Eco-Schools USA Biodiversity Audit
FLORA and FAUNA

Learning Objectives

- To investigate the existing biodiversity of the school grounds.
- To consider the potential to increase the amount and diversity of habitat in the area investigated.
- To draw attention to the importance of a biologically diverse ecosystem.

Curriculum Links

Science, Mathematics, Technology

Eco-Schools USA Pathways

Biodiversity, School Grounds, Healthy Living, Water

This audit focuses on surveying the school grounds to assess the level of biodiversity of flora and fauna found at the school. You will likely find a variety of living things at the school coexisting with the activities of students and teachers. These include trees, shrubs, smaller plants and grasses, as well as birds, mammals and small invertebrates such as spiders and insects. The aim is to quantify the area of the school grounds covered by vegetation and to assess the amount and diversity of habitats which could support a variety of species. Students will be encouraged to devise strategies to increase the level of biodiversity on the school grounds.

A. <u>Base Map Investigation</u>

Students will work in teams, where possible, to cover the entire school grounds. Any areas of grass, bare soil, forest, and garden beds will be marked out on a base map which should include a compass rose, X and Y coordinates and gridlines. (Gridlines will allow students to more accurately calculate percentages). Students can use tape measures to help complete the task. An example of a base map is included on the last page.

Proportion of the school grounds that are:	**a. hard surfaces: _____%** **b. school buildings: _____%** **c. grassland areas: _____%** **d. forested areas: _____%** **e. garden beds: _____%** **f. other: _____%** **TOTAL 100 %**

B. <u>Habitat Health Survey:</u>

For the areas surveyed, comment on the general level and variety of habitats which support biodiversity. Identify the areas of the school grounds that are already contributing to increased biodiversity, and include any features that are already in place.

***NOTE* All tables may be done in a manner that best suits your students' developmental level.**

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TABLE 1: Habitat Health Observation Survey Date: _____ School: _____

Survey up to six areas and complete the following table by placing a check mark in the box of each feature observed. This survey may be modified to suit your school's environment.

Map Reference	Plants													Habitat								
	Layers			Natives			Weeds			Area												Comments/Rating
	Herbs	Shrubs	Trees	None	Few	Most	Most	None	Some	Lots	Small	Medium	Large	Nests/Hollows	Mulch	Logs	Rocks	Water	Litter	Leaf Litter	Foliage	Rate each for its level of biodiversity as: • Good • Fair • Poor
Forested Area Draw your symbol here:																						
Grassland Draw your symbol here:																						
Bare Soil Draw your symbol here:																						
Garden Beds Draw your symbol here:																						

NOTE For older students: Along with the check marks you place in each box, you may also wish to put an approximate percentage of the area. For example, in the forested areas section you have checked **shrubs** and **trees** under **Layers**; now estimate what percentage of the forested area is covered by shrubs and trees.

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Table 2. TREE SURVEY

Large trees (dead or alive) are nature's skyscrapers, providing food, shelter and nesting places for all kinds of animals. Your goal is to identify the habitat value of trees on your school grounds. Count every large tree that has a trunk with a circumference of more than 20 inches. For each tree, determine the following:

- Is it a native (indigenous) tree or an introduced (exotic) tree?
- Is it dead or alive?
- Does it have hollows for animals to nest in (i.e., does it provide habitat)?

Type of Tree	Species	Tally (Number of Trees)	Total Number
Native / Alive without hollows			
Native / Alive with hollows			
Native / Dead without hollows			
Native / Dead with hollows			
Subtotal: NATIVE TREES			
Exotic / Alive without hollows			
Exotic / Alive with hollows			
Exotic / Dead without hollows			
Exotic / Dead with hollows			
Subtotal: EXOTIC TREES			
TOTAL NUMBER OF TREES:			

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TABLE 3. School Grounds Vertebrate Animal Observation Survey

Date: _____ School: _____ Temperature: _____

Weather Conditions: _____

Audit Group Members: _____

Mammal Species	Evidence*	Tally	Status N=Native I=Introduced	Behavior / Habitat Notes (e.g., sleeping, calling, hiding, hunting, perching, etc.)
1.				
2.				
3.				
4.				
5.				
Reptile Species	**Evidence***	**Tally**	**Status N=Native I=Introduced**	**Behavior / Habitat Notes (e.g., feeding, resting, molting, hiding, moving, swimming, etc.)**
1.				
2.				
3.				
4.				
5.				
Amphibian Species	**Evidence***	**Tally**	**Status N=Native I=Introduced**	**Behavior / Habitat Notes (e.g., feeding, nesting, hiding, moving, calling, perching, etc.)**
1.				
2.				
3.				
4.				
5.				

***Evidence:** D = Direct sighting – animal was observed

E = Evidence of animal – e.g., scratch marks, droppings, fur, feathers, digging, nests, etc.

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TABLE 4. School Grounds Bird Observation Survey

Date: _____ School: _____ Temperature: _____

Weather Conditions: _____

Audit Group Members: _____

Bird Species	Evidence*	Tally	Status N=Native I=Introduced	Behavior / Habitat Notes (e.g., sleeping, calling, hiding, hunting, perching, nesting, flying, etc.)
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				

***Evidence:** **D = Direct sighting – animal was observed**

E = Evidence of animal – e.g., scratch marks, droppings, fur, feathers, digging, nests, etc.

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TABLE 5. School Grounds Invertebrate Animal Observation Survey

Date: _____ School: _____ Temperature: _____

Weather Conditions: _____

Audit Group Members: _____

Invertebrate Group	Forest Tally	Grassland Tally	Bare Soil Tally	Garden Tally
Ants				
Centipede				
Millipede				
Beetle				
Spider				
Grasshopper				
Flies				
Snails				
Slugs				
Larvae				
Termites				
Cicada				
Mosquito				
Tick				
Cricket				
Butterfly				
Bee				
Hornet				
Wasp				
Earthworms				
Other:				

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Summary of Findings and Recommendations

A. Base Map Investigations	B. Habitat Health Observation Survey	C. Tree Tally	
Proportion of the school grounds that are:	**For the areas surveyed, comment on the general level and variety of habitats which support biodiversity. Identify the areas of the school grounds that are already contributing to increased biodiversity. Include any features that are already in place.**	**Number of Native and Exotic Trees with and without hollows (places to nest).**	
a. hard surfaces %		Number of native trees with hollows	
b. school buildings %		Number of native trees with no hollows	
c. grassland %		Total Number of Native Trees:	
d. bare soil %		Number of exotic trees with hollows	
e. forested %		Number of exotic trees with no hollows	
f. garden beds %		Total Number of Exotic Trees:	
g. other %			
TOTAL 100 %			

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D. Vertebrate Observation Survey		E. Bird Observation Survey		F. Invertebrate Observation Survey	
Total number of mammals		Total number of birds		Total number of invertebrates	
Total number of reptiles		Total number of native birds			
Total number of amphibians		Total number of introduced birds			

G. List any strategies or modifications to the school grounds which could help increase the level of biodiversity in and around the school. This will form the basis for your Action Plan.
For the areas surveyed, comment on the general level and variety of habitats which support biodiversity. Identify the areas of the school grounds that are already contributing to increased biodiversity and those that are not. Include any features that are already in place.

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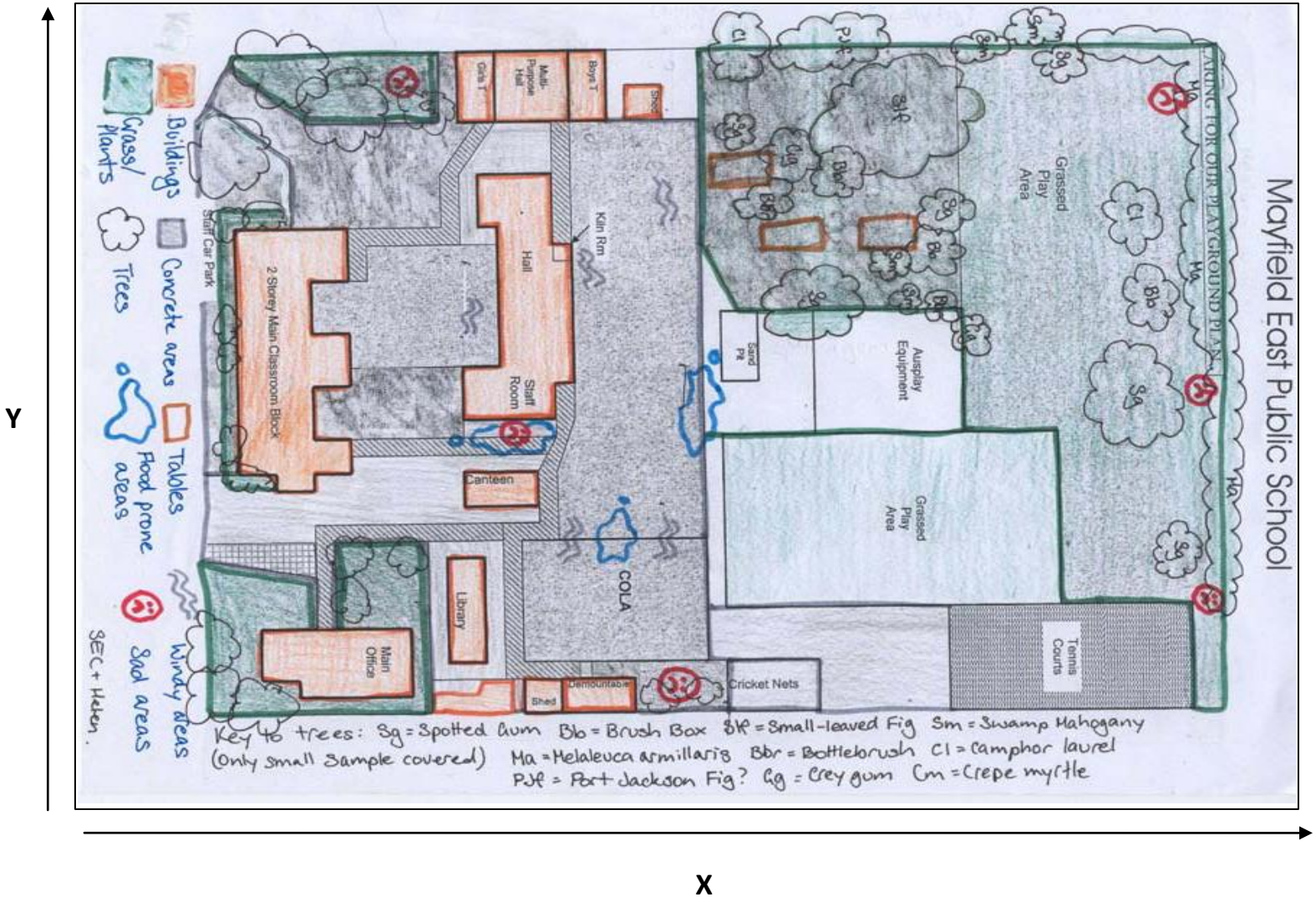
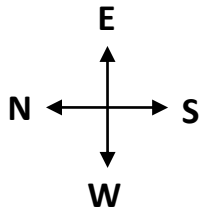
BASE MAP EXAMPLE





Y

X

NOTE A transparency with one inch grid marks can be used as an overlay to allow students to more accurately calculate surface percentages.