

# **Queensland Spatial Educators' Toolkit**

## **for the Australian Curriculum: Geography**

### **Lower secondary (Year 7 – Year 10)**

**December 2017**

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## Introduction

The Queensland Spatial Educators' Toolkit (QSET) is designed to inspire classroom teachers with ideas on how to use spatial technologies in the classroom while meeting the requirements of the Australian Curriculum.

The Australian Curriculum: Geography mandates the use of spatial technologies from Year 4 so the initial focus of the Queensland Spatial Educators' Toolkit is Geography. Science will be supported in the near future.

## Toolkit structure

We have used the traditional Geographic Inquiry model to structure our learning sequences. This Geographic Inquiry model has been part of the Queensland Senior Geography syllabus for many years. Ferny Grove State High School's David McCauley, writing for the Geography Teachers Association of Queensland, [outlines the inquiry approach](#)<sup>i</sup> in Queensland geography classrooms. The Australian Geography Teachers Association's GeogSpace site also has a resource dedicated to [Geographic inquiry](#)<sup>ii</sup>.

The 'Key inquiry questions' from the [Australian Curriculum: Geography](#)<sup>iii</sup> have also been considered when organising our learning sequences with the Geographical inquiry model.

## Using the toolkit

The 'Sequence learning' section of the [Queensland Curriculum, Assessment and Reporting Framework](#)<sup>iv</sup> outlines what will be taught in the classroom. [Resources to implement this framework](#)<sup>v</sup> can be found on the Queensland Curriculum and Assessment Authority's website once you have selected your year level.

Although there will be common elements across all units, every school will have a different way of organising their units of work. Look for opportunities to take teaching strategies from QSET and integrate those into your own work program and units.

For instance, in Year 8 you may already study landforms and landscapes in some way. By using the toolkit you can look for activities that can 'slot' into your existing unit with little reorganisation. You will probably not use all the activities as you may not have time or access to the relevant tool but you can select those activities that fit with your work program and are appropriate for your classroom. If you need to completely rewrite your units, you could use our structure, in conjunction with the resources provided, as a starting point.

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<sup>i</sup> <https://drive.google.com/file/d/0BxD8DSqqrVkcZNVUGF2SVIRbGM/view?usp=sharing>

<sup>ii</sup> <http://www.geogspace.edu.au/support-units/geographical-inquiry/gi-introduction.html>

<sup>iii</sup> <http://www.australiancurriculum.edu.au/>

<sup>iv</sup> <http://education.qld.gov.au/curriculum/framework/p-12/>

<sup>v</sup> <https://www.qcaa.qld.edu.au/26025.html>

## Year 7: Water in the world

### Key inquiry questions

- What is water?
- Where is water distributed locally, in Queensland, in Australia and globally?
- How do people and environments rely on water?
- How does water change environments?
- How do we use water individually, locally, in Queensland, in Australia and globally?
- What are the economic, environmental and social impacts of our water use?
- How do we manage hazards related to water?
- How do we manage our water resources?
- How can we use our water more sustainably?

## Year 7 toolkit

### What is water?

Learning experiences and teaching strategies	Spatial resources
Examine the water cycle by following the path of a drop of water from the top of a mountain in the Australian Alps to the ocean. Discuss the different parts of the water cycle that you encounter on your journey.	<a href="#">Queensland Globe</a> <sup>vi</sup> <a href="#">Online map services</a> <sup>vii</sup> <a href="#">Google Earth</a> <sup>viii</sup>

### Where is water distributed locally, in Queensland, in Australia and globally?

Learning experiences and teaching strategies	Spatial resources
Use an online satellite image viewer to view bodies of water locally, regionally, nationally and globally. The Queensland Globe has all of Queensland's drainage basins and waterways.	<a href="#">Queensland Globe</a> <sup>ix</sup> <a href="#">Google Earth</a> <sup>x</sup> <a href="#">National Geographic Mapmaker Interactive</a> <sup>xi</sup>
Ask students to predict where they think global rainfall occurs. Analyse the distribution of global rainfall and compare the actual distribution to students' predictions.	<a href="#">National Geographic Mapmaker Interactive</a> <sup>xii</sup>
Examine global water access and use using choropleth maps.	<a href="#">World Bank StatPlanet</a> <sup>xiii</sup> <a href="#">Gapminder</a> <sup>xiv</sup>

## How do people and environments rely on water?

Learning experiences and teaching strategies	Spatial resources
Use an online satellite image viewer to look for evidence that water connects people. Examine a floating market in Asia or similar.	<a href="#">Queensland Globe</a> <sup>xv</sup> <a href="#">Online map services</a> <sup>xvi</sup> <a href="#">Google Earth</a> <sup>xvii</sup>
Examine the variety of ways that a local or significant waterway is used by humans. Use an online satellite or aerial image viewer to identify the land use along a stretch of your chosen waterway. The Queensland Globe contains information on land use and all of the state's waterways and drainage basins.	<a href="#">Google Earth</a> <sup>xviii</sup> <a href="#">Queensland Globe</a> <sup>xix</sup>

## How does water change environments?

Learning experiences and teaching strategies	Spatial resources
Draw a path following a local or significant waterway using an online mapping tool with this feature. Show the elevation profile of the waterway. Note the changing elevation and slope steepness at different locations and how this affects erosion and streamflow.	<a href="#">Google Earth</a> <sup>xx</sup> <a href="#">Queensland Globe</a> <sup>xxi</sup>

## How do we use water individually, locally, in Queensland, in Australia and globally?

Learning experiences and teaching strategies	Spatial resources
Look for evidence of water use in a traditional urban, suburban and agricultural region of Queensland. Compare with a country in West Asia or Africa.	<a href="#">Online map services</a> <sup>xxii</sup> <a href="#">Google Earth</a> <sup>xxiii</sup> <a href="#">Queensland Globe</a> <sup>xxiv</sup>
View and compare water consumption with similar and different places around the state or country. The BoM National Water Account provides comprehensive water use data for nine significant regions across Australia.	<a href="#">Bureau of Meteorology National Water Account</a> <sup>xxv</sup>
Survey personal water use across the class and create a map showing the distribution of water use across your local area.	<a href="#">Google My Maps</a> <sup>xxvi</sup> <a href="#">Scribble Maps</a> <sup>xxvii</sup>

## What are the economic, environmental and social impacts of our water use?

Learning experiences and teaching strategies	Spatial resources
Measure water quality data in a local waterway. Combine this in a table with locational data (latitude and longitude) and import the data into an online mapping tool that supports data imports. Represent the water quality on the map using appropriate mapping conventions.	<a href="#">Google My Maps</a> <sup>xxxviii</sup> <a href="#">Scribble Maps</a> <sup>xxxix</sup> <a href="#">Mapping your Waterway from the Queensland Government</a> <sup>xxx</sup>

## How do we manage hazards related to water?

Learning experiences and teaching strategies	Spatial resources
Use the Queensland Government's FloodCheck tool to simulate and examine the flood risk at various Queensland locations.	<a href="#">DNRME FloodCheck</a> <sup>xxxvi</sup>
View rainfall distribution maps for Australia to determine which areas have rainfall deficiencies over time and are more likely to experience drought conditions.	<a href="#">Bureau of Meteorology (rainfall deficiencies)</a> <sup>xxxvii</sup> <a href="#">DNRME Water Monitoring Portal</a> <sup>xxxviii</sup>
Summarise the impacts of a major disaster event related to water including casualties and economic impacts.	<a href="#">Disaster Mapper</a> <sup>xxxix</sup>

## How do we manage our water resources?

Learning experiences and teaching strategies	Spatial resources
Discuss monitoring programs by examining the DNRME Water Monitoring Portal.	<a href="#">DNRME Water Monitoring Portal</a> <sup>xxxv</sup>

## How can we use our water more sustainably?

Learning experiences and teaching strategies	Spatial resources
Audit the loss of water from sources (taps) around the school. Represent this information using different colours on an online map editor before using the map to take or recommend action.	<a href="#">Google My Maps</a> <sup>xxxvi</sup> <a href="#">Scribble Maps</a> <sup>xxxvii</sup>

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- vi <https://qldglobe.information.qld.gov.au/>
  - vii [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)
  - viii <https://www.google.com/earth/>
  - ix <https://www.business.qld.gov.au/running-business/support-assistance/mapping-data-imagery/maps/queensland-globe>
  - x <https://www.google.com/earth/>
  - xi <http://mapmaker.nationalgeographic.org/>
  - xii <http://mapmaker.nationalgeographic.org/>
  - xiii <http://www.statsilk.com/maps/statplanet-world-bank-open-data>
  - xiv <http://www.gapminder.org/>
  - xv <https://qldglobe.information.qld.gov.au/>
  - xvi [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)
  - xvii <https://www.google.com/earth/>
  - xviii <https://www.google.com/earth/>
  - xix <https://www.business.qld.gov.au/running-business/support-assistance/mapping-data-imagery/maps/queensland-globe>
  - xx <https://www.google.com/earth/>
  - xxi <https://qldglobe.information.qld.gov.au/>
  - xxii [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)
  - xxiii <https://www.google.com/earth/>
  - xxiv <https://www.business.qld.gov.au/running-business/support-assistance/mapping-data-imagery/maps/queensland-globe>
  - xxv <http://www.bom.gov.au/water/nwa/>
  - xxvi <https://www.google.com/mymaps>
  - xxvii <http://www.scribblemaps.com/>
  - xxviii <https://www.google.com/mymaps>
  - xxix <http://www.scribblemaps.com/>
  - xxx <https://publications.qld.gov.au/dataset/waterwise-education-resources/resource/a4b58574-23bb-45a6-9d2e-e72de7af632e>
  - xxxi <https://www.dnrme.qld.gov.au/mapping-data/maps/flood-mapping-program/floodcheck-map>
  - xxxii <http://www.bom.gov.au/climate/ada/>
  - xxxiii <https://www.dnrme.qld.gov.au/water/water-monitoring-and-data/portal>
  - xxxiv <https://knowledge.aidr.org.au/disasters>
  - xxxv <https://www.dnrme.qld.gov.au/water/water-monitoring-and-data/portal>
  - xxxvi <https://www.google.com/mymaps>
  - xxxvii <http://www.scribblemaps.com/>



## Year 7: Place and liveability

### Key inquiry questions

- What is place and what is liveability?
- What factors influence where we choose to live?
- How does the accessibility to services affect liveability?
- How does the environmental quality affect liveability?
- How does the sense of community affect liveability?
- What strategies can be employed to enhance liveability, particularly for young people?

## Year 7 toolkit

### What is place and what is liveability?

Learning experiences and teaching strategies	Spatial resources
Examine the many different indigenous nations across Australia. Discuss indigenous connection to place through art, stories and more.	<a href="#">ABC Indigenous Language Map</a> <sup>xxxviii</sup>

### What factors influence where we choose to live?

Learning experiences and teaching strategies	Spatial resources
Collect data from the ABS Quick Stats website and organise into a table. Import the table into Google My Maps to create a demographic map of the local area. Compare different parts of Australia across key demographic and economic indicators.	<a href="#">ABS Quick Stats</a> <sup>xxxix</sup> <a href="#">Google My Maps</a> <sup>xl</sup>
View crime statistics across Queensland. Start in your local area, move to your city or region and then examine the State. Consider crime in those areas you mapped in the previous teaching strategy.	<a href="#">Queensland Police Online Crime Statistics</a> <sup>xli</sup>

**How does the accessibility to services affect liveability?**

Learning experiences and teaching strategies	Spatial resources
Map the locations of transport routes and infrastructure such as public transport, recreational facilities, government services, medical services, educational services etc. in your local area to determine accessibility.	<a href="#">Google My Maps</a> <sup>xlii</sup> <a href="#">Scribble Maps</a> <sup>xliii</sup>
Develop criteria and evaluate how effectively your area provides services and facilities to its residents. Create a map or maps of services and facilities available in your local area as part of your evaluation. You could incorporate field work into this task allowing students to collect more data for analysis.	<a href="#">Google My Maps</a> <sup>xliv</sup> <a href="#">Scribble Maps</a> <sup>xlv</sup>

**How does the environmental quality affect liveability?**

Learning experiences and teaching strategies	Spatial resources
Measure water quality data in a local waterway. Combine this in a table with locational data (latitude and longitude) and import the data into an online mapping tool that supports data imports. Represent the water quality on the map using appropriate mapping conventions.	<a href="#">Google My Maps</a> <sup>xlvi</sup> <a href="#">Scribble Maps</a> <sup>xlvii</sup> <a href="#">Mapping your Waterway from the Queensland Government</a> <sup>xlviii</sup>

**How does the sense of community affect liveability?**

Learning experiences and teaching strategies	Spatial resources
Examine the level of multiculturalism in your local area or nearest city. Ask your students to think of examples of evidence of the presence of different cultures in their local area such as names of streets or parks, different shops or places of worship.	<a href="#">SBS Where Australia's immigrants were born map</a> <sup>xlix</sup>
Examine how the distribution of crime and different types of crime changes across your region.	<a href="#">Queensland Police Online Crime Statistics</a> <sup>l</sup>

## What strategies can be employed to enhance liveability, particularly for young people?

Learning experiences and teaching strategies	Spatial resources
<p>Have students use an online map creating tool to plan how they would make changes to a well known public space in their local area or city. Consider who uses the space and what changes would be appropriate for the best public amenity. Students could collect data from the area if appropriate.</p>	<p><a href="#">Scribble Maps</a><sup>li</sup>  <a href="#">Queensland Globe</a> <sup>lii</sup>  <a href="#">Google Earth</a><sup>liii</sup>  <a href="#">Google My Maps</a><sup>liv</sup></p>

xxxviii <http://www.abc.net.au/indigenous/map/>

xxxix <http://www.abs.gov.au/websitedbs/censushome.nsf/home/quickstats>

xl <https://www.google.com/mymaps>

xli <https://www.police.qld.gov.au/forms/CrimeStatsDesktop.asp>

xlii <https://www.google.com/mymaps>

xliii <http://www.scribblemaps.com/>

xliv <https://www.google.com/mymaps>

xlv <http://www.scribblemaps.com/>

xlvi <https://www.google.com/mymaps>

xlvii <http://www.scribblemaps.com/>

xlviii <https://publications.qld.gov.au/dataset/waterwise-education-resources/resource/a4b58574-23bb-45a6-9d2e-e72de7af632e>

xlix <http://www.sbs.com.au/news/map/where-australias-immigrants-were-born-brisbane>

l <https://www.police.qld.gov.au/forms/CrimeStatsDesktop.asp>

li <http://www.scribblemaps.com/>

lii <https://qldglobe.information.qld.gov.au/>

liii <https://www.google.com/earth/>

liv <https://www.google.com/mymaps>

## Year 8: Landforms and landscapes

### Key inquiry questions

- What is the environment, a landscape and a landform?
- Where do they occur?
- What processes shape our landscapes to form individual landscapes and landforms?
- How do different groups value, use and add meaning to landforms and landscapes locally, in Queensland, in Australia and globally?
- How and why are landscapes degraded?
- To what extent does the interaction between places, people and environments affect geomorphological hazards and our response to them?
- How do we and how should we manage landscapes and landforms to make them more sustainable?

## Year 8 toolkit

### What is the environment, a landscape and a landform?

Learning experiences and teaching strategies	Spatial resources
Use National Geographic's Mapmaker Interactive to view land cover around the world. Relate this to the different types of landscapes observed.	<a href="#">National Geographic Mapmaker Interactive</a> <sup>iv</sup>
Examine various landforms in different parts of the world using an online 3D or 2D map viewer. Use different layers of data to identify different features of each landform such as topography and vegetation.	<a href="#">Queensland Globe</a> <sup>lvi</sup> <a href="#">Online map services</a> <sup>lvii</sup> <a href="#">Google Earth</a> <sup>lviii</sup>

### Where do they occur?

Learning experiences and teaching strategies	Spatial resources
View significant landforms around Queensland using the Queensland Globe. Overlay Queensland's contour lines to better visualise the landforms.	<a href="#">Queensland Globe</a> <sup>lix</sup>
Use QTopo to view specific landforms around Queensland. Students consolidate their knowledge of contour lines by sketching their landform in profile and bird's eye view.	<a href="#">QTopo</a> <sup>lxx</sup>

## What processes shape our landscapes to form individual landscapes and landforms?

Learning experiences and teaching strategies	Spatial resources
Use Queensland Globe to examine a landform from Queensland before researching its formation and creating a series of figures to demonstrate its formation.	<a href="#">Queensland Globe</a> <sup>lxix</sup>
Use the elevation profile tool in an online mapping program to draw paths across different landforms and view a profile along each line. You can see the topography of a place and measure a range of factors like distance, change in height, slope etc.	<a href="#">Google Earth</a> <sup>lxxii</sup> <a href="#">Queensland Globe</a> <sup>lxxiii</sup>

## How do different groups value, use and add meaning to landforms and landscapes locally, in Queensland, in Australia and globally?

Learning experiences and teaching strategies	Spatial resources
Compare indigenous artists and their representation of landforms with satellite imagery from an online satellite image viewer to identify similarities between Dreamtime stories and the Australian landscape.	<a href="#">Online map services</a> <sup>lxxiv</sup> <a href="#">Google Earth</a> <sup>lxxv</sup>

## How and why are landscapes degraded?

Learning experiences and teaching strategies	Spatial resources
Use Google Earth to view a specific area with obvious degradation. View land use in the surrounding area to see if there is a connection between how the land is used and landscape degradation. Use Queensland Globe to view zoning, infrastructure, mines and other features that may impact a landscape.	<a href="#">Google Earth</a> <sup>lxxvi</sup> <a href="#">Queensland Globe</a> <sup>lxxvii</sup>

**To what extent does the interaction between places, people and environments affect geomorphological hazards and our response to them?**

Learning experiences and teaching strategies	Spatial resources
Use the USGS Latest Earthquake map to view recent earthquakes or to search for earthquakes in a particular period of time. Examine their distribution and compare that to plate boundaries and volcanoes where you can get that data.	<a href="#">USGS Latest Earthquake map</a> <sup>lxviii</sup>
View current or historic bushfire events across Australia using the Sentinel bushfire mapper. View weather data, topography, land use, economic value and other data relevant to the bushfire hazard.	<a href="#">Sentinel Bushfire map</a> <sup>lxix</sup>
Use National Geographic’s Mapmaker Interactive to overlay volcanoes, earthquakes and plate boundaries to demonstrate the connections between all three.	<a href="#">National Geographic Mapmaker Interactive</a> <sup>lxx</sup>
Use the USGS earthquake mapper to view current (or historical) earthquake events from around the globe. This information can be downloaded into a table and imported into another mapping tool if desired.	<a href="#">USGS Latest Earthquake map</a> <sup>lxxi</sup>

**How do we and how should we manage landscapes and landforms to make them more sustainable?**

Learning experiences and teaching strategies	Spatial resources
Students use an online map creator to demonstrate how they would manage a particular landscape or landform. They use the map creation tools to demonstrate their plan for development of a specific area using appropriate symbols.	<a href="#">Google My Maps</a> <sup>lxxii</sup> <a href="#">Scribble Maps</a> <sup>lxxiii</sup> <a href="#">Queensland Globe</a> <sup>lxxiv</sup>

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- lv <http://mapmaker.nationalgeographic.org/>
  - lvi <https://qldglobe.information.qld.gov.au/>
  - lvii [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)
  - lviii <https://www.google.com/earth/>
  - lix <https://www.business.qld.gov.au/running-business/support-assistance/mapping-data-imagery/maps/queensland-globe>
  - lx <https://www.business.qld.gov.au/running-business/support-assistance/mapping-data-imagery/maps/topographic-maps>
  - lxi <https://www.business.qld.gov.au/running-business/support-assistance/mapping-data-imagery/maps/queensland-globe>
  - lxii <https://www.google.com/earth/>
  - lxiii <https://qldglobe.information.qld.gov.au/>
  - lxiv [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)
  - lxv <https://www.google.com/earth/>
  - lxvi <https://www.google.com/earth/>
  - lxvii <https://www.business.qld.gov.au/running-business/support-assistance/mapping-data-imagery/maps/queensland-globe>
  - lxviii <http://earthquake.usgs.gov/earthquakes/map/>
  - lxix <http://sentinel.ga.gov.au/>
  - lxx <http://mapmaker.nationalgeographic.org/>
  - lxxi <http://earthquake.usgs.gov/earthquakes/map/>
  - lxxii <https://www.google.com/mymaps>
  - lxxiii <http://www.scribblemaps.com/>
  - lxxiv <https://qldglobe.information.qld.gov.au/>

## Year 8: Changing nations

### Key inquiry questions

- How do we organise our urban areas?
- How do environmental and human processes affect the characteristics of places and environments?
- How do the interconnections between places, people and environments affect the lives of people?
- How and why do people move?
- What are the consequences of demographic changes to places and environments?
- How can these changes be managed?

## Year 8 toolkit

### How do we organise our urban areas?

Learning experiences and teaching strategies	Spatial resources
View online satellite images of different populated places. Observe the structure, composition, design and layout of these places and discuss how and why they might be different.	<a href="#">Queensland Globe</a> <sup>lxxv</sup> <a href="#">Online map services</a> <sup>lxxvi</sup> <a href="#">Google Earth</a> <sup>lxxvii</sup>

### How do environmental and human processes affect the characteristics of places and environments?

Learning experiences and teaching strategies	Spatial resources
Examine online satellite images to compare the layout of your local area with other areas in your region, Queensland, Australia and around the world.	<a href="#">Queensland Globe</a> <sup>lxxviii</sup> <a href="#">Online map services</a> <sup>lxxix</sup> <a href="#">Google Earth</a> <sup>lxxx</sup>

### How do the interconnections between places, people and environments affect the lives of people?

Learning experiences and teaching strategies	Spatial resources
Consider the flow of remittances around the world. Look for patterns in the data. Consider the features of those countries where remittances depart and those countries they visit.	<a href="#">Global Remittances Guide</a> <sup>lxxxii</sup>



### How and why do people move?

Learning experiences and teaching strategies	Spatial resources
View global development indicators to see why migrants leave their home countries. Consider the push and pull factors that motivate people to migrate.	<a href="#">World Bank StatPlanet</a> <sup>lxxxii</sup> <a href="#">Gapminder</a> <sup>lxxxiii</sup> <a href="#">World Bank Atlas of Development Goals</a> <sup>lxxxiv</sup>

### What are the consequences of demographic changes to places and environments?

Learning experiences and teaching strategies	Spatial resources
Consider the distribution of different ethnic and other types of groups around your town, city or region. Can a connection be drawn between the physical composition of that area and the demographic composition? Look for evidence of shops, food styles, cultural centres and churches as well as signage, services and facilities present in the area.	<a href="#">SBS Where Australia's immigrants were born map</a> <sup>lxxxv</sup> <a href="#">Google Street View via Maps</a>

### How can these changes be managed?

Learning experiences and teaching strategies	Spatial resources
<p><i>We currently have no learning experiences or teaching strategies for this section. If you have any suggested tasks please share with us by contacting <a href="mailto:spatialeducation@dnrme.qld.gov.au">spatialeducation@dnrme.qld.gov.au</a></i></p>	

<sup>lxxxv</sup> <https://qldglobe.information.qld.gov.au/>

<sup>lxxxvi</sup> [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)

<sup>lxxxvii</sup> <https://www.google.com/earth/>

<sup>lxxxviii</sup> <https://qldglobe.information.qld.gov.au/>

<sup>lxxxix</sup> [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)

<sup>lxxx</sup> <https://www.google.com/earth/>

<sup>lxxx</sup> <http://www.migrationpolicy.org/programs/data-hub/global-remittances-guide>

<sup>lxxxii</sup> <http://www.statsilk.com/maps/statplanet-world-bank-open-data>

<sup>lxxxiii</sup> <http://www.gapminder.org/>

<sup>lxxxiv</sup> <http://datatopics.worldbank.org/sdcatlas/>

<sup>lxxxv</sup> <http://www.sbs.com.au/news/map/where-australias-immigrants-were-born-brisbane>

## Year 9: Biomes and food security

### Key inquiry questions

- What are biomes and where are they?
- What are the causes and consequences of change in local, regional and global biomes?
- What are the future implications of change to biomes?
- How can this change be sustainably managed?
- What are the environmental and other challenges to food production?
- How can we achieve sustainable food security?

## Year 9 toolkit

### What are biomes and where are they?

Learning experiences and teaching strategies	Spatial resources
Use the National Geographic Mapmaker Interactive to view the different land cover around the world. Relate this to the different types of biomes observed.	<a href="#">National Geographic Mapmaker Interactive</a> <sup>lxxxvi</sup>
View the range of different biomes, their location, their vegetation and other characteristics, across Queensland using the Queensland Globe.	<a href="#">Queensland Globe</a> <sup>lxxxvii</sup>
View global weather patterns and compare with the distribution of biomes.	<a href="#">null school earth</a> <sup>lxxxviii</sup>

### What are the causes and consequences of change in local, regional and global biomes?

Learning experiences and teaching strategies	Spatial resources
Use historic imagery from Google Earth to view change over time in particular ecosystems. Students can look for evidence of human influence in environments over the period of time.	<a href="#">Google Earth</a> <sup>lxxxix</sup>
Get students to create a map showing the distribution of natural resources in Queensland. Consider mining, forestry, water and other resources.	<a href="#">Google My Maps</a> <sup>xc</sup> <a href="#">Scribble Maps</a> <sup>xc</sup>

### What are the future implications of change to biomes?

Learning experiences and teaching strategies	Spatial resources
View the distribution of many animal species to evaluate the importance of the environment and geography to animals and people.	<a href="#">WWF WildFinder</a> <sup>xcii</sup> <a href="#">Map of Life</a> <sup>xciii</sup>

### How can this change be sustainably managed?

Learning experiences and teaching strategies	Spatial resources
<p><i>We currently have no learning experiences or teaching strategies for this section. If you have any suggested tasks please share with us by contacting <a href="mailto:spatialeducation@dnrme.qld.gov.au">spatialeducation@dnrme.qld.gov.au</a></i></p>	

### What are the environmental and other challenges to food production?

Learning experiences and teaching strategies	Spatial resources
View distributions of wealth, water, agriculture and food security across the planet to identify connections.	<a href="#">World Bank StatPlanet</a> <sup>xciv</sup> <a href="#">Gapminder</a> <sup>xcv</sup>
Examine global patterns in food security as well as detailed country level statistics using the Global Food Security Index website.	<a href="#">Global Food Security Index</a> <sup>xcvi</sup>

### How can we achieve sustainable food security?

Learning experiences and teaching strategies	Spatial resources
View the distribution of global hunger along with progress towards a range of global hunger goals such as the Millennium Development Goals.	<a href="#">FAO Hunger Map 2015</a> <sup>xcvii</sup>
Examine how different Non-Government Organisations (NGOs) are addressing issues of food security around the world.	<a href="#">NGO Aid Map</a> <sup>xcviii</sup>

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- lxxxvi <http://mapmaker.nationalgeographic.org/>  
lxxxvii <https://www.business.qld.gov.au/running-business/support-assistance/mapping-data-imagery/maps/queensland-globe>  
lxxxviii <http://earth.nullschool.net/>  
lxxxix <https://www.google.com/earth/>  
xc <https://www.google.com/mymaps>  
xci <http://www.scribblemaps.com/>  
xcii <http://www.worldwildlife.org/science/wildfinder/>  
xciii <https://mol.org/>  
xciv <http://www.statsilk.com/maps/statplanet-world-bank-open-data>  
xcv <http://www.gapminder.org/>  
xcvi <http://foodsecurityindex.eiu.com/Country>  
xcvii <http://www.fao.org/hunger/en/>  
xcviii <http://foodsecurity.ngoaidmap.org/>

## Year 9: Geographies of interconnection

### Key inquiry questions

- How are we connected to people around the globe?
- How are we connected to different places around the globe?
- What are the effects of production and consumption of goods on places?
- What are the effects of people’s travel, recreational, cultural and leisure choices on places?
- How can any negative effects be mitigated?

### Year 9 toolkit

#### How are we connected to people around the globe?

Learning experiences and teaching strategies	Spatial resources
<p>Examine the transport infrastructure that connects us locally, regionally and globally. Consider what areas are most and least connected and what these areas have in common.</p>	<p><a href="#">Airflow Pro</a><sup>xcix</sup>  <a href="#">Flightradar</a>  <a href="#">Plane finder</a><sup>c</sup>  <a href="#">Live ships map</a><sup>ci</sup>  <a href="#">Online map services</a><sup>cii</sup>  <a href="#">Queensland Globe</a><sup>ciii</sup>  <a href="#">Harvard’s Connectography map</a><sup>civ</sup></p>

#### How are we connected to different places around the globe?

Learning experiences and teaching strategies	Spatial resources
<p>Research the components of a typical household item such as a mobile phone or car and create a tour showing where the components come from. Alternatively, pick a number of items and create a tour showing their country of origin or how they get to Australia.</p>	<p><a href="#">Google Tour Builder</a><sup>cv</sup>  <a href="#">MapStory</a><sup>cvi</sup></p>

#### What are the effects of production and consumption of goods on places?

Learning experiences and teaching strategies	Spatial resources
<p>Using an online satellite image viewer, look for evidence of the influence of our economy (production and consumption) on the design of your local area.</p>	<p><a href="#">Queensland Globe</a><sup>cvii</sup>  <a href="#">Online map services</a><sup>cviii</sup>  <a href="#">Google Earth</a><sup>cix</sup>  <a href="#">Google Street View via Maps</a><sup>cx</sup></p>

## What are the effects of people’s travel, recreational, cultural and leisure choices on places?

Learning experiences and teaching strategies	Spatial resources
Examine the spatial distribution of the predominant migrant groups in your local area. Link this distribution to real world artefacts such as religious institutions, food outlets or cultural examples.	<a href="#">SBS Where Australia’s immigrants were born map</a> <sup>cxix</sup>

## How can any negative effects of these choices be mitigated?

Learning experiences and teaching strategies	Spatial resources
Survey the class to determine place of birth or ancestry. Create a Google Earth tour that visits each of the countries represented in the survey results.	<a href="#">Google Tour Builder</a> <sup>cxii</sup> <a href="#">MapStory</a> <sup>cxiii</sup>

xcix

[http://www.arcgis.com/apps/OnePane/storytelling\\_basic/index.html?appid=605204b677894f0da7a1acd83b9ee308&\\_ga=1.47316964.235754488.1426102017](http://www.arcgis.com/apps/OnePane/storytelling_basic/index.html?appid=605204b677894f0da7a1acd83b9ee308&_ga=1.47316964.235754488.1426102017)

<sup>c</sup> <https://planefinder.net/>

<sup>ci</sup> <http://www.marinetraffic.com/>

<sup>cii</sup> [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)

<sup>ciii</sup> <https://qldglobe.information.qld.gov.au/>

<sup>civ</sup> <http://worldmap.harvard.edu/maps/connectography>

<sup>cv</sup> <https://tourbuilder.withgoogle.com/>

<sup>cvi</sup> <http://mapstory.org/>

<sup>cvi</sup> <https://qldglobe.information.qld.gov.au/>

<sup>cvi</sup> [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)

<sup>cix</sup> <https://www.google.com/earth/>

<sup>cx</sup> <https://www.google.com.au/maps>

<sup>cxii</sup> <http://www.sbs.com.au/news/map/where-australias-immigrants-were-born-brisbane>

<sup>cxii</sup> <https://tourbuilder.withgoogle.com/>

<sup>cxiii</sup> <http://mapstory.org/>

## Year 10: Environmental change and management

### Key inquiry questions

- What is an environment?
- Where are different environments found?
- What are the environmental functions that support life?
- What are the causes of change to environments?
- What are the consequences of change to environments?
- What are the challenges that face our environmental sustainability?
- How do different environmental worldviews influence how environments are used and managed?
- How do we and how should we sustainably manage our environments?

### Year 10 toolkit

#### What is an environment?

Learning experiences and teaching strategies	Spatial resources
View different environments on Google Earth and ask students to interpret each one using the advice from NASA.	<a href="#">NASA How to interpret a satellite image</a> <sup>cxiv</sup>

#### Where are different environments found?

Learning experiences and teaching strategies	Spatial resources
View land cover globally to see the distribution of different types of environments.	<a href="#">National Geographic Mapmaker Interactive</a> <sup>cxv</sup>
View land cover across Australia and Queensland to see the distribution of environments.	<a href="#">Australian National Map</a> <sup>cxvi</sup> <a href="#">Queensland Globe</a> <sup>cxvii</sup>

#### What are the environmental functions that support life?

Learning experiences and teaching strategies	Spatial resources
View the distribution of global rainfall and look for patterns related to land cover.	<a href="#">National Geographic Mapmaker Interactive</a> <sup>cxviii</sup>
View the distribution of precipitation in Australia and Queensland and look for patterns related to land cover.	<a href="#">Bureau of Meteorology MetEye</a> <sup>cxix</sup> <a href="#">Online map services</a> <sup>cxx</sup>

**What are the causes of change to environments?**

Learning experiences and teaching strategies	Spatial resources
Examine the global human footprint while considering what areas are under most stress and how this relates to how the land has been used.	<a href="#">National Geographic Mapmaker Interactive</a> <sup>cxxi</sup>

**What are the consequences of change to environments?**

Learning experiences and teaching strategies	Spatial resources
Create a 3D interactive tour that highlights evidence of environmental change in your local area. Incorporate photographs taken in the field.	<a href="#">Google Tour Builder</a> <sup>cxxii</sup> <a href="#">MapStory</a> <sup>cxxiii</sup>
View the global distribution and risk level of the world's reefs.	<a href="#">Reefs at Risk</a> <sup>cxxiv</sup>

**What are the challenges that face our environmental sustainability?**

Learning experiences and teaching strategies	Spatial resources
<i>We currently have no learning experiences or teaching strategies for this section. If you have any suggested tasks please share with us by contacting <a href="mailto:spatialeducation@dnrme.qld.gov.au">spatialeducation@dnrme.qld.gov.au</a></i>	

**How do different environmental worldviews influence how environments are used and managed?**

Learning experiences and teaching strategies	Spatial resources
Map of Indigenous Australian nations	<a href="#">AIATSIS map</a> <sup>cxxv</sup> <a href="#">Tribal boundaries map</a> <sup>cxxvi</sup>

**How do we and how should we sustainably manage our environments?**

Learning experiences and teaching strategies	Spatial resources
Get students to use an online map editor to showcase their plan to sustainably manage our environment. This could be a sustainable housing development, upgraded facilities in a local park or development of public space.	<a href="#">Google My Maps</a> <sup>cxxvii</sup> <a href="#">Scribble Maps</a> <sup>cxxviii</sup> <a href="#">Queensland Globe</a> <sup>cxxix</sup>



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- cxiv <http://earthobservatory.nasa.gov/Features/ColorImage/>
- cxv <http://mapmaker.nationalgeographic.org/>
- cxvi <http://nationalmap.gov.au/>
- cxvii <https://qldglobe.information.qld.gov.au/>
- cxviii <http://mapmaker.nationalgeographic.org/>
- cxix <http://www.bom.gov.au/australia/meteye/>
- cxx [https://en.wikipedia.org/wiki/List\\_of\\_online\\_map\\_services](https://en.wikipedia.org/wiki/List_of_online_map_services)
- cxix <http://mapmaker.nationalgeographic.org/>
- cxix <https://tourbuilder.withgoogle.com/>
- cxix <http://mapstory.org/>
- cxix <http://www.wri.org/our-work/project/reefs-risk/interactive-map#project-tabs>
- cxix <http://aiatsis.gov.au/explore/articles/aboriginal-australia-map>
- cxix <http://archives.samuseum.sa.gov.au/tribalmap/index.html>
- cxix <https://www.google.com/mymaps>
- cxix <http://www.scribblemaps.com/>
- cxix <https://qldglobe.information.qld.gov.au/>

## Year 10: Geographies of human wellbeing

### Key inquiry questions

- How do we define and measure wellbeing?
- How can we measure and map wellbeing?
- What spatial variations can be observed locally, regionally and globally and how can they be explained?
- What are the issues affecting development around the world and how do these issues affect human wellbeing?
- How are governments and Non-Government Organisations (NGOs) addressing these global issues to minimise their negative impacts?

## Year 10 toolkit

### How do we define and measure wellbeing?

Learning experiences and teaching strategies	Spatial resources
View a range of global indicators of development and examine how development changes globally, regionally and locally.	<a href="#">World Bank StatPlanet</a> <sup>cxxx</sup> <a href="#">Gapminder</a> <sup>cxxxi</sup> <a href="#">World Bank Atlas of Development Goals</a> <sup>cxxxii</sup> <a href="#">Nation Master</a> <sup>cxxxiii</sup> <a href="#">World Mapper</a> <sup>cxxxiv</sup>

### How can we measure and map wellbeing?

Learning experiences and teaching strategies	Spatial resources
View development data for Australia. Look for geographical patterns. Use layers like income or broadband quality to determine the level of development.	<a href="#">Australian National Map</a> <sup>cxxxv</sup> <a href="#">Queensland Globe</a> <sup>cxxxvi</sup>

## What spatial variations can be observed locally, regionally and globally and how can they be explained?

Learning experiences and teaching strategies	Spatial resources
Collect ABS data from your local area, region and across Australia. Organise the data into a table, import into Google My Maps and view your representation.	<a href="#">ABS Quick Stats</a> <sup>cxxxvii</sup> <a href="#">Google My Maps</a> <sup>cxxxviii</sup> <a href="#">Scribble Maps</a> <sup>cxxxix</sup>
Use Google Street View to undertake a virtual field trip to another country. Consider the differences between the place you visit and your local area.	<a href="#">Google Street View via Maps</a> <sup>cxl</sup>
Collect key global development indicators and organise into a table. As above, import that data into Google My Maps to visualise the information easily.	<a href="#">Google My Maps</a> <sup>cxli</sup>

## What are the issues affecting development around the world and how do these issues affect human wellbeing?

Learning experiences and teaching strategies	Spatial resources
Examine different social, economic and cultural indicators across the globe to highlight differences in development between countries around the world.	<a href="#">World Bank StatPlanet</a> <sup>cxlii</sup> <a href="#">Gapminder</a> <sup>cxliii</sup> <a href="#">World Bank Atlas of Development Goals</a> <sup>cxliv</sup>
View cartograms and maps showing a range of economic, social, environmental, political and cultural indicators.	<a href="#">ShowRWorld</a> <sup>cxlv</sup> <a href="#">Nation Master</a> <sup>cxlvi</sup> <a href="#">World Mapper</a> <sup>cxlvii</sup> <a href="#">Gapminder</a> <sup>cxlviii</sup>
View global internet speeds and compare the features of those with higher speeds against those countries with lower speeds.	<a href="#">Connected countries global internet speeds</a> <sup>cxlix</sup>

## How are governments and Non-Government Organisations (NGOs) addressing these global issues to minimise their negative impacts?

Learning experiences and teaching strategies	Spatial resources
View background information and progress on achieving the Millennium Development Goals using the MDG layer in Google Earth. This can be found in the layers section under 'Global awareness'.	<a href="#">Google Earth</a> <sup>cl</sup>

## What are the challenges that face our environmental sustainability?

Learning experiences and teaching strategies	Spatial resources
<i>We currently have no learning experiences or teaching strategies for this section. If you have any suggested tasks please share with us by contacting <a href="mailto:spatialeducation@dnrme.qld.gov.au">spatialeducation@dnrme.qld.gov.au</a></i>	

<sup>cxxx</sup> <http://www.statsilk.com/maps/statplanet-world-bank-open-data>

<sup>cxxxi</sup> <http://www.gapminder.org/>

<sup>cxxxii</sup> <http://datatopics.worldbank.org/sdgatlas/>

<sup>cxxxiii</sup> <http://www.nationmaster.com/au>

<sup>cxxxiv</sup> <http://www.worldmapper.org/>

<sup>cxxxv</sup> <http://nationalmap.gov.au/>

<sup>cxxxvi</sup> <https://qldglobe.information.qld.gov.au/>

<sup>cxxxvii</sup> <http://www.abs.gov.au/websitedbs/censushome.nsf/home/quickstats>

<sup>cxxxviii</sup> <https://www.google.com/mymaps>

<sup>cxxxix</sup> <http://www.scribblemaps.com/>

<sup>cxl</sup> <https://www.google.com.au/maps>

<sup>cxli</sup> <https://www.google.com/mymaps>

<sup>cxlii</sup> <http://www.statsilk.com/maps/statplanet-world-bank-open-data>

<sup>cxliiii</sup> <http://www.gapminder.org/>

<sup>cxliv</sup> <http://datatopics.worldbank.org/sdgatlas/>

<sup>cxlv</sup> <http://show.mappingworlds.com/world/>

<sup>cxlvi</sup> <http://www.nationmaster.com/au>

<sup>cxlvii</sup> <http://www.worldmapper.org/>

<sup>cxlviii</sup> <http://www.gapminder.org/>

<sup>cxlix</sup> [http://telegraphtravelmaps.cartodb.com/viz/b0a43e76-40bf-11e5-bfd4-0e6e1df11cbf/public\\_map](http://telegraphtravelmaps.cartodb.com/viz/b0a43e76-40bf-11e5-bfd4-0e6e1df11cbf/public_map)

<sup>cl</sup> <https://www.google.com/earth/>