



# Lesson 3: Map the Monarchs' Route

## Key Concepts:

- Monarchs must travel a long distance to reach their wintering locations.
- During their migration, monarchs face a number of obstacles.

## Skills:

- Map reading
- Measuring distances on maps
- Creative writing
- Book-making

## Materials:

- Large wall map of North America (including Mexico, a topographic map is best)
- Background books on U.S. states, Mexico, and Canada
- Books on monarch migration: *The Travels of Monarch X* by Ross Hutchins (for fall migration), *An Extraordinary Life: The Story of a Monarch Butterfly* by Laurence Pringle and *The Moon of the Monarch Butterflies* by Jean Craighead George (for spring migration) are excellent resources; additional books appear in the bibliography
- *North America Map* (student handout page) for each student
- Materials for student-made books (construction paper, story paper)

## Objective

Students will devise monarch migration routes, learning what monarchs might encounter during the fall and spring migrations.

## Background

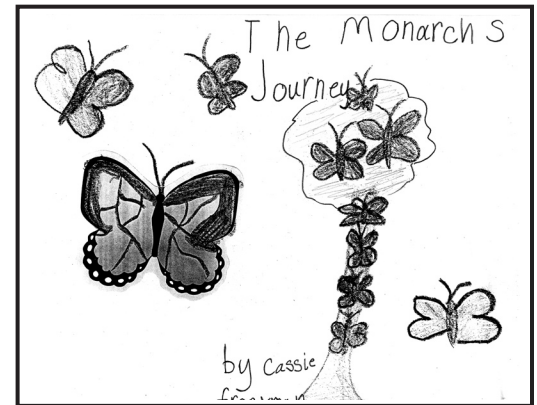
This lesson will take several days to complete, and may be modified by omitting one season or dividing it into two parts, fall and spring migration, each part covered at a different time during the school year. Students may also work together as a class to devise one route and one book with small groups of students making one page per state.

It is important for students to understand how many unanswered questions there are about monarch migration. For example, while we do know that monarchs start leaving the northern part of their range in the second half of August and start arriving in the colonies early in November, we don't know how long an individual takes to make the trip. We also don't know how far north most butterflies get after they leave the colonies in March. Thus, while it is important for students to study what is known and make their reports as accurate as possible, there is plenty of room for student creativity and hypothesis generating.

## Procedure

### Part One: Background Discussion and Mapping

1. Describe the monarchs' migratory cycle, highlighting the states that they travel through.
2. *Optional:* For purposes of envisioning the conditions encountered along the migratory route, read one of the books suggested in the materials list. Note that *The Travels of Monarch X* was written prior to the time the colonies were discovered in 1975. Since then, we have learned that monarchs form their colonies in the Transvolcanic mountains in the Mexican states of Michoacan and Mexico.
3. Map the route. Devise a hypothetical route that a monarch might travel (e.g.: MN, IA, MO, AR, TX, MEX for the fall migration) and have students circle cities or places that the monarch might pass on a large wall map. Draw lines connecting these locations to show the route the monarch followed. Tell students that the distance traveled each day varies a lot, but that they can go up to 100 km or more on a



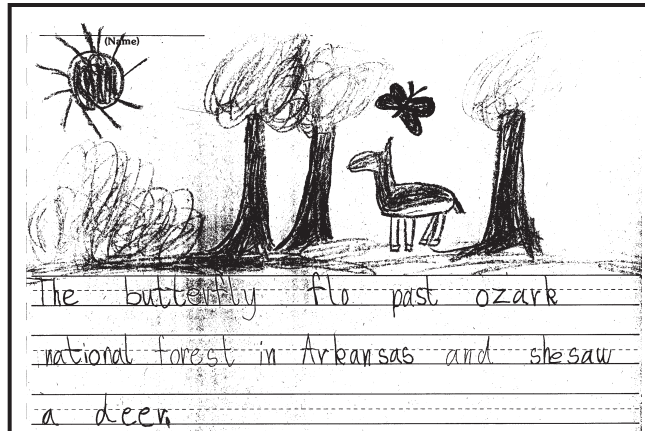
good day.

4. Discuss the following questions.

- *What are some of the dangers that monarchs can face along their route?*
- *How can weather affect the journey?*
- *How far does a monarch travel from our state (or a northern state) to Mexico?*
- *Will it travel the same distance each day? Why?*
- *How long will the journey take?*
- *Can you imagine how difficult such a journey might be for so small an animal?*

## Part Two: Research and Book Making

1. Tell students that they will design a route for a single monarch butterfly to take to Mexico. They can use the route discussed in part one, or make up another one.
2. Have students first locate where their monarchs will start and end the journey.
3. As a class, discuss the route monarchs will take on their way to Mexico and have students locate the states through which the monarchs will travel on the wall map.



4. Have students brainstorm about sights and obstacles the monarchs might encounter along the way and list these on a chart.
5. Have students design a route for their butterflies. They may devise one route as a class or each student may design his/her own route. Have them list each state and country through which the butterfly will travel.
6. Have students look at picture books about each state or province that is on their list, including Mexico, looking for the following:
  - *typical sights and landmarks (corn fields, cities, St. Louis Arch, etc...)*
  - *plants and animals typically found in that state*
  - *geographical features (lakes, rivers, forests, mountains)*
7. As a class or individually, have students make a book of the butterfly's journey. If this is a class project, have each student write one page of the book that describes the monarch's journey through a single state or province (and Mexico), making sure that each state is covered by at least one student. Include illustrations. In individual projects, each student will create a page for each state on their butterfly's journey. Each page should include the name of the state or province and sights or landmarks in that state (from the student's research). You may want students to add weather information and/or construct a story or adventure around the travels of their monarch on its route.
8. Have students trace their butterfly's route on the map of North America to be included in their book.
9. Have students assemble the pages into a book. Be sure to have them include a cover!
10. Have students develop an index for their book, listing states along the route alphabetically and their page numbers.

