Plants and Animals Lesson 1c: Environments

Grade: Kindergarten	Length of lesson: 42 minutes	Placement of lesson in unit: 1c of 6 lessons on plants and animals
Unit central question: Do to live and grow? Explain		Lesson focus questions: Where do plants and animals in our terrarium get what they need to live and grow? Where do we get what we need to live and grow?

Main learning goal: Plants and animals need an environment where they can get the things they need to live and grow.

Science content storyline: We have many ideas about what plants and animals need to live and grow. We'll do some investigating to find out which of our ideas are correct. But one thing that's very important for all plants and animals is where they live. They must live in a place—an environment—where they can get everything they need to live and grow.

Ideal student response to the focus questions: Plants and animals need a place to live where they can get the things they need to live and grow, like food and air and water. That place is called an *environment*.

Materials Needed	Ahead of Time
Science notebooks	• Review the content background document and Common Student Ideas about Plants
Chart paper and markers	and Animals.
	• On chart paper, create a circle map titled "What Plants and Animals Need."
 Student Handouts and Teacher Masters 1.1 Terrarium Instructions and Mantis Care (Teacher Master) (from lesson 1a) 	 Write the definition of <i>environment</i> on the board or post it on a word wall for students to refer to throughout the lesson series. Review the care instructions for the terrarium and mantis from handout 1.1. Follow the feeding schedule, mist the inside walls of the terrarium with water every 2 or 3 days, and lightly water the soil for the plants. Be careful not to overwater. ELL support: Meet with ELL students in advance and introduce them to the lesson content, structure, materials, and activities so they know what's expected and can participate more fully. Identify vocabulary terms in the lesson plan to review with students in advance, including <i>living</i>, <i>nonliving</i>, <i>plants</i>, <i>animals</i>, <i>live/stay alive</i>, <i>grow</i>, and <i>investigate</i>. In particular, introduce students to the word <i>environment</i> and talk about the terrarium as an environment. Also discuss what humans need to live and grow.

Time	Phase of Lesson	How the Science Content Storyline Develops
2 min	Link to previous lesson: The teacher reviews the unit central question and engages students in summarizing key findings from the previous lesson.	• Our terrarium contains living things: three kinds of animals and two kinds of plants. It also contains nonliving things like water and dirt.
6 min	Lesson focus questions: The teacher introduces the focus questions, <i>Where do plants and animals in our terrarium get what they need to live and grow? Where do we get what we need to live and grow?</i> Then the teacher elicits ideas from students about what plants and animals need to live and grow and records these ideas on a circle map.	• Plants and animals need certain things in order to live and grow. We have many ideas about what they need and where they can get these things.
10 min	Setup for activity: The teacher introduces and defines the word <i>environment</i> that students will investigate as they consider what plants and animals need to live and grow and where they can find these things.	• All living things need an environment. An <i>environment</i> is a place where living things can get what they need to live and grow. Every environment includes both living and nonliving things.
10 min	Activity: Students consider whether their class terrarium is an environment based on the definition they learned. Then they think about their own environment and describe the living and nonliving things it includes.	• Plants and animals live in environments where they can get what they need to live and grow. People are animals too, so we also need an environment where we can the things we need to live and grow. Our environment provides us with the food, water, air, and shelter we need.
5 min	Follow-up to activity: Students consider whether three different photographs of a puppy, a plant, and a deer in a meadow represent environments; then they share their decisions and reasons with the class.	• Plants and animals are individual living things, not environments. Environments are places where many living things can get what they need to live and grow.
8 min	Synthesize/summarize today's lesson: The teacher reviews the focus questions and engages students in summarizing key ideas about what an environment is and why living things need one.	• An <i>environment</i> is a place where living things can get what they need to live and grow. All environments include both living and nonliving things.
1 min	Link to next lesson: The teacher foreshadows the focus question for the next lesson.	

Lesson 1c General Outline

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
2 min	•	Link science ideas to other science ideas.	 Show slides 1 and 2. Let's look at the big question for this unit that we've been thinking about. Can you read it with me? NOTE TO TEACHER: Point to the words on the board as you read the unit central question aloud together. ELL support: It might be helpful for ELL students if you review what the words live and grow mean. The things we've been learning about the living and nonliving things in our terrarium will help us answer this question at the end of our unit. Last time, we sorted the living things in our terrarium into two groups. Who can tell me what these two groups were? Who can remember the name of one of our plants? 	Plants and animals. One was called a <i>philodendron</i> . It had a lot of leaves. The other one was a	Questions
				spider plant. It had spiky leaves like grass.	

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			And what animals did we see in our terrarium? So we know that there are living things and nonliving things in our terrarium. But what about other places where animals and plants live? That's what we'll think about today.	A praying mantis. Earthworms. Ladybugs.	
6 min	Lesson Focus Questions		 what we'll think about today. ELL support: It might be beneficial for ELL students if you review some examples of nonliving things. Show slide 3. 		
	Synopsis: The teacher introduces the focus questions, <i>Where do</i> <i>plants and animals in our</i> <i>terrarium get what they</i> <i>need to live and grow?</i> <i>Where do we get what we</i> <i>need to live and grow?</i> <i>Where do we get what we</i> <i>need to live and grow?</i> Then the teacher elicits ideas from students about what plants and animals need to live and grow and records these ideas on a circle map.	Set the purpose with a <u>focus</u> <u>question</u> or goal statement.	 Show shue 3. In this lesson, we'll answer two focus questions: Where do plants and animals in our terrarium get what they need to live and grow? Where do we get what we need to live and grow? NOTE TO TEACHER: As you read the focus questions aloud, point to the words so students can follow along. Then write the questions on the board for student to refer to throughout the lesson and draw a box around them. To help us answer these questions, we'll investigate what plants and animals need to live and grow and where they can get these things. 		

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	Main science idea(s): • Plants and animals need certain things in order to live and grow. We have many ideas about what they need and where they can get these things.	Select content representations and models matched to the learning goal and engage students in their use. Ask questions to elicit student ideas and predictions.	 Look at the plants and animals in our terrarium. What do you think these living things need to live and grow? What about plants and animals in other places? What do you think they need to live and grow? Turn and Talk: Share your ideas with your elbow partner and be ready to share your ideas and reasons with the class. ELL support: The Turn and Talk will be especially helpful for ELL students. To facilitate their thinking, you may want to pair students with a shared-language partner so they can discuss their ideas in their home languages before sharing them in English with the class. A nice variation that encourages language development is having students share their partner's idea with the class. Show slide 4. NOTE TO TEACHER: Display the circle map you created on chart paper ("What Plants and Animals Need"). Whole-class share-out: Who has an idea about what plants and animals need to live and to grow? Be ready to give a reason for your idea. As you share your ideas, I'll write them on this circle map. 	I think plants and	<i>Questions to ask</i> <i>about each idea:</i> • Why do you

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		Ask questions to elicit student ideas and predictions. Ask questions to probe student ideas and predictions.	NOTE TO TEACHER: The goal here is to elicit a variety of student ideas about what plants and animals need to live and grow. Write down everything students suggest, but ask probe questions so that you can learn more about their reasoning and their experiences with plants and animals. Acknowledge all ideas without indicating whether they're right or wrong. Emphasize that these are beginning ideas, and they will probably change in later lessons. ELL support: Ask ELL students to share their ideas even if they repeat someone else's idea. This is good practice and will make student thinking visible. You came up with a lot of good ideas about what all plants and animals need, and I like how you stated your reasons! I also noticed that we don't all agree on everything,	 animals need food to live and grow. I think they need water. I think they need a home. I think they need people to take care of them. I think they need soil. I disagree! I think only plants need soil. Animals, like fish and birds, don't need soil to live and grow. I think all living things need air. 	 think that? How do you know they need this? Do you think all plants and animals need this? Does anyone disagree with that idea or want to add on?

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			so we need to do some investigating. We'll need to be good scientists and look for new ideas about what plants and animals need to live and grow.		
10 min	 Setup for Activity Synopsis: The teacher introduces and defines the word <i>environment</i> that students will investigate as they consider what plants and animals need to live and grow and where they can find these things. Main science idea(s): All living things need an environment. An <i>environment</i> is a place where living things can get what they need to live and grow. Every environment includes both living and nonliving things. 	Make explicit links between science ideas and activities before the activity. Engage students in constructing explanations and arguments.	One of our ideas is that all living things need a home or a shelter or a place to live. You're right about that! All plants and animals do need a place to live. Why do you think plants and animals need a place to live?	Because they need to keep them warm. If they're too cold, they'll die. Because they need a place that protects them from the weather. Because they need a place where they can find food. Because they need to be with their families. Because they need a place where they	

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		Highlight key science ideas and focus question throughout.	 Show slide 5. Scientists have many of the same ideas you have. They've discovered that plants and animals can survive only if they live in a place where they can get the things they need to live and grow. Scientists have a special word to describe the place where plants and animals live. It's called an <i>environment</i>. NOTE TO TEACHER: Write the word on the board and point to it. You may also want to include the word and its definition on a word wall so that students can refer to it throughout the lesson series. Revisit the definition as needed in future lessons. If time allows, have students write the word and definition in their science notebooks or include it in a class picture dictionary. Can everyone say that word with me a few times? It's a tricky word to say! ELL support: After the lesson is over, post images of the terrarium environment and the deer in a meadow environment where students can see them, and write the word <i>environment</i> and the definition at the top. 	can get water to drink.	

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			 Show slide 6. Now let's read the definition on the slide together: An environment is a place where living things can get what they need to live and grow. There are both living and nonliving things in an environment. ELL support: ELL students will be better prepared to participate if you introduce the word environment in advance and engage them in the following vocabulary-building tasks: Have students say the word environment together several times. Point to the words in the definition as you read them aloud. Point to the words again and have students read them aloud with you. 		
10 min	Activity Synopsis: Students consider whether their class terrarium is an environment based on the definition they learned. Then they think about their own environment and describe the living and nonliving things it	Make explicit links between science ideas and activities during the activity. Select content representations and models matched to the	To help us make sense of this new word, we'll look at our terrarium and think about whether this is an environment. But first, let's read our definition again. Show slide 7. Now look at our terrarium and think about whether it fits the definition of an environment? Is it a place where living things can get what they need to live and grow? Why or why not?		

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	 includes. Main science idea(s): Plants and animals live in environments where they can get what they need to live and grow. People are animals too, so we also need an environment where we can the things we need to live and grow. Our environment provides us with the food, water, air, and shelter we need. 	learning goal and engage students in their use. Engage students in constructing explanations and arguments. Ask questions to probe student ideas and predictions. Ask questions to challenge student thinking.	 Turn and Talk: Talk about these questions with an elbow partner and be ready to share your ideas and reasons with the class. Think about each living thing in the terrarium and what it needs to live and grow. Show slide 8. Whole-group discussion: Give me a thumbs-up if you think our terrarium <i>is</i> an environment and a thumbs-down if you think it is <i>not</i> an environment. NOTE TO TEACHER: Note whether any students gave a thumbs-down (or no). Let's hear from those who think our terrarium <i>is</i> an environment. Why do you think so? When you share your ideas, use the first sentence starter on the slide: <i>I think it's an environment because</i> Can everyone practice saying that sentence starter out loud with me? NOTE TO TEACHER: <i>If students have difficulty coming up with ideas, reread the definition and ask them to think about whether the terrarium is a place where plants and animals can find the things they need to live and grow.</i> 	I think it's an environment because it's a place for plants and animals to live.	Good! You used the idea from our definition that it's a place for living

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				I think it's an environment because it has water for the animals to drink and food for them to eat. I think it's an environment because it's a home	things.
			Who thinks our terrarium isn't an environment? Tell us why. Use the second sentence starter on the slide:	for the plants and animals. Oh, they need a home or place to get what they need to live and grow.	Why do the plants and animals need a home? Think back to our definition.
			I don't think it's an environment because NOTE TO TEACHER: You might consider introducing the idea of artificial versus natural environments if you think it will be helpful for your students.	I don't think it's an environment because it's just a box. It's not nature.	Let's think about our definition again.

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		Engage students in using and applying new science ideas in a variety of ways and contexts. Ask questions to elicit student ideas and predictions. Ask questions to probe student ideas and predictions.	So our terrarium is an environment because it's a place where plants and animals can get the things they need to live and grow. Show slide 9. Now let's think about another environment. What is <i>our</i> environment? We're animals too, so how would you describe the place where we live? First, let's talk about some of the things we need to live and grow. Who can tell me one thing? Where do we get these things?	We need food. We need water. We need a place that keeps us safe from the weather. We can get food and water at our houses, and we can sleep there.	Does the terrarium have everything that the definition says an environment should have? Are there other places we can get

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			Are there nonliving things in our environment? Are there other living things besides people in our environment? What are some other animals?	At the grocery store. At restaurants. At school. Yes. There are houses. There are cars. Bicycles. Furniture. There are cats and dogs. Birds. Bugs. Worms!	food and water? Any other ideas?
			What are some examples of plants in our environment?	Trees. Flowers.	Can you name some

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		Summarize key science ideas.	So we're animals, and our environment is a place where we can get what we need to live and grow. Our environment also has living and nonliving things in it. But our environment is very different from the terrarium, isn't it? For one thing, our environment is much bigger!	Apple trees. Tomato plants.	plants that give us food to eat?
5 min	Follow-Up to Activity Synopsis: Students consider whether three different photographs of a puppy, a plant, and a deer in a meadow represent environments; then they share their decisions and reasons with the class.	Make explicit links between science ideas and activities after the activity. Ask questions to probe student ideas and predictions.	So what did we decide about our terrarium? Is it an environment or not? NOTE TO TEACHER: <i>During this discussion,</i> <i>look for good reasoning and encourage students to</i> <i>use the environment definition.</i>	We said it's an environment. Because the animals and plants can get what they need to live and grow. Food.	And what were our reasons? What were some of the things we said they needed?
	 Main science idea(s): Plants and animals are individual living things, not environments. 	Ask questions to challenge student thinking.	And what did we decide about where we live? Is it an environment or not?	Water. We said it's an	

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	Environments are places where many living things can get what they need to live and grow.	Engage students in making connections by synthesizing and summarizing key science ideas.		environment. Because we can get what we need to live and grow. We need food. At home and at school.	What were our reasons? What were some of the things we need to live and grow? Where can we get the food we need?
				We need water. At home and at school. We need protection from bad weather.	Where can we get the water we need? What else do we need? Where can we find shelter from the weather?
		Engage students in using and applying new science ideas in	Next, I'm going to show you three different photos. Look carefully at each photo and think about whether it's a plant, an animal, or an environment.	At home and at school.	

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		a variety of ways and contexts. Ask questions to probe student ideas and predictions. Ask questions to challenge student thinking.	 Show slides 10, 11, and 12 (one at a time). What do you think? Is the puppy a plant, an animal, or an environment? ELL support: You may want to quickly review the criteria students established for determining whether a living thing is a plant or an animal. Then encourage ELL students to use these criteria as they think about the photos. Is the living thing in this picture an animal, an environment, or a plant? 	The puppy is an animal! Because I don't see the things it needs to live and grow. I agree. I only see the puppy. There aren't any other living or nonliving things. It's a plant. Because it doesn't	Why isn't the puppy an environment? Does anybody want to add on? Why do you think it isn't an environment?
			What about this picture? Is this a picture of a plant, an animal, or an environment?	have anything else that plants need to live and grow. It's a picture of an animal.	What makes you think it isn't an
			NOTE TO TEACHER: Students could be correct if they say that all three pictures show an environment.	Because it's a deer,	environment?

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			So do we all agree that the puppy and the plant are living things, but they aren't environments? And do we all agree that the picture of the deer in a meadow is an example of an environment?	 and a deer is an animal. I disagree. I think it's an environment. Because there's other living and nonliving things in the picture. Yes. The deer could probably get food by eating the bushes. Yes! Yes! 	Does anyone disagree or have another idea? Why do you think that? Does the picture show things that the deer might need to live and grow? How do we know?
8 min	Synthesize/Summarize Today's Lesson Synopsis: The teacher reviews the focus questions and engages	Highlight key science ideas and focus question	Show slide 13. Let's think about our focus questions again: Where do plants and animals in our terrarium get what they need to live and grow? Where do we get what we need to live and grow?		

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	 students in summarizing key ideas about what an environment is and why living things need one. Main science idea(s): An environment is a place where living things can get what they need to live and grow. All environments include both living and nonliving things. 	throughout. Engage students in making connections by synthesizing and summarizing key science ideas. Engage students in constructing explanations and arguments. Ask questions to challenge student thinking.	 What did we learn about where plants and animals get the things they need to live and grow? Show slide 14. What is an environment, and why do living things need an environment? Turn and Talk: Talk about these questions with an elbow partner. Be ready to share your ideas and reasons with the class. Whole-class discussion: Who would like to share your answers to these questions: What is an environment? Why do living things need an environment? ELL support: It might be helpful for ELL students to talk explicitly about the living and nonliving things in the terrarium or meadow environment, including what they need and how these environments provide what they need. 	We learned that they get what they need from their environment.	 Challenge questions to ask: Can you use our definition of <i>environment</i> to make your answer better? Why do living things need an environment to live and grow?

Time	Phase of Lesson and How the Science Content Storyline Develops	STeLLA Strategy	Teacher Talk and Questions	Anticipated Student Responses	Possible Probe/Challenge Questions
1 min	Link to Next Lesson		Show slide 15.		
	Synopsis: The teacher foreshadows the focus question for the next lesson.	Summarize key science ideas.	Today we learned that plants and animals need an environment where they can get all of the things they need to live and grow. One of the environments we talked about was our terrarium. We also talked about our own environment and how we get what we need to live and grow. Show slide 16.		
		Link science ideas to other science ideas.	Next time, we'll talk about some other environments and how plants and animals in these places get what they need to live and grow.		