# UNPACKING THE K–10 SYLLABUS:

# Geographical inquiry skills & tools

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## Glossary

***Geographical data*** – quantitative or qualitative information about people, places and environments

***Primary data*** – original materials collected by someone eg field notes, measurements, responses to a survey

***Secondary information sources*** – sources of information collected, processed, interpreted and published by others eg census, newspaper articles and images or information in a published report.

***Ethical protocols*** – the application of fundamental ethical principles when undertaking research and collecting information eg confidentiality, informed consent, citation and integrity of data.

NSW Syllabus for the Australian Curriculum Geography K–10 (BOSTES)

## GEOGRAPHICAL INQUIRY SKILLS

In the NSW syllabus K–10 ***Geographical Inquiry Skills*** refers to the processes of acquiring, processing and communication geographical information.

### ACQUIRE INFORMATION

- Identify a focus for inquiry
- Develop geographical questions
- Collect primary geographical data (e.g. fieldwork, interviews, questionnaires)
- Gather geographical information from secondary sources (e.g. internet, journals, newspapers)
- Record information

### PROCESS INFORMATION

- Evaluate data and information for bias and reliability
- Interpret data and information gathered
- Represent information in appropriate forms such as maps, graphs, statistics, spatial technologies and visual representation
- Analyse findings and results
- Draw conclusions

### COMMUNICATE INFORMATION

- Communicate results using a variety of strategies and tools
- Reflect on findings
- Propose individual or collective actions
- Predict expected outcomes
- Where appropriate, take action.

*Figure 1: Geographical Inquiry skills. Adapted from NSW Syllabus for the Australian Curriculum Geography K–10 (BOSTES)*

Throughout their studies Geography students will use elements of geographical inquiry such as studying a map or photograph in class, developing a question to investigate, taking photographs during fieldwork and using ICT to create a presentation.

Geographical inquiry is NOT A LINEAR PROCESS but a set of interconnected components. Inquiry can start with any of the activities in the Geographical Inquiry Skills framework. As students progress from K–10 they will build their inquiry skills to the point where they can undertake an independent inquiry activity drawing on all components of the inquiry process.

*Figure 2* was developed to assist teachers to unpack the different components of Geographical Inquiry and see relevant interconnections.

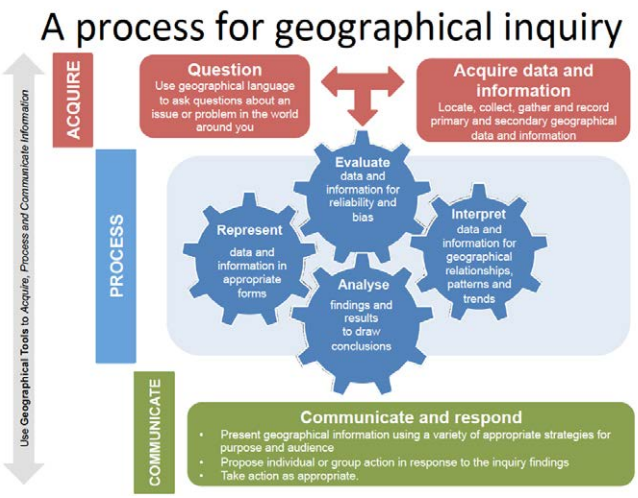


*Figure 2: A process for geographical inquiry*

*Source: Human Society and Its Environment Geography K-10 Teaching and Learning Framework, NSW Department of Education. (Page 2)*
*www.hsiensw.com/geography-k-10.html*

## GEOGRAPHICAL TOOLS

***Geographical Tools*** are used during geographical inquiry to acquire, process and communicate information – they include maps, fieldwork, graphs & statistics, visual representations and spatial technologies. Tools should be used to show geographical information at a range of scales.

Explicit teaching of the ***rules, protocols and conventions*** (previously referred to as skills) is essential for students to correctly use geographical tools, for example, stating latitude readings before longitude when locating places on a map and using ethical principles when collecting personal information during fieldwork.

The K–10 ***Geographical Tools Continuum*** provides examples of tools students ***may use*** in each stage of learning. Students are to be provided with opportunities to engage with each of the geographical tools in each stage. Teachers make decisions about the tools appropriate for the intended learning.

It is expected that by the end of stage 5 students will be familiar with a range of tools in each category of the skills continuum. It is also intended that students progressively move from using tools to acquire geographical data and information in the earlier stages of learning, to using tools for representing, synthesising and communicating the findings of geographical inquiry in later stages.

To avoid confusion about different tools and types of geographical information refer to the ***Glossary*** at the end of the Geography K-10 Syllabus.

## TEACHING IN CONTEXT

Geographical inquiry skills and tools should be used to enhance student's geographical knowledge and understanding of syllabus content. For example:

- Using photographs to examine the characteristics of places (K–10)
- Examining topographic maps to study Earth's Environment (Stage 2) or landforms and water catchments (Stage 4)
- Identifying trends in global food production (Stage 5) using graphs, statistics and tables
- Creating flow diagrams and maps to represent connections between places (Stages 2 and 4)
- The use of synoptic charts to investigate hydrologic or atmospheric hazards such as cyclones and floods (Stage 4) or to explain environmental change such as the impact of east coast lows on coastal environments (Stage 5).

See Figure 12 for examples from each stage.

## FIELDWORK

Fieldwork is ***mandatory*** tool in all stages of geographical inquiry. Students work outside the classroom to observe, measure, collect and record their own geographical information and represent that information. Information obtained in this way is known as ***Primary data.*** As students progress from Stage 1 to Stage 5 they will also move from guided fieldwork activities to independent inquiry

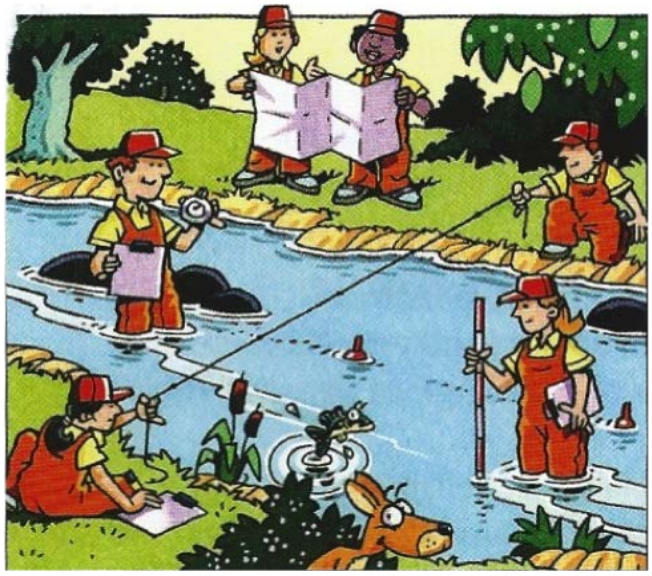

*Figure 3: Students undertaking fieldwork*
*Source Macmillan: Keys to fieldwork. Essential tools and skills*

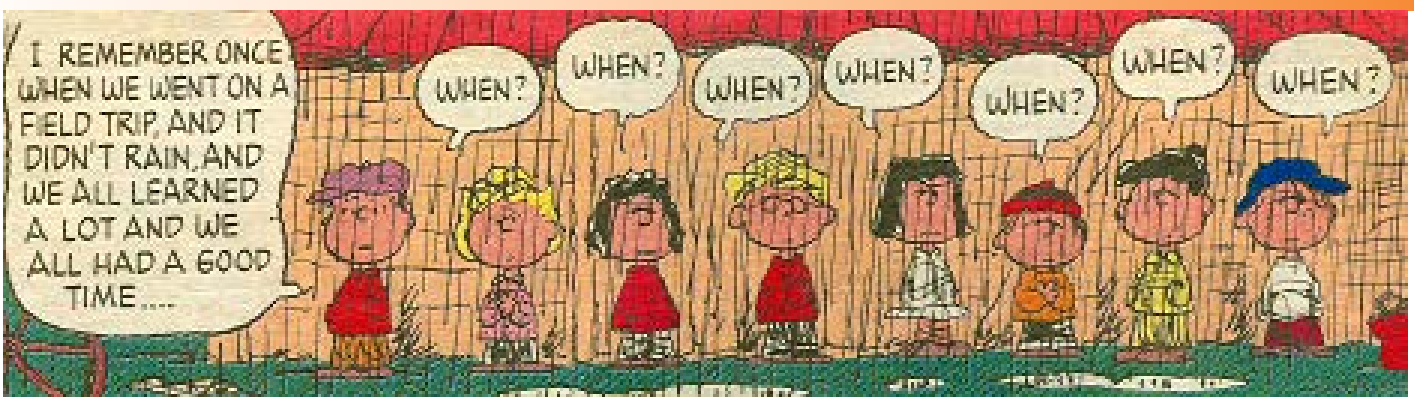


*Figure 4: The value of fieldwork Source: www.sln.org.uk/geography/images/Cartoon%203.jpg*

Fieldwork activities should

- be planned
- link to outcomes and content
- have a purpose eg a key inquiry question and post fieldwork task
- contain structured activities
- be identified in teaching program and scope and sequence documents
- involve students in actively gathering geographical data

Fieldwork activities may

- take place in a range of locations determined by the content. Sites can include school grounds; a local street or shopping centre or a distant place eg national park, coast, city
- be run by a classroom teacher or an environmental education or fieldwork provider such as Department of Education and Communities Environmental Education Centres, museums and zoos.

Fieldwork should be fun, engaging and productive. The findings from a fieldwork activity should be used to create something that will communicate a student's acquired knowledge and understanding – a map, model, story, report such as an explanation, or digital presentation.

### Fieldwork equipment: High tech or low tech

Fieldwork equipment can be simple, for example laminated cloud identification charts, or more sophisticated such as chemical water testing kit and apps on a smart phone or tablet device such as Solocator (iPhone app that adds location, direction and altitude to a photograph), Skitch (for annotating photographs) and Decibel (for determining noise levels). Fieldwork activities should be designed to allow students to collect data relevant to an inquiry.

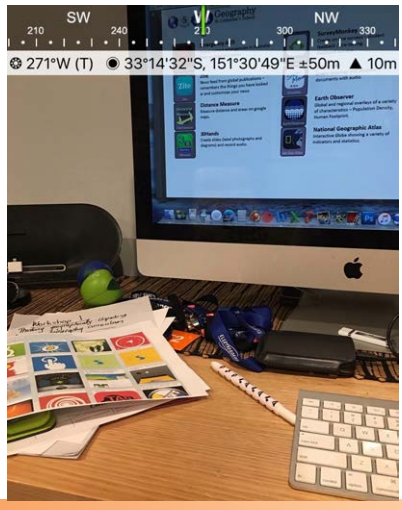


*Figure 4: Solocator app. Source: L Chaffer*

Examples of simple fieldwork activities

- Use a compass to determine the direction of places
- Use a GPS to determine latitude, longitude and altitude of places on a walk
- Measure distance travelled using a pedometer, trundle wheel or GPS
- Collect samples eg plants
- Measure air temperature using thermometers
- Observe cloud cover and cloud type using a simple grid and a cloud chart
- Observe and sketch features of places
- Look and listen for evidence of wildlife eg footprints
- Observe and record landuse along a street
- Construct a transect to show change in an environment over a distance
- Complete a field sketch or annotated digital photograph of a place and its features
- Conduct a tally eg cars on a local street
- Undertake surveys or interviews

## SPATIAL TECHNOLOGIES

Spatial technologies are geographical tools, to be used along with maps, graphs and statistics, fieldwork and visual representations to acquire, process and communicate geographical information. The "Continuum of Tools" in the syllabus provides examples of spatial technologies that could be used at each stage of study.

| Stage | Spatial Technologies |
|---|---|
| ES1 | Virtual maps |
| S1 | Virtual maps<br>Satellite images |
| S2 & S3 | Virtual maps<br>Satellite images<br>Global positioning systems (GPS) |
| S4 | Virtual maps<br>Satellite images<br>Global positioning systems (GPS)<br>Geographic information systems (GIS) |
| S5 | Virtual maps<br>Satellite images<br>Global positioning systems (GPS)<br>Geographic information systems (GIS)<br>Remote sensing data<br>Augmented reality |

*Figure 5: Tools continuum for spatial technologies Source: http://syllabus.bos.nsw.edu.au/hsie/geography-k10/continuum-of-tools/*

## GPS and GIS

A car GPS (Geographic Positioning System) used to get people to places and a phone used to find the nearest toilet block or to track a pizza are GPS and GIS applications. A GPS device locates places via satellite. The device can also collect data about a place eg latitude, longitude, altitude eg Garmin Sports app. The GPS device in a car or phone collects spatial data and plots it on a base map. Many mobile and tablet apps use existing GPS data to show the location of places on maps eg toilets. The Track my pizza app is a good example of a GIS application in action.

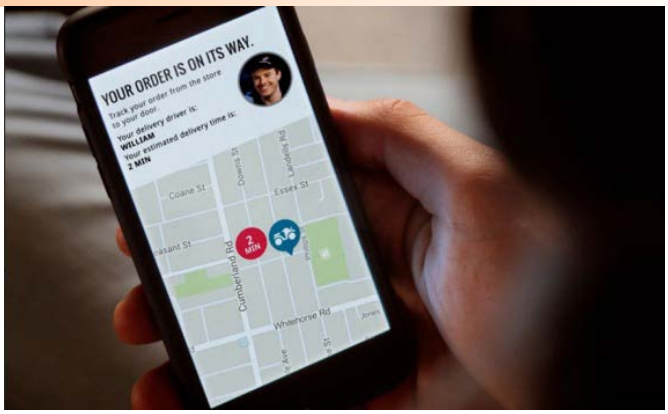


*Figure 6: Track your dominoes pizza Source: www.smh.com.au/digital-life/digital-life-news/dominos-drivertracking-lets-you-follow-a-pizza-from-the-oven-to-your-door-20150507-ggw857.html*


*Figure 7: Find me a toilet app. Source: www.thehindu.com/news/cities/Delhi/app-to-locate-nearest-public-toilet/article8329300.ece*

The digital mapping of spatial data is known as a GIS (Geographic Information System). Layers of information are placed over base maps such as a street map or aerial photo to create a visual image. Sophisticated GIS maps can have many layers of information created using computer hardware and software that captures, stores, organises, analyses and communicates spatial or geographical data. This data comes from remote sensing satellites.

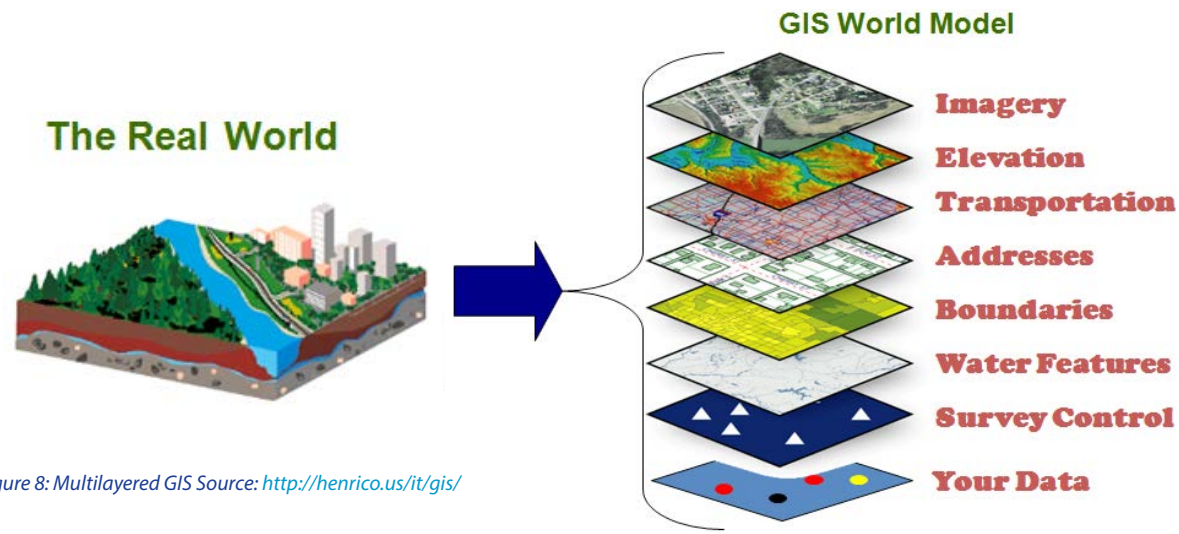


*Figure 8: Multilayered GIS Source: http://henrico.us/it/gis/*

There are many GIS based phone and tablet apps suited to classroom use, for example Shipfinder or Planefinder (different versions for iPhone and android). Planefinder is excellent for showing interconnections between places at a range of scales – local to global.

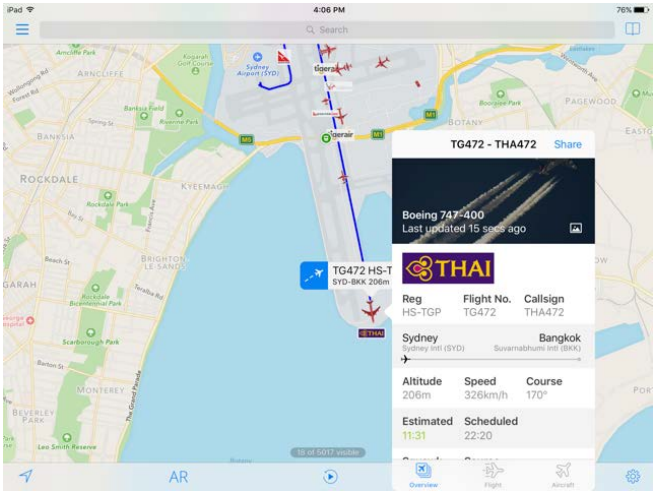


*Figure 9: Planefinder app is an interactive GIS application Source: L Chaffer*

## GIS and fieldwork

Geography students can plot data collected at different ***fieldwork*** locations to create a simple GIS map. Google maps, Google Earth, National Geographic Mapmaker and Scribble Maps can be used to create a GIS to show geographical information.

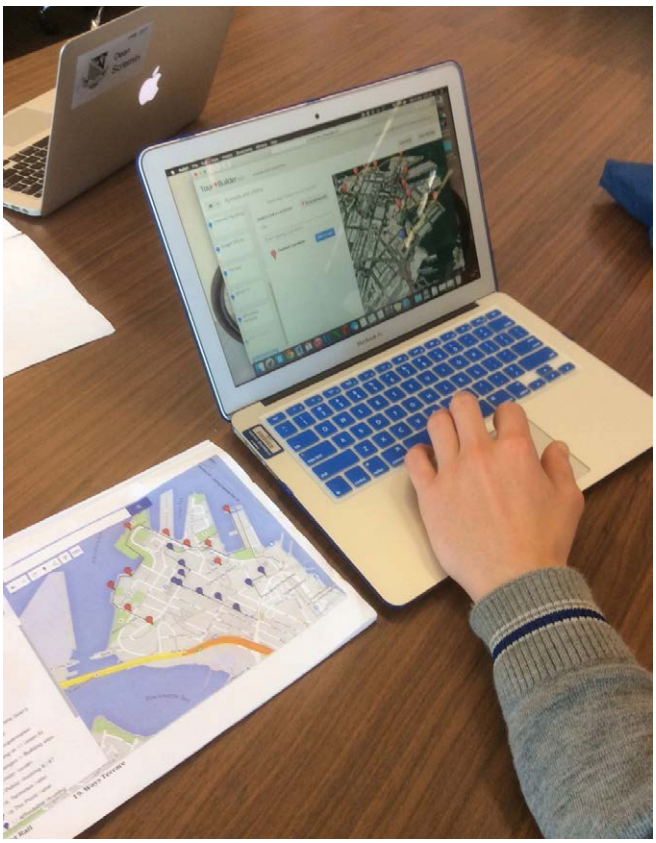

*Figure 10: Student creating a Google Tour using fieldwork locations and data. Source: L Chaffer*

## The importance of spatial technologies in Geography

### Spatial technologies are

- Sources of geographical information
- Ways of presenting geographical data
- Applicable to environmental management and disaster relief
- Provide career option for students –spatial technologies are a recognised growth area in employment

### Applications of GPS and GIS in the geography classroom

- Collecting data about a location using a GPS device
- Geocaching – treasure hunts using GPS devices
- Creating maps to show the location of places and spatial distributions eg forests
- Plotting fieldwork data on a map to create a tour
- Showing changing spatial patterns using fieldwork data eg declining water quality along a river

Figure 11 can be used to evaluate teacher confidence in using and teaching about the range of geographical tools identified in the NSW K -10 Geography syllabus. The resulting analysis can be used to undertake professional learning in identified areas of weakness.

## Resources

NSW Syllabus for the Australian Curriculum Geography K–10 (BOSTES) – http://syllabus.bostes.nsw.edu.au/hsie/geography-k10/

NSW Department of Education: Human Society and Its Environment Geography K-10 Teaching and Learning Framework (Page 2) – www.hsiensw.com/geography-k-10.html

Environmental Education Centres in NSW – www.curriculumsupport.education.nsw.gov.au/env_ed/centres/

What is GIS? –
www.youtube.com/watch?v=oMUGp0rGf7I
www.youtube.com/watch?v=kEaMzPo1Q7Q

GIS and GPS careers – www.youtube.com/watch?v=M7tK9CjRmIo

Track your Dominoes pizza – www.youtube.com/watch?v=uotknd6hlxk

Contour Education YouTube channel – www.contoureducation.com/links

## Books

***Keys to Geography: Essential tools and skills.*** Revised Edition

***Keys to Fieldwork: Essential skills and tools***

## TEACHER SELF-ASSESSMENT:
## Using geographical tools to acquire, process and communicate

| TOOLS | NOT CONFIDENT | DEVELOPING | CONFIDENT |
|---|---|---|---|
| ***Maps*** | | | |
| Pictorial maps | | | |
| Using a globe | | | |
| Large-scale maps | | | |
| Small-scale maps | | | |
| Sketch maps | | | |
| Précis maps (S) | | | |
| Political maps | | | |
| Flowline maps | | | |
| Synoptic charts (S) | | | |
| Latitude & longitude. Degrees and minutes (S) | | | |
| Direction (cardinal) | | | |
| Direction ( bearings) (S) | | | |
| Measure distances using scale | | | |
| Calculate area (S) | | | |
| Use map references to locate places | | | |
| Use grid and area references (S) | | | |
| Describe spatial distributions and /or patterns | | | |
| Visual representations | | | |
| Photographs, photo / field sketches | | | |
| Aerial photographs | | | |
| Flow diagrams | | | |
| Annotated diagrams | | | |
| Cartoons | | | |
| Mind maps (S) | | | |
| Multimedia | | | |
| Web tools | | | |
| Graphs & Statistics | | | |
| Tally charts | | | |
| Pictographs | | | |
| Line graphs | | | |
| Column graphs | | | |
| Pie graphs | | | |
| Scatter graphs | | | |
| Weather data | | | |
| Climate graphs | | | |
| Multiple tables / graphs on a geographical theme | | | |
| Statistics to find patterns and trends | | | |
| Population profiles (S) | | | |
| Fieldwork | | | |
| Observing, measuring, collecting and recording | | | |
| Conducting surveys and / or interviews | | | |
| Fieldwork instruments – eg. measuring devices, compasses, photographs, identification charts, GPS, GIS | | | |
| Spatial Technologies | | | |
| Virtual maps | | | |
| Satellite images | | | |
| Global positioning systems (GPS) | | | |
| Geographic Information Systems (GIS) | | | |

*Figure 11 Geographical tools from the K-1 Geography syllabus ((S = Suggestions for secondary only*

Figure 12: Examples from each stage

**SOME IDEAS for Integrating Tools and skills into teaching & learning activities for K-6**

| STAGE | GEOGRAPHICAL TOOLS | | | | | GEOGRAPHICAL INQUIRY SKILLS | | |
|---|---|---|---|---|---|---|---|---|
| | Maps | Fieldwork | Graphs & Statistics | Spatial Technologies | Visual Representations | Acquiring | Representing | Communicating |
| ES1 | | | | | | **People live in places** | | |
| | Types of maps<br>Pictorial maps | Activities<br>Observing and recording data | Tally cards<br><br>Types of graphs<br>Pictographs | Virtual maps | Photographs<br><br>Illustrations<br><br>Story books<br><br>Multimedia | Use a **story books** with **illustrations** to examine places where people live<br><br>Undertake fieldwork to **observe and record data** on the features of a special place | Represent features identified in a place using a **pictograph**<br><br>Draw conclusions about how places can be represented using maps e.g. **virtual maps**<br><br>Develop **a pictorial map** representing the classroom | Label the special features of a place on **photographs**.<br><br>Discuss why a place portrayed in a **story book** or **photograph** should be looked after. |
| 1 | | | | | | **Features of places** | | |
| | Types of maps<br>Pictorial maps<br>Large scale maps<br>World map<br>Globe | Activities<br>Observing, collecting and recording data<br><br>Conducting surveys | Tally cards<br><br>Data tables<br><br>Weather data<br><br>Types of graphs<br>Pictographs<br>Column graphs | Virtual maps<br><br>Satellite images | Photographs<br><br>Illustrations<br><br>Diagrams<br><br>Story books<br><br>Multimedia<br><br>Web tools | Use **story books** and **multimedia** to examine list of the natural and human features of different places<br><br>Use a fieldwork activity to **collect and record weather data** at a local place<br><br>Observe the features of a place using **satellite images** | Use a aboriginal calendar **diagram** to draw conclusions about cultural differences in how seasons are represented<br><br>Draw a **column graph** to show seasonal variations in rainfall at different places in Australia using climate **data tables**. | Create a **large scale map** to show the location of local places<br><br>Use a **web tool** to create a word cloud summarising the natural and human features of a place |
| | | | | | | **People and places** | | |
| | | | | | | Use a **pictorial map** of Australia to identify places at different scales<br><br>Use a **globe** to identify Australia's location in the world<br><br>Conduct a **survey** the identify and record family connections to places | Annotate a **world map** showing connections to places identified in a survey<br><br>Discuss a **multimedia** presentation about Aboriginal and Torres Strait Islander People's connections to places | A student describes a place they visit and give a reason for visiting that place using a **map**, a **photograph,** an **illustration** or an item in a show and tell lesson. |

# UNPACKING THE K–10 SYLLABUS: Geographical inquiry skills & tools

| STAGE | GEOGRAPHICAL TOOLS | | | | | GEOGRAPHICAL INQUIRY SKILLS | | |
|---|---|---|---|---|---|---|---|---|
| | Maps | Fieldwork | Graphs & Statistics | Spatial Technologies | Visual Representations | Acquiring | Processing | Communicating |
| 2 | Types of maps<br>Large scale maps<br>World map<br>Globe<br>Sketch maps<br><br>Maps to identify location, direction, distance, map references, spatial distributions and patterns | Activities<br>Observing, measuring, collecting and recording data,<br><br>Conducting surveys or interviews<br><br>Fieldwork instruments measuring devices, maps, photographs | Tally cards<br><br>Data tables<br><br>Simple statistics<br><br>Types of graphs<br>Pictographs<br>Column graphs | Virtual maps<br><br>Satellite images<br><br>GPS | Photographs<br><br>Illustrations<br><br>Diagrams<br><br>Story books<br><br>Multimedia<br><br>Web tools | **Places are similar and different** | | |
| | | | | | | Use a **world map to** identify and list Australia's neighbouring countries in Asia and the Pacific<br><br>Examine **satellite images** and a **world map** to compare urban settlement patterns in Australia and Asia – record location, distances and the distribution of settlements | Use the True Size **web tool** to compare the size of different countries and draw conclusions about the size of Australia<br><br>Use **photographs, simple statistics, column graphs** and **maps** to draw conclusions about similarities and differences in Australia and its neighbours | Create a **diagram** or **data table** to summarise key differences between Australia and a neighbouring country or a city in each place.<br><br>Create a two-sided **story book** using **illustrations** or photographs to compare the daily life of people in two places. Use books e.g. *Mirror* by Jeannie Baker to stimulate ideas |
| | | | | | | **The earth's environment** | | |
| | | | | | | Undertake fieldwork to **observe, measure and record data** physical features of a local environment.<br><br>Use a geocaching activity and **GPS** device to collect information about natural features of an environment | Identify distributions of different type of vegetation using world **virtual maps**<br><br>Create a **diagram** to represent the connections between natural features of an environment | Student groups develop a simple **multimedia** presentation or **web tool** to describe an environmental issue and outline a proposal for better management of the related environment. |
| 3 | Types of maps<br>Large scale small Scale maps<br>Sketch maps<br>Political maps,<br>Topographic maps<br>Flowline maps<br><br>Maps to identify location, direction, distance, map references, spatial distributions and patterns | Activities<br>Observing, measuring, collecting and recording data,<br><br>Conducting surveys or interviews<br><br>Fieldwork instruments measuring devices, maps, photographs and compasses, GPS. | Data tables<br><br>Types of graphs<br>Pictographs<br>Column graphs<br>Line graphs<br>Climate graphs<br><br>Multiple graphs on a geographical theme<br><br>Statistics to find patterns | Virtual maps<br><br>Satellite images<br><br>GPS | Photographs<br><br>Aerial photographs<br><br>Illustrations<br><br>Flow diagrams<br><br>Annotated diagrams<br><br>Story books<br><br>Multimedia<br><br>Web tools | **Factors that shape places** | | |
| | | | | | | Use **media reports, maps** and **photographs** to record data about the causes and effects of one contemporary bushfire disaster in Australia.<br><br>Undertake fieldwork to **observe, measure and record data** showing a recent change to a local environment | Analyse **climate graphs** to draw conclusions about human activities in different locations<br><br>Interpret a **topographic map** to determine links between landforms and settlement<br><br>**Graphs** statistics from **data tables** of bushfires in Australia | Create an **illustrated** bushfire minimisation poster that includes one **flow diagram** and relevant **diagrams**.<br><br>Summarise the impacts of people and environments on places using an **annotated diagram** or **mind map**. |
| | | | | | | **A diverse and connected world** | | |
| | | | | | | **Interview** class members to record family and cultural connections to people and places overseas<br><br>Examine **data tables** and **multiple graphs on the theme** of trade to identify countries of destination for Australian products. | Analyse **world maps** to identify different cultural groups<br><br>Discuss how **photographs** and **media reports** influence people perceptions of places | Create a simple **flow map** using immigration **statistics** for African countries to Australia and describe the **patterns** shown<br><br>Curate a collection of **photographs** to illustrate the benefits of intercultural understanding. |

**SOME IDEAS for integrating tools and skills into teaching & learning activities for 7 – 10**

| STAGE | GEOGRAPHICAL TOOLS | | | | | GEOGRAPHICAL INQUIRY SKILLS | | |
|---|---|---|---|---|---|---|---|---|
| | Maps | Fieldwork | Graphs & Statistics | Spatial Technologies | Visual Representations | Acquiring | Processing | Communicating |
| 4 | Types of maps<br>Sketch maps, Relief maps, Political maps, Topographic maps<br>Flowline maps, Choropleth maps, Isoline maps, Précis maps, Cartograms, Synoptic charts<br><br>Maps to identify direction, scales and distance, area and grid references, latitude and longitude, altitude, area, contour lines, gradient, local relief | Activities<br>Observing, measuring, collecting and recording data<br><br>Developing and conducting surveys and interviews<br><br>Fieldwork instruments<br>Weather instruments, vegetation identification charts, compasses, GPS, GIS | Data tables<br><br>Types of graphs<br>Pie Graphs<br>Column graphs<br>Compound column graphs<br>Line graphs<br>Climate graphs<br>Population profiles<br><br>Multiple tables and graphs on a geographical theme<br><br>Statistics to find patterns and trends | Virtual maps<br><br>Satellite images<br><br>GPS<br><br>GIS | Photographs<br><br>Aerial photographs<br><br>Illustrations<br><br>Flow charts<br><br>Annotated diagrams<br><br>Multimedia sources<br><br>Field sketches<br><br>Cartoons<br><br>Web tools | **Landforms and landscapes** | | |
| | | | | | | Use **topographic maps** to identify distinctive landform features in a place or environment<br><br>Take **photographs** and make **observations & measurements** of a local landform as a fieldwork activity | Create **field sketches** to record features of distinctive landforms<br>Examine **climate graphs** to explain the distribution of landscapes<br>Analyse vulnerability to geomorphic hazards e.g. landslides using **photographs**, **climate graphs** and **relief maps**. | Use **annotated diagrams** to explain the formation of distinctive landforms (geomorphic processes)<br><br>Create a **Google Tour GIS** to show the global distribution of one type of geomorphic hazard and its consequences |
| | | | | | | **Place and liveability** | | |
| | | | | | | Collect **photographs** of places that illustrate differences in liveability<br><br>Develop a set of criteria as a **fieldwork instrument** to assess the liveability of a place | Draw conclusions about the liveability of places for different age groups by analysing **population profiles** | Create a **multimedia presentation** to describe and explain how liveability could be enhanced in a local place. A **sketch map**, annotated diagram and photograph should be included. |
| | | | | | | **Water in the world** | | |
| | | | | | | Use **isoline maps, choropleth maps** and **multiple tables and graphs** to describe the spatial distribution of water resources in Australia and other countries<br><br>Use **fieldwork instruments** to measure water quality in a local water source | Analyse **satellite images, GIS** and **topographic maps** to draw conclusions about how water connects people and places in a catchment<br><br>Interpret **synoptic charts** to explain a contemporary atmospheric or hydrologic hazard. | Using a **web tool** such as Weebly or Glogster to present a proposal for addressing water scarcity in one place or country<br><br>Create a **flow chart** illustrating the consequences of unsustainable water use |
| | | | | | | **Interconnections** | | |
| | | | | | | **Develop and conduct interviews and surveys** to determine the factors influencing teenagers connections to local places<br><br>Study **choropleth maps** to identify and countries that are major global tourist destinations. | Examine **graphs** to determine tends in trade connections between places over time<br><br>Analyse **photographs, satellite images** or **multimedia** resources to draw conclusions about the impacts of tourism on a place | Create a **flowline map** from **data tables** to illustrate the flows of people or a manufactured good between places at a global scale<br><br>Collate a collections of **cartoons, photographs** and **multimedia** to illustrate Australia's connections to places in Asia |

# UNPACKING THE K–10 SYLLABUS: Geographical inquiry skills & tools

| STAGE | GEOGRAPHICAL TOOLS | | | | | GEOGRAPHICAL INQUIRY SKILLS | | |
|---|---|---|---|---|---|---|---|---|
| | **Maps** | **Fieldwork** | **Graphs & Statistics** | **Spatial Technologies** | **Visual Representations** | **Acquiring** | **Processing** | **Communicating** |
| **5** | Types of maps<br><br>Relief maps<br>Political maps<br>Topographic maps<br>Flowline maps<br>Cadastral maps<br>Thematic maps<br>Isoline maps<br>Landuse maps,<br>Précis maps<br>Special purpose maps,<br>Cartograms<br><br>Synoptic charts<br><br>Maps to identify direction, scale and distance, area and grid references, degrees and minutes of latitude and longitude, bearings, aspect, altitude, area, density, contour lines, gradient, local relief | Activities<br><br>Observing, measuring, collecting and recording data,<br><br>Developing and conducting surveys and interviews<br><br>Fieldwork instruments eg Weather instruments, vegetation identification charts, compasses, GPS, GIS | Data tables<br><br>Types of graphs<br><br>Pie Graphs<br>Column graphs<br>Compound column graphs<br>Line graphs<br>Scatter graphs<br>Climate graphs<br>Population profiles<br><br>Multiple tables and graphs on a geographical theme<br><br>Statistics to find patterns and trends and to account for change | Virtual maps<br><br>Satellite images<br><br>GPS<br><br>GIS<br><br>Remote sensing data<br><br>Augmented reality | Photographs<br><br>Aerial photographs<br><br>Illustrations<br><br>Annotated diagrams<br><br>Multimedia<br><br>Field and photo sketches<br><br>Cartoons<br><br>Mind maps<br><br>Web tools | **Sustainable biomes** | | |
| | | | | | | Examine **thematic maps** to identify biomes and describe their spatial distribution on a global scale<br><br>**Observe, measure, collect and record data** about factors affecting agricultural production and challenges to production during a fieldwork visit to an Australian farm | Analyse **scatter graphs** OR **climate graphs** to determine relationships between climate and biome distribution<br><br>Interpret **case studies, synoptic charts**, **illustrations or annotated diagrams** to draw conclusions about the causes of food insecurity | Write a speech explaining the challenges facing the production of one agricultural product at a global scale. Support your speech with **photographs** and **illustrations.**<br><br>Debate the statement 'Technology will solve global food insecurity" using examples, **maps, graphs and statistics** to support an argument. |
| | | | | | | **Changing places** | | |
| | | | | | | Use **line graphs, pie graphs, population profiles** and /or **thematic maps** to acquire key facts about the urbanisation of the world's population. | Analyse **choropleth maps, climate statistics** and landuse maps to explain settlement patterns in Australia and one other country | Create an infographic that contains **multiple tables and graphs, special purpose maps** and **photographs** to illustrate trends in urbanisation. |
| | | | | | | **Environmental change and management** | | |
| | | | | | | Create inquiry questions on an environment to investigate using the geographical inquiry process<br><br>Conduct fieldwork to **observe, measure, collect and record data** using appropriate **fieldwork instruments** to complete the inquiry | Analyse **aerial photographs** to describe to one environment. Support conclusions with case studies from<br><br>Use a **précis map** and **photo sketch** to record an area of change in a local environment | Create a **mind map** or consequence diagram to explain the consequences of one environmental change<br><br>Write a letter to a local government member proposing and justifying a solution of a local environmental change issue – include a **sketch map, photograph or diagram** |
| | | | | | | **Human wellbeing** | | |
| | | | | | | Use interactive **web tools** such as Gapminder to identify differences in wellbeing between countries<br><br>Examine **choropleth maps** to identify differences in human wellbeing across Australia<br><br>**Interview** a representative of an aid organisation | Interpret **multiple graphs and tables on a theme** to draw conclusions about the human well being of different groups of people in Australia.<br><br>**Analyse graphs and statistics** to identify recent patterns and trends in indicators of human wellbeing. **Mindmap** findings. | Create a TED Talk **multimedia** presentation to summarise the findings of a geographical inquiry into one human wellbeing issue<br><br>Develop a campaign using visual resources e.g. **cartoons, illustrations and photographs** to raise awareness of a human rights issue |