

Step 4: What is the question we want to explore?

If we change

Changed Variable

what will happen to

Measure or Observe

compared to our control?

Step 5: What is our prediction?

State how we will change the variable and predict the outcome.

We predict that...

We think this will happen because...

Level: 1



Communicating My Results

When I _____
what I did to the changed variable

the changed variable

the _____
what I measured or observed

what happened to what I measured or observed

Looking Back



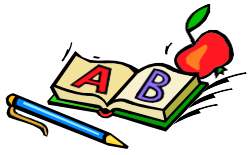
Did my results support my prediction? YES NO

What other questions do I have?

I wonder

We are
Smarter Scientists
learning about:





My Science Words

How will I display my results?

(graphs, labelled diagrams, etc.)



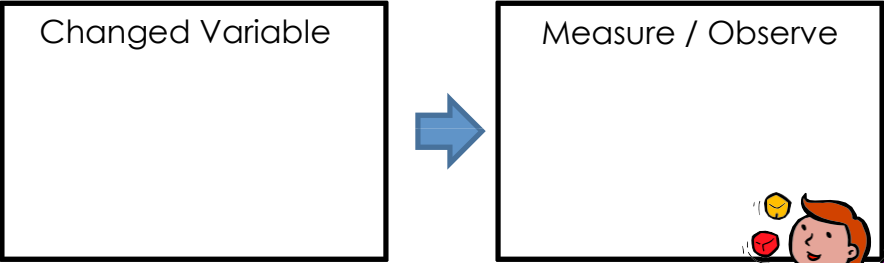
How will I record my observations and/or measurements?



What changes did I make to the changed variable?	What did I observe or measure?



What will I change?



What will I NOT change?

Unchanged Variable	Unchanged Variable
Unchanged Variable	Unchanged Variable
Unchanged Variable	Unchanged Variable

compared to my control?

Measure / Observe



I predict that

I think this will happen because

Process Skill - Predicting

Process Skill	Students	Teachers	What This Skill Should Lead To
Predicting	☐ a clear statement or diagram(s) that explains what will happen in a future event, such as a demonstration, activity, or exploration. Predictions can take the form of “If..., then...” statements.	☐ allowing for brainstorming about a given observation/statement ☐ guiding students to speculate on what might happen ☐ providing prompts to encourage students to predict (e.g., I predict that... or I think that...)	Predictions are the foundation for formulating testable questions, and are required for any controlled experiment.

Teacher Notes:

Process Skill - Recording

Process Skill	Students	Teachers	What This Skill Should Lead To
Recording	□ carefully collecting and organizing data so that it is easy to understand □ capturing as much pertinent information as possible—observations and results—using a variety of methods □ using graphic organizers. These should be developed by students so that they understand them and know how to use them.	□ allowing students to choose what to record and how, but promoting the use of certain categories to collect and organize data when necessary. □ monitoring students' record-making and suggesting better ways to record results and observations □ modeling the use of various methods and organizers to collect, maintain, and protect (back up) data □ an opportunity to assess students' understanding of the experimental design and required measurements	Recording procedures, results, interpretations, and conclusions allows experiments to be replicated and validated by others. Recording raw results allows for later transformation of these results into graphs (to look for patterns or trends) or statistical tests (e.g., mean, median, mode) to look for statistically significant results. Recording information in various forms can lead to more questions, deeper thinking and, ultimately, a better understanding of science.

Teacher Notes:

Process Skill - Comparing

Process Skill	Students	Teachers	What This Skill Should Lead To
Comparing	☐ carefully examining two or more samples (objects, events, behaviours, or data) ☐ utilizing all five senses, as appropriate, to find similarities ☐ paying attention to finer details ☐ may involve graphic organizers to sort ideas ☐ may be influenced by prior knowledge, schema, or cultural perspective	☐ done by students, though you may need to provide prompts depending on their ages and abilities ☐ personal and individual to each student (consider previous experiences and cultural perspectives) ☐ differentiated for each student	Students will become better able to find patterns and commonalities, and thus become better and more keen observers of the natural world.

Teacher Notes:

Process Skill - Contrasting

Process Skill	Students	Teachers	What This Skill Should Lead To
Contrasting	☐ carefully examining and determining differences between two or more samples (objects, events, behaviours, or data) ☐ sorting samples in multiple ways ☐ using graphic organizers (e.g., T-chart, Venn diagram, fishbone diagram) with headings to help sort or using the Frayer Model (focusing on differences) to help organize thinking and improve understanding of scientific content and concepts ☐ using differences in data to analyze and interpret results	☐ giving students many opportunities to distinguish samples based on their differences ☐ using instructional strategies (e.g., gallery walk) so students can share their contrasting with other students ☐ allowing students to select samples and data that they can contrast. It is best if these come from student-directed inquiries ☐ differentiated for every student	Students will become better able to find subtle differences in samples and thus become better at making quality observations. They will also generate better conclusions based on differences found in their inquiries. Through contrasting, students will learn useful descriptive vocabulary as well as develop higher-order thinking skills, such as the use of similes and metaphors, to communicate their understanding.

Teacher Notes: