



# Lesson 4: Monarch Migration Game

## Key Concepts:

- To survive their migration to Mexico, monarchs face many challenges.

## Skills:

- Listening to directions
- Relating game activities to monarch migration biology

## Materials:

- *Kid-Sized Monarch Tags*, one per child (teacher page)
- Situation cards (teacher page). These may be cut out and taped to index cards, if desired.
- Cardboard sun and cloud (large enough to be seen from a distance)
- Signs that say Mexico and Minnesota (or other northern home of monarchs)

### Optional:

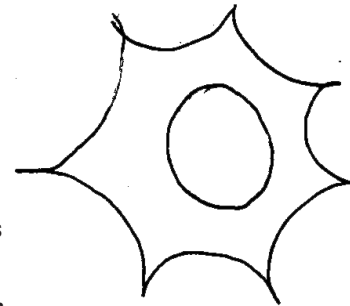
- 2-4 small cups/student (dixie cups or medicine-sized cups work)
- Juice or water to put in the cups
- One drinking straw ("proboscis") for each child
- A long rope or playground cones to outline a water hazard
- Extra adults to act as roosting sites and monarch taggers (students can also do this)

## Objective

Students will play a game that illustrates the challenges faced by monarchs that migration to Mexico. These challenges include finding enough to eat, dealing with often adverse weather conditions, and avoiding external sources of mortality.

## Background

This game gives students a chance to pretend that they are monarch butterflies migrating to Mexico. While much of its appeal is that it is simply fun for students to play, it teaches students some of the hazards butterflies face on this migration, and introduces them to the concepts of choices and tradeoffs for animals. It is best played on a rather large field, with one end designated as the northern beginning of the journey, and the other designated as the monarchs' destination, the overwintering grounds in Mexico.



To prepare for the game, read the background material on monarch migration, and other available information. If possible, involve your students in the *Monarch Watch* tagging program. Study monarch migration and migrations of other animals with students.

## Procedure

The goal of the game is for the students to get from Minnesota (or another northern state) to Mexico. It is not designed to be competitive, although some students will get there first. Adding "nectar cups," adults with tags, and a water hazard all make the game more complicated, but add realism and excitement. An adult leader will stand on the edge of the field holding a large cardboard sun and clouds. The students will only be able to travel when the sun is raised in the sky, and when it is not covered by a cloud. The leader will make the sun set behind her/his back to indicate nightfall. The same leader, or another adult that can move close to the students, will read situation cards that present realistic conditions that monarchs might face.



1. Set up the playing field with signs for Minnesota and Mexico at opposite ends. If desired, outline a large lake with rope or playground cones somewhere in the middle of the field. Also if desired, fill small cups with water or juice, and place them around the field (not

in the “water”). Scatter adult helpers, or about 1/3 of the students, around the field to act as night-time roosting sites. They can also be equipped with tags if you want to include a chase by monarch taggers in the game.

2. Tell students that they are monarch butterflies about to begin their journey from Minnesota to Mexico. They need to think like a butterfly, and follow these rules:
  - They must hop instead of walk or run, and flap their arms like wings. Have them all practice this.
  - If you have cups with nectar, they need to drink from a nectar cup every day through their “proboscis” (or every other day if you have lots of kids and a limited supply of cups).
  - They can only “fly” when the sun is out.
  - When the sun goes down, they must get to a roosting tree within 5 seconds. They must also get to a roosting tree when the sun is covered with a cloud (tell the students this means rain, and monarchs can’t fly when it’s raining). Show the students how the sun looks when it is out, and how it sets behind the back of the adult in charge.
  - If you use the lake hazard, they can fly over the lake, but if the sun sets or is covered by a cloud while they are over the lake, they will drown. You can have them go back to the north side of the lake, or to the start, if this happens, so that no students have to leave the game.
  - At the beginning of every day, they must listen to the situation card, and follow the directions.
3. Distribute a straw “proboscis” to each child.
4. One or two adults should stand on the edge of the field, and hold the cardboard sun and clouds. They should be ready to read one situation card at the beginning of each day.
5. Students should start near the Minnesota sign on one end of the playing field. They can start “flying” south when the sun goes up. Have them keep an eye on the sun, and head for a roosting site if it goes under a cloud and when it sets.
6. The leader should make the sun set often enough so that it takes at least 5 days to get all the way to Mexico, and cover the sun with clouds often enough to keep the students (butterflies) on their toes (tarsi).
7. At the beginning of each day, the leader should read a situation card. This tells students how fast they can fly, and other weather conditions that will affect their flight.
8. The game ends when all students have gotten to the overwintering site in Mexico.
9. After the game, discuss what aspects of the game were realistic, and what hazards monarchs might face on their journey in addition to those in the game. Discuss how long the journey really takes, and talk about the odds of successfully making the entire journey.



## Situation Cards

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| <p><b>SUNNY, 55°.</b> Shiver to warm up your flight muscles. Tell why you can't fly with cold muscles. Count to 10 slowly, then fly.</p>  | <p><b>SUNNY, 70°.</b> Flowers for nectar are between 2 highways. Tiptoe away from your roost and find nectar.</p>  |
| <p><b>SUNNY, 60°.</b> If your tag is an odd number, you roosted on the sunny, eastern side of the tree. Odd numbers fly first, even numbers shiver for 5 seconds then fly. (This only works if students all have tags.)</p> | <p><b>SUNNY, 55°.</b> Some flowers were killed by the frost last night, and there isn't much nectar. If your tag is an even number, you found nectar and may fly. (This only works if students all have tags.)</p> |
| <p><b>SUNNY, 70°. SOUTHWEST WIND</b><br/>You want to go south, but the wind is blowing against you. You need to make up for the push of the wind. Hop backward toward the west.</p>   | <p><b>PARTLY CLOUDY, 75°.</b> Fly, but watch the clouds for rain and keep you eyes out for safe roosting sites</p>   |
| <p><b>SUNNY, 75°.</b> There is a north wind!<br/>Fly fast and far today.</p>  | <p><b>RAINY, 55°.</b> Stay at your roosting site. Discuss what weather is best for migrating.</p>  |
| <p>People with nets are out tagging monarchs. You may be tagged, so fly fast. (Roosting sites should chase monarchs and tape a tag on any they catch.)</p>  | <p>You've come to a big lake or the Gulf of Mexico. Go all the way to the west side of the field before heading south.</p>   |

# Kid-Sized Monarch Tags

