

The Bio/Diversity Project

Lesson Title: Migratory Pollinators

Teacher: Zabrina & Emma
 Grade Level: 6th
 Lesson Length: 55 minutes

This lesson has been adapted from: <https://journeynorth.org/tm/monarch/CycleAnnualTG.html>

AZ Science Standard:	<i>6.L2U1.13</i> Develop and use models to demonstrate the interdependence of organisms and their environment including biotic and abiotic factors.
Learning Objective:	- Students will be able to describe 3 important reasons why pollinators migrate.. - Students will be able to explain what factors help/inhibit migration.
Scientist of the Week:	• <i>Edwin Juarez</i>  • • <i>Wildlife Biologist</i> <i>Located Phoenix, AZ. From El Salvador.</i> - He was passionate about wildlife and nature from a very young age in El Salvador. This influenced the work he is doing today. - He planned and implemented various bird conservation projects throughout Arizona.

Vocabulary	Materials



● Direction ● Survival ● Pattern ● Reproduction ● Migration ● Abundance	● <i>Powerpoint</i> ● <i>Migration puzzle</i> - 15 copies (class set) ● <i>Monarch Butterfly Population decline video</i> ● <i>Monarch Butterfly Risks Cards</i> - 15 copies (class set)			
Seasonality:				
<i>Monsoons</i> July-Sept.	<i>Autumn</i> Oct.-Nov.	<i>Winter</i> Dec.- Feb.	<i>Spring</i> Mar.-Apr.	<i>Dry Summer</i> May-June
Guiding Questions: ● What kinds of animals migrate? ● What are the advantages/disadvantages of pollinator migrations? ● How has habitat fragmentation and destruction affected migration patterns of Sonoran Desert pollinators?				

Engagement/Introductory Activity:

- Students will come in and we will display a series of migration trend graphs/maps that show the rates and movements of Monarch butterflies. This will act as their “bell work” for the day.
- Show the students 3 different graphs/maps and ask students to write down what they infer the graph/map is showing. Ask them to be as specific as possible.
 - What do the different colors represent? What might be a possible key? What might be the labels of the x/y axis? What concept might the graph/map be trying to explain to us?
- Introduce the overall goals of the lesson as a segway from the graphs/maps to explain the key points of pollinator migration.

Exploratory Activity:

- Start by exploring the annual migration of Monarch butterflies through [this website](#) (this website is also linked on slide 8 of the ppt. when you click on the two butterflies).
 - Before you press play on the map, ask students where they think the pattern of butterfly migration will be?
 - Ask students why they think that monarch butterflies migrate in this way? This could be due to the weather conditions, availability of food sources, etc. **Monarch butterflies migrate north in search of a plant called milkweed where they like to lay their eggs for the next generation.**
- Give students [this puzzle](#) that shows the steps of monarch migration, and with their elbow partners, have them put the puzzle pieces in the correct order.

Explain:

- Bring the class back together for a small discussion after students have finished putting their puzzle together.
- Ask these questions for further discussion:



- What migratory **patterns** do we notice?
- For what **reason(s)** do monarchs migrate?
- Why is migration important for **pollinators**?
- Talk about the answers to these questions with them and further explain that monarchs “overwinter” in mountain areas of Mexico during the winter months, roughly from October to November. Define overwintering - where an animal/organism spends or waits out the winter, usually warm areas.
- Explain that March-Oct. monarchs migrate and reproduce up to 4 new generations. Discuss how monarchs are able to know what direction to migrate (north).

Extension Activity/Questions:

- Explain that while monarchs go on their migratory journey, they also are a threatened species.
- Show [this video](#) which covers a few reasons why monarch populations have declined in recent years.
- Pass out [cards](#) to groups of 3 that display three different terms of why monarchs are in danger (habitat loss, pesticides/herbicides, climate change), the corresponding definitions to these terms, and their corresponding consequences.
- Have students match the terms to their definitions and their corresponding consequences.
- Ask students to share:
 - What threat are they most concerned about towards monarch butterflies?
 - Ask if they have any ideas on ways that these problems can be solved.

Evaluation Activity:

- We will have our students play a Kahoot quiz on their chromebooks at the end of class.
 1. Monarch butterflies migrate north in search of a plant called _____.
 - a. Milkweed.
 2. What has monarch butterfly’s population decline been impacted by?
 - a. All of the above. (Habitat loss, Climate change, Pesticides & Herbicide.
 3. (T/F)Climate change can impact the migration patterns of monarch butterflies, leading to mismatches in the timing of their life cycle events.
 - a. TRUE
 4. Up to how many generations of monarchs are created in one annual cycle of breeding?
 - a. 4
 5. Why is migration important for pollinators?
 - a. Food and reproduction

Link: <https://create.kahoot.it/details/ad198c52-5d54-43a1-ac24-67a61e1ab816>