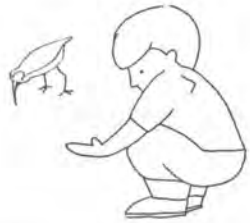


Dynamite Ducks Departing

Overview: In this activity, students study the migration of mallard ducks by hearing a story, playing a migration game and coloring a mallard duck picture

Content Standards Correlations: Science, p. 292

Grades: K-4

Key Concepts: Migratory birds, such as the mallard ducks, move between northern nesting grounds in the summer and warmer southern areas for resting in the winter. They need wetlands to feed and rest, San Francisco Bay is one of these habitats.

Objectives:
Students will be able to:
- define migration and explain why birds migrate
- name three hazards encountered during migration.

Materials:
Part 1: Mallard Story
- Find a picture of mallards to show while reading the story

Part 2: Play the Game
- Crayons
- Scissors

Each student:
Grades K-2:
- Copy of map without chart and directions, p. 155

Grades 3-4:
- Brad for spinner
- Copy of game circle and map, p. 155, 156

Optional
Part 3: Color the mallard duck, p. 157
- Crayons

Time: 30 to 40 minutes

Supporting Information for This Activity

- Migration means that birds leave one area and fly to another. They may migrate because a place becomes too cold for them or there's no longer enough food . When the seasons change and there's more food the birds fly back to their first homes.
  - Every year throughout North America ducks, geese, and a number of other types of birds make very long migratory flights usually along routes called flyways.
  - In the summer month birds breed and raise young in the north where there is an abundance of food and space. Birds travel south to warmer climates in the winter, but return every summer to the north for the breeding season.
  - Times and distances of migrations are not the same for all birds. Ducks do not begin their migration until fall, around August or September. Migratory birds may travel during the day, night, or continuously. Some birds migrate thousands of miles, while others travel less than one hundred miles. Some have a leisurely migration, while others fly swiftly to their destination.
  - Most migratory birds have very powerful flight muscles, highly developed respiratory systems, hollow bones, internal air sacs, and specialized body shapes, all of which allow birds to fly high, fast, and for long periods of time.
- The routes that migratory birds take on their journeys are called Flyways. The Pacific Flyway is a major migratory bird "highway" and the San Francisco Bay Area is one of the most important stops on the west coast.
  - The San Francisco Bay is an important part of the Pacific Flyway. The wetlands around San Pablo Bay provide important resting and feeding grounds for migratory birds. Many birds stop in at the wetlands to eat little creatures in both the mud and waters around the Bay in order to build up fat supplies so they may continue their journeys.
  - One reason the San Francisco Bay National Wildlife Refuge exists is to protect migratory birds. The refuge preserves wetland habitats for resting, feeding, nesting, and wintering, therefore is especially vital to the survival of migratory birds.

- Some birds are flying from their breeding grounds in arctic Canada and Alaska to their wintering grounds in Baja California or South America; others nest here, but migrate to milder climates in the south for the winter; some birds spend their winter in marshes of San Francisco Bay and fly north to breed; other birds do not migrate at all - they remain in the area as permanent residents.

- **Ducks** are one type of waterfowl. Male ducks usually have very colorful feathers, while the females blend in with their surroundings. This makes it harder for the predators to find and harm them, their young, or their eggs.
  - *Diving Ducks*, such as the Ruddy Duck and the Canvas back, swim around and then dive completely under water to feed off the plants, fish, and other small creatures that live below the surface. They can swim underwater for a minute or longer before coming up for air. The diving ducks need a runway because their wings are small and further back on their body. This design is best for diving.
  - *Dabbling Ducks,* such as the Shoveler and the Mallard, feed off the water's surface while swimming. They do not dive for food; although you may see them plunge head first into the water leaving their tails sticking straight up. An interesting site! Dabbling ducks can take off straight up because their wings are larger than those of a diving duck, and they are more forward on their body. This design is best for a quick take-off.
    - *Mallards* are the most common wild duck in North America. They are the ancestor to most types of domesticated ducks. The mallard eats a large variety of food, including seeds, roots of marsh plants, insects, snails, tadpoles, earthworms, and small fish. The male is easily identified by his green head, white ring around his necks, and a blue patch on his wing. The female is mottled brown with a purple patch on her wing.

Teaching Method

Part 1:

Story: Mallards on the Move (10 minutes)

Read

"Today we are going to learn about bird migration by playing a migration game. First I will read a story about a pair of migrating mallard ducks."

Do

Get students ready to listen. Show the picture of the mallards and begin reading.

Mallards on the Move

"Allow me to introduce Marilyn and Michael, my mallard friends. Marilyn is a female mallard duck. Her bill is orange with some black on the top beak. The feathers on her head and body are brown and blackish brown. When Marilyn is flying, people can see that she has a patch of purple feathers between two white band on her wings. Michael is a male mallard duck. His bill is yellow with a black tip. His head and neck are shiny green. He has a white collar and a brown chest. His wing feathers are greyish-brown with some white on his body feathers. Both Marilyn and Michael have orange feet. When Michael is flying, people can see that he has a patch of blue feathers between two white bands, similar to Marilyn.

"During the year people live in their houses in _____(your city or town). They might go to the beach during the summer, but mostly they stay at home. For ducks like Marilyn and Michael, life is very different. Using the Pacific Flyway, they will leave San Pablo Bay National Wildlife Refuge in the spring and fly north to the prairies and parklands of Canada. Marilyn and Michael enjoy living in Canada because there is plenty of food and space for them and their friends.

"In Canada, Michael and Marilyn will mate. Marilyn will lay 8-10 olive green eggs; she will keep them warm by sitting on them. In approximately 27 days the mallard ducklings will hatch! Before the ducklings hatch, however, Michael needs to molt (replace old feathers with new ones). For nine months Michael has been wearing colorful plumage to help him attract Marilyn. Now that he has mated, he is ready to exchange his worn feathers for new

ones. In order to do so, he leaves Marilyn and the eggs and goes to his favorite lake. First his body feathers fall out and are replaced and then his wing feathers drop off. Until his new wing feathers grown back (in 3-4 weeks) he is unable to fly, so he hides among thick weeds in the water. Marilyn molts too, but she waits until the ducklings can survive on their own. After the ducklings hatch, they will grown and learn to fly throughout the summer. When the weather gets colder in the fall, Marilyn and her ducklings will fly south, and back to San Pablo Bay. Marilyn quacks as she flies through the air."

Do
Have all the girls quack like Marilyn:
"quack-wack-wack" (loud)

Read
"Michael also quacks as he flies south for the winter, but he migrates on his own."

Do
Have all the boys quack like Michael:
"kwek, kwek" (low-pitched)

Read
"While migrating, Marilyn and her family use the location of the ocean, rivers, mountains, and the stars to guide them throughout their journey to San Pablo Bay. During their trip south, Marilyn and the ducklings rest and feed at wetlands found along the Pacific Flyway.

Finally they arrive in California, where it is nice and warm. Marilyn can see her usual resting spot from high in the sky; a wetland area with lots of floating surface plants and waterbugs to feed from. Down here and the ducklings fly, gliding toward the shallow water.

Marilyn and the ducklings will stay in California until it is warm enough to fly back to Canada. Once they return to Canada they will mate, have more ducklings, and make the same long journey the following year.

Part 2
Play the Migration Game (20 minutes)
(Grades K-2)
Do
Play the game as a class. Enlarge the game circle so the whole class can see it. Each student needs a copy of the migration map (without the recording chart and directions) and a penny. Students can color their map before the game begins. Spin and tell the students if they are to move forward or backwards and discuss how each move helped or hindered the mallards migration to their nesting grounds in Canada.

(Grades 3-4)
Do
Each student plays their own game. Copy game circle and spinner on card stock. Students color and cut out their game circle and assemble with spinner. Each student needs a copy of the migration map and a penny.

As they play their own games have the students chart how many times they had to move backwards because of these hazardous conditions: loss of habitat, pollution, bad weather, over crowding. When all mallards have made it to their nesting grounds discuss which hazardous conditions can be prevented and how.

Part 3
Color the Mallard Duck (10 minutes)
Do
Pass out copies of the mallard duck coloring page to each student.

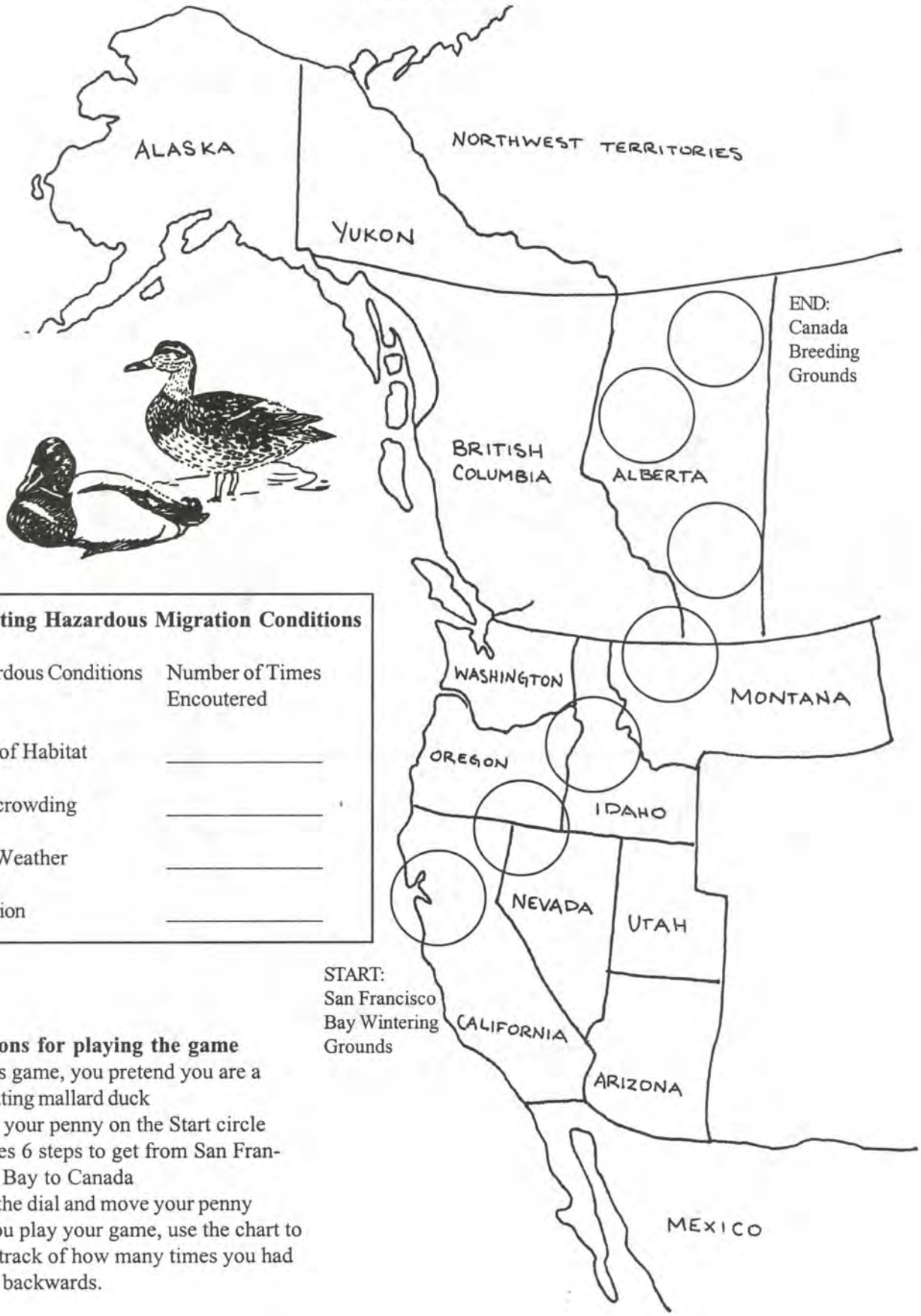
Read
"The boys will color the mallard duck with the male coloring and the girls with the female coloring. Both male and female mallard ducks have a patch of blue feathers between two white bands. Can you see them on the coloring page? Also, you can add more body feathers to your drawings."

Do
Go over the colors with the students from the story. Before they color their pictures, ask the students what colors they can recall from the story and picture of the male and female mallard.

Idea for Writing Topic for Language Arts
Students can explore:
- creative writing by making up a story about their mallard migration.

Dynmite Ducks Departing Game
(Spinner with Game Circle)

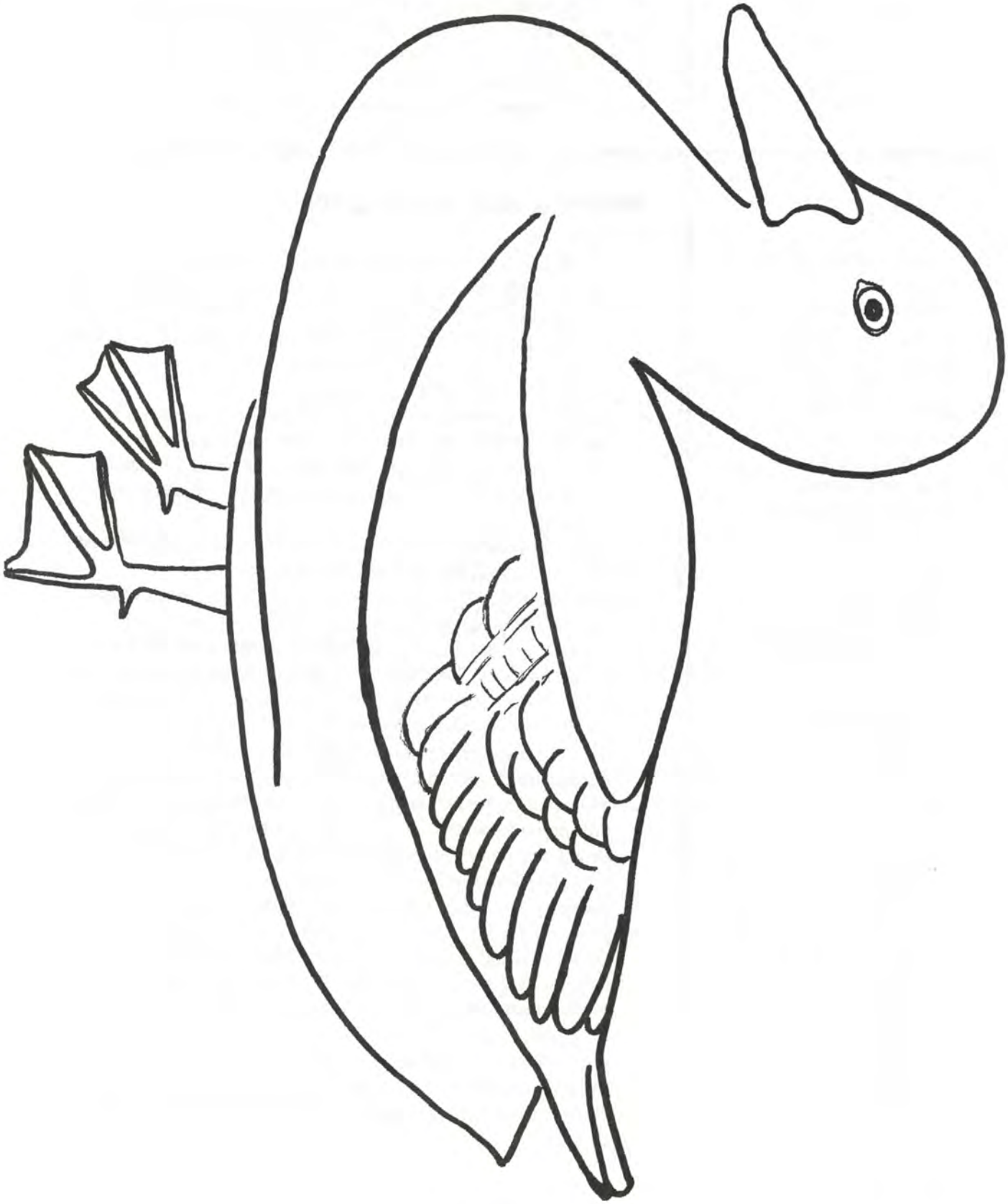
PACIFIC FLYWAY



Charting Hazardous Migration Conditions

Hazardous Conditions	Number of Times Encoutered
Loss of Habitat	_____
Overcrowding	_____
Bad Weather	_____
Pollution	_____

Directions for playing the game

- In this game, you pretend you are a migrating mallard duck
- Place your penny on the Start circle
- It takes 6 steps to get from San Francisco Bay to Canada
- Spin the dial and move your penny
- As you play your game, use the chart to keep track of how many times you had to go backwards.

Mallard Duck Coloring Page