

# *Water in the Australian Curriculum: Geography*

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directed to online  
resources.

## 1. BACKGROUND

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The release of both the Australian Curriculum: Geography Foundation to Year 10 (F-10) in May 2013 and the Australian Senior Secondary Curriculum: Geography in August 2013 provided an excellent opportunity for water agencies to promote student and teacher understanding about sustainable water management issues in Australia.

This report was commissioned by the Australian Water Association Australian Curriculum Project (2013-2015) and presented to the project Steering Committee in December 2013. Its purpose was to identify water-related links in the Australian Curriculum: Geography, audit existing water curriculum resources, identify gaps and to recommend future actions that could be taken to address these gaps. This report includes information about the implementation of some of the recommendations by the Australian Water Association Australian Curriculum Project.

What questions do we need to answer to fully exploit the opportunities presented by the Australian Curriculum: Geography F-10? This paper addressed the following questions:

1. What is the rationale that underpins the curriculum? What clues does the Geography curriculum provide about the kinds of activities and teaching approaches it favours?
2. Which topics are explicitly addressed? In which year levels do these topics occur?
3. Which resources are already aligned or nearly aligned to the Australian Curriculum: Geography?
4. Where are the gaps in the current online water-related curriculum resources?

In 2015, changes were made to the Australian Curriculum: F - 10 in response to the 2014 Review of the Australian Curriculum—particularly to the Humanities learning area. These changes are reflected in the v8.2 F-10 Curriculum and

references to specific content descriptions have been updated. The Australian Curriculum review addressed concerns about the volume of material expected to be covered in the primary years by replacing Geography, History, Civics and Citizenship and Business subjects with a single Foundation – Years 6/7 Humanities and Social Sciences (HASS) learning area. The information provided below has been updated to using the v8.2 Australian Curriculum for the HASS learning area Years F–6/7 and the Geography subject for Years 7–10.

Following the 2014 review, time was provided to allow schools in each state and territory to transition to the new version of the Australian Curriculum. Contact information for state-based implementation of the Australian Curriculum can be found on the [Australian Curriculum website](#).

## 2. RATIONALE AND TEACHING APPROACH

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What is Geography? The Australian Curriculum defines Geography as:

*‘...a structured way of exploring, analysing and understanding the characteristics of the places that make up our world, Geography enables students to question why the world is the way it is, and reflect on their relationships with and responsibilities for that world.’*

The Australian Curriculum: Geography takes a holistic approach—integrating learning across natural science, social science and the humanities. This curriculum provides a rich foundation for introducing students to the complexities of water systems and sustainable water management. There is a strong focus on students taking action ‘to shape change for a socially just and sustainable future’ (see footnote 1 below).

The curriculum is underpinned by seven concepts: place, space, environment, interconnection, sustainability, scale and change. Three of these concepts—environment, interconnection and sustainability—are particularly relevant to water topics. Issues are addressed at a local, regional, national and global scale across all the year levels.

The Geography curriculum advocates inquiry-based learning with a focus on the importance of age-appropriate fieldwork: collecting and analysing real data to develop students’ geographical inquiry skills. The curriculum promotes the use of a wide variety of teaching activities to engage student interest and develop their knowledge and skills to be able ‘to question, think critically, solve problems, communicate effectively, make decisions and adapt to change’ (see footnote 2 below).

The development of students’ spatial technology skills is also strongly supported from the Foundation year to Year 12. The use of digital tools to analyse geographical data was referenced at least 28 times in the original F-10 and Senior Geography curricula documents.

Unlike the Science curriculum, the HASS and Geography curricula are divided into only two strands—‘Geographical Knowledge and Understanding’ and ‘Geographical Inquiry Skills’. The two strands are intended to be taught in an integrated way; the content descriptions of the Geographical Knowledge

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2 Australian Curriculum, Assessment and Reporting Authority <<http://www.australiancurriculum.edu.au/humanities-and-social-sciences/introduction>> Accessed 20 July 2016

and Understanding strand provide the context for the development of the Geographical Inquiry Skills. In the F-10 curriculum, key inquiry questions provide a wider context for teachers to address the content descriptions.

The year level content descriptions in the F-10 curriculum and the unit content descriptions in the Senior Geography curriculum provide an overview of the context and intent of each unit. From Year 7, the content descriptions are organised into two units of work for the year. Students also undertake depth studies in Years 10, 11 and 12. The geographical locations for comparative studies are often specified. For instance, the issue of water scarcity is explored in Year 7 using studies drawn from Australia and West Asia and/or North Africa.

The content descriptions describe what the teachers are expected to teach and what the students are expected to learn about. The Elaborations provided in the F-10 curriculum are intended to illustrate and exemplify the content descriptions only. They are not part of the curriculum. The Achievement Standards describe expected student learning at each year level.

In contrast to the Science curriculum, the Geography curriculum explicitly incorporates content descriptions that address the three cross-curricular priorities: Aboriginal and Torres Strait Islander histories and cultures, Asia and Australia's engagement with Asia, and Sustainability.

### 3. WATER-RELATED TOPICS AND OPPORTUNITIES IN YEAR LEVELS

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#### **AUSTRALIAN CURRICULUM: HASS (GEOGRAPHY) F-10**

Not surprisingly, water topics feature strongly in the Australian Curriculum: HASS (Geography) F-10 curriculum. Year level content descriptions relevant to water topics are displayed in the Appendix. Water topics are most obvious in the 'Water in the world' unit which fills half the Geography work program for Year 7. It covers topics addressing:

- catchment management
- liveability
- water scarcity and variability
- urban water management in Australia and in West Asia or North Africa
- the value of water
- floods, cyclones or droughts.

In addition, there is scope for students to explore the environmental, economic and social aspects of catchment management and urban or rural water management and the associated impacts and challenges to sustainability. Given that water topics also feature in the Year 7 Australian Curriculum: Science, there is opportunity to teach Geography water topics in parallel with the Science water topics.



*Source: The State of Queensland*

The curriculum focus in Year 7 covers both regional and global water issues and is organised in two fields of Geography: environmental geography and human geography. The relevant environmental geography topics are hydrology, geomorphology and biogeography. The content descriptions promote active citizenship for sustainable resource management at the local, national and global levels. Human geography is addressed in the topic of liveability.

Inland water management can be used as a context for the Year 10 depth study. Students may choose to conduct a depth study on urban environments which can include research into water and wastewater management.

In the Foundation to Year 5, students can investigate various aspects of waterways and water supply in their local area as well in as in other parts of the world. For example, in Year 1 students learn about weather, seasons and Aboriginal and Torres Strait Islander seasonal calendars.

There is a strong thread of content descriptors across the primary year levels which explore the value of Country/Place (including water) for people, particularly Aboriginal and Torres Strait Islander Peoples.

The environmental hazards of cyclones, floods or drought can be introduced in Year 5 and Year 7.

Global water issues of safe drinking water supply and sanitation are referenced in Year 7.

In Year 9, there is a focus on the factors that affect food production and its associated challenges and impacts on biomes. The management of agricultural uses of water is an important element to include in this unit.

The list of content descriptions listed in the Appendix is not exhaustive. For instance, the Year 6 year level focus — ‘A diverse and connected world’— can be taught using supporting water-related activities to answer two of the key inquiry questions:

- How do places, people and cultures differ across the world?
- How do people’s connections to places affect their perception of them?

### **AUSTRALIAN SENIOR SECONDARY CURRICULUM: GEOGRAPHY**

The Senior Geography curriculum builds on the F-10 Geography curriculum. However, oddly enough, the only time that water is expressly mentioned is in the context of water-borne diseases. Each unit includes two depth studies in which students apply their geographical inquiry skills to research in detail a relevant topic.

There are opportunities to incorporate water topics in three of the four units listed for Years 11 and 12. They are:

- **Unit 1 Natural and ecological hazards:** Natural hazards include floods, droughts and cyclones while ecological hazards include environmental diseases or pandemics and would include water-borne diseases. This unit contains two depth studies: ‘one focusing on a natural hazard and one focusing on an ecological hazard’ (see footnote 3).
- **Unit 2 Sustainable places:** ‘This unit examines the economic, social and environmental sustainability of places’ (see footnote 4). The challenges of water supply and sanitation would be relevant in this unit. The unit includes two depth studies: ‘one focusing on challenges faced by a place in Australia, and one focusing on challenges faced by a megacity in a developing country’ (see footnote 4).
- **Unit 3 Landcover transformations:** ‘This unit focuses on the changing biophysical cover of the earth’s surface, its impact on global climate and biodiversity, and the creation of anthropogenic biomes’ (see footnote 5 on next page). It examines the processes involved in these changes and can include water-related contexts such as the expansion and intensification

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3 <<http://www.australiancurriculum.edu.au/seniorsecondary/humanities-and-social-sciences/geography/curriculum/seniorsecondary#page=1>> Accessed 26 July 2016

4 Australian Curriculum, Assessment and Reporting Authority <<http://www.australiancurriculum.edu.au/seniorsecondary/humanities-and-social-sciences/geography/curriculum/seniorsecondary#page=2>> Accessed 26 July 2016

of agriculture, land and soil degradation, irrigation, urban expansion and mining. Land cover change impact significantly on waterways and their water quality. The unit contains two depth studies: 'one focusing on the interrelationship between land cover and either global climate change or biodiversity loss, and one focusing on a program designed to address land cover change' (see footnote 5).

There is a strong focus on the use of spatial technologies to record observations, identify and analyse relationships, spatial patterns and trends and to make predictions and inferences based on these analyses.

## 4. EXISTING RESOURCES — GEOGRAPHY F-10

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The AWA Geography curriculum audit was conducted in 2013—not long after the Australian Curriculum: Geography was published. Therefore, relatively few resources have been developed that align with it. However, the draft versions of the Geography curriculum indicated to curriculum developers that there would be a particular focus on water topics in Year 7. Consequently, a number of new resources were aligned sufficiently with the final Year 7 content descriptions. The aligned resources were assessed against the quality criteria and the following four Geography resources were selected as best practice resources to be promoted through the AWA Australian Curriculum Project education web pages:

*The Lake Eyre Basin* - [Australian Government Department of the Environment](#)

*Mapping our waterway* - [Queensland Government](#)

*Explaining our catchment* - [Queensland Government](#)

*Visualising water quality* - [Queensland Government](#)

## 5. GAPS AND RECOMMENDATIONS

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### Gaps

Given the dearth of Australian Curriculum-aligned resources for Geography, there are opportunities to fill resource gaps in all year levels other than Year 7. Even in Year 7, the current resources don't address all the content descriptions. For instance, none of the resources identified addressed water management issues in West Asia or North Africa.

Key water topics were mapped against the content descriptions in Years F-10. Some of the resource gaps identified included:

- Aboriginal and Torres Strait Islander custodianship of water resources (Foundation, Years 2-4 and 10)
- Urban water management (Years 4, 7, 8 and 10)
- Global water issues (Years 5, 7, 9 and 10)
- Management of agricultural water resources (Years 9 and 10)
- Catchments and catchment management (Years 4, 7, 8 and 10)
- Weather, seasons and seasonal calendars (Years 1, 2 and 3)

### Recommendations

There are many resources in the curriculum audit that would be suitable for addressing some of the gaps listed previously, although they may not explicitly link to the Australian Curriculum: Geography. Teacher guides could be developed to help teachers incorporate existing resources into their Australian Curriculum work programs without redeveloping the entire resource or platform it is delivered on. These teacher guides would take the form of activity plans, lesson plans or extended lesson sequences and they would show teachers how

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5 Australian Curriculum, Assessment and Reporting Authority <<http://www.australiancurriculum.edu.au/seniorsecondary/humanities-and-social-sciences/geography/curriculum/seniorsecondary#page=3>> Accessed 26 July 2016

that particular resource can be used in the classroom while addressing the requirements of the Australian Curriculum.

Given the remote and dispersed nature of Australia's population, webinars would be a great way to give rural and remote classroom teachers and water educators some exposure to the Australian Curriculum Project and the resources that have been identified in the curriculum audit. More background research needs to be done to find the most suitable platform but webinars can be an inexpensive way to engage with clients over long distances.

There is a steady move towards the incorporation of mobile devices in teaching and learning and the development of a mobile application that engages students with water could be very beneficial. Some initial ideas have been generated but significant planning and development will be needed to finalise an app. However, the exposure and opportunities to develop additional resources from the data collected through the app are worth exploring.

## 6. IMPLEMENTATION

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While this report identified a range of short and long term recommendations for consideration, the AWA Australian Curriculum Project (2013-2015) completed the following Year 7 Geography teacher guides for online publication:

- [Managing our catchment](#)
- [Comparing Australian and Arab water management](#)
- [Managing our stormwater](#)

These teacher guides can be found [here](#) on the Australian Water Association.

Since this report was completed in 2013, a number of water agencies such as the Murray Darling Basin Authority, Melbourne Water and Sydney Water have continued to develop new lesson plans, digital resources and apps which address some of the recommendations in this report and promote teacher and student understanding about water and water management issues in Australia.



The *Appendix: Water topics in Australian Curriculum: Human and Social Sciences (HASS - Geography) Foundation to Year 10* can be downloaded [here](#).



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