

Turning Windows into Mirrors

How Life in an Indigenous Amazon Community Compares to Our Own

David Ostheimer | Elementary School

Unit Description

This is a unit for first graders although it can be modified for any Elementary grade. What exactly is the Amazon? Where is it found? What plants and animals live there? Who are the people that live there and what is their daily life like? How does life in the Amazon compare to a student's life in New Castle? How is it different? The Indigenous peoples of the Amazon are surrounded by nature, how can we connect to nature here in Delaware?

Content Standards

- Students will develop an understanding of the diversity of human culture and the unique nature of places (Delaware Social Studies Standards: Geography)
- Use observations to describe patterns of what plants and animals (including humans) need to survive. (NGSS K-LS1-!)

Objectives and Outcomes

- 1. Students will demonstrate an understanding of what and where the Amazon is.
- 2. Students will compare and contrast life in an Amazon village with their own life.
- 3. Students will demonstrate an understanding that although there are many differences between village life and their own, there are many similarities.

Supporting Material

1. DTI 2022 Unit



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Introduction

"We can't save what we don't love and we don't love what we don't know." Paul Rose, Expedition Leaders for the National Geographic Pristine Seas initiative, told that to a group of Pre-K through 2nd grade students during a National Geographic Explorer classroom session. 1"It's a big universe to explore, who decides who gets to explore it?", asked Stanford PhD and Foldscope team member Paola Moreno-Roman during our seminar. These quotes resonate strongly with me as I attempt to open up the world to the students in my classroom. Every Wednesday, we have a routine called "Where in the World Wednesday" where we look at pictures and learn information about places around the globe. From our home state of Delaware to the mountains of Nepal, from the Grand Canyon to the Serengeti we take 10 minutes out of our Wednesday to admire the wonders of our planet. These places mean more when I, or they, have a personal attachment to them. On Fridays I help facilitate the students' natural curiosity, when we research and answer questions pulled from our "Wonder Wall". I see my unit on the Amazon as a way to introduce the Amazon to my 1st graders and to make what happens there relevant to their lives here. If they get to see life in the Amazon as similar to their own, maybe not the same but also not weird, just a bit different they can develop empathy for cultures other than our own. Our big universe has plenty of opportunities for exploration. I hope this unit will begin to quell the fear of the "different" that we all possess. While this unit is written for first grade, it can be easily adapted to fit any elementary grade.

Background

The elementary school where I teach consists of many different kinds of students with a variety of beliefs and experiences. Our school has approximately 1200 students from Kindergarten through 5th grade. There are nine 1st grade classrooms; seven in one hallway and two Spanish immersion classrooms in another part of the school. I can have up to 25 students from Hispanic, African, Caribbean, Asian and Middle Eastern cultures as well as students whose families are from the United States. My classes, historically, have been around 50% African American, 30% White, and 20% other ethnicities, and are usually a close split between boys and girls. Socioeconomically, my class will also be diverse with all economic classes represented. My school is a Title 1 school and qualifies for free lunch for all students. We live about one hour from the ocean yet many of my students have never seen it yet alone have gone swimming in it. Most students

¹ Paul Rose, "Explorer Classroom | Our Beautiful Ocean with The Pristine Seas Team," https://www.youtube.com/watch?v=7xPhziZ-Quc April 19,2021

have never seen an animal in the wild nor have they seen one in the zoo. When asked to name animals for a research project we do in class, many students are stumped after naming lions, tigers, polar bears, monkeys, and reindeer. Many name dogs and cats as they are the animals that they are familiar with. They are interested in animals but don't have much experience with them, as they don't show up on too many video games. The sum total travel experience of many students is the shopping trip to Walmart and the weekly attendance at their family's house of worship. Most experiences are virtual through tv, movies, and video games; very few are with the natural world.

Our grade level teaches Science, in rotation with Social Studies, in a 20 to 30-minute block at the end of every day. This unit will be taught as part of our Organisms unit in the Spring or maybe in conjunction with our Geography unit, also in the Spring.

Rationale

The Amazon is a vast region. When I think of the Amazon I always think of piranhas and monkeys, sloths, and jaguars, the forest canopy, and rain. There are many species of plants and animals both familiar and unfamiliar. I never think about it but there are people there, too: Indigenous peoples and opportunists, scientists and settlers. How do, how can, all these species coexist with the needs of humans? What takes precedence? The needs of the river and the forest? The Indigenous peoples? "Progress"?

One thing the seminar has brought to the forefront of my mind is that "saving the Amazon" doesn't mean wrapping it up and keeping it for people to come and look at... like we have in the United States' National Park system. You can go and drive through Yellowstone, you can camp, but, even if your ancestors lived there and hunted elk and buffalo, that's not something you can do today. You don't have that right. There are over 400 Indigenous cultures with over 1 million individuals who live in the Amazon many have had contact with "outsiders" for over 500 years, some with little to no contact. ² They survive using the bounty that their Amazon provides. The rights and cultures of these peoples need to be recognized and protected.

How can first graders in Delaware help to protect the rights and cultures of the people of the Amazon? The first step is getting to know the Amazon, getting to know that people live there and how they live. Is it so very different from us? Where does a 6 year old sleep? What does she eat? How does he go to school? What do they celebrate and how? How are they entertained? Once we see that we all have the same basic needs and wants but go about obtaining them differently maybe then a first grader's innate sense of justice will kick in.

We will be teaching a unit for first graders, they know little of the Amazon. We can go over the basics. What exactly is the Amazon? Where is it found? What lives there? Who lives there?

² "Amazon Tribes," Survival International, accessed October 3, 2021, https://www.survivalinternational.org/about/amazontribes

Once the hook is set we can learn about a group of people that live there and what their daily lives are like. We can exercise a little empathy as we make connections to their experiences. How does life in the Amazon compare to life in New Castle? How is it different? How do children learn there? What do they learn that we do not? What can we do in Delaware to help ensure that human life in the Amazon can continue in harmony with nature?

Content Objectives

What is the Amazon?

We cannot write a unit on life in the Amazon without actually talking about the Amazon. Is it a river? Is it a rainforest? My first graders only know it from the packages that show up at the house. Let's dive deeper, we will learn about some of the animals found there before we learn about Indigenous peoples who live there.

The River

According to The Britannica School Encyclopedia: "The Amazon is the mightiest river in South America. It carries more water than any other river. It is about 4000 miles long. Only the Nile River in Africa is longer." What is mighty to a kid? Seeing is believing so a video would be a welcome addition. (Link to video from our seminar expedition coming 2022). The river is home to over 3000 species of freshwater fish⁴ including the piranha and the Amazon river dolphin.

Piranhas

Piranhas are legendary fearsome creatures. James Bond was threatened with them in You Only Live Twice and poor Helga Brandt met her demise in their aquarium for failing to kill Bond. But, according to the WWF, piranhas are actually less aggressive than we believe. The red piranhas are abundant throughout the Amazon and, unless there is a shortage of food or low water levels they do not pose a hazard to swimmers! People are actually a more fearsome predator to the piranha as the fish routinely ends up as a meal for the people who live along the Amazon. (picture of cooked piranha)

Pink river dolphins

³ Britannica School, s.v. "Amazon River," accessed September 27, 2021, https://school.eb.com/levels/elementary/article/Amazon-River/346079.

⁴ "Amazon Fish," World Wide Fund For Nature, accessed October 3, 2021, https://wwf.panda.org/discover/knowledge hub/where we work/amazon/about the amazon/wildlife amazon/fish/

The Amazon river dolphin, also known as the pink river dolphin, or bufeo colorado, lives only in freshwater. It is found throughout much of the Amazon and Orinoco river basins in Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, and Venezuela. It is a relatively abundant freshwater cetacean with an estimated population in the tens of thousands. Many stories surround the boto. Some are playful with the boto as a sort of trickster character and some are a bit darker which 1st graders don't need to hear.

The Rainforest

The Amazon rainforest is the largest tropical rainforest in the world. It covers around 2 million square miles in Brazil, Bolivia, Peru, Ecuador, Colombia, Venezuela, Guyana, and Suriname. The rainforest is home to tens of thousands of plant species, more than 1300 types of birds, and millions of insects. More than 430 species of mammal are found in the Amazon, the majority of which are bats and rodents 8

Plants

The Amazon has around 80,000 plant species, many of which are important for regulating global climate. While there may be many species in tropical rainforests, these often exist in low numbers over large areas.... For Amazon people, both Indigenous and recent arrivals, plants are a food source and raw matter for non-timber forest products. The forest also provides timber for use in housing and transportation. Plant types include trees such as the kapok tree and the Brazil nut tree. Epiphytes such as orchids have developed the ability to grow without being anchored in the first floor

Jaguars

Big cats are found in the Amazon and include the jaguar, ocelot, jaguarundi, puma, margay and the oncilla, Jaguars are the most "famous" to our students. The jaguar is the third biggest cat in the world, after tigers and lions. Jaguars are excellent swimmers. Jaguars will eat almost any animal and will hunt their prey both day and night.¹⁰

⁶ "River Dolphin," World Wide Fund For Nature, accessed October 3, 2021, https://www.worldwildlife.org/species/amazon-river-dolphin_1

⁷ "Amazon rain forest" 2021, *World Book Kids*, World Book, Chicago, viewed 03 Oct 2021, https://www.worldbookonline.com/kids/article?id=ar832449

⁸ "Amazon Mammals," Mongabay, accessed November 15, 2021 https://rainforests.mongabay.com/amazon/mammals.html

⁹ "Plants," World Wildlife Fund for Nature, accessed October 3, 2021 https://wwf.panda.org/discover/knowledge hub/where we work/amazon/about the amazon/wildlife amazon/plants/

¹⁰ "Top 10 Facts About Jaguars." World Wildlife Fund for Nature, accessed October 3, 2021, https://World Wide Fund For Nature.uk/learn/fascinating-facts/jaguars

Birds

According to the World Wildlife Fund, "At one site in the Peruvian Amazon, about 575 bird species have been identified within a mere 5,500-hectare section of the rainforest. By comparison, 700 bird species are found in the whole of North America." of those birds, hummingbirds are found in both Delaware and the Amazon. In Delaware we have two native hummingbirds, the Ruby Throated and the Rufous. Peru boasts 124 hummingbird species, of which 14 are endemic, that is, they only inhabit Peru. Although they are distributed throughout the country, they are more abundant in tropical areas."

Life in an Indigenous Community

As we look at the Amazon, we need to remember that people live and have lived here for centuries. People use the natural bounty that the forest and river provide. How do their lives compare to ours? We can look at some of the features of daily life and have our students notice what is the same and different in our own communities. Aspects of life in the Maijuna community of Sucusari are shared by Brian Griffiths, Executive Director of the ACEER Foundation.

Housing

When looking at houses in the Maijuna community, we can see that they are very different from the homes that we live in in our communities. Maijuna homes are made from local timber. Where do our materials come from? The timbers are fastened with vines like the tamishi vine which give the homes some flexibility when pummeled by violent weather or earthquakes. Vines also don't damage the wood so houses can be deconstructed and rebuilt if necessary using the same materials. Can we do that with our own houses? Houses also have thatched roofs which are usually made from the Irapay palm tree, a very small palm that grows in upland primary forest. How many thatched roofs do we see in our communities? Houses are also built on stilts. Stilts keep the houses out of the water and keep the snakes from coming in and making themselves at home.

Houses feature two rooms, a communal area and a kitchen connected by a walking bridge. The large room may be walled off to provide more privacy. How many rooms do houses have in

¹¹ "Birds" World Wildlife Fund for Nature, accessed October 3, 2021, https://wwf.panda.org/discover/knowledge_hub/where_we_work/amazon/about_the_amazon/wildlife_amazon/birds/

¹² "Hummingbirds of Delaware", Beauty of Birds, accessed October 3, 2021, https://www.beautyofbirds.com/hummingbirdsdelaware.html

^{13&}quot;Hummingbirds of Peru," Tierras Vivas, accessed October 3, 2021 https://www.tierrasvivas.com/en/travel-blog/hummingbirds-of-peru

our communities? Houses do not have running water and toilets are of the composting variety. A composting toilet is not an outhouse or port-o-potty. It is a device that turns solid waste into compost. It creates an oxygen-rich environment enabling aerobic bacteria to break down waste.¹⁴

Kitchens are a separate area of the house and contain several parts. These parts are an open floor space for food prep, a barbacoa, just off the kitchen proper to do the dirty work of cleaning game and other tasks such as dish washing, and a tushpa, a large hard clay platform which holds a low burning fire used to cook the meals.

All the water for the house comes from the river or a communal water tower. Electricity, if available, is from a solar cell which can run one or two lightbulbs. Could we live without running water and electricity? How would our lives be different?

Meals

In the Maijuna communities, breakfast is the most important meal of the day. It can consist of Boiled fish (sábalo, pacu, piranhas, palomettos preferred), boiled plantains, salt, yuca, some more salt, perhaps a dash of lemon or cocona for those families that like those flavors. All of these things are grown or found locally with the exception of the salt of course. Families which are better off economically, or do not have protein that day, may include hard boiled eggs - and those which have the money to spend could also have rice or spaghetti as well.

Lunch is not often eaten. It may be just bowls of masato or chicha, beverages which are starchy and provide energy. A lunch on the go could be fariña (toasted yuca flour) mixed with sugar and water to make a grainy drink called shibet.

Dinner is more like a snack, unless there is really hard work being done. After a day of hard work, dinner would again be fish or a piece of game meat, boiled or smoked. These are often in forms of soups in Sucusari - there are a million kinds of soups. In general, these have plantains and yuca in them, along with salt, local herbs or seasonings like garlic or culantro (in the cilantro family).

Entertainment

Think about what we do to entertain ourselves. We have many options from television shows, YouTube videos, and TikTok to basketball, soccer and many other recreational activities. In the Indigenous communities, soccer is king but children do other things, such as fishing, paddle (and sink) canoes, swim, invent games and toys, but they also help their parents with major chores. The internet and items such as video games are not present in these communities.

¹⁴ "What Is a Composting Toilet and How Do They Actually Work," Green Matters, accessed October 3, 2021, https://www.greenmatters.com/p/how-do-composting-toilets-work

Pets

Many of us have pets at home. What kind of pets, if any, do the Maijuna have? Dogs, cats, parakeets and parrots are common. Less common are different kinds of monkeys such as howler, wooly, and saki. Coatis and other small mammals may also be kept. Yellow-footed tortoises are raised to be eaten.

Transportation

There are not many roads in the Indigenous communities of the Amazon therefore cars are not necessary. There is a river which is vital to transportation. People move around via canoe or a motorboat called a peccy peccy. Of course, people also get around by walking. Just like in our communities, people travel to gather the supplies they need, whether it is to a neighboring community or farther into the rainforest to hunt, fish, and gather food and materials. People also travel to visit with family and friends, go to the doctor, and to vote.

Education

Students go to school, just like in our communities. Schooling is compulsory from 1st to 6th grade. It is hard to find teachers to work in Indigenous communities. Many teachers come from urban areas and may cycle through several villages, having school for two weeks in one place and then going to another village for two weeks, leaving the school and all the supplies locked. High schools are not in every community and may serve as a short-term boarding school. Classrooms are often multi-age.

National Geographic Framework

One thing I like to instill in my students is an "Explorer's Mindset": Be curious. Observe. Collaborate. Communicate. Be Responsible. Problem Solve. Be Empowered. This unit will help facilitate this by using aspects of the National Geographic Framework. This framework helps us look at global issues through various lenses, and relate them to our own lives.

This unit will particularly focus on the "Knowledge" aspect of the National Geographic Framework: The Human Journey - Children understand how different groups of people are alike and different, Our Changing Planet - Children understand what plants and animals (including humans) need to survive, and Wildlife and Wild Places - Children understand that humans, animals and plants live in and share the same spaces and can impact each other.¹⁵

¹⁵ "Learning Framework," National Geographic Society, accessed November 15, 2021, https://media.nationalgeographic.org/assets/file/Nat_Geo_Learning_Framework_Knowledge_Chart.pdf accessed November 15, 2021

Part of the framework is to have a "call to action", to take the lesson out of the theoretical and into the real world. In our activities, we will look at different aspects of life in the Amazon through a variety of lenses and then bring our knowledge back to where we can be empowered to take action. Instead of a school-based action, I will write a grant to buy hummingbird feeders for my students and teach them how to prepare and distribute the food in the feeders. While the hummingbirds we see here in Delaware don't migrate from the Amazon we can still take care of, and enjoy, a bit of wildlife that is easily (and safely) seen.

Strategies

A strategy that I will employ is using a "KWL" Chart to give our students some ownership and choice in their learning. We often use ''What do I already know", "What do I want to learn", and "What did I learn?" chart, but pretty much teach what the curriculum tells us and not what the students really want to know. For example, I did a reading on Bats using the Reading A-Z program. That lesson incorporates a KWL chart but only provides the information in the read along booklet and no time or resources to discover what kids really wanted to know about bats. This unit will not pay lip service to their curiosity but seeks to incorporate it into the learning process.

Activities

First, we will start off with a "KWL" chart to find out what students know about "The Amazon", what they want to learn, and what they have actually learned. We can use the "W" section of the chart to personalize the experience for our students. After we fill out our chart we will talk about what "The Amazon" is. We will learn about the rainforest and the river.

Depending on where you live, you can compare the forest to your local forests. In the White Clay Creek preserve of Southeastern Pennsylvania and Northern Delaware "Species most commonly found in wooded acreage are hickory, white ash, black walnut, tulip tree, sycamore, black cherry, and red, white, and pin oak as canopy trees. Understory species include Norway maple, flowering dogwood, ironwood, and slippery elm. Large stands of black walnut are common in the flood plain areas." What is found in your area? Compare those trees to the trees of the Amazon rainforest using photos from the Trees of the Amazon feature in The Guardian. 17

You can also compare the Amazon River to your local waterway. I will compare it to the Delaware River watershed. "Covering 13,500 square miles and four states—Pennsylvania, New York, New Jersey and Delaware—the Delaware River Watershed is a diverse landscape of more than 35 ecological systems and 185 natural communities. It provides important year-round

¹⁶ "White Clay Creek Preserve," Old-Growth Forest Network, accessed November 15, 2021, https://www.oldgrowthforest.net/pa-white-clay-creek-preserve

¹⁷Trees of the Amazon Rainforest – In Pictures, The Guardian, accessed November 15, 2021, https://www.theguardian.com/environment/gallery/2013/oct/29/trees-amazon-rainforest-in-pictures

habitats and critical migratory stopovers for approximately 400 bird species."¹⁸ Using maps, compare the size of the Delaware River watershed to the Amazon watershed.

What animals are found in and around the Amazon? How do these compare to the animals found in the Delaware river or in your watershed? We will focus on a few animals such as the jaguar, piranha, and pink river dolphin or others that students identify as wanting to learn about. Do we find them in our local ecosystem? Do we find similar animals or animals that do similar jobs? Were there similar animals that were once here that are now extinct? Students can draw and write about the animals taking the facts we learn and writing simple paragraphs about the animals. Alternatively, depending on their level of independence, students can choose one animal and using resources such as those found on Epic, can draw and write about their animal and we can create a class book of animals of the Amazon.

Our next activity will focus on life for the Indigenous peoples of the Amazon. We will use the Miajuna as a representative of the various Indigenous communities found in the region. How does life in the Peruvian Amazon compare to our lives? What is the same? What is different? We can have students imagine themselves as a Miajuna child. How would it feel to not have the material things that we take for granted? As part of our science curriculum we talk about the seasonal patterns of items in the sky. We talk about the stars and how, where we live, we cannot see many stars in the night sky due to light pollution. How would they feel looking up into a sky unfettered by surrounding lights? Can they even imagine what that would look like? We can highlight the aspects of life that are similar such as family, school, soccer, and explore the differences including homes, food, and transportation. We can take our students' reactions from "that's weird" to "that's different" and maybe even to "that's cool".

Our penultimate activity will be filling out the "What Have I Learned" section of our KWL chart. What did the students learn? Were any misconceptions cleared up? We can remind students that the Amazon is an important part of our world. Even though it is very far from us, the health of the forest directly ties into the health of our planet. Popular Mechanics gives a concise article with "4 Reasons Why We Need the Amazon Rainforest: animals, plants, the river and the oxygen - carbon cycle. ¹⁹It is written so even a 1st grader can understand the importance of the ecosystem.

It is hard for a 1st grader to "Save the Rainforest". What we need to do is to think about animals we can impact here at home. In Delaware, we are visited by the Ruby Throated Hummingbird. Hummingbirds are found in the Amazon so we have a ready-made connection between animals in Delaware and Peru. We will learn how to take care of a hummingbird feeder

¹⁸ "Delaware River Watershed," Audubon, accessed November 15, 2021, https://www.audubon.org/conservation/delaware-river-watershed

¹⁹"4 Reasons Why We Need the Amazon Rainforest," Popular Mechanics, accessed November 15, 2021, https://www.popularmechanics.com/science/environment/a28910396/amazon-rainforest-importance/

and students will take one home to put outside and observe over the summer. Who knows what may come from these independent observations!

Appendix A

Next Generation Science Standards we may address are:

K-LS1-1 FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES Use observations to describe patterns of what plants and animals (including humans) need to survive.

2-LS4-1 BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY Make observations of plants and animals to compare the diversity of life in different habitats.

Appendix B

Multimedia Resources

There are videos and pictures that can be used to add context to some of the information given in the unit. There are videos and picture showing some of the aspects of daily life including living spaces, the kitchen and cooking, agriculture, school and some children's recreation. There are videos showing what a Maijuna village looks like and how it is situated near the river. There are videos and photos to show what the Amazon rainforest looks like from the ground up to the canopy that can be used to compare and contrast to your local wild places.

Resources

Cardwell, Mark Riley. "Trees of the Amazon Rainforest - in Pictures." The Guardian. October 29, 2013. Accessed November 23, 2021. https://www.theguardian.com/environment/gallery/2013/oct/29/trees-amazon-rainforest-in-pictures.

Useful to compare trees found in the Amazon to trees found in your own ecosystem.

"Endangered Species Conservation." WWF. Accessed November 23, 2021. http://www.worldwildlife.org/.

Site full of information on plants and animals of the Amazon Basin.

Griffiths, Brian, ACEER Foundation. Accessed December 12, 2021.

https://drive.google.com/file/d/19ZXGCIsYE7DH852-RBUXYYqx8NSvDidI/view?usp=sharing Photos to use with the unit.

"Hummingbirds Found in Delaware, USA." Hummingbirds Found in Delaware, USA | Beauty of Birds. Accessed November 23, 2021. https://www.beautyofbirds.com/hummingbirdsdelaware.html.

Hummingbirds found in Delaware.

Hummingbirds of Peru. Accessed November 23, 2021. https://www.tierrasvivas.com/en/travelblog/hummingbirds-of-peru. Hummingbirds found in Peru.

Leman, Jennifer. "4 Reasons Why We Desperately Need the Amazon Rainforest." Popular Mechanics. November 02, 2021. Accessed November 23, 2021. https://www.popularmechanics.com/science/environment/a28910396/amazon-rainforest-importance/. Easily understood article about the importance of the Amazon.

Montgomery, Sy. *Journey of the Pink Dolphin: An Amazon Quest*. Place of Publication Not Identified: ISIS, 2001.

Story that gives the flavor of a journey on the Amazon in search of pink dolphins.

"Plants and Animals of the White Clay Creek." White Clay Creek Wild & Scenic River. Accessed November 23, 2021. http://whiteclay.org/plant-and-animal-surveys. What can be found along the White Clay Creek.

User, Super. "Wildlife on the Delaware River." Wildlife. Accessed November 23, 2021. https://delawareriversojourn.com/index.php/overview?id=25.
Information on what animals can be found along the Delaware River.