

Got to Go! Got to Go!

Protecting the Monarch Butterflies

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Grade Level	1-2
Duration	4-5 class periods

National Standards

GEOGRAPHY

Element 1 The World in Spatial Terms

1. How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information

Element 2: Places and Regions

4. The physical and human characteristics of places

Element 3: Physical systems

8. The characteristics and distribution of ecosystems and biomes on Earth's surface

Element 6: The Uses of Geography

17. How to apply geography to interpret the past

18. How to apply geography to interpret the present and plan for the future

AZ Standards

ELA

Reading

Key Ideas and Details

1.RI.1 Ask and answer questions such as who, what, where, why, and how about key details in a text.

2.RI.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.

1.RI.2 Identify the main topic and retell key details of a text.

2.RI.2 Identify and explain the main topic of a multi-paragraph text as well as the focus of specific paragraphs within the text.

1.RI.3 Describe the connection between two individuals, events, ideas, or pieces of information in a text using key details.

2.RI.3 With prompting and support, describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text.

Writing

Production and Distribution of Writing

1.W.4 and 2.W.4 With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose.

Science

Life Science

1.L1U1.6 Observe, describe, and predict life cycles of animals and plants.

1.L2U2.7 Develop and use models about how living things use resources to grow and survive; design and evaluate habitats for organisms using earth materials.

2.E1U3.7 Construct an argument from evidence regarding positive and negative changes in water and

Arizona Social Science Standards

GEOGRAPHY

The use of geographic representations and tools help individuals understand their world.

1.G1.1 Use, explore and construct maps, graphs, and other geographical representations to support content focus.

2.G1.1 Use and construct maps, graphs, and other geographic representations of familiar and unfamiliar place in the world and locate physical and human features.

regions, and landmarks

2.G1.2 Use maps, globes, and other simple geographic models to identify and explain cultural and environmental characteristics of places in the world based on stories shared.

Human-environment interactions are essential aspects of human life in all societies.

1.G2.1 Compare how human activities affect culture and the environment now and in the past.

Examining human population and movement helps individuals understand past, present, and future conditions on Earth's surface.

1.G3.2 Compare places past and present as it relates to content focus.

CIVICS

Process, rules, and laws direct how individuals are governed and how society addresses problems.

1.C3.3 Explain how community groups work to accomplish common tasks and fulfill responsibilities.

land systems that impact humans and the environment.

Mathematics

Measurement and Data

1.MD.C.4 Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another.

2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories.

2.C.4.1 Explain how people work together to identify and solve problems within our world.

SIOP Elements		
Preparation Adapting content Linking to background Linking to past learning Strategies used	Scaffolding Modeling Guided practice Independent practice Comprehensible input	Grouping Option Whole class Small groups Partners Independent
Integrating Processes Reading Writing Speaking Listening	Application Hands on Meaningful activities Linked to objectives Promotes engagement	Assessment Individual Group Written Oral

Arizona English Language Proficiency Standards

Reading

Comprehending Text

Standard 4: The student will analyze text for expression, enjoyment, and response to other related content areas. The student will demonstrate knowledge of reading comprehension by:

Stage II

B-13: identifying the key events or ideas from a literary selection with sentence frames.

B-16: following multiple-step written directions for classroom routines and academic activities.

Stage III

B-13: identifying the cause and effect relation in the selection.

B-20: identifying content vocabulary within math, science, and social studies text.

B-21: following two-to three step written directions to complete tasks/procedures.

Writing

Standard 1: The student will express his or her thinking and ideas in a variety of writing genres. The student will express his or her thinking and ideas by using a variety of writing genres, as demonstrated by:

Stage II

B-8: participating in the guided writing of a short response to a literary selection that connects text to self, text to world, or text to other text with instructional support.

Stage III

B-5: writing a summary statement containing only relevant key ideas summarizing a variety of familiar text with instructional support.

Overview

Earth supports a large variety of organisms. One of these organisms is the monarch butterfly. As the number of monarchs dwindles, it is important for students to see that conservation of our plants and animals is important.

Purpose

In this lesson the students will learn the life cycle of the monarch butterfly. They will analyze information to identify the causes of the decline of the monarch population. Then they will take action by planting milkweed on the school grounds as one solution in the preservation of the habitat for monarch butterflies.

Key Vocabulary

lepidopterist: a person who studies butterflies and moths

migration: movement of animals from one place to another

habitat: natural home of an animal or a plant

milkweed: a plant with milky sap

conserve: protect a plant or animal

decline: fewer or less of something

endangered species: a species of animal or plant that is at risk of extinction

metamorphosis: changing from an immature form (baby) to an adult

Materials

- Vocabulary Cards and Vocabulary Test
- Sentence Frames (Session One and Two)
- KWL chart
- The Life Cycle of a Monarch Butterfly
<https://www.britannica.com/animal/monarch-butterfly/media/1/388833/18473>
- Butterfly Life Cycle worksheet
- Two Populations: East and West (Monarch Migration Spring and Fall map)
<https://journeynorth.org/monarchs/featured/monarch-butterfly-distribution-map>
- North America map
<https://geoalliance.asu.edu/sites/default/files/maps/N-AMER.pdf>
- Monarch Population in Millions graph
- Information for Teacher: Monarch Population in Millions according to Biological Diversity

- Monarch Population in the Forests of Michoacan, Mexico worksheet
- Monarch Butterfly Population Declining
<https://www.youtube.com/watch?v=vBE-YmolXxs>
- Bird's Eye View Map of Downtown Phoenix
- Aerial Pictures of Downtown Phoenix
- Color pencils and markers.
- Tape and tape dispenser
- Monarch Cutout for Making Large Line Graph
- Exit Ticket
- Planting Checklist and Flag
- Milkweed and nectar producing plant seeds
- School grounds for planting
- Gloves and tools for planting
- Butterfly, Butterfly song:
<https://www.youtube.com/watch?v=8rvGUevGxDk>

Objectives

The student will be able to:

1. Define words associated with science/social studies content studied.
2. Explain the life cycle of the monarch butterfly.
3. Analyze data on the decline of monarch population.
4. Take action to preserve the monarch population.

Procedures

SESSION ONE

Engage:

- a. Tell a story or show an image of a monarch butterfly. Distribute the KWL chart and have the class share what they know about monarch butterflies. Instruct students to fill in the first column as their classmates share information. (**Preparation: Linking to prior learning, Linking to background**)
- b. Show the following video: The World of Butterflies: The Monarchs are Coming. (10 min)
<https://www.britannica.com/animal/monarch-butterfly/media/1/388833/196011>
- c. Solicit comments and questions about the video. Have students fill in the second column of the KWL chart as questions come up. (**Scaffolding: Comprehensible input, Application: Promotes engagement**)
- d. Introduce the first vocabulary word (lepidopterist) and invite the students to become someone who studies butterflies or moths.
- e. Post the Sentence Frames for Session One. Go over the rest of the vocabulary by projecting the Vocabulary Cards. Have students take turns

learning the vocabulary words by going through the sentence frames. **(Application: Promotes engagement)**

f. Have the students write the vocabulary words in their notebooks/journals with drawings. Post the Vocabulary Cards on the word wall. **(Scaffolding: Comprehensible input)**

Explore:

g. With a partner, have students read library books or search on the internet about monarchs or butterflies in general. Have them continue to work on the first and second columns of their KWL charts.
h. Conclude the lesson by singing the song: "Butterfly, Butterfly."

<https://www.youtube.com/watch?v=8rvGUevGxDk>

(Integrating Processes: Reading, Writing, Speaking and Listening)

SESSION TWO

Explain:

a. Begin the session by singing the Butterfly song from yesterday.

b. Distribute colored pencils and the North America map and project Two Populations: East and West (Monarch Migration Spring and Fall map)
<https://journeynorth.org/monarchs/featured/monarch-butterfly-distribution-map>.

c. Model for students so they can copy. Draw arrows of one color going from U.S. to Mexico and have students draw a box for a legend and label it "fall." They will then color the box the same color as the arrows they have drawn. Then have students use a different color to show how the monarchs return in the spring to the U.S. Repeat the process with the arrows and creating the box for "spring" in the legend. **(Scaffolding: Comprehensible input)**
d. Show the video The Life Cycle of a Monarch Butterfly (4.23 min) for the first time.

<https://www.britannica.com/animal/monarch-butterfly/media/1/388833/18473>

e. Distribute the Butterfly Life Cycle worksheet. Play the video again and instruct students to number the images at the top of the worksheet (1-4) in order of how the life cycle should be while watching the video. When students have numbered the images, review the correct order of the life cycle using the document camera and label the stages so students learn the vocabulary/spelling. **(Scaffolding: Comprehensible Input, Application: Linked to objectives)**

f. Before students complete the summary at the bottom of the worksheet, project or display the sentence frames for Session Two. Have students pair/share how they would fill in the sentence frames about the life cycle of the butterfly. **(Grouping: Partners, Application: Promotes engagement)**

g. Have students write their summary.
(Assessment: Individual)

h. Conclude the session by singing the song "Butterfly, Butterfly."

<https://www.youtube.com/watch?v=8rvGUevGxDk>

SESSION THREE

Prior to this session, be sure to read the Information for Teacher: Monarch Population in Millions according to Biological Diversity. Use poster paper/whiteboard to create a large graph just like the worksheet students will be completing called Monarch Population in the Forests of Michoacan, Mexico. Be sure it has the Data to Graph on the Bottom or project it so students can see the years and millions of monarchs. Have the large monarch butterflies cut out and have a tape dispenser.

Elaborate:

a. Begin the session by singing the Butterfly song from yesterday.

b. Project the Monarch Population in Millions graph. Help students analyze the data chart by finding the lows, highs, and differences between years in the monarch population.

c. Tell the students that they will be creating a line graph. Explain how you first need to find the year from the data chart and then find the year on the large chart/graph. The years are on the bottom of this graph. Then you find out how many millions of monarchs were in the forest from data chart and look at the numbers on the left side to figure out where to put the butterfly. Model for the students. Give students an opportunity to tape the butterflies for the 5 years on the graph. Then draw a line showing them how a line graph is completed.

d. Repeat making the large line graph until students understand the procedure.

e. Distribute the Monarch Population in the Forests of Michoacan, Mexico worksheet and allow students to work independently or in groups to complete.
(Scaffolding: Modeling, Comprehensible input)

SESSIONS FOUR and FIVE

Prior to this session, the teacher needs to have permission to use part of the school grounds for planting seeds and have dug up and amended the soil if needed. Having a classroom volunteer this day would be a great idea.

a. Show Monarch Butterfly Population Declining
<https://www.youtube.com/watch?v=vBE-YmolXxs>
(2.18 min) at least two times so students can recall why the population is decreasing (pesticides, climate change, lack of milkweed). Have them record these reasons in their KWL charts under the third column.

(Integrating Processes: Writing and Listening)

b. Remind students, that as expert lepidopterists, what could they do to solve the problem regarding the declining numbers of monarchs? Have them think-pair-share about possible actions to take to protect the monarchs.

c. Project the Bird's Eye View Map of Downtown Phoenix and the Aerial Pictures of Downtown Phoenix. Have students point out how the city has changed and how these changes have affected the monarch butterfly's habitat. **(Preparation: Adapting content, Scaffolding, Comprehensible input)**

d. Have students identify possible actions they could take to help save the butterfly population. Once someone says that planting milkweed seeds would help, explain this will be a class project that will continue throughout the school year. By having milkweed plants and nectar-rich flowers for adult butterflies, we will be helping conserve of the Monarch butterfly population.

e. Explain that partners are going to take turns planting seeds on the school grounds. They will plant milkweed seeds and a mixture of nectar rich flowers that adult butterflies can feed on. While they are waiting for their turn to go outside to plant, they will be inside reading books or looking at websites and completing the third column of the KWL chart.

f. Distribute the Planting Checklist, seeds, and tools as partner groups go outside. Remind students that they will need to cut out the flag and leave it in the spot where they planted their seeds and complete the question at the bottom of the checklist.

(Application: Meaningful, Promotes Engagement)

Evaluate:

g. Collect the Checklists as student return and have students continue to fill out the third column of the KWL chart. **(Integrating Processes: Writing)**

h. Distribute the Exit Ticket to students. Allow students to use their KWL chart and answer the three questions in complete sentences.

(Assessment: Individual written)

I. To conclude the session, sing the "Butterfly, Butterfly" song again.

Assessment

ELA, Science, and Social Science

The KWL chart should have at least 5 statements in the first and third columns to be considered mastery.

Students will score at least 80% on the Vocabulary Test to be considered mastery.

The Exit Ticket can be graded for accuracy and completeness. Mastery will be considered 80% or higher.

Social Science and Science

North American map can be graded for accuracy and completeness. Mastery will be considered 80% or higher.

Science

Butterfly Life Cycle worksheet can be graded for accuracy and completeness. Mastery will be considered 80% or higher.

Mathematics and Science

Monarch Population in the Forests of Michoacan, Mexico worksheet can be graded for accuracy and completeness. Mastery will be considered 80% or higher.

Social Science

The Planting Checklist and its question at the bottom can be graded with "Satisfactory" if all of the seven boxes are checked and students have a reasonable explanation of how they are taking action to help the monarchs.

Extensions

Biology: Students will continue finding more information about the monarchs in other sources and create a mural with the information.

Geography: Create more maps with the migrating routes of the monarch butterflies.

Writing: Write a letter informing others about the problem in the decrease of butterflies and how to protect them. Fill in a Bubble Thinking Map about what is causing the monarch population to decrease.

Art: Create a bumper sticker that says Plant milkweed and save the monarch butterflies. Create Origami/paper butterflies and simulate the monarch migration on a wall. Using tempera paint create butterflies.

Social studies: Explore how people in a small town in Mexico survive by protecting the Monarch butterflies.

Sources

Extra information for teachers:

Ask A Biologist

<https://askabiologist.asu.edu>

Monarch Lab

<https://monarchlab.org>

Websites:

<https://geoalliance.asu.edu>

<http://www.osborne10thlit.com/wp-content/uploads/2013/01/bubblemap.jpg>

https://docs.google.com/document/d/1uUKMR9x0SGjk8S9jjb9EgpVi1_R1GKQKdu2k8EN0WBo/edit

<https://www.britannica.com/animal/monarch-butterfly/media/1/388833/18473>

<https://www.biologicaldiversity.org/news/press-releases/2016/monarch-butterfly-02-26-2016.html>

<http://www.osborne10thlit.com/wp-content/uploads/2013/01/bubblemap.jpg>

<https://www.youtube.com/watch?v=8rvGUevGxDk>

https://docs.google.com/document/d/1uUKMR9x0SGjk8S9jjb9EgpVi1_R1GKQKdu2k8EN0WBo/edit

<https://butterflywebsite.com/Educate/biblio.htm>

<https://www.youtube.com/watch?v=8rvGUevGxDk>

https://docs.google.com/document/d/1uUKMR9x0SGjk8S9jjb9EgpVi1_R1GKQKdu2k8EN0WBo/edit

<https://butterflywebsite.com/Educate/biblio.htm>

Books:

The Monarch Butterfly; Encyclopedia Britannica, 1964. Library of Congress, USA.

The Caterpillar Who Turned into A Butterfly. Little Simon, 1980. (16 pages) An unhappy caterpillar is convinced he will never be anything else other than a caterpillar.

Carle, Eric. *The Very Hungry Caterpillar*. Philomel Books, 1979. (28 pages) A hungry little caterpillar

eats non-stop, until, full at last, he forms a cocoon and goes to sleep.

George, Jean Craighead. *The Moon of the Monarch Butterflies*. HarperCollins Publishers, 1993. (48 pages) Describes a female Monarch's journey from Arkansas to Michigan as she lays eggs that will hatch and repeat her life cycle.

Gibbons, Gail. *Monarch Butterfly*. Holiday House, 1989. (32 pages) A very colorful book; drawings are "cute" but not completely realistic; describes the life cycle, body parts, and behavior of the Monarch; includes instructions on how to raise a Monarch

Stewart, Melisa; Bond, Higgins. *A Place For Butterflies*. Scholastic Publisher. "Butterflies have lived on the earth for around 140 million years. Find out what we can do to make sure that there is always A Place For Butterflies". (38 pages)

Butterflies; Zoobooks, Wildlife Education, Ltd., 2004; Printed in the USA. Inside the book: The caterpillar story; their generational migrations; Tasting with feet; and so much more. (16 pages)

Morgan, Sally. *Butterflies*; QEB Publishing 2005; Teacher Created Resources. Facts about butterflies. (32 pages)

Rabe, Tish; Ruiz, Aristides; Mathieu, Joe. *My, Oh My_ a Butterfly!* Random House LLC, New York. (45 pages)