

Title Fresh approaches to flood resilience

Item Type	Article (Version of Record)
UoW Affiliated Authors	Jones, Cheryl and Lengthorn, Elena
Full Citation	Jones, Cheryl and Lengthorn, Elena (2023) Fresh approaches to flood resilience. Primary Geography (11). pp. 10-11.
DOI/ISBN/ISSN	ISSN 2046-0082
Journal/Publisher	Primary Geography Geographical Association
Rights/Publisher Set Statement	This article was published by the Geographical Association in Primary Geography (11). pp. 10-11. ISSN 2046-0082 at https://portal.geography.org.uk/journal/view/J9781899086019 Posted as per the Author guide: reusing content from Primary Geography and Teaching Geography, which allows the author to 'Post the article PDF on institutional repository after publication, After 12-month embargo period' [confirmed by Senior Production Editor via email on 15/09/26].
License	n/a
Link	https://portal.geography.org.uk/journal/view/J9781899086019

Fresh approaches to flood resilience

Cheryl Jones and Elena Lengthorn

Whether your school is in a flood-prone area or not, Cheryl and Elena describe how the flood education programme can help you to ensure your pupils are fully prepared for future flood events.

Introduction

According to the Intergovernmental Panel on Climate Change (IPCC, 2022), we can expect more severe floods in many areas, including the UK, in the near future. The UK has recently experienced several extreme rainfall events, whereby heavy prolonged rainfall leads to significant floods. The number of properties at risk of flooding is increasing and the Department for Education's recent 'Sustainability and Climate Change' strategy highlighted that nearly half of schools (10,710) are at risk of flooding. That number is expected to increase to between 13,662 and 16,394 schools, depending on the emissions scenario (DfE, 2022).

The flood education programme

The University of Worcester flood education programme (FEP) is an innovative, practical and essential initiative to support primary schools in preparing young learners for our increasingly flood-prone future. It is a pupil-centred series of activities aligned, primarily, with key Geography National Curriculum objectives. The FEP has been delivered

within and beyond primary classrooms in the Worcestershire area with the support of the Hereford and Worcester Fire and Rescue Service (H&WFRS) and the Royal Life Saving Society (RLSS) (Figure 1).

Our strategy, initiated in 2018, builds on the flood resilience work at the University of Lancaster. Researchers there looked at the psychological impacts of flooding in response to a series of floods across Cumbria and Lancaster in December 2015. Our own city, Worcester, has a long history of fluvial and flash flooding, with an increasing number of major events in recent decades.

After a two-year gap, due to COVID-19 restrictions, the FEP was relaunched in September 2021 to local Worcester schools. The flood education sessions were initially delivered as Learning Outside the Classroom (LOtC) experiences at venues overlooking the River Severn. This enabled our local swift water rescue team to demonstrate live flood rescue processes and teach pupils how to use water safety devices (e.g. throw lines – see Figure 2). Classroom-based sessions included the five activities detailed and rationalised below.

Activity 1: Connecting pupils with a sense of place

We used a series of local and national flood photos alongside questioning to explore key definitions and terminology. Pupils then explored how the UN Sustainable Development Goals relate to flooding.

This activity enables teachers to assess pupils' prior knowledge, preconceptions and experiences of flooding, while

recognising that the pupils might have had different experiences and their own personal knowledge of flooding.

Activity 2: Flood warnings and plans

A short interactive quiz on the Environment Agency flood warning codes helps to build pupil knowledge. It also connects with the lived experiences of those who have experienced these alerts. We explained and used a flood timescale and set pupils a problem-solving enquiry based around imagining such an event in their own school and writing a flood action plan.

Previous research indicates that pupils can be confused about flood warnings and what they mean, and experience suggests that families did not take action when flooding occurred because they were not prepared (Mort *et al.*, 2016). A lack of understanding of flood warnings can result in inaction and potential suffering or even loss of life.

Activity 3: Flood room

We provided groups of pupils with a simple room template and a series of prepared clip art images and invited them to create their ideal living room, choosing and arranging the furniture according to their preference. These rooms were subsequently lined up and subjected to a flash flood. The experience was used to inspire discussion, build empathy with those who have endured flooded homes and consider the consequences in their own personal geographies.



Figure 1: Meeting the team. Photo © Elena Lengthorn and Cheryl Jones.



Figure 2: Using throw lines on the River Severn. Photo © Elena Lengthorn and Cheryl Jones.



Figure 3: Crafting living rooms to subject to a flash flood. Photo © Elena Lengthorn and Cheryl Jones.

This activity created a gentle opportunity for pupils to experience a personal sense of loss through the flooding of their carefully-crafted living rooms. Pupils articulated their feelings about loss of material possessions (e.g. a games console, family photos, Christmas presents). We shared images of the Calder Valley Boxing Day floods in 2015 to demonstrate the devastation flood inundation leaves behind. This task is designed to build much-needed resilience and empathy as well as considering the practical steps necessary to reduce suffering.

Activity 4: Flood water recipe

We shared images of children playing in flood water and asked pupils to reflect on what they thought was in the water, inviting them to write adjectives on sticky notes before exploring the responses. Pupils were then provided with a 'flood water recipe' sheet and all the ingredients needed for a flood water eruption. The experiment simulated a flash flood event with representations of sewage included as raisins and apple juice for excreta and bits of toilet paper, for the extra 'yuck' squeals!

This participatory approach included memorable and fun key facts to promote hygiene and safety in the longer-term effects of flooding (i.e. what happens after the water has subsided). It enabled us to demonstrate why people are advised not to enter, wade or play in flood water.

Activity 5: Packing a flood bag

We provided the pupils with the Environment Agency Flood board game (see web panel for a selection) and sets of pre-prepared 'emergency flood bags' in the form of envelopes and images of the emergency kit that they need to pack.

This game encourages pupils to think about what they would need to do in the event of their house flooding and how they could prepare themselves. They also consider that flooding could affect their own location.

Taking it further

The FEP invites pupils to reflect deeply on how this information translates to their own lives in and beyond school. As such, it encourages pupils to extend their new

flood knowledge into their community, intergenerationally. To ensure that it becomes consolidated into local action, we invite pupils to design a flood awareness poster or to write a flood action plan for their own home area (Figure 4). Opportunities for displaying the posters in and outside school can be built in to allow for further dissemination of flood safety awareness.

The posters and action plans that pupils produce show they can translate their learning about the potential impacts of flooding on their home area. These outputs demonstrate pupils' understanding of the safety messages, their developing vocabulary and knowledge of hazard management. Pupils are also able to link the flood education programme with the broader UN SDG targets in a tangible manner. For example, Emma Rowe (Assistant Head of Cherry Orchard Primary School) observed that:

'the children and staff really loved the flood education sessions and loved the chance to share what they knew about the Sustainable Development Goals, a blueprint for sustainability set by the United Nations'



Figure 4: Pupils created flood awareness posters to extend the work into the local community.

We believe that it is both urgent and essential for all young people to have access to a flood education programme in order to increase their understanding of the issues, build their resilience, empower them and to encourage them to prepare, practically, for the flooding that will inevitably affect their communities in future.

If you are interested in freshening your flood education offer or sharing your work in this area we would be delighted to hear from you (please email: e.lengthorn@worc.ac.uk).

References

- Department for Education (2022) *Sustainability and Climate Change: A strategy for the education and children's services systems*. Available at <https://www.gov.uk/government/publications/sustainability-and-climate-change-strategy/sustainability-and-climate-change-a-strategy-for-the-education-and-childrens-services-systems>
- IPCC (2022) *Climate Change 2022: Impacts, adaptation and vulnerability*. Available at <https://www.ipcc.ch/report/ar6/wg2/>
- Mort, M., Walker, M., Lloyd Williams, A., Bingley, A. and Howells, V. (2016) *Children, Young People and Flooding: Recovery and resilience*. Available at <https://wp.lancs.ac.uk/cyp-floodrecovery/files/2016/12/Children-Young-People-and-Flooding-Report-Final.pdf>

All URLs visited 29/3/23.

Web Resources

- Environment Agency 'Flood game': https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/555781/flood_game_gesw0208bnqp-e-e_withdrawn.pdf
- Lee Fallin Flood games: <https://leefallin.co.uk/2022/12/serious-games-for-learning-collaboration-and-knowledge-exchange/>
- Games 4 Sustainability 'Game of floods': <https://games4sustainability.org/gamepedia/game-of-floods/>

Dr Cheryl Jones is Head of Geography and Environment at the University of Worcester. She has a strong background in hazard management and community involvement in earth heritage and community engagement. She strongly believes that empowering communities to act as custodians encourages them to value, protect and preserve their landscape and cultural heritage. Elena Lengthorn is a Senior Lecturer in Teacher Education who teaches both primary and secondary initial teacher educators on undergraduate and postgraduate courses. She has a particular interest in education in climate emergency, sustainability and community.