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Curriculum Set: Climate Initiative

*Young Ambassadors for Birds in the Face of Climate Change*

Lesson 8: Phenological Mismatch- Hunger Cranes


Goal: Students learn the effects of warming springs on migratory birds.

Science

Grades 4-8

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**Total lesson time: 1 hour – 1.5 hours**

Lesson: 40 minutes

Hunger Cranes: 30 minutes

**Materials needed:**

Bird ID cards

Hunger Cranes Game:

- something to mark where kids stand & where “food” is (traffic cones work well)
- two types of things to represent different types of food (poker chips of two different colors work well. Blocks or pieces of paper would also work)

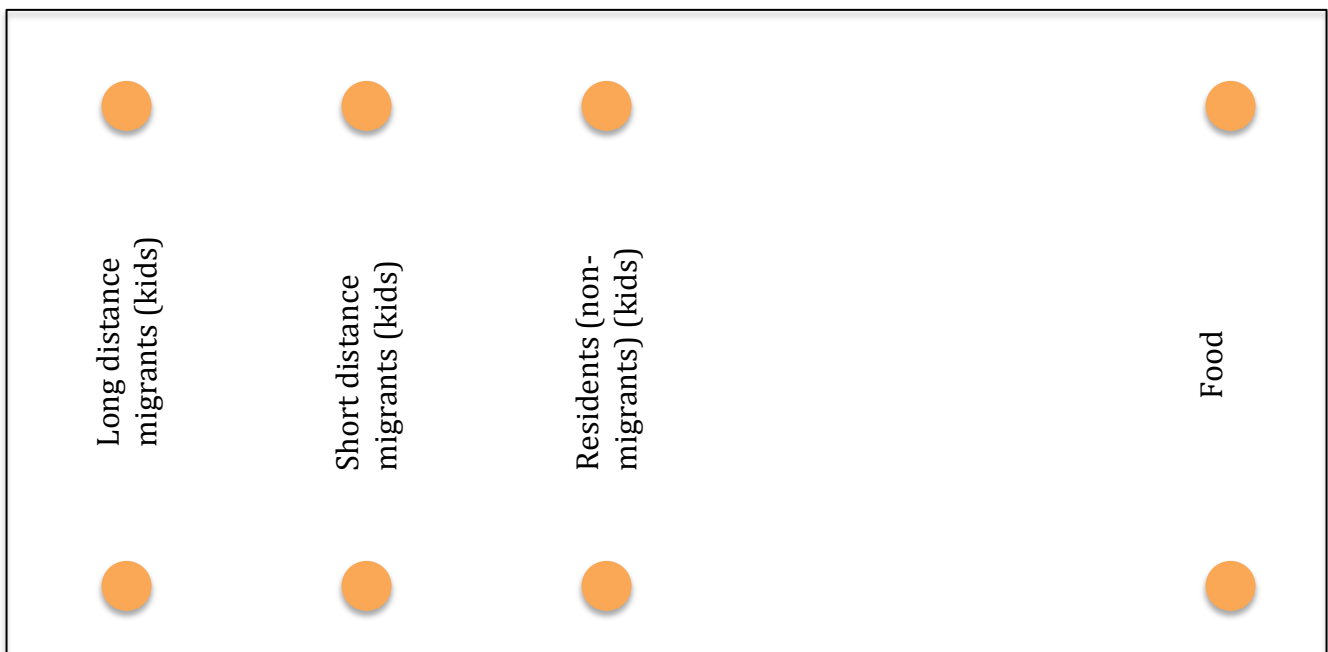
**Lesson**


**Tips:**

- This game is fairly complicated. Explaining small chunks of it at a time will help!
- Make sure that you put a positive spin on the end of the lesson, so that kids don't leave feeling discouraged about climate change. Talk about what they can do in their lives to make a difference (walk or bike instead of riding in a car, don't waste water, grow vegetables or compost).

### Activity: (20-30 minutes)


1. In this game, the Hunger Cranes, we will explore the ways that phonological mismatch can make life harder (or easier!) for birds.
2. Pass out the bird ID cards. Tell kids that they get to pretend to be birds again during this game.
  - a. Have kids look at their card, and determine which bird they are.
  - b. Have kids determine which type of migrant they are: long distance, short distance, or resident. Any option will work for this game, but they must pick ONE and stick with it.
3. In an open area, mark out places for kids to stand using traffic cones or similar (see diagram).
4. Have kids that are long distance migrants line up between the cones at the farthest point, facing the food.
5. Short distance kids are in the middle
6. Resident kids are closest to the food
7. Once kids are lined up and ready, tell them to look at their bird cards again. Have kids determine whether their bird is a diet generalist or specialist.
  - a. Explain that specialists can only eat one type of food: show them the food they are allowed to eat (example: blue poker chips). Spread out as much of this specialist food as you like between the two cones making the food area.
  - b. Explain that the generalists are able to eat any type of food they want. Show them the other food types that are available (example: white and/or red poker chips). Spread out as much of this food as you like in the same area. Mix all of the food types so that it will be more challenging to find the specialist food.
8. You may choose to tell kids that they are only able to choose one piece of food during each round (in this case, put out much less food at the beginning, so that it is still challenging). You may also choose to allow kids to get as much food as they can carry.





The latter is usually more interesting!

9. Tell students that they are only allowed to run towards the food when their group is called.
10. During the first round, pretend that it's the past, before climate change started. Ask students if long distance migrants and short distance migrants arrived back in Wisconsin at the same time or different times?
  - a. Answer- same time.
  - b. Make sure the kids make the connection that they are pretending to be birds flying back on migration, and arriving to find a food source.
11. Explain that for this round, all of the birds will arrive at the food at close to the same time. Call each group one after the other, so they all start running towards the food at almost the same time (yell "residents, GO!", "short distance, GO!", "long distance, GO!")
12. Let the kids scramble for food as long as you feel like, then call everyone to discuss. Usually it works well to have the kids sit in a bunch or a circle so that you can talk easily.
13. Ask the kids in each group of birds if they were able to find the food they needed. Ask them if anyone didn't find food.
14. Explain that during the next round, we're going to pretend that it is present day, after climate change has started to make small changes to spring phenology. Ask students how they think the game will change.
15. Have kids get back to their starting positions, and reset the food.
16. For this round, release the residents and short distance migrants first, but pause briefly before releasing the long distance migrants.
17. Let the kids scramble for food as long as you like, and again, call everyone over to discuss.
18. Ask the kids in each group of birds if they were able to find the food they needed. Ask them if anyone didn't find food. Ask if any of the groups felt that it was unfair, or if it was harder for them to find food than the other groups. (Long distance should be grumbling, as should specialists)
19. Reset everything, adjusting the proportions of food types if you like. Tell the kids that for this round we will pretend to be 100 years in the future, when climate change has made lots of changes. Ask the kids how they think the game will change.
20. For this round, release the residents and short distance migrants first, but pause for about 5 seconds before releasing the long distance migrants (pause longer if the distance the kids are running to food is very far).
21. Let the kids scramble for food as long as you like, and again, call everyone over to discuss.
22. Ask the kids in each group of birds if they were able to find the food they needed. Ask them if anyone didn't find food. Ask if any of the groups felt that it was unfair, or if it was harder for them to find food than the other groups. (Long distance should be very unhappy, as should specialists)
23. Repeat all of this again, but for the last round, let the students vote on "when" we should play the game. Do we want to pretend that it is the past, present day, or the future? This is how you can determine if the kids understand what's going on.

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- a. All of the long distance birds should be voting to pretend it is the past or present day.
  - b. The residents and short distance migrants should be voting to pretend that it is the future.
24. Continue playing as many rounds as you like.
25. Discussion at the end:
- a. Which group of birds had the hardest time finding food? (long distance migrants that were specialists)
  - b. Easiest? (residents, and most generalists)
  - c. If birds have trouble finding enough food, what might happen? (they may be hungry, they may need to move to another place with more food, they may have trouble finding enough food to feed to their babies)
  - d. Remind kids that we can still try to fix climate change! Scientists are also studying ways to help those long distance migrants. Make sure the game ends on an uplifting note!

If you would like to make the effects of this game more drastic, reduce the number of food pieces you have for specialists. This way, it will be harder for specialists to find food, and more of them will come up empty handed at the end of each round.

You can also adjust the number of birds in each group (asking kids with multiple boxes checked to choose another migration type). It is best to have some generalists and specialists in each group.