



The dangers of flood water

Time needed for activity 25 minutes

Location Any

Context

This activity focuses on the hazards hidden within flood water and the risks and dangers they present.

Natural Resources Wales' purpose is to pursue sustainable management of natural resources in all of its work. This means looking after air, land, water, wildlife, plants and soil to improve Wales' well-being, and provide a better future for everyone.

Curriculum for Wales

Humanities

- **What matters**
Our natural world is diverse and dynamic, influenced by processes and human actions.
- **What matters**
Events and human experiences are complex, and are perceived, interpreted and represented in different ways.

Science and Technology

- **What matters**
Being curious and searching for answers is essential to understanding and predicting phenomena.
- **What matters**
Forces and energy provide a foundation for understanding our universe

Health and Well-being

- **What matters**
How we process and respond to our experiences affects our mental health and emotional well-being.
- **What matters**
Our decision-making impacts on the quality of our lives and the lives of others.

Digital Competence Framework

Completing this activity provides opportunities to meet the following strands of the Digital Competence Framework.

Producing

- Sourcing, searching and planning digital content

Interacting and Collaborating

- Communication

Data and Computational Thinking

- Data and information literacy



Objectives

Learners will be able to:

- Explain why flood water is dangerous and describe some of the 'nasties' that can be found in it.
- Understand that for their own safety, they must not enter flood water.

Suggested equipment and resources

- [Information note - What's in flood water?](#)
- Transparent containers/pots/cups.
- Tea or dessert spoons to mix their 'flood water'.
- Stones, conkers or similar materials to replicate dangerous objects or hidden dangers.
- Several different coloured paints to replicate chemicals or agricultural waste.
- Vegetable or olive oil to replicate oil, petrol or diesel.
- Soil, silt, sand to replicate materials that have been washed from fields and surfaces into the flood water.
- Scraps of foil and paper to replicate waste and litter.
- Measuring stick (optional).

Background information

Natural Resources Wales and other organisations work with people and communities at risk of flooding; helping to prevent and prepare for flooding and providing support for those affected.

If you or your learners would like to know more about your flood risk and what to do in the event of a flood, visit our [webpages](#).

Suggestions to complete this activity

- You could begin this activity by explaining to your learners that Natural Resources Wales (NRW) and other organisations, are responsible for ensuring that people living in areas at risk of flooding are made aware of the dangers and how to prepare for a flood.
- Can your learners discuss what 'nasties' they might find in flood water? As each suggestion is made, discuss the potential dangers associated with it. What do they think happens to the deposited debris once the flood water has gone?
- What colour might they expect flood water to be and why? How would it vary from clean water?
- Using our [Information note - What's in flood water](#) as a reference, you could question your learners' knowledge of the dangers of flood water. For example, ask them to estimate the depth at which fast flowing water could knock a person off their feet, and use a measuring stick to highlight the answer of 15cm (6 inches).



- You could challenge your learners to create representative samples of flood water and the 'nasties' that they have just discussed. Working in small groups, give them a selection of equipment and resources as suggested above. In separate containers, can they re-create representative examples of different waste materials and pollutants mixed in with flood water? For example:

- Things that might pollute the environment? For example, oil, petrol or diesel.
- Harmful chemicals from industrial or agriculture runoff.
- Bacteria from raw sewage.
- Raw milk.

For further information and activities about problem pollutants you might want to check out our ['Water quality and water pollution - what affects our water systems?' webpage](#).

- Explain that as flood water moves around, so do the objects and chemicals contained or suspended within it. What happens if your learners use spoons to stir the 'flood water' in their container? Do any of the samples seem more dangerous than any of the others?
- Ask your learners what they should do if they can't avoid touching flood water, or objects which have been covered in flood water? Public Health Wales' advice is to wear rubber gloves, or wash hands thoroughly.
- You may wish to discuss with your learners how if flood water enters a building, it could make things very difficult for them to see. The flow of the polluted water could cause objects to move from one place to another. Ask them to consider what consequences this could have? Even if they were familiar with a room or place, in the event of a flood should they enter an area which is under water?
- Your learners could discuss what factors might influence the power and force of flood water. For example, rain levels, groundwater levels, tidal surges, drainage, topography, vegetation and deforestation. What impact might flood water have on a riverbank and the surrounding soil? Ask your learners to investigate whether flood water could move objects such as a park bench or a car. How powerful would the water flow need to be to carry a range of different items such as eroding riverbank soil, twigs, rocks, trees, benches, cars, and people?
- What do your learners consider to be the dangers for people and animals when flooding occurs? Do they think it would be safe to travel in a car, bus or train through flood water? Would they feel safe on low lying roads, bridges, riverbanks, or at the coast, when water is high, or if a flood event is occurring?

Bridges can impede the flow of water causing the water to back up and flood surrounding areas. Riverbanks can be over topped by flood water or can be washed away, resulting in danger to life. Large waves at the coast might carry large debris or wash a person out to sea.

- Can your learners find examples of local flooding to discuss? What impact did the flood water have on the individuals and area affected?

Suggested key questions

- Is it safe to walk in flood water?
- What dangers could there be?
- Would you be able to see your feet?
- What 'nasties' do you think might be in flood water?
- What would you do if you woke to find flood water had entered your house?
- How could flood water affect local ecosystems and wildlife?



Suggestions for adapting for different needs/abilities

- When thinking about what is present in flood water give more prompts to guide learners towards the answers. Keep the list simple.
- You could ask learners to look at [flood risk maps](#) and identify different areas such as where they live or where their school or setting is. Are they in or near a flood risk area? Where is the nearest flood risk area? What features (environmental, heritage, civic) might be at risk of flooding? Can they write down grid references for each area?
- Try and elicit more information about the substances present in flood water and the dangers they present. This could include a more in-depth discussion about where the pollutants come from and why flooding means that they are more likely to be present in the water.

Suggestions for follow up activity/extension

Try out our:

- [Activity plan - How to prepare for a flood](#)
- [Activity plan - Writing a flood plan](#)
- [Activity plan - Impacts of flooding](#)
- [Activity plan - Investigating the emotional and psychological effects of flooding](#)
- Your learners could develop and create a presentation on the dangers of flood water to highlight the issues and impacts, explaining to others at your setting or local community how to keep themselves and others safe and encouraging them to develop their own flood evacuation plan.

Learning in, learning about, and learning for the natural environment.

Looking for more learning resources, information and data?

Visit <https://naturalresources.wales/learning>

Alternative format; large print or another language, please contact:

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