

# Life on the Flyway

Exploring the migratory paths of birds on the Mississippi  
Flyway  
and the impact humans are having on their journey

Stacey Sigwarth  
7<sup>th</sup> Grade Math Teacher  
Eleanor Roosevelt Middle School

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National Mississippi River  
Museum & Aquarium



# Part I: Overview of Workplace

The National Mississippi River Museum and Aquarium is located in Dubuque, Iowa. Since opening in 2003, it has served as a museum, aquarium, and science center to guests of all ages! They offer a variety of learning experiences on and off-campus through their exhibits and outreach learning programs.

They also partner with the Dubuque County Historical Society, which operates the Mathias Ham Historic Site.



## Part II: Workplace Focus

The education department is responsible for providing programming for guests both on and off-campus. On campus, educators are stationed throughout the buildings providing live demonstrations and informing guests about exhibits and animals. Off campus, they travel to provide interactive presentations to children at schools, libraries, and other groups. These visits often provide an opportunity to meet a live animal and do an activity.

My work with the NMRMA was learning about the current programs while also contributing to new ones- primarily a project focusing on the migration of birds along the Mississippi Flyway. I also spent time in their new Makerspace exhibit facilitating STEM activities for museum guests.

# Part III: Introduce the Problem

When we think of the animals that travel using the Mississippi River, we primarily think of fish and other aquatic animals. However, the Mississippi River also serves a critical role as a Flyway- guiding the birds as they travel from Canada to Central America and places in-between. More than 325 bird species use the Mississippi Flyway as their migration route. However, each year their journeys are becoming more and more difficult as their access to resources lessens. Birds are an important part of the ecosystem, and our behaviors can impact wildlife. How can we help?

- Learners will be able to name the reason(s) it is advantageous for birds to migrate.
- Learners will identify hazards to bird populations and migrations
- Learners will identify a way that our community can help birds and create a plan of action/PSA

# Part IV: Standards, Driving & Essential Questions

## Iowa Core Math Standards:

- 7.RP.A: Analyze proportional relationships and use them to solve real-world and mathematical problems.

## NGSS Science Standards:

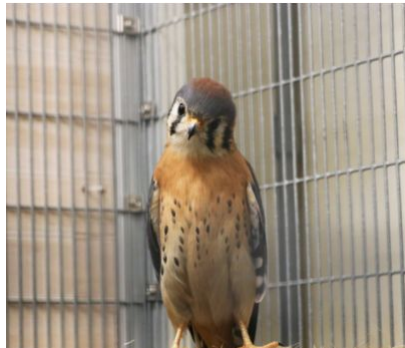
- MS-LS2-1: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.
- MS-LS2-2: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.

In this cross-curricular lesson, students will use math and science skills to explore the idea of bird migration and birds' crucial role in our ecosystems. Math skills will be incorporated through activities focusing on resource needs and availability by calculating distances from a map scale and computing unit rates related to distance, time, and food needs. To end the lesson, students will take what they've learned and brainstorm solutions to the hazards presented to birds on their migratory journeys.

# Part V: Extern Host Role

This lesson was developed with the National Mississippi River Museum and Aquarium. Curator of Education, Jennifer Drayna, oversees the education department at the NMRMA.

Their role will be giving a presentation focusing on bird migration and introducing live birds from the NMRMA. These animal ambassadors include an American Kestrel, Barn Owl, and a Red-Tailed Hawk.





## Part VI: Student Learning

The presentation given by the NMRMA will be part of the students' introduction to their proportional reasoning unit in math class and their life science unit in science class.

- Within the presentation, students complete an activity calculating the distance, rate, and amount of food needed for the migratory routes of three types of waterfowl.
- At the end of the presentation, students are asked to brainstorm ways humans impact migration and bird populations and what we can do to help instead of harm.
- This leads them into the project as they continue to learn about how all parts of an ecosystem interact, and can make additions to or revise their ideas as needed.
- In culmination, students will create a public service announcement identifying the hazard and their plan of action. These could be shared back with the NMRMA or community in another way.