

Lesson Four

Challenged by Water: Floods and Drought

This lesson considers key interactions between physical and human landscapes, in particular the impact of water supply distributed across the country and what happens during water related disaster events.

Key Questions

- Why does climate vary across the USA?
- Where is the Mississippi river?
- Why does the Mississippi river flood?
- What impacts do floods have?
- What is drought?
- What causes drought?
- What are the impacts of drought in California?

Subject content areas

- Locational knowledge: Using a range of evidence to recognise the different climates experienced across the USA.
- Place knowledge: Understand the different climatic features of California and Mississippi and the impact this has on the different stages.
- Physical geography: Investigation of different physical features and processes related to climate.
- Human geography: Understand the impact of the environment on humans, particularly drought and floods.
- Geographical skills and fieldwork: Interpreting climate graphs to understand changes in climate across the USA.

Downloads

- Lesson Plan PDF | MSWORD
- Challenged by Water: Floods and Droughts (PPT)
- Climate Worksheet PDF | MSWORD
- California Worksheet PDF | MSWORD
- Example of Pupil's Work: Florida Postcard PDF | MSWORD
- Example of Pupils Work: Mississippi Storyboard PDF | MSWORD
- Example of Pupil's work: New York postcard PDF | MSWORD
- Mississippi Storyboard Activity PDF | MSWORD
- Postcard Template PDF | MSWORD
- Factsheet for Teachers PDF | MSWORD

Additional resources

- This lesson requires computer access for pupils for a variety of tasks
- Printing of worksheets and factsheets
- coloured pencils

Starter

Watch this video (from 15:08 minutes – 19:30 minutes). Go to YouTube website <https://www.youtube.com/watch?v=deta5DscPS4>

In group discussion encourage pupils to reflect on the video and ask:

- How do temperatures change between January and July?
- Describe the pattern of rainfall in the US.

Main

Please note there are a number of suggested tasks as part of the main teaching for this lesson. You are encouraged to implement and adapt these tasks based on ability and time available.

Task one: The lesson begins by exploring how climate differs across the US. Explain the importance of latitude for climate and explore the features of a climate graph (as shown on Floods and Droughts PPT).

Ask pupils to describe the features of a good and accurate climate graph. Answers should include:

- Bars to show precipitation (rainfall, snow, sleet or hail)(blue)
- Line to show maximum and minimum temperature (red & blue)
- Correctly labelled axis'
- Title of graph

You may also like to use the RGS-IBG Weather and Climate poster available to download here for broader information of documenting and representing climate data: <http://www.rgs.org/NR/rdonlyres/7875995B-868F-4024-9E7D-402BDF644A00/0/RGSWeatherClimateposterFINAL.pdf>

Task two: Divide pupils into groups. Each group should select ONE state in the USA to research its climate and complete the Climate Worksheet available in downloads. The pupils should consult US Climate Data website to do so. Go to: <http://www.usclimatedata.com/climate/united-states/us>

Remember to remind pupils to access the data in degrees Celsius and millimetres, rather than Fahrenheit and inches. The website provides both options.

Bring the groups together and pose the following questions for class discussion:

- What's the weather like in the state that they have researched
- Would pupils like to live in the state that they have researched? Why?

Task three: The two following exercises involve pupils comparing two very different climatic regions of the USA. Class should be divided into two. One half will first explore the impact of floods from the Mississippi and the activity will result in the creation of a storyboard of events. The other half of the class will explore how drought conditions are affecting the state of California with an exercise that requires pupils to collect clues about the region in order to provide an explanation of drought and its impact.

Mississippi Flooding

Pupils should visit websites below to:

- a) Complete the Investigating: Mississippi Floods Activity Sheet
 - Create a storyboard of events (see Pupil Example in downloads)
 - Complete the details, causes and impacts table

Links

Go to National Geographic website

<http://news.nationalgeographic.com/news/2011/05/pictures/110510-mississippi-river-memphis-tennessee-flood-record-crests-nation/>

Go to National Geographic Website

<http://voices.nationalgeographic.com/2011/05/03/mississippi-floods-can-be-restrained-with-natural-defenses/>

Go to NOAA website http://www.srh.noaa.gov/jan/?n=2011_05_ms_river_flood

Go to BBC News website <http://www.bbc.co.uk/news/world-us-canada-13337548>

Go Nature website: website

<http://www.nature.com/news/2011/110513/full/news.2011.289.html>

California Droughts

Watch this video to provide the context for the activity. Go to BBC website <http://www.bbc.co.uk/news/magazine-19121807>

Pupils should visit websites below to:

- b) Complete the Investigating: California Drought worksheet that explores causes and impacts of Drought. Possible answers are available in Teacher Factsheet in Downloads.

Links

Use these websites to complete the California worksheet:

- Go Drought Monitor website
<http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?CA>
- Go US Drought Portal website <http://www.drought.gov/drought/>
- Go National Drought Mitigation Centre website
<http://drought.unl.edu/DroughtforKids.aspx>
- Go Global Warming Isn't Causing Drought? Website
<http://www.nbcnews.com/science/environment/global-warming-isnt-causing-california-drought-report-triggers-storm-n263941>
- California's vanishing lakes. Go to Daily Mail website
<http://www.dailymail.co.uk/news/article-2731091/California-s-vanishing-lakes-Before-photos-reveal-shocking-shriveling-effect-state-s-devastating-drought-decades.html>

Pupils can swap activities half way through the lesson if time allows.

Plenary

By the end of this lesson pupils should have developed an understanding of how climate varies across the USA and how the social, cultural and economic experience of place is affected by climate.

As a final activity pupils should select use their knowledge of climate learnt throughout the lesson to design and write postcard from either: the state researched as part of task two, or Mississippi or California. A Postcard template is available in downloads; alongside examples of pupil's work.

In preparation for lesson five please ask pupils to bring in some food which come from the USA for the starter activity of lesson five. See lesson five Factsheet for Teachers for suggested items.