

Desert Deception: Believe It or Not?

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Grade Level 6-7
Duration 2 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 3: Physical Systems

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

Element 6: The Uses of Geography

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

NEXT GENERATION OF SCIENCE STANDARDS

MS. Weather and Climate

MS-ESS2-6 Weather and climate are influenced by interactions involving sunlight, the ocean, the atmosphere, ice, landforms, and living things. These interactions vary with latitude, altitude, and local and regional geography, all of which can affect oceanic and atmospheric flow patterns.

AZ Standards

ELA

Reading

Integration of Knowledge and Ideas

6.RI.7 Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

Writing

Production and Distribution of Writing

6.W.4 and 7.W.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

MATHEMATICS

Statistics and Probability

6M.SP.4 Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Arizona Social Science Standards

GEOGRAPHY

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

6.G1.1 Use and construct maps, graphs, and other representations to explain relationships between locations of places and regions. Key concepts include major landforms and water bodies, countries, cities, ecosystems, climate, languages, religion, economic systems, governmental systems, population patterns, disease, trade routes, and settlement patterns

7.G1.1 Use and construct maps and other geographic representations to explain the spatial patterns of cultural and environmental characteristics. Key tools and representations such as maps, globes, aerial and other photos, remotely sensed images, tables, graphs, and geospatial technology

7.G1.2 Analyze various geographic representations and use geographic tools to explain relationships between the location of places and their environments.

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

7.G2.2 Analyze cultural and environmental characteristics that make places both similar and different.

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

6.G4.1 Explain why environmental characteristics vary among different world regions. Key concepts include but are not limited to latitude, elevation, landforms, location, and human factors

7.G4.1 Analyze cultural and environmental characteristics among various places and regions of the 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 Linked to objectives Promotes engagement	Assessment Individual Group Written Oral

Arizona English Language Proficiency Standards

Grade 6-8

Basic

Listening and Reading

Standard 1 By the end of each language proficiency level, an English learner can construct meaning from oral presentations and literary and informational text through grade appropriate listening, reading, and viewing.

B-1: determine the central idea or theme and explain how they are supported by using some text evidence.

B-2: recount specific details and information in a variety of texts.

Speaking and Writing

Standard 3 By the end of each language proficiency level, an English learner can speak and write about grade appropriate complex literary and informational texts and topics.

B-3 compose informational text that includes details to develop a topic while using appropriate conventions.

B-5: use examples of precise language and domain-specific vocabulary within informative texts.

Listening, Speaking, Reading, and Writing

Standard 7 By the end of each language proficiency level, an English learner can conduct research and evaluate and communicate findings to answer questions or solve problems.

B-1: gather information from multiple provided resources to answer questions.

B-2: paraphrase observations/information notes with labeled illustrations, diagrams, or other graphics, as appropriate.

B-4: restate the main idea using evidence from text or presentations.

Overview

Deserts cover about one-fifth of our Earth. A desert is defined as an arid region that receives less than 10 inches of precipitation per year. The desert biome is unique with plants and animals that can survive with very little water. Traditionally, deserts have had sparse settlements but now there are some very large American cities that are in desert regions such as Las Vegas, Nevada, and Phoenix, Arizona.

Purpose

In this lesson students create a climograph and learn how deserts can be found in various parts of the world. They will also learn about Hadley Cells and why there are deserts.

Key Vocabulary



Desert Deception: Believe it or Not!

climograph: a graph that shows average precipitation and temperature for a place

desert: land with little rainfall

number line: a line with equal spaces and the points equal the numbers shown

dot plot: chart of data using circles to mark the points of data

histogram: a bar graph with no spaces between bars

line graph: a chart that connects data points with a line

box plot: a way to graph data through quartiles

data: numerical information

Materials

- Computer, Internet access and projector
- The World Map
- Desert Map Work and Answer Key
- Graph paper
- Markers or highlighter pens
- Whiteboards and dry erase markers
- Document camera for showing group graphs (optional)
- Vocabulary Cards
- Vocabulary Test and Answer Key

Objectives

The student will be able to:

- Identify desert climates along similar latitudinal coordinates.
- Identify the appropriate graph to use with a set of data
- Create a graph to properly illustrate the data set provided.

Procedures

Prerequisite Skills: Students can locate places by latitude and longitude. Students know how to make bar and line graphs.

SESSION ONE

Engage:

1. Open the lesson by exploring the website: <http://discoveringegypt.com/pyramids-temples-of-egypt/pyramids-of-giza/> to learn about the desert climate of Giza, Egypt. (**Integrating Processes: Reading**)
2. As the website is explored, have students write at least 5 descriptions of the Egyptian desert using their senses. (**Application: Promotes**)



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engagement) Have students share their responses and record them on the whiteboard.

3. Then ask, "Are deserts around the world all the same or are they different?"

Explore:

4. Distribute the World Map and the Desert Map worksheet. (**Integrating Processes: Writing**) Have students locate the five desert cities by latitude and longitude and give each group a city to graph. (**Grouping option: Small groups**) Before students begin, model how to make a climograph by using the following information for Antarctica (another desert—believe it or not). (**Scaffolding: Modeling**)

Average Precipitation in Inches

Jan	.7	July	.5
Feb	.8	Aug	.5
Mar	.6	Sept	.4
Apr	.6	Oct	.5
May	.9	Nov	.5
June	.9	Dec	.4

Average Temperature in Fahrenheit

Jan	30	July	-21
Feb	19	Aug	-23
Mar	4	Sept	-17
Apr	-2	Oct	-9
May	-6	Nov	11
June	-4	Dec	22

5. Explain how the graphs will be scored.

Explain:

6. When groups have completed their graph, (**Preparation: Linking to Past Learning**) have those who worked on one city gather and share to make sure their graphs are correct. Then have the one person from this larger group share orally the graph of his/her city with the class. (**Integrating Processes: Speaking and Listening**)

SESSION TWO

7. Have students return to their small groups and complete the questions and essay either individually or as a group. (**Integrating Processes: Writing**) (**Assessment: Group or Individual, Written**)

Elaborate:

8. Show Why Does the Earth Have Deserts?
<https://www.youtube.com/watch?v=T6Us1sPXBfA>



Desert Deception: Believe it or Not!

(2 minutes) You may want to show it more than once. **(Integrating Processes: Listening)**

9. Have students draw a sketch and write out the steps so they can remember the concept of Hadley Cells and the creation of deserts. Now return their World Map from Session One and have them color in the deserts of the world using an atlas or reference map. Add a symbol for desert into their legend with their five dots of color. **(Grouping option: Independent)**

Evaluate:

10. Pair up students. **(Grouping option: Partners)** Introduce the idea that mathematicians use a variety of graphs dependent on the kind of data they wish to display. Hand out vocabulary cards to students. Have them discuss which ones of these kinds of graphs would work for showing climate information such as precipitation and temperatures.

Assessment

Science

The sketch and the written steps regarding Hadley Cells and the creation of deserts can be graded. Mastery will be seen as all steps given in correct order and an accurate drawing.

Mathematics, Geography, and Reading

Group climographs can be graded using the scoring guide provided on the worksheet. Mastery will be considered 40 points or higher.

Writing, Geography, and Reading

The questions and the essay question can be graded for accuracy according to points given. Mastery will be considered 80% or higher.

Vocabulary Test can be given. Mastery will be considered 80% or higher.

Geography

Map work can be graded for accuracy. Mastery will be considered 80% or higher.

Extensions

- Expand on the creation of different kinds of graphs and their uses in other lessons.
- Connect through a science experiment simulating Hadley Cells.
- Research rainforest regions with other data sets and do similar activities.

Sources

Latitude and Longitude finder

http://www.worldatlas.com/atlas/latitude_and_longitude_finder.htm

World Map from Arizona Geographic Alliance

<http://geoalliance.asu.edu/azga/>

Rainfall and Temperature Information

<http://www.weatherbase.com>

Why Does the Earth Have Deserts?

<https://www.youtube.com/watch?v=T6Us1sPXBfA>

Map of Main Deserts of the World

http://www.armystudyguide.com/content/army_board_study_guide_topics/desert_operations/map-of-the-main-desert-ar.shtml

