PBS Lesson Series

ELA: Grade 5, Lesson 1, Ecology

Lesson Objective: Students will write a summary paragraph about new learning from today

Practice Focus: Today we will summarize our text.

TN Standards: 5.RI.KID.2, 5.RI.KID.3, 5.FL.VA.VA.7a

Teacher Materials:

- ELA, Grade 5, Lesson 1 - Teacher Packet

Student Materials:

- Two pieces of paper
- Pen or pencil
- highlighter

Teacher Do	Student Do
Opening **Hello! Welcome to Tennessee's At Home Learning Series for literacy! Today's lesson is for all our 5th graders out there, though all children are welcome to tune in. This lesson is the first in our series.** **My name is ____ and I'm a ____ grade teacher in Tennessee schools! I'm so excited to be your teacher for this lesson! Welcome to my virtual classroom!** **Today we will be learning about ecology! Before we get started, to participate fully in our lesson today, you will need:** • **Pen or pencil** • **Two pieces of paper** • **highlighter** **Ok, let's begin!**	Collects materials needed to engage in the lesson.
Intro Ask students the following: • **Are there living things in the sea?** [pause] **yes, there are many living things in the sea** • **What are a few examples of living things?** [pause] **yes, sharks, whales, fish, and many more** • **Think about your neighborhood, are there living things in your neighborhood?** [pause] **yes there are also living things here too** • **What are a few examples of living things that exist in your neighborhood?** [pause] **Great, people, animals, trees**	Student interacts with teacher's questions as posed.

• [Show image 1A-5: Ecosystems of Species] **Let's describe what we see in this image. What living things can we see here?** [pause] **yes! I see people, animals, sea life, and plants** • **All over the world, from areas as wide as the ocean to areas as small as a puddle on the sidewalk, life exists. Some forms of life are easy to see—for example, humans or flowers—whereas other forms of life can only be viewed by using a microscope—for example, bacteria or some types of plankton. Each life form is suited to live in a certain place. For example, fish have gills that allow them to breathe and live in water.** • **Who remembers the name for the place where an animal or plant is best suited to live and grow?"** [Pause] **Yes, it is a habitat.** • **You are going to learn more about the different types of habitats. For the next several days, you will hear about the different places where both living and nonliving things exist and how they interact with one another. You will also learn more about the feeding relationships between living organisms, and how humans can take better care of the earth.** • [This section is intended to provide essential background information or terms] **Today you will learn about something called "the balance of nature."** • **If something is balanced, what does that mean?** [Pause] **Yes, it's means it is in harmony and that all parts have an equal amount.** • **The balance of nature is thrown off by different events.** • **What types of things might throw off the balance of nature?** [Pause] **We will learn more about this question today.** • **The titles of stories can often give us clues as to what the content is about.** • **Please listen carefully to learn more about animals and their homes. You will want to listen for the main ideas, or the most important points, of this read-aloud, because at the end of the read aloud, you will summarize these main ideas.** • **Remember that good readers take notes as they are listening and learning. You will want to use your favorite note-taking strategy to help you capture the main ideas and help you summarize today's learning.**	

<u>Teacher Model</u> Animals and Their Habitats • [Show image 1A-1: Animals in Their Habitats] **How can squirrels live in cities? Why do bears live in forests, and why do whales live in oceans? Do you ever wonder about such things? Plenty of people do. Hi, my name is Zeke, and I am one of those people who never stops wondering and asking questions. When I was your age, I asked, "What do worms eat? Why do some animals migrate from place to place? Where do mosquitoes live? How do flowers live in the desert? Who can survive on glaciers?" When I grew up, I decided to become a scientist to try and find the answers to my growing number of questions.** • [Show image 1A-2: Zeke Showing the Word Ecology] **The science that I studied in college is called ecology. Its name comes from the Greek language: the word oikos** [oy-kos], **meaning "house" or "household," spelled 'eco' in English; and the suffix – ology, meaning "the study of." Ecology is the study of households— the households of living things such as plants and animals, that is. Plants and animals do not live alone. They are part of a system of households, communities called ecosystems.** • **This might be an important word to add to our notes. Let's do that!** • [Show image 1A-3: Zeke Meeting Rattenborough] **As an ecologist, I study ecosystems all over the world. I learn about plant and animal relationships, and how they interact with one another and with their environment. I love my job because I help others understand how everything on Earth is connected. On my travels a few years back, I met a friend of yours— Rattenborough. He and I made a great team because he is able to squeeze into tight spaces, and can poke around in nooks and crannies that I can barely get my big toe inside! Rattenborough told me what quick learners you are and asked if I would come talk to you about ecosystems. I can hardly wait. So, let's begin!** • [Show image 1A-4: Humans and Varying Species of Animals] **Ecosystems exist on plains and in deserts, forests, lakes, rivers, and oceans. They may be as small as a puddle or as large as a rainforest. They may occupy water or land. No matter their size or location, ecosystems always include living organisms. Organisms are sorted by species. For example, you**	Student interacts with teacher's questions as posed. Student uses appropriate note-taking strategy to capture information from today's learning.

are a member of the human species. You may look quite different from the person sitting next to you, but you are similar enough so that nobody will mistakenly think that you may be a member of the cat or dog species. Ants belong to their own species, quite different from humans. Jellyfish and elephants each have their own separate species, too. Each species is unique and has characteristics or traits unlike any other species. • [Show image 1A-5: Ecosystems of Species] **You may want to add ecosystem to the top or your paper. We are going to discuss many ecosystems today.** • **An ecosystem is home to a variety of species, groups of living plant and animal organisms. But an ecosystem includes lots more than just living things, and many parts of an ecosystem are hidden from view. Sunlight, water, air, sand, rocks, and soil are all important parts of an ecosystem. These nonliving parts help determine what kinds of plants and animals are able to live in each different ecosystem. 6 For example, plants needing shade and plenty of water would not be very tolerant of, or able to endure, hot desert climates. Each species has its own habitat, or special home, within the ecosystem. I know that Rattenborough has taught you so much about animals this year. He may have also introduced you to animal habitats, or homes, when you were in the first grade. Some of these habitats include: Forests, deserts, savannas, the tundra, saltwater oceans, and freshwater lakes, rivers, ponds, and streams—all of these are home to a number of animals and plants. Sometimes you will hear people call these large areas habitats, and at other times you may hear them called ecosystems. Both are correct. Biome is another name you might hear for a largescale ecosystem, but ecologists do not all agree on precisely how to define what a biome is or how to classify the number of biomes that exist on earth. You may learn more about biomes in later grades. For now we will stick with the terms habitats and ecosystems.** • [Show image 1A-6: Rainforest Animals in their Habitat] **Rainforest animals and their habitat: The word habitat can also refer to a smaller area that is part of an ecosystem. In other words, a habitat refers to the preferred home of a plant or animal. An ecosystem, then, would be a collection of habitats. But don't get the idea that an ecosystem is just a group of homes**	

for animals and plants to live in by themselves! In every ecosystem, perhaps the most important feature is the interaction between living and nonliving things. To understand the difference between ecosystems and habitats, let's look at rainforests. A rainforest is an ecosystem, a community of living and nonliving things. Within the rainforest ecosystem, there are many different species of plants and animals, such as trees, worms, snails, butterflies, frogs, snakes, jaguars, monkeys, turtles, as well as some humans living in dwellings. • **Each one of these species lives in its own special area—a "just-right" habitat where it can thrive within the rainforest ecosystem. Worms live beneath the soil. Some monkeys scamper along the forest floor, whereas others swing from the high tree branches far above the ground. Jaguars rest on low-lying branches. All living things occupy habitats to which they are particularly suited—butterflies flit amongst the ferns and the snail propels itself along a leaf. More than one species may share the same habitat, as you can see the turtle and frog do, but they interact in a way that helps shape the whole community, or ecosystem. Add some information you gained from the rainforest section to your notes** [pause] • [Show image 1A-7: Beaver with Food, Water, Shelter, and Space] **Physical factors of the environment affect and allow certain organisms to live in certain habitats. A habitat supplies all of an organism's needs for survival—food, water, shelter, and space. Organisms have adapted to their changing environments over time, allowing them to survive. Let's look at a few of these plant and animal adaptations in different habitats and ecosystems around the world. Add some information you gained from this section to your notes about how habitats support the living things there** [pause] • [Show image 1A-8: Different Forests and Animals] **I mentioned the rainforest and its many habitats. Rainforests are just one type of forest. Forests vary widely, depending upon climate and soil differences. The trees of some forests are deciduous, which means they drop their leaves every year, whereas others are coniferous, which means they are cone-bearing evergreens.**	

• **Different types of forests support different types of plant and animal life. What forest animals can you name?** [Pause] **Nice job listing a few!** • **Some, like jaguars, have the balance needed to lie on the low-lying branches of trees. Bears have adapted to their habitat by growing claws needed for climbing trees to find food. Others, like monkeys, have long tails for gripping tree branches as they climb higher and higher. The beaks of some birds are well designed for breaking open seeds, whereas others are designed for sipping nectar from flowers.** • [Show image 1A-9: Different Desert Plants and Animals] **Deserts are arid regions, marked by little rainfall. Succulents— plants with spiny, waxy leaves—are often found in the desert. These special plants, such as cacti, are able to store water in their stems.** • **Some desert plants have long root systems, enabling them to suck up water at a distance. And most desert plants are spaced wide apart, avoiding competition for water. Some desert insects, such as certain types of beetles, have waxy bodies that help them reduce water loss. Other animals, like the famous camels, are able to survive for long periods of time without drinking water because they store water in their bodies and have adapted to be able to tolerate high body temperatures. Add some information you gained from the desert section to your notes** [pause] • [Show image 1A-10: Different Grasslands and Animals] **Savannas, or grasslands, usually have few trees or shrubs. Rainfall varies, with some grasslands being wetter than others. The types of grasses vary, too, depending upon temperatures and the amount of rainfall in the region. Sometimes grasses are seasonal, growing only in winter or spring. Where this is the case, animals often adapt their habits to match the growth of plants in their ecosystem. For example, when little grass is available, antelopes migrate, and some small rodents hibernate. Because there are few places to hide from enemies in the open grasslands, antelopes display another adaptation for survival. Known for their speed, they run at rates greater than fifty miles per hour. Add some information you gained from the grassland section to your notes** [pause] • [Show image 1A-11: Arctic Fox and Caribou in the Tundra]	

Arctic lands are called the tundra. These treeless areas near the North Pole are cold for most of the year. The arctic tundra is dark all winter long, and there is permanently frozen water beneath the ground. During brief summers of constant sunlight, a few plants grow, but there is very little vegetation. One animal that is well adapted to the arctic tundra is the arctic fox. He has a short, round body with lots of fur and little skin exposed to the cold. Lemmings, small rodents of the tundra, burrow under the snow to conserve heat, whereas many other animals, like the caribou in this image, migrate to warmer areas for the winter. Add some information you gained from the arctic section to your notes [pause] • [Show image 1A-12: Aquatic Ecosystem] **Ecosystems are not limited to land areas. You know that living organisms also live in aquatic, or watery, habitats. Freshwater ecosystems—those with little salt—include lakes and ponds, as well as rapidly running streams and rivers. In still waters, algae will float on the surface of the water, but in running streams, algae clings to rocks, preventing the currents from washing it away. The physical adaptations of water insects, such as long, claw-footed legs, enable them to hold onto rocks and avoid being swept away by the currents. How is it that fish are able to breathe underwater? Yes, fish breathe through gills, which allows them to breathe underwater without having to come to the surface.** • [Show image 1A-13: Saltwater Ecosystem] **Saltwater ecosystems support a wide variety of plant and animal life. The organisms that call Earth's oceans home cannot survive without the salty content of its waters. Like smaller creatures on land that are eaten by bigger creatures, ocean creatures have adapted in many different ways, including camouflage and poisonous spines. Many fish have special ways of lighting up to either attract prey or ward off danger. Add some information you gained from the aquatic section to your notes** [pause] • Show image 1A-14: Zeke Showing Interconnected Organisms in Ecosystem] **Together, we will explore plant and animal life in ecosystems around the world, remembering that everything on Earth is interconnected. Next time, we'll look at some of the links that make these connections.**	

<u>Guided Practice</u> **How do you think you are connected to an ant or a bee?** [Pause] **You'll soon find out if you are right!**	Student will write a short response to the question.
<u>Independent Practice</u> • **In order to synthesize our learning today and to prepare for tomorrow's deep dive into the learning, let's do a note recap. Take out your highlighter. If you don't have one, you can use a pen, marker, crayon, or just underline with your pencil.** • **Go back into your notes. Re-read what you wrote down. Highlight or underline anything that might be related to one of the main topics from today.** [Repeat directions 2x] • **Then, chose one of the main topics from today and write a well-developed paragraph, to help you solidify today's learning**. [Repeat directions 2x]	Student will complete the note recap and write a well-developed paragraph on what they learned.
<u>Closing</u> • **I enjoyed learning about ecology with you today! Thank you for inviting me into your home. I look forward to seeing you in our next lesson in Tennessee's At Home Learning Series!** • **Bye!**	