

Unpacking Habitats

Helping primary students understand their environmental impact



Before Habitats



After Habitats

Photos and diagrams by Stacey Craft

By **Stacy Craft**

CONSERVATION EDUCATION offers an opportunity for us educators to inspire students to think about the planet we live on and how humans impact it. We have the opportunity to mold the minds of the present and future, to become stewards for our planet, and to be mindful of our choices. Our Earth's habitats are both connected and unique, each requiring specific adaptations from their attendant plant and animal species for their survival. This five-day second-grade unit educates students on eight habitats¹ — savanna, prairie, rainforest, coniferous forest, deciduous forest, desert, tundra, and ocean — and the adaptations necessary for plant and animal species to survive in each. Furthermore, it teaches students about the ways in which humans interfere with the usefulness of a species' adaptations in their natural environment. When humans build on untouched lands, the species that live there either have to adapt or move; if they don't, species often die because their adaptations are no longer suited for the environment in which they live. Educating children on human impacts allows them to be thoughtful of their actions and ultimately produces adults who have empathy regarding nature and conservation.^{1, 2, 3 & 4}

Throughout this unit, second-grade students discuss the eight habitats, and species' adaptations to those habitats, by pulling from personal experiences as well as online and print media. They engage in creative activities that produce artwork demonstrating what they've learned from the lessons. They also take part in a conservation opportunity within their community. To finalize the unit, students pledge to adopt a new behavior that promotes conservation in a habitat of their choice, as a way to reduce their negative environmental impact on Earth. To aid students in their learning prior to or throughout this unit, it is helpful to check out books from the school library for students to read or have them complete online research about the eight habitats, adaptations, and how humans impact other species. These materials will provide students with guidance in their learning and a starting point for discussions.

Day 1: The eight habitats

As a class, brainstorm habitats with students for approximately 15 minutes, listing them on the board until the following eight habitats have been named: desert, coniferous forest, deciduous forest, rainforest, prairie, savanna, ocean, and tundra. Provide students with a sheet of paper, folded into eight equal boxes,

with the names of each habitat in the top corner of each box. Although photos (shown below) show student handwriting for the habitat names, having the names pre-written in the boxes for students saves time, limits spelling errors, and removes the potential for students to write habitat names in the middle of the boxes.

For 15 minutes, have students write or draw characteristics of each habitat in the associated box based on their best guesses. Encourage them to think about plants or animals that live in each habitat. Students may struggle to think of what each habitat looks like without context; I found it easiest to explain them with mentions of movies and television shows they likely have seen, or by reminding them of books read in class prior to this unit.

For five minutes, have students discuss with a partner what they drew or wrote about in one or more of the habitats. Then, conduct a 10-minute class discussion listing accurate information on the board under each habitat name. Teachers will need to guide students to the correct answers, as some habitats can be confusing due to their similarities. When asked to name representative life forms, “Trees” is a common response from students for most habitats, but this doesn’t recognize the different types of plants in a habitat or imply their differences. Expect students to have an easier time thinking of animals than plants, with the exception of desert, where animals tend to be more difficult to brainstorm.

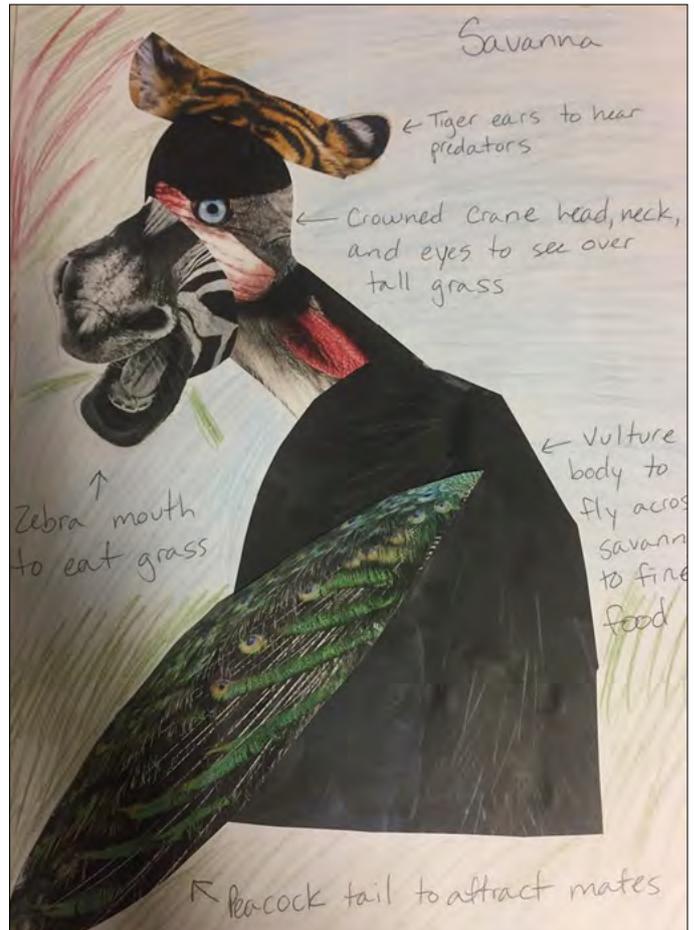
After discussion, have students turn over their sheet of paper and, for 15 minutes, write about or draw the habitats again with their new knowledge. The names of the eight habitats should again be in the top corner of each box. Collect artwork to gauge understanding and then hang it around the room.

Day 2: What are adaptations?

It is helpful to reflect and review the eight habitats before beginning this lesson on adaptations. It aids in the students’ discussion for this lesson, especially if the unit isn’t completed in five consecutive days.

Engage students in a discussion for five minutes about the term “adaptations,” including visuals of adaptations in plants and/or animals. Have students break into eight equal groups, each representing the different habitats. It is easiest if groups are pre-assigned to remove the potential for all students’ wanting one or two habitats, or for groups of friends forming and socializing rather than focusing on the lesson. As groups, have students discuss for 15 minutes why the plants/animals in a given habitat need their adaptations. As a class, for approximately 10 minutes, each group will present on the importance of species’ adapting to their respective habitats.

Using the information from presentations, have students think of their “perfect” plant or animal species. Most students will choose an animal and align it with a big cat species, such as a lion or tiger, so it is helpful if the adaptations discussion heavily mentions plant adaptations to steer students away from this commonality. Students will collect and cut pictures from magazines to glue together on construction paper to create a new species with all the features and adaptations they think it would need to be the “perfect” plant or animal. Have students label their adaptations and draw a habitat from



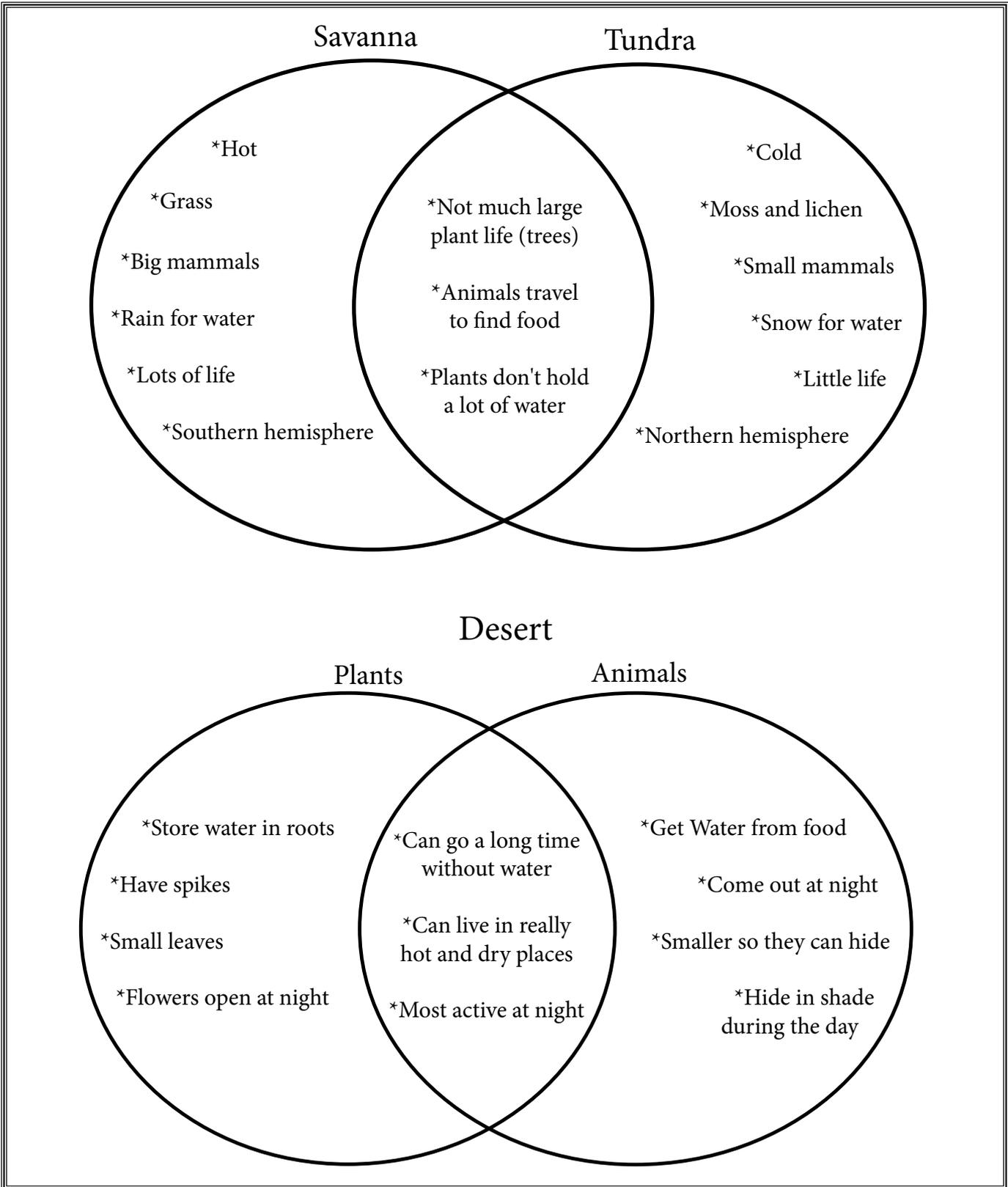
Animal adaptations collage

Day 1 where their new animal or plant would live. This activity will take approximately 30 minutes to complete. If time allows, have each student share their creation with partner. Collect artwork at the end of the lesson to gauge understanding and then hang it around the classroom.

Day 3: How do adaptations compare?

Discuss for 10 minutes, as a class, adaptations plants/animals need to survive in each of the eight habitats. Giving each student a habitat, have students draw a Venn diagram on a sheet of paper, labelling one circle “Plants” and the other “Animals.” To save time, have the Venn diagrams printed on sheets of paper to be passed out. This also removes the potential for uneven circles that inhibit students from continuing to think of more traits. For 15 minutes, students are to compare and contrast the adaptations plants and animals need to survive in their given habitats. While students may think of specific plants and/or animals as a reference, the goal is to list adaptations (or traits) the species have, rather than specific species themselves. Prior to having students look at their differences to complete this assignment, encourage them to think outside the box about ways in which plants and animals are similar.

As a class, discuss what everyone has discovered by guiding your students in comparing and contrasting plant and animal adaptations among the eight habitats. Afterwards, provide students with two habitats to compare and contrast on the back of their paper in a second Venn diagram. It is most



beneficial to students if the two habitats are drastically different, such as desert and rainforest, or savanna and tundra. After 15 minutes, discuss what they discovered when comparing and contrasting the two habitats. Collect Venn diagrams to gauge understanding and hang the diagrams around the classroom.

Day 4: Connecting to their habitat

Take students outside for 30 minutes to their playground (if there's a grassy/natural portion) or to a local park. Have them pick up trash as they explore the habitat looking for places where there is noticeable human impact on the ecosystem (e.g., playgrounds, sidewalks). After coming back to the class-

room, discuss for 15 minutes the ways in which humans have impacted the ecosystem, connecting to their understanding of species adaptation and how human impact alters the usefulness of a species' adaptations. How might humans decrease their impact? Do we alter ecosystems as our own adaptation? For homework, students should research other ways humans alter ecosystems through conversations with family members and/or neighbors, or through technology and media. They will be using the information they gain during this homework assignment for their pledge on Day 5. Because some students will go above and beyond, while others may not complete the assignment at all, asking for students to come back with three ways written down is optimal. This ensures they do research but won't take over the conversation during Day 5.

Day 5: Habitat pledge

Remind your class of their homework from Day 4 and then have each student discuss with a partner for five minutes ways humans impact our Earth. Next, as a class for 10 minutes, discuss how humans impact ecosystems, with the goal being to foster students' understanding that by altering ecosystems, humans impact the usefulness of species' adaptations. At the end of the discussion, have students choose a favorite habitat and a task they could complete to help that habitat. Provide each student with a pledge card to fill out and post on a communal board for one month, describing how they will change their own behavior to reduce their impact on their chosen habitat. Often, you will find that students forget their pledge if it is not posted. At the conclusion of the month, see who has kept their pledge and discuss the challenges they may have had in keeping it. It can be helpful to have a weekly journal assignment asking what they have done to complete their pledge, including their struggles and what they found to be easy. Also, parental support is helpful for students to keep their pledges, so it's advised to send home a note with a photocopy of the students' pledge to parents.

Generally, students most-enjoyed the activity on Day 2 because they were able to use their imaginations without fear of a "wrong" answer. Also, students enjoyed the opportunity on Day 4 to go outdoors and spend time in nature, where they could be extroverted without concern for classroom volume.

I noticed the most growth on these days because of student engagement with the material, so going forward I would look to implement opportunities for student creativity and time spent outdoors.

Through this five-day unit, students discover the unique aspects of the eight habitats and the species that live within them. Students also develop an understanding of how humans impact our planet, including its habitats and species. Although this unit is designed for traditional second-grade students, it can be modified to fit other classroom settings, including other grade levels and special education classrooms. By encouraging our students to think about how our actions impact others, we create stewards for our earth engaged in conservation and environmental education.

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Endnotes:

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2. Ewert, A., Place, G., & Sibthorp, J. (2005). Early-life outdoor experiences and an individual's environmental attitudes. *Leisure Sciences*, 27(3), 225-239.
3. Krasny, M. E. & Tidball, K. G. (2012). Civic ecology: A pathway for earth stewardship in cities. *Frontiers in Ecology and the Environment*, 10(5), 267-273. doi:10.1890/110230.
4. Wells, N. M. & Lekies, K. S. (2006). Nature and the life course: Pathways from childhood nature experiences to adult environmentalism. *Children Youth and Environments*, 16(1), 1-24.

Note:

You may notice that the habitats listed are more accurately described as biomes. Referring to them as habitats is intentional as second-grade students learn about habitats, rather than biomes according to Next Generation Science Standards (NGSS). If you choose to use this unit for a third-grade classroom, be aware that third-grade NGSS standards use the terminology biomes to refer to the habitats mentioned in this lesson.

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