

Investigating water scarcity

© The State of Queensland (Queensland Curriculum and Assessment Authority) and its licensors 2014. All web links correct at time of publication.

Assessment description	Category
Students investigate water scarcity in a North African country and present their findings in a multimodal presentation that includes spoken or written explanation of actions to improve water management.	Multimodal and written
	Technique
	Research
Context for assessment	Alignment
<p>Students:</p> <ul style="list-style-type: none"> research water scarcity in a selected country of North Africa identify the extent and location of the problem of water scarcity analyse the causes and effects of water scarcity identify and analyse the current management strategies being implemented propose actions to improve water management in the selected country. 	<p><i>Australian Curriculum v7.2</i>, Year 7 Geography Australian Curriculum content and achievement standard ACARA — Australian Curriculum, Assessment and Reporting Authority www.australiancurriculum.edu.au</p> <p>Year 7 Geography standard elaborations www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr7_se.pdf</p>
	Connections
	<p>This assessment can be used with the QCAA Australian Curriculum resource titled <i>Year 7 unit overview — Geography exemplar (Water in the world)</i> available at: www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr7_unit_overview.docx.</p>
Definitions	
<p>Analyse: Consider in detail for the purpose of finding meaning or relationships, and identifying patterns, similarities and differences.</p> <p>Water scarcity: The lack of sufficient available water resources to meet the demands of water usage within a region. Water scarcity can be the result of physical and economic factors.</p> <p>Geographical processes: The physical and human forces that work in combination to form and transform the world, e.g. erosion, the water cycle, migration or urbanisation. Geographical processes can operate within and between places.</p> <p>Spatial distribution: The arrangement of particular phenomena or activities across the surface of the Earth.</p> <p>Multimodal: Encompassing a number of different delivery formats, presented cohesively and synchronously, as images, videos, sound and text.</p> <p>Groundwater: The water located beneath the earth’s surface in soil pore spaces and in the fractures of rock formations. Groundwater is renewed from, and eventually flows to, the surface naturally. Groundwater is also often withdrawn for agriculture and industrial use by extraction wells.</p> <p>Surface water: Water on the surface of the Earth such as in a stream, river, lake or wetland. It is renewed by rainfall.</p> <p>Choropleth: A special purpose map which uses tonal shading to show differences in the concentration of a particular feature, e.g. population density, total water availability.</p>	

In this assessment

Teacher guidelines

Task-specific standards — continua

Task-specific standards — matrix

Assessment resource: Developing geographical inquiry skills

Assessment resource: Framing a geographical inquiry — an example

Assessment resource: Special purpose graph and map — an example

Assessment resource: Using infographics

Assessment resource: Graphic organisers

Assessment resource: Cartographic conventions

Student booklet

Teacher guidelines

Identify curriculum

Content descriptions to be taught	
Geographical Knowledge and Understanding	Geographical Inquiry and Skills
<ul style="list-style-type: none"> The nature of water scarcity and ways of overcoming it, including studies drawn from Australia and West Asia and/or North Africa (ACHGK040) The ways that flows of water connect places as it moves through the environment and the way this affects places (ACHGK038) 	<p>Observing, questioning and planning</p> <ul style="list-style-type: none"> Develop geographically significant questions and plan an inquiry, using appropriate geographical methodologies and concepts (ACHGS047) <p>Collecting, recording, evaluating and representing</p> <ul style="list-style-type: none"> Collect, select and record relevant geographical data and information, using ethical protocols, from appropriate primary and secondary sources (ACHGS048) Evaluate sources for their reliability and usefulness and represent data in a range of appropriate forms, for example, climate graphs, compound column graphs, population pyramids, tables, field sketches and annotated diagrams, with and without the use of digital and spatial technologies (ACHGS049) Represent the spatial distribution of different types of geographical phenomena by constructing appropriate maps at different scales that conform to cartographic conventions, using spatial technologies as appropriate (ACHGS050) <p>Interpreting and analysing</p> <ul style="list-style-type: none"> Analyse geographical data and other information using qualitative and quantitative methods, and digital and spatial technologies as appropriate, to identify and propose explanations for spatial distributions, patterns and trends and infer relationships (ACHGS051) Apply geographical concepts to draw conclusions based on the analysis of the data and information collected (ACHGS052) <p>Communicating</p> <ul style="list-style-type: none"> Present findings, arguments and ideas in a range of communication forms selected to suit a particular audience and purpose; using geographical terminology and digital technologies as appropriate (ACHGS053) <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, taking account of environmental, economic and social considerations, and predict the expected outcomes of their proposal (ACHGS054)

General capabilities (GCs) and cross-curriculum priorities (CCPs)

This assessment may provide opportunities to engage with the following GCs and CCPs. Refer also to the Resources tab on the P–10 Geography curriculum and assessment page: www.qcaa.qld.edu.au/yr7-geography-resources.html

 Literacy	 Aboriginal and Torres Strait Islander histories and cultures
 Numeracy	 Asia and Australia's engagement with Asia
 ICT capability	 Sustainability
 Critical and creative thinking	
 Personal and social capability	
 Ethical understanding	
 Intercultural understanding	

Achievement standard

This assessment provides opportunities for students to demonstrate the following highlighted aspects.

By the end of Year 7, students describe geographical processes that influence the characteristics of places and how places are perceived and valued differently. They explain interconnections between people, places and environments and describe how they change places and environments. They propose simple explanations for spatial distributions and patterns among phenomena. They describe alternative strategies to a geographical challenge and propose a response, taking into account environmental, economic and social factors.

Students identify geographically significant questions to frame an inquiry. They locate relevant information from primary and secondary sources to answer inquiry questions. They represent data and the location and distribution of geographical phenomena in a range of graphic forms, including large-scale and small-scale maps that conform to cartographic conventions. They analyse geographical data and other information to propose simple explanations for spatial patterns, trends and relationships and draw conclusions. Students present findings and arguments using relevant geographical terminology and graphic representations in a range of communication forms. They propose action in response to a geographical challenge taking account of environmental, economic and social considerations and describe the expected effects of their proposal.

Source: ACARA, The Australian Curriculum v7.2, www.australiancurriculum.edu.au

Sequence learning

Suggested learning experiences

This assessment leads on from the learning experiences outlined in the QCAA's Year 7 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 7 Geography exemplar (Water in the world)
www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr7_plan.docx

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 emphasis 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

Software

- Image-editing software, e.g. Paint, Pixlr.com (free online), <https://pixlr.com>
- Map-generation software, e.g. D-maps (free online) can be used in image-editing software, <http://d-maps.com>
- Spreadsheet software, e.g. Microsoft Excel, Google Sheets (free online): <https://support.google.com/docs/answer/63728?hl=en>

Online

- African Studies Centre, Water in Africa, www.ascleiden.nl/content/webdossiers/water-africa#
- Australian Geography Teachers Association — Geogspace, Constructing climate graphs, www.geogspace.edu.au/verve/_resources/2.3.2.2_2_climate_graphs.pdf
- Food and Agriculture Organization of the United Nations (FAO — Aquastat), www.fao.org/nr/water/aquastat/water_res/index.stm
- OXFAM:
 - Water for all: Online quiz, www.digitalweek.info/education/water_for_all/water/causes/index_pupil.htm
 - Case studies: www.digital-week.info/education/water_for_all/water/problem/index.htm
- Population Reference Bureau (PRB), Finding the balance: Population and water scarcity in the Middle East and North Africa, www.prb.org/Publications/Reports/2002/FindingtheBalancePopulationandWaterScarcityintheMiddleEastandNorthAfrica.aspx
- UN Water, Water for Life, www.un.org/waterforlifedecade
- United Nations Education Program (UNEP):
 - Africa Water Atlas, www.unep.org/pdf/africa_water_atlas.pdf
 - Vital Water Graphics, www.unep.org/dewa/vitalwater/article69.html
- Water Aid Australia, www.wateraid.org/au
- UN Water, Water for Life, www.un.org/waterforlifedecade
- Water.Org:
 - Projects, <http://water.org/projects>
 - The power of water (video) www.youtube.com/user/water
- The Water Project Inc., Water scarcity and the importance of water, https://thewaterproject.org/water_scarcity
- The World Bank:
 - Morocco water sector projects, <http://go.worldbank.org/P4PCR0K3G0>
 - Water scarcity in Middle East and North Africa, <http://go.worldbank.org/J3VET1G250>

Develop assessment

Preparing for the assessment

- Review geographical inquiry and skills¹ using *Assessment resource: Developing geographical inquiry skills*, including:
 - collecting and recording relevant data and information from a range of primary and secondary sources
 - using ethical protocols to collect sources of primary data and information, e.g. using protocols for consultation with local Aboriginal people and interviewing people on their opinions about other places
 - evaluating sources for their usefulness, reliability and validity
 - representing data in different forms such as graphs and diagrams
 - representing location and spatial distributions of geographical phenomena on maps that conform to a range of cartographic conventions
 - identifying spatial distributions, patterns and trends, and inferring relationships to draw conclusions
 - presenting findings in different visual forms such as infographics and annotated maps.
- Draw attention to what is new for undertaking geographical inquiry in Year 7 including:
 - representing multiple data sets in more specialised graphs such as climate graphs and compound column graphs
 - representing data and information in special purpose maps such as choropleth maps and topographic maps
 - proposing actions that take into account environmental, economic and social considerations
 - predicting expected outcomes of proposals.
- Read through the *Student booklet* and the *Task-specific standards* with the student and answer any questions about the task requirements.
- Explain the geographical term 'water scarcity' using examples of physical and economic water scarcity at different scales.
- Review approaches used by geographers to propose future actions that consider environmental, economic and social factors.
- Use spatial applications to explore the geographic location and characteristics of North Africa at the world regional and global scale.
- Review the *Task-specific standards* with students to identify learning goals.
- Use the glossary of the Year 7 Geography standard elaborations to explain descriptors of qualities to students: www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr7_se.pdf.

¹ Model for sequencing geographic inquiry in Years7–8: www.qcaa.qld.edu.au/yr7-geography-curriculum.html

Implementing

Section 1. Understanding water scarcity

Student role

- Use a range of sources to explain the geographical term of water scarcity and provide examples of economic scarcity and physical scarcity using examples drawn from different locations.
- Use the map provided in Section 1 or an alternative map provided by your teacher to locate and shade the names of the countries and rivers in North Africa.
- View the map to consider reasons why North Africa might experience physical water sources.
- Review the UN map Global physical and economic water scarcity to describe global patterns of water availability:
www.un.org/waterforlifedecade/scarcity.html.
- Complete some initial research about countries of North Africa to select one country to focus on in a case study.

Teacher role

- Provide students with a range of source materials to complete Section 1 and undertake research to select a country in North Africa as a case study.
- Examine why water is a difficult resource to manage in North Africa.
- Prompt students to check for accuracy in the representation of location and features on the labelled map.
- Provide students with access to the UN map Global physical and economic water scarcity at:
www.un.org/waterforlifedecade/scarcity.html.

Section 2. Developing inquiry questions

Student role

- Use research areas provided to identify key questions and focus questions to frame research.
- Review questions for range, balance and relevance.
- Check source material drawn from provides information to respond to questions in an inquiry.

Teacher role

- Use *Assessment resources: Framing a geographical inquiry* — an example to guide students to develop their own questions to frame an inquiry
- Use Table 1: Focus questions to help students develop depth of research in relationship to water scarcity.
- Review with student to ensure questions posed demonstrate:
 - range and relevance
 - geographical significance
 - use of geographical terms and concepts.

Section 3. Collecting, recording and evaluating data

Student role

- Collect relevant data and information from reliable government and non-government sources including photographs, maps, reports, data sources and media reports.
- Record and evaluate the reliability of data and information in the table provided.
- Record summary notes of the relevant information in the table provided for use in the multimodal presentation.

Teacher role

- Check on the availability of a range of reliable and relevant sources.
- Provide models of how to collect and evaluate relevant geographical data and information.
- Provide guidelines for recording summary notes using graphic organisers to scaffold this process.
- Provide feedback to students about their choice of sources.
- Table 2 and 3 can be provided electronically or expanded to provide extra space.

Section 4. Representing, interpreting and analysing data and information

- | | |
|--|---|
| <ul style="list-style-type: none">• Represent your data and information in a:<ul style="list-style-type: none">- special purpose map (such as a choropleth map) using one aspect of your collected data (e.g. locations of water projects, population density, distribution of water scarcity) that uses a range of cartographic conventions including title, scale, legend (key), north point and source- two graphs to compare distributions, trends and relationships, e.g. climate, water availability and usage, expenditure on water projects.• Develop written explanations of the:<ul style="list-style-type: none">- spatial distributions, trends, patterns and relationships shown in the map and graphs- interconnections between spatial distributions and water scarcity. | <ul style="list-style-type: none">• Use <i>Assessment Resource: Special purpose graph and map</i> — an example to guide students to develop a suitable map.• Use <i>Assessment Resource: Cartographic conventions</i> as a guide for using cartographic conventions accurately.• Provide exemplars of written explanations of spatial distributions, trends and patterns in geographical data.• Review responses with students using the Australian Curriculum work sample portfolio which describes spatial patterns, trends and distributions in data:
www.acara.edu.au/curriculum/worksamples/Year_7_Geography_Portfolio.pdf. |
|--|---|

Section 5. Presenting findings

Student role

- Select a format for a multimodal presentation to present your findings.
- Plan your presentation to include:
 - the extent and location of the problem of water scarcity
 - the causes and impacts of water scarcity
 - analysis of the current management strategies being implemented
 - proposals of actions to improve water management in the selected country.
- Use the checklist for multimodal presentations to review planning of findings.

Teacher role

- Use *Assessment resource: Using infographics* to identify the features of this format of visual text.
- Review graphic organisers to support the development of geographical findings.
- Explore examples of infographics and other multimodal formats with students to identify features of design and layout.
- Provide feedback to students in planning multimodal presentations using the checklist provided.

Make judgments

When making judgments about the evidence in student's 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_yr7_se.pdf.

The Queensland standard elaborations for Geography

The Queensland Year 7 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.

The valued features of Geography, drawn from the achievement standard and the content descriptions for Year 7 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 Early Years 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 achievement standard dimensions	Valued features		Task-specific valued features
Understanding and Skills	Geographical Knowledge and Understanding	Knowledge and understanding	<ul style="list-style-type: none"> ● Describes geographical processes that influence the characteristics of places in North Africa ● Explains the way water flows to connect places as it moves through the environment and the way this changes places ● Proposes simple explanations for spatial distributions and patterns in water availability ● Describes alternative strategies to the challenge of water scarcity <p>Sections 1 and 5</p>
	Geographical Inquiry and Skills	Questioning and researching	<ul style="list-style-type: none"> ● Identifies geographically significant questions to frame an inquiry ● Locates relevant information from sources to answer inquiry questions <p>Sections 2 and 3</p>
		Interpreting and analysing	<ul style="list-style-type: none"> ● Analyses geographical data and information to explain spatial patterns, trends and relationships and draw conclusions about current management strategies being implemented ● Propose actions to improve water management in the future and identify the expected effect of this proposal <p>Sections 4 and 5</p>
		Communicating	<ul style="list-style-type: none"> ● Present findings in a multimodal presentation that uses relevant geographical terminology ● Represent data and information about water scarcity in graphs and a special purpose map that conforms to conventions <p>Sections 4 and 5</p>

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 the Early Years 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 the Early Years 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 Early Years 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 the Early Years 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 the Early Years 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	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. Offer feedback that: <ul style="list-style-type: none">· range and balance of questions that embed geographical concepts and the nature of water scarcity and ways of overcoming it· provide prompts for students to select a range of sources· the task-specific standards for this assessment can be used as a basis for providing feedback to students.
Resources	For guidance on providing feedback, see the professional development packages titled: <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 water scarcity

Name

© The State of Queensland (Queensland Curriculum and Assessment Authority) and its licensors 2014. All web links correct at time of publication.

Purpose of assessment: Investigate water scarcity in a North African country and present findings in a multimodal presentation to propose actions to improve water management.

Understanding and Skills				
Geographical Knowledge and Understanding		Geographical Inquiry and Skills		
Knowledge and understanding	Questioning and researching	Interpreting and analysing	Communicating	
Describes geographical processes that influence the characteristics of places in North Africa. Explains the way water flows to connect places as it moves through the environment and the way this changes places. Proposes simple explanations for spatial distributions and patterns in water availability. Describes alternative strategies to the challenge of water scarcity. Sections 1 and 5	Identifies geographically significant questions to frame an inquiry. Locates relevant information from sources to answer inquiry questions. Sections 2 and 3	Analyses geographical data and information to explain spatial patterns, trends and relationships and draw conclusions about current management strategies being implemented. Proposes actions to improve water management in the future and identifies the expected effect of this proposal. Sections 4 and 5	Presents findings in a multimodal presentation that uses relevant geographical terminology. Represents data and information about water scarcity in graphs and a special purpose map that conform to conventions. Sections 4 and 5	
<p>Describes in clear detail geographical processes that influence the characteristics of places in North Africa. Comprehensively explains the way water flows to connect places as it moves through the environment and the way this changes places. Proposes comprehensive explanations for spatial distributions and patterns in water availability. Compares and describe in detail alternative strategies to the challenge of water scarcity.</p> <p>Describes geographical processes that influence the characteristics of places in North Africa. Explains the way water flows to connect places as it moves through the environment and the way this changes places. Proposes simple explanations for spatial distributions and patterns in water availability. Describes alternative strategies to the challenge of water scarcity.</p>	<p>Identifies a range of informed geographically significant questions to frame an inquiry. Locates and effectively organises relevant information from sources to answer inquiry questions.</p> <p>Identifies geographically significant questions to frame an inquiry. Locates relevant information from sources to answer inquiry questions.</p>	<p>Critically analyses geographical data and information to explain spatial distributions, trends and relationships and draw discerning conclusions about current management strategies being implemented. Proposes considered actions to improve water management in the future and explains the expected effect of this proposal.</p> <p>Analyses geographical data and information to explain spatial distributions, trends and relationships and draw conclusions about current management strategies being implemented. Proposes actions to improve water management in the future and describes the expected effect of this proposal.</p>	<p>Presents findings clearly and purposefully in a multimodal presentation that uses a range of relevant geographical terminology in appropriate contexts. Accurately represents data and information about water scarcity in graphs and a special purpose map that conform to conventions.</p> <p>Presents findings in a multimodal presentation that uses relevant geographical terminology. Represents data and information about water scarcity in graphs and a special purpose map that conform to conventions.</p>	
				A
				B
				C

Understanding and Skills

Geographical Knowledge and Understanding		Geographical Inquiry and Skills	
Knowledge and understanding	Questioning and researching	Interpreting and analysing	Communicating
<p>Describes geographical processes that influence the characteristics of places in North Africa. Explains the way water flows to connect places as it moves through the environment and the way this changes places. Proposes simple explanations for spatial distributions and patterns in water availability. Describes alternative strategies to the challenge of water scarcity.</p> <p>Sections 1 and 5</p>	<p>Identifies geographically significant questions to frame an inquiry. Locates relevant information from sources to answer inquiry questions</p> <p>Sections 2 and 3</p>	<p>Analyses geographical data and information to explain spatial patterns, trends and relationships and draw conclusions about current management strategies being implemented. Proposes actions to improve water management in the future and identifies the expected effect of this proposal.</p> <p>Sections 4 and 5</p>	<p>Presents findings in a multimodal presentation that uses relevant geographical terminology. Represents data and information about water scarcity in graphs and a special purpose map that conform to conventions.</p> <p>Sections 4 and 5</p>
<p>States geographical processes that influence the characteristics of places in North Africa. Makes statements about the way water flows to connect places as it moves through the environment and the way this changes places. Makes statements about spatial distributions and patterns in water availability. Identifies simple strategies to the challenge of water scarcity.</p>	<p>Identifies a narrow range of simple geographical questions related to an inquiry. Locates minimal information from sources to respond to inquiry questions.</p>	<p>Uses geographical data and information to identify spatial distributions, trends and relationships and state unclear conclusions. States actions related to water management in the future and identifies the expected effect.</p>	<p>Unevenly presents findings in a multimodal presentation using minimal geographical terminology. Unevenly represents data and information about water scarcity in imprecise graphs and a special purpose map that use minimal conventions.</p>
			D
			E

Investigating water scarcity

Name

© The State of Queensland (Queensland Curriculum and Assessment Authority) and its licensors 2014. All web links correct at time of publication.

Purpose of assessment: Investigate water scarcity in a North African country and present findings in a multimodal presentation to propose actions to improve water management.

			A	B	C	D	E	
Understanding and Skills	Geographical Knowledge and Understanding	Knowledge and understanding	Describes geographical processes that influence the characteristics of places in North Africa	Describes in clear detail geographical processes that influence the characteristics of places in North Africa	Describes in detail geographical processes that influence the characteristics of places in North Africa	Describes geographical processes that influence the characteristics of places in North Africa	Partially describes geographical processes that influence the characteristics of places in North Africa	States geographical processes that influence the characteristics of places in North Africa
			Explains the way water flows to connect places as it moves through the environment and the way this changes places	Comprehensively explains the way water flows to connect places as it moves through the environment and the way this changes places	Explains in detail the way water flows to connect places as it moves through the environment and the way this changes places	Explains the way water flows to connect places as it moves through the environment and the way this changes places	Partially describes the way water flows to connect places as it moves through the environment and the way this changes places	Makes statements about the way water flows to connect places as it moves through the environment and the way this changes places
			Proposes simple explanations for spatial distributions and patterns in water availability	Proposes comprehensive explanations for spatial distributions and patterns in water availability	Proposes detailed explanations for spatial distributions and patterns in water availability	Proposes simple explanations for spatial distributions and patterns in water availability	Partially describes spatial distributions and patterns in water availability	Makes statements about spatial distributions and patterns in water availability
			Describes alternative strategies to the challenge of water scarcity	Compares and describe in detail alternative strategies to the challenge of water scarcity	Describes in detail alternative strategies to the challenge of water scarcity	Describes alternative strategies to the challenge of water scarcity	Identifies alternative strategies to the challenge of water scarcity	Identifies simple strategies to the challenge of water scarcity
			Sections 1 and 5					

Continues over page

			A	B	C	D	E	
	Geographical Knowledge and Understanding	Questioning and researching	Identifies geographically significant questions to frame an inquiry	Identifies a range of informed geographically significant questions to frame an inquiry	Identifies a range of geographically significant questions to frame an inquiry	Identifies geographically significant questions to frame an inquiry	Identifies a narrow range of geographically questions related to an inquiry	Identifies a narrow range of simple geographical questions to related to an inquiry
			Locates relevant information from sources to answer inquiry questions	Locates and effectively organises relevant information from sources to answer inquiry questions	Locates and organises relevant information from sources to answer inquiry questions	Locates relevant information from sources to answer inquiry questions	Locates superficial information from a narrow range of sources to answer inquiry questions	Locates minimal information from sources to respond to inquiry questions
			Sections 2 and 3					
Understanding and Skills	Geographical Inquiry and Skills	Interpreting and analysing	Analyses geographical data and information to explain spatial patterns, trends and relationships and draws conclusions about current management strategies being implemented	Critically analyses geographical data and information to explain spatial distributions, trends and relationships and draws discerning conclusions about current management strategies being implemented	Analyses in detail geographical data and information to explain spatial distributions, trends and relationships and draw reasoned conclusions about current management strategies being implemented	Analyses geographical data and information to explain spatial distributions, trends and relationships and draw conclusions about current management strategies being implemented	Superficially analyses geographical data and information to identify spatial distributions, trends and relationships and draw simple conclusions about current management strategies being implemented	Uses geographical data and information to identify spatial distributions, trends and relationships and state unclear conclusions
			Proposes actions to improve water management in the future and identifies the expected effect of this proposal	Proposes considered actions to improve water management in the future and explains the expected effect of this proposal	Proposes appropriate actions to improve water management in the future and describes in detail the expected effect of this proposal	Proposes actions to improve water management in the future and describes the expected effect of this proposal	Proposes obvious actions to improve water management in the future and identifies the expected effect of this proposal	States actions related to water management in the future and identifies the expected effect
			Sections 4 and 5					

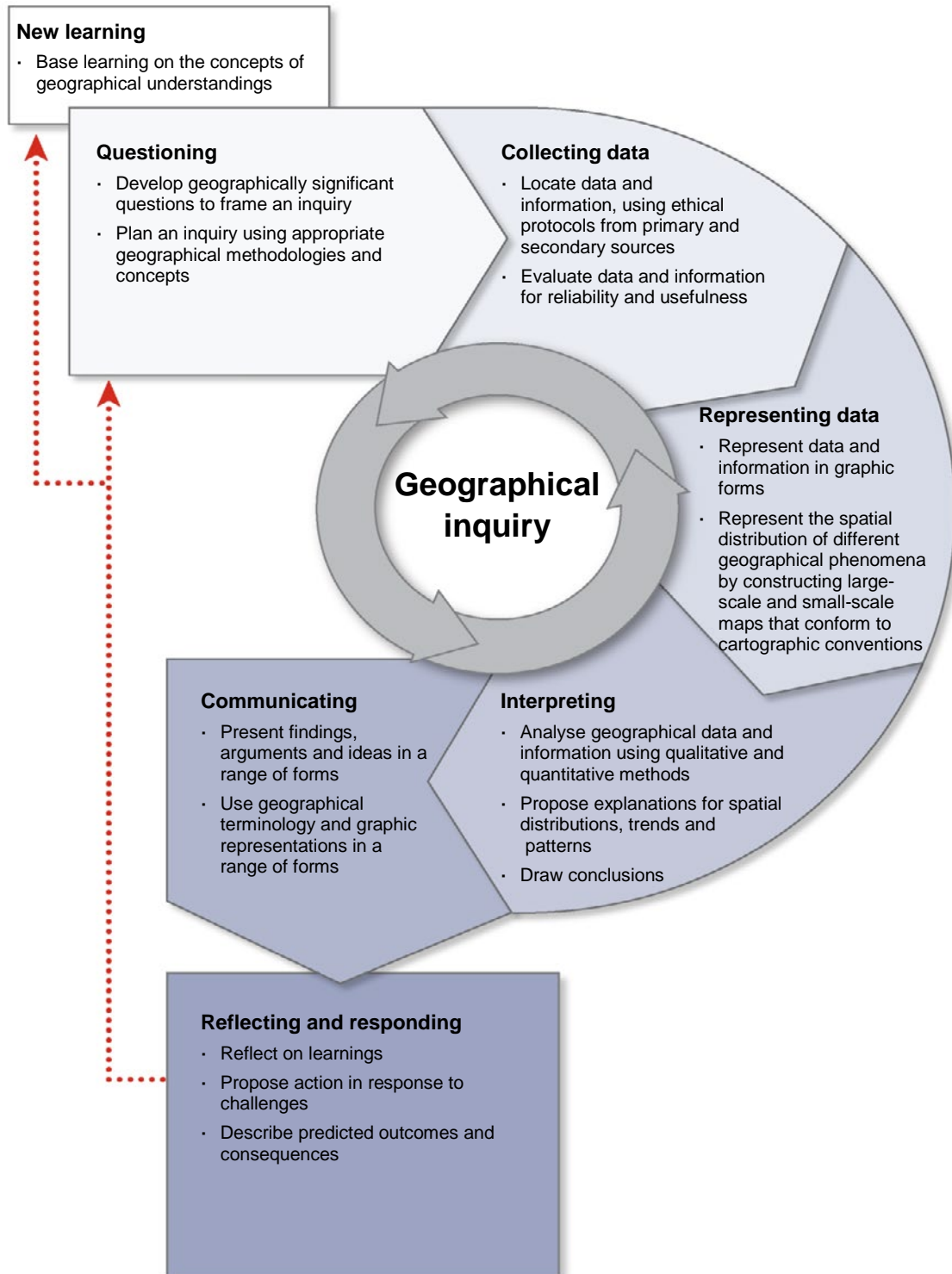
Continues over page

			A	B	C	D	E	
Understanding and Skills	Geographical inquiry and skills	Communicating	Presents findings in a multimodal presentation that uses relevant geographical terminology	Presents findings clearly and purposefully in a multimodal presentation that uses a range of relevant geographical terminology in appropriate contexts	Effectively presents findings in a multimodal presentation that uses a range of relevant geographical terminology	Present findings in a multimodal presentation that uses relevant geographical terminology	Presents a narrow range of findings in a multimodal presentation that uses a narrow range of geographical terminology	Unevenly presents findings in a multimodal presentation that uses minimal geographical terminology
			Represents data and information about water scarcity in graphs and a special purpose map that conform to conventions	Accurately represents data and information about water scarcity in graphs and a special purpose map that conforms to conventions	Appropriately represents data and information about water scarcity in graphs and a special purpose map that conforms to conventions	Represents data and information about water scarcity in graphs and a special purpose map that conforms to conventions	Partially represents data and information about water scarcity in simple graphs and a special purpose map that use some conventions	Unevenly represents data and information about water scarcity in imprecise graphs and a special purpose map that use minimal conventions
			Sections 4 and 5					

Investigating water scarcity

© The State of Queensland (Queensland Curriculum and Assessment Authority) and its licensors 2014. All web links correct at time of publication.

Developing geographical inquiry skills



Source: QCAA, www.qcaa.qld.edu.au/yr7-geography-curriculum.html

Investigating water scarcity

© The State of Queensland (Queensland Curriculum and Assessment Authority) and its licensors 2014. All web links correct at time of publication.

Framing a geographical inquiry — an example

Research area	Key question	Focus question/s
Identify the geographical process that influences the characteristics of places (the issue) and where it is occurring	What is the nature of water scarcity and is it occurring in North Africa?	<ul style="list-style-type: none"> What is water scarcity? Where is North Africa and what countries does it include? Is there water scarcity in these countries? Which country will be the focus for my case study? Why?
Analyse the causes of the issue	<p>What is the spatial distribution of natural features and the relationships between water resources and human use in the country?</p> <p>Relative location — location relative to other places, e.g. to the river systems, to the Mediterranean, to neighbouring countries</p>	<ul style="list-style-type: none"> Where the country is located (relative location)? Where are the towns and cities located in relation to the river systems? What physical features of the country contribute to water scarcity? How does the climate of the region contribute to water scarcity? How does population density of the country contribute to water scarcity?
Analyse the impacts of the issue	<p>What are the social, economic and environmental impacts of water scarcity?</p> <p>While these concepts are interrelated they can be defined as:</p> <p>Social — refers directly to the condition of people’s lives and might include health, education and the ability to earn a living</p> <p>Economic — refers to the monetary expenditure or income to the country and might include GDP, GNI and, for example, provision of infrastructure (e.g. pumps, pipelines)</p> <p>Environmental — refers to the natural environment and might include water quality, rainfall, quality of river systems</p>	<ul style="list-style-type: none"> How are people in the local community impacted by water scarcity? (Social) What are the costs associated with water scarcity? (Economic) How is the environment impacted by water scarcity? (Environmental)

<p>Identify and analyse the current management strategies being implemented</p>	<p>What management strategies are being implemented to manage the issue you have identified?</p> <p>Note: There may be limited or no action to manage the issue, and this can contribute to the impacts.</p>	<ul style="list-style-type: none"> · Is the issue being managed by either governments or other groups? · What government programs are in place to manage water scarcity? · What projects do charity or NGO groups working in this country have in place to improve water availability? · If there are projects, what impact do these management strategies have on the social, economic and environmental aspects of the country?
<p>Decide what further action is needed to better manage the issue</p>	<p>Propose an action that responds to the water scarcity issue.</p> <p>Examples: recycling, stormwater harvesting, desalination, inter-regional transfer of water</p>	<ul style="list-style-type: none"> · Are there projects in other countries that might work in this country? · What are the advantages and disadvantages of the proposal? · What will this issue look like into the future as a result of management proposals?

Investigating water scarcity

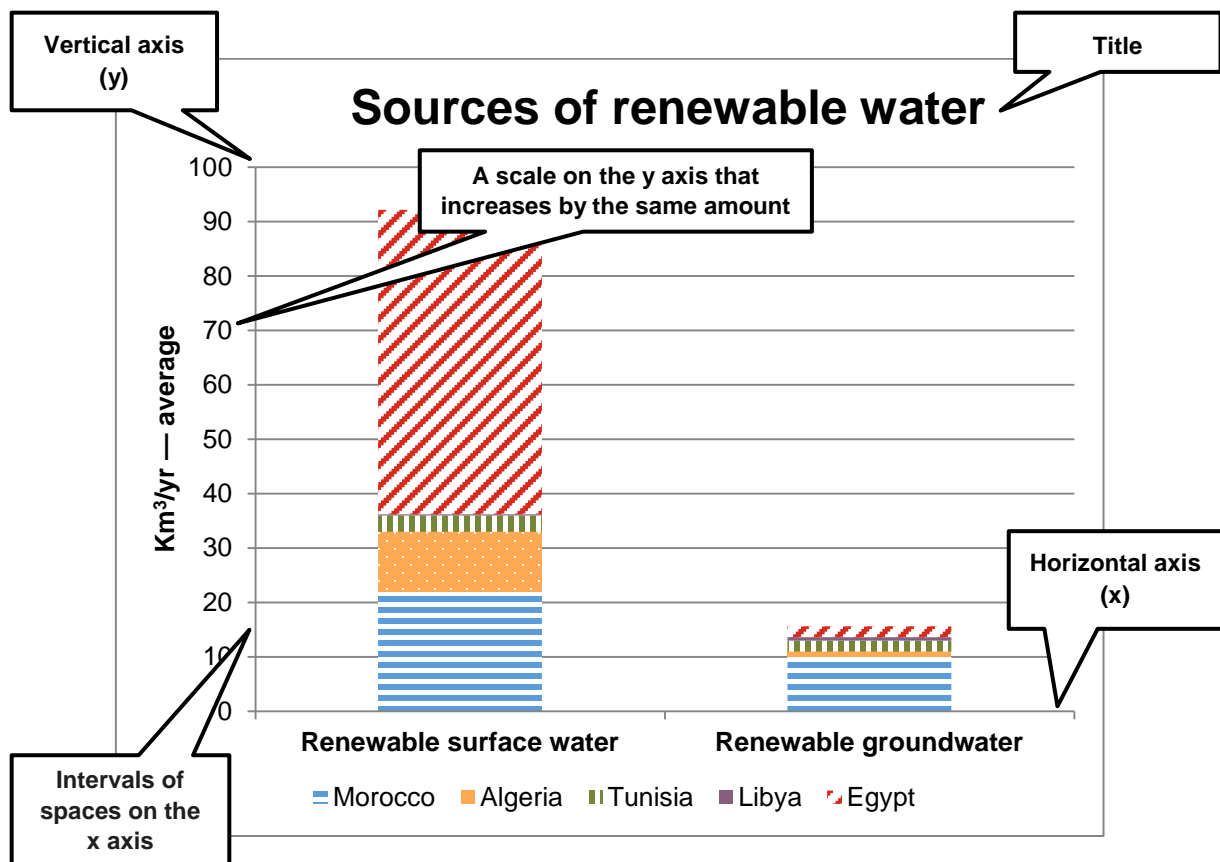
Special purpose map and graph — an example

Data used to inform the graph

	Renewable surface water available — actual (km ³ /yr, average rounded)	Renewable groundwater available — actual (km ³ /yr, average rounded)	Total renewable water — actual (km ³ /yr, average rounded)
Morocco	22	10	29
Algeria	11	1	12
Tunisia	3	2	5
Libya	0.2	0.6	0.8
Egypt	56	2	28

Data source: Aquastat, Food and Agriculture Organization of the United Nations, www.fao.org/nr/water/aquastat/main/index.stm

Example of a comparative column graph



Date: 2014 Source: Aquastat, Food and Agriculture Organization of the United Nations, www.fao.org/nr/water/aquastat/water_res/index.stm

Example of a choropleth map

Total renewable water resources — North Africa — actual (km³/yr, average)



Date: 2014 Source: Aquastat, Food and Agriculture Organization of the United Nations, www.fao.org/nr/water/aquastat/main/index.stm

Investigating water scarcity

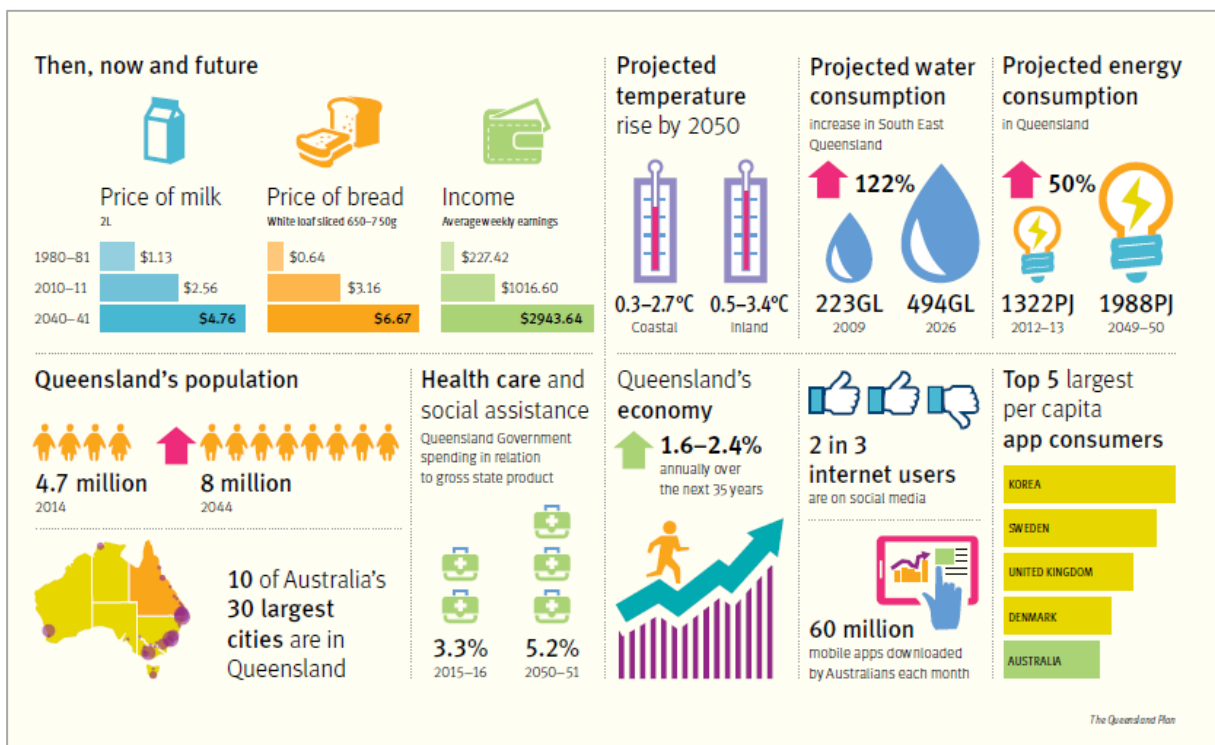
© The State of Queensland (Queensland Curriculum and Assessment Authority) and its licensors 2014. All web links correct at time of publication.

Using infographics

An **infographic** uses visuals and graphics to represent data and information in a format that is clear and succinct for the reader.

Review this infographic downloaded from [The Queensland Plan](#).

- What is the purpose of this infographic?
- What data is represented in this infographic?
- What conclusions can be drawn about Queensland from this infographic?
- How effective is this infographic in presenting a clear message?



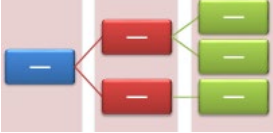
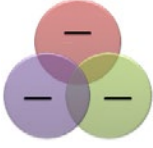




Source: State of Queensland 2014, *The Queensland Plan*, queenslandplan.qld.gov.au, Creative Commons Attribution 3.0.

Investigating water scarcity

© The State of Queensland (Queensland Curriculum and Assessment Authority) and its licensors 2014. All web links correct at time of publication.

Graphic organisers

This table provides examples of graphic organisers to plan and organise ideas, develop proposals in response to a geographical challenge and consider future effects of proposals.

Graphic organiser	Uses
<p>Consequences chart</p> 	<p>Consider alternatives to a 'what if' question or a problem. Suggest possible solutions and then record the expected consequence of each solution to assist in making a final decision.</p>
<p>Venn diagram</p> 	<p>Compare the characteristics of two or more places or phenomena. Record aspects of similarity where the circles overlap and aspects of difference in the separate sections of the circle. This is a good way of synthesising ideas to draw conclusions.</p>
<p>Futures wheel</p> 	<p>Consider how a change or decision may affect the future of other areas. This is useful in the brainstorming stage of assessing the future consequences of proposed actions and decisions.</p>
<p>Placemat</p> 	<p>Consider personal opinions on a question or issue and then discuss and record a group response.</p>
<p>PMI (Plus, Minus, Interesting) chart</p> 	<p>Evaluate an issue and compare advantages and disadvantages to inform decision making. In the Pluses column enter all the positive elements, in the Minuses column enter all the negative elements and in the third column enter the elements that cannot be classified precisely as positive or negative (Interesting) or potential outcomes (Implications). A scoring system can be added to this chart to inform decision making.</p>
<p>Web (concept) map</p> 	<p>Assists in activities that involve planning, brainstorming, note making, organising or problem solving. Record the issue or topic in the centre and note the related ideas around it. Use lines, colours, labels and arrows to show links between ideas.</p>

Investigating water scarcity

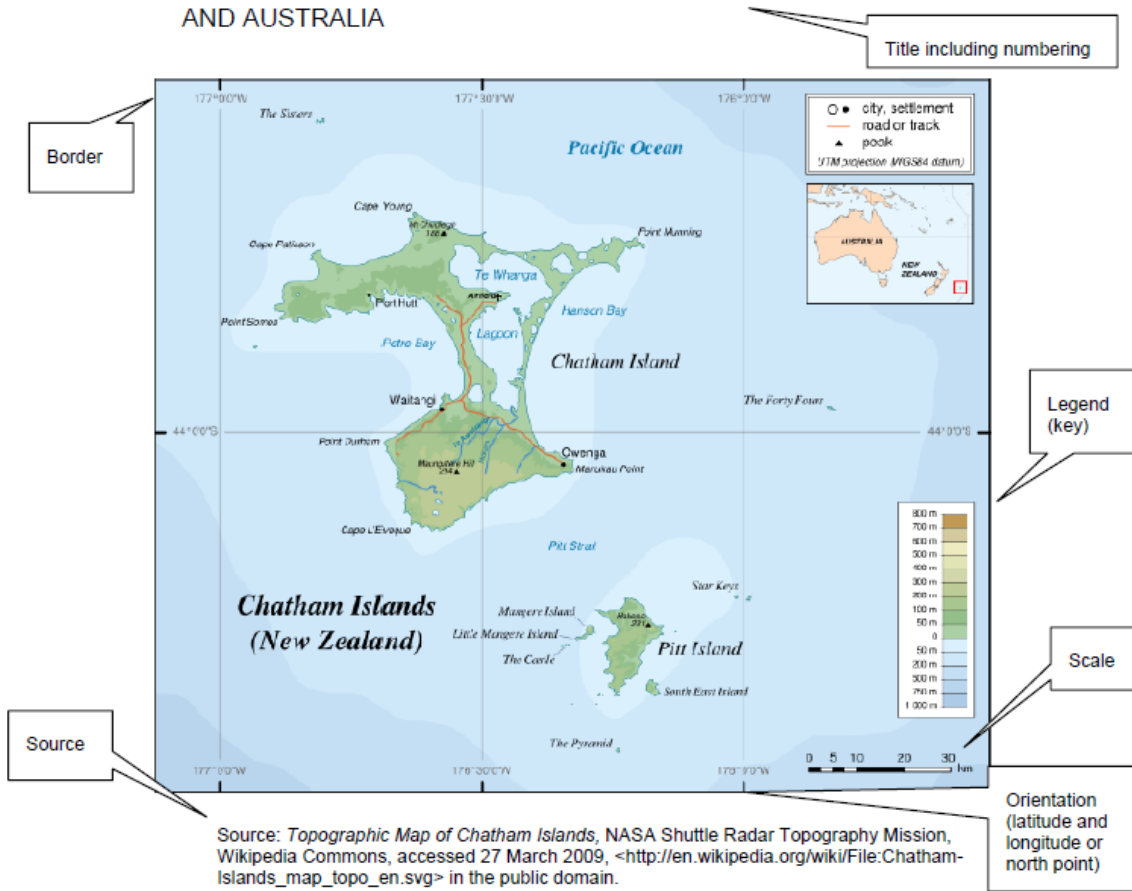
© The State of Queensland (Queensland Curriculum and Assessment Authority) and its licensors 2014. All web links correct at time of publication.

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	Latitude and longitude or north point
Legend (or key)	Lists and defines symbols and colours used in the map: <ul style="list-style-type: none"> usually located in the bottom left- or right-hand corner may use shading or symbols
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 e.g. on a 1:100 000 scale map , 1 cm on the map equals 100 000 cm (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 1: THE LOCATION OF CHATHAM ISLAND RELATIVE TO NEW ZEALAND AND AUSTRALIA



Investigating water scarcity

© The State of Queensland (Queensland Curriculum and Assessment Authority) and its licensors 2014. All web links correct at time of publication.



Image: *Boats in the Nile*, Nikos Moumouris, Creative Commons Attribution 2.0, <https://flic.kr/p/8sW1co>

Conduct an inquiry to investigate water scarcity in a North African country and present your findings in a multimodal presentation that includes spoken or written explanation of actions to improve water management.

You will:

- identify the extent and location of water scarcity in a North African country
- develop geographical questions to frame an inquiry
- collect, record and evaluate data and information from a range of sources
- represent data and information in special purpose maps and graphs
- identify and analyse data and information
- propose actions to improve water management in the selected country
- present findings in a multimodal presentation.

Section 1. Understanding water scarcity

Define **water scarcity**. Use examples to describe **economic scarcity** and **physical scarcity**.

.....

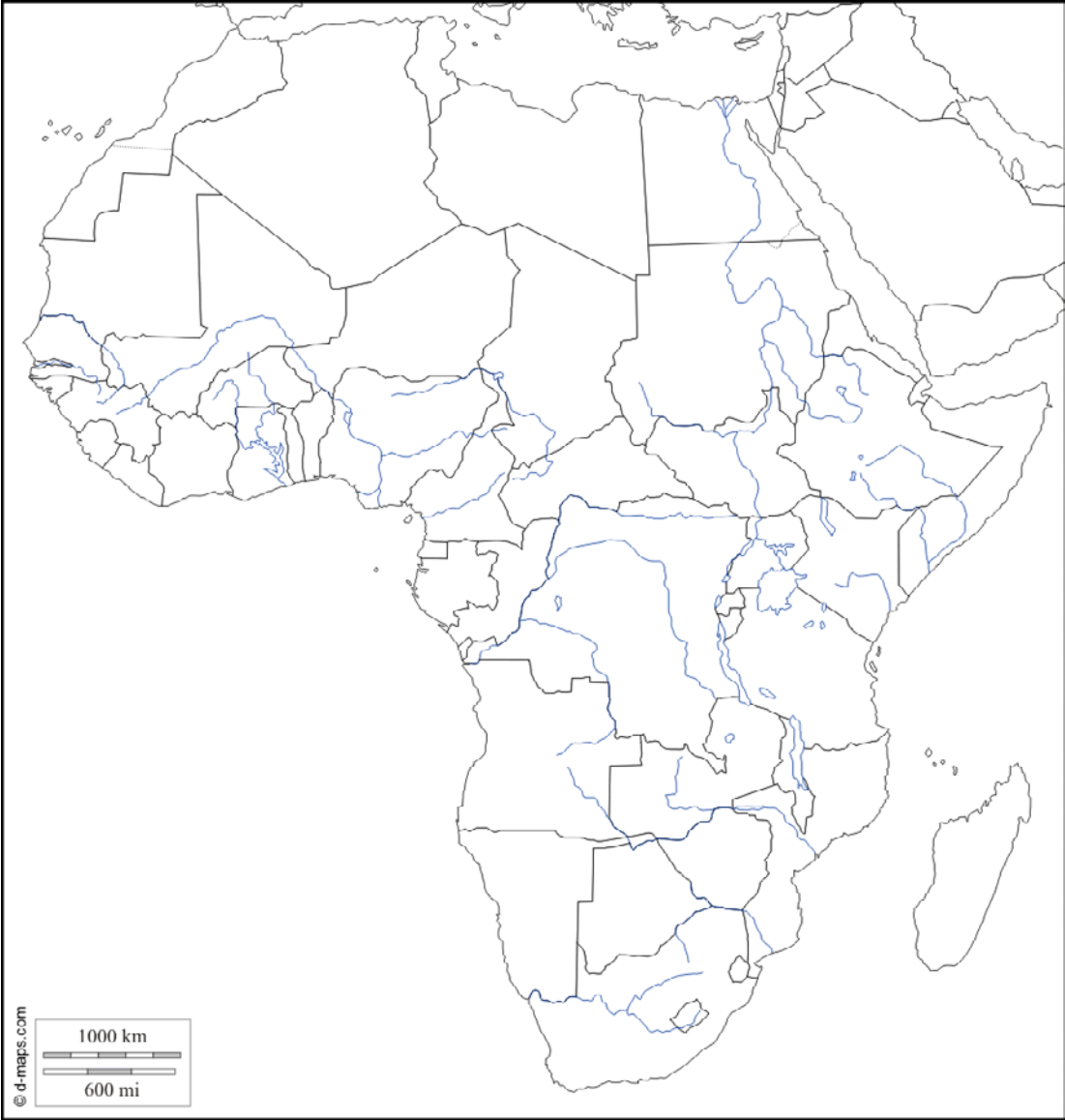
.....

.....

.....

Shade and label:

- the countries of North Africa
- rivers of North Africa.



View the map of Africa and **explain** why North Africa might experience physical water scarcity.

.....
.....
.....
.....
.....
.....

View the United Nations map of *Global physical and economic water scarcity* at www.un.org/waterforlifedecade/scarcity.html. Use it to describe the pattern of water availability in North Africa.

.....
.....
.....
.....

Conduct research about water scarcity in North Africa. Select **one** country for a geographical inquiry. Explain why you have you chosen this country?

Country:

Reason:

.....
.....
.....

Section 2. Developing inquiry questions

Develop a range of focus questions to guide your geographical inquiry.

- Use the information from your earlier research to develop focus questions for each of the research areas in the table below.
- Use the key questions provided to develop your own questions.

Table 1: Focus questions

Research area	Key question	Your focus question/s
Identify the geographical process that influences the characteristics of places (the issue) and where it is occurring	What is the nature of water scarcity and where is it occurring in North Africa?	
Analyse the causes of the issue/s	What is the spatial distribution of natural features and the connection between water resources and human use in the country?	
Analyse the impacts of the issue/s	What are the social, economic and environmental impacts of water scarcity?	
Identify and analyse the current management strategies being implemented	What management strategies are being implemented to manage the issues you have identified?	
Decide what further action is needed to better manage the issue	What actions can be taken in response to the water scarcity issue?	

Section 3. Collecting, recording and evaluating data

Collect **relevant** and **reliable** data and information to answer each of your focus questions.

The information you gather will be used to create your multimodal presentation.

Use a **range of different sources** including spatial applications such as Google Earth, graphs, atlases or interactive maps, reports, databases, journals, websites, and information from government organisations and non-government organisations.

Use or adapt the following tables to **record** and **evaluate** your sources and make notes for your multimodal presentation.

Table 2: Source evaluation

Source name, location and details for bibliography	Type of source e.g. primary/secondary/ written/video	Is this source reliable? Think about who wrote it, for what purpose, is it biased?	Focus questions this source will answer
		This source is reliable because ...	

Table 3: Notes from sources

Source	Notes Record relevant information for use in your multimodal presentation — text, statistics, maps, images

Section 4. Representing, interpreting and analysing data and information

Use your collected data and information to create digital maps and graphs for use in your multimodal presentation.

Use digital formats to create your map and graphs, e.g.

- spreadsheet software for representing data
- map-generation tools (to download a free online base map)
- image-editing software for creating special purpose maps
- online infographic tools to create maps or graphs.



Image source: QCAA

Include the following:

- a world map showing the **location** of your country and a **written or spoken description** of its relative location in the world
- a **special purpose map such as choropleth or thematic** that analyses one aspect of your inquiry, e.g. spatial patterns of water resources, the distribution of water projects, population density, spatial patterns of water scarcity and a **written or spoken description that explains the interconnection** between what your map is showing and the issue of water scarcity
- **two graphs** representing collected data, e.g. climate, water availability/usage, expenditure on water projects, impacts of water scarcity and a written or spoken explanation of this data.

Check that you have included the following cartographic conventions:

- border
- orientation (north point)
- legend (key)
- source
- scale



Section 5. Presenting findings

Use the space below to **plan** your presentation.

Choose a **graphic organiser** relevant to the multimodal format you have decided to use, e.g. a storyboard or slide layout for a video or slideshow presentation.



Use this checklist to review your planning for your presentation

Check that you have:		
<ul style="list-style-type: none"> · clearly identified key messages to: <ul style="list-style-type: none"> - identify the extent and location of water scarcity - represent data and information in special purpose maps and graphs - identify and analyse data and information - propose actions to improve water management in the selected country 		
<ul style="list-style-type: none"> · used relevant images and graphics to support your explanations 		
<ul style="list-style-type: none"> · used graphs/infographics that explore spatial patterns, distributions, trends and infer relationships 		
<ul style="list-style-type: none"> · made connections between ideas and visual representations 		
<ul style="list-style-type: none"> · used appropriate layout, graphics and geographical terminology to effectively communicate your findings 		
<ul style="list-style-type: none"> · used relevant geographical concepts and terminology 		
<ul style="list-style-type: none"> · represented data and information clearly 		
<ul style="list-style-type: none"> · used appropriate cartographic conventions 		
<ul style="list-style-type: none"> · labelled graphs with titles, legend (key), source and clear intervals on axes 		
<ul style="list-style-type: none"> · responded to feedback from your teacher and peers. 		