"BEINGS ON THE MOVE" ACTIVITY- INSTRUCTOR'S GUIDE (in-person format-2-4th grades)

CREDIT: This activity was developed by Dr. Hannah Panci-Climate Scientist with the Great Lakes Indian Fish and Wildlife Commission and based on the Climate Change Vulnerability Assessment-Integrating Scientific and Traditional Ecological Knowledge.

Estimated time: 45 minutes – 1 hour
Location: Can be done indoors or outdoors, but does require space for students to move from a starting line.

Students should gain an understanding of:

- What climate change impacts we might expect in the region
- How climate change may affect plant and animal Beings
- How climate change may affect activities we like to do

Supplies:

- Print each of the Beings cards so that there is: 1) a picture of the animal/plant, its name and preferred habitat on the front, and 2) a list of habitat changes and how they may affect to that animal/plant on the back. Laminate, if possible. Beings cards are attached to this instructor guide.

- This instructor page with activity directions including a habitat changes we might see in this region.

- "Beings on the Move" powerpoint which explains basic elements that make up a plant or animal's habitat. A pdf of this powerpoint is attached.

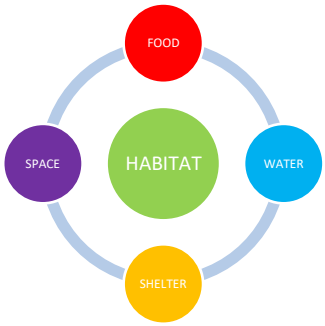
INTRODUCTION:
Explain that this activity demonstrates how changes in our region's climate might affect plants and animals who live here now. This activity uses two sources of evidence of how the climate is changing. One is Traditional Ecological Knowledge of the Lake Superior Ojibwe people. The Ojibwe people have lived in relationship with plants and animals for a long period of time. Their knowledge can help evaluate how climate change is affecting all of us. Students will also learn about Ojibwe culture and language in this activity. The Ojibwe consider plants and animals as their relatives and call them "Beings" to show them respect. The other source of evidence is research gathered by climate scientists.

ACTIVITY SETUP: (this activity can be conducted by individual students representing a Being or in teams)

Review what comprises a habitat: shelter, food, water, and space. Use the "Beings on the Move" habitat powerpoint. Reinforce that 1) different Beings need different habitats to thrive and survive, 2) environmental conditions like temperature, storms, snowfall, and drought can affect a Being's habitat, and 3) some Beings can adapt to these changes while others may have a harder time or may not be able to survive.

Start with students standing where they can see each other, such as in a circle. Give each student a Being card and ask them to read the front of the card only. Each student then introduces their Being to the group by: 1) showing its picture on the card, 2) sharing its name, 2) reading type of habitat this Being prefers. The instructor should ask the student, and class, how this Being is important to them and their culture. The instructor should reinforce the habitat preferred by each Being.

After all Beings have been introduced, ask students to line up on a starting line holding their Being cards. Explain that the "starting line" represents our region's current climate conditions that are supporting habitats needed by all of these Beings. Remind the students that Beings who move the furthest away from the starting line represent those who may most affected by changes in their habitat. Some may have to "move on" to find a new place where they can survive due to a changing climate.



ENVIRONMENTAL VARIABLES: All students line up on a starting line which represents Wisconsin's climate conditions today. Remind the students about the basic elements that make up a habitat: **Shelter, Food, Water, and Space**. Under each habitat category, the instructor reads each variable. Allow time for students to find the variable on their Being card and take the number of steps forward from the starting line that is given. Remind students that the greater the number of steps, the more a Being may be affected by changes in that environmental variable. If "0" steps is given in the instructions, students should not move! This may mean that their Being can adapt to this change or that there is not enough research to determine how it will be affected.

Ask students to share how their Being will be affected for each variable starting with the student who has moved the greatest number of steps forward.

SHELTER

Warmer temperatures – air temperatures are expected to increase in all seasons, but especially in the winter. Water temperatures will get warmer, too. Some Beings can live in warmer habitats, others cannot.

Less snow – more winter precipitation will fall as rain as the temperatures warm. Some Beings need snow!

FOOD

Changes in diet – Beings who can eat a wide variety of food may not be affected by changing habitat conditions.

WATER

Bigger Rain Storms – we can expect more large rain storms. Some Beings will be affected by flooding.

Drought – we can expect longer dry periods, particularly in the summer. Some Beings cannot adapt to drought.

SPACE

Ability to Move to New Habitats – some Beings cannot travel very far or cross barriers such as roads or water. This will prevent them from moving to new habitats.

Human development – this may not be directly caused by climate change, but reminds us everything is connected. People can disrupt habitat and food sources for Beings already stressed by climate change.

When all the environmental variables are read, ask the students to stay in their final position and observe where their Being is in relationship to other Beings and the starting line. Some Beings will not have moved off the starting line, while others will be many steps away from it.

DISCUSSION: Remind students that some Beings will be able to adapt to changing conditions, others may not. The Beings who will most challenged by climate change have taken the most "steps" away from the starting line. Reassure students that these beings may continue to survive, but maybe not in our area. These Beings may be "moving on" to find new habitats where they can survive.

Engage students in exploring these questions:

- Which Beings were most affected by these changes? Which Beings were less affected or who might benefit from climate change in some ways? Was anyone surprised how far they moved or did not move? Why might there be differences in how these Beings were affected?

- What are some ways humans depend on these plants and animals?

- How could these changes affect activities that you like to do?

- What can we do to help plants and animals as our climate is changing?

Walleye

I like to live in cool water lake habitats

Walleye

SHETLER

Warmer temperatures: Walleye do not survival well in warmer lakes. (Take 2 steps)

Less snow: Less snow will not affect Walleye. (0 steps)

FOOD

Changes in diet: Warmer temperatures reduce food for baby Walleyes. (Take 1 step)

WATER

Big rain storms: Big rain storms make it harder for Walleye to reproduce. (Take 1 step)

Drought: Drought is not expected to affect Walleye. (0 steps)

SPACE

Ability to Move to New Habitats: Dams and culverts can stop Walleye from swimming to new habitats. (Take 3 steps)

Human development: Lakeshore development can affect Walleye habitat. (Take 1 step)

Moose

I like to live in cold snowy wetlands and swamps

Moose

SHELTER

Warmer temperatures: Moose get stressed in warm temperatures. (Take 3 steps)

Less snow: Moose need longer winters and lots of snow. (Take 3 steps)

FOOD

Changes in diet: Moose can eat many different plants. (0 steps)

WATER

Bigger rain storms: Moose are not affected by big rainstorms. (0 steps)

Drought: Moose have less food to eat when there is a drought. (Take 1 step)

SPACE

Ability to Move to New Habitats): Moose can travel long distances. (0 steps)

Human development: Moose are not affected. (0 steps)

White-Tailed Deer

I like to live in many habitats including forests, farm fields, and even in cities!

White-tailed Deer

SHELTER

Warmer temperatures: White tail deer can live in warmer habitats. (0 steps)

Less snow: Less snow makes it easier for White tail deer to survive the winter. (0 steps)

FOOD

Changes in diet: White tail deer can eat many kinds of food. (0 steps)

WATER

Bigger rain storms: Bigger storms are not expected to affect White tail deer. (0 steps)

Drought: Drought is not expected to affect White tail deer. (0 steps)

SPACE

Ability to Move to New Habitats White tail deer can travel great distances. (0 steps)

Human development: White tail deer can live close to people. (0 steps)

Wild Turkey

I like to live in many habitats including forests, farm fields, and even in cities.

Wild Turkey

SHELTER

Warmer temperatures: Turkeys can live in warmer temperatures. (0 steps)

Less Snow: Less snow makes it easier for Turkeys to find food during the winter. (0 Steps)

FOOD

Changes in diet: Turkeys eat many foods including agricultural crops. (0 steps)

WATER

Bigger Rain Storms: Not expected to affect Turkeys. (0 steps)

Drought: Not expected to affect Turkeys because they can move away from dry areas. (0 steps)

SPACE

Ability to Move: Turkeys can fly to new habitats. (0 steps)

Human development: Turkeys can live near people. (0 steps)

Painted Turtle

I like to live in shallow ponds and wetlands

Painted Turtle

SHELTER

Warmer temperatures: Painted turtles can live in warmer temperatures. (0 steps)

Less Snow: Turtles should not be affected. (0 steps)

FOOD

Changes in diet: Turtles can eat many different things. (0 steps)

WATER

Bigger Rain Storms: Turtle nests and baby turtles can be washed away by storms. (Take 1 step)

Drought: Turtles can survive short periods of drought. (0 steps)

SPACE

Ability to Move: Turtles cannot move very far or very fast if their habitat changes. (Take 2 steps)

Human development: Many turtles are killed crossing roads while they are looking for nesting areas. (Take 1 step)

Blueberry

I like to live in forests clearings and bogs, especially in areas that have been burned.

Blueberry

SHELTER

Warmer temperatures: Blueberries like to grow in cool habitats.

(Take 1 step)

Less Snow: Blueberries like to be covered with a blanket of snow that protects them during the winter. (Take 2 steps)

FOOD

Changes in diet: This does not apply to Blueberries. (0 steps)

WATER

Bigger Rain Storms: Is not expected to affect Blueberries. (0 steps)

Drought: Blueberries can be weakened or killed by drought. (Take 1 step)

SPACE

Ability to Move: Blueberry seeds can only travel short distances. (Take 1 step)

Human development: Blueberries need fire to maintain their habitat. Humans often limit fire. This reduces the amount of Blueberry habitat. (Take 2 steps)

Common Loon

I like to live in cold-water lakes

Common Loon

SHELTER

Warmer temperatures: Loons need cool to cold habitats. (Take 4 steps)

Less Snow: Loons fly south in the winter, so snow does not affect them. (0 steps)

FOOD

Changes in diet: Loons eat many things including different fish. (0 steps)

WATER

Bigger Rain Storms: Flooding can cause wash away Loon nests and baby Loons. (Take 3 steps)

Drought: Drought should not affect Loons. (0 steps)

SPACE

Ability to Move to New Habitats: Loons can fly long distances. (0 steps)

Human development: People can disturb Loon's and their nests. (Take 2 steps)

Black Bear

I like to live in a variety of habitats including forests, fields, and even in towns!

Black Bear

SHELTER

Warmer temperatures: Black bears can live in warmer temperatures. (0 steps)

Less Snow: More rain in the winter can flood Black bear's winter dens and drown baby bear cubs. (Take 1 Step)

FOOD

Changes in diet: Bears can eat many different things. (0 steps)

WATER

Bigger Rain Storms: Bears are not affected by big storms. (0 steps)

Drought: Bears are not affected by drought. (0 steps)

SPACE

Ability to Move to New Habitats: Bears can travel long distances. (0 steps)

Human development: Bears looking for food can be hit by cars. (Take 1 Step)

Paper Birch

I like to live in cool to cold habitats

Paper Birch

SHELTER

Warmer temperatures: Paper birch trees like cooler temperatures. (Take 3 steps)

Less Snow: Paper birch trees need snow to protect their roots. (Take 1 step)

FOOD

Changes in diet: This doesn't apply to Paper Birch trees. (0 steps)

WATER

Bigger Rain Storms: Paper birch trees are not affected by heavy rain. (0 steps)

Drought: Paper birch tree seedlings do not grow well if they are too dry. (Take 3 steps)

SPACE

Ability to Move to New Habitats: Paper birch tree seeds don't move very far. (Take 2 steps)

Human development: Paper birch trees can grow in developed areas. (0 steps)

Snowshoe Hare

I like to live in cold forest habitats with

deep snow where I can hide

Snowshoe Hare

SHELTER

Warmer temperatures: Snowshoe Hare only lives in cold habitats. (Take 3 steps)

Less Snow: Without snow, the white Snowshoe Hare loses its camouflage and can be eaten by predators. (Take 5 steps)

FOOD

Changes in diet: Snowshoe Hare eats many things. (0 steps)

WATER

Bigger Rain Storms: Will not affect the Snowshoe Hare. (0 steps)

Drought: Will not affect the Snowshoe Hare. (0 steps)

SPACE

Ability to Move to New Habitats: Snowshoe hare cannot easily move to a new habitat. (Take 3 steps)

Human development: This does not affect the Snowshoe hare. (0 steps)

Sugar Maple Trees

I like to live in rich, moist forest habitats

Sugar Maple

SHELTER

Warmer temperatures: Sugar maple trees like growing in cooler habitats. (Take 3 steps)

Less Snow: Sugar maple trees need snow to protect their roots during winter. (Take 3 steps)

FOOD

Changes in diet: This doesn't apply to Sugar Maple trees. (0 steps)

WATER

Bigger Rain Storms: Heavy rain can hurt Sugar Maple roots. (Take 1 step)

Drought: Drought can hurt Sugar maple trees. (Take 2 steps)

SPACE

Ability to Move: Sugar maple tree seeds are moved by small animals. (0 steps)

Human development: Sugar maple tress do not like to grow where there is pollution and road salt. (Take 1 step)

Raspberry

I like to live in a variety of habitats

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Raspberry

SHELTER

Warmer temperatures: Raspberries are not affected by warmer temperatures. (0 steps)

Less Snow: Raspberries are not affected by less snow. (0 steps)

FOOD

Changes in diet: This doesn't apply to Raspberries. (0 steps)

WATER

Bigger Rain Storms: Raspberries are NOT affected by heavy rainfall. (0 steps)

Drought: Raspberries are not affected by drought. (0 steps)

SPACE

Ability to Move: Raspberries seeds are spread very far by birds and animals. (0 steps)

Human development: Raspberries can grow in developed areas. (0 steps)

Beaver

I like to live in wet habitats

Beaver

SHELTER

Warmer temperatures: Beaver can live in warmer temperatures. (0 steps)

Less Snow: This will not affect Beaver. (0 steps)

FOOD

Changes in diet: Beaver can eat many different plants. (0 steps)

WATER

Bigger Rain Storms: Floods can destroy Beaver lodges and dams. (Take 1 step)

Drought: Droughts can dry up Beaver habitat. (Take 1 step)

SPACE

Ability to Move: Beaver can travel long distances. (0 steps)

Human development: Beaver can live near people. (0 steps)

Wild Rice

I live to live in cool water lakes and rivers habitats with slow moving water

Wild Rice

SHELTER

Warmer temperatures: Wild rice needs cooler temperatures to grow. (Take 3 steps)

Less Snow: Wild rice needs snow and ice for its seeds to grow in the spring. (Take 3 steps)

FOOD

Changes in diet: This does not apply to Wild rice. (0 steps)

WATER

Bigger Rain Storms: Too much rain can drown wild rice. (Take 3 steps)

Drought: Drought can prevent Wild rice from growing. (Take 3 steps)

SPACE

Ability to Move to New Habitats: Wild rice seeds are heavy and don't move far. (Take 3 steps)

Human development: Boats, dams, and lake development affect Wild rice. (Take 2 steps)

Largemouth Bass

I like to live in cool to warm water lake habitats

Largemouth Bass

SHELTER

Warmer temperatures: Bass can live in cool to warm water. (0 steps)

Less Snow: Bass are not affected. (0 steps)

FOOD

Changes in diet: Bass eat many things. (0 Steps)

WATER

Bigger Rain Storms: Bass are not expected to be affected. (0 steps)

Drought: Droughts can cause Bass to leave their spawning nests. (Take 1 step)

SPACE

Ability to Move to New Habitats: Bass can swim long distances. (0 steps)

Human development: Bass are not expected to be affected. (0 steps)

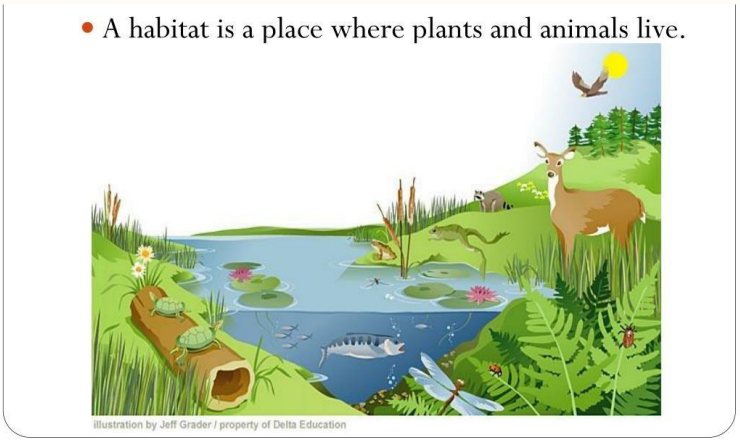
“Beings on the Move” Powerpoint Slides- Elementary Grades 2-4

BEINGS ON THE MOVE

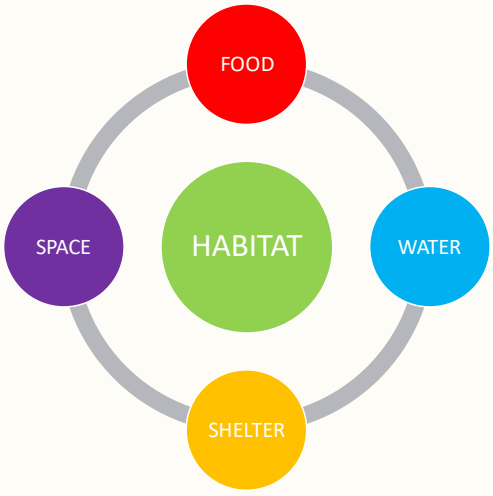
WHO ARE “BEINGS?”

A Habitat is a Being's home

What is a Habitat?



What do Beings need in their habitat to survive?



Beings who are not able to adapt to changes in their habitat may be moving on!

For more information or questions about this activity, contact Cathy Techtmann-UW Extension Environmental Outreach State Specialist at cathy.techtmann@wisc.edu.