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## Grade 1 How might an animal meet its shelter needs?

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### Experience 2: Needs of Living Things Snail Investigation

In this set of learning experiences, teachers will guide students using an inquiry model to explore topics such as living and nonliving things, the needs of living things, as well as matter and materials. Students will then apply that knowledge to complete a challenge in which students will use the engineering design process to build a structure for a bird.

There are 4 specific learning experiences outlined in this series and including

Experience 1: Nature Walk Provocation/Outdoor Investigation

Experience 2: Needs of Living Things Snail Investigation

Experience 3: Materials Exploration and Materials Scavenger Hunt

Experience 4: Design Challenge-Build a Bird Nest and/or a Birdhouse

[Long Range Plan Grade 1 Model 1](#) “September”

<b>Overview of learning experiences</b>	Following the provocation activity (Activity #1), students will investigate the needs of living things and begin to explore the idea of how a healthy environment enables living things to meet their needs.  <a href="#">Long Range Plan Grade 1 Model 1</a> “September”
<b>Prior Knowledge / Prior Skill Set(s)</b>	The beginning of the year is a great time to define science as a method for acquiring knowledge of the world, and review the scientific process steps (observation, question, research, hypothesis, experiment, analysis, and conclusion/communication). In this series of learning experiences, the teacher will model the scientific process, beginning with what it means to make observations using our senses. Teachers can also consider introducing a science journal as a place to record questions and observations with pictures and notes. It may also be helpful to model this process, choosing instead to record ideas on a piece of chart paper as a class. As students gain familiarity with the process, journals can be used as a form of assessment.  September is also important to establish routines and safety procedures, especially during science investigations. Students should have a thorough understanding of how to safely handle any tools and/or materials.  Students do not need any prior knowledge for this series of learning experiences. The provocation activity and subsequent knowledge circle is

	<p>instead an opportunity for teachers to assess student knowledge about living and nonliving things, and use questions generated from the nature walk to inform the next steps of the inquiry.</p>
<p><b>Strand A - <a href="#">STEM Investigation and Communication Skills</a></b></p>	<p><b>A. STEM Skills and Connections</b></p> <p> <b>A1.1</b> use a scientific research process and associated skills to conduct investigations</p> <p> <b>A1.2</b> use a scientific experimentation process and associated skills to conduct investigations.</p> <p> <b>A1.4</b> follow established health and safety procedures during science and technology investigations, including wearing appropriate protective equipment and clothing and safely using tools, instruments, and materials.</p>
<p><b>Overview / Big Ideas/Fundamental Concepts</b></p>	<p>Fundamental Concepts:</p> <ul style="list-style-type: none"> <li>● Systems and Interactions</li> <li>● Structure and Function</li> </ul> <p>In this lesson series, students will make connections between several strands of science including</p> <ul style="list-style-type: none"> <li>A. STEM Skills and Connections</li> <li>B. Life Systems: Needs and Characteristics of Living Things</li> <li>D. Structures and Mechanisms: Everyday Materials, Objects, and Structures</li> </ul> <p>Following the steps of the scientific method, students will begin by participating in a nature walk and outdoor investigation, with a strong focus on observation. Students are invited to document what they see, hear, touch and smell. As part of their initial exploration, students may make note of both living and non-living things, natural and built elements of the environment, as well as generate important questions and wonderings that will guide our inquiry. Back in class, students will identify the basic needs of living things, including the need for air, water, food, heat, shelter, and space, and determine how a healthy environment enables living things to meet their needs. In the next activity, students will identify materials that are used to make various everyday objects, including structures. Following a scavenger hunt activity, students will be able to identify properties of materials that enable the objects made from them to perform their intended function. To consolidate their understanding, in the final challenge, students will utilize</p>

	<p>the engineering design process to construct a birdhouse. Students will present their designs, materials used, and reflect on the building process.</p>
<p><b>Learning Goals / Success Criteria</b></p>	<p><b>What is the main goal?</b></p> <p>By the end of this learning experiences student will be able to:</p> <ul style="list-style-type: none"> <li>● Recognize the basic needs of living things</li> </ul> <p>Educators are encouraged to co-create success criteria with students and share “I Can Statements” based on the curricular expectations. Sharing options can include</p> <p>In-person:</p> <ul style="list-style-type: none"> <li>● Knowledge Circle</li> <li>● Science Journal (optional)</li> <li>● Snail Experiment Template (see <a href="#">Appendix A: Snail Experiment Activity Guide</a>) (optional)</li> </ul> <p>Online:</p> <ul style="list-style-type: none"> <li>● Science Journal</li> <li>● Presentation</li> <li>● Breakout Room Showcase</li> </ul> <p><b>Ministry of Education Key Points</b></p> <ul style="list-style-type: none"> <li>● <b>STEM Skills and Connections:</b> Perspectives and approaches that provide opportunities for students to investigate and apply concepts and skills from all areas of learning.</li> <li>● <b>Research and Experimentation Processes:</b> Provides students with the scientific literacy skills needed to approach scientific questions that are becoming a part of everyday life.</li> <li>● <b>Hands-on, Experiential Learning:</b> Includes hands-on, experiential learning opportunities to support classroom activities that encourage curiosity.</li> </ul>
<p><b>Learning Experience(s)</b></p>	<p>In the following learning experiences, students will build upon their existing knowledge and understanding of the natural world. Beginning with a nature walk, students will be able to observe and take note of a variety of living and non-living things. The shared experience will help to foster wonder and curiosity, and to assess student knowledge, questions, and/or misconceptions.</p> <p>From there, in subsequent lessons, students will explore how the environment meets the needs of living things, including materials used to make everyday objects and structures.</p>



A.1.1, A.1.2, A.1.4,  
A.1.5

Students will then apply their learning and follow the engineering design process to construct a nest or birdhouse.

### **Lesson 2: Needs of Living Things Snail Investigation\***

\*During the fall months, garden snails are often found near damp, shaded areas. Alternatively, use what is available (e.g., pair with a rearing monarch butterfly experience, or replace snails with a worm, insect, class pet, or mealworms (available at pet stores). Please follow the guidance of your school and school district and get the necessary permissions to use live specimens in your class.

#### **Minds On (~5-10min.)**

1. Write "What is a living thing?" on the board.  
Remind students of some of the things they observed while out on their nature walk. (e.g., rocks, trees, grass, leaves, sticks, ants, clouds, birds, etc.) Which of those things is living? Which are nonliving? How do you know? Discuss as a class.
2. To support student thinking, show students two plants. One artificial, one real. Are the plants living or nonliving? How do you know? What's the same or different about the two plants?
3. Record student ideas (characteristics of living things) on the board and review them as a class. (e.g., Living things move, breathe (respire), grow, reproduce, eat (get energy), excrete waste, and respond to stimuli) Use the class-generated list to determine if different things they observed on their walk are living or nonliving.

#### **Action (~20 min.)**

4. Present students with live garden snails. Outline expectations for students when working with live specimens (e.g. be gentle, use quiet voices, keep snails on the table/inside the terrarium, etc.)
5. Teachers may want to hand out magnifying glasses, science journals, and a spray bottle\*. (Snails prefer damp surfaces and spraying the area may encourage more movement) Let students know that their journals can be used to sketch and label drawings, as well as, to record questions and ideas (e.g. What are the needs of the snail?)
6. Allow students time to observe the snails up close. (What is it? Is it alive? What is alive? Where does it live? What does it need? What are its parts? How does it use those parts to get what it needs?)
7. Optional Investigation: This is an opportunity to model the scientific process to conduct a fair test around student questions. e.g. Do snails prefer light or dark? Carrot or cucumber? How might we find out? Students can make their hypothesis, come up with a materials list and method and conduct a test. For example, students can place a snail at the centre of a pie plate, one side is covered by a dark cardstock, and

	<p>the other side is under bright light. Observe for 5 minutes to see which side the snail chooses. What was the sample size? Was there more than one trial? What are some sources of error?</p> <p><b>Consolidation (~5-10min.)</b></p> <p>8. Gather as a class and share their learning (Are snails alive? What are their basic needs?) and/or the results of their experiment (What worked? What didn't work? Can we make a conclusion? Was our hypothesis right? How might the experiment be improved?)</p> <p>9. Have students make notes in their Science Journals.</p> <p>*Alternate activity without snail specimens - provide students with pictures of different plants and/or animals. What is it? What are its basic needs? What are its parts? How does it use those parts to get what it needs?</p> <p><b>What the students do:</b></p> <p>Initiating and Planning</p> <ul style="list-style-type: none"> <li>● Brainstorm characteristics and needs of living things.</li> <li>● Compare and contrast living and nonliving things</li> </ul> <p>Performing and Recording</p> <ul style="list-style-type: none"> <li>● Observe live snails, making notes of their structure, movements, etc.</li> <li>● Perform an experiment* (Optional experiment)</li> </ul> <p>Analyzing and Interpreting</p> <ul style="list-style-type: none"> <li>● Generate a list of needs of living things</li> <li>● Reflect on the validity and results of the experiment* (Optional experiment)</li> </ul> <p>Communicating</p> <ul style="list-style-type: none"> <li>● Record and share observations in their science journals</li> <li>● Listen to and share ideas as part of a class discussion</li> </ul>
<p><b>Science and Technology Expectations</b></p>	<p><b>B. Life Systems: Needs and Characteristics of Living Things</b></p> <p>B2.1 demonstrate an understanding of the natural environment as a place where living and non-living things are interconnected</p> <p>B2.2 identify the basic needs of living things, including the need for air, water, food, heat, shelter, and space</p> <p>B2.3 identify the physical characteristics of various plants and animals, including humans, and explain how these characteristics help the plants and animals meet their basic needs</p>

<p><b>Science and Technology Vocabulary</b></p>	<ul style="list-style-type: none"> <li>● <b>Observe*</b>: to watch carefully, or to make a scientific</li> <li>● <b>Form*</b>: the shape and structure of something as distinguished from its material</li> <li>● <b>Function*</b>: to serve a certain purpose</li> <li>● <b>Natural*</b>: existing in or produced by nature</li> </ul> <p>*Definitions taken from Britannica Kids Online Dictionary  <a href="https://kids.britannica.com/">https://kids.britannica.com/</a></p>
<p><b>Equipment and Materials</b></p>	<ul style="list-style-type: none"> <li>● Magnifying glasses</li> <li>● Paper, Science Journal and/or Experiment Activity Guide</li> <li>● Insect viewer/terrarium or containers with air vents/holes</li> <li>● snails*(mealworms, or pictures of animals and plants)</li> <li>● Spray bottle</li> </ul> <p><b>Lesson 2 Needs of Living Things Snail Investigation*</b></p> <ul style="list-style-type: none"> <li>● Insect terrarium (container with air vents/holes)</li> <li>● Snails* (or other live specimens, if possible, e.g., mealworms, earthworms, the class pet, etc.), alternatively print pictures of plants and animals</li> <li>● Magnifying Glasses</li> <li>● Spray bottle with water*(Snails prefer damp/wet surfaces)</li> <li>● Optional: plastic plant and real plant</li> <li>● Optional snail experiment materials: Snail Experiment graphic organizer (see <a href="#">Appendix A: Snail Experiment Activity Guide</a>), pie plates, foods (e.g., cucumber/carrot), flashlights, dark cardstock/construction paper, etc.)</li> <li>● Science Journals (see <a href="#">Appendix B: Science Journals</a>)</li> </ul>
<p><b>Timeline and Preparation</b></p>	<p><b>Lesson 2 Needs of Living Things Snail Investigation*</b> (~1 period)</p> <p><b>First Steps:</b> Collect snail specimens</p> <p>*During the fall months, garden snails are often found near damp, shaded areas. Alternatively, use what is available (eg. pair with a rearing monarch butterfly experience, or replace snails with a worm, insect, class pet, or mealworms (available at pet stores).</p> <p>Gather materials such as magnifying glasses, spray bottles, and materials to conduct snail experiments if time permits.</p> <p><b>Next Steps:</b> Think of opportunities to extend learning. Complete the suggested snail experiments or research and/or learn more about garden snails (their parts, their basic needs, and how those parts help them to meet their basic needs). Alternatively, have students think about other plants and</p>

	<p>animals and brainstorm their basic needs and the parts that allow them to meet their basic needs.</p>
<p><b>Safety Considerations</b></p>	<p><b>What does the teacher do?</b></p> <ul style="list-style-type: none"> <li>• Obtain necessary permissions to bring and use live specimens in the classroom</li> <li>• Ensure students are aware of safety considerations when working with live specimens (wash hands before and after the investigation, use gentle hands and gentle voices, etc.)</li> </ul> <p><b>What do the students do?</b></p> <ul style="list-style-type: none"> <li>• Follow established safety procedures.</li> <li>• Utilize tools and materials in a safe manner.</li> <li>• Be gentle and handle any live specimens (e.g. snails) with care.</li> <li>• Wash and clean hands after investigations.</li> </ul> <p>Refer to these Safety resources:</p> <ul style="list-style-type: none"> <li>· <a href="#">Safety in Elementary Science and Technology (STAO)</a></li> <li>· <a href="#">Safe Activity Foundations in Education Document (SAFEdoc) Science and Technology, Grades 1-8 (OCTE)</a></li> <li>· <a href="#">Ontario Curriculum Program Planning – Health and Safety</a></li> </ul>
<p><b>Opportunities For Assessment</b></p>	<p>According to the Ministry of Education Growing Success Document (2010) assessment is about improving student learning!</p> <p><b>Assessment FOR Learning:</b> Occurs frequently and in an ongoing manner during instruction, while students are still gaining knowledge and practicing skills and is used by teachers to monitor students' progress towards achieving the overall and specific expectations, so that teachers can provide timely and specific descriptive feedback to students, scaffold next steps, and differentiate instruction and assessment in response to student needs.</p> <p><b>Assessment AS Learning:</b> Occurs frequently and in an ongoing manner during instruction, with support, modelling, and guidance from the teacher, and is used by students to provide feedback to other students (peer assessment), monitor their own progress towards achieving their learning goals (self-assessment), make adjustments in their learning approaches, reflect on their learning, and set individual goals for learning.</p> <p><b>Assessment OF Learning:</b> Occurs at or near the end of a period of learning, and may be used to inform further instruction and is used by the teacher to summarize learning at a given point in time. This summary is</p>

	<p>used to make judgments about the quality of student learning on the basis of established criteria, to assign a value to represent that quality, and to support the communication of information about achievement to students themselves, parents, teachers, and others</p> <p>Please use the following links for reference:  <a href="https://www.dcp.edu.gov.on.ca/en/assessment-evaluation">https://www.dcp.edu.gov.on.ca/en/assessment-evaluation</a>  <a href="https://www.edu.gov.on.ca/eng/policyfunding/growsuccess.pdf">https://www.edu.gov.on.ca/eng/policyfunding/growsuccess.pdf</a></p> <p>Throughout this series of learning experiences, a combination of observation, discussion, reflections, journals, and student work samples are used to assess learning.</p> <p><b>Lesson 2: Assessment FOR Learning/AS Learning Opportunity</b>  This activity is designed to provide students with hands-on experience observing a living thing up close, leading to important discussions about the needs of basic needs, and the parts of living things that enable them to meet those needs. Record your observations and evaluate what students already know and any misconceptions they may have.  The students' journal pages (if used) can be used as an example of student thinking and understanding.</p>
<p><b>Instructional Strategies and Adaptability</b></p>	<p>Program Planning and Equity and Inclusion and CRP:  <a href="https://www.dcp.edu.gov.on.ca/en/program-planning/considerations-for-program-planning/human-rights-equity-and-inclusive-education">https://www.dcp.edu.gov.on.ca/en/program-planning/considerations-for-program-planning/human-rights-equity-and-inclusive-education</a></p> <p>These learning experiences make use of a variety of instructional strategies. You may wish to further adapt, modify or change the lessons as indicated to suit the needs of your students.</p> <p>You may wish to scribe ideas for students who require extra support. Or alternatively, share and journal ideas (questions, observations, etc) together as a whole class. With practice, students will have a better understanding of what they may want to include.</p> <p>You may wish to partner students up to facilitate more peer support and collaboration.</p> <p>Some students may benefit from having the vocabulary and definitions on a handout sheet as well as being able to see and refer to them on a bulletin board.</p>

<p><b>Additional Supporting Resources</b></p>	<p><b>Science North</b></p> <ul style="list-style-type: none"> <li>• <a href="#">Needs of Living Things</a></li> </ul> <p><b>Scratch Jr</b></p> <ul style="list-style-type: none"> <li>• <a href="https://www.scratchjr.org/">https://www.scratchjr.org/</a></li> </ul>
<p><b>Cross-Curricular Opportunities</b></p>	<ul style="list-style-type: none"> <li>• Read and research different types of snails</li> <li>• Compare and contrast different types of snails (ex. Land snails and sea snails)</li> <li>• Draw and label the parts of a snail</li> <li>• Use a science journal to record observations (parts of a snail and their function)</li> <li>• Practice procedural writing to outline the steps needed to care for the snails, providing them with its basic needs, in the terrarium.</li> </ul> <p><b>LANGUAGE:</b></p> <p><b>Oral Communication</b></p> <ul style="list-style-type: none"> <li>• Listen in order to understand classmates when sharing observation journals.</li> <li>• Use speaking skills and strategies appropriately to communicate when in the field and in the classroom.</li> </ul> <p><b>Writing</b></p> <ul style="list-style-type: none"> <li>• Generate, gather, and organize ideas and information to write for an intended purpose and audience.</li> </ul>
<p><b>Future Opportunities / Next Steps</b></p>	<p><b>Further moving forward opportunities for students.</b></p> <ul style="list-style-type: none"> <li>• Research and learn about different types of snails</li> <li>• Conduct the optional snail experiment described above (<a href="#">see Appendix A: Snail Experiment Activity Guide</a>)</li> <li>• Introduce an unplugged coding activity where students must code a snail through a grid to collect all its basic needs</li> <li>• Use ScratchJr to show a snail and its basic needs</li> <li>• Explore the positive and negative relationship humans have with snails and vice versa (e.g., garden snails are pests for farmers and gardeners, some hobbyists have aquatic snails as pets, and snails play an important role in the environment as decomposers (terrestrial snails) and/or filter feeders (aquatic snails)).</li> </ul> <p><b>What will learners do when the work is completed/if they finish early?</b></p> <ul style="list-style-type: none"> <li>• Draw and label the parts of a snail</li> <li>• Sketch in their journals the basic needs of snails</li> </ul>

	<b>Contributions to Science and Technology</b>
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- Connect with members of the local community to learn more about themes covered in this set of learning experiences (e.g. Wildlife Rescue, Veterinarian, Biologist)
- Research the uses of snails (as food, or snail slime used in ointments, etc.)

## **Appendix A: Snail Experiment Activity Guide**

Name: \_\_\_\_\_

Date: \_\_\_\_\_



## Snail Experiment

Hypothesis:

Materials:

Procedure:

Results:

## **Appendix B: Science Journal**

# SCIENCE JOURNAL ENTRY DATA RECORDING



Name:

Date:

What Did You Notice?

(Draw, Write, Record, Paste, etc)

What Do You Wonder?

(Draw, Write, Record, Paste, etc)