



SCHOOLYARD HABITATS®

BASELINE AUDIT, GRADES K-2

The Schoolyard Habitats audit was developed as a tool for students to investigate the school ground's use and to be used as the basis for improving native wildlife habitat and outdoor learning on the school site. Some of the questions may require the assistance of school staff, including facility managers, or require students and staff to perform additional research.

Identify and list below any resource specialists and/or volunteers who can assist with the audit and/or share their gardening/wildlife habitat expertise.

One of the first things you will want to do is to create a base map of the school site. The team is asked to upload an example in Table 2. Students can create this map or you can obtain one from school administration. Make sure the site map has an appropriate scale, includes all borders of the property (property lines, roads, sidewalks) and any large permanent features such as the school and other property buildings. This base map can be given to students to assist them in marking specific vegetation, water, cover and places to raise young that already exist on the school site.

A good way to document wildlife, plants and habitat components is to take pictures and attach them to the audit or keep them in a file for later. It will help you to remember details that might otherwise be lost. The full Schoolyard Habitats® How-To-Guide is available at <https://www.nwf.org/sitecore/content/Home/Garden-for-Wildlife/Create/Schoolyards/Resources>

Before starting the Schoolyard Habitats® Audit or going further, survey your students. Insert the average student response. On a scale of 1-10, where 1 is least important and 10 in most important, how important is:

1. Wildlife (plants and animals) to my community? _____
2. It to plant native plants versus non-native plants? _____



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TABLE 1. DEFINING THE STUDY SITE

<p>1. What are the GPS coordinates for the study site? Use your smart phone's GPS or go to: http://www.whatsmygps.com/ to find the site's coordinates.</p>	<p>Latitude N _____ Longitude W _____</p>
<p>2. In what city/town is the study site located.</p>	<p>_____</p>
<p>3. What are the land use types surround the study site? Check all that apply.</p>	<p>_____ Residential _____ Commercial _____ Park _____ Undeveloped land _____ Other</p>
<p>4. Is the school a National Wildlife Federation Certified Schoolyard Habitat[®]?</p>	<p>_____ Yes _____ No _____ Unsure</p>
<p>5. Are the school grounds certified or maintained through another local, state or national program or citizen science project?</p>	<p>_____ Yes _____ No _____ Unsure If yes, please list. _____ _____</p>
<p>6. How many square feet of wildlife habitat does the school currently maintain?</p>	<p>_____ ft²</p>
<p>7. What is the average number of minutes students spend in the garden or outdoor learning space each week?</p>	<p>_____ minutes</p>



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TABLE 2. LANDSCAPE

Optional, but recommended. As a team/class activity, have students draw a map of the school grounds and denote the following. Choose one student or team map and insert as a .jpg or .png image file below.

1. School building	2. Man-made structures other than the school building	3. Location of hills and valleys
4. Rainfall or sprinkler run-off paths and low lying areas that hold water	5. Sprinkler systems, storm drains, or sewer markers	6. Existing natural areas
7. Trees	8. Areas of full sun and full shade	9. Natural and man-made walkways
10. Cardinal directions	11. Key	

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<p>1. Check the landscape that most looks like the school's grounds.</p>	<p><input type="checkbox"/> mostly flat <input type="checkbox"/> mostly hilly <input type="checkbox"/> some flat/some hilly</p>
<p>2. Are there areas where rainfall creates puddles of water? *Make sure to note these areas on the Schoolyard site map.</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>

Consider conducting the following investigation as a part of Table 2.

1. Give teams/classes different scenarios to consider, for example, what would happen to our garden, during a rain storm, if we built it at the bottom of a hill. This is also an opportunity to use stream tables, allowing students to “build” the school grounds with soil, use Lego’s or manipulatives as structures and then pour water through a watering container (simulating rain) on to the schoolyard model. A good soil mix, that is able to withstand multiple simulations will require, 8:2:1 ratio of sand to clay to aquarium pebbles.

TABLE 3. TEMPERATURE AND PRECIPITATION

<p>1. For today’s date, collect the weather data listed to the right. Use your local weather website, application or use the following:</p> <ul style="list-style-type: none"> • http://www.weatherbase.com/weather/state.php3?c=US • www.weather.com 	<p>_____ Temperature in degrees Fahrenheit _____ Precipitation in inches</p>
<p>2. In what season is data being collected?</p>	<p>_____ Summer _____ Fall _____ Winter _____ Spring</p>
<p>3. In what plant hardiness zone does the school reside? https://planthardiness.ars.usda.gov/PHZMWeb/</p>	

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Think about the following questions as you summarize the data in Table 3.

1. What might the weather be like when the post-action audit is conducted? Consider setting a date for the post-action audit now.
2. How do changes in weather impact plants and animal behavior?
3. What are some actions the team/class can take to protect wildlife from extreme/severe weather? Use this information to inform the Eco-Action Plan.



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TABLES 4 and 5. Consider contacting a habitat steward, parks department, college or university, or local gardening/native plants non-profit. Their involvement is a great way to connect to the community, inspire students, demonstrate career possibilities and share resource expertise.

Invite parents and community members to participate in the auditing process. Students can take on the role of educator by working with volunteers on citizen science. This experience is a great way to build community.

TABLE 4. SOIL QUALITY

1. Soil Temperature Test 1 _____ °F _____ °C Test 2 _____ °F _____ °C Test 3 _____ °F _____ °C		2. Soil pH Test 1 _____ pH level Test 2 _____ pH level Test 3 _____ pH level () Acidic () Neutral () Basic	
3. Nitrogen (optional) Test 1 () low () medium () high Test 2 () low () medium () high Test 3 () low () medium () high	4. Phosphorus (optional) Test 1 () low () medium () high Test 2 () low () medium () high Test 3 () low () medium () high	5. Potassium (optional) Test 1 () low () medium () high Test 2 () low () medium () high Test 3 () low () medium () high	

TABLE 5. WATER QUALITY (OPTIONAL-CONDUCT IF APPLICABLE)

1. Water Temperature Test 1 _____ °F _____ °C Test 2 _____ °F _____ °C Test 3 _____ °F _____ °C		2. Water pH Test 1 _____ pH level Test 2 _____ pH level Test 3 _____ pH level () Acidic () Neutral () Basic	
3. Is it raining or has it rained in the last 24 hours? Stormwater runoff from surrounding areas can impact watershed quality and appearance, including temperature and pH.		() Yes () No	

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Think about the following questions as you summarize the data in Tables 4 and 5.

1. Why do plants need soil?
2. How do animals use soil?
3. What actions can the team/class take to improve or maintain soil and water quality? Use this information to inform the Eco-Action plan.



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The key to attracting wildlife to the Schoolyard Habitat is to have all the essential elements including food, water, cover and places to raise young. The following charts will help to assess these habitat elements on the school site. To populate the tables, students can be placed in teams or work in pairs. Students are encouraged to collect data in their science notebook and then transfer the compilation of their data to Table 6 and Charts 1 through 4.

TABLE 6. WILDLIFE

1. Are there animals present at the study site today?	() Yes () No
2. Check the families of animals observed at the study site, then continue to Chart 1. Animal Observations	_____ amphibians _____ birds _____ fish _____ insects _____ mammals _____ reptiles
3. What evidence of wildlife was observed at or around the study site? Check all that apply.	_____ feathers _____ nest(s) _____ animal tracks _____ burrows/ground dwellings _____ scat _____ other
4. Plants are a source of food for many different types of wildlife. Food sources are also a required habitat element. How many different types of plants did students observe?	_____ trees _____ shrubs/bushes _____ flowers _____ grasses/fungi/mosses

Think about the following questions as you summarize the information in Table 6.

1. Are there enough plants and animals at the study site? Why or why not?
2. Why do animals need plants?
3. What non-plant-based food sources are present?



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CHART 1. HABITAT ELEMENT – WATER

1. Are there water sources on the school site?	() Yes () No
2. What are the natural water sources? Select all that apply.	<input type="checkbox"/> stream <input type="checkbox"/> pond <input type="checkbox"/> lake <input type="checkbox"/> wetland <input type="checkbox"/> puddles _____ other
3. Does the site have seasonal pools of water (vernal pools)? Vernal pools are important nurseries for many amphibian species.	() Yes () No () Unsure
4. Does this site include any manmade features?	<input type="checkbox"/> bird baths <input type="checkbox"/> rain garden(s) <input type="checkbox"/> puddling containers <input type="checkbox"/> ponds _____ other

Think about the following question as you summarize the information in Chart 1.

1. Water is important to plants and animals. How do man-made water features support animals in and around the habitat?



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CHART 2. HABITAT ELEMENTS – COVER

<p>1. Our school provides places for wildlife to find cover from the weather and predators. (brush piles, rock walls, dense vegetation, trees)</p>	<p>() Yes () No</p>
<p>2. How many sources of natural cover can be found on the school site?</p>	<p>_____ natural cover sources</p>
<p>3. How many manmade structures exist on the school site that provide cover for wildlife such as bird houses, toad houses, bat house, bug houses, etc.</p>	<p>_____ manmade cover sources</p>

Think about the following questions as you summarize the information in Chart 2.

1. Are the plants observed different shapes and sizes? Allow student time to make sketches and/or trace plant parts. Also encourage students to label the parts and include where the plant was found and the date.
2. Why is it important to have a variety of plant shapes and sizes?



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CHART 3. HABITAT ELEMENTS – PLACES TO RAISE YOUNG

1. Our school provides places for wildlife to raise their young.	() Yes () No
2. How many natural sources of available places for wildlife to raise their young on the school site (host plants for larvae, trees/bushes for nests, water features for amphibians, etc.).	_____ natural structures
3. How many manmade structures are on the school site that provide places for wildlife to raise young such as bird houses, bat houses, etc. There may be similarities between Chart 2 and 3.	_____ manmade structures

CHART 4. OTHER HABITAT CONSIDERATIONS

1. Check all that apply. What types of sustainable practices are used on the school site?	<input type="checkbox"/> organic fertilizers and herbicides <input type="checkbox"/> mulching <input type="checkbox"/> remove invasive species <input type="checkbox"/> xeriscaping <input type="checkbox"/> drip irrigation <input type="checkbox"/> native plants <input type="checkbox"/> compost <input type="checkbox"/> reduced lawn _____ other
2. Does the school site include vegetable, fruit and/or herb gardens?	() Yes () No
3. Does the school site include pollinator gardens?	() Yes () No
4. Are the school grounds used for teaching and learning?	() Yes () No If yes, please briefly describe how:

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CHART 4. HABITAT ELEMENTS – OTHER CONSIDERATIONS, CONTINUED

5. Does the garden(s) meet the American with Disabilities (ADA) accessibility standards?	() Yes () No () Unsure
6. Does the garden(s) include interpretive signage that is multi-lingual?	() Yes () No
7. Are there existing places/structures on the school site that serve as an outdoor classroom where students can gather, listen, talk and learn?	() Yes () No

Think about the following questions as the Eco-Action Team/students summarize the information from the above charts and tables:

1. Does the school contain all five wildlife habitat requirements in a natural urban, suburban or rural setting – food, water, cover, places to raise young, and a healthy, sustainable habitat?
2. What role might a food garden (vegetable/fruit/herb) play in the Schoolyard Habitat®? What role might a pollinator garden or native plantings play?
3. What are some stewardship actions the team/class can take to improve wildlife habitat on the study site?

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Review of All Data

1. Based on what is known and has been learned, what does the team/class need to create or extend wildlife habitat on the school grounds?
2. Be prepared in the post-audit to explain **patterns** students have observed through their investigations.
3. Be prepared in the post-audit to explain the role **systems and system models** play in the development and maintenance of wildlife habitat.