

MONARCH MIGRATION GAME

Teacher:

Grade Level(s): K-6th

Time: 1 hour

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Next Generation Science Standards:	K-LS1-1. Use observations to describe patterns of what plants and animals (including humans) need to survive. 1-LS1-2. Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive. 3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.
Enduring Understandings:	LS2.C When the environment changes some organisms survive and reproduce, some move to new locations, some move into the transformed environment, and some die.
Content Objective:	Students will be able to define the term 'migration' and give examples of why a Monarch Butterfly migrates. Students will give examples on how changing environmental conditions may impact monarch migration by planning and playing a migration game outside.

Vocabulary	Materials
Monarch Butterfly Migration Habitat	Map, Tickets (stickers or paper with even and odd numbers for each student to represent a Monarch tag), Migration Situation Cards

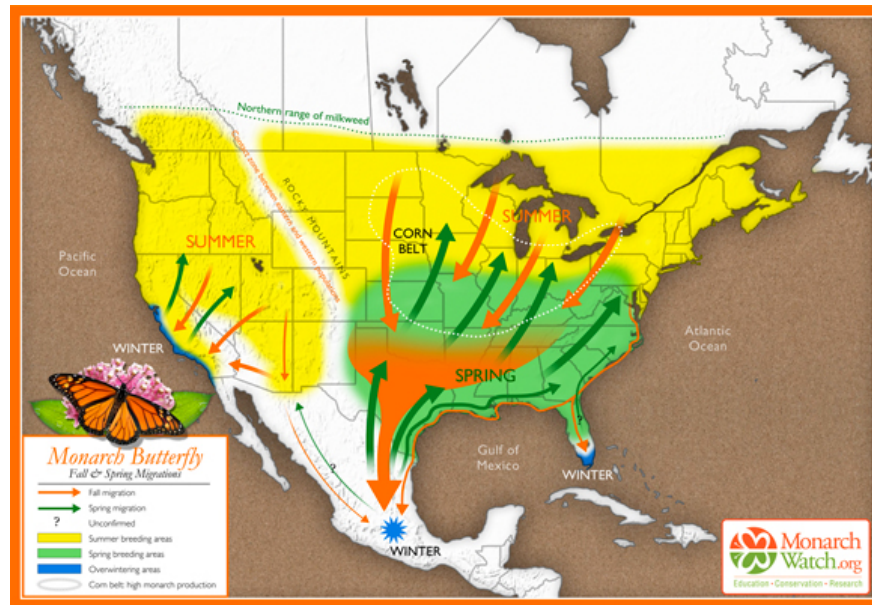
Seasonality: Monarch butterflies generally begin their migration towards Mexico in October (Autumn) of each year and return north in the Spring.				
Monsoon July-Sept.	Autumn Oct.-Nov.	Winter Dec.-Feb.	Spring Mar.-Apr.	Dry Summer May-June

Engage: Have students close their eyes and imagine they are a monarch butterfly. Guiding Questions: What does your home (or habitat) look like? What are things that you require in order to survive in your habitat? Make a chart of student-responses on the board. After each question is answered on the board, ask students to pick one item on the board and discuss with their neighbor *why* they believe that item is essential to surviving as a monarch butterfly.

Explore: Today, we will be exploring the life of monarch butterflies. Monarchs are a very important pollinator and travel very far. Guiding Questions: Does anyone know what it is called when a living species moves from one place to another, traveling back and forth over time? What are some of the potential reasons living species travel? Monarch do something called **migrate**, meaning that as the seasons change, they move from one region to another. Monarchs are unable to “survive extreme cold weather, so they migrate south and west each autumn to escape the cold weather. The monarch migration usually starts in about October of each year, but can start earlier if the weather turns cold

MONARCH MIGRATION GAME

sooner than that” (<https://www.monarch-butterfly.com/monarch-migration.html>). (This site provides great details on the migration of monarch butterflies). Scientists are able to track monarch butterflies on their migration path because they “tag” the butterflies. Here is a great map showing the migration path of monarchs:



This video provides additional detail about monarch butterfly migration and habitat. Ask students to pay close attention to see if any of their habitat requirements listed on the board match with what the video says. **Video** <https://www.youtube.com/watch?v=LawHWslqa5s>.

Explain: Today, students will head outside so that they can experience what it is like to be a monarch butterfly that is migrating to its overwintering spot! This game is best played in the garden or an open space with access to trees (nighttime roosting spot), flowers (nectar and food) and space to “fly” around. The goal of the game is to migrate from Canada to an overwintering spot in Mexico while avoiding the perils of traveling as a monarch butterfly.

Guiding Questions: What do you think might be some challenges to migrating across North America? Prompt students to think about challenges to food (nectar), roosting spots, climate and weather conditions, and human impacts (infrastructure, agricultural land, cars) that might hinder their migration progress. Using a small piece of paper, ask students to record one challenge they foresee encountering on their migration journey. Once complete, ask students to share with their table group. These cards can be used in our migration game.

Before heading outside, review and collect student responses for the game and place them in a bag or bucket to be randomly chosen. Give each student a ticket (their monarch butterfly tag) with a number on it. *Teacher Note: raffle tickets work well for this.* Review rules of the game with the students.

MONARCH MIGRATION GAME

Elaborate: Rules of the game:

- 1) You are a monarch butterfly! That means you must hop and flap your wings to move as you migrate from Canada to Mexico. No walking or running!
- 2) Each day, you must listen to the instructor to figure out what your day is like. Perhaps it is windy, too cold to fly, or you must find nectar for energy. Listening is key!
- 3) As a monarch, you may only fly during the day. Once the instructor calls out “nightfall” you have 5 seconds to find a roosting spot for the evening (a tree).

Evaluate: Once the students have had time to play the migration game, head back inside for a wrap-up discussion. Guiding Questions: What was one of the hardest situations you encountered during your migration? What was one of the most frequent situations you encountered? How can humans help and/or hurt monarch migration patterns? Think-pair-share and use this time to discuss as a class.

MONARCH MIGRATION GAME

Monarch Migration Game: Daily Situation Examples

<p>It is a sunny 70-degree day, but yesterday you flew fast and far. Today, you must drink lots of nectar to get your energy up. The first thing you must do is find a flower, touch it, and continue your migration.</p>	<p>Last night was very cold, but today the sun is shining. Look at your monarch tag—if you have an odd numbered tag you slept on the east side of the tree and the sun is hitting you first! You may begin your migration. If you have an even numbered tag, you slept on the west side of the tree and mist shiver for 10 seconds to warm up your flight muscles before flying.</p>	<p>Today is very windy! You keep getting pushed backwards during your migration. For each hop forward you must take two hops backward.</p>
<p>You have encountered a residential area. Look at your monarch tag—if you have an even numbered tag you are a car today! If you have an odd-numbered tag, you are a monarch and must avoid the cars tagging you on your journey!</p>	<p>Today is sunny, but a light rain begins to fall. You must hop side to side to avoid any raindrops touching your wings.</p>	<p>You've encountered the Gulf of Mexico on your journey and must fly around it. Use something in the garden (a table or tool shed) for student-monarchs to fly around before they can continue on their journey.</p>
<p>You have come across big agricultural fields and it is difficult to find any nectar. The first thing you must do today is fly to a flower, drink, and continue moving before the sun sets.</p>	<p>It is an extremely warm day today. For each two hops forward, you must rest for 2 seconds before continuing on with your migration.</p>	<p>You have almost made it to Mexico! Before the night falls, you must find the best roosting spot possible. Look for a cluster of big trees or bushes for shelter.</p>