

Biodiversity Project  
Lesson Title: Migratory Pollinators

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Grade Level: Kindergarten

Adapted from: Michelle Coe

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| <b>Common Core Standard:</b>   | <p><i>Life Science Standards K.L1U1.6</i></p> <ul style="list-style-type: none"> <li>● <i>Obtain, evaluate, and communicate information about how organisms use different body parts for survival.</i> <ul style="list-style-type: none"> <li>○ <i>Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in <b>food, water, and air.</b></i></li> </ul> </li> </ul> |
| <b>Content Objective:</b><br>Math, Reading, Science, Writing, Other: | <ul style="list-style-type: none"> <li>● <i>Students will be able to define migration and identify factors (weather, food supply) that cause animals to migrate.</i></li> </ul>  |
| <b>Language Objective:</b><br>(Optional)                             | N/A  |

| <b>Vocabulary</b>   | <b>Materials</b>  |
|---|---|
| <ul style="list-style-type: none"> <li>● Migration</li> <li>● Food supply</li> <li>● Weather</li> </ul>               | <ul style="list-style-type: none"> <li>● Map</li> <li>● Stickers</li> <li>● Monarch “tags”</li> <li>● Migration Situation Cards</li> <li>● Handouts with images of Monarch Butterflies</li> <li>● Location signs</li> <li>● Juice boxes with student names</li> </ul> |
| <p><b>Seasonality:</b> (If more specificity is required, please note date/time range under the season)</p> <p>N/A</p> |   |

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| <i>Monsoons</i><br>July-Sept. | <i>Autumn</i><br>Oct.-Nov. | <i>Winter</i><br>Dec.- Feb. | <i>Spring</i><br>Mar.-Apr. | <i>Dry Summer</i><br>May-June |
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**Guiding Questions:**

- If you were a Monarch Butterfly, what would your home look like?
- What are things that you need in order to stay alive?
  - when it's cold out how do you make yourself warm?
  - do any of you have family who live in other parts of the world? what is the weather like in those places?
- Does anyone know the word for when an animal moves from one part of the world to another?
- What would cause an animal to move from one part of the world to another?

**Scientist of the Week:**

- Gabriela Venable
- A young scientist at Yale University, studying Monarch butterflies
- She is trilingual, speaking English, French, and Spanish
- Is from Tucson, Arizona

**Background Information:**

Monarch Butterflies

- If born in September/October, they live 6-8 months and grow to be 3 or four inches
  - Four stages of life -- four generations in one year- the first generation will be born in March and April, the second generation will be born in May and June, the third generation in July and August
  - A caterpillar is fully grown at 2 weeks- they die after laying eggs
  - Butterflies will likely only live to experience one migration path, yet all butterflies somehow know the way Northward, some even returning the same trees as previous migrations. AKA, repetition of roost spots that butterflies making first time migration should not know about.
- Largely stop in California and Mexico for the Winter
  - In September and October, Western monarchs begin to head toward Mexico
  - Scientists hypothesize that Monarchs developed their migration 10,000 years ago
- They are the only butterfly in the world to have such a long migration.
- Monarchs are dependent of milkweed which is their main food source after they originally hatch out of their eggs
  - Milkweed contains a toxin that Monarch butterflies can eat, yet deter their predators because of the bad taste they leave
  - As adults monarch's feed on Nectar
- Depending on when the Monarch butterflies were born, their anatomy develops differently. Monarch born in the later Summer months are born ready to fly, knowing their imminent journey Northward.
- Monarchs use their antennae in order to sense the time of day it is- helping them stay on track during their long migrations

- Butterfly wings are made up of the same protein (chitin) that compose fingernails and hair
  - colored to avoid predators
- Butterflies are cold blooded

### **Engagement/Introductory Activity:**

- Begin by repeating an exercise that encourages science identities in students. Standing in a circle teachers will begin a call and response, “who here is a scientist?,” students responding with “I am.”
- Watch this video to review Monarch butterflies:  
<https://www.youtube.com/watch?v=1b87rwtXGzA>
- Pick on 1-2 volunteers to describe what the outside of their home looks like
- Ask students what things they need in order to stay alive. When it’s cold out how do you make yourself warm? Do any of you have family who live in other parts of the world? what is the weather like in those places?
- Now, propose the question: “If you were a Monarch Butterfly, what would your home look like”?

### **Exploratory**

- Lead students outside in order to experience the process of migration for Monarch Butterflies. Areas of the playground will represent different resources Monarchs need in their migration path. In order to keep students organized, teachers will create signs that represent locations on the migratory path of Monarchs. Trees will represent nighttime roosting spots, juice boxes will represent nectar sources, with the field standing in as “space to fly around.”
- Hand each student a “migration tag,” with odd or even numbers, helping dictate their daily situations.
- The rules of the game are as follows:
  - Students are monarch butterflies, meaning that they must hop and flap their wings as they migrate from Mexico to Canada.
  - Each day students will need to hear what their day will be like, so they can collect “nectar” for energy, or learn how their energy was expended the day before.
  - As a monarch, students cannot fly during the day, so they only have 10 seconds to find a roosting spot once the teacher calls “nightfall.”
  - Daily situations will be adapted for the Wheeler playground and Kindergarten ages.
  - Instead of “touching flowers” student will drink from their sources of nectar-- juice boxes.

Migration Game Daily Situation Rules

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|--|--|---|
| <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 to find a juice box, open it and take one drink.</p> | <p>Last night was cold, but today the sun is shining. If your Monarch tag has 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 number you must shiver for 10 seconds to warm up your flight muscles.</p> | <p>Today is very windy! You keep getting pushed backwards during your migration. For each hop forward you must take two steps back.</p>   |
| <p>You have gotten off path, away from nature, toward where people live. You must hop side to side to avoid cars.</p>  | <p>Today is sunny, but rain begins to fall. You must hop side to side to avoid any raindrops touching your wings.</p>  | <p>You have encountered the Gulf of Mexico on your journey and must fly around it. In order to continue on your journey you must hop around the playground before getting back on course!</p> |
| <p>You have come across across big agricultural fields and it is difficult to find any nectar. You must drink from your juice box before you can move!</p>   | <p>It is 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 big cluster of shade!</p>   |

**Explain:**

- Explain the daily situations the butterflies faced during the game.
- Define the vocabulary terms **weather** and **food supply** in the context of the activity; transitioning into discussion of the naturally occurring challenges of migration, as well as the man made challenges that have made it increasingly difficult for Monarchs to migrate.

- Propose the question: “Monarchs are unable to survive cold weather, forcing them to go to warmer locations. Do any of you have family who live in other parts of the world? what is the weather like in those places? Out of those places, where would the monarchs like to go?”
- Now, ask “when did you need to drink nectar? what activities (out of one hop forward two hops back, flying in residential areas) were most difficult for you?”

**Extension Activity/Questions:**

- Explain that before monarchs migrate they must grow into strong butterflies and when they are born determines where they get to fly.
- Ask students to all take a minute to remember the month of their birthday.
- Ask all of the students born from March-July to stand on one side of the room
- Ask the rest of the student to stand on the other side
- Explain to students that monarchs born March-July fly north (toward Canada). Point into the northbound direction and ask you March-July born “monarchs” to fly there
- Now explain that Monarchs born Aug-Feb fly south (toward Mexico). Point to the southbound direction and ask your Aug-Feb born “monarchs” to fly in that direction

**Evaluation Activity:**

- Ask students to now sit down in a circle on the carpet. Go around the circle and ask each student to share one thing they learned about butterflies during today’s lesson.



# Monarch Migration Map

