Hopscotch

Hoppin' from Home to Home

Purpose:

- This activity helps foster an understanding of the difficulties faced by migratory birds.

Appropriate grades: 6th– 8th
Time Required: 30-40 minutes
NGSS:
MS-LS2-1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.

Objectives:

- The students will simulate bird migration through participating in the activity.
- The students will articulate how human interferences can affect birds and their migration patterns.

Materials:

Provided:

- Plastic Insects *(in Migration Hopscotch Activity Box)*
- Pom poms *(in Migration Hopscotch Activity Box)*

Activity:

Introduction	• Migratory birds have a summer home and wintering home. Most migratory birds move North and South. The pattern of and reason for migration depends on the species of bird. Some migrations are based around food and some based around breeding. • **Background information:** Migration can be a tricky thing when habitats are continually being changed. Over just the last 100 years many critical bird habitats especially wetlands like marshes, ponds and lakes have been filled and redesigned without sensitivities to the needs of wildlife. This can be a

	challenge for migrating birds. This activity is designed to create a metaphorical challenge for students as they become migrating birds.
Body	● **ROUND 1** ○ Clear desks or go outside and set up a "hopscotch" like courses with at least 7 squares with chalk or tape. (Create two courses to reduce wait time if you have a big group.) ○ The bottom of the course represents the wintering home; the top represents the summer home. ○ Each box represents resting places for the birds during migration (hollow tree or old chimney) ○ Scatter the toy insects inside and outside of the squares. (To increase difficulty, use fewer insects or make them harder to reach from the squares.) ○ Rules are like regular hopscotch, so if they step out of bounds or put two feet in one spot then they "die" and are out of the round. ○ The birds start at the wintering home and have to get one insect to make it to the summer home. ○ If they get two insects they receive a pom pom at the summer home, which represents a baby bird. ○ Then they have to make their way back to the winter home and get another insect along the way to stay alive. ○ They need two insects if they have a baby bird with them. ● **ROUND 2** ○ Do the activity again with some of the boxes "x"ed out to represent humans cutting large trees or destroying or capping old chimneys. ● **ROUND 3 (Optional lesson related to climate change)** ○ Some species' life cycles depend on the amount of sunlight where others depend on temperature or other weather factors. Climate change is causing temperatures to warm sooner in the year. This causes a mismatch in timing between species. For example insects often hatch when it gets warm enough but birds often start migration when day length gets long enough. This means that some birds may no longer find enough food to feed their babies because they've missed the proper insect window. This article has 5 examples of species affected by climate change related mismatches:

	https://www.nytimes.com/2018/04/04/climate/animals-seasons-mismatch.html Repeat the activity as before but either start with fewer insects or begin removing them little by little as the students take their turns on the course. The students in the back of the line will have a harder time surviving and raising a baby because they didn't start migrating soon enough and missed the peak of the insect population.
Closure	● Debrief with questions about the activity. ● Examples: ○ What difficulties did you face as a bird trying to make it to your nesting grounds? ○ What difficulties did you face as a bird trying to make it back to your winter home? ○ What happened to your journey when some of the roosting sites were removed? ○ How does the number of resting areas affect the number of birds? (this keys into the ecological concept of Carrying Capacity – factors including food, water, shelter, space) ○ Humans need houses, grocery stores – many of the things that changed bird habitat. What could we do to balance human and bird needs? ○ Where are the resting-places of birds in our area? ○ When are birds migrating through this area? ○ How could we study the numbers of birds migrating through our region?

Modifications:

Elementary:

Start lesson the same as the middle school but place the toy insects or paper clips is an easier place to reach and have the hopscotch course shorter.

High School:

Start the lesson the same as the middle school but place the hopscotch boxes further apart so the high schoolers really have to work for it and the insects further out of reach and complete through the third round.

Students can research other animals that migrate and produce a map of the migration routes of those animals to present to the class.

Graph Carrying Capacities on graph paper or using Excel

Key Vocabulary:

- **Migration-** seasonal movement of animals from one region to another.
- **Habitat-** the natural home or environment of an animal, plant, or other organism.
- **Carrying Capacity**- the maximum population size of the species that the environment can sustain indefinitely, given the food, habitat, water, and other necessities available in the environment.