

# Sustaining environments

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Assessment description	Category
Students propose individual actions in response to the geographical challenge of sustaining environments.	Written and multimodal
	<b>Technique</b>
	Collection of work
Context for assessment	Alignment
Students will: <ul style="list-style-type: none"> <li>describe the relative locations of places and countries in different continents</li> <li>compare the characteristics of different environments</li> <li>represent data and information in tables, maps and in a comparative column graph</li> <li>interpret data and information to identify patterns, spatial distributions and draw conclusions</li> <li>propose actions for sustaining environments.</li> </ul>	<i>Australian Curriculum v7.2</i> , Year 4 Geography Australian Curriculum content and achievement standard ACARA — Australian Curriculum, Assessment and Reporting Authority <a href="http://www.australiancurriculum.edu.au">www.australiancurriculum.edu.au</a> Year 4 Geography standard elaborations <a href="http://www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr4_se.pdf">www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr4_se.pdf</a>
	<b>Connections</b>
	This assessment can be used with the QCAA Australian Curriculum resource titled <i>Year 4 unit overview: Geography exemplar — Investigating how environments sustain all life</i> available at: <a href="http://www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr4_unit_overview.docx">www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr4_unit_overview.docx</a>
Definitions	
<p><b>Continents:</b> The world’s seven main continuous expanses of land. This includes Europe, Asia, Africa, North America, South America, Australia and Antarctica.</p> <p><b>Sustainability:</b> This concept is the focus of Year 4 Geography. Students learn about the capacity of the environment to continue to support our lives and the lives of other living things into the future.</p> <p><b>Natural resources:</b> Materials provided by the environment that are used in production and consumption, e.g. water, timber, oil and food grown as crops.</p> <p><b>Habitat:</b> A natural environment in which a particular species of animal lives.</p> <p><b>Climate zone:</b> Major climate zones include tropical, temperate, continental, polar and arid.</p> <p><b>Vegetation zone:</b> Geographical areas where types of natural vegetation are located. These include grassland, deciduous forest, tundra, desert, coniferous forests and tropical forests.</p> <p><b>Spatial distribution:</b> The arrangement of a geographical phenomenon or activity across the surface of the Earth, e.g. most of Queensland’s population is concentrated in the south-east coastal area.</p> <p><b>Deforestation:</b> The process of clearing forests.</p> <p><b>Relative location:</b> Location in relation to other places described in terms of distance or direction.</p> <p><b>Comparative column graph:</b> This is used to compare two sets of data on the same axis such as comparing rainfall in two places over the year.</p> <p><b>Annotated map:</b> A visual way to communicate geographical information in relation to location and characteristics of places on a map.</p>	

## In this assessment

Teacher guidelines

Task-specific standards — continua

Task-specific standards — matrix

Assessment resource: Sample annotated map

Assessment resource: Graphic organisers

Assessment resource: Rainfall data sources

Assessment resource: Sustainability links

Student booklet

# Teacher guidelines

## Identify curriculum

### Content descriptions to be taught

#### Geographical Knowledge and Understanding

- The location of the major countries of Africa and South America in relation to Australia, and their main characteristics, including the types of **natural vegetation** and native animals in at least two countries from both continents (ACHGK020)
- The types of **natural vegetation** and the significance of vegetation to the **environment** and to people (ACHGK021)
- The importance of environments to animals and people, and different views on how they can be protected (ACHGK022)
- The natural resources provided by the **environment**, and different views on how they could be used sustainably (ACHGK024)

#### Geographical Inquiry and skills

##### Collecting, recording, evaluating and representing

- Represent **data** by constructing tables and graphs (ACHGS028)
- Represent the location of places and their **features** by constructing large-scale maps that conform to cartographic conventions including **scale**, legend, title and north point, and describe their location using simple grid references, compass direction and distance (ACHGS029)

##### Interpreting, analysing and concluding

- Interpret geographical **data** to identify distributions and patterns and draw conclusions (ACHGS030)

##### Communicating

- Present findings in a range of communication forms, for example, written, oral, digital, graphic, tabular and visual, and use geographical terminology (ACHGS031)










##### Reflecting and responding

- Reflect on their learning to propose individual action in response to a contemporary geographical challenge and identify the expected effects of the proposal (ACHGS032)

#### 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/yr4-geography-resources.html](http://www.qcaa.qld.edu.au/yr4-geography-resources.html).

 Literacy  Numeracy  ICT capability  Critical and creative thinking  Personal and social capability  Ethical understanding  Intercultural understanding	 Aboriginal and Torres Strait Islander histories and cultures  Sustainability
<p><b>Achievement standard</b></p> <p>This assessment provides opportunities for students to demonstrate the following highlighted aspects.</p> <p>By the end of Year 4, students describe and compare the characteristics of places in different locations at the national scale. They identify and describe the interconnections between people and the environment. They describe the location of selected countries in relative terms and identify simple patterns in the distribution of features of places. Students recognise the importance of the environment and identify different views on how to respond to a geographical challenge.</p> <p>Students develop geographical questions to investigate and collect and record information and <b>data</b> from different sources to answer these questions. They represent data and the location of places and their characteristics in simple graphic forms, including large-scale maps that use the cartographic conventions of scale, legend, title and north point. They describe the location of places and their features using simple grid references, compass direction and distance. Students interpret data to identify spatial distributions and simple patterns and draw conclusions. They present findings using geographical terminology in a range of texts. They propose individual action in response to a local geographical challenge and identify the expected effects of their proposed action.</p> <p>Source: ACARA, The Australian Curriculum v7.0, <a href="http://www.australiancurriculum.edu.au">www.australiancurriculum.edu.au</a></p>	

## Sequence learning

### Suggested learning experiences

This assessment leads on from the learning experiences outlined in the QCAA's Year 4 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 4 Geography exemplar — Investigating how environments sustain all life* [www.qcaa.qld.edu.au/downloads/p\\_10/ac\\_geog\\_yr4\\_unit\\_overview.docx](http://www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr4_unit_overview.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](http://www.qcaa.qld.edu.au/10188.html)
- Australian Curriculum Student Diversity [www.australiancurriculum.edu.au/StudentDiversity/Student-diversity-advice](http://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](http://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](http://www.ag.gov.au).

## Resources

### Print

- Australia Geography Teachers Association 2008, *Keys to Geography: Essential skills and tools*, Macmillan, South Yarra.
- Catling, S, Willy, T & Butler, J 2012, *Teaching Primary Geography for Australian Schools*, Hawker Brownlow, Melbourne.

### Online

- Aboriginal land care, *Creative spirits*, Jens Korff, [www.creativespirits.info/aboriginalculture/land/aboriginal-land-care](http://www.creativespirits.info/aboriginalculture/land/aboriginal-land-care)
- ACARA, *Work sample portfolio: Year 4*, [www.acara.edu.au/curriculum/worksamples/Year\\_4\\_Geography\\_Portfolio.pdf](http://www.acara.edu.au/curriculum/worksamples/Year_4_Geography_Portfolio.pdf)
- Education for Sustainability, Ministry of Education, New Zealand Government, *Curriculum resources and tools*, <http://efs.tki.org.nz/Curriculum-resources-and-tools>
- Geospace, Australian Geography Teachers Association, *Climate graphs*, [www.geospace.edu.au/verve/\\_resources/2.3.2.2\\_2\\_climate\\_graphs.pdf](http://www.geospace.edu.au/verve/_resources/2.3.2.2_2_climate_graphs.pdf)
- Global education project, *Teacher resource to encourage global thinking across the curriculum*, [www.globaleducation.edu.au/resources-gallery/resource-gallery-templates.html](http://www.globaleducation.edu.au/resources-gallery/resource-gallery-templates.html)
- Queensland Curriculum and Assessment Authority, G20 for schools, *Interactive map* (Climate and vegetation zones), <http://g20.qcaa.qld.edu.au/#level=basic>
- Queensland Curriculum and Assessment Authority, *Year 4 Geography Australian Curriculum in Queensland*, [www.qcaa.qld.edu.au/yr4-geography-overview.html](http://www.qcaa.qld.edu.au/yr4-geography-overview.html)
- Spatial technologies, such as:
  - Google Earth, [www.google.com/earth](http://www.google.com/earth)
  - Google Maps, [www.google.com.au/maps](http://www.google.com.au/maps)
- Wildlife News, *The disappearing savannah*, <http://wildlifeneeds.co.uk/2012/12/the-disappearing-savannah>
- World Climate Charts, [www.climate-charts.com](http://www.climate-charts.com)
- World Meteorological Organization, World Weather Information Service, <http://worldweather.wmo.int/en/home.html>
- World biomes, including climate zones — Blue Planet Biomes, *World biomes*, [blueplanetbiomes.org/world\\_biomes.htm](http://blueplanetbiomes.org/world_biomes.htm)
- World Wildlife Fund Australia, [www.wwf.org.au](http://www.wwf.org.au):
  - *Living Planet Report 2012*, [www.wwf.org.au/our\\_work/people\\_and\\_the\\_environment/human\\_footprint/living\\_planet\\_report\\_2012/](http://www.wwf.org.au/our_work/people_and_the_environment/human_footprint/living_planet_report_2012/)
  - *Sustainable living to reduce your personal footprint*, [www.wwf.org.au/what\\_you\\_can\\_do/change\\_the\\_way\\_you\\_live/sustainable\\_living/](http://www.wwf.org.au/what_you_can_do/change_the_way_you_live/sustainable_living/)(For more ideas for sustainability, see also: *Assessment resource: Sustainability links*)

### Objects

- large-scale outline maps
- models of maps that conform to cartographic conventions including border, source, scale, legend, and north point
- coloured pencils

# Develop assessment

## Preparing for the assessment

- Review the skills developed in Year 3 Geography, including:
  - representing data in graphs and maps using conventions
  - locating and using average temperature and climate data
  - interpreting spatial distributions in maps and graphs
  - comparing the characteristics of places in different countries.
- Review and provide examples of geographical terminology used in Year 3 Geography, including:
  - characteristics of places
  - geographical data
  - perceptions (or feeling) about places
  - climate zones
  - average temperature and rainfall
  - spatial distributions and patterns.
- Explain and provide examples of new geographical terminology to focus on in this assessment, including:
  - sustainability
  - vegetation zones
  - relative location
  - natural resources
  - deforestation.
- Discuss the big ideas of sustainability with students as a way of thinking about future uses of resources.
- Brainstorm individual actions for living sustainably to address geographical challenges
- Explain and provide examples of how geographers propose future actions that consider environmental, economic and social factors.
- Review the key questions addressed in this unit that are the focus of this assessment including:
  - How does the environment support the lives of people and other living things?
  - How can people use places and environments more sustainably?

## Implementing

### Section 1. Describing the location of places

#### Student role

- Use sources to locate the continents of Australia, Africa and South America. Use the headings in the table to collect and record relevant information about the location of each continent.
- Use the blank world map provided in the *Student booklet* or a digital blank world map to locate, label and annotate information identified in Section 1.

#### Teacher role

- Review with students what they already know about the continents of Africa and South America in relation to Australia.
- Provide students with relevant sources to complete Section 1.
- Check student understanding about the geographical term 'relative location'.
- Use *Assessment resource: Sample annotated map* to consider possible student responses.

### Section 2. Comparing environments

#### Student role

- Use relevant sources to record details in the table about the environments of two continents.
- Complete the tables to show aspects of similarity and difference in the characteristics of the two

#### Teacher role

- Provide relevant sources to complete Section 2, including the QCAA, G20 for schools, *Interactive map* (Climate and vegetation zones), <http://g20.qcaa.qld.edu.au/#level=basic>.

<p>environments in the continents of Africa and South America.</p> <ul style="list-style-type: none"> <li>Check that completed tables have sufficient detail to describe and compare the characteristics of the environments.</li> </ul>	<ul style="list-style-type: none"> <li>Provide an exemplar of a detailed description and comparison of characteristics of different places. If appropriate, use a different graphic organiser such as a Venn diagram to organise ideas and compare features. See: <ul style="list-style-type: none"> <li><i>Assessment resource: Graphic organisers</i></li> <li>example of a completed Venn diagram to show students: <a href="http://www.learnnc.org/reference/Venn+diagram">www.learnnc.org/reference/Venn+diagram</a>.</li> </ul> </li> </ul>
<p><b>Section 3. Representing data</b></p>	
<p><b>Student role</b></p> <ul style="list-style-type: none"> <li>Review the data provided. Select rainfall data from different climate zones.</li> <li>Use the example of a comparative column graph provided as a guide to complete Section 3.</li> <li>Review the representation of data in the graph, particularly on the regularity of interval of numbers used on the y axis. If required, change the intervals to improve the accuracy of the graph.</li> <li>Check the conventions of the graph are completed.</li> <li>Discuss the pattern of data in the graph and suggest reasons for this pattern. Think about how to describe patterns in data using geographical terminology.</li> </ul>	<p><b>Teacher role</b></p> <ul style="list-style-type: none"> <li>Provide students with <i>Assessment resource: Rainfall data sources</i> and check on their understanding of the term 'average monthly rainfall'.</li> <li>Discuss uses for average temperature and rainfall data over time.</li> <li>Provide examples to show when <i>average</i> temperature and rainfall data can be misleading.</li> <li>Provide sources for students to select cities from different climate zones.</li> <li>Review the provided example of a compound column graph including graphing conventions. Check students understand the purpose of a comparative column graph to compare sets of data in different places.</li> <li>Allow time for students to construct a graph and check the identified conventions are completed.</li> <li>Discuss the pattern of data in the graph and draw conclusions to explain this pattern.</li> <li>Review language to describe patterns of data in a graph such as 'highest', 'lowest', 'regular', 'irregular', 'increases', 'decreases', 'consistent', 'constant', 'varies', 'rise', 'fall'.</li> </ul>
<p><b>Section 4. Interpreting data</b></p>	
<p><b>Student role</b></p> <ul style="list-style-type: none"> <li>Use the labelled map in Section 1 and other relevant sources to complete responses.</li> <li>Check examples and supporting evidence are provided in each response to elaborate on detail.</li> </ul>	<p><b>Teacher role</b></p> <ul style="list-style-type: none"> <li>Check on student understanding of the requirements of this section.</li> <li>Prompt students to review relevant sources to complete responses, including the QCAA, G20 for schools, <i>Interactive map</i> (Climate and vegetation zones), <a href="http://g20.qcaa.qld.edu.au/#level=basic">http://g20.qcaa.qld.edu.au/#level=basic</a>.</li> </ul>
<p><b>Section 5. Proposing actions</b></p>	
<p><b>Student role</b></p> <ul style="list-style-type: none"> <li>Use the range of sources provided to identify and explain different views about an environmental challenge. Complete the table.</li> <li>Propose an individual action to respond to the selected environmental challenge. Record the expected effects of this proposal using the consequences chart or another suitable graphic organiser.</li> </ul>	<p><b>Teacher role</b></p> <ul style="list-style-type: none"> <li>View relevant sources about the environmental challenges presently faced that will continue in the future.</li> <li>Explain that different views exist about the extent of geographical challenges and how to respond to them. Use examples such as deforestation to illustrate the different views about this challenge.</li> <li>Use <i>Assessment resource: Sustainability links</i> as guide for suitable source materials to generate</li> </ul>

	<p>discussion.</p> <ul style="list-style-type: none"> <li>Review the role of geography in developing actions to respond to present and future challenges.</li> <li>Review graphic organisers identified in <i>Assessment resource: Graphic organisers</i>. Discuss how these tools develop geographical thinking.</li> </ul>
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## 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\\_yr3\\_se.pdf](http://www.qcaa.qld.edu.au/downloads/p_10/ac_geog_yr3_se.pdf).

### The Queensland standard elaborations for Geography

The Queensland Year 4 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 are organised as:

- Knowledge and understanding
- 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

<p><b>Australian Curriculum</b> Year 4 Geography</p>	<p><b>Sustaining environments</b> Unit 1: Investigating how environments sustain all life</p>	<p><b>Teacher guidelines</b></p>
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- allows teachers to make consistent and comparable on-balance judgments about a child'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.

<b>Australian Curriculum</b> Year 4 Geography	<b>Sustaining environments</b> Unit 1: Investigating how environments sustain all life	<b>Teacher guidelines</b>
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Australian Curriculum achievement standard dimensions	Australian Curriculum achievement standard	Queensland standard elaborations valued features	Task-specific valued features
<b>Understanding and Skills</b>	<b>Geographical Knowledge and Understanding</b>	<b>Knowledge and understanding</b>	Describe and compare the characteristics of places in the continents of Australia, South America and Africa. Describe the location of selected countries in relative terms. Identify different views on sustaining environments. Recognise the importance of the environment. <b>Sections 1, 2, 4 and 5</b>
	<b>Geographical Inquiry and Skills</b>	<b>Interpreting and analysing</b>	Interpret geographical data to identify spatial distributions, simple patterns and draw conclusions. Propose individual action in response to a geographical challenge and identify the expected effects of the proposed action. <b>Sections 4 and 5</b>
		<b>Communicating</b>	Present findings about sustainability of environments using geographical terminology. Represent rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses the cartographic conventions of scale, legend, title and north point. <b>Sections 1, 3 and 5</b>

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

<b>Feedback to students</b>	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"><li>· checks on understanding of the big ideas of the geographical concepts of sustainability and space (spatial distributions and patterns)</li><li>· provides literacy support for comprehending visual and graphical texts</li><li>· models how to represent data on maps using geographical conventions</li><li>· prompts students to check supporting detail is sufficient in responses.</li></ul> The task-specific standards for this assessment can be used as a basis for providing feedback to students.
<b>Resources</b>	For guidance on providing feedback, see the professional development packages titled: <ul style="list-style-type: none"><li>· <i>About feedback</i> <a href="http://www.qcaa.qld.edu.au/downloads/p_10/as_feedback_about.docx">www.qcaa.qld.edu.au/downloads/p_10/as_feedback_about.docx</a></li><li>· <i>Seeking and providing feedback</i> <a href="http://www.qcaa.qld.edu.au/downloads/p_10/as_feedback_provide.docx">www.qcaa.qld.edu.au/downloads/p_10/as_feedback_provide.docx</a></li></ul>

# Sustaining environments

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**Purpose of assessment:** Propose individual actions in response to the geographical challenge of sustaining the Earth’s environment.

Understanding and Skills			
Geographical Knowledge and Understanding	Geographical Inquiry and Skills		
Knowledge and understanding	Interpreting and analysing	Communicating	
<p>Describes and compares the characteristics of places in the continents of Australia, South America and Africa</p> <p>Describes the location of selected countries in relative terms and identifies simple patterns in the distribution of features of places</p> <p>Identifies the importance of the environment and different views on sustaining environments</p> <p><b>Sections 1, 2, 4 and 5</b></p>	<p>Interprets data to identify spatial distributions and simple patterns, and draw conclusions</p> <p>Proposes individual action in response to sustaining environments and identifies the expected effects of the proposed action</p> <p><b>Sections 4 and 5</b></p>	<p>Presents findings about sustainability of environments using geographical terminology</p> <p>Represents rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses the cartographic conventions of scale, legend, title and north point</p> <p><b>Sections 1, 3 and 5</b></p>	
<p>◀ <b>Comprehensively</b> describes and <b>compares</b> the characteristics of places in the continents of Australia, South America and Africa</p> <p>◀ <b>Comprehensively</b> describes the location of selected countries in relative terms and <b>identifies</b> and describes simple patterns in the distribution of features of places</p> <p>◀ <b>Identifies</b> and <b>explains</b> the importance of the environment and different views on sustaining environments</p>	<p>◀ <b>Interprets</b> data to <b>identify</b> and <b>explain</b> spatial distributions and simple patterns, and draw <b>reasoned</b> conclusions</p> <p>◀ <b>Proposes</b> individual action in response to sustaining environments and <b>identifies</b> and <b>explains</b> the expected effects of the proposed action</p>	<p>◀ <b>Purposefully</b> presents findings about sustainability of environments using <b>relevant</b> geographical terminology</p> <p><b>Accurately</b> represents <b>in detail</b> rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses cartographic conventions of scale, legend, title and north point</p>	
<p>◀ <b>Describes</b> and <b>compares</b> the characteristics of places in the continents of Australia, South America and Africa</p> <p>◀ <b>Describes</b> the location of selected countries in relative terms and <b>identifies</b> simple patterns in the distribution of features of places</p> <p>◀ <b>Identifies</b> the importance of the environment and different views on sustaining environments</p>	<p>◀ <b>Interprets</b> data to <b>identify</b> spatial distributions and simple patterns, and draw conclusions.</p> <p>◀ <b>Proposes</b> individual action in response to sustaining environments and <b>identifies</b> the expected effects of the proposed action.</p>	<p>◀ <b>Presents</b> findings about sustainability of environments using geographical terminology.</p> <p>◀ <b>Represents</b> rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses the cartographic conventions of scale, legend, title and north point.</p>	
			<p><b>A</b></p> <hr/> <p><b>B</b></p> <hr/> <p><b>C</b></p>

Understanding and Skills

Geographical Knowledge and Understanding	Geographical Inquiry and Skills	
Knowledge and understanding	Interpreting and analysing	Communicating
<p>Describes and compares the characteristics of places in the continents of Australia, South America and Africa.</p> <p>Describes the location of selected countries in relative terms.</p> <p>Identifies different views on sustaining environments.</p> <p>Recognises the importance of the environment.</p> <p><b>Sections 1, 2, 4 and 5</b></p>	<p>Interprets geographical data to identify spatial distributions, simple patterns and draw conclusions.</p> <p>Proposes individual action in response to a geographical challenge and identify the expected effects of the proposed action.</p> <p><b>Sections 4 and 5</b></p>	<p>Presents findings about sustainability of environments using geographical terminology.</p> <p>Represents rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses the cartographic conventions of scale, legend, title and north point.</p> <p><b>Sections 1, 3 and 5</b></p>
<p>◀ <u>Makes statements about</u> the characteristics of places in the continents of Australia, South America and Africa</p> <p>◀ <u>Identifies</u> the location of selected countries and <u>makes statements</u> about the features of places</p> <p>◀ <u>Makes statements</u> about the environment and views on sustaining environments</p>	<p>◀ <u>Uses</u> data to <u>make statements</u></p> <p>◀ <u>States</u> individual action <u>about</u> sustaining environments and the expected effects</p>	<p>◀ <u>Presents fragmented</u> findings about sustainability of environments using <u>everyday language</u></p> <p>◀ <u>Represents</u> in a <u>fragmented</u> way rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map</p>
		<b>D</b>
		<b>E</b>

# Sustaining environments

Name .....

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**Purpose of assessment:** Propose individual actions in response to the geographical challenge of sustaining the Earth’s environment.

		A	B	C	D	E		
Understanding and Skills	Geographical Knowledge and Understanding	Knowledge and understanding	Describes and compares the characteristics of places in the continents of Australia, South America and Africa	Comprehensively describes and compares the characteristics of places in the continents of Australia, South America and Africa	Describes and compares in detail the characteristics of places in the continents of Australia, South America and Africa	Describes and compares the characteristics of places in the continents of Australia, South America and Africa	Identifies and describes aspects of the characteristics of places in the continents of Australia, South America and Africa	Makes statements about the characteristics of places in the continents of Australia, South America and Africa
			Describes the location of selected countries in relative terms and identifies simple patterns in the distribution of features of places	Comprehensively describes the location of selected countries in relative terms and identifies and describes simple patterns in the distribution of features of places	Describes in detail the location of selected countries in relative terms and identifies and describes simple patterns in the distribution of features of places	Describes the location of selected countries in relative terms and identifies simple patterns in the distribution of features of places	Identifies the location of selected countries in relative terms and identifies aspects of simple patterns in the distribution of features of places	Identifies the location of selected countries and makes statements about the features of places
			Identifies the importance of the environment and different views on sustaining environments	Identifies and explains the importance of the environment and different views on sustaining environments	Identifies and describes the importance of the environment and different views on sustaining environments	Identifies the importance of the environment and different views on sustaining environments	Identifies the importance of the environment and aspects of different views on sustaining environments	Makes statements about the environment and views on sustaining environments
			<b>Sections 1, 2, 4 and 5</b>					

Continues over page

# Sustaining environments

Name .....

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		A	B	C	D	E	
Understanding and Skills	Interpreting and analysing	Interprets data to identify spatial distributions and simple patterns, and draw conclusions	Interprets data to identify and explain spatial distributions and simple patterns, and draw reasoned conclusions	Interprets data to identify and describes spatial distributions and simple patterns, and draw informed conclusions	Interprets data to identify spatial distributions and simple patterns, and draw conclusions	Interprets data to identify aspects of spatial distributions and simple patterns, and draw partial conclusions	
		Proposes individual action in response to sustaining environments and identifies the expected effects of the proposed action <b>Sections 4 and 5</b>	Proposes individual action in response to sustaining environments and identifies and explains the expected effects of the proposed action	Proposes individual action in response to sustaining environments and identifies and describes the expected effects of the proposed action	Proposes individual action in response to sustaining environments and identifies the expected effects of the proposed action	Identifies an action in response to sustaining environments and identifies aspects of the expected effects of the proposed action	States individual action about sustaining environments and the expected effects
	Communicating	Presents findings about sustainability of environments using geographical terminology	Purposefully presents findings about sustainability of environments using relevant geographical terminology	Effectively presents findings about sustainability of environments using relevant geographical terminology	Presents findings about sustainability of environments using geographical terminology	Partially presents findings about sustainability of environments using everyday language	Presents fragmented findings about sustainability of environments using everyday language
		Represents rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses the cartographic conventions of scale, legend, title and north point <b>Sections 1, 3 and 5</b>	Accurately represents in detail rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses cartographic conventions of scale, legend, title and north point	Represents in detail rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses the cartographic conventions of scale, legend, title and north point	Represents rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses the cartographic conventions of scale, legend, title and north point	Partially represents rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map that uses aspects of cartographic conventions	Represents in a fragmented way rainfall data in a comparative column graph and the location of places and their characteristics on a large-scale map



# Sustaining environments

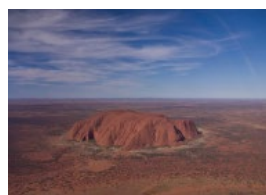
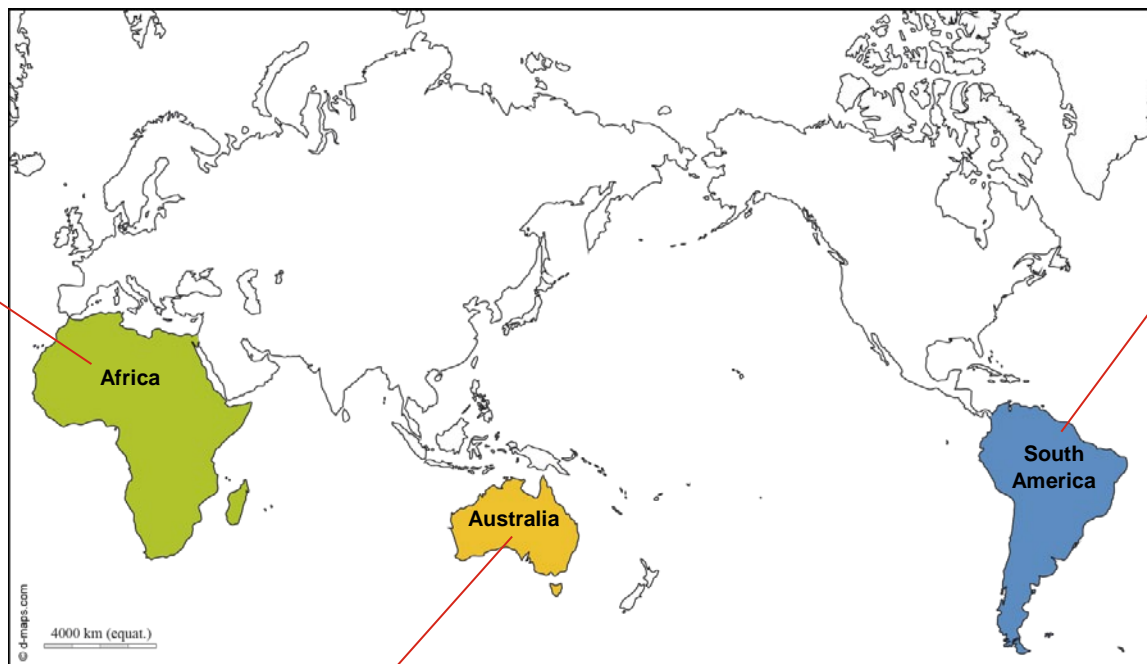
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## Sample annotated map



**Africa** has 54 individual countries and is the second largest continent at 30 221 532 square kilometres. It is home to the world's largest desert — the Sahara and the world's longest river — The Nile. It lies west of Australia and is located across the equator so has different climate zones.

It is surrounded by the Mediterranean Sea to the north, the Indian Ocean to the south-east and the Atlantic Ocean to the west.



**Australia** lies wholly in the southern hemisphere, unlike Africa and South America which have some areas in each hemisphere. The coastline is 25 760 kilometres. It is a continent of one country with six states and two territories compared to Africa and South America which have many independent countries within each continent. Australia has some of the most recognised rock formations in the world including Uluru in Central Australia which is sacred to the local Aboriginal people who live there. It also has the largest coral reef called the Great Barrier Reef. It is located between the Indian Ocean and the South Pacific Ocean.



**South America** is a continent located mostly in the southern hemisphere. It is located east of Australia. It is 17 819 000 square kilometres and is the fourth largest continent. There are 12 countries in South America with the largest being Brazil.

Four countries lie north of the equator — Colombia, Venezuela, Guyana and Suriname. South America has the largest tropical rainforest in the world called the Amazon which covers one-third of the continent. It is similar to Africa in having some of the continent located in both hemispheres. It is separated by the South Atlantic to the east and the South Pacific Ocean to the west.

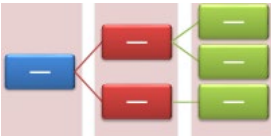
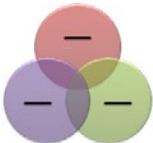




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## Graphic organisers

This table provides examples of graphic organisers to support the geographical skill of Reflecting and Responding. These graphic organisers are useful tools to:

- plan and organise ideas
- develop proposals in response to a geographical challenge
- 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>

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## Rainfall data sources

### Average rainfall (mm) in 2013 — selected cities in Africa

#### African cities in grassland zones

##### Pretoria , South Africa

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Annual average
104	113	83	44	18	9	4	3	20	71	108	108	57

##### Nairobi, Kenya

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Annual average
64	56	93	219	177	35	17	23	28	55	154	101	85

### Average rainfall (mm) in 2013 — selected cities in South America

#### South American cities in rainforest zones

##### Rio de Janeiro, Brazil

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Annual average
114	105	103	137	86	80	56	50	87	88	96	169	98

##### Medellini, Colombia

Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Annual average
65	80	126	161	199	158	119	148	178	212	147	94	141

Data sources: Commonwealth of Australia 2014, Bureau of Meteorology, CC BY 3.0, [www.bom.gov.au](http://www.bom.gov.au) via World Meteorological Organization, World Weather Information Service, [www.worldweather.org](http://www.worldweather.org)

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## Sustainability links

The World Wide Fund for Nature (WWF) is an international non-government organisation that works on the conservation, research and restoration of the environment.

The following videos produced by WWF provide an overview of environmental challenges and propose individual actions for sustainable living. These may be used as examples for students.

Title	Synopsis
<i>The world's largest rainforest: The Amazon</i> <a href="http://www.youtube.com/watch?v=bYAZ3NwVgtc">www.youtube.com/watch?v=bYAZ3NwVgtc</a>	'Identifies the significance of the Amazon as the world's largest rainforest that is home to one in ten known species on Earth.' (4 September 2013)
<i>Change the way you think</i> <a href="http://www.youtube.com/watch?v=nDTmjR_GG1w">www.youtube.com/watch?v=nDTmjR_GG1w</a>	'We live on a finite planet and sometimes our impact on it is greater than we realise. This video identifies how individual actions we take every day impact on the world's environment.' (3 February 2009)
<i>Change the way you think about food</i> <a href="http://www.youtube.com/watch?v=s_JLmxhnpNY">www.youtube.com/watch?v=s_JLmxhnpNY</a>	'How do we balance the needs of a growing population with a finite planet? This video identifies ways of meeting the challenge of feeding another 2 billion people by the year 2050.' (12 October 2011)
<i>How your T-shirt can make the difference</i> <a href="http://www.youtube.com/watch?v=10yqcpbWIFo">www.youtube.com/watch?v=10yqcpbWIFo</a>	'Did you know that the T-shirt on your back has a major impact on the planet? Producing it takes a lot of energy to get it from the cotton fields to your closet. But some of your T-shirt's biggest impacts are in how you care for it. Here's how you can help reduce its effect on the environment.' (14 January 2013)
<i>Change the way you think about your laptop</i> <a href="http://www.youtube.com/watch?v=EfKOWS3lxhU">www.youtube.com/watch?v=EfKOWS3lxhU</a>	'Do you know what goes into making your laptop? Raw materials for electronic goods are mined from tropical rainforests, but as resources dry up, recycling aluminium is key. This video provides an insight into what our world would be like if more products recycled or reused existing materials.' (12 October 2011)

# Sustaining environments

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Image: *Morning in the Amazon*, Mark Goble, Creative Commons Attribution 2.0, <https://flic.kr/p/8XNkq>

## Students propose individual actions in response to the geographical challenge of sustaining environments.

### You will:

- describe the relative locations of places and countries in different continents
- compare the characteristics of different environments
- represent data and information in tables, maps and in a comparative column graph
- interpret data and information to identify patterns, spatial distributions and draw conclusions
- propose actions for sustaining environments.

# Section 1. Describing the location of places

## Complete the table

Identify the location and characteristics of the continents of Australia, Africa and South America.

	Australia	Africa	South America
Continent size (km)			
Relative location (i.e. where the continents are located in relation to the equator and each other)			
Number of countries			
Surrounding oceans			
Significant landforms			

## Complete the world map

1. **Locate and label** these continents:

Australia	Africa	South America
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2. **Locate and label** these countries in the continents of Africa and South America:

Africa	South Africa	Kenya	Tanzania
South America	Brazil	Peru	Colombia

3. Use the following **cartographic conventions** to complete your map:

Title	Legend	North point
-------	--------	-------------

4. Use the notes you made in your table to annotate the world map with **descriptions** of each continent. Use an image to support your description.





## Section 2. Comparing environments

Complete the table below to **compare** the environments in different continents.

Use an interactive world map and other information sources to record the characteristics of two environments of the continents of Africa and South America.

### Africa

Environment	Climate	Natural vegetation	Native animals
Grasslands			
Rainforest			

### What are the environmental challenges for Africa?

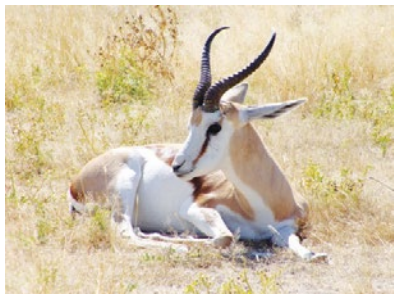
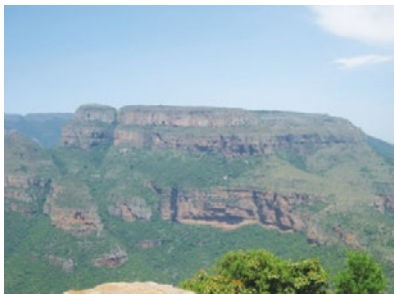
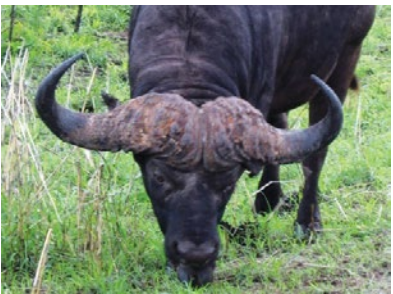
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<p>Springbok, Etosha National Park, Damien du Toit's photostream, CC BY 2.0, <a href="https://flic.kr/p/hT35r">https://flic.kr/p/hT35r</a></p>	<p>Blyde River Canyon, Fiona Henderson's photostream, CC BY 2.0, <a href="https://flic.kr/p/7oKP97">https://flic.kr/p/7oKP97</a></p>	<p>African Buffalo, James Hopkirk's photostream, CC BY 2.0, <a href="https://flic.kr/p/5DMEZP">https://flic.kr/p/5DMEZP</a></p>

## South America

Environment	Climate	Natural vegetation	Native animals
Grasslands			
Rainforest			

What are the environmental challenges for South America?

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IMG\_6346/Brazil/Mato Grosso Do Sul/Pantanal/Giant Antéater/Grand Fourmilier/Tamanoir, dany13's photostream, CC BY 2.0, <https://flic.kr/p/j4hDiB>



Golden lion tamarin, Bart van Dorp's photostream, CC BY 2.0, <https://flic.kr/p/npxmd1>



Amazon rainforest near Puerto Maldonado, Ivan Mlinaric's photostream, CC BY 2.0, <https://flic.kr/p/5RGCpJ>

**Compare the environments of Africa and South America.**

Differences

Similarities

# Section 3. Representing data

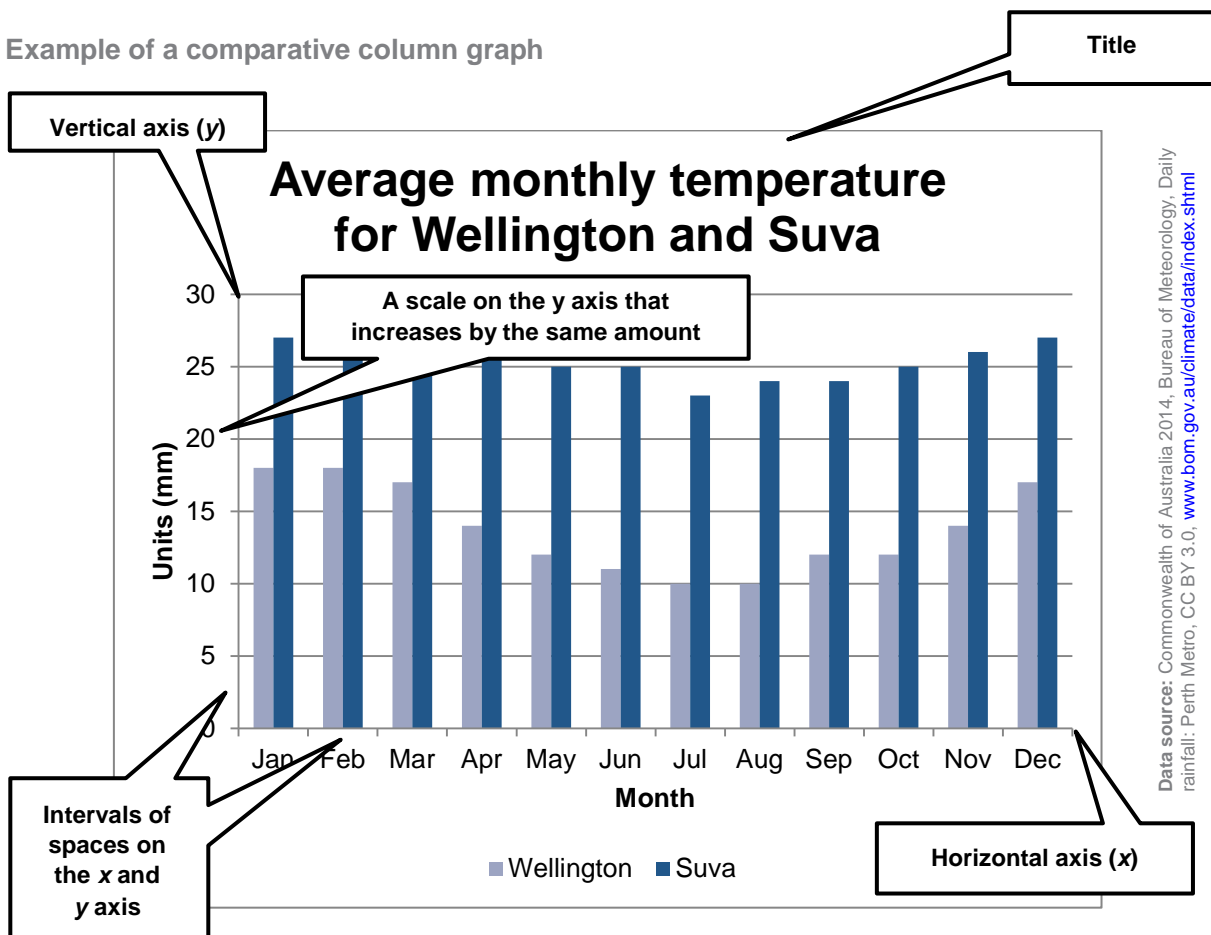
Your teacher will help you:

1. Choose **two cities** in different continents that are located in different vegetation zones — one from an African grassland zone and one from a South American rainforest zone.

African cities in grassland zones	South American cities in rainforest zones
Pretoria, South Africa	Rio De Janeiro, Brazil
Nairobi, Kenya	Medelleni, Colombia

2. Find the **rainfall data** for your two cities in the *Rainfall data sources handout*. Cut and paste or copy the rainfall data into your booklet.
3. Represent this data in a **comparative column graph** like the one below.

Example of a comparative column graph



Date: 2014 Source: Commonwealth of Australia, Bureau of Meteorology

	Jan	Feb	Mar	April	May	Jun	July	Aug	Sep	Oct	Nov	Dec
Wellington	18	18	17	14	12	11	10	10	12	12	14	17
Suva	27	28	27	26	25	25	23	24	24	25	26	27



Check you have included the following **graph conventions**:

- title
- horizontal axis (*x*) labelled with the months of the year
- vertical axis (*y*) labelled with numbers
- a scale on the *y* axis that increases by the same amount (e.g. 5, 10, 15, 20 ...)
- intervals of spaces on the *x* and *y* axis.

Describe the **pattern** in the data represented in the graph.

.....

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# Section 4. Interpreting data

To respond to this section you will need use a world map showing distribution of climate and vegetation zones.

Describe the pattern in the distribution of rainforest in the world represented on the map.

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.....

Explain the relationship between the distribution of rainforests and type of climate.

.....  
.....

Explain why the world's rainforests are declining.

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

Why are rainforests so important to life on Earth?

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



## Section 5. Proposing actions

Choose an **environmental challenge**, e.g. deforestation or water scarcity.

**Complete** the table to **identify views** about how individual people can respond to these challenges.

Environmental challenge: .....



Location of places affected	Environmental impacts	Current response to the challenge — collective	Possible responses to the challenge — individual

Image: *The world through a lens Project 365(2) Day 356*, Keith Williamson, CC BY 2.0, <https://flic.kr/p/9cZ7ya>

- **Propose an action** that you can take in your life to **respond** to an environmental challenge.
- Consider the **effects** of this action.
- **Present** your findings in a consequence chart.
- **Share** your findings with others.

**Consequences chart**

