

Grade 3rd	<p align="center">Lesson: Habitat: Small Environment-3</p>	Reference to English Interconnections Lesson Habitat: Small Environments pg. 42
Science Standard(s): Standard 2.2 Interrelationships: Communities and their Environments		
Content Objective(s):	Language Objective(s):	
<p>Students will observe and record the effect of changes upon the living organisms and nonliving things in a small-scale environment.</p> <p><i>I can observe a terrarium and record changes to the living and non-living things.</i></p>	<p>Students will follow multi-step oral and written directions to make and observe a terrarium or aquarium as a class.</p> <p><i>I can follow written and spoken directions with many steps to make a terrarium or aquarium as a class.</i></p>	
<p>Essential Questions: How do living and non-living things adapt as the size of their environment grows?</p>	<p>Academic Vocabulary: Listen: environment, living, nonliving, organism, survive, observe, terrarium, aquarium, temperature, moisture, habitat Speak: Environment, living, non-living thing, survive Read: living things, non-living things, Write:</p>	
<p>Materials:</p> <ul style="list-style-type: none"> • Note to go home 1 month before lesson to collect materials for terrariums from home • Text to be displayed along with appropriate pictures to support comprehension of the text • Materials for a terrarium or aquarium. See information sheet for possibilities. You can make 1 for all of the class to observe or have groups of 3-5 students each make one. • Plants or seeds • Animal such as earthworms, mealworms, crickets, pill bugs, etc. These will be added to the terrariums a few days after building the terrariums so they are stabilized. • Nonliving things such as rocks, soil, and sticks • Set of written instructions with picture clues for how to make a terrarium. Can be on a poster, projected on a screen, etc. • Terrarium Observations Sheet 	<p>Additional Lesson Vocabulary: environment, living, nonliving, organism, survive, observe, temperature, moisture, affect, effects,</p> <p>Sentence Frames:</p>	
Lesson:	Instructional Time:	
<p>Note: 1 month before beginning this lesson, send home the note requesting donations from parents of objects to make the terrarium. Gather the materials and decide if you will make just one terrarium or aquarium for the entire class to observe, or if you will divide the students into groups of 3-5 to each make one. This lesson will assume you will have each small group of students make a terrarium, but you can adapt for your decision. Remember the Utah Core Curriculum states students must “Observe and record the effect of changes (e.g., temperature, amount of water, light) upon the living organisms and nonliving things in a small-scale environment. “</p> <p>Opening: (5 minutes)</p> <ul style="list-style-type: none"> • Show the students the creatures you are going to place in the terrariums. • T: “We have been learning about environments and how living and nonliving things survive together in a habitat. Today we are going to make small environments for this living organism... a worm.” (or whatever creature you are going to use) <p>T: “Let’s review what this worm needs to survive. Here is a paragraph for us to read and learn what this worm needs. I would like you to read it and then turn to a neighbor and talk about what you see a worm needs.”</p> <ul style="list-style-type: none"> • Display the following text on a screen or poster with pictures of worms and the items in the paragraph. Earthworms like cool temperatures. Soil mixed with leaves makes a good environment for worms. Water the soil to keep it moist, but do not over water. Place two or three earthworms on the surface and they will burrow or dig into the soil. Add a thin layer of leaves or shredded newspaper to help reduce moisture loss. Small amounts of food should be added. Earthworms will eat almost any kind of organic debris such as shredded bits of grass, dried leaves, lettuce, and 		

apple or potato peels. Keep the earthworms in the coolest place in the room.

S: Students read the text and tell each other what is needed for the worms to survive like soil, water, leaves, newspaper, etc.

T: "Great. Let's underline the items we need for the worms to survive. Who can come up and underline one thing needed for the worms?"

- Call on students to come up and underline the things needed for worms: soil, water, newspaper, and leaves.

T: "Good work. We now have a list of things our worms need to survive. We can use that list to make a terrarium. "

Introduction to New Material (Direct Instruction): (5 minutes)

T: "Raise your hand if you can tell me what a terrarium is."

S: "A terrarium has plants and animals." "It's a box with dirt and plants in it." Etc.

T: "A terrarium is a container that holds a small environment in it. It has living organisms and nonliving things in it. A terrarium is a small version of a habitat like a woodland or desert."

- Show an example of a terrarium already completed or a picture of a terrarium.

T: "In a terrarium you will find everything the organism needs to survive. We are going to make a terrarium that will have an environment in which our worms can survive."

Guided Practice (30)

- You may want to make the terrariums outside if the weather is nice to help with cleanup. If not, place newspapers on the desks. Assign the students to groups of 3-5 students. Choose one student from each group to be a "runner" to pick up materials from the teacher for the group.

Use the modeling cycle: (In each case the teacher will demonstrate and then the students will do. Watch students as they complete each step to assure they are doing the step correctly.)

T: "Let's start. The first thing we will need is a container and ziplock bag of soil. Will the runner please come up and get your container and bag of soil?"

S: One student gets the container and soil.

T: "Watch me first and then wait for the signal to do that step. I will take the soil from my ziplock bag and place it in the container. Now you do it." (Demonstrate the step and show the written instructions for the step with picture clues.)

S: Student place soil in the container.

T: "Second, we are going to place some leaves and shredded newspaper in with the soil and mix it around."

(Demonstrate the step and show the written instructions for the step.)

S: Students place leaves and shredded newspaper in the soil and mix it around.

T: "Third we will place some rocks, sticks, and plants in the terrarium. Be careful of the plants' roots and be sure to place them in the soil. Please send a runner up to get the rocks, sticks, and plants."

S: Students place rocks and plant small plants in the terrarium.

T: "Our fourth step is to spray some water in our terrarium to provide some moisture for our environment. Each team will need a spray bottle. Spray about 5-6 squirts of water in the terrarium. You want it to be moist, but not soggy. Watch as I do it." (Demonstrate spraying water in the terrarium.)

T: "Now send your runner up to get the spray bottle."

S: Runner gets the spray bottle and the group sprays some water in the terrarium.

- Make sure the soil is damp, but not soggy or muddy. If the soil is too wet, leave the lid open for a day or two to let it dry out.

T: "Don't forget to put the lid on the terrarium."

S: Students put the lids on the terrariums.

T: "We will now place our terrariums in the room so they can begin to stabilize. We will be able to place the worms in our terrariums in a few days. Then we can observe them throughout the next few weeks."

- Place the completed terrariums under grow lights or in a bright place in the room. Do not place the terrariums in direct sunlight as they may overheat and harm the plants.
- Clean up extra materials and work area.
- Hand out Terrarium Observation Sheets

T: "Remember that good scientists record their observations. We are going to record what we observe happening in the environments of our terrariums. Let me show you what we will do."

- Show the Terrarium Observation Sheet on a document camera or projected on the white board.

T: "First we put today's date down in the first box.

- Teacher puts the date in the box.

T: The next box asks us to tell how many plants and to describe what they look like. In my terrarium I have 3 plants and they are about 2 inches tall. I'll measure them with a ruler to make sure. "

- Teacher measures the plants with a ruler
- Write 3 plants, 2 inches tall

T: "They are also green, so I will write that down too."

- Writes "Plants are green."

T: "The next box asks how many animals or insects and if there are babies yet. Right now we don't have any animals because we haven't added them yet, so I will write zero. But the next time we observe I would write the number of worms or other insects found in our terrariums."

- Writes zero in the box.

T: "The third box asks for changes. We will leave this box blank today because this is the first day of our terrarium. Next time we will observe any changes to the terrarium."

T: "The last box asks for us to make a drawing. We can make our drawings in the little box or make a drawing on another paper, write the date on it, and then staple it to this paper. Here is my drawing of my terrarium."

- Teacher draws a simple drawing of the terrarium pointing out the living and non-living things in the terrarium.

T: "Now we are ready for you to record your observations. Today you have 5 minutes to record your observations. When you are finished, please turn them into this basket and quietly read a book until time is up.

- If you have not introduced a Science notebook yet, this would be an appropriate time to do so. A Science notebook can be any kind of notebook in which the students record their observations, notes, drawings, etc. for Science. In this lesson, students can record their observations on the observation sheet and place it in the notebook or students can record their observations directly in the notebook using a format similar to the observation sheet provided.

Independent Practice: (5 minutes)

S: Students fill out their Terrarium Observation sheets and turn them in to the basket.

- Teacher circulates around the room helping students with recording observations in the boxes.

Closing: (2 minutes)

T: "Over the next few weeks we will record our observations about the changes we see happening in our terrariums.

A few days later:

T: "It is now time to add 2 worms in each terrarium. Let me remind you to be gentle and respectful of this living organism. We handle them carefully and place them on the soil like this." (Demonstrate how to handle the worms and place them on the soil.)

S: Student runner gets 2 worms for each group and places them in the terrarium.

T: "It's time for us to do another observation. This time we can write the number of animals or insects in our terrariums."

- Teacher models how to fill out the observation sheet

S: Students fill out observation sheet and turn them in to the basket to keep for the next observation.

Assessment:

Note which students were able to follow the multi-step instructions.

Use the Terrarium Observation Sheets to assess student's understanding of observing changes in the terrarium environment.

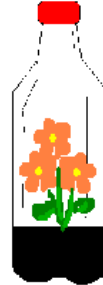
Extra Ideas:

Dear Parents,

Next month we will be building terrariums in class for the students to observe as part of our Science class. We would like to have enough materials for each small group of students to make one. If you have any of the following items and would like to donate them to our class, please send them in by _____. Thank you very much.

Sincerely,
Mrs. Science Teacher

Plastic empty 2 liter bottle
Soil
Gravel
Small plants
Seeds for small plants
Rocks
Crickets
Pill bugs
Snails
Earthworms



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