



# Wetlands: Why Are They Endangered?

<b>Author</b>	Barbara Stout
<b>Grade Level</b>	8 and High School
<b>Duration</b>	1-3 class periods

## National Standards

### GEOGRAPHY

#### Element 5: Environment and Society

14. How human actions modify the physical environment.  
16. The changes that occur in the meaning, use, distribution, and importance of resources.

## AZ Standards

### ELA

#### Reading

##### Key Ideas and Details

8.RI.1 Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.  
11-12.RI.1 Cite strong and thorough textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text, including determining where the text leaves matters uncertain.

##### Range of Reading and Level of Text Complexity

8.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 8.

#### Writing

##### Text Types and Purposes

8.W.7 Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.

- Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting, graphics, and multimedia when useful to aiding comprehension.
- Develop the topic with well-chosen, relevant facts, definitions, concrete details, quotations, or other information and examples.
- Use precise language and domain-specific vocabulary to inform about or explain the topic.
- Establish and maintain a formal style.
- Provide a concluding statement or section that follows from and supports the information or explanation presented.

11-12.W.2 Write informative/explanatory texts to examine and convey complex ideas, concepts, and information clearly and accurately through the

## Arizona Social Science Standards

### GEOGRAPHY

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

8.G2.1 Examine impact of and responses to environmental issues such as air, water, and land pollution, deforestation, urban sprawl, and changes to climate.

**Optional: Global Interconnections and spatial patterns are a necessary part of geographic reasoning.**

8G4.1 Take an active stance on a geographic issue reflecting its scale (local, regional, state, national, or global)

**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.G2.4 Evaluate the use and sustainability of natural resources.

**Optional: Global interconnections and spatial patterns are a necessary part of geographic reasoning.**

HS.G4.1 Take an active stance on a geographic issue reflecting its scale

## The Wetlands: Why Are They Endangered?

effective selection, organization, and analysis of content.

a. Introduce a topic; organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting, graphics, and multimedia when useful for comprehension.

b. Develop the topic thoroughly by selecting the most significant and relevant facts, extended definitions, concrete details, quotations, or other information and examples appropriate to the audience's knowledge of the topic.

d. Use precise language, domain-specific vocabulary, and rhetorical techniques to manage the complexity of the topic.

e. Establish and maintain a style and tone appropriate to the norms and conventions of the discipline in which they are writing.

f. Provide a concluding statement or section that follows from and supports the information or explanation presented.

(local, regional, state, national, or global)

### SIOP Elements

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

### Arizona ELP Standards

#### Stage IV and Stage V

#### Reading

**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:**

B-23: locating information in print and electronic reference sources (*e.g., encyclopedia, atlas, almanac, dictionary, thesaurus, periodicals, website, and textbooks*) periodicals for a specific purpose.

#### Stage IV

#### 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:**

## The Wetlands: Why Are They Endangered?

B-4: writing a paragraph based on research using topic sentences, main ideas, relevant facts, details, and concluding statements.

**Standard 4: The student will integrate elements of effective writing to develop engaging and focused text. The student will integrate elements of effective writing to develop engaging and focused text as demonstrated by:**

B-2: writing a paragraph, focused on a topic, that includes details, clear sequencing, and transitional words and phrases to connect ideas.

### Stage V 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:**

B-3: writing an expository paragraph that includes a topic sentence, supporting details, and a conclusion.

## Overview

The wetlands are the "lifeblood of our planet" and must be preserved for the future of animals, plants, and humans. It is important for students to read current factual information about the plight of this endangered ecosystem. By examining the critical role that wetlands serve in the delicate balance of Earth's interdependent physical systems, we appreciate the crucial need to conserve and protect them.

## Purpose

In this lesson, students will learn the damaging effects of human environment interaction on the wetlands. They will also learn why it is important to preserve the wetlands through reading environmental articles, note taking, and writing an expository essay. This lesson contains adaptations for diverse learners (ELLs).

## Key Vocabulary

**wetlands** – land that, at least some of the time, is very wet

**nutrients** – a substance that plants need to live and grow

**species** – a group of animals or plants that are similar and can create offspring

**sediment** – material (as stones and sand) left by water, wind, or glaciers

**habitat** – place where a plant or animal naturally lives

**groundwater** – water within the earth that supplies wells and springs

## Materials

- Modeling clay
- Large roasting pan
- Two quarts of water
- Sprinkling can
- Piece of carpet
- Paper towel
- Wetlands Vocabulary Organizer and Answer Key
- Vocabulary Cards
- Projection device
- Computer lab or handheld devices
- Wetlands Note Taking
- Wetlands Overview  
<https://nepis.epa.gov/Exe/ZyPDF.cgi/500025PY.PDF?Dockey=500025PY.PDF>
- Economic Benefits of Wetlands  
<https://nepis.epa.gov/Exe/ZyPDF.cgi/2000D2PF.PDF?Dockey=2000D2PF.PDF>
- Threats to Wetlands  
<https://nepis.epa.gov/Exe/ZyPDF.cgi/200053Q3.PDF?Dockey=200053Q3.PDF>
- Wetlands Writing Prompt and Scoring Guide

## Objectives

The student will be able to:

- Identify key ideas in informational text.
- Write a new article defining wetlands, explaining why they are important, and giving suggestions on how people can protect wetlands.

## Procedures

### SESSION ONE

1. Perform the following experiment to demonstrate to the class how wetlands work. Create an artificial wetland in a roasting pan. (**Preparation: Linking to Background; Application: Promotes engagement**)

## The Wetlands: Why Are They Endangered?

- a) Using modeling clay, make a gentle slope that stretches about three-quarters the length of the pan, leaving a clear space at one end.
  - b) Using a watering can that sprinkles like rain, pour water on the clay to show the class how freely the water flows down the slope.
  - c) Drain out the excess water, pouring it back into the watering can. Put a piece of carpeting at the bottom of the slope and sprinkle the water on the clay again.
  - d) Have students predict, "*What will happen to the speed and direction of the water flow?*" (The carpeting, like a real wetland, absorbs the water and slowly releases it, preventing flooding and slowing erosion.)
  - e) Next, remove the carpeting, put a paper towel at the bottom of the slope, and sprinkle the recycled, dirty water on the clay. Students should predict, "*What will happen to the water?*" (The towel, like a real wetland, cleans the water by filtering out much of the sediment.)
  - f) Discuss the findings with the students. Were they right or were they wrong? **(Integrating Processes: Listening, Speaking)**
2. Project the Vocabulary Cards. Distribute the Wetlands Vocabulary Organizer. Have students define and illustrate the words. **(Application: Promotes engagement, Scaffolding: Comprehensible input)**

### SESSION TWO (and perhaps SESSION THREE)

1. Distribute the Wetlands Note Taking worksheet. Explain that they should read the 3 short articles and complete the worksheet. Take students to computer lab or have them use their personal devices to

access the readings. **(Application: Promotes engagement, Scaffolding: Independent practice)**

2. Explain the Wetlands Writing Prompt and the Scoring Guide. Allow students to use their Note Taking worksheet and Vocabulary Organizer while writing their news articles. **(Assessment: Written)**
3. Work not finished in class could become homework.

## Assessment

### Geography and ELA

Wetlands Vocabulary Organizer and Note Taking worksheet can be graded for completeness and correct answers. Mastery will be considered 80% or higher.

The news article can be graded using the Scoring Guide. Mastery will be considered a score of 40 points or higher.

## Extensions

Have student practice take a stance on whether the wetlands should be protected or not. Be sure they identify the scale of this issue (national, global, local, etc.). Their "stance" can take the form of a letter or speech to a policymaker who is deciding how to manage wetlands.

## Sources

Environmental Protection Agency  
<https://www.epa.gov/wetlands>