SCIENTISTS IN THE FIELD

Where Science Meets Adventure

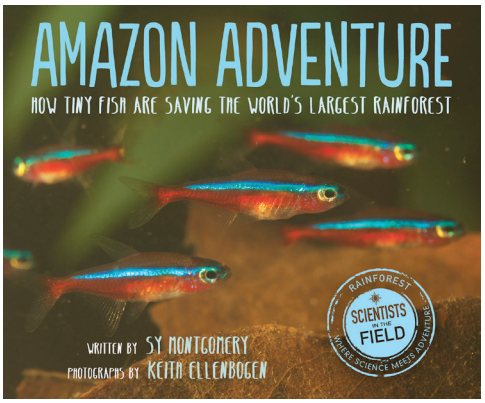
DISCUSSION AND ACTIVITY GUIDE

Amazon Adventure: How Tiny Fish Are Saving the World's Largest Rainforest

BY SY MONTGOMERY (PHOTOGRAPHS BY KEITH ELLENBOGEN)

About the Series

Amazon Adventure is part of the award-winning Scientists in the Field series, which began in 1999. This distinguished and innovative series examines the work of real-life scientists doing actual research. Young readers discover what it is like to be a working scientist, investigate an intriguing research project in action, and gain a wealth of knowledge about fascinating scientific topics. Outstanding writing and stellar photography are features of every book in the series. Reading levels vary, but the books will interest a wide range of readers.



Amazon Adventure
by Sy Montgomery
Photography by Keith Ellenbogen
978-0-544-35299-5

About the Book

Try to go through your day cutting back on your breathing, on your oxygen intake, by 20 percent. Every fifth time you go to breathe, hold it until your next breath should happen. The Amazon rainforest is responsible for about a fifth of all the oxygen on the planet. Absolutely essential! Now imagine you see people filling hundreds of containers with fish from the rainforest. Hundreds of thousands of fish being grabbed out of the water and stuffed into containers and sold to pet stores around the world! Finally imagine that this practice is a key step in preserving the lungs of our entire planet. *Amazon Adventure* tells this amazing story with facts, research, logic, and Montgomery's award-winning way with words!

About the Author

While researching some of her many books, Sy Montgomery has been bitten by a vampire bat, hugged by an octopus, and hunted by a tiger, and she has crawled into a pit with 18,000 snakes! She has written more than twenty books for adults and children and has won many honors, including the Orbis Pictus Award, a Robert F. Sibert Medal, the Henry Bergh Award for Nonfiction, and was selected as a National Book Award Finalist in Nonfiction. Besides writing books, she is a popular speaker, and works with many organizations to protect nature. Montgomery lives on a farm in New Hampshire with her husband.

About the Photographer

An award-winning underwater photographer, Ellenbogen specializes in environmental conservation. His work has been seen at the BLUE Ocean Film Festival, in *Audubon;* and *Nature's Best Photography* magazine, at the New England Aquarium, and many other venues. Keith has an MFA from the Parsons School of Design and received a Fulbright fellowship. In 2015, he was artist-in-residence at MIT.

EDUCATOR'S GUIDE

Amazon Adventure: How Tiny Fish Are Saving the World's Largest Rainforest

BY SY MONTGOMERY (PHOTOGRAPHS BY KEITH ELLENBOGEN)

Pre-Reading Activity

Have a class discussion about preconceived notions. Discuss situations in which you believed someone was behaving poorly, only to discover that you were wrong. How long did these beliefs persist? Discuss the factors that caused you to believe these ideas in the first place and what happened to force a reconsideration. Discuss behaviors you have that others do not understand and totally misinterpret.

Research scientific misconceptions throughout history. Again, focus on the factors that had large numbers of smart people willing to accept incorrect information and conclusions. Distinguish between a scientific theory and a hypothesis. Research the difference between a scientific theory and a personal theory. It may be useful to have the class investigate Newtonian mechanics and how it is still useful and why it needed to change. The fundamental question revolves around how scientists question their own assumptions and make necessary changes.

Watch a video on how lungs work. There is a good one from the Ted Talk folks (TED Ed: ed.ted.com/lessons/what-do-lungs-do-emma-bryce). Discuss the pros and cons of using our lungs as a metaphor for trees, the rainforest, kelp forests, and other parts of our environment.

Review the basic concepts involved with habitats, food chains, weather, seasonal changes, etc.

Spend some time outside the class regularly taking inventory of the variety of plants, animals, and other natural features and posting them in a log or field notebook. Make sure to count or estimate the number of different plants and animals. Take the temperature and note the weather conditions in your log, noting the date and time for each entry.

Discussion Questions

Is it possible to prove that a scientific theory is wrong? What is the difference between a scientific theory and a test result that does not support a hypothesis? How is a scientific theory different from a hypothesis?

If trees in the Amazon rainforest area provide one fifth of the world's oxygen, what should other countries around the world do to make sure this essential resource is protected? Is it appropriate for other countries to get involved in Brazilian politics or the politics of the other eight countries that are a part of this rainforest?

The fish sold from the Amazon rainforest are "as precious as the rubies and sapphires whose colors they share." What connection do these fish have to the trees, which provide one-fifth of the world's oxygen? Which are more important, the trees or the fish? Can we have trees without the fish? Can we have fish without the trees?

What is the current rate of Amazon rainforest tree loss through habitat destruction (clear-cutting forests, etc.)? What should our government do about this, if anything?

How do you respond when false and/or misleading things are attributed to you?

The book says that a pet shop owner knew that Scott Dowd was different. Who in your world knows the truth about you? How do we go about making sure that a wide variety of folks in our community know who we really are? Or is this a goal that is not really all that important?

The town of Barcelos reveres God and fish, according to Montgomery. She makes this claim by citing evidence of things one sees when traveling the streets of this city. She shows pictures of statues and repeats local lore from people who live there to back up her statement. When you think about your city or community, what would a stranger decide your community values are from walking the streets and speaking to residents?

What value do parades, celebrations, festivals, and the like have for any given community? Is the Festival of Ornamental Fish in Barcelos any different from celebrations in your community? How are they similar and how are they different?

Amazon Adventure: How Tiny Fish Are Saving the World's Largest Rainforest

BY SY MONTGOMERY (PHOTOGRAPHS BY KEITH ELLENBOGEN)

Throughout this book, there are sidebars that speak of the benefits of defending the river, including the perhaps unexpected benefit of protecting things like giant spiders and ants. In your area, what natural resources are (or should be) protected? What side benefits occur by protecting these resources? Are there any unexpected benefits?

The piabeiros along the Amazon supply the home-aquarium market with most of its fish. However, their livelihood is threatened by fish farms. One way to insure their future is by making sure that more of their fish arrive at faraway locations in a healthier condition. Isn't it also important for scientists to learn how to raise these same fish? What advantages do wild fish have that fish from farms do not? Why are fish farms a threat?

Project Piaba is supported by the Association of Zoos and Aquariums and the International Union for the Conservation of Nature. Why are these endorsements important? What does each organization do to protect our environment?

Applying and Extending Our Knowledge

The very first paragraph of this book begins with the fact that the Amazon basin covers 2,670,000 square miles! This three-dimensional realm accounts for a fifth of all the world's oxygen!

- Make an overlay that shows the shape of the Amazon basin compared to the United States. The book says that it is as big as our lower forty-eight states. Seeing this visually may help students understand 2,670,000 square miles.
- Make a map that shows your school. If you traveled 2,670,000 miles, where would you be if you traveled north, south, east, and west? How many times would you circle the planet?
- Montgomery also states that each year "an area of Amazon forest twice the size of the city of Los Angeles" is destroyed. How big is the city of Los Angeles? Make another overlay that shows how large "twice the size of the city of Los Angeles" is compared to your state. Calculate how long it would take your whole state to disappear, should the destruction continue at its current rate. Calculate, at this rate, how long it will be before the entire Amazon basin is gone.
- On page 6 we learn that the piabeiros live in an area that is 46,000 square miles. Create an overlay showing how big this area is compared to the region in which you live.

Common Core Connections

CCSS.ELA-Literacy, R1.6.7 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

CCSS.ELA-Literacy, R1.6.7 Integrate information presented in different media or formats (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

On page 5 we read "In the Amazon rainforest there are only two seasons: wet and dry."

- Create a presentation that explains why there are not four seasons. In this presentation, make sure to include temperature ranges and norms, in addition to sharing the average daily, weekly, and monthly rainfall totals. Compare these totals to the averages in your neighborhood. Any surprises about the amount of rainfall in the dry season?
- Montgomery reports that the water level in Barcelos can drop by thirty feet! Assume that your school or home will experience a thirty-foot increase in its water level. Make an architectural plan that shows how your school or your family would cope with the increase and decrease of water. What changes would be required in terms of transportation to and from school? Have students work in teams to design how your neighborhood would function with these water-level changes. Perhaps construct a model of what your school or home or city would look like.
- We read on page 5 that nearly 90 percent of the small fish, the piaba, will be stranded and slowly die in drying puddles as the wet season becomes increasingly dry. We also read that these small fish have a life expectancy of about a year or less in the wild and several years in an aquarium. With a 90 percent mortality rate, why haven't these fish al-

ready become extinct? Explain how 10 percent of the survivors can insure yearly harvests. Research how the life cycles of these fish combined with the seasonal variations in rainfall work in areas where the fish are not harvested (as they are in Barcelos).
- Visit a local pet shop or aquarium shop that sells fish like cardinal tetras. See whether or not you can trace the origin of the fish sold. Did they come from the Amazon rainforest?

Common Core Connections

CCSS.ELA-Literacy.SL.6.2. Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes ot a topic, text, or issue under study.
CCSS.ELA.RST.6-8.1 Cite specific textual evidence support analysis of science and technical issues.
CCSS.ELA Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
CCSS.ELA-Literacy, R1.6.7 Integrate information presented in different media or formats (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

Math activity: We learn on page 6 that these small fish may provide about 60 percent of the income for any given piabeiro. Assume that a piabeiro earns a total of $50,000 for the year.

- How many kilos of cardinal tetras would he or she have to sell? How many pounds is this?
- Let's say that of the 400 kinds of fish, only about ten (including the cardinal tetra) $8,000 per kilo. Assume that 25 percent fetch only 65 percent of that price, another 25 percent fetch only half that price, another 25 percent command only 35 percent of that price, and the rest yield only 10 percent of that price. Now assume that of our piabeiro's total yearly $50,000 income (of which 60 percent comes from these fish), the cardinal tetra group makes up 10 percent of his yearly capture, with the other four groups each providing 25 percent of the remainder. Create a spreadsheet showing how many kilos of each of the five groups he or she caught and how much money came from each. Play around with the percentages, perhaps basing the percentages on visiting an aquarium or pet shop and analyzing the pricing.
- Actually go to a pet shop that sells fish and price the fish yourself and recalculate this activity. Speak with the owner or buyer and determine whether or not the prices are relatively stable from year to year. Does supply and demand influence fish prices? Factor this into the activity as well, maybe showing three different possibilities over a five year period.
- Answer Key: Sixty percent of the piabeiro's income equals $30,000; $3,000 is the 10 percent of this provided by the cardinal tetra group; $6,750 is the 25 percent of the remainder ($27,000) provided by each of the other four groups of fish. Based on the price of $8,000 per kilo, this amounts to 0.375 of a kilo of tetras; about 1.2981 kilos of the fish that fetch 65 percent of this price; 1.6875 kilos of the fish that fetch half this price; 2.4107 kilos of the fish that fetch 35 percent of this price; and 8.438 kilos of the fish that fetch 10 percent of this price. This makes a total of about 14 kilos of fish for the year.

Common Core Connections

CCSS.ELA-Literacy.SL.6.2. Interpret information presented in diverse media and formats (e.g. visually, quantitatively, orally) and explain how it contributes ot a topic, text, or issue under study.
RST.6.8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
W.6.7 Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

On page 18 we read about the "seven deadly plagues" of the Amazon basin. Later these plagues are debunked. This activity is designed to see our own neighborhoods more three-dimensionally.

- Have individuals independently generate the seven plagues of your area. Then consolidate these lists, discuss them, and come to a consensus list of the seven worst organisms in your area. Write short annotations similar to the ones Montgomery did in the book.
- Once again, independently, have students research these plagues with the goal of discovering their redeeming qualities. Share and discuss, generat-

ing your own "debunking" of these plagues with a short rationale. If your list includes organisms that are introduced to your neighborhood, think about discussing the function they serve in their natural habitat and/or developing a plan for reducing their impact in your area. You may also wish to include animals like mosquitoes, black flies, poison ivy, etc. (if not already on your list) that have a very useful purpose in any given habitat.

- If students respond well to the above activities, you may wish to have a discussion or debate on ways in which the desire for comfort is not necessarily the best environmental response. Compare this to Scott Dowd's initial reaction to the large-scale fish harvest that he discusses on page 5.
- In addition to piranha, anacondas, stingrays, and the like, we also meet pink dolphins, tarantulas, ants, heliconia, and more. Make a set of trading cards showing at least seven common plants and organisms in your neighborhood that are not on your plague list. Document their range, what they eat, threats to the various species, and other interesting facts.
- Prepare a poster or an online presentation comparing and contrasting your group of seven with seven from this book. Create a picture glossary of many of the commoner organisms found in the Amazon. Indicate which ones, if any, are also found outside of the Amazon basin. Indicate whether an organism is a year-round resident or a transient species. If transient, what is the range of its stay? Include scientific name, common name, range, animal description, habitat description, diet, and any noteworthy facts (about behavior or endangered status, etc.). Group animals by families and then alphabetically by scientific name.

Common Core Connections

RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.
RI.6.1 Cite textual evidence to support the analysis of what the text says explicitly as well as inferences drawn from the text.
RI.l7.8. Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence relevant and sufficient to support the claim.

Montgomery claims that these piabas, these small fish, have the potential of saving the rainforest.

- Research this claim and hold a debate as to how this could be true or whether it is an exaggeration. Perhaps create a mock trial with students serving as judge, jury, witnesses, lawyers, et al. Perhaps have one side take the position of those attempting to raise these fish in captivity and the other representing the scientists and piabeiros.
- Have students write a story for younger students about the fact that each year so much of the Amazon is clear-cut and destroyed.
- Do students in your area know what a fish is? Find photographs, removing any labels if necessary, of an electric eel, lobster, seahorse, dolphin, great white shark, orca, cardinal tetra, jellyfish, tuna, and cow. Survey a sample of students in your school by handing them the cards and asking the respondent to return only the cards with fish on them. Keep track of which fish are not returned and which animals that are not fish are not returned. Respondents should return the eel, seahorse, great white shark, cardinal tetra, and tuna. Depending on your results, have students design informational posters correcting common mistakes, being careful not to embarrass anyone. Make your own cards and/or add and subtract from these.
- We learn on page 17 that Dowd is colorblind and recognizes fish by their body shape and patterns. Find a dozen or so full-color pictures of tropical aquarium fish and print them out without names. Then print the list of names for these fish and have students match them up. Make black-and-white copies of these fish and do it again. Adjust the fish selected to make the challenge easier or harder when the pictures are black and white. Describe the ways Dowd uses patterns and body shape to compensate for his poor color vision.
- Make a "What Is a Fish?" poster that includes the essential elements of any given fish and with explanations or annotations that include or exclude the survey animals above. Show how fish fit into the animal classification scheme.

Common Core Connections

RI.l7.8. Trace and evaluate the argument and specific claims in a

text, assessing whether the reasoning is sound and the evidence relevant and sufficient to support the claim.
RST.6-8.9 Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic.
RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.
RI.6.1 Cite textual evidence to support the analysis of what the text says explicitly as well as inferences drawn from the text.

We can infer Montgomery believes that writing about fish festivals is reporting on an important reason that the fish, as Dowd says, "serve as a very effective first line of defense for the rainforest" (p. 7).

- Is there something in your neighborhood that should be better protected? Prepare two marketing brochures designed to attract tourists based on this item. The first brochure is for your classmates. The second one is for your parents and grandparents. If possible, walk in groups around your neighborhood taking pictures of attractions that could make it into your brochures. Look for resources, objects, landmarks, places, etc., that are in danger of being destroyed or otherwise disappearing. Your brochures should convince readers to seek to protect this icon in your neighborhood. Note rationales for why your group is including any given object, place, landmark, etc. Discuss the difference between a brochure designed for students and one for adults. Is there any difference in content, wording, color, design, etc.?
- Brainstorm with your classmates the various holidays and festivals celebrated in your area, with a goal of including every single one that at least one family in your area celebrates. Create an interview list of students and adults who would be willing to be recorded or videoed sharing information about the various holidays and festivals from your list. Collect all of these recordings and videos and edit them into a program that could be shared in class or at an assembly with the community. Make sure that cultural information is carefully vetted with the people supplying the interview or video to avoid misrepresenting or trivializing anyone's family or culture. Use this information to create a cultural dictionary of your area. Research the backgrounds of these events. Make sure to share the typical celebration and any additions that families add that are unique. When is the celebration? What is its origin? What clothing is required? Is there food? Are there rituals or practices that traditionally occur? Is it a religious celebration? How many people participate? Special decorations? Etc.
- The fish festival in Barcelos is a festival that celebrates their natural resources, sources of income for residents, the town's history, and more. Design an area with imaginary resources that the make-believe residents use for their livelihoods. Invent their history. Create the music (either by composing your own music or by creating a playlist). What are you celebrating? What do you wear? What food is served? Describe the decorations, rituals, and other details. Write a brief annotation that explains the link to the clothing or food, etc., and the festival or holiday you are imagining. Make sure to explain the link between the town's resources, income, history, and residents. Create sculptures and artwork that allow outsiders to experience your make-believe festival.
- If possible, work with an elementary school and put on your own fish parade, fish dance, or fish celebration. Or create a parade or dance or celebration around your own natural resources in your neighborhood.
- How much should students in your neighborhood care about whether or not these small fish make it safely to the tropical fish market in this country? Assume that you are on the national budget committee for how much our country contributes each year to environmental protection around the world. What other priorities are there? Do some research on the top ten environmental threats facing the planet and then allocate the percentage of your budget that should go to each. Does the Amazon basin make it to your top-ten list? Persuade us that it should or should not.

Common Core Connections

CCSS.ELA Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
CCSS.ELA-Literacy, R1.6.7 Integrate information presented in different media or formats (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital

texts.
RST.6-8.1 Cite specific textual evidence to support analysis of science and technical texts.
RI.6.1 Cite textual evidence to support the analysis of what the text says explicitly as well as inferences drawn from the text.

Much of the success of these wild fish depends on the information the scientists receive from the fish lab and from consulting with lots of people who handle the same fish.

- On page 48 we read about nematodes. On page 50 we hear of protozoan infections. Later we read of parasites in addition to things like poor nutrition and other ways in which fish are less healthy. Look up the most common fish diseases and create a booklet that describes each disease, its cause, its symptoms, and its treatment.
- If you do an image search, you can come up with pictures of sick fish that are not too gruesome to view. Find several pictures depicting ill fish that are not too obvious and pass out one to each group. Give the groups five minutes to inspect the picture and write down a hypothesis for what is wrong with each fish. Collect each group's hypothesis and then rotate the pictures until every group has come up with a prediction for what is wrong with each fish. Then pass around the same pictures but this time put up all the groups' suggestions for what is wrong. Have each group add to or delete from their ideas. Then go through each picture as a class and come up with predictions. When the predictions are done, have the students go online or to the library and try to determine what is actually wrong. Compare the researched answers with the individual group predictions and the class prediction.

Common Core Connections

CCSS.ELA Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
CCSS.ELA-Literacy, R1.6.7 Integrate information presented in different media or formats (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.

Scientists rely upon observations of animals to learn about them. Students are perhaps more used to this process when looking at facial expressions, vocalizations, condition of fur or hair, and more to determine the likelihood that an animal is in good health. However, we do not often hear fish or hold fish. How does this process work with fish?

- Look at healthy animals of one species such as birds. Now look at unhealthy animals of another species. What, if anything, do we see in the healthy animals that we should see, but do not see, in the unhealthy animals. Explain how this process works with fish. Do we catch glimpses of a general definition of good health? Explain. Use pictures or illustrations to explain your ideas.
- Find pictures of various different fish that are both healthy and ill (using good judgment and discretion for the more squeamish among us). Highlight the differences and explain what is wrong, the causes, and how to treat the problem (if possible).
- Many schools require teachers to set up classroom aquariums or terrariums without providing any information to the teachers on the animals they are supposed to keep alive in the classroom. Write a protest letter to your school board outlining the recommended procedures and requirements for keeping live-animal displays in a classroom. Explain any differences for different types of animals. For example, do the procedures and requirements change for fish, insects, amphibians, birds, mammals, reptiles, etc.?

Common Core Connections

CCSS.ELA-Literacy.RH.6-8.7 Integrate visual information (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.
CCSS.ELA-Literacy.SL.7.4 Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.

Montgomery always shares information about the scientists in all of her Scientists in the Field books. In this book we learn that Jani Pinheiro used to make her living making cassava. Tim Miller-Morgan used to work on beluga whales. Scott Dowd is colorblind.

- Make a class book modeled after these descriptions forecasting what each class member would offer to a scientific team. This is a venture into speculative nonfiction—the goal is to honestly envision ourselves as scientists (regardless of whether or not that is our current career goal). List skills that we have or see ourselves developing that would be of use to the team. What challenges, such as Dowd's colorblindness, would we need to overcome?
- Encourage students who do have an existing science passion to adapt their biographical entry to fit a project related to their interests.

Common Core Connections

CCSS.ELA-Literacy.W.7.2 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
CCSS.ELA-Literacy.W.7.2d Use precise language and domain-specific vocabulary to inform about or explain the topic.
CCSS.ELA-Literacy.WHST.6-8.1 Write arguments focused on discipline-specific content.

As in her other books, Montgomery's careful observation of the world around her, is critical to the study of the Amazon basin and these fish. Part of the value of this series is its ability to direct our attention to an area of the world we may not have considered carefully before and to see how it compares with our own neighborhoods. The observation skills employed in studying these fish and this area are the same for our own backyard.

- Brainstorm with your students what kinds of organisms the class could observe in an outdoor area, such as a field or empty lot or wilderness area (whichever matches your school environment). Make predictions as to what animals should be there. Make a list of ways you could prove that these animals are present in the environment even if you do not see them.
- While looking for the elusive cardinal tetra, the scientists and piabeiros observed many other creatures. Create a field book for animal observations, stressing the importance of dates, drawing, and description. The American Museum of Natural History has good information about field journals here: www.amnh.org/explore/curriculum-collections/biodiversity-counts/what-is-biodiversity/doing-science-researchers-and-exhibition-staff-talk-about-their-work-keeping-a-field-journal-1. You may also use iPads, digital camer, or other devices to create an electronic field journal.
- Using string or Hula-hoops or natural markers, assign students a specific section of the outdoor area to monitor with a field journal. Make sure to map the site so the students are always observing the exact same location. For the next month (or longer), have students record their observations as regularly as time permits (ideally, on a daily basis). You may wish to have students record the GPS coordinates for their specific location.
- Divide the class into groups and have certain groups specialize in a specific organism (in addition to their field-journal work) and have another group work on looking for animals that should be present in the area but have not yet been observed.
- Create a class booklet of the questions students have written. When appropriate, have these questions guide the next day's observations. Have other students use their own observations to formulate theories concerning the questions.
- The activities above may also be used by students in outdoor areas of their own choosing (and assigned as homework or extra credit). Discuss with students whether a field journal could even be done in, say, the lunchroom.
- Compare the class predictions before starting with what the class observes monthly (and at the end of the time period). What new predictions and hypotheses do the students have?

Common Core Connections

CCSS.ELA Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
CCSS.ELA-Literacy, R1.6.7 Integrate information presented in different media or formats (e.g., in charts, graphs, photographs, videos, or maps) with other information in print and digital texts.
CCSS.ELA-Literacy.SL.6.2. Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes ot a topic, text, or issue under study.

RST.6.8.3 Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.
W.6.7 Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.

Other Websites to Explore

Project Piaba (as mentioned by Montgomery): project-piaba.org/where-we-work/brazilamazon/

PBS Journey into Amazonia Teacher Resources: www.pbs.org/journeyintoamazonia/teacher.html

Encyclopedia Britannica Amazon site: www.britannica.com/place/Amazon-River

"Fishing with the Piabeiros": This is an interesting article in the *Tropical Fish Magazine* by Mike Tuccinardi, fish collector, about a trip he took with local piabeiros: www.tfhmagazine.com/details/articles/fishing-with-the-piabeiros-of-brazils-rio-negro-full-article.htm

Further Reading

Hemming, John: *Tree of Rivers: The Story of the Amazon.* Thames and Hudson, 2009.

Plotkin, Mark J.: *Tales of a Shaman's Apprentice: An Ethnobotanist Searches for New Medicines in the Amazon Rain Forest.* Viking, 1993.

Goulding, Michael, Ronaldo Barthem, and Efrem Jorge Gondim Ferreira: *The Smithsonian Atlas of the Amazon*. Smithsonian Books, 2003.

Stafford, Ed: *Walking the Amazon: 860 Days. One Step at a Time.* Plume Reprint Edition, 2012.

Educator Guide by Ed Spicer