

Activity Label	GLCE Teaching Objective	Activity Unit Introduction: Living and Non-living things, Habitats and Animals	I-AIM Stage and Function	Rationale
<b>What do we know?</b>	<p><b>S.IA.00.02-</b> Share ideas about science through purposeful conversation</p> <p>Objective- Student's will begin to understand and become familiar with difference between living and non-living organisms.</p>	<p>Discussion: -As a whole group Introduce/ discuss what students know and do not know about living and non-living things. -Write down student's responses on the white board.</p> <p><b>Possible Questions:</b> -<b>What does it mean to say that something is alive?</b> -<b>What does it mean to say that something is not alive?</b> -<b>How can you tell if something is living or non- living?</b></p> <p>Activity: -Bring out a bag full of laminated pictures of objects that are living and non-living. -Have the students pick out a picture and place it on a larger poster board divided into two sections (living / non-living). -The student should explain and give reasoning as to why they placed the picture where they did. -After the students are done placing pictures on the poster more questions should be asked about the results. -Questions will depend on where students have placed the pictures.</p>	<p><b>Elicit Student Ideas-</b> Invite students to share initial ideas about possible answers to questions. Probe students ideas to find out how the understand the questions.</p> <p>-Students are able to share things that they know or think they know about living and non-living things. -<b>Plants and trees are not alive because they do not move.</b> -<b>Animals are alive because they move.</b> -<b>Animals are alive because they need food.</b> -<b>Plants are alive because they can die.</b></p> <p>-Students are able to express interest in things that they want to know about living and non-living things.</p>	<p>-This lesson will help the instructor understand student thinking. It will also allow students to share ideas and come up with questions that they may have about living and non-living things.</p>

Activity Label	GLCE Teaching Objective	Activity Vegetable Soup Sequence Book	I-AIM Stage and Function	Rationale
<b>Exploring a Plant</b>	<p><b>L.OL.E.1-</b> Life requirements- organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use food as a source of building material for growth and repair.</p> <p><b>L.OL.00.11-</b> Identify that living things have basic needs.</p>	<p>Read: <i>Growing Vegetable Soup</i> By: Lois Ehlert</p> <p>Discussion: -Ask the students what they heard in the story.</p> <p><b>Possible Questions:</b> -<b>Is a Plant living or non-living? Why?</b> -<b>What does a plant need to stay alive?</b> -<b>What could happen if a plant does not receive basic needs?</b></p> <p>Activity: -Students will put together a sequence of pictures that show the process of planting a seed and plant growth.</p> <ol style="list-style-type: none"> <li>1. Tools for planting</li> <li>2. Plant seeds in dirt</li> <li>3. Seed sprouts into small plant</li> <li>4. Water plant</li> </ol>	<p><b>Establish a Question-</b> Is there relevant, interesting, understandable question that is set in a real world context that addresses the learning goal?</p> <p>-<b>Is a plant alive?</b></p> <p><b>Elicit Student Ideas-</b> Invite students to share initial ideas about possible answers to questions. Probe students ideas to find out how the understand the questions.</p> <p>-Students will be able to share ideas about plants after hearing the story.</p>	<p>-According to pre-assessment results some students do not believe that plants and trees are alive because they do not move. "They just sit there."</p>

		5. Sun warms and feeds plant 6. Plant grows bigger 7. Continue to care for plant	-Students will be able to discuss their ideas about living things (plant) basic needs.	
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Activity Label	GLCE Teaching Objective	Activity How a Seed Grows	I-AIM Stage and Function	Rationale
<b>Planting a Seed</b>	<p><b>L.OLE.1-</b> Life requirements-organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use food as a source of building material for growth and repair.</p> <p><b>L.OL.00.11-</b> Identify that living things have basic needs.</p> <p><b>Objective-</b> Students will begin to understand the difference between living and non-living organisms. Students will begin to understand how a seed becomes a plant.</p>	<p>Read: <i>How a Seed Grows</i> By: Helene J. Jordan</p> <p>Discussion: - As a whole class we will talk about the basic needs of a plant - The students will be asked to re-state how they think a seed becomes a plant.</p> <p><b>Possible Questions:</b> - <b>What does a seed need to grow into a plant?</b> - <b>What if a seed does not receive some of these things?</b> - <b>What will happen to the plant?</b> - <b>Are plants alive?</b> - <b>How do we know that plants are alive?</b></p> <p>Activity: -Students will be asked to plant their own seed - Students will gather materials such as a clear plastic cup, some soil, and a seed. -The instructor will demonstrate how to place the seed into the soil and how to water the seed for growth. -When the seeds are planted the students will place them by the window, so light from the outdoors will help the seeds grow. -Students will be required to care for their planted seeds daily.</p>	<p><b>Explore Phenomena for Patterns-</b> Provide opportunities for students to explore scientific phenomena related to the question to find and understand patterns.</p> <p>-Seeds that are planted in soil and receive water and light will grow.</p> <p>-Seeds that do not receive water and light will not grow.</p>	<p>-According to pre-assessments a large number of students do know understand why plants are alive because they do not move.</p> <p>-This lesson will show students that a plant grows therefore it is alive.</p>

Activity Label	GLCE Teaching Objective	Activity Planting a Rock, Planting seeds in different situations	I-AIM Stage and Function	Rationale
<b>Investigate different situations</b>	<p><b>L.OLE.1-</b> Life requirements-organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use</p>	<p>-Students will gather at the carpeted area of the room.</p> <p>Discussion, Demonstration: -The instructor will have several different things to plant in soil. (rock, different kinds of seeds) -The instructor will plant the rock and the other seeds.</p>	<p><b>Explore Phenomena for Patterns-</b> Provide opportunities for students to explore scientific phenomena related to the question to find and understand patterns.</p>	<p>-This lesson will show students that plants have basic needs and they will not grow healthy without these</p>

	<p>food as a source of building material for growth and repair.  <b>L.OL.00.11-</b> Identify that living things have basic needs.</p> <p><b>Objective-</b> Students will begin to understand the difference between living and non-living organisms. Students will begin to understand how a seed becomes a plant.</p>	<p>-The instructor will explain to the students that these seeds will be tested in order to see what will happen if some of them are missing basic needs.          -One seed will be placed in a dark area of the room.          -One seed will not receive any water.          -One seed will simply be placed on top of the soil.          -The rock will receive water and light.</p> <p>-Students will be asked what they think will happen to each seed and the rock.          -Their predictions will be recorded on the white board and saved for future reference.</p> <p>-As a whole class, we will check on the plants progress and make observations.</p>	<p>-A seed will not grow if it does not receive water.          -A seed will grow slower if it does not receive proper sunlight.          -A seed will not change if it is not just sitting on top of soil.          -A seed will change when it is planted in watered soil.</p>	<p>things. (water, light)          -Students will see that living things can die.</p>
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Activity Label	GLCE Teaching Objective	Activity Artificial Plant Vs. Living Plant	I-AIM Stage and Function	Rationale
<b>Compare Plants</b>	<p><b>L.OL.E.1-</b> Life requirements-organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use food as a source of building material for growth and repair.  <b>L.OL.00.11-</b> Identify that living things have basic needs.  <b>S.IA.00.02-</b> Share ideas about science through purposeful conversation  <b>S.IA.00.13-</b> Communicate and present findings of observations.</p> <p><b>Objective-</b> Students will be able to recognize and understand the difference between living and non-living organisms.</p>	<p>Activity:          -Students will be separated into small groups and given materials to observe.          -Students will be given an artificial plant and a real plant and asked to determine the differences between the two materials.          -Students will be told to act like scientists and make observations based on things they see or feel, just as they do when asked about outdoor weather conditions.          -Students will be able to use senses such as touch and smell to help them make observations.          -Students will be able to use magnifying glasses to examine the plants</p> <p>Discussion:          -Students will be gathered together as a whole class to share their scientific findings.</p>	<p><b>Explore Phenomena for Patterns-</b> Provide opportunities for students to explore scientific phenomena related to the question to find and understand patterns.</p> <p><b>Explore Ideas About Patterns-</b> Provide opportunities for students to share ideas about patterns.</p> <p>-A plant needs soil to stay alive          -Plants have specific parts          -Plants can die, fake plants cannot die therefore they are not alive.</p>	<p>-According to pre-assessments students have a hard time distinguishing the difference between something that is “fake” and something that is “real”.          -This will allow students to use their senses to determine the difference between an artificial plant and a living plant</p>

Day	GLCE Teaching Objective	Activity Parts of a Plant Worksheet	I-AIM Stage and Function	Rationale
<b>Review Parts of a Plant</b>	<p><b>L.OL.E.1-</b> Life requirements-organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use food as a source of building material for growth and repair.</p> <p><b>L.OL.00.11-</b> Identify that living things have basic needs.</p> <p><b>S.IA.00.02-</b> Share ideas about science through purposeful conversation</p> <p><b>Objective-</b> Students will begin to understand the difference between living and non-living organisms. Students will begin to understand how a seed becomes a plant.</p>	<p>Review/ Discussion:</p> <ul style="list-style-type: none"> <li>-Talk with the entire class about the basic needs of a plant.</li> <li>-Also talk about the process of planting a seed and what makes a plant a living thing</li> <li>-compare a non-living thing and a living thing. Use the example of rock vs. plant since the students have already been introduced to those two things.</li> </ul> <p>Activity:</p> <ul style="list-style-type: none"> <li>-Students will be read a fictional (pretend) newspaper article about an evil scientist who is taking a part all of the world's plants.</li> <li>-To fix the problem students must put those plant parts back together!</li> <li>-Students will put together a parts of a plant worksheet.</li> <li>-Before the students are given the worksheets the teacher must model directions in a step-by-step manner in order to ensure the Kindergarteners know exactly how to put the plants back together and fix what the evil scientist has done!</li> <li>-Students will discuss their finished products.</li> </ul> <p>Display:</p> <ul style="list-style-type: none"> <li>-After the plants are put together students will display them in the hallway as well as in our classroom rainforest.</li> </ul>	<p><b>Introduce Scientific Ideas-</b> Provide accurate and comprehensible representations of the scientific ideas.</p> <ul style="list-style-type: none"> <li>-Plants have roots, leaves, and stems.</li> <li>-Plants need water to stay alive.</li> <li>-Plants need light to grow healthy</li> </ul>	

Activity Label	GLCE Teaching Objective	Activity Everybody Needs a Rock	I-AIM Stage and Function	Rationale
<b>Explore a non-living thing</b>	<p><b>L.OL.00.12-</b> Identify and compare living and non-living things.</p> <p><b>S.IA.00.13-</b> Communicate and present findings of observations.</p> <p><b>Objective- Students</b> will begin to understand the difference between living and non-living organisms. Students will understand that a rock is a non-living organism.</p>	<p>Read:</p> <p><i>Everybody Needs a Rock</i> By Byrd Baylor.</p> <p>Discussion:</p> <ul style="list-style-type: none"> <li>-Ask students if rocks are living or non-living things and why.</li> <li>-Ask students if they can identify other things that are non-living.</li> </ul> <p>Activity:</p> <ul style="list-style-type: none"> <li><b>-Students will observe a non-living thing.</b></li> <li>-Students either chose a rock from the teacher's selection or bring in a rock from home.</li> <li>-The will use the "My Rock" worksheet to draw and answer questions about their specific rock.</li> <li>-The worksheet will ask students to fill in blank spots to complete questions by observing characteristics of their rock.</li> <li>-After the students have made and recorded observations they will name their rocks and create friendly pet rock to</li> </ul>	<p><b>Explore Phenomena for Patterns-</b> Provide opportunities for students to explore scientific phenomena related to the question to find and understand patterns.</p> <ul style="list-style-type: none"> <li>-Students will be able to observe a non-living thing closely.</li> <li>- a rock does not have basic needs</li> <li>-a rock is not alive because it does not grow.</li> </ul>	<ul style="list-style-type: none"> <li>-According to pre-assessment results some students believe that because a rock is sometimes called a "pet rock" that it is alive.</li> <li>-This lesson will show students that a rock is a non-living thing because it does not grow and does not have basic needs.</li> </ul>

		<p>keep and take home.</p> <p>-This is a good opportunity to clear up the misconception that “pet rocks” are living.</p> <p>-Students will be given the opportunity to share ideas and observations about their rocks.</p>		
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Activity Label	GLCE Teaching Objective	Activity Magazine Cut Outs	I-AIM Stage and Function	Rationale
<b>Use a model</b>	<p><b>L.OL.E.1-</b> Life requirements-organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use food as a source of building material for growth and repair.</p> <p><b>L.OL.00.11-</b> Identify that living things have basic needs.</p> <p><b>S.RS.00.11-</b> Demonstrate scientific concepts through various illustrations, performance models, exhibits, activities.</p>	<p>Discussion:</p> <p>-Briefly review the idea that living things have basic needs.</p> <p>-Talk about how a seed becomes a plant and why a plant is a living thing.</p> <p>Activity:</p> <p>-Magazine Cut Outs</p> <p>-Students will be given a large amount of different magazines to choose from. The magazines will be placed in the center of the carpeted area.</p> <p>-They will be instructed to choose several magazines that they will use to cut out pictures of living and non-living things.</p> <p>-The students will have a large piece of paper divided into halves. One side will be labeled “Living” and the other side will be labeled “Non-living”</p> <p>-Students will glue their magazine cut-outs accordingly.</p> <p>Follow up:</p> <p>-After the students have finished their displays they will gather back at the carpet to share what they have done.</p>	<p><b>Compare Student and Scientific Ideas-</b> Help students compare their own explanations with the scientific explanation provided by the instructor.</p> <p>-Students will organize pictures of living and non-living things based on the information they have learned about basic needs.</p> <p>-living things are alive and non-living things are not alive</p>	<p>-Using information that students have learned from previous lessons they will be able to separate living and non-living things that are seen in everyday life.</p>

Activity Label	GLCE Teaching Objective	Activity “My Plant Book”	I-AIM Stage and Function	Rationale
<b>Plant book assessment</b>	<p><b>L.OL.E.1-</b> Life requirements-organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use food as a source of building material for growth and repair.</p> <p><b>L.OL.00.11-</b> Identify that living things have basic needs.</p> <p>Objective: Students will be able to explain through pictures and writing the growth process of a plant. Students will</p>	<p>Activity:</p> <p>-Students will gather at the carpeted area to receive instructions they will need to complete “My Plant Book”.</p> <p>-Students will be shown a “My Plant Book” that has been previously completed.</p> <p>-They will be given page by page instructions in order to ensure the Kindergarteners understand what is to be expected.</p> <p>-Students should not receive help from instructors.</p>	<p><b>Apply to Near and Distant Contexts with Support-</b> Provide opportunities for students to apply the scientific explanation in new contexts.</p> <p>-Students will use knowledge of living and non-living things to complete the “My Plant Book”.</p>	<p>-This lesson will show students understanding of plant parts and basic needs of a plant.</p> <p>-This is one type of assessment the instructor will use to keep track of student progress and understanding of the big ideas.</p>

	also be able to recognize that plants are living things that have basic needs.			
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Activity Label	GLCE Teaching Objective	Activity Animals A-Z Introduction to Animals	I-AIM Stage and Function	Rationale
<b>Apply knowledge</b>	<p><b>L.OL.E.1-</b> Life requirements-organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use food as a source of building material for growth and repair.</p> <p><b>L.OL.00.11-</b> Identify that living things have basic needs.</p> <p><b>S.IA.00.02-</b> Share ideas about science through purposeful conversation</p> <p><b>Objective-</b> Students will understand the difference between living and non-living organisms. Students will begin to understand that animals are living things and that there are a tremendous amount different kinds of animals all over the planet.</p>	<p>Read: -Students will be shown the book <i>Animals AtoZ</i>, By David McPhail.</p> <p>Discussion: -Students will be gathered at the carpeted area of the classroom where letters of the Alphabet and large pictures of animals will be displayed. -It will be the student's job to match the letters with a corresponding animal picture. -After the pictures have been matched with the letters students will be given the opportunity to name other animals that were not included during the matching portion of the lesson.</p>	<p><b>Apply to Near and Distant Contexts with Support-</b> Provide opportunities for students to apply the scientific explanation in new contexts.</p> <p>-Students will use knowledge of living things to discuss animals</p> <p>-Students will be able to ask questions about animals and use prior knowledge to think of animals that they know of.</p>	-Animals are living things.

Activity Label	GLCE Teaching Objective	Activity Exploring and Observing Insects	I-AIM Stage and Function	Rationale
<b>Apply knowledge</b>	<p><b>L.OL.E.1-</b> Life requirements-organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use food as a source of building material for growth and repair.</p> <p><b>L.OL.00.11-</b> Identify that living things have basic</p>	<p>Mrs. Chappa's Kindergarteners will join Mrs. Gorbe's Kindergarteners for an introductory lesson on animals/insects.</p> <p>Discussion: Students will be given some information on several types of bugs. The kindergarteners will be exploring and observing meal worms, wax worms, and extra large crickets.</p> <p>Activity: Students will be split into groups and allowed to take turns touching and observing the meal and wax worms. They will be told to be gentle when</p>	<p><b>Explore Phenomena for Patterns-</b> Provide opportunities for students to explore scientific phenomena related to the question to find and understand patterns.</p> <p>-Students will use knowledge of living things to discuss animals</p> <p>-Students will be able to ask questions about animals and use prior knowledge to think</p>	-Students will use their knowledge of living and non-living things to observe characteristics of animals by physically interacting with insects.

	<p>needs.</p> <p><b>S.IA.00.02-</b> Share ideas about science through purposeful conversation</p> <p><b>Objective-</b> Students will understand the difference between living and non-living organisms. Students will begin to understand that animals are living things and that there are a tremendous amount different kinds of animals all over the planet.</p>	<p>handling the insects.</p> <p>-Students will use small magnifying glasses to get a closer look at the insects.</p> <p>-They will be prompted to look for things such as legs, facial features, body structure, and movement.</p> <p>-After the kindergarteners have had a chance to make observations about the insects they will be able to share those observations as a whole group.</p>	<p>of animals that they know of.</p>	
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Day	GLCE Teaching Objective	Activity Animals Live in Different Places	I-AIM Stage and Function	Rationale
	<p><b>L.OL.E.1-</b> Life requirements-organisms have basic needs. Animals and plants need air, water and food plants also require light. Plants and animals use food as a source of building material for growth and repair.</p> <p><b>L.OL.00.12-</b> Identify and compare living and non-living things.</p> <p><b>S.IA.00.13-</b> Communicate and present findings of observations.</p> <p><b>Objective- Students</b> will begin to understand the difference between living and non-living organisms. Students will begin to understand and recognize the different characteristics of animals. Students will understand that all animals have homes.</p>	<p>Discussion:</p> <p>-Students will be asked to remember some of the animals that were discussed during previous lessons.</p> <p>-Students will be asked several questions about their knowledge of animals</p> <p><b>Possible Questions:</b></p> <p><b>-Are animals living or non-living organisms?</b></p> <p><b>-How do you know?</b></p> <p><b>-What characteristics do animals have?</b></p> <p><b>-What do animals need to survive?</b></p> <p><b>-Are animals similar to plants?</b></p> <p><b>-How are plants different than animals?</b></p> <p>-Students will be asked if they are aware of different animal homes.</p> <p>-As a class students will take a look at pictures of animals in their living environments/ homes</p> <p>Examples: Fish- water Beaver- den Bee- beehive Squirrel- tree nest (Dreys) Birds-nest</p> <p>-Inform students about the word Habitat -A habitat is like an animals neighborhood</p>	<p><b>Apply to Near and Distant Contexts with Support-</b> Provide opportunities for students to apply the scientific explanation in new contexts</p> <p>-Students will use knowledge of living things to discuss animals</p> <p><b>Elicit Student Ideas-</b> Invite students to share initial ideas about possible answers to questions. Probe students ideas to find out how the understand the questions.</p> <p>-Students will be able to share ideas about animals.</p> <p>-Students will be able to compare plants and animals.</p>	<p>-Students will have knowledge from the previous lesson about insects as living things. They will understand that insects are animals and will know that all animals have homes. Animals need homes and protection for survival.</p> <p>-Students will begin to understand that habitats contain both living and non-living things.</p> <p>-Students will begin to recognize that animals have basic needs just as plants do therefore, they are living things.</p>

2. Use the CA&P questions for the stage of the I-AIM that you identified to analyze this unit.

## A. Curriculum Materials Analysis Questions

This unit is almost entirely an original creation. Using Michigan State Standards for science at the Kindergarten level and the Lansing School District Kindergarten pacing guide, Cory and I focused on several learning goals that were related to each other. Our CT's do not teach science out of a previously designed binders or books, therefore the lessons seen in the activity chart were developed from internet research, classroom materials provided by our CT's and our minds. This was quite the challenge considering our lack of experience developing complete science units for Kindergarteners. The sequencing activities have been adjusted in order to flow in a more logical way to make sure that students understand the concepts that being taught. Modifications to lesson plans will be made through out the unit depending on how students are progressing.

## B. Using Students Science Tool-Kits

According to the results of our pre-assessment tasks we have discovered that a large number of Kindergarten students do not understand that plants are alive. We are going to spend a great deal of time observing the growth of seeds and the development of plants to permanently correct student's misconceptions about plants. Students will learn that plants have basic needs such as water and sunlight which classify them as living things. They will also see that without basic needs, plants cannot survive.

We have also discovered that students consider movement of things a way to distinguish whether they are living or non-living. For instance, one student believes that because trees do not move around they must not be alive. As students observe the slow growth of a plant they will understand that plants do move, just not as fast as some animals do.

### 3. What are the overall strengths of this unit? What are the overall weaknesses?

This unit was planned with intent to give kindergarteners hands on approach to science. We feel at this age science is not experienced as much as it should be in the classroom. In order to motivate and engage students in lessons filled with science concepts and terms we made sure the unit encompassed many learning styles. Each lesson contains hands on learning or exploration followed or preceded by a whole class discussion to determine what we are learning. Students are encouraged in each lesson to think like a scientist, making their own guesses and using materials and activities to make their conclusions.

The living and non-living things unit was created almost entirely on our own. While it would have been nice to have a scripted guide to follow we found this gave us more opportunity to really gear the lessons towards our students. Since this unit is created by us and has never been used before we are eager to see how the students science skills progress. We believe there are not weaknesses at this point, especially since all student abilities were considered in the lesson planning process. The unit is based around age appropriate questions and is composed of hands on learning activities which will allow students to explore these questions on their own.

### 4. Based on your answers above, what might you do to modify this unit?

As stated above kindergarteners have very little experience with science or scientific learning. Based on the pre-assessments done students we were able to form lessons which will address common misconceptions students have about living and non-living things. The pre-assessments were very useful in planning our unit. While we knew students had little understanding of living and non-living things we were able to modify specific lessons to touch on these misconceptions. Certain activities were added and a few were changed to make sure students had the chance to explore these misconceptions on their own. For instance, more emphasis is put into the beginning of our unit as to what defines a living and non-living thing since students will need this basic understanding throughout the unit. Students will have numerous activities which allow them to explore living and non-living things indoor and outdoors, as well as, explore a specific non-living object (rock) and living thing (plant) more intently on their own.

As we begin to teach the unit we may need to make minor modifications as needed. We may find some students are really exploring and understanding the concepts more then others. In this case we will need to find alternative ways to reach the students who are having trouble using the activities to find answers. One way to do this is to have small group or whole group science talks which will address student's misconceptions. It is



important to recognize each student learns differently and some need more guidance in making connections and therefore science talks would be beneficial for some. We feel our unit is very well planned out and will help these young learners begin to think like scientists. However we understand nothing goes as planned and therefore will constantly be observing our learning community to make sure changes are being made when needed.