

## Unit 4 Flood disaster – how do people cope?

### About the unit

This unit focuses on flood hazards. Pupils consider the effects of flooding and how people deal with them. They compare the impact of flooding in a UK location with the impact of a similar flood in Bangladesh. They then broaden their study to look at how people respond to other natural disasters, such as earthquakes, forest fires and hurricanes.

Pupils do not learn about how valleys are formed; this is covered in unit 7 'Rivers – a fieldwork approach'. (If teachers wish to include this work, adjustments must be made in relation to expectations of pupils' geographical knowledge and understanding and their levels of literacy and numeracy so that they are appropriate for year 7, rather than year 8.) The unit encourages pupils to use and apply what they already know, to practise skills of classifying and comparing, and to consider value-laden questions about the effects of floods, thus developing their thinking skills.

This unit is expected to take 8–11 hours.

### Key aspects

#### Geographical enquiry and skills

Pupils will:

- ask geographical questions
- collect/record/present evidence
- analyse evidence and draw conclusions
- communicate appropriately
- use extended geographical vocabulary
- use fieldwork techniques
- use atlases/globes/maps
- use secondary evidence

#### Knowledge and understanding of places

Pupils will:

- locate places and environments
- describe scale contexts
- investigate change in places

#### Knowledge and understanding of patterns and processes

Explored through:

- geomorphological processes
- weather and climate
- development

#### Knowledge and understanding of environmental change and sustainable development

Not focused on

### Expectations

#### At the end of this unit

**most pupils will:** identify many of the causes of flooding and how people contribute to their frequency and intensity and also how the responses of individuals will differ from those of larger bodies; appreciate that short-term response is different from long-term planning to reduce flood risk and that MEDCs are better positioned than LEDCs to devote more resources to both; begin to suggest relevant geographical questions about the causes of floods and to suggest plausible conclusions about the differences in their impact in Britain and Bangladesh; transfer some understanding to other hazard contexts and use a range of skills to investigate and compare them; begin to understand the importance of using more than one characteristic for description

**some pupils will not have made so much progress and will:** begin to recognise some causes of flooding and how people may contribute to them; begin to recognise that the responses of individuals and larger bodies will be different; view short-term response as more urgent than long-term planning for flood risk and begin to recognise that MEDCs have more resources to do both; begin to suggest suitable geographical questions about the causes of floods and to communicate their responses in the comparisons of their impact in Britain and Bangladesh using appropriate vocabulary; transfer some knowledge about hazards to other contexts; recognise that description involves using more than one characteristic

**some pupils will have progressed further and will:** identify most of the causes of flooding and explain how people contribute to their frequency and intensity and also explain why the responses of individuals will be different from those of larger bodies; recognise that short-term response is different from long-term planning to reduce flood risk and why MEDCs are better positioned to devote resources to both; suggest relevant geographical questions about the causes of floods and to suggest conclusions that are consistent with evidence about the differences in their impact in Britain and Bangladesh; apply their understanding to other hazard contexts and select a range of skills to investigate and compare them; understand the importance of using more than one characteristic for description

### Prior learning

It is helpful if pupils have:

- carried out research using ICT skills on the internet and CD-ROMs
- developed some confidence in sharing ideas and listening to others in discussion

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## Language for learning

Through the activities in this unit pupils will be able to understand, use and spell correctly words relating to:

- flooding, *eg rainfall, saturation, infiltration, deforestation, run-off, interception, catchment/drainage basin, flood plain, embankments, contamination, water-borne diseases*
- planning for disasters, *eg cause, effect, land use, management, short term, long term, more economically developed country (MEDC), less economically developed country (LEDC), infrastructure, evacuation, personal response, government response, emergency and rescue services*

Speaking and listening – through the activities pupils could:

- share information and discuss ideas in group work

Reading – through the activities pupils could:

- identify the main points in each paragraph, distinguishing between key points and supporting material

Writing – through the activities pupils could:

- make notes, summarise, etc, to clarify ideas and thinking which can be used later
- develop ideas and plans into continuous text (250 words minimum)

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## Resources

Resources include:

- supporting video programme: *Geographical eye over Asia, programme 4: Bangladesh – Living with floods* (Channel 4 Education)
- watering can and water carrier
- stopwatch
- key stage 3 textbook with section on floods in Bangladesh, or suitable websites
- ‘Singleton floods’ in *Thinking through geography*, ed David Leat (Chris Kingston Publishing, 1998 )
- *The story of Sue and Ian* at [www.ncl.ac.uk/education/think/](http://www.ncl.ac.uk/education/think/)

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## Future learning

This unit provides an introduction to how people respond to hazards and to the factors that cause flooding – to be developed further in later units such as unit 7 ‘Rivers – a fieldwork approach’, and at GCSE level. The strategies used in this unit to develop pupils’ thinking skills can be integrated into other units, to develop them further, to motivate pupils and increase their personal confidence and responsibility for learning.

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## Links

The activities in this unit link with:

- other geography units – unit 2 ‘The restless earth’, unit 24 ‘Passport to the world’
- ICT – using internet search engines, word-processing work
- thinking skills – taking part in group discussion, classifying and amending classification
- social development – working collaboratively
- science – work on the water cycle, developing their investigative skills

**What causes floods?**

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| <ul style="list-style-type: none"> <li>• to ask geographical questions and make predictions</li> <li>• to collect, record and present data</li> <li>• to select and use appropriate fieldwork techniques</li> <li>• to summarise their understanding in annotated diagrams</li> <li>• to share and refine ideas and information in small groups</li> <li>• what happens to water when it reaches the ground</li> <li>• to describe the components and links in the water cycle</li> <li>• to identify the main causes of flooding</li> </ul> | <ul style="list-style-type: none"> <li>• There are a number of ways to introduce this unit; some or all of the following activities can be used:               <ul style="list-style-type: none"> <li>– viewing dramatic video snippets of a flood to develop observation skills</li> <li>– reading a newspaper report of a local flood to establish recognised causes of flooding</li> <li>– carrying out practical work in the school grounds where pupils investigate what happens to water when it falls to the ground on to different surfaces (infiltration/interception). Take the opportunity to remind pupils of key stage 2 work on the water cycle</li> </ul> </li> <li>• After the chosen activity/ies help pupils to build up a summary diagram, with notes to record all the causes of flooding mentioned, including the role of infiltration.</li> </ul> | <ul style="list-style-type: none"> <li>• determine rates of infiltration and explain how and why infiltration is a factor in the likelihood of flooding</li> <li>• identify other causes of flooding</li> </ul> | <ul style="list-style-type: none"> <li>• Language for learning: this activity provides opportunities for pupils to read a passage and use coloured markers to locate main and supporting points.</li> <li>• Some pupils may have carried out an infiltration exercise in key stage 2 and will remember what they did. This can be used to plan a more exacting experience of data collection, timing for fair testing, etc.</li> <li>• Science pupils will be able to develop their investigative skills if they carry out practical work on the part played by evaporation and condensation in the water cycle.</li> <li>• Pupils can work collaboratively to plan the activities, design a recording sheet, allocate tasks, etc.</li> <li>• Language for learning: through group discussion and interaction, pupils should take different views into account and modify their own views in the light of what others say.</li> </ul> |
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### How do individuals and communities respond to flood hazards?

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| <ul style="list-style-type: none"> <li>• how individuals and communities respond to a hazard over different timescales</li> <li>• to observe and speculate (about hazard damage)</li> <li>• to share ideas</li> <li>• to classify</li> <li>• to evaluate critically</li> </ul> | <ul style="list-style-type: none"> <li>• Ask pupils to imagine that their home is flooded to a depth of 0.5 metres. Get them to list what damage and problems this would cause to/for their home. Ask them to consider what further problems would be created for them and their families if the flooding lasted for a week. Get them to list all the things that could be done to deal with the damage and problems. Get groups of four to pool their ideas.</li> <li>• Now ask pupils to classify their ideas about dealing with the problems and damage into between three and six groups.</li> <li>• Ask pupils to read <i>The story of Sue and Ian</i>. Discuss with them the causes of their flood. Get them to consider and identify the main points in pairs/groups, and assess whether the information in the story fits the agreed headings – encourage them to amend or edit their headings.</li> <li>• Conduct a whole-class discussion to compare critically classification systems. The main criterion to highlight is that the headings should be useful in considering all floods.</li> </ul> | <ul style="list-style-type: none"> <li>• investigate and record possible flood damage</li> <li>• listen to and share ideas</li> <li>• classify people's responses to floods</li> <li>• evaluate and amend their classification</li> </ul> | <ul style="list-style-type: none"> <li>• Homework activity: the initial exercise is best done as homework, during which pupils are encouraged to crawl around on the floor to investigate what would be damaged by floodwater. The homework data can then be pooled at the start of the next lesson.</li> <li>• Language for learning: when pooling their ideas pupils can make notes, summaries, etc, to clarify ideas and thinking which can be used later.</li> <li>• During the classification exercise and discussion the teacher needs to be very tentative about imposing their own classification.</li> <li>• Language for learning: the reading activity provides the opportunity for pupils to identify the main points in each paragraph, distinguishing between key points and supporting material.</li> </ul> |
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**Learning objectives**

Pupils should learn:

**Possible teaching activities****Learning outcomes**

Pupils:

**Points to note**

### Are the effects of flooding greater on the UK compared with Bangladesh?

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| <ul style="list-style-type: none"> <li>• to develop a range of thinking skills, <i>eg to make predictions, to evaluate, to compare, to discuss and share ideas, to transfer and adapt learning to new contexts</i></li> <li>• to use an atlas to locate places and analyse photographs</li> <li>• to determine Bangladesh's global context</li> <li>• to identify the effects of floods in Bangladesh</li> <li>• to assess the relationship between development and flood response</li> </ul> | <ul style="list-style-type: none"> <li>• Provide for pupils or ask them to research the general physical and economic characteristics of Bangladesh, which they locate with the aid of an atlas. Ask them to predict what the consequences would be in that country of a flood of the size considered earlier. Encourage them to use their classification headings as the basis of that prediction.</li> <li>• Ask pupils to read and discuss an account of floods in Bangladesh from an appropriate source, preferably one with illustrations. Ask them, in pairs, to decide whether the effect of the flood will be worse in Bangladesh than in Britain. Lead a whole-class discussion, encouraging pupils to give extended reasons for their views and to recognise the criteria or values they are using.</li> <li>• Using a Venn diagram, ask pupils to compare the relative effects of floods in Britain and in Bangladesh. Ask them to use this and other sources to write a piece of continuous text to compare flooding in Britain and Bangladesh. Pupils' writing can be planned as a class, with headings identified to develop ideas and plans into continuous text. A writing frame may need to be provided for weaker writers.</li> </ul> |
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| <ul style="list-style-type: none"> <li>• describe Bangladesh's global economic context</li> <li>• make reasoned predictions about the effects of floods in Bangladesh</li> <li>• make a comparison of prediction and actual events</li> <li>• make a realistic comparison of the effects of floods on societies with different levels of economic development</li> </ul> | <ul style="list-style-type: none"> <li>• Pupils should be helped to appreciate that a UK/Euro-centric viewpoint for making judgements might be inappropriate in an Asian context where values might be different.</li> <li>• ICT: some websites have some good images of the 1998 flood, <i>eg</i> <a href="http://www.drik.net/flood2k">www.drik.net/flood2k</a>. Newspaper and TV websites often contain topical information on disasters.</li> <li>• Language for learning: this activity provides pupils with the opportunity to plan and develop ideas in continuous text (250 words minimum recommended). This writing will build on literacy work from year 6, term 2 – non-fiction writing composition – of the <i>National Literacy Strategy: Framework for teaching</i>.</li> </ul> |
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### Is there a pattern in how people respond to all natural hazards?

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| <ul style="list-style-type: none"> <li>• to transfer their understanding of how people respond to one hazard to other hazard contexts and reach some generalisations about the management of hazards</li> <li>• to brainstorm their knowledge of/or research human response to another natural hazard</li> <li>• how to make a critical evaluation</li> </ul> | <ul style="list-style-type: none"> <li>• Allocate a different natural disaster to each group in the class, <i>eg earthquakes, bush/forest fires, hurricanes, volcanoes, droughts</i>, and ask pupils whether their headings for dealing with floods are appropriate for how people respond to these other disasters. Suggest to pupils that they might need to do some research to support their evaluation. There is considerable opportunity for differentiation by outcome and also by resources, if carefully selected. Weaker readers may need to be directed to suitable texts.</li> <li>• Ask groups to report back on whether their headings are appropriate to the second natural hazard and on any amendments/modifications they have made.</li> <li>• Ask pupils as individuals to record what they think are the most appropriate headings for describing how people respond to natural hazards generally. Under each heading they should record two examples from different hazards.</li> </ul> |
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| <ul style="list-style-type: none"> <li>• describe and explain the human response to a variety of natural hazards</li> <li>• apply one framework of understanding to other contexts</li> <li>• recognise the importance of transferring understanding and of developing generalisations by applying what they have learnt in one context to another</li> <li>• identify and describe in their writing the pattern and variation in human response to natural hazards</li> </ul> | <ul style="list-style-type: none"> <li>• If pupils have already studied unit 2 'The restless earth' the teacher may prefer to consider other hazards here.</li> <li>• Pupils need to be encouraged to adapt and amend their classification to make it more generalised, so it is capable of being useful in the consideration of other hazards.</li> <li>• Language for learning: collaborate with others to share information and ideas, and solve problems.</li> <li>• ICT: word-processing software can be very effective to encourage editing of researched information and analysis of facts before completing the short report.</li> </ul> |
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**Learning objectives**

Pupils should learn:

**Possible teaching activities****Learning outcomes**

Pupils:

**Points to note****How do we describe things?**

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| <ul style="list-style-type: none"> <li>• to use and understand topic-specific vocabulary</li> <li>• how to listen effectively</li> <li>• how to describe hazard phenomena</li> <li>• to distinguish between everyday use of words and their subject-specific use</li> </ul> | <ul style="list-style-type: none"> <li>• Organise pupils to play the game 'Taboo' with words associated with flooding. Ask groups to generate the taboo words and then pass them to other groups to play the game. Discuss what type of words the taboo words are (characteristics, synonyms, causes/effects, associated processes, examples, common experiences).</li> <li>• Ask groups to write definitions of the 'flood' words using all the taboo words.</li> <li>• Help pupils to distinguish between the words' everyday use and their subject-specific use.</li> </ul> | <ul style="list-style-type: none"> <li>• orally describe and understand key vocabulary (while enjoying themselves)</li> <li>• demonstrate their listening skills</li> <li>• know more than one defining characteristic of a phenomenon and say why that is useful</li> </ul> | <ul style="list-style-type: none"> <li>• The activity needs careful planning and instructions because it is unfamiliar – however pupils readily take to it.</li> <li>• Taboo: this is a game where a pupil defines a specific word to the rest of the group without using any words from a list of closely related 'taboo' words, <i>eg describe 'flood' without using 'river', 'run-off', 'rain' or 'drown'</i>. The number of 'taboo' words can be varied to provide support for lower-attaining pupils.</li> </ul> |
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