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AUDUBON



Curriculum Set: Climate Initiative

Young Ambassadors for Birds in the Face of Climate Change

Lesson 2 Game: Habitat Scramble!

Goal: Students are introduced to the scope of climate change, and the impacts it is having on local habitat.

Science


Adaptable for Grades 4-8

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Total game time: 30 min

Materials needed:

Habitats for the Habitat Scramble! game (construction paper of various colors)


Madison Audubon Society Bird Flashcards

Tips:

- Students were able to pay better attention to the climate scenarios if they were sitting in a circle looking at the habitat. After you finish reading the scenarios, have the student stand up and get ready to scramble.

Game: Habitat Scramble!

1. Explain the rules of the game:
 - a. All birds need habitat to survive. Some need one specific type of habitat, others can live in many different habitats.
 - b. Because of climate change, the climate and weather will be different in the future. Many habitats will change along with the climate.
 - c. Each student will get one bird card, and you will pretend to be that bird during the game.
 - d. Pass out bird cards
 - e. Have each student look at their card, and determine what types of habitat they can live in. Have each student who is a habitat specialist raise their hand. Do the same for generalists. Help any students who cannot determine if they are a specialist or generalist.
 - f. Remind them that each habitat is represented by a color. Match the colors on the cards to colors of construction paper. Make sure each student understands each habitat type (for example, explain that “agriculture” is where farmers grow food).
 - g. Tell students “We are going to pretend that you are birds looking for habitat. This is right after you got back home from migration. You need habitat to find food, to find a mate, and to make a nest for your young. Each of these pieces of construction paper represents a habitat. Only one bird (student) is allowed to stand on each piece of habitat at a time.” Spread construction paper out on the ground. Mix the different types of habitat together, so students will need to search for habitat they can use.
 - h. “Let’s do a test-run to practice. Everyone stand in a circle around the habitat. When I say ‘HABITAT SCRAMBLE!’ every bird will *walk* to a type of habitat they can live on.”
 - i. “HABITAT SCRAMBLE!” Students should all walk to and stand on a piece of construction paper that corresponds with a type of habitat that their bird is able to live on. Make sure each student finds habitat.

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- i. Discuss specialists vs. generalists: which had an easier time finding habitat? Why? Which one had a harder time finding habitat? Why?
 - ii. Discuss what happens if a bird cannot find habitat. Does it fly somewhere else to look for habitat, or is it out of luck?
 - j. Have all of the birds will fly back to their wintering grounds. Everyone sits in a big circle around the habitat.
 - k. Tell students that we will read through some stories about how our environment will change with climate change. These things may happen in the future, and birds will need to adapt. Whenever you say 'HABITAT SCRAMBLE!' students need to go find habitat.
 - l. Read through each scenario, removing or adding habitat as directed. Jump around in the scenario list (do not read both "wetland" scenarios back-to-back). After each scenario/habitat change, say "HABITAT SCRAMBLE!" You can do several rounds of this, making the changes as extreme as you like.
 - i. Depending on the class dynamics, have some bird species become extirpated in your classroom (the birds are not able to find suitable habitat, and they are unable to survive here). Discuss why this would be a problem for our birds.
 - ii. If any birds are unable to find habitat, have them sit out on the sidelines of the game.
 - iii. At the end of the game, generalist birds will likely all still have habitat, and specialist species will be "out". Discuss why this happened, and what it might mean for these birds in the future. Are humans generalists or specialists?

Climate Scenarios

Wetlands:

1. The climate of the entire earth is getting warmer. Many of the wetlands that are on the edges of our great lakes will be threatened. There will be less ice covering the great lakes in the winter, which will mean more water can evaporate each year. The water levels in the great lakes will decrease, and wetlands will shrink.
 - a. Remove several pieces of wetland (light blue). Do not replace with anything.
 - b. HABITAT SCRAMBLE!
2. The changing climate will also bring new weather patterns: stronger winds, bigger storms, and more intense rain. This will increase erosion. Wetland habitats will shrink as they are washed away in the storms.
 - a. Remove several pieces of wetland (light blue). Do not replace with anything.



b. HABITAT SCRAMBLE!

Lakes and rivers:

1. The climate of the entire earth is getting warmer. Temperatures in Wisconsin's lakes and rivers are warming too. Many fish need cold water to survive and reproduce. These cold water fish will start to die, and the animals that eat them will have less food. This will cause the food chain to shift, and some birds that once lived in our lakes and rivers will no longer have enough food, or will need to find new food sources.
 - a. Remove several pieces of lakes and rivers (dark blue). Do not replace with anything.
 - b. HABITAT SCRAMBLE!


2. Warming temperatures will make lakes a better place for algae to live. They will reproduce too quickly, creating an algal bloom. The algae will use up all of the oxygen in the water, making it even harder for fish and other animals to live there. This will cause the food chain to shift, and some birds that once lived in our lakes and rivers will no longer have enough food, or will need to find new food sources.
 - a. Remove several pieces of lakes and rivers (dark blue). Do not replace with anything.
 - b. HABITAT SCRAMBLE!

Grasslands:

1. The climate of the entire earth is getting warmer. Summers will get longer: it will get warmer earlier in the spring, and stay warmer longer in the fall. This is good, because we can continue to grow lots of food for people and livestock. People will create more farmlands to produce the food that people need.
 - a. Remove several pieces of grassland (green) and replace with lots of agriculture (orange).
 - b. HABITAT SCRAMBLE!

2. Storms will be more intense, with stronger winds and harder rains. Some of the soils in agricultural fields will erode, or wash away. Farmers will need to clear more land in order to continue to have enough fertile soil to grow food.
 - a. Remove several pieces of grassland (green) and replace with lots of agriculture (orange).
 - b. HABITAT SCRAMBLE!

3. The summers will become too warm for some crops to grow in the south. That will mean that more and different crops will need to be grown here in the north. Our grasslands have very fertile soil. Many grasslands will be converted to agricultural land, to produce more crops.

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- a. Remove several pieces of grassland (green) and replace with lots of agriculture (orange).
 - b. HABITAT SCRAMBLE!

Urban Development:

1. Humans need habitat too! Increasing human populations mean that we will need to create more habitat for ourselves: cities will grow, and so will suburbs. Our natural habitats like forests, grasslands, and wetlands will be removed to make way for more houses.
 - a. Remove several pieces of grassland (green), wetland (light blue) and forest (brown). Replace with urban (black).
 - b. HABITAT SCRAMBLE!
2. Repeat this scenario several times (possibly only removing a little bit of one type of habitat each time).

Forests:

1. Summer temperatures will rise, but temperatures in the winter will rise much more. There won't be as much snow on the ground. Many small mammals like mice and voles need the blanket of snow to hide under. The snow keeps them warm and safe from predators. With less snow, more small mammals will get eaten by predators, and die from the cold. Their populations will fall, and there will be less food for the predators that eat them.
 - a. Remove several pieces of forest (brown). Do not replace with anything.
 - b. HABITAT SCRAMBLE!
2. Warming temperatures will also cause the types of plants living in the forest to change. Plants that like cooler temperatures will die or grow farther north, and plants that like warmer temperatures will thrive. The animals that rely on these plants will move with them, or die as well.
 - a. Remove several pieces of forest (brown). Do not replace with anything.
 - b. HABITAT SCRAMBLE!

Discussion- take time throughout the game to discuss these questions:

1. Were any species extirpated? Were they generalists or specialists?
2. Which species were left? Were they generalists or specialists?
3. For the species that are left: is it easy or hard to find habitat?
4. Important message for students: We can still help all of these species, and they're not doomed! We will spend the rest of the year discussing how we can help birds and other animals that live in the habitat.