**EXPLORERS**

**Grades K-2**

**Aligned Minnesota State Science Standards** - 2.1.1 - Students will be able to represent observations and data to recognize patterns in the data, the meaning of those patterns, and possible relationships between variables.

**Essential Question** – Can exploring the real-world enhance the study of living and non-living things?

**Assessments –** Asking students at this age to complete a pre-assessments and summative post-assessments is extremely difficult due to the lack of knowledge of students’ performance skills, this module has implemented oral summative assessments to address students’ prior knowledge and post-module knowledge to accurately assess the students’ learning, if needed.

After each day, students’ journals will be examined to determine if the objective of the day correlates with the work the student has provided.

|  |  |
| --- | --- |
| Pre-Assessment/Post-Assessment |  |
| 1. What is an example of a living thing? Non-living?
 | Living – Non-living -  |
| 1. What are the 5 main senses?
 | 1.2.3.4.5. |
| 1. What do living things need?
 | 1.2.3. |

**Accommodations** - For students who need accommodations, the Explorer’s Journal may be done in partners. There are included visual representations of words such as eyes, ears, mouth, nose, and hands to represent the 5 senses. Students will receive oral, visual, and written instruction throughout the duration of the module to accommodate for all learners. The teacher may provide extra insight for students struggling with the concept of living/non-living or using their scientific tools.

* **FOOD ACCOMODATIONS**: Find out if any students have dietary restrictions – some students must have specific fruit snacks and marshmallows!!

**Day 1**

**Content Objective** - Students will be able to classify living and non-living things through discussion, drawing, and analyzing images.

**Language Objectives** - Students will be able to determine the difference between living and non-living things through observation, prior-knowledge, and discussion.

**Ice breaker – Guided Practice**

*Hello! Welcome to Explorers! I am thrilled to have you be part of my team! Before we get started, I would like to get to know you a little better!*

Ask students to stand up and to say their name, favorite color, favorite animal, and grade level.

**Potential Pre-Assessment – Independent Work**

*Now that we know each other a little bit better, I am going to ask you 3 questions. If you can tell me an answer, that is great! If you’re not sure, that is okay too. Just let me know!*

1. Can you tell me the difference between living and non-living things?
2. What do “living things” need?
3. Can you give me an example of a living thing? Non-living things?

**Rules and Expectations – Guided Practice/Collaborative Learning**

*To make sure everyone stays safe and has fun, we need to come up with a few expectations for the duration of our class. What do you think are reasonable rules for inside? What about outside?*

Include students to assist with this part of the lesson as they are more likely to be actively engaged with setting expectations they can adhere to!

|  |
| --- |
| **Expectations** |
| **Inside** | **Outside** |
| Quiet voices | Outside appropriate voice level – (Under yelling) |
| Walking feet | Follow teacher – Ms. Stevens |
| Hands, feet, and objects to yourself | Stick together – Don’t get lost! |
| Share with everyone | Ask before going places |
| Raise hand to talk | Be respectful |
| HAVE FUN! 😊 | HAVE FUN! 😊 |

**Introduction to Living and Non-living Things – Direct Instruction/Collaborative Learning**

*Let’s get started with the main topic today – Living and Non-living Things. Many of you had some great answers when thinking of what living things are! Can anyone tell me the difference between these two pictures? Aren’t these both worms?*

Present images and ask students the difference between the photos.

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(The teacher can also include pictures of bears/teddy bears, animal/stuffed animal)

Ask students questions such as:

1. What does one need that the other does not?
2. Can one of these things move? Which one?
3. Can one change throughout its life?

Present students with the characteristics of living and non-living things on the board or presentation.

*Living things need air, water, and food to survive; non-living things do not need air, water, or food to survive! Living things also reproduce (have babies), grow, and change throughout their life cycle whereas non-living things do not.*

**\*Some students may question whether deceased animals are categorized as non-living animals – the response should be that the animal was once alive and is simply without life now.**

**Hand Out Journals – Independent Work**

*Now that you’re familiar with what living and non-living things are, try to come up with 3 living and 3 non-living things on your own. But first, we are going to need our Explorer’s Journals! Put your name on these and you can begin to color them! Once you have finished, move on to drawing living and non-living things on the 1st page of your journal – you will see it says Day 1 on the top of the page.*

Students will put their names on them and begin coloring the cover.

* **Living and Non-living Check-In – Independent Work**

*I see many of you have begun creating your drawings for living and non-living things on page 1.*

Students come up with a list of living and non-living things. (Can write or draw.)

Teacher will observe students’ work during this time and ask questions such as, “Can you tell me more about this?”

**Share Out – Collaborative Learning**

*I would love for each of you to stand up in front of your group members and present them with your work! Please explain which 3 living models you chose, and the 3 non-living models.*

 *Next, with the person sitting to your right, discuss whether these specific items are living or non-living.*

1. *Flowers (living)*
2. *Trees (living)*
3. *Grass (living)*
4. *Dirt (non-living)*

**Closure – Direct Instruction**

*Unfortunately, this is all the time we have for today! I cannot wait to see you all tomorrow to investigate some scientific tools that real-life scientists use! We will also get to explore our classroom and around the school!*

**Day 2**

**Content Objective** - Students will be able to classify living and non-living things through discussion, drawing, and analyzing images.

**Language Objectives** - Students will be able to determine the difference between living and non-living things through observation, prior-knowledge, and discussion.

**Review Day 1** – Collaborative Learning

*Who can review what we learned yesterday?*

*What are the factors living things need to survive?*

**Introduce Day 2 Agenda** – Direct Instruction

*Today, we are going to investigate what is in our bags… try to figure out what each tool is used for! After, we can use these tools to explore our room, followed by going outside and get an idea of how to use these tools in different settings!*

\*Assign each student with their bag and write the number provided on the bag to record which student has which bag\*

**Explore and Review Backpack Content** – Independent Work

Students will pull out the tools included in their bags and determine what they may be used for.

**Review Backpacks** – Guided Practice

*Since you had the chance to play with the tools in your bags, let’s review what YOU believe each tool is used for.*

When student responds, ask the student why they believe that, and ask if they can provide a demonstration. If the student accurately uses the tool, praise them, and move on. If the student does not accurately use the tool, praise them on their creativity, and demonstrate how a scientist may use the tool as a resource.

**Color Day 2 “Scientific Tools” Page** – Independent Work/Collaborative Learning

Once students had the chance to play with each tool, they will color the Day 2 page in their Explorer’s Journal as a check-in of knowing each tool is in their bags. (If a student does not have a particular item, pull the item from another bag and coordinate with the STEM Camp leader about replacing it.)

(The teacher will check-in with each individual student about a particular tool and assess their prior-knowledge and comfortability using the tool.)

**Explore the School (Indoors)** – Independent Work/Guided

*I would love for you to bring out your tools and search around the school using them. The best tool you can use during this time is the magnifying glass.*

*Why is the magnifying glass going to be the most effective inside?*

*Before we leave our classroom, let’s make sure to review the “Inside Expectations” chart to make sure we’re following our expectations. Remember, there are other students learning in the school – we do not want to disrupt anyone. We need to be sneaky explorers in the hallway!*

The teacher and students will observe throughout the hallways to get comfortable with the magnifying glass and seeing things “bigger”. Depending on weather, class size, and building size, the teacher may take the students outside to investigate deeper.

**Explanation of Tools – Collaborative Learning (time permitting)**

*Exploring the halls was fun! I found this video I think you’ll like about using tools when exploring. After the video, tell the people next to you how you’re going to use your tools tomorrow!*

<https://www.youtube.com/watch?v=bIMJsjhHDLI> – Sesame Street Exploring

**Closure/Preview Tomorrow** **– Direct Instruction**

 *Well, friends, this is the end of our time today. I will see you tomorrow morning for more fun! We will work with our 5 main senses, observe some objects, and if it is nice enough…we will be going outside!*

**\*\*Remind students to wear sunscreen and bug spray if chosen – this cannot be provided by GIP teacher\*\***

**Day 3**

**Content Objective** - Students will be able to establish the importance of the 5 main senses through observation and experimenting.

**Language Objectives** - Students will be able to explore items with their 5 senses of taste, smell, sight, hearing, and touch by actively investigating, discussing, and providing detailed explanations of their findings to one another.

**Review Day 2 – Collaborative Learning**

*Before we get started, let’s review what we learned yesterday. What kind of tools did you use? What was your favorite tool and why? Turn and talk to your partner about it!*

**Introduce Day 3 Agenda – Direct Instruction**

*Our agenda of the day is we are going to warm up our senses, take a quick movement break, review senses and tools, station work, group discussion, review rules/expectations, and explore outside* (if time permits)!

**Senses Warm-Up** **– Collaborative Learning**

*“Before we use our senses, we need to warm them up first!”*

* Eyes – “Let’s pretend to pop our eyes out, wipe them off, and put them back in!”
* Ears – “Wiggle ears, clap to hear the sound.”
* Mouth – “Stick out your tongue!”
* Nose – “Scrunch nose, sniff, breathe in/out.”
* Hands – “Rub your hands together to “warm them up”!”

**Use Senses and Tools** **– Direct Instruction/Collaborative Learning**

*Today, we are going to bring out the scientific tools in our bags.*

1. Pull out your magnifying glass. What is this used for again?
	1. (Seeing small things bigger!)
2. Pull out your binoculars. What can you use these for?
	1. (Seeing things that are far away closer!)
3. Pull out your ruler. Why do scientists use these?
	1. (To accurately measure!)
4. You can keep your crayons in your bag for now, but why do we need crayons instead of a pencil?
	1. (To be more detailed when observing something. Such as coloring ants purple would not be a good drawing to show others – they may think ants are really purple!)

**5 Senses Movement Break** **– Independent Work**

Jack Hartmann – <https://www.youtube.com/watch?v=tzqx39K2omc&t=27s>

**5 Senses Stations – Independent Work**

*Today, our focus is to use our 5 senses. You will have 2 minutes to work at each station. 1 minute to observe. 1 minute to record your observation as detailed as possible.*

Students will go to 8 different stations.

Students will have 1 minute to observe and 1 minute to record their observation before switching to the next station. (The teacher can use a timer on a phone for this!)

Students will record the senses they used to observe the object at the station, draw a picture of the object, and be as detailed as possible – use realistic colors. (It is important to remind students of the significance of why they should use realistic colors, if possible.)

**Total station work will take approximately 16 minutes.**

Stations:

* Lemons
* Chips
* Fruit snacks
* Marshmallow
* Shells
* Grass
* Pinecones
* Rocks

**Observation Discussion** **– Collaborative Learning**

*Wow! You all did a great job recording your observations – I noticed you did a great job with providing details! Now, we are going to have a discussion on what you observed. Show your work to the class and explain what you saw when you observed the object.*

Get students back together to have a discussion on their findings. Have each student show their work to one another and

If students are having difficulties with discussion, provide students with sentence starters such as “I agree but…”, “I disagree because…”, “I have a similar answer to…”.

**Closure** **– Direct Instruction**

*Tomorrow, you will be going outside for most of the day to find 3 living things, 3 non-living things, and reflect on what you have learned throughout our time*!

**\*\*Remind students to wear sunscreen and bug spray if chosen – this cannot, and will not, be provided by GIP teacher\*\***

**Day 4**

**Content Objective** - Students will be able to classify living and non-living things through observation, content knowledge, and exploration.

**Language Objectives** - Students will be able to visualize the difference between living and non-living things through using their scientific tools, exploring, and making observations of the things they see outdoors.

**Review Day 3 – Collaborative Learning**

*Welcome back for the final day of Explorers! Although our time was short, I had so much fun turning into a real explorer with you! Can each of you explain what they learned yesterday? After, let’s talk about your plan for observing today. Turn and talk to one another about what you’ll be looking for and what tools you plan on using.*

**Introduce Day 4 Agenda – Direct Instruction**

*As promised, we will be going outside today. You will need:*

* Clipboard
* Pencil
* Crayons
* Explorer’s Journal
* Backpack (bag)

**Review Outdoor Expectations – Direct Instruction**

*Before we leave, let’s review our “Outdoor Expectations” chart to remind ourselves of how we should be acting when we are outside. Let’s remember to stick together so no one gets lost, ask before going places, and HAVE FUN! I do think it may be smart to stop by the bathroom before we go outside so let’s line up by the door with our materials and get ready to go.*

**Bathroom Break**

**Outdoor Exploration – Independent Work/Guided Instruction**

Students will use their tools to make observations outside of the living and non-living things of their choice. Students will represent their choices with drawings and/or words to provide details of each.

*You will see on the Day 4 page of your Explorer’s Journal that you need to find 3 living and 3 non-living things outside. You may draw and color a picture to represent your observation, or you can write a detailed response to what your findings are for each category!*

*As an example, I will show you how to do this before we get started. I saw a red bird outside today in a tree. I am going to draw a picture of the red bird under the “Living” category. I put this under the living category because this bird needs air, food, and water to survive. I also know that the bird had once came from an egg… this means the bird grows! As I reflect, I remembered living things also grow and change over their lifetime!*

*Now that you know how to start this page, let’s get started! Have fun and stay safe!*

**Closure – Direct Instruction**

On the walk back to the classroom, or inside the classroom (if outdoor exploration does not take the full time), provide students with a final message reminding them of what they learned during the course.

*I had a wonderful time getting to know all of you! You worked so hard over the last 4 days – I am proud of the explorers you have become.*

**Potential Post-Assessment**

*On your way out, explain to me 2 things you learned from being an explorer this week.*

**Reflection on your experience with the STEM Camp module reflecting on the essential question, “How does student engagement lead to increased student achievement and ownership** **of learning?”**

 Student engagement leads to increased student achievement and ownership of learning in a multitude of ways. Incorporating active engagement activities for students to participate in has proven itself to be an instant behavioral corrector; some students may act inappropriately because they are not engaged with the content being presented. Throughout my experience, I noticed when I had presented too much content for the students to keep up with, they immediately became disengaged and chose to behave poorly. Because I have experienced this situation a few times throughout my teaching experiences, I immediately integrated movement breaks and implemented strategies to bring the students back on track.

 Although I am highly dissatisfied with the Explorer’s module and am still actively searching for ways to revamp it from the ground up, I have come to the conclusion that the way I can lead students to achieve their goals and take ownership of their learning is to provide more hands-on activities to guide students to asking higher-level questions such as, “I wonder how this works…”, “What would happen if…”, “Maybe I should try…”. I believe being able to explore the outside world is a beautiful learning experience for children to have – letting children ask and answer their own questions provides them deeper, long-lasting connections… more than pushing informational content could ever do.

 When students can be entertained with the information they are learning, they will participate in class discussions about their findings, attend class regularly, and begin to think critically while obtaining a sense of pride over their work. During STEM camp, there were multiple times where a student would say, “Ms. Stevens! Look what I found on this pinecone!”, “Why do you think this shell has holes in it? I think it’s because…”, and “This is so fun! I’m like a real scientist with all these tools!” Hearing students’ mention comments like such leads me to believe the true roots of teaching is not to teach students merely content, but to let students experience the world around them and they will desire to develop into an eager-to-learn, determined-to-succeed individual. Therefore, I find myself puzzled, frustrated, and non-stop searching for a way to turn this module into a fun-filled experience for children of all ages. I may not have the resources in my tool-belt yet, but I am determined to find a way to make this module everything I am hoping for.