

Problem- Based Learning Task

Focus: This resource develops the general capability of critical and creative thinking in students and focuses on geographical concepts of place, interconnection, sustainability and change.

Inquiry Questions:

- How does people's reliance on places and environments influence their perception of them?
- What effect does the uneven distribution of resources and services have on the lives of people?
- What approaches can be used to improve the availability of resources and access to services?



Plaque showing 1867 flood level, Doctor's House Windsor; Carroll, K., Western Sydney University, 2019

In 1867 floods in the Hawkesbury-Nepean Valley at Windsor reached 19.7m **Australian Height Datum**. If you were to live to be 80, a flood of this size has a 15% chance of occurring during your lifetime. A flood this size would submerge the bridges at Yarramundi, Richmond and Windsor. The Richmond/Blacktown railway line would be closed as would many of the access roads in the valley. More than 90,000 people would need to be evacuated. If you live in the Hawkesbury-Nepean Valley, you could be one of them.

While there hasn't been a major flood in the Hawkesbury-Nepean Valley for over 25 years, floods can and will happen again. Floods can happen in any year, and sometimes without much warning. We need to be prepared.

- Australian Height Datum** - The datum that sets mean sea level as zero elevation. Mean sea level was determined from observations recorded by 30 tide gauges around the coast of the Australian continent for the period 1966–1968. Attribution (Australian Bureau of Meteorology)

It is not possible to prevent flooding in the Hawkesbury-Nepean Valley. People will always need to evacuate when directed to protect lives. The Hawkesbury-Nepean Valley has the highest flood exposure in NSW because:

- the unique landscape can create deep and extensive floods
- the evacuation road network is constrained
- there is a large and growing urban population
- the community is largely not aware of their flood risk or prepared for flooding
- research has shown that 79% of people have done nothing to prepare for a flood (INSW 2018)

Your challenge is to consider these issues and questions such as:

- why some people do not prepare
- the extent of the risk
- strategies or technologies that could help mitigate a flood incident
- actions the community can take in a flood event

Your group should focus on one big issue or question and develop a strategy/technology/campaign to provide information about the flood risk for young people, families and schools in the Hawkesbury-Nepean Valley and how they can prepare and respond.

Think about your big issue/question: what sources can you use, who is your audience and how can you optimise your message to achieve the desired response. This is a real and significant challenge for all of us.



Creative Commons ICONS

Some sources and questions you could consider investigating include:

- What are floods? How do they happen and why?
- A labelled map of the Hawkesbury-Nepean Valley floodplain, demonstrating the extent of flooding.
- A brief description of why the Hawkesbury-Nepean Valley area is so at risk.
- An explanation of the 'bathtub effect' and how it impacts the likelihood of flooding in the Valley.
- Data and statistics regarding the likelihood of floods, the impact that floods have (economically, socially, environmentally) on people and the state, the population that will be affected by floods in the Hawkesbury-Nepean Valley.
- Think about how to present these sets of data in a variety of ways, such as graphs, tables, flowcharts, images, video, photographs, etc.
- Develop an outline of the flood management processes that are in place/being implemented by government, councils and the community.
- Information about what to do in the instance of a flood. You might like to focus on some of the core questions people might have about the risk of floods. The NSW SES website has information that can guide you.
 - How can you prepare for a flood to minimise the risk?
 - Who tells you to evacuate? (the news, police, NSW SES, Bureau of Meteorology)
 - What do you take? (valuables, documents, pets, clothes?)
 - How do you leave? (drive, walk, public transport?)
 - A scaffolded "flood plan" for people to fill in with all the necessary information
- Any extra information that might be valuable/important.

Some helpful resources that you could use:

Resilient Valley, Resilient Communities: Hawkesbury-Nepean Valley Flood Risk Management Strategy

<http://www.insw.com/flood-strategy>

NSW SES - Hawkesbury-Nepean Floodsafe

<https://www.ses.nsw.gov.au/hawkesbury-nepean-floods/>

National Strategy for Disaster Resilience: Community Engagement Framework

<https://www.emergency.nsw.gov.au/Documents/publications/National-Strategy-for-Disaster-Resilience-Community-Engagement-Framework.pdf>

NSW Flood Data Portal

<https://floodata.ses.nsw.gov.au/>

Flood - Geoscience Australia

<https://www.ga.gov.au/scientific-topics/community-safety/flood>

Floods - Facts and Information (National Geographic)

<https://www.nationalgeographic.com.au/tv/worlds-worst-natural-disasters/>

Water in New South Wales (Department of Industry)

<https://www.industry.nsw.gov.au/water>

Using the Inquiry Process

Question	Information
Source Details (website url, date, writer or producer)	
Key information from the source	
Perspective of the issue that the source presents	
Alternative perspectives to investigate	

Reflect

- Who or what might have caused or influenced the perception of the issue presented by this source?

Project

- How might this perception change in the future (urbanisation, technology, people's responses, planning requirements, media, information)?

Critique and Create

- How could you respond to the issue now and into the future?

Self Assessment Tool



Peer/Audience Feedback

Question	Effectively	Not Effectively
<p>The project identified an important issue or question to respond to the following key areas of inquiry.</p> <ul style="list-style-type: none"> How do people's reliance on places and environments influence their perception of them? What effect does the uneven distribution of resources and services have on the lives of people? What approaches can be used to improve the availability of resources and access to services? <p>The project was creative, critical and clear in;</p> <ul style="list-style-type: none"> Using information from reliable range of data and sources such as the Bureau of Meteorology, NSW SES, local councils, Infrastructure NSW. Presenting the information clearly and accurately. Using creative approaches to present the information. Convincing and persuasive with the response. Appealing to the audience. Showing an awareness of different perspectives. 		