# Monarch Butterfly Unit

#### Facilitator Guide Adaptable for Kindergarten-1st Grade



Brought to you by:



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Special Thanks to: Oklahoma City Zoo Oklahoma's Own News 9

#### How to use this guide

This facilitator guide is designed to provide an organized structure and flow for presenting lessons about the Monarch Butterfly. Included in this guide are lesson plans with activity opportunities. There is also a slide presentation that corresponds with this guide to present as you teach.

While this facilitator guide and slide presentation provide detailed guidance and information, feel free to customize these lessons and experiences to fit the needs of your students.

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Sources:

The lessons contain information gathered from many different sources, including:

- Oklahoma City Zoo- okczoo.org
- Okies for Monarchs- <u>okiesformonarchs.org</u>
- National Wildlife Federation- <u>nwf.org</u>
- World Wildlife Fund- worldwildlife.org

#### Resources provided by Oklahoma City Zoo

#### Monarch Videos

- OETA: Dr. Rebecca Snyder Wild Icons- Monarch
- News 9 & OKC Zoo: Lacie Lowry: Oklahoma's Monarch Migration
- OKC Zoo: <u>How to Plant a Monarch Garden</u>
- Ted Talk: Mary Ellen Hannibal How you can help save the monarch butterfly and the planet
- Ted Ed: Colm Kelleher <u>The science of symmetry</u>

#### Movies/TV Shows

- Flight of the Butterflies: Amazon Prime
- The Magic School Bus: Butterfly and the Bog Beast
- Wild Kratts: Voyage of the Butterflier

#### Monarch Books

- Juniper's Butterfly Garden by the OKC Zoo (5-8 years)
- Caterpillar Spring Butterfly Summer by Susan Hood and Claudine Gévry (2-4 years)
- Señorita Mariposa by Ben Gundersheimer (2-5 years)
- Gotta Go! Gotta Go! By Sam Swope (3-6 years)
- Hurry and the Monarch by Antoine O Flatharta (5-8 years)
- Monarch Butterfly by Gail Gibbons (4-8 years)
- A Butterfly is Patient by Dianna Hutts Aston (5-8 years)
- Martha Milkweed Has No Friends by Flora Caputto (5-10 years)
- *The Mystery of the Monarchs* by Barb Rosenstock (4-8 years)
- *Monarch Butterflies* by Ann Hobbie (7-8 years)
- *Mr. McGinty's Monarchs* by Linda Vander Heyden (6-9 years)
- Save the Bees by Bethany Stahl (8 9 years)
- Winged Wonders: solving the monarch migration mystery by Meeg Pincos (7-10 years)
- Solimar: The Sword of the Monarchs by Pam Muñoz Ryan (8-12 years)
- The Girl Who Drew Butterflies by Joyce Sidman (10-12 years)
- The Monarchs are Missing: A Butterfly Mystery by Rebecca E. Hirsch

## Lesson 1: Basic Needs and Endangered Animals

#### Lesson Summary

This lesson is separated into two parts; introduction to the basic needs of animals and endangered animals. Students will discuss basic needs of animals in addition to things animals do not need. Students will learn what "endangered" means and learn about some animals who are in danger of becoming extinct. The lesson will conclude with a note about the monarch butterfly, which will be studied throughout this unit.

#### **Required Materials**

Slide Presentation: The slides progress in the same order as the facilitator guide. Books:

*Who am I?* by Tom Flach-<u>Video read-aloud</u> if you do not have access to a physical copy of the book.

#### Videos:

- <u>Something is Missing: Animal Survival Needs</u> by Teaching Independent Learners- This video link is available in the slides also.
- <u>Animals in Action video</u> by Jack Hartmann- This movement break can be used at any time during the lesson. Link is available in the slides.

Activities:

- (Optional) Basic needs T-chart printable available below lesson
- Endangered animals coloring sheets
- (Optional) Endangered animals activity- will need 100 dried beans (or other small item to hide around room)

Links:

<u>IUCN link</u> for declaring migratory monarch butterflies endangered.

#### **Essential Question**

What do animals need and what happens if they don't get it?

#### Learning Goal

I can identify the basic needs of animals.

I can explain the primary reasons that animals become endangered or threatened.

Lesson Guide

#### Part I: Introduction: Basic Needs

Open with the discussion question, "What do animals need to survive?". Discuss the difference between wild and domesticated animals and what each group needs to live. Ask for responses of what animals do NOT need to live.

#### Explanation

**Basic Needs T-Chart**-Students will sort images on a T-Chart. They will categorize images based on what an animal needs or does not need. It is okay for students to have wrong answers. Once they learn basic needs, they can come back and correct their T-charts if needed.

There are several options for this activity. They can be completed individually or in combination.

- **Option 1** Larger photos can be printed out and sorted in a T-chart as a class. Display in an area where all students can see the answers and provide input. Answers can also be checked using the answer key slide.
- Option 2- Use the pictures in the slides to sort and then check answers on the next slide.
- **Option 3** The T-Chart and pictures are available as printables at the end of this lesson. Print those for students to cut and paste the pictures in the correct column of the T-Chart. If the pictured item is something an animal needs to survive, it will be pasted under the "yes" column. If the pictured item is not something an animal needs to survive, it will be pasted under the "no" column.

After the sort, present students with the 5 things animals need to survive.

- 1. Food
- 2. Water
- 3. Shelter
- 4. Air- Most animals need air/oxygen to breathe.
- 5. Space- Animals may need room to move around, find food, have babies, and/or play. This doesn't mean "outer space"!

#### Activity

Show the video, "Something is Missing" (link on slide or in Required Materials section). The "Something is Missing" video includes an explanation of animal basic needs. There are scenarios read aloud that allow students to figure out what basic need the animal is missing. There are prompts to pause and discuss in the video.

#### Part II: Introduction: Endangered Animals

Ask and discuss "What happens if animals don't get what they need?".

#### Explanation

Read *Who am I?* by Tom Flach (link on slide or in Required Materials section). This book can be read in full or choose particular animals to read about as time allows. It focuses on facts about different species of endangered animals.

#### Vocabulary

endangered- any type of plant or animal that is in danger of disappearing forever (extinct).

According to the International Union for Conservation of Nature <u>(IUCN) Red List</u>, there are currently more than 40,000 species that are threatened with extinction.

The OKC Zoo is home to many endangered species. The slides contain pictures of these animals and their names. The last slide in this lesson shows a picture of a Monarch butterfly. The International Union for Conservation of Nature (IUCN) declared the migratory monarch butterfly endangered in July of 2022. More information can be found <u>here</u>.

#### Activity

#### Identify Endangered Animals

NOTE: These animals may not be the same as the OKC zoo animals shown on the slides. Coloring sheet activity- Distribute the coloring sheets. There are 8 different animals. There are a few "fast facts" about each animal on the coloring page. Identify each animal and discuss their "fast facts."

Students may need help with pronouncing the names of these animals: Amur Leopard, Green Sea Turtle, Sumatran Tiger, Goliath Frog, Monarch Butterfly, Mountain Gorilla, Red Panda. Once animals have been identified and discussed, students can color their paper.

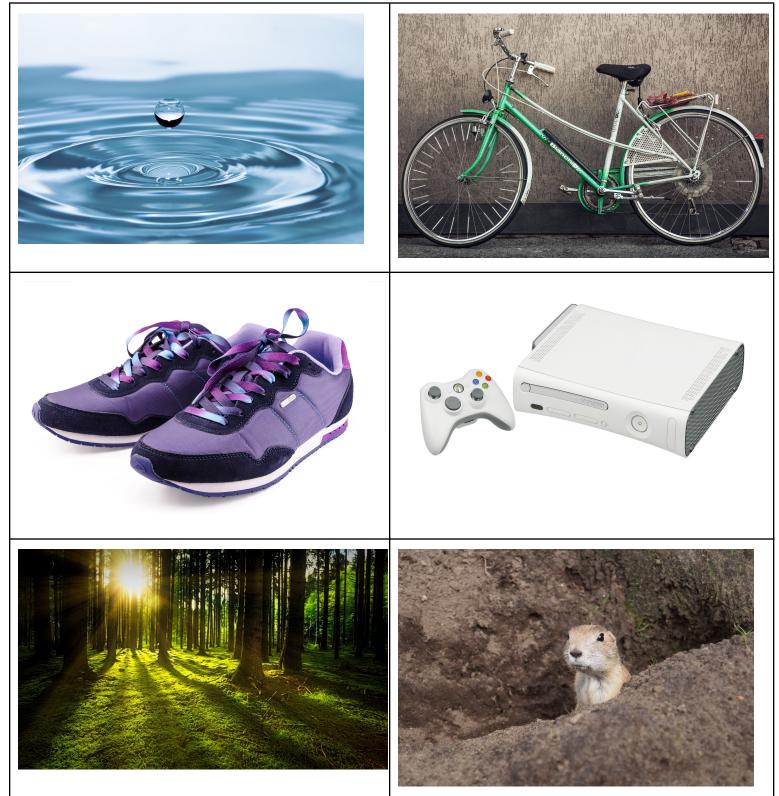
#### Closing

Endangered animals all over the world need our help but there is one particular animal right here in Oklahoma that we can make a big difference for. The monarch butterfly is in danger of becoming extinct for many reasons. The following lessons in this unit focus on these reasons and what we can do to help. The OKC Zoo is working with partners to help and you can be involved too.

## What do animals need to survive? YES NO



Pre-Sort Idea: print images and do a class sort on the board before discussing the slides.



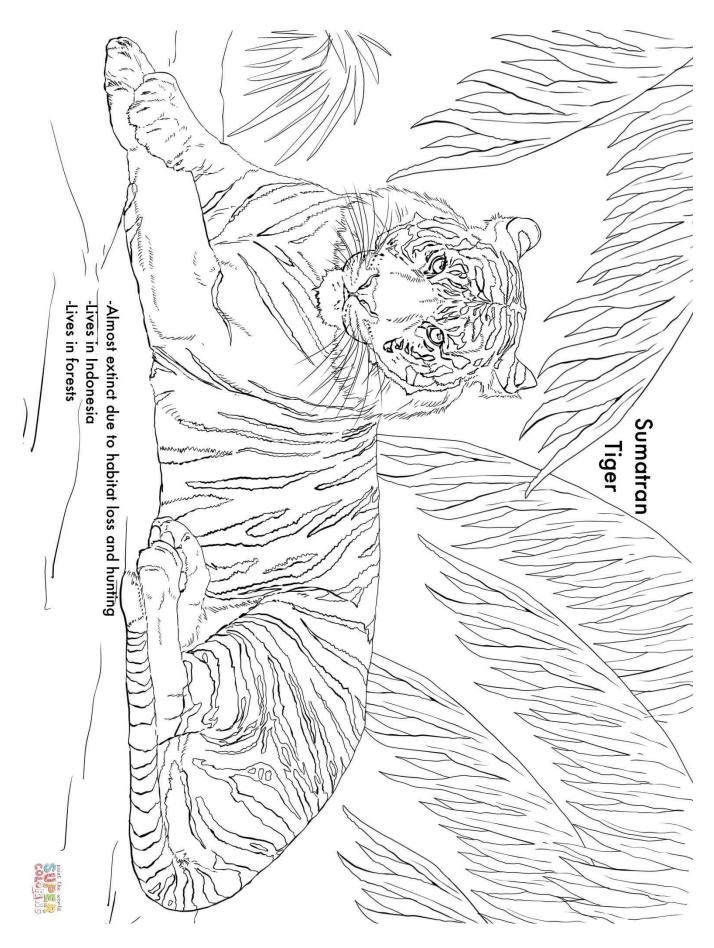


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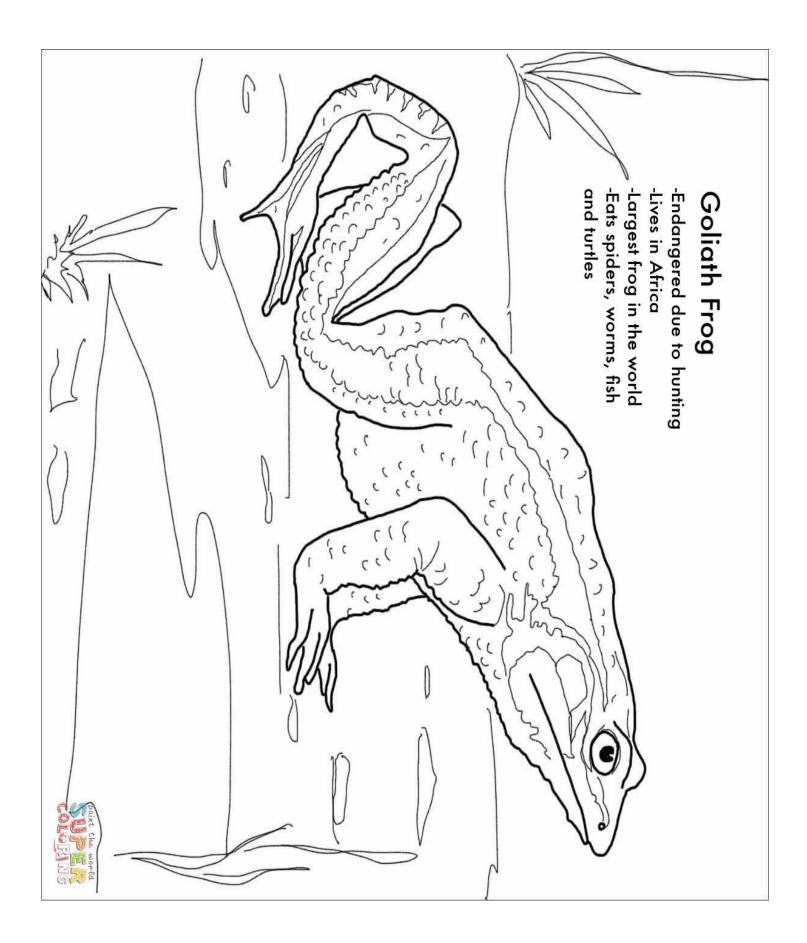
Monarch Butterfly Unit Facilitator Guide, Grades K-1

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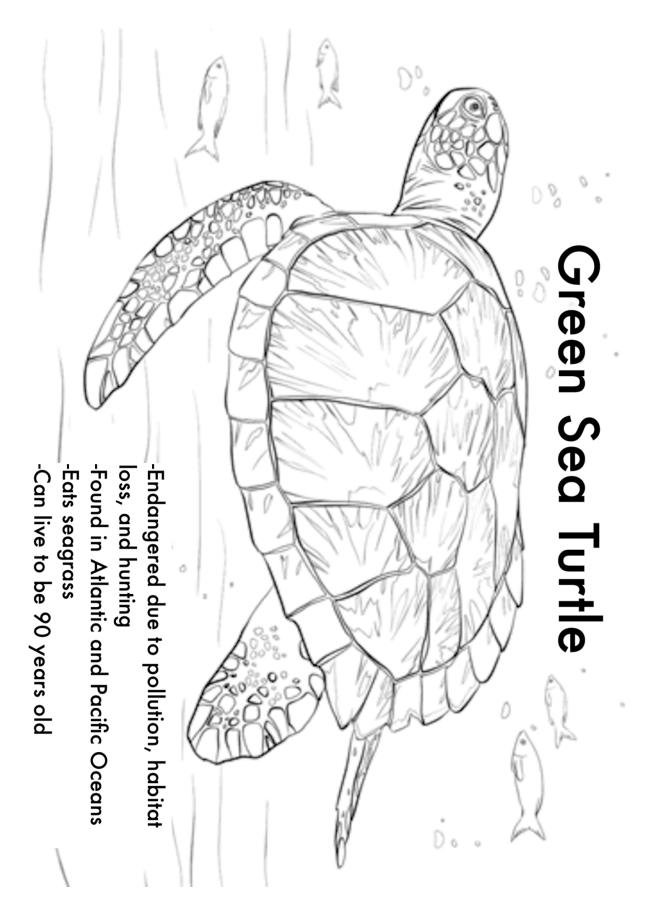
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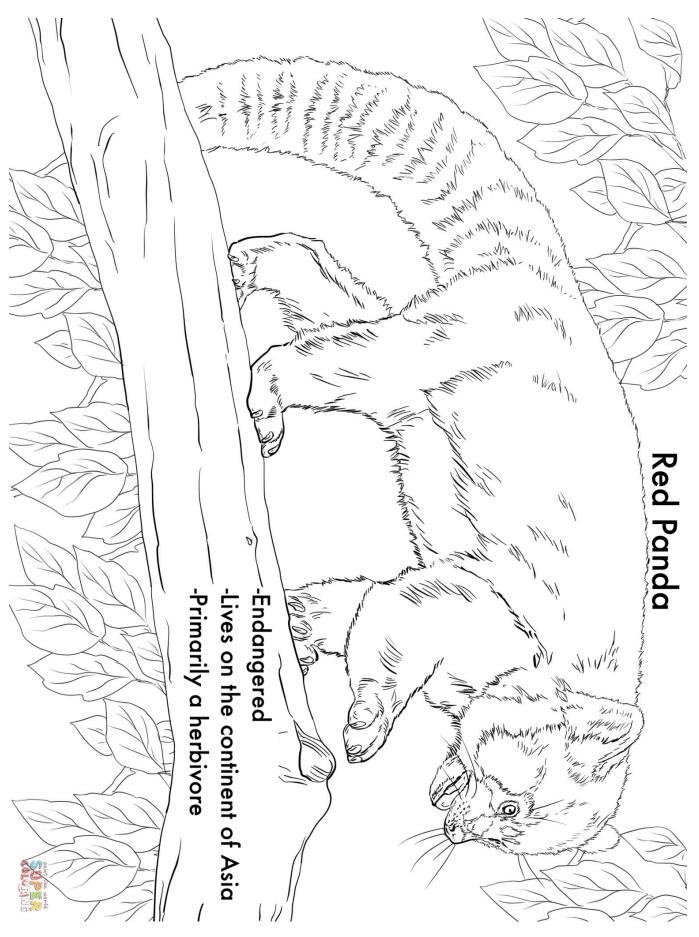




Monarch Butterfly Unit Facilitator Guide, Grades K-1







Monarch Butterfly Unit Facilitator Guide, Grades K-1

## Lesson 2: Monarch Butterfly Life Cycle

#### Lesson Summary

This lesson focuses on the monarch butterfly's life cycle from egg to adult. Students will learn facts about each stage as well as see pictures and a time-lapse video. The lesson calls for gestures/movements to be created for each stage of the life cycle. This allows students an opportunity to move and also helps them memorize the stages.

#### **Required Materials**

**Slide Presentation:** The slides progress in the same order as the facilitator guide. **Book:** 

I Wish I was a Monarch Butterfly by Jennifer Bové (Video read-aloud)

Videos:

- <u>The Amazing Monarch Life Cycle</u> by Science Up with the Singing Zoologist- This video can be shown in place of or in addition to a read-aloud or the corresponding slides.
- <u>Butterfly Dance video</u> by Patty Shukla- This movement break can be used at any time during the lesson. Link is available in the slides.
- <u>Time lapse video</u> by Joshua Russo

#### Activities:

- Role-play
- Life Cycle poster

**Essential Question** 

How does a butterfly grow and change?

#### Learning Goal

I can identify and put in order the stages of the monarch butterfly life cycle.



#### Introduction

Activate prior knowledge by asking questions like this:

- What do you already know about butterflies?
- What do you know about a butterfly's life cycle?
- Do you know the link between a caterpillar and a butterfly?

Show the picture of a monarch butterfly (in corresponding slides) and ask: "What do you notice about the way the monarch butterfly looks?"

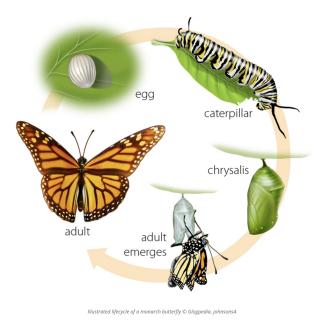


#### Explanation

The life cycle portion of the lesson can be presented through book(s), video, slides, or in combination. The read-aloud and life cycle video are available in the Required Materials section or in the slides.

#### Monarch Butterfly Life Cycle

Life cycle graphic (Glogpedia)



#### Activity

Life Cycle Role-Playing: This activity can be done as you are teaching the lesson. As students learn about each stage, create motions/gestures that represent each step of the cycle. (These motions/gestures can be used in a later activity.)

#### Life Cycle Stages

- 1. **Egg**
  - a. Monarch butterflies lay their eggs on the undersides of milkweed leaves.
  - b. They will lay one egg per leaf but will lay between 300-500 in its lifetime.
- 2. Caterpillar (larva)
  - a. The egg will hatch into a caterpillar.
  - b. The caterpillar has yellow, black, and white stripes.
  - a. The caterpillar has tentacles on their heads and ends.
  - c. The caterpillar eats milkweed nonstop for two weeks.
- 3. Chrysalis (pupa)
  - a. The monarch stays in the chrysalis for 9-14 days.
  - b. The chrysalis will darken when it's time to become a butterfly.
- 4. Adult
  - a. The monarch's wings are wrinkled when it comes out of the chrysalis and take time to straighten out.

b. The new butterfly will hang for several hours before flying off.

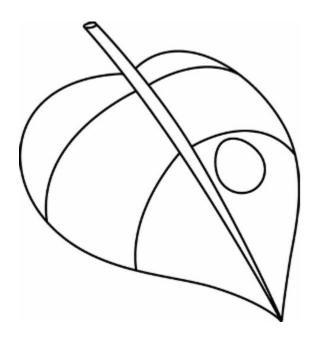
The **time lapse video** of the monarch butterfly's life cycle shows a butterfly's transformation from caterpillar to butterfly and is included in the corresponding slides or linked in the Required Materials section.

#### **Optional Activities**

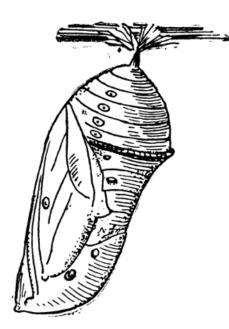
- 1. Role-play: Students can act out the stages of the life cycle using the motions/gestures decided on during the lesson. Possible options:
  - a. Simon Says: Play this game using the stages of the life cycles for the commands.
  - b. Strike-a-pose: Teachers can call out stages and students strike a pose that represents the stage.
- 2. Life Cycle poster: Students can create their own life cycle on paper.
  - a. Copy butterfly life cycle stage graphics for students to use on their poster or students can draw the stages.
  - b. Have students label the life cycle.

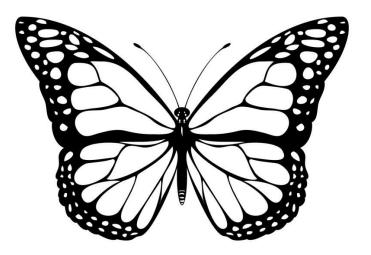
#### Closing

Review the life cycle before ending the lesson. Not only do the monarch butterflies have an interesting life cycle, they also have an interesting migration pattern. The next lesson focuses on the miraculous journey monarchs make each year.









## Lesson 3: Monarch Butterfly Migration

#### Lesson Summary

This lesson focuses on the migration patterns of the monarch butterfly. Students will learn necessary vocabulary as well as learn key details about the dangerous journey these butterflies take each year..

#### **Required Materials**

Slide Presentation: The slides progress in the same order as the facilitator guide. Books:

- Gotta Go! Gotta Go! by Sam Swope (Video read-aloud)
- Hurry and the Monarch by Antoine Ó Flatharta (Video read-aloud)

Videos:

- <u>News 9's Monarch Migration video</u>
- <u>Butterfly Wings Dance Video</u>- This movement break can be used at any time during the lesson. Link is available in the slides.

#### Activity:

**Migration in Motion:** This game is a simulation of what a butterfly might endure during their migration journey. Scenario cards are included.

#### Extra resource:

Interactive Migration Map

**Essential Question** 

Why is it important for monarch butterflies to migrate?

#### Learning Goal

I can describe the migration pattern of the monarch butterfly.

#### Introduction

Open with a discussion question asking students to share what they know about butterfly migration. "Today we will continue learning about the monarch butterfly by learning about migration. Does anyone know anything about the word "migration" or maybe have heard it before?"

#### Explanation

- There are two book options for this lesson that tell the same kind of story about the monarch. The video read-alouds are in the slides or in the Required Materials section for you to use as you want.
  - a. **Option 1:** Read *Gotta Go! Gotta Go!* by Sam Swope. This book follows the journey of the Monarch butterfly migration starting with a caterpillar.
  - b. **Option 2**: Read *Hurry and the Monarch* by Antoine Ó Flatharta. This book follows the journey of a monarch on its way to Mexico as well as reviewing the life cycle. It even mentions Stillwater, Oklahoma!
- 2. Important things to know:
  - a. Monarch butterflies fly south for winter to find warmer weather. The books don't explicitly discuss this but monarchs also fly north in the spring/summer. This is called migration.
  - b. They can fly almost 100 miles in one day and like to travel together. For reference, 100 miles is the distance between Oklahoma City and Tulsa!
  - c. Monarchs will cluster together, sometimes thousands, in one tree. This is called roosting.
- 3. Show the migration map on the slide and point out that some Monarch butterflies fly through Oklahoma when they migrate. They fly south when it gets cool and back north in the spring/summer.
- 4. Utilize the Website Resource- <u>Interactive Migration Map</u> to learn facts and see migration patterns for different seasons. (Link also located in lesson slide.)
- 5. Watch News 9's story on the Monarch migration to Mexico. (video link on slide or in Required Materials section.

#### Activity

**Migration in Motion:** Set up your space with areas that represent the points in the Monarch butterfly's migration map: One end is Canada or northern U.S. and the other end is Mexico and vice

versa. This can be done by placing signs or by having designated spots around the room. Have students role-play the butterfly migration using the scenario cards included or making up your own.

#### Additional Resource

The lesson slides includes a video from the Oklahoma City Zoo about tagging butterflies. It shows how two butterflies who were tagged in OKC were recovered in Mexico! This link provides more information about tagging butterflies if students are interested in learning more. <u>Monarch Watch Tagging Program</u>

#### Closing

Monarch butterflies have a long and difficult migration journey. They travel far and face lots of obstacles on the way. This is not the only thing that makes this animal interesting. The next lesson focuses on how monarchs help animals and people.

### Migration in Motion Scenario Cards

It's a warm morning, start	It's starting to get dark, find a
migrating but remember to stop	spot to roost for the night with
for nectar along the way.	other butterflies.
Sunny but chilly. Shiver to warm up your muscles. Monarchs can't fly when they get too cold. Count to 10 and then start to fly.	Oh no! It's starting to rain. Quick, find a place to roost with other butterflies until it stops raining.
It's a windy day! You get caught	It's partly cloudy with a chance
in a wind gust and travel too	of rain. Fly but watch the clouds
fast.	for rain.
You're flying in an area that has	You're flying through a forest so
lost a lot of nectar plants.	watch out for trees and
Without food you will be slow	predators. You'll have to dodge
and flying will difficult.	a lot!

## Lesson 4: We need Monarchs!

#### Lesson Summary

Monarch butterflies help our world in many different ways. They are pollinators and an important part of the food chain. This lesson focuses on the importance of monarchs and allows them to practice "pollinating" as a monarch butterfly.

#### **Required Materials**

**Slide Presentation:** The slides progress in the same order as the facilitator guide.

Books:

Insect Pollinators by Jennifer Boothroyd (No video read-aloud available)

Videos:

- <u>Flowers and Their Pollinators: A Perfect Match!</u> by SciShow Kids. The video in the slide automatically ends at 2:32 which is where the butterfly section ends.
- <u>The Animal Dance video</u>- This movement break can be used at any time during the lesson. Link is available in the slides.

#### Activities:

Move the Pollen activity- pom poms, straws, paper flowers

**Essential Question** 

Do monarch butterflies affect my life?

#### Learning Goal

I can identify ways the monarch butterfly helps our world.

#### Lesson Guide

#### Introduction

The monarch butterfly is an important animal for many reasons. Not only do monarchs help flowers grow and are an important part of the food chain, but they are a symbol of inspiration. Open with the discussion question, "Do you think the monarch butterflies are important? Why or why not?"

#### Vocabulary

- **pollen** fine powder made by some plants
- pollinator- animal that helps carry pollen from one flower to another
- food chain- the order in which living things depend on each other for food

#### Explanation

Show Flowers and their Pollinators by SciShow Kids video (also linked in slides).

- Monarch butterflies are **pollinators**.
  - This means when they stop on a flower to sip on the nectar, the pollen sticks to their bodies, including legs, wings, and mouthparts. Then the butterfly moves to another flower. The pollen brushes off onto the new flower. This helps flowers make seeds, which grow in new plants. Bees are pollinators, also!
- Monarch butterflies are part of the food chain.
  - They are an important part of the food chain for many animals. That means animals like birds, other insects, and small animals eat them to survive.
- Monarch butterflies are a symbol of inspiration.
  - Their long journey is used to symbolize endurance, change, hope, and life.
  - Examples of monarch merchandise are included on slide.

#### Activity

**Move the Pollen activity**- The goal of this game is to carry pollen from flower to flower. Pom poms can be used for the pollen.

Supplies needed: pompoms to represent pollen (any size), item to represent the flower

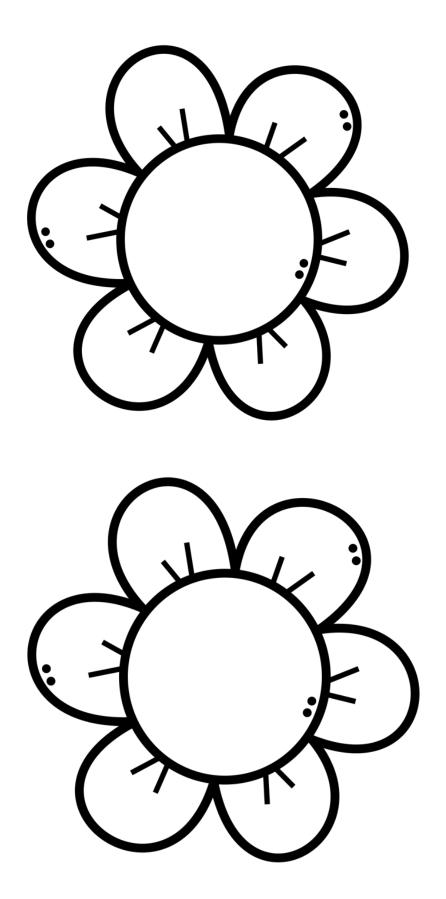
• **Option 1-** This activity can be done as a relay game. Opposite ends of the space can represent the "flowers." You can set a basket, pot, or even paper flowers to designate the stopping place. Use pom poms to represent "pollen" and have kids take turns carrying pollen. You decide the number of pom poms. Remind students that monarch butterflies are very small and can't

carry a lot at one time. Ideas to make transfer of pom poms harder- use spoons to carry the pom poms from one end to the other or balance the pom poms on their heads.

• **Option 2-** Students have 2 paper flowers. One on each side of their desk. Place pom poms on one flower. Students can use a straw to suck a pom pom to the end and transfer it to the other side. Feel free to choose any method for students to transfer the "pollen," such as tweezers, chopsticks, or tape.

#### Closing

The monarch butterfly is an important animal for many reasons. We learned in lesson one that monarchs are close to becoming endangered! The next lesson will focus on why this is happening and what we can do to help them.



Flower Clip Art by Creative Clips

## Lesson 5: Monarch Butterfly Conservation

#### Lesson Summary

This lesson will focus on reasons for monarch population decline and conservation for the monarch butterflies' habitats. Topics will include what is currently being done in Oklahoma to help this fragile population and what kids can do to help.

#### **Required Materials**

Slide Presentation: The slides progress in the same order as the facilitator guide.

Books:

- Juniper's Butterfly Garden: A Small Start for a Better World by Autumn Heigle (Video read-aloud)
- Additional Resource Butterflies Belong Here by Deborah Hopkinson (<u>Video read-aloud</u> or <u>Video read-aloud #2</u>
- <u>IUCN link</u>- This page provides more information on the decision to add monarch butterflies to the endangered list.

#### Videos:

How to Plant a Monarch Garden by the OKC Zoo & Okies for Monarchs

#### Activities:

Create your own butterfly garden

#### Extra resources:

- <u>Success Stories blog post</u>
- Okies for Monarchs blog posts
- Zoo Education Programs

#### **Essential Question**

What can I do to help monarch butterflies?

#### Learning Goal

I can identify ways monarch butterflies can be helped.

#### Introduction

There are many people doing great things to help the monarch butterfly population increase. This lesson introduces local and national organizations that are focusing on conservation of monarchs. Students will also learn ways they can get involved in these conservation efforts.

#### Discussion

Remind students that in July of 2022, the monarch butterfly was listed as endangered by the IUCN (International Union for Conservation of Nature). Discuss that monarch butterflies are in danger of disappearing forever (extinct) and need our help. Ask students, "Why do you think monarch butterflies are disappearing?"

#### Explanation

Reasons for population decrease:

- Loss of habitat
  - Deforestation in Mexico
  - Habitat loss in North America due to agricultural and urban intensification
- Loss of food resources
  - Milkweed and nectar plants are disappearing due to agriculture, development and chemical use.
- Climate change
  - Increases in extreme weather-
    - Ice storms in Mexico
    - Early frost/freezes in North America, particularly Texas
    - Hurricanes and flooding destroy habitat
    - Windstorms/thunderstorms can move monarchs further or faster than needed
    - Drought can cause caterpillars/eggs as well as plants to dry up
  - Can affect the timing of migration which could result in the misalignment of monarchs missing the milkweed/nectar plan emergence.

#### Vocabulary

conservation- protecting our environment and the wildlife that lives in it

#### Oklahoma City Zoo

The OKC Zoo has published a book that focuses on monarch conservation that was written by employee, Autumn Heigle! The link to the read-aloud for Juniper's Butterfly Garden is on the corresponding slide or in the Required Materials section of this lesson.

The Oklahoma City Zoo is helping aide the conservation of the monarch butterfly by including pollinator plants all across the zoo grounds! There are pictures of examples in the slides as well as examples of pollinator gardens people have built across Oklahoma including some planted at schools.

#### Want to plant a garden?

The Okies for Monarchs and the OKC zoo work together to help save the monarch butterfly. The website includes a video that teaches how to create your own butterfly garden. The website is a great resource- <u>https://www.okiesformonarchs.org/</u>. If you choose to build a garden, be sure to register it on the site!

If you are interested in developing a pollinator garden at your school, you can apply for the <u>OKC</u> <u>Living Classroom Grant Program</u>.

#### Local Organizations/Resources

Okies for Monarchs- <u>https://www.okiesformonarchs.org/</u> Oklahoma City Zoo- <u>okczoo.org</u>

- <u>Success Stories blog post</u>
- Okies for Monarchs blog posts
- <u>Zoo Education Programs</u>

#### National Organizations

Monarch Joint Venture- <u>monarchjointventure.org</u> Xerces Society for Invertebrate Conservation- <u>https://xerces.org/monarchs</u>

#### Activity

**Create a butterfly garden**- Draw a garden where a butterfly would want to live. (Provide them with a butterfly graphic to color and instruct them to draw the habitat around them.)

- **Option 1:** Print out on copy paper with a butterfly in the middle. Students can color and draw a garden around it.
- **Option 2:** Print out butterflies to cut out and color. Students can glue the butterfly on construction paper and draw a garden around it.

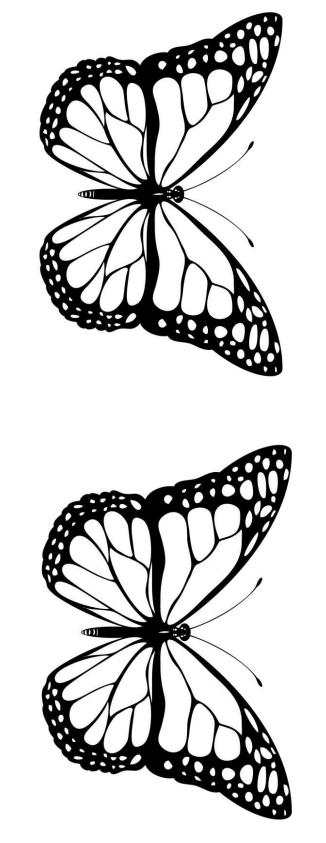
**Special Note:** While it may be tempting to bring Monarchs indoors to raise on your own, there are many reasons why that is not a good idea and could pose serious risks to monarchs. Use this resource from Monarch Joint Venture to learn more:

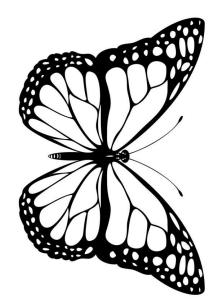
https://mjv.nyc3.cdn.digitaloceanspaces.com/documents/RearingMonarchsWhyorWhyNot.pdf

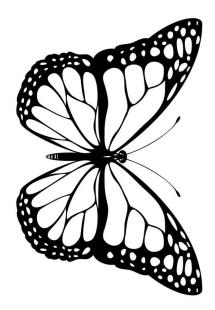
#### Closing

Even though monarch butterflies are endangered, many people are taking steps to prevent the population from decreasing even more. Many organizations are working to provide information to the public on how they can help in their own communities. The OKC Zoo is diligently working with local organizations to make Oklahoma a safe and welcome place for monarch butterflies!

Lesson 5: Different sizes of the monarch butterfly to print for the garden activity.







#### Created by Elisabeth Roop (2023) in partnership with the Oklahoma's Own News 9 and Oklahoma City Zoo.

Thank you for downloading!