

Investigating natural hazards

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Assessment description	Category
Students research the impact of flooding on environments and communities using a selected case study. They apply the principles of prevention, mitigation and preparedness to evaluate how to minimise the harmful effects of flooding. They present their findings in a multimodal presentation.	Spoken/multimodal
	Technique
	Research
Context for assessment	Alignment
<p>Students propose actions for reducing the impact of future flooding in an identified area. The findings will be delivered in a multimodal presentation. Students present their findings about:</p> <ul style="list-style-type: none"> human interaction with the environment, its contribution to flooding, and its impact flood prevention and mitigation proposed actions to reduce the impact of future floods effects of proposed actions. 	<p><i>Australian Curriculum v7.1</i>, Year 5 Geography Australian Curriculum content and achievement standard ACARA — Australian Curriculum, Assessment and Reporting Authority www.australiancurriculum.edu.au</p> <p>Year 5 Geography standard elaborations www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr5_se.pdf</p>
	Connections
	<p>This assessment can be used with the QCAA Australian Curriculum resource titled <i>Year 5 unit overview — Investigating the impact of natural hazards</i> available at: www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr5_plan.docx</p>
	Definitions
	<p>Flood: Partial or complete inundation of normally dry land areas from overflow of inland or tidal waters from the unusual and rapid accumulation or runoff of surface waters from any source.¹</p> <p>Natural hazard: When the forces of nature combine to become destructive and have potential to damage the environment and endanger communities.</p> <p>Mitigation: A reduction in damages.</p> <p>Inundation: An overflow or deluge.</p> <p>Water catchment: A drainage area, especially of a reservoir or river basin.</p> <p>Urbanisation: The process of economic and social change in which an increasing proportion of the population of a country or region live in urban areas.</p> <p>Zoning: The classification of an area of land with respect to its use, e.g. residential, industrial, agricultural.</p>

¹ Source: Commonwealth of Australia (Geoscience Australia) 2014, www.ga.gov.au/scientific-topics/hazards/flood/basics

In this assessment

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Task-specific standards — matrix

Assessment resource: Cartographic conventions

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Assessment resource: Sample geographical questions












Assessment resource: Example of an infographic

Student booklet

Teacher guidelines

Identify curriculum

Content descriptions to be taught	
Geographical Knowledge and Understanding	Geographical Skills
<ul style="list-style-type: none"> The influence people have on the human characteristics of places and the management of spaces within them (ACHGK029) The impact of bushfires or floods on environments and communities, and how people can respond (ACHGK030) 	<p>Observing, questioning and planning</p> <ul style="list-style-type: none"> Develop geographical questions to investigate and plan an inquiry (ACHGS033) <p>Collecting, recording, evaluating and representing</p> <ul style="list-style-type: none"> Collect and record relevant geographical data and information, using ethical protocols, from primary and secondary sources, for example, people, maps, plans, photographs, satellite images, statistical sources and reports (ACHGS034) Evaluate sources for their usefulness and represent data in different forms, for example, maps, plans, graphs, tables, sketches and diagrams (ACHGS035) Represent the location and features of places and different types of geographical information by constructing large-scale and small-scale maps that conform to cartographic conventions, including border, source, scale, legend, title and north point, using spatial technologies as appropriate (ACHGS036) <p>Interpreting, analysing and concluding</p> <ul style="list-style-type: none"> Interpret geographical data and other information, using digital and spatial technologies as appropriate, and identify spatial distributions, patterns and trends, and infer relationships to draw conclusions (ACHGS037) <p>Communicating</p> <ul style="list-style-type: none"> Present findings and ideas in a range of communication forms, for example, written, oral, graphic, tabular, visual and maps; using geographical terminology and digital technologies as appropriate (ACHGS038) <p>Reflecting and responding</p> <ul style="list-style-type: none"> Reflect on their learning to propose individual and collective action in response to a contemporary geographical challenge and describe the expected effects of their proposal on different groups of people (ACHGS039)
<p>General capabilities (GCs) and cross-curriculum priorities (CCPs)</p> <p>This assessment may provide opportunities to engage with the following GCs and CCPs.</p>	

 Literacy  Numeracy  ICT capability  Critical and creative thinking  Personal and social capability  Ethical understanding  Intercultural understanding	  Aboriginal and Torres Strait Islander histories and cultures  Asia and Australia's engagement with Asia  Sustainability
Achievement standard This assessment provides opportunities for students to demonstrate the following highlighted aspects.	
<p>By the end of Year 5, students explain the characteristics of places in different locations at the national scale. They describe the interconnections between people, places and environments and identify the effect of these interconnections on the characteristics of places and environments. They describe the location of selected countries in relative terms and identify spatial distributions and simple patterns in the features of places and environments. They identify alternative views on how to respond to a geographical challenge and propose a response.</p> <p>Students develop geographical questions to investigate and collect and record information from a range of sources to answer these questions. They represent data and the location of places and their characteristics in graphic forms, including large-scale and small-scale maps that use the cartographic conventions of border, scale, legend, title, and north point. Students interpret geographical data to identify spatial distributions, simple patterns and trends, infer relationships and draw conclusions. They present findings using geographical terminology in a range of communication forms. They propose action in response to a geographical challenge and identify the expected effects of their proposed action.</p>	
Source: ACARA, The Australian Curriculum v7.0, www.australiancurriculum.edu.au	

Sequence learning

Suggested learning experiences

This assessment leads on from the learning experiences outlined in the QCAA's Year 5 Geography unit overview. The knowledge, understanding and skills developed in the exemplar unit will prepare students to engage in this assessment:

- See unit overview — Year 5 Geography exemplar, *Investigating the impact of natural hazards* www.qsa.qld.edu.au/downloads/p_10/ac_geog_yr5_unit_overview.doc

Adjustments for needs of learners

The Australian Curriculum, in keeping with *Melbourne Declaration on Educational Goals for Young Australians* (2008), establishes the expectations of a curriculum appropriate to all Australian students. All students across all education settings and contexts are supported in their diverse learning needs through the three-dimensions of the Australian Curriculum: the learning area content, the general capabilities and the cross-curriculum priorities. The relationship between and the flexibility to emphasise one or more of the dimensions allows teachers to personalise learning programs.

To make adjustments, teachers refer to learning area content aligned to the child's chronological age, personalise learning by emphasising alternate levels of content, general capabilities or cross-curriculum priorities in relation to the chronological age learning area content. The emphasis placed on each area is informed by the child's current level of learning and their strengths, goals and interests. Advice on the process of curriculum adjustment for all students and in particular for those with disability, gifted and talented or for whom English is an additional language or dialect are addressed in *Australian Curriculum — Student Diversity* materials.

For information to support students with diverse learning needs, see:

- Queensland Curriculum and Assessment Authority materials for supporting students with diverse learning needs www.qcaa.qld.edu.au/10188.html
- Australian Curriculum: Student Diversity www.australiancurriculum.edu.au/StudentDiversity/Student-diversity-advice
- *The Melbourne Declaration on Educational Goals for Young Australians* www.curriculum.edu.au/verve/_resources/National_Declaration_on_the_Educational_Goals_for_Young_Australians.pdf
- The *Disability Standards for Education* www.ag.gov.au.

Resources

Books

- Catling, S, Willy, T & Butler, J 2012, *Teaching Primary Geography for Australian Schools*, Hawker Brownlow, Melbourne

Online

- ACARA, *Student portfolio summary — Geography Year 5*: www.acara.edu.au/curriculum/worksamples/Year_5_Geography_Portfolio.pdf
- Asia Education Foundation, Year 5 Geography — 'Life in a floating village' (online module): www.asiaeducation.edu.au/curriculum_resources/geography/years_5_life_in_a_floating_village/year_5_life_in_a_floating_village_landing_page.html
- Brisbane City Council, Zoning maps: www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/brisbane-city-plan-2014/city-plan-2014-mapping
- Bureau of Meteorology webpages
- Queensland flood history: www.bom.gov.au/qld/flood/fld_history/index.shtml
- Queensland flood reports: www.bom.gov.au/qld/flood/fld_reports/reports.shtml
- Queensland flooded towns: www.bom.gov.au/qld/flood/fld_reports/qld_flooded_towns_2011.pdf
- Flood Warning Services (Commonwealth of Australia): www.bom.gov.au/water/floods/floodWarningServices.shtml
- Booklet: *What to do before, during and after a flood*: www.bom.gov.au/water/floods/document/What_todo_floods.pdf
- Curated Content, Suncorp data on visual.ly — 'The risks and costs of natural disasters in Australia' (infographic): <http://visual.ly/cost-floods-australia>
- Department of Natural Resources and Mines, Queensland Globe mapping and data tool: www.dnrm.qld.gov.au/mapping-data/queensland-globe
- Department of Natural Resources and Mines, Floodcheck map: www.dnrm.qld.gov.au/mapping-data/maps/floodcheck-map
- Floodsite: www.floodsite.net/juniorfloodsite/html/en/student/thingstodo/tour/index.html
- Geoscience Australia, Flood gallery: www.ga.gov.au/scientific-topics/hazards/flood/basics/gallery
- Golden Software tutorial, 'Create a base map from Google Earth': www.youtube.com/watch?v=VQHk9mLg3F0
- Google Earth Help Center: <https://support.google.com/earth/?hl=en#topic=4363013>
- Queensland Globe tutorial videos: www.dnrm.qld.gov.au/mapping-data/queensland-globe/using
- Queensland Government disaster management: www.qld.gov.au/emergency/news/features/seflood.html
- Queensland Reconstruction Authority, Aerial imaging and mapping: www.qldreconstruction.org.au/maps/aerial-imaging-and-mapping-pdfs
- Scribble Maps: www.scribblemaps.com
- Teaching and learning in South Australia, Government of South Australia, 'Geography: What is it for?' www.youtube.com/watch?v=sgGb8BM2TBk

Develop assessment

Implementing

Section 1. Selecting a case study

Student role

- Explore flood case studies from local and international contexts. Refer to Year 5 Geography Exemplar unit plan — *Investigating the impact of natural hazards*.
- Use the criteria provided to select a suitable case study of a geographical area that has a history of flood events.
- Identify a context (e.g. 2011 flooding in Brisbane, a local flood event, various events in Asia) to further research and present findings.
- Review geographical concepts and terms about natural hazards and flood events.

Teacher role

- Review the key inquiry questions and discuss the relationship to the assessment task.
 - How do people and environments influence one other?
 - How can the impact of bushfires or floods on people and places be reduced?
- Read through the *Student booklet* with the students and answer questions about the assessment requirements.
- Work through the *Task-specific standards* (matrix or continua) with students to highlight the valued features of the task and set learning goals.
- Choose a flood event to explore with the students as a model using a range of geographical sources including satellite images, photographs.
- Provide access to a range of sources and assist students to select a suitable case study using the guidelines provided.
- Review research strategies for collecting data and information about the selected flood event.
- Provide examples for key concepts and terms and check for student understanding.

Section 2. Developing geographical questions

Student role

- Develop geographical questions to guide research using the key inquiry questions of:
 - How do people and environments influence one another?
 - How can the impact of bushfires or floods on people and places be reduced?
- Review the relevance of questions posed.
- Check that questions address geographical concepts and terms.
- Generate criteria to evaluate the usefulness of data, sources etc.
- Review questions to consider range, relevance and relationship to the identified geographical concepts of interconnections, space, place, change, environment and sustainability.

Teacher role

- Review the model for sequencing geographical inquiry with student learning provided in the Year 5 Geography curriculum: www.qcaa.qld.edu.au/yr5-geography-curriculum.html.
- Identify the aspects of inquiry that are distinct to geography, i.e. Collecting and representing data.
- View the animation 'Geography: What is it for?' www.youtube.com/watch?v=sgGb8BM2TBk and discuss:
 - What kinds of questions do geographers ask? What technological tools do geographers use?
 - What challenges do geographers address?
 - How do geographers respond to challenges?
- Use the *Assessment resource: Sample geographical questions* to support students.

Section 3. Collecting, recording and evaluating data and information

Student role

- Use research questions to collect, record and evaluate data and information including:
 - flood maps, satellite images and media reports
 - reports from organisations outlining strategies to prevent, mitigate and prepare for flooding
 - photographs from the past to present that show changes to the natural environment such as residential and infrastructure development
 - interviews with flood experts such as local government officers and emergency personnel.

Teacher role

- Provide access to a range of geographical sources including satellite images, maps, photographs, statistical sources and reports.
- Use the identified resources on page 4 to bookmark sources as required for students.
- Use the *Assessment resource: Evaluating geographical sources* to assist students to complete Section 3 of the *Student booklet*.

Section 4. Representing and communicating

Student role

- Create a base map using Google Earth or Queensland Globe. For support, use the:
 - 'Create a base map from Google Earth' tutorial: www.youtube.com/watch?v=VQHk9mLg3F0
 - Google Earth Help Center: <https://support.google.com/earth/?hl=en#topic=4363013>
 - Queensland Globe tutorial videos: www.dnrm.qld.gov.au/mapping-data/queensland-globe/using.
- Use a base map (Google Earth or Queensland Globe) to identify the geographical area of your case study. Identify :
 - water catchment area
 - environmental features
 - land use features
 - infrastructure as transport routes
 - inundation areas.
- Use cartographic conventions such as border, scale, legend, title and north point.

Teacher role

- Use an appropriate base map or spatial application to guide students to complete a flood map of the selected area.

Section 5. Interpreting and analysing sources

Student role

- Interpret data and information to respond to questions.
- Synthesise information to answer research questions, e.g. What can be done to prevent future floods?
- Reflect on findings to suggest actions in response to future flood events.

Teacher role

- Model how to interpret meaning from sets of data.
- Check understanding of geographical terms of spatial distribution, patterns and trends.
- Review responses with students in *ACARA Work sample portfolios* (see Resources) that describe spatial patterns, distributions and trend in data and maps.

Section 6. Presenting findings

Student role

- Select a format for a multimodal presentation to make recommendations to reduce the impact of future flooding.

Teacher role

- Select a choice of multimodal formats for students to present their findings, such as infographics, or another interactive form.

<ul style="list-style-type: none"> • Use: <ul style="list-style-type: none"> – research findings – the flood map – relevant data, graphs and photographs – format such as infographics or a slide show. • Complete the planning checklist. • Deliver presentation and reflect on the following: <ul style="list-style-type: none"> – How effective is your presentation? – How reliable were the sources used? – Were geographical questions answered? – What have you learnt about undertaking a geographical inquiry? 	<ul style="list-style-type: none"> • Provide exemplars to discuss features of quality, e.g. Curated Content's use of Suncorp data on visual.ly: http://visual.ly/cost-floods-australia. • Use: <i>Assessment resource: Example of an infographic</i> to support students using this multimodal format. • Provide feedback on planning before students proceed with their presentations. • Reflect with students on what worked well and what they would do differently next time when undertaking geographical inquiry. • Review year level planning to adjust future teaching and learning.
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Make judgments

When making judgments about the evidence in students' responses to this assessment, teachers are advised to use the task-specific standards provided. The development of these task-specific standards has been informed by the Queensland Geography standard elaborations. See www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr5_se.pdf.

The Queensland standard elaborations for Geography

The Queensland Year 5 standard elaborations for Geography are a resource to assist teachers to make consistent and comparable evidence-based A to E (or the Early Years equivalent) judgments. They should be used in conjunction with the Australian Curriculum achievement standard and content descriptions for the relevant year level.

The Queensland Geography standard elaborations provide a basis for judging *how well* students have demonstrated what they know, understand and can do using the Australian Curriculum achievement standard.

The Australian Curriculum achievement standards dimensions of Understanding and Skills are used to organise the Queensland Geography standard elaborations. Understanding and Skills in Geography are organised as Geographical Knowledge and Understanding and Geographical Inquiry and Skills.

The valued features of Geography, drawn from the achievement standard and the content descriptions are organised as:

- Knowledge and understanding
- Questioning and researching
- Interpreting and analysing
- Communicating.

Task-specific standards

Task-specific standards give teachers:

- a tool for directly matching the evidence of learning in the response to the standards
- a focal point for discussing students' responses
- a tool to help provide feedback to students.

Task-specific standards are not a checklist; rather they are a guide that:

- highlights the valued features that are being targeted in the assessment and the qualities that will inform the overall judgment
- specifies particular *targeted aspects* of the curriculum content and achievement standard
- aligns the valued feature, task-specific descriptor and assessment
- allows teachers to make consistent and comparable on-balance judgments about a student's work by matching the qualities of students' responses with the descriptors
- clarifies the curriculum expectations for learning at each of the five grades (A–E or the equivalent)
- shows the connections between what students are expected to know and do, and how their responses will be judged and the qualities that will inform the overall judgment
- supports evidence-based discussions to help students gain a better understanding of how they can critique their own responses and achievements, and identify the qualities needed to improve
- encourages and provides the basis for conversations among teachers, students and parents/carers about the quality of students' work and curriculum expectations and related standards.

Task-specific valued features

Task-specific valued features are the discrete aspects of the valued features of Geography targeted in a particular assessment and incorporated into the task-specific standards for that assessment. They are selected from the Queensland Geography standard elaborations valued features drawn from the Australian Curriculum achievement standard and content descriptions.

Task-specific valued features for this assessment

The following table identifies the valued features for this assessment and makes explicit the understandings and skills that students will have the opportunity to demonstrate. This ensures that the alignment between what is taught, what is assessed and what is reported is clear.

Australian Curriculum Year 5 Geography	Investigating natural hazards Unit 2: Investigating the impact of natural hazards	Teacher guidelines
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Australian Curriculum achievement standard dimensions	Valued features		Task-specific valued features
Understanding and Skills	Geographical Knowledge and understanding	Knowledge and understanding	Describes the human interaction with the environment that has contributed to flooding and its impact. Identifies alternative views on how to respond to flooding. Sections 3 and 5
	Geographical Inquiry and skills	Questioning and research	Uses geographical questions and collects and records information from a range of sources. Sections 2 and 3
		Interpreting and analysing	Interprets geographical data about flood events to identify spatial distributions, simple patterns and trends, infer relationships and draw conclusions. Proposes action and identifies the expected effects in response to future flood events. Sections 5 and 6
		Communicating	Uses a multimodal presentation: to propose actions to reduce the impact of future flood events and identify the expected effects of proposals using geographical concepts and terminology. Section 6

The task-specific standards for this assessment are provided in two models using the same task-specific valued features:

- a matrix
- a continua.

Matrix and continua

Task-specific standards can be prepared as a matrix or continua. Both the continua and the matrix:

- use the Queensland standard elaborations to develop task-specific descriptors to convey expected qualities in students' work — A to E (or equivalent)
- highlight the same valued features from the Queensland standard elaborations that are being targeted in the assessment and the qualities that will inform the overall judgment
- incorporate the same task-specific valued features, i.e. make explicit the particular understanding/skills that students have the opportunity to demonstrate for each selected valued feature
- provide a tool for directly matching the evidence of learning in the child's response to the standards to make an on-balance judgment about achievement

- assist teachers to make consistent and comparable evidence-based A to E (or equivalent) judgments.

Continua

The continua model of task-specific standards uses the dimensions of the Australian Curriculum achievement standard to organise task-specific valued features and standards as a number of reference points represented progressively along an A to E (or equivalent) continuum. The task-specific valued features at each point are described holistically. The task-specific descriptors of the standard use the relevant degrees of quality described in the Queensland standard elaborations.

Teachers determine a position along each continuum that best matches the evidence in the student's responses to make an on-balance judgment about achievement on the task.

The continua model is a tool for making an overall on-balance judgment about the assessment and for providing feedback on task specific valued features.

Matrix

The matrix model of task-specific standards uses the structure of the Queensland standard elaborations to organise the task-specific valued features and standards A to E (or equivalent). The task-specific descriptors of the standard described in the matrix model use the same degrees of quality described in the Queensland standard elaborations.

Teachers make a judgment about the task-specific descriptor in the A to E (or equivalent) cell of the matrix that best matches the evidence in the student's responses in order to make an on-balance judgment about how well the pattern of evidence meets the standard.

The matrix is a tool for making both overall on-balance judgments and analytic judgments about the assessment. Achievement in each valued feature of the Queensland standard elaboration targeted in the assessment can be recorded and feedback can be provided on the task-specific valued features.

Use feedback

Feedback to students	<p>Evaluate the information gathered from the assessment to inform teaching and learning strategies. Focus feedback on the child's personal progress and the next steps in the learning journey.</p> <p>Provide feedback about:</p> <ul style="list-style-type: none">• range and balance of questions that embed the geographical concepts and the context of a flood event as a natural hazard to consider prevention and mitigation strategies• the range of source materials collected, organised and evaluated for relevance, reliability and usefulness. Ensure that students have opportunities to revisit their selections before proceeding to represent and communicate their findings• representation of spatial patterns and distributions of flooding in selected geographical area over time using the conventions of mapping• choice of formats to represent information and data to synthesise findings to provide clear messages about key ideas• review the effectiveness of the presentation with peers to consider what else needs to be included. <p>The task-specific standards for this assessment can be used as a basis for providing feedback to students.</p>
Resources	<p>For guidance on providing feedback, see the professional development packages titled:</p> <ul style="list-style-type: none">• About feedback www.qcaa.qld.edu.au/downloads/p_10/as_feedback_about.docx• Seeking and providing feedback www.qcaa.qld.edu.au/downloads/p_10/as_feedback_provide.docx

Investigating natural hazards

Name

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Purpose of assessment: To present findings in a multimodal format about how to minimise the effects of future flood events.

Understanding and Skills				
Geographical Knowledge and Understanding	Geographical Inquiry and Skills			
Knowledge and understanding	Questioning and researching	Interpreting and analysing	Communicating	
<p>Describes the interconnection between human interaction with the environment that has contributed to flooding and identifies the impact of this interaction</p> <p>Identifies alternative views on how to respond to flooding</p> <p>Sections 3 and 5</p>	<p>Develops geographical questions for investigating flooding in a geographical area and collects and records information from a range of sources</p> <p>Sections 2 and 3</p>	<p>Interprets geographical data about flood events to identify spatial distributions, simple patterns and trends, infer relationships and draw conclusions</p> <p>Proposes action to reduce the impact of future flooding and identifies the expected effects in response to future flood events</p> <p>Sections 5 and 6</p>	<p>Presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using geographical terminology</p> <p>Represents data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using the cartographic conventions of border, scale, legend, title, and north point</p> <p>Section 6</p>	
<p>◀ Comprehensively describes the interconnection between human interaction with the environment that has contributed to flooding and identifies and explains the impact of this interaction</p> <p>◀ Identifies and explains alternative views on how to respond to flooding</p>	<p>◀ Develops geographical questions for investigating flooding in a geographical area and collects, records and uses information in a considered way from a range of sources to answer these questions</p>	<p>◀ Interprets geographical data about flood events to identify and explain spatial distributions, simple patterns and trends, infer relationships and draw reasoned conclusions</p> <p>◀ Proposes action in a reasoned way to reduce the impact of future flooding and identifies and explains the expected effects in response to future flood events</p>	<p>◀ Purposefully presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using relevant geographical terminology</p> <p>◀ Accurately represents in detail data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using the cartographic conventions of border, scale, legend, title, and north point</p>	<p>A</p> <p>B</p>

Understanding and Skills				
Geographical Knowledge and Understanding	Geographical Inquiry and Skills			
Knowledge and understanding	Questioning and researching	Interpreting and analysing	Communicating	
<p>Describes the interconnection between human interaction with the environment that has contributed to flooding and identifies the impact of this interaction</p> <p>Identifies alternative views on how to respond to flooding</p> <p>Sections 3 and 5</p>	<p>Develops geographical questions for investigating flooding in a geographical area and collects and records information from a range of sources</p> <p>Sections 2 and 3</p>	<p>Interprets geographical data about flood events to identify spatial distributions, simple patterns and trends, infer relationships and draw conclusions</p> <p>Proposes action to reduce the impact of future flooding and identifies the expected effects in response to future flood events</p> <p>Sections 5 and 6</p>	<p>Presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using geographical terminology</p> <p>Represents data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using the cartographic conventions of border, scale, legend, title, and north point</p> <p>Section 6</p>	
<p>◀ Describes the interconnection between human interaction with the environment that has contributed to flooding and identifies the impact of this interaction</p> <p>◀ Identifies alternative views on how to respond to flooding</p>	<p>◀ Develops geographical questions for investigating flooding in a geographical area and collects, records and uses information from a range of sources to answer these questions</p>	<p>◀ Interprets geographical data about flood events to identify spatial distributions, simple patterns and trends, infer relationships and draw conclusions</p> <p>◀ Proposes action to reduce the impact of future flooding and identifies the expected effects in response to future flood events</p>	<p>◀ Presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using geographical terminology</p> <p>◀ Represents data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using the cartographic conventions of border, scale, legend, title, and north point</p>	C
				D

Understanding and Skills

Geographical Knowledge and Understanding	Geographical Inquiry and Skills		
Knowledge and understanding	Questioning and researching	Interpreting and analysing	Communicating
<p>Describes the interconnection between human interaction with the environment that has contributed to flooding and identifies the impact of this interaction</p> <p>Identifies alternative views on how to respond to flooding</p> <p>Sections 3 and 5</p>	<p>Develops geographical questions for investigating flooding in a geographical area and collects and records information from a range of sources</p> <p>Sections 2 and 3</p>	<p>Interprets geographical data about flood events to identify spatial distributions, simple patterns and trends, infer relationships and draw conclusions</p> <p>Proposes action and identifies the expected effects in response to future flood events</p> <p>Sections 5 and 6</p>	<p>Presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using geographical terminology</p> <p>Represents data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using the cartographic conventions of border, scale, legend, title, and north point</p> <p>Section 6</p>
<p>◀ <u>Makes statements about</u> human interaction with the environment and the impacts of flooding</p> <p>◀ <u>Statements about</u> views on how to respond to flooding</p>	<p>◀ <u>Uses</u> geographical questions and <u>records</u> information from sources</p>	<p>◀ <u>Uses</u> data to <u>make statements</u> about flood events</p> <p>◀ <u>Makes statements about</u> action to reduce the impact of future flooding and the expected effects</p>	<p>◀ <u>Presents fragmented</u> findings in multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using <u>everyday language</u></p> <p>◀ <u>Represents in a fragmented way</u> data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding</p>

E

Investigating natural hazards

Name

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Purpose of assessment: To present findings about how to minimise the effects of a future flood event.

Understanding and Skills			A	B	C	D	E
Geographical Knowledge and Understanding	Knowledge and understanding	Describes the interconnection between human interaction with the environment that has contributed to flooding and identifies the impact of this interaction Section 3	Comprehensively describes the interconnection between human interaction with the environment that has contributed to flooding and identifies and explains the impact of this interaction	Describes in detail the interconnection between human interaction with the environment that has contributed to flooding and identifies and describes the impact of this interaction	Describes the interconnection between human interaction with the environment that has contributed to flooding and identifies the impact of this interaction	Describes aspects of the interconnection between human interaction with the environment that has contributed to flooding and identifies aspects of the impact of this interaction	Makes statements about human interaction with the environment and the impacts of flooding
		Identifies alternative views on how to respond to flooding Sections 3 and 5	Identifies and explains alternative views on how to respond to flooding	Identifies and describes alternative views on how to respond to flooding	Identifies alternative views on how to respond to flooding	Identifies aspects of alternative views on how to respond to flooding	Makes statements about views on how to respond to flooding
Geographical Inquiry and Skills	Questioning and researching	Develops geographical questions for investigating flooding in a geographical area and collects and records information from a range of sources Sections 2 and 3	Develops geographical questions for investigating flooding in a geographical area and collects, records and uses information in a considered way from a range of sources to answer these questions	Develops geographical questions for investigating flooding in a geographical area and collects, records and uses information in an informed way from a range of sources to answer these questions	Develops geographical questions for investigating flooding in a geographical area and collects, records and uses information from a range of sources to answer these questions	Develops geographical questions for investigating flooding in a geographical area and collects, records and uses information from a range of sources to answer aspects of these questions	Uses geographical questions and records information from sources

Continues over page

			A	B	C	D	E	
Understanding and Skills	Geographical Inquiry and Skills	Interpreting and analysing	Interprets geographical data about flood events to identify spatial distributions, simple patterns and trends, infer relationships and draw conclusions Section 5	Interprets geographical data about flood events to identify and explain spatial distributions, simple patterns and trends, infer relationships and draw reasoned conclusions	Interprets geographical data about flood events to identify and compare spatial distributions, simple patterns and trends, infer relationships and draw informed conclusions	Interprets geographical data about flood events to identify spatial distributions, simple patterns and trends, infer relationships and draw conclusions	Interprets geographical data about flood events to identify aspects of spatial distributions, simple patterns and trends, infer relationships and draw partial conclusions	Uses data to make statements about flood events
			Proposes action to reduce the impact of future flooding and identifies the expected effects in response to future flood events Sections 5 and 6	Proposes action in a reasoned way to reduce the impact of future flooding and identifies and explains the expected effects in response to future flood events	Proposes action in an informed way to reduce the impact of future flooding and identifies and describes the expected effects in response to future flood events	Proposes action to reduce the impact of future flooding and identifies the expected effects in response to future flood events	Proposes action to reduce the impact of future flooding and identifies aspects of the expected effects in response to future flood events	Makes statements about action to reduce the impact of future flooding and the expected effects
		Communicating	Presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using geographical terminology Section 6	Purposefully presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using relevant geographical terminology	Effectively presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using relevant geographical terminology	Presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using geographical terminology	Partially presents findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using everyday language	Presents fragmented findings in a multimodal presentation to propose actions to reduce the impact of future flooding and identify the expected effects of proposals using everyday language
			Represents data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using the cartographic conventions of border, scale, legend, title, and north point Section 6	Accurately represents in detail data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using the cartographic conventions of border, scale, legend, title, and north point.	Represents in detail data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using the cartographic conventions of border, scale, legend, title, and north point.	Represents data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using the cartographic conventions of border, scale, legend, title, and north point.	Partially represents data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding using aspects of cartographic conventions of border, scale, legend, title, and north point.	Represents in a fragmented way data and the location of places and their characteristics in graphic forms, including a map to show areas of flooding
Australian Curriculum Year 5 Geography			Investigating natural hazards Unit 2: Investigating the impact of natural hazards			Task specific standards — matrix		

Investigating natural hazards

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Cartographic conventions

It is important that students know and understand cartographic conventions for representing geographic data and information on small-scale and large-scale maps.

Cartographic convention	Explanation
Border	<ul style="list-style-type: none"> Positions the map within the white space of the page. Defines the extent of the map.
Orientation	North point
Legend (or key)	List of the symbols and colours used: <ul style="list-style-type: none"> usually located in the bottom left- or right-hand corner uses shading identifies the symbols used, e.g. towns, railways, national parks.
Title	Defines the map's location and its purpose.
Scale	The relationship (or ratio) between distance on a map and the corresponding distance on the ground. For example, on a 1:100 000 scale map , 1 cm on the map equals 1 km on the ground.
Source	Where possible the source of the map should be acknowledged using an accepted referencing system such as author–date.

FIGURE 3: LANDSAT IMAGE OF EVANSVILLE, INDIANA AND NORTHERN KENTUCKY AFTER A TORNADO

Note the pale, interrupted stripe across the image showing the track the tornado made as it moved from south-west to north-east.

Annotations

Border

Orientation
(north point) &
scale



Source: *Tornado Track Across Indiana and Kentucky*, NASA's Earth Observatory, accessed 27 March 2009 <<http://earthobservatory.nasa.gov/IOTD/view.php?id=6037>>, in the public domain with attribution.

This content and image has been adapted from QCAA resource:
https://www.qcaa.qld.edu.au/downloads/senior/snr_geography_07_adv_ass_geog_conv.pdf

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Evaluating geographical sources

Usefulness

- What are the key ideas here?
- How does this source help you respond to your inquiry questions?
- Which ideas are facts and which ideas are opinions?
- Is there sufficient data and information in this source?

Relevance

- What is the purpose of this source?
- When was this source created?
- Does this source refer to geographical concepts and terms?
- Which data and information is not related to this inquiry?

Reliability

- Who has created this source?
- Where was this source created?
- Why was this source created?
- Whose point of view is presented? Is there a balance of different views presented in this source?
- Can I trust this source? Why or why not?
- What data and evidence is used in this source?
- How can the reliability and accuracy of data and information be improved?

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Sample geographical questions

Research area	Relevant geographical concepts and terms	Research questions
The environmental, human and managed features of this area	Place Environment Interconnections Zoning Dams Water catchment Flood plains	<ul style="list-style-type: none"> What is the history of flooding in this area? How is human interaction with the environment linked to flooding? How have humans changed the natural environment? Where is the water catchment for this area? Where is the residential and industrial development in this area?
The spatial pattern and distribution of flooding over time	Space Place Change	<ul style="list-style-type: none"> What is revealed about the pattern of flooding in this area over time? How has rainfall distribution changed over time? What is revealed about pattern of population growth in this area? What is the relationship between rainfall and flooding that is revealed in the collected data?
The human impact on the environment that contributes to flooding	Interconnections Change Local government	<ul style="list-style-type: none"> What changes have been made to the natural features of this area? Who has made these changes?
The impact of flooding	Environmental Economic Social and community Inundation	<ul style="list-style-type: none"> What are the environmental, social and economic impacts of flooding? How has flooding altered the environmental and built features of this area?
Flood prevention and mitigation strategies	Levees Infrastructure Land use planning Risk assessment Emergency plans Community alerts	<ul style="list-style-type: none"> What can be done to prevent future floods? What strategies are currently being used to prevent and mitigate flood damage? How can technology assist in the prevention of flood damage? What strategies are used in other areas of high flood risk? How can communities prepare for future flooding events?

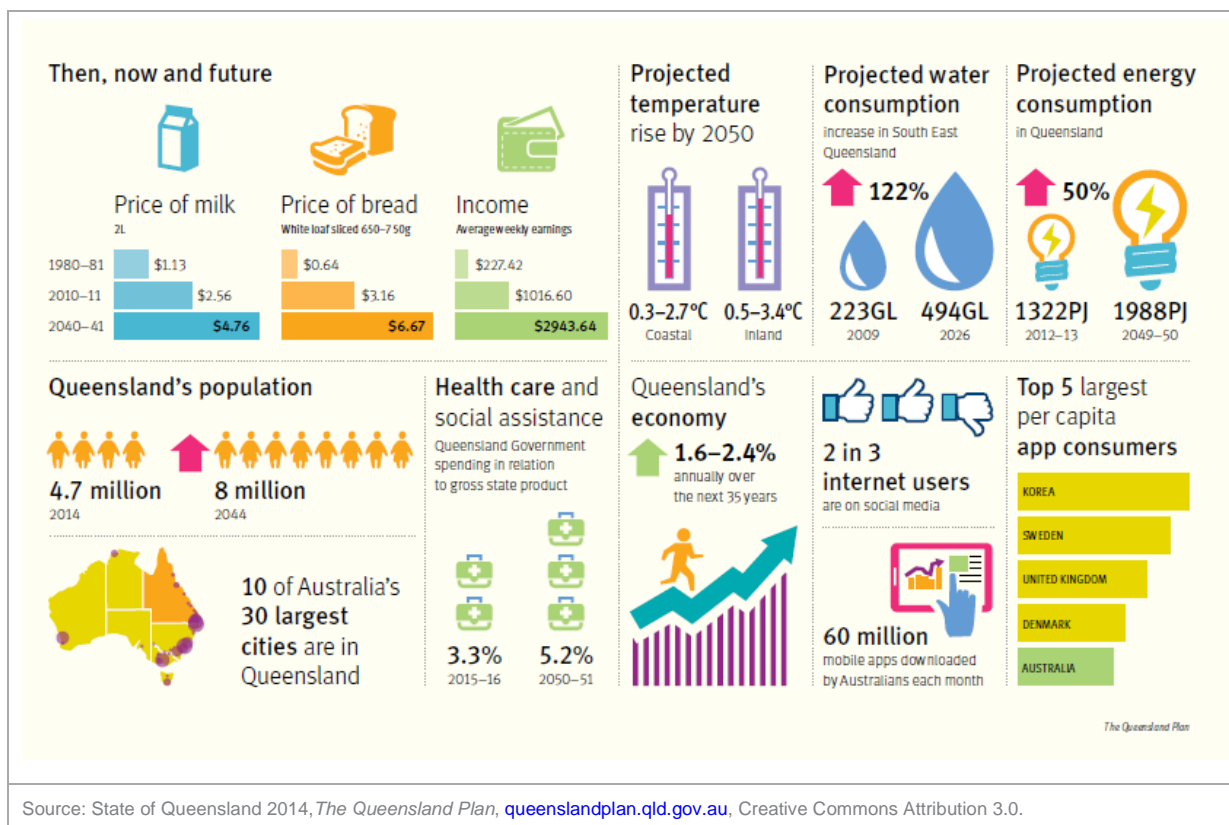
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Example of an infographic

Respond to the following questions:

- What is the purpose of this infographic?
- Does it communicate information effectively?
- How can it be improved?



Source: State of Queensland 2014, *The Queensland Plan*, queenslandplan.qld.gov.au, Creative Commons Attribution 3.0.

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Image: *Colleges Crossing Flooded-11, 8 January 2011*, lordphantom74, Creative Commons Attribution 2.0, <https://flic.kr/p/98ApgH>

Create a multimodal presentation to propose actions of how to reduce the impact of future flooding in an identified flood area. □

You will undertake a geographical inquiry that includes:

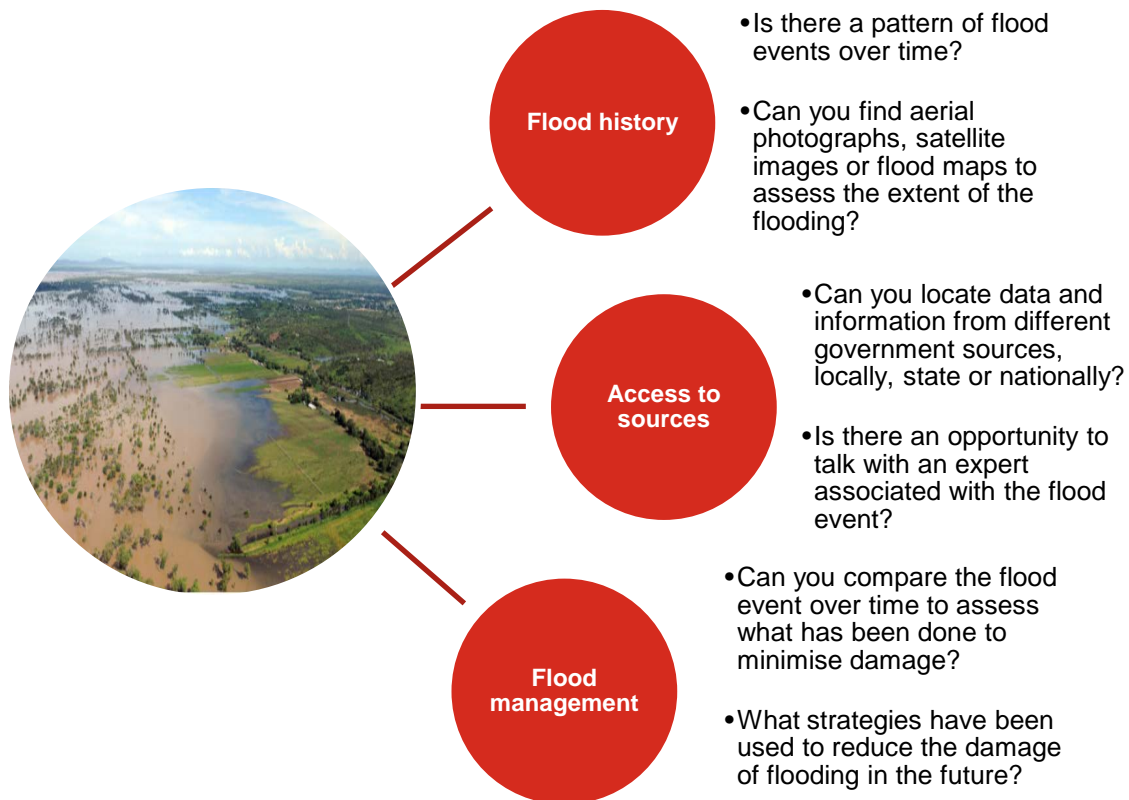
- selecting an area that is prone to flooding
- developing geographical questions
- collecting, recording and evaluating data and information
- interpreting data to draw conclusions
- representing location and spatial patterns on a map
- communicating findings in a multimodal presentation.

Section 1. Selecting a case study

During this unit you have explored flooding around the world and ways in which humans have contributed to, and responded to flood events.

Your task: Select a geographical area prone to flooding as a case study. It may be at the local or regional scale.

Use the following criteria to select a case study.



Describe the relative location¹ of the geographical area of your selected case study.....

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I chose this case study because:

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¹ Relative location: Location relative to other places, e.g. the distance of a town from other towns.

Review the geographical concepts and terminology below and check for understanding.
Provide examples where appropriate.



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Section 2. Developing geographical questions

You will investigate the **human impact** on the environment that contributes to flooding in your case study.

You will also:

- examine the strategies used by authorities to **prevent**, **mitigate** and **prepare** for flood events
- generate questions that you could use to help guide your research. You may wish to consider Who, What, Why, When and How when generating your research questions.

List relevant geographical concepts and terms to help you structure your questions.

Research area	Relevant geographical concepts and terms	Possible research questions
The environmental, human and managed features of this area	e.g. Place Interconnections Environment Water catchment	
The spatial pattern and distribution of flooding over time		
The human impact on the environment that contributes to flooding		
The impact of flooding		
Flood prevention and mitigation strategies		
Recommendations for the future		

Section 3. Collecting, recording and evaluating data and information

Locate and record a range of sources to answer your research questions in the table below.

Research question	Type of source ² accessed	How useful is this source?	How reliable is this resource?	Summary of key ideas
e.g. How have humans changed the natural environment?	Series of aerial photos of the local area including the land contours, water catchment and residential areas.	Identifies the extent of new residential development in close proximity to the river, an area prone to flooding over time.	Google Earth — satellite images taken in 2011 and 2014. Pattern of development clearly reveals the extent of development.	The natural contour of the land has been altered by land clearing to develop new residential estates and supporting infrastructure such as roads and petrol station. This has changed the flow of water and run off during times of high rainfall. Substantial areas of concrete means that there are less opportunities for water to soak onto the land.

² Types of geographical sources: interviews, surveys, field notes and sketches, graphs, data tables, maps, satellite images, reports, diagrams, photographs, plans

Research question	Type of source accessed	How useful is this source?	How reliable is this source?	Summary of key ideas

Use the questions in *Assessment resource: Evaluating geographical sources* to reflect on your research before completing this section.

Explain how you decided if the information and data you have located is useful and reliable.

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Section 4. Representing and communicating

Representing data

Create a base map using Google Earth³ or Queensland Globe.⁴

Your teacher may provide you with a video tutorial to show you how to create a base map.

Below is an example of a base map that shows the location of the Brisbane Exhibition and Convention Centre, relative to the Brisbane CBD.



Outline the area affected by flooding

Use cartographic conventions⁵ to locate and represent:

- places identified in your research
- major infrastructure, such as roads
- relevant landmarks
- water catchment area.

³ Google Earth www.google.com/earth — a spatial online tool, which provides up-to-date maps, imagery, and other spatial data.

⁴ Queensland Globe www.dnrm.qld.gov.au/mapping-data/queensland-globe — a spatial online tool, developed by the Department of Natural Resources and Mines, which provides up-to-date Queensland maps, imagery and other spatial data.

⁵ Cartographic conventions include border, scale, legend, title and north. Symbols and shading may be used to represent particular features and spatial distributions.

Section 5. Interpreting and analysing sources

Review sources of data and information to respond to the following questions.

Identify the spatial distribution⁶ of flooding in the identified geographical area. Explain how the pattern⁷ of flooding has changed over time.

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Explain the relationship between the pattern of flooding and the human-altered features of the environment. To what extent have features of the natural environment been changed over time?

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What strategies are being used to prevent, mitigate and prepare for future flooding in the area?

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What recommendations can you make to reduce the impact of future flooding and future flood events?

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How will these actions prepare for and respond to future flood events?

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⁶ Spatial distribution — the arrangement of particular phenomena over the Earth's surface.

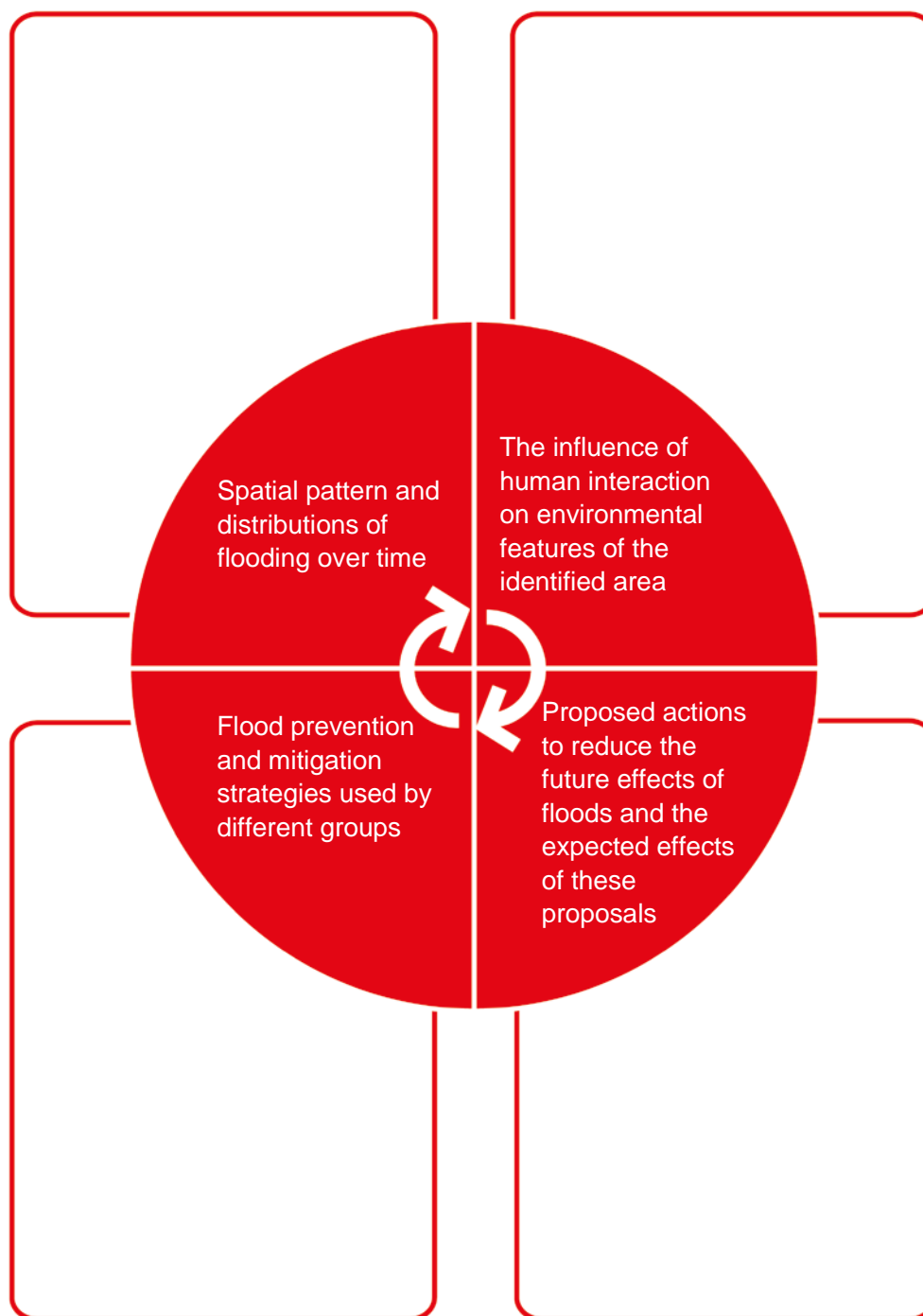
⁷ Pattern — a regularity in data shown in graphs or maps, e.g. the decline of rainfall in Australia as distance increases from the coast.

Section 6. Presenting findings

Plan a multimodal presentation using a format such as PowerPoint or infographics.⁸



Your teacher will provide you with examples of infographics.

Use the diagram below to plan the content of your presentation. Use the headings as a starting guide. Adapt the diagram and headings to develop your findings.



⁸ Infographics are visual representations of information, data or knowledge used to present complex ideas quickly and clearly. They can be created using online tools, such as easel.ly, piktochart.com and infogr.am.

Use the following checklist to review your planning.

Have you:		
• identified key messages about flood management?		
• used images that are relevant to the content of your presentation?		
• explored spatial patterns and distributions in flooding data?		
• connected visuals and ideas together?		
• used layout, graphics and language effectively?		
• used relevant geographical concepts and terminology?		
• represented data and information clearly		
• engaged the interest of the viewer of your presentation?		
• labelled images with clear headings and titles?		