

Study of the Armadillo: Combining Biology, Technology, Art, and Geography

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Grade Level High School
Duration 1+ class periods

National Standards

GEOGRAPHY

Element One: 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 3: Physical Systems

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

AZ Standards

ELA

Reading

Range of Reading and Level of Text Complexity

9-10.RI.10 By the end of the year, proficiently and independently read and comprehend informational texts and nonfiction in a text complexity range determined by qualitative and quantitative measures appropriate to grade 9 and 10.

VISUAL ARTS

Organize and develop artistic ideas and work

VA.CR.2.HS1a Engage in making works of art or design both spontaneously and deliberately (such as using elements and principles of modern art, applying artistic norms of diverse cultures, addressing social issues in contemporary art, etc.).

Arizona Social Science Standards

GEOGRAPHY

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

HS.G1.1 Use geographic data to explain and analyze relationships between locations of place and regions. Key tools and representations such as maps, remotely sensed and other images, tables, and graphs.

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

HS.G2.1 Analyze interactions within and between human and physical systems.
HS.G2.2 Evaluate how political and economic decisions throughout time have influenced cultural and environmental characteristics of various places and regions.

Overview

Armadillos are well suited to the climates of multiple locations in southeastern U.S.

However, due to climate change, they are migrating north.

Purpose

In this lesson, students will learn about the armadillo and its expanding habitat. They will then go on to create an art project using the armadillo as a focus.

Key Vocabulary

armadillo: a dark brown, black, red, gray, or yellowish mammal, average life span in captivity is 12 to 15 years

inhabitant: a person or animal that lives in a particular place

termite: a small tropical insect that eats wood

creature: any large or small living thing that can move independently

biome: a large area characterized by its vegetation, soil, climate, and wildlife

Arizona: a state in western United States, grouped in the Southwest, and has various biomes

migration: regular journeys of animals between one region and another

stained glass: colored glass that has been cut into various shapes to form pictures or patterns, used especially in church windows

Materials

- Projection device, computer, internet access
- Study of the Armadillo: Combining Biology, Technology, Art, and Geography PowerPoint

- Vocabulary Cards
- Armadillos: Nature's Armoured Miracles (Wildlife Documentary) | Wild America | Real Wild
<https://www.youtube.com/watch?v=ZbyVGLukSVQ> (27:49 min)
- Armadillo Expansion reading
<https://armadillo-online.org/expansion.html>
- Research Guide and Answer Key
- Option One: Materials for creating stained glass
- Option Two: Art supplies such as colored pencils, paper, glue, paints, scissors, etc.
- Scoring Rubric for Armadillo Project
- Project Reflection
- Vocabulary Test

Objectives

The student will be able to:

- Gather information from internet sources.
- Identify how the expansion of the armadillo habitat is due to climate change.
- Create an original art project based on their knowledge of the armadillo.
- Reflect on their work.

Procedures

SESSION ONE

1. Distribute the Research Guide and introduce the lesson by explaining that they will be learning about a unique animal of the Southwest, the armadillo.
2. Project Slides 1 and 2 of the Armadillo in the Biome PowerPoint. Emphasize that this lesson will integrate Science (biology), Technology (creating stained glass), Art (creative art project) and Geography (biomes). They will be learning about the armadillo and then crafting an art project based on the animal.
3. Project Slides 3-6 to introduce the vocabulary of the lesson. Distribute Vocabulary Cards to those who may need the help or place cards on a Word Wall.
4. Project Slide 7 and show Armadillos: Nature's Armoured Miracles (Wildlife Documentary) | Wild America | Real Wild
<https://www.youtube.com/watch?v=ZbyVGLukSVQ> (27:49 min). Instruct students to fill in their Research Guide as they listen.

5. Project Slide 8 and have students read Armadillo Expansion <https://armadillo-online.org/expansion.html>
Instruct students to fill in any remaining questions after reading this article.
6. Collect Research Guides or assign unfinished work as homework.

SESSION TWO and MORE

Prior to the Lesson: If you have materials to create stained glass, then choose Option One. If you do not have materials to create stained glass, choose Option Two. Slide 12 has a sample stained glass armadillo sun catcher that was created by the lesson author.

Option One

1. Project Slide 9 and discuss the purpose and artistic value of stained glass using the web links provided.
2. Explain the tools used to create stained glass and safety procedures. Model how to create a pattern, foil the edges, solder the edges, etc.
3. Project Slide 10 and share the Scoring Rubric for the Armadillo Project.
4. Allow several days to complete the project.
5. Distribute the Project Reflection. Project Slide 11 and explain how to complete the reflection.

Option Two

1. Distribute art materials (paper, glue, colored pencils (Prisma color), pastel chalk, etc.,)
2. Explain that they are to create an art project based on what they have learned about the armadillo. It will be a drawing of what a stained glass armadillo would look like.
3. Project Slide 10 and share the Scoring Rubric for the Armadillo Project.
4. Allow several days to complete the project.
5. Distribute the Project Reflection. Project Slide 11 and explain how to complete the reflection.

Assessment

ELA and Geography

The Research Guide can be graded for correct answers. Mastery will be seen as a score of 80% or higher.

Art

The Project can be graded using the Scoring Rubric for Armadillo Project. Mastery will be considered a score of 16 points or higher. The Project Reflection can be graded for completeness and thoughtful answers. Mastery will be considered 100% in that all three questions should be answered acceptably.

ELA

The Vocabulary Test can be given to measure language acquisition. Mastery will be considered a score of 80% or higher.

Extensions

Show the video on how to make a stain glass monarch butterfly (30:29 min) to give students more visual input.

https://www.youtube.com/watch?v=F6Ked_ntsP8

Design a book about armadillos and share with another grade level.

Sources

Armadillos: Natures Armoured Miracles (Wildlife Documentary) Wild America/Real Wild Received June 22, 2022, from <https://youtu.be/ZbyVGLukSVQ>

National Geographic Society Educational Resource Received June 22, 2022, from <https://education.nationalgeographic.org/resource/real-world-geography-dr-randall-cerveney>

The United States (labeled) map <https://geoalliance.asu.edu/sites/default/files/maps/US-NAMES.pdf>