



Lesson Title: Habitat Map Study

Curriculum author: Cynthia Kuhn, Maine Audubon Educator

Grade level: 6-9 Time length of lesson: 45-60 minutes

Class size: groups of 3-5 students for each paper map

K-12 NGSS Framework Items (Dimensions):

Scientific Practices (e.g. design and implement investigation, create model representation, communicate):

- Asking questions and defining problems
- Using models
- Analyzing and interpreting data
- Using math and computational thinking
- Constructing explanations
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

Crosscutting Concepts:

- Patterns
- Cause and Effect
- Scale, Proportion and quantity
- Systems and system models
- Structure and function

Core Ideas:

- ESS2.E, ESS3.A, ESS3.C
- LSI.B, LSI.C, LS2.A, LS2.B, LS2.C, LS4.D,

CCSS: ELA-Literacy.RI.6.1, 6.7 W.6.1a-c, W.6.2A-D, W6.4, W.6.7, W.6.9

Aim (Objective): Learners will learn to read a map, recognizing different ways to get information from paper maps, and how to provide evidence from the map to support statements. Learners will be able to make inferences about wildlife living in their town based on information given in the map.

Essential question: How can knowing how to read a map help us learn what animals live in your town?

Materials: Complete set of BwH paper maps (1 set per group optimal) Copies of map survey questions

Preparation: (When requesting maps, allow 1-2 weeks for them to arrive). A set of long tables to view at least 2 maps at a time is best.

Activity/ Procedures:

This introduction to map reading should be done in small groups, set up as a station in a rotating set of activities, and ought to compliment student working on habitat, Maine wildlife, or another complimentary topic.

Habitat Map Study

Directions: Follow the numbered directions below using the large maps and a list of habitat requirements for some Maine species your teacher has provided.

PART I

Look at the map of your town. Use the legend to find areas that are UNDEVELOPED BLOCKS, important because they give wildlife the SPACE they need for FOOD, SHELTER, WATER, and ROOM to move.

The map shows where these large spaces of land are. Could these be places where animals' needs are being met? _____ Why or why not?

What are some things animals would use this space for?

Now notice where the roads are. Describe these roads in the space below.

(Hints: Are there several? Are they busy roads? Does the school bus travel on them? Do these roads interrupt the UNDEVELOPED BLOCKS?)

Next, locate places in your town where there is WATER. Write 3 statements that describe where the water is in your town.

1.

2.

3.

In the places where there is water, there are also RIPARIAN BUFFER zones. Use the map legend to locate where the riparian buffer zones are. A BUFFER is a protective padding or space. Why do you think these places near water need to be BUFFERED?

Many riparian buffer zones are also RIPARIAN HABITAT. Use the legend on your map to identify RIPARIAN HABITATS in your town. Is there a correlation between riparian habitat and riparian buffer zones? Explain your answer. Note: A correlation is a connection or similarity, as the center of a Venn diagram would be.

Now use the legend to locate WETLANDS in your town. What do you notice about them?

Can you identify a pattern? Use the words RIPARIAN HABITAT, WETLANDS, and BUFFER to describe any pattern you recognize.

Congratulations! You have just made a statement based on information you have taken from the map. You are doing science! Let's dive deeper.

PART 2

Let's backtrack to the sections of your town that are UNDEVELOPED BLOCKS. As stated in step 1, these are places where many animals' needs are being met. Note: We will use a list of Maine animals and their habitat requirements for the next section of the map study.

In your **opinion**, are there many UNDEVELOPED BLOCKS in your town? Include three supporting details in your statement.

We will now use your improving map reading skills, a fact sheet about wildlife requirements, and some math and science to learn about the status of habitat quality in your town.

On the page entitled “Habitat Block Size Needed to Live and Breed”, identify the large mammal that requires the most space. Identify the large mammal that requires the least space. Write your answers here.

Most:

Least:

Choose any three animals from the list of “Small and Medium Mammals”. Write the name of the animal and the minimum number of acres they require.

1. _____ acres

2. _____ acres

3. _____ acres

Choose three birds from the list (or get them from your teacher) and write the minimum number of acres required.

1. _____ acres

2. _____ acres

3. _____ acres

Read the names of the animals included under “Reptiles” and “Amphibians”. Although they do not seem to require a large amount of space, their habitat is unique. What is unique about reptiles and amphibians? This may require some research in school or at home.

Use the map and your math skills to do some work. Determine which animals can live in your town. Here are some conversions to assist you:

1 sq. mile = 640 acres

1 sq. kilometer = 247 acres

Put a checkmark in the boxes to confirm there is adequate habitat for the animals listed.

SPECIES						
Large Mammals		Small & Medium Mammals		Birds		Reptiles
Black Bear		River otter		Blue jay		Spotted turtle
Bobcat		Fisher		Red-eyed vireo		Blanding's turtle
Coyote		Mink		White-breasted nuthatch		Amphibians
Moose		Raccoon		Downy woodpecker		Red-backed salamander
Red fox		Skunk		Chestnut-sided warbler		Wood frog
Deer		Red and Gray squirrel		Veery		
		Snowshoe hare		Hairy woodpecker		
		Porcupine		Barred owl		
		Beaver		Black-throated green warbler		
				Wood thrush		
				Hermit thrush		
				Goshawk		

Can you calculate a percentage of animals listed that might be living in your town based on this result? Describe how this can be done by showing your work.

PART 3

Look at how the habitat blocks in your town are fragmented, or sectioned, by roads or other barriers. Locate the largest undeveloped habitat block in your town and answer the following questions.

- Does one road pass through this block of land?
- Does more than one road pass through this block of land?
- Are there any other features that interrupt this block of land from the information given on your map?

If so, name them.

What is the impact of roads crossing through undeveloped blocks on the animals that live there? Provide examples to support your statements.