

12 Geography concepts and skills

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GEOGRAPHY

SkillBuilder: Describing spatial relationships in thematic maps

Student: Class: Due date:

- Study the thematic maps showing Australia's climate and biomes, shown in FIGURES 2 and 3. In a paragraph, describe the spatial relationship between biomes and climate in Australia. Use the checklist to ensure you cover all aspects of the task.**

Check that you have:.....

- clearly identified which features on thematic maps are linked or interconnected
- pointed out obvious anomalies, where no linkages or interconnections can be observed
- described the extent of interconnections (for example, as strong or weak).

- Based on what you have learned in this SkillBuilder, apply your skills to answer the following questions.**
 - Is there a strong relationship between Australia's arid climates and desert biomes? Explain your answer.**

There a strong relationship between Australia's arid climates and desert biomes. Australia's desert regions are located in the interior of the continent where it is hot and dry......

- Is there a spatial relationship between Australia's tropical rainforests and climate?**

There is a spatial relationship between Australia's tropical rainforests and climate. Australia's tropical rainforests are located in northern Australia where it is hot and wet......

- Is the spatial relationship between climate and the savanna (grassland) biome strong or weak? Explain your answer.**

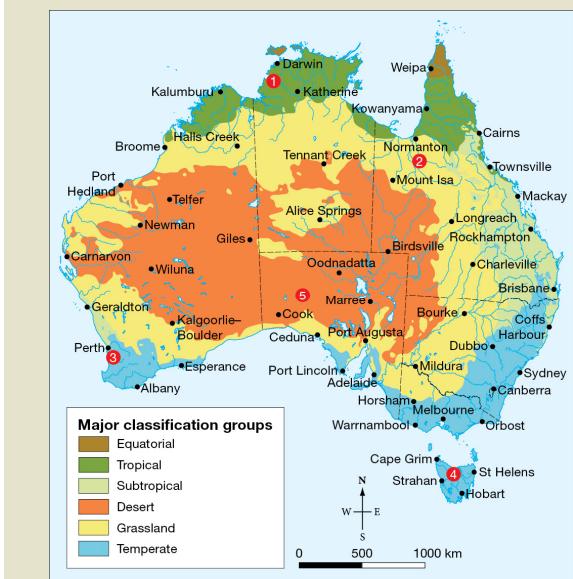
The spatial relationship between climate and the savanna (grassland) biome is weak......

- Name the main biome found in Tasmania. Why might there be only one biome on the map?**

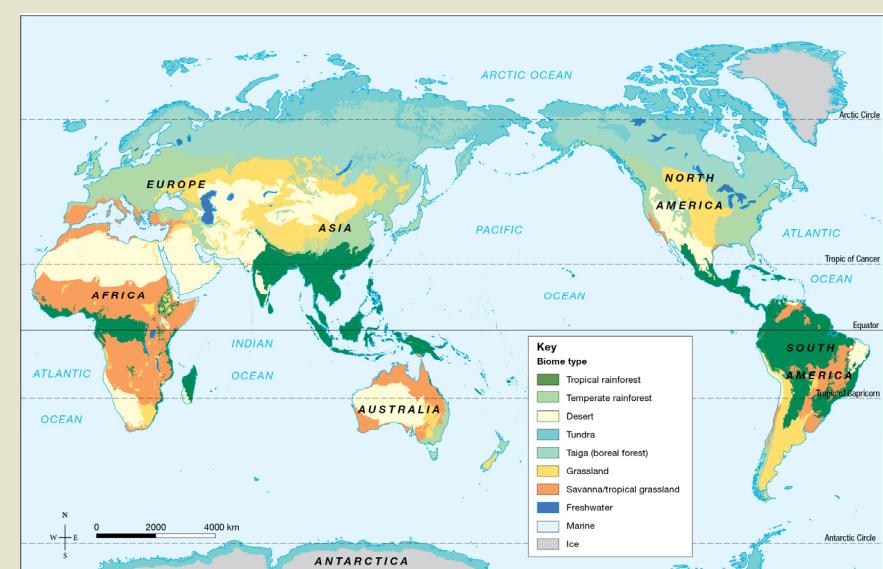
The main biome found in Tasmania is temperate. There is little variation in the climate in and as a result forests are the dominant type of vegetation......

- Find one biome that does not occur in Australia. Suggest reasons why this is the case.**

A biome that is not found in Australia is tundra. Although Australia has alpine regions, it is not cold enough all year round for tundra to develop. Tundra occurs in high alpine regions and at the poles, above the treeline. Here the ground is permanently frozen......

FIGURE 2 Climate classification of Australia

Source: Data copyright Commonwealth of Australia, 2013 Bureau of Meteorology. Map drawn by Spatial Vision.

FIGURE 3 Major biomes of the world

Source: Redrawn by Spatial Vision based on the information from the Nature Conservancy and GIS Data

Checklist

I have:

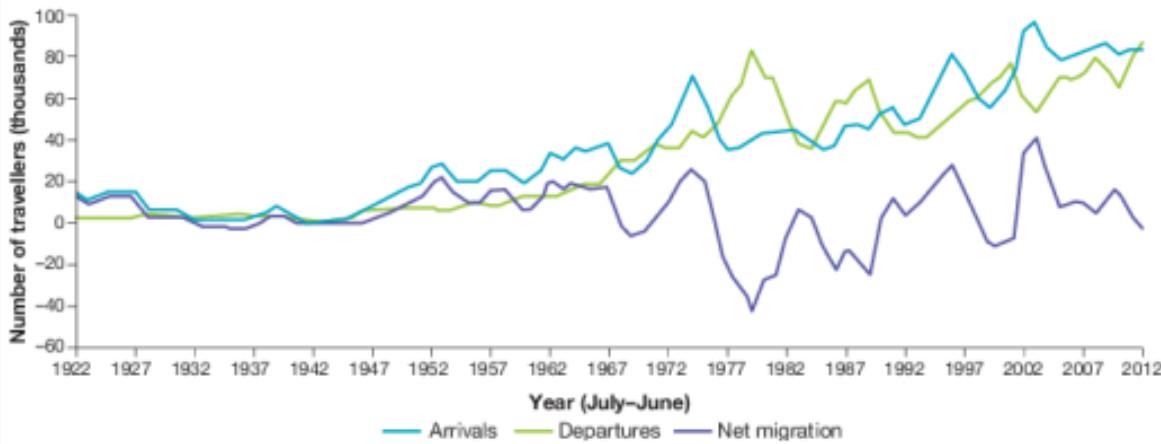
- clearly identified which features on thematic maps are linked or interconnected
- pointed out obvious anomalies, where no linkages or interconnections can be observed
- described the extent of interconnections (for example, as strong or weak).

SkillBuilder: Describing divergence graphs

Student: Class: Due date:

- 1. Using the graph shown in FIGURE 2, explain what has happened to the level of migration in New Zealand. Use the net migration line as the basis for your answer.**

FIGURE 2 New Zealand migration trends: Annual permanent and long-term arrivals, departures and net migration, 1922–2012



Responses will vary but should refer to the trends of arrivals, departures and net migration from 1922 – 2012. Migration has become less consistent as shown by the increased number of peaks and troughs in the arrivals and departures. The upward trend suggests that more people are arriving and more people are leaving as time goes on.

- 2. Apply your skills to answer the following questions. Use the checklist to ensure you have covered all aspects of the task.**

- a. What is the trend for the line indicating the number of arrivals?

Migrant arrivals are trending upwards. At times there are peaks and troughs but the overall trend is an increase, particularly since 1947.

- b. What is the trend for the line indicating the number of departures?

Departure trends indicate more people are leaving as time goes on. Again, there are peaks and troughs but the overall trend is upward since 1967.

- c. In which years did the population of New Zealand lose more people than it gained?

New Zealand lost more people than it gained in 1979–1980, 1986–1990 and around 2000

when the dark blue line (net migration) fell below the 0 line.

- d. Identify a period of time when increases happened slowly and a period when they happened quickly. Identify a period of time when decreases happened slowly and a period when they happened quickly.

Increases in arrivals and departures were slow in the 1950s and 1960s. The 1970s onwards

has seen peaks and troughs of arrivals and departures from New Zealand.

- e. If net migration is the difference between arrivals and departures, what has happened to people's attitudes towards migration to New Zealand?

There was a period of time from the mid 1970s until the early 1990s when New Zealanders

were more inclined to migrate.

Checklist

I have:

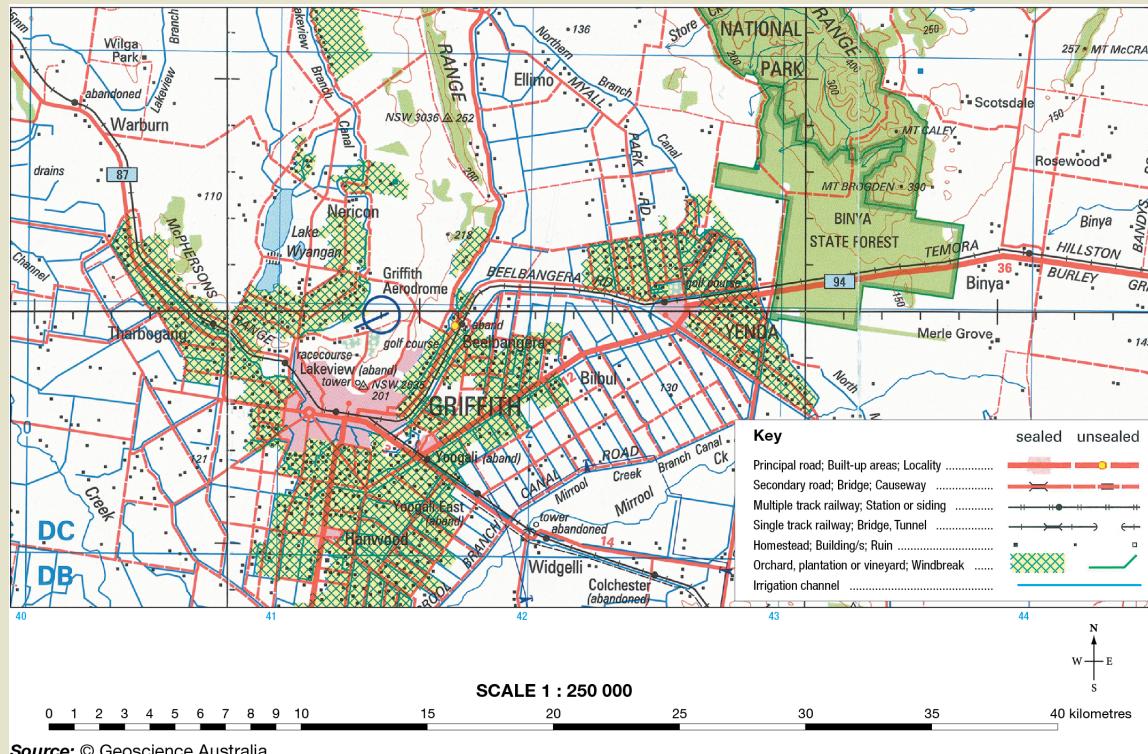
- identified and communicated key features such as patterns, peaks and troughs
- clearly represented and communicated the data about a specific place.

SkillBuilder: Describing patterns and correlations on a topographic map

Student: Class: Due date:

- Using the topographic map of the Griffith area (FIGURE 2 in subtopic 12.2) write a paragraph identifying any patterns and correlations that are evident. Use the checklist to ensure you cover all aspects of the task.

FIGURE 2 Topographic map extract, Griffith, New South Wales. Using the map, landmarks can be located by their absolute location or location relative to other places on the map.



In your answers, check that you have:

- used place names
- mentioned distances
- identified regions
- identified connections
- noted anomalies
- written in paragraphs and included an introduction that identifies the place and a conclusion that summarises the key findings

2. Apply your skills to answer the following questions.

- a. Why are the water channels straight? Is there an interconnection between slope and water resources? Explain your answer.**

Human-made channels are straight. Channels are used to distribute water across areas where

water would not normally flow as the land is flat, so there is an *interconnection* between slope and water.

- b. To what extent is there a correlation between orchards and slope? Explain your answer.**

Orchards are planted on near-flat land so that water drains slowly past the trees.

- c. Describe the direction of development of Griffith township. Suggest why it has developed in this way.**

Griffith township development is to the north-west, north-east and south — all along major

road arteries.

- d. How do we know that the irrigated orchards are smallholdings?**

There is a large number of houses within a small area.

- e. Is there a correlation between land slope and agricultural land use?**

Where the land is flat the area is used for rice growing; areas with a small amount of slope

are given over to orchards.

Checklist

I have:

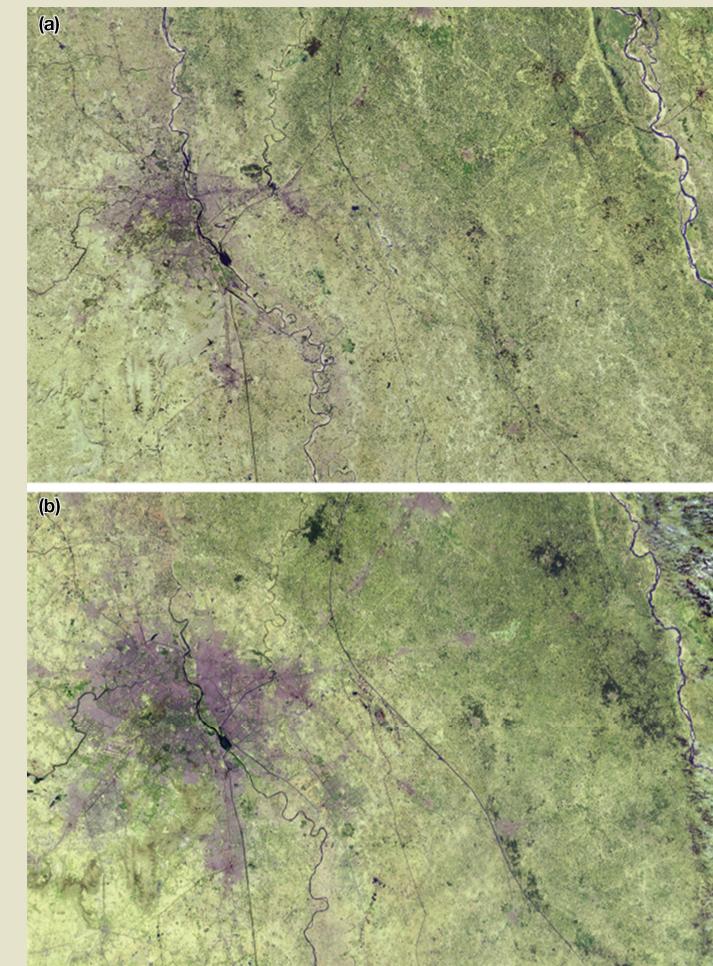
- used place names
- mentioned distances
- identified regions
- identified connections
- noted anomalies
- written in paragraphs and included an introduction that identifies the place and a conclusion that summarises the key findings

SkillBuilder: Interpreting satellite images to show change over time

Student: Class: Due date:

1. Refer to the satellite images of New Delhi in 1989 and 2018 shown in FIGURES 2(a) and (b).

FIGURE 2 New Delhi, India in (a) 1989 and (b) 2018



Write a description of the change that has occurred over time to the boundaries of New Delhi. Use the checklist to ensure you cover all aspects of the task.

In your answer check that you have covered the following:

- translated the false colours
- identified patterns
- made logical inferences
- used distance and direction to locate places.

2. Based on what you have learned in this SkillBuilder, apply your skills to answer the following questions.

- a. Is New Delhi a growing or declining city? Explain your answer.

Based on Figure 2, New Delhi is a growing city. We know this because the city takes up a greater area in 2018 than it did in 1989.

- b. How has the vegetation cover of the area changed?

There is less vegetation in 2018 than in 1989, indicating that potential farming areas have been taken for housing.

- c. How has the road pattern changed?

The road pattern is denser, and the roads follow the topography of the land.

- d. How has the growth of New Delhi affected food security in the area?

Farmland has been taken up for urban development, decreasing the food security of the area with the growing population.

Checklist

I have:

- translated the false colours
- identified patterns
- made logical inferences
- used distance and direction to locate places

SkillBuilder: Constructing and describing a transect on a topographic map

Student: Class: Due date:

1. Using the topographic map for Dalywoi Bay provided (you can download a copy of the map from the Resources tab, if you wish), construct a transect from grid reference 017310 to grid reference 080295. Use the categories of landforms, vegetation and land use. Also calculate the vertical exaggeration of your transect. Once complete, write a description of the transect. Use the checklist to ensure you cover all aspects of the task.

Drawing of a transect from grid reference 017310 to grid reference 080295

In drawing your transect you should have:

- drawn in pencil
- ruled the axes
- labelled the axes
- used small dots
- drawn with a smooth curve
- identified key aspects such as slope, landform, vegetation and land use
- included a title.

In describing your transect, you should have:

- described the key aspects of slope, landforms, vegetation and land use
- identified *interconnections* between the key features
- noted any anomalies.

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- 2. Based on what you have learned in this SkillBuilder, apply your skills to answer the following questions.**

- a. List the biomes found on your transect.**

The following biomes will be found on your transect:

• Intertidal flat

• Swamp

• Dense vegetation

• Sand

- b. Using the scale, mark the horizontal distance on your transect where the land is affected by water.**

There is a stretch of about 2.2 kilometres in the middle of the transect.

- c. If you were to build a house on the land shown in your transect, where would you choose to build, and why?**

Building requires keeping above the level of potential flooding and requires access. On the

mainland it would be possible to build near the 64-metre spot height. On the peninsula,

provided you had a boat, a suitable site for a house would be near the 39-metre spot height.

Sand is also difficult to build on or near.

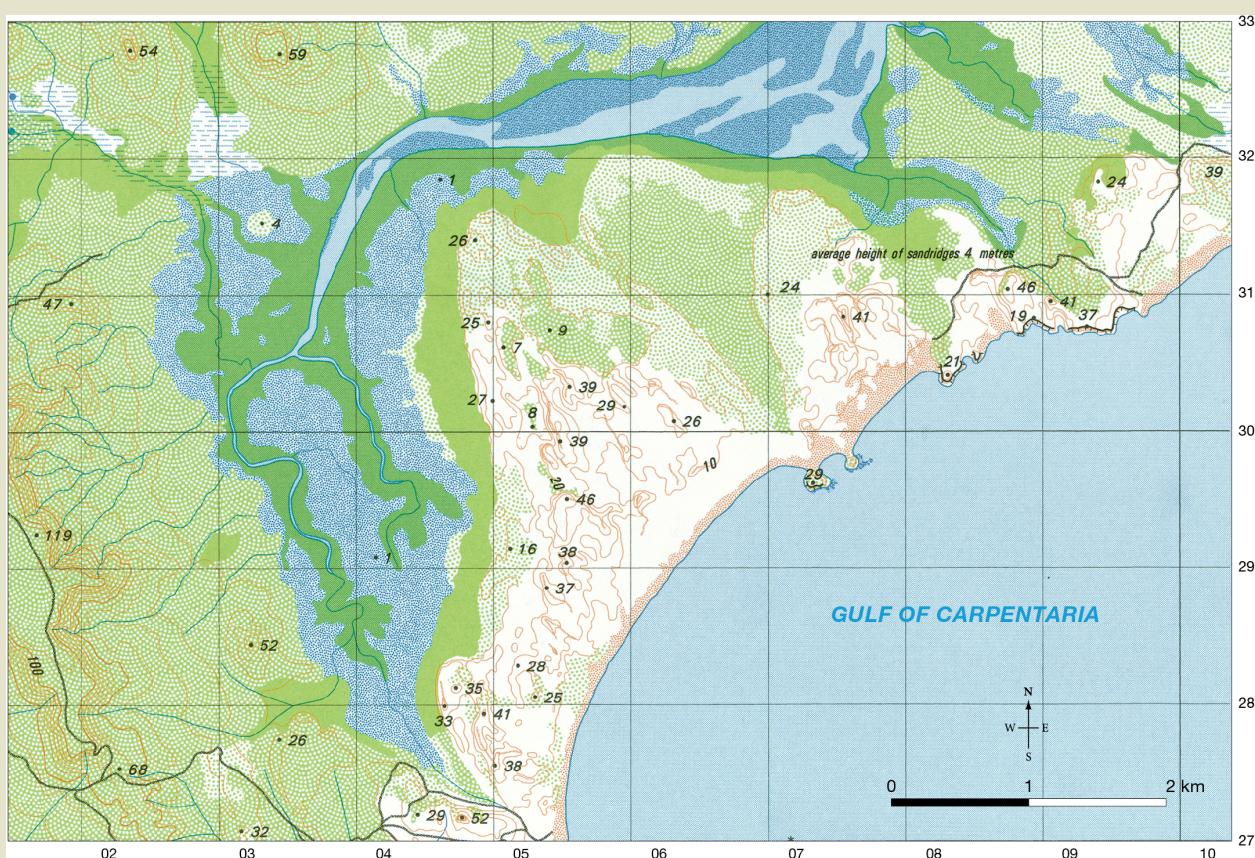
Checklist

In drawing a transect, I have:

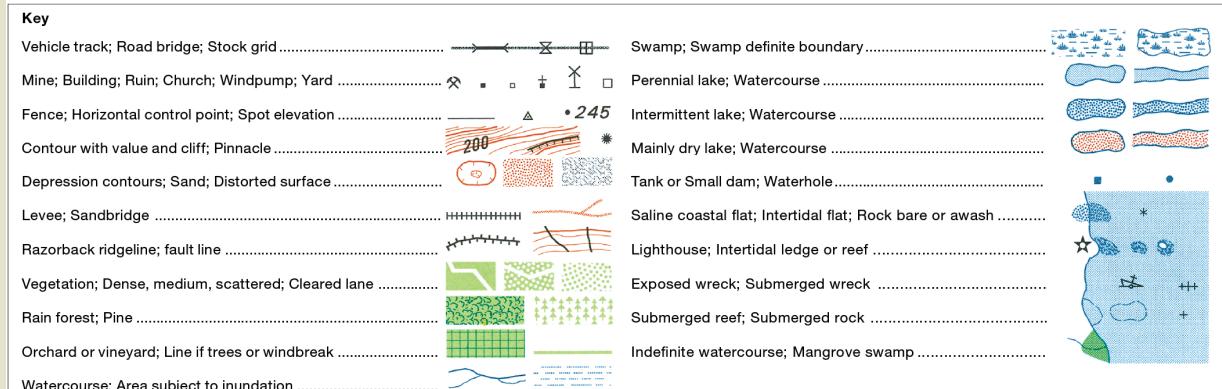
- drawn in pencil
- ruled the axes
- labelled the axes
- used small dots
- drawn with a smooth curve
- identified key aspects such as slope, landform, vegetation and land use
- included a title.

In describing a transect, I have:

- described the key aspects of slope, landforms, vegetation and land use
- identified interconnections between the key features
- noted any anomalies.

FIGURE 6 Dalywoi Bay, Northern Territory

Source: The Australian Army © Commonwealth of Australia 1999



SkillBuilder: Constructing multiple line and cumulative line graphs

Student: Class: Due date:

1. Use the data in TABLE 2 to construct a multiple line graph and a cumulative line graph for four Asian countries to which Australia exports food. Use the checklist to ensure you cover all aspects of the task.

TABLE 2 Australian total food exports by selected destination, A\$ million, 2006–12

Country	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12
China	664	917	1178	1426	1540	2174
Indonesia	1566	1702	2652	2129	2288	2272
Japan	4752	4553	5517	4278	4207	4448
Republic of Korea	1850	1655	1873	1925	1994	2338

Source: © DAFF 2013, *Australian Food Statistics 2001–12*. Department of Agriculture, Fisheries and Forestry, Canberra. CC BY 3.0.

Multiple line graph for four Asian countries to which Australia exports food

Ensure that you have covered the following in your answer:

- labelled the axes
- included a clear title or caption that identifies places and dates for the data.

Cumulative line graph for four Asian countries to which Australia exports food**2. Apply your skills to answer the following questions.**

- a. Which country received the greatest value of food exports from Australia?**

Japan received the greatest value of food exports from Australia. The value of food exports

into Japan is more than twice that of China, Indonesia and the Republic of Korea. It must be

noted that the value of imports fell by \$304 million between 2006 and 2012

- b. Which country showed the greatest change in its level of importation of food from Australia?**

China increased its level of importation from \$664 million to \$2174 million between 2006

and 2012. This is almost four times the 2006 rate. Other countries have shown more modest

levels in comparison, though they started from much higher base figures.

- c. From 2006 to 2012, which country was most consistent in its level of importation of food from Australia?**

Despite an initial drop in 2007, the Republic of Korea showed a steady and consistent increase

in the level of imports. Imports into Japan, while still buoyant, actually decreased. Indonesia

showed significant fluctuations and China increased the level of imports quite significantly.

- d. Suggest why these Asian countries need to import food from Australia.

These countries need to import food because they have large populations and are not able to grow enough food to meet the needs of their populations. This could be due to a shortage of arable land or a result of industrialisation, whereby people move into cities looking for employment.

- e. Which graph showed you a clearer picture of the data: the multiple line graph or the cumulative line graph? Explain.

Graphs show the variation between years more visually than does a data table. The choice as to which type of graph to use varies and is closely related to the task you need to complete and what you want your data to show.

The cumulative line graph shows the differences more clearly between countries than the multiple line graph, which is good for showing the trend for each country.

Checklist

I have:

- labelled the axes
- included a clear title or caption that identifies places and dates for the data.

SkillBuilder: Constructing a land use map

Student: Class: Due date:

1. Complete a land use map of your local area by walking along a street and mapping the land uses.

First, create a base map by identifying the main features of the environment such as major roads, waterways, vacant land and parks. Colour the various land uses on your base map and add those colours to the key. Complete the task according to the steps in the Show me section of this SkillBuilder. Use the checklist to ensure you cover all aspects of the task.

Your answers will vary, but should include the following features:

- drawn in pencil
- added colour
- incorporated a key/legend
- included labelled features as necessary
- included a clear title.

2. Apply your skills to answer the following questions.

a. With which land use is most of the map taken up?

The built environment is things made by humans. If you live in a rural area you may have more natural environment features.

b. Which of the land uses on your map have been built by people?

The built parts of the environment include roads, houses, recreation facilities, specific buildings.

c. What proportion of your land use map is natural environment?

The natural environment is an area unchanged by humans, so you have to assess if there is an area of this type and what proportion of your map is taken up by this area.

d. Suggest why there are trees in the built environment.

Housing areas are built by knocking everything down including most of the vegetation, but residents then plant trees on their properties and councils plant the streets and parks. Over time a newly built residential area takes on a changed appearance.

e. Suggest how the environment might change over time.

The addition of trees, increased population, expansion of the settlement, development of facilities, and changes to land use all take place over time.

Checklist

I have:

- drawn in pencil
- added colour
- incorporated a key/legend
- included labelled features as necessary
- included a clear title.

SkillBuilder: Creating a survey

Student: Class: Due date:

- 1. a.** Design a questionnaire to discover places that students from your year level, or people in the wider community, have visited as tourists in the past five years. To help you work out what questions to ask in your survey, look at Activities question 2 for details of what you will need to report. Use the checklist for creating a survey to ensure you cover all aspects of the task.

Responses will vary

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- b.** Ask people in your class, year level or local area to complete your survey. When you come back to school, tally your results and see if you can draw some conclusions. Write a paragraph on what your survey has shown you.

Responses will vary

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- 2. Apply your skills to answer the following questions.**

- a.** From your survey responses, what percentage of people have travelled somewhere as tourists within the past five years?

This answer will depend on the sample and on the location of the student. A class answer can be obtained by collating each student's individually collected data.

- b.** What trends emerged from your survey regarding travel within Australia in comparison to overseas travel?

This answer will depend on the sample and on the location of the student. Again, the class data can be collated for those who travel within Australia and those who travel overseas.

- c. Is there a relationship between how far people travel and how frequently they go? Is there a relationship between how far people travel and how long they stay?

It might be expected that longer trips are taken less frequently than shorter trips, and that on shorter trips people stay shorter periods of time, whereas if people travel long distances then they stay longer to get value for money on their travel.

- d. What were the main recreational activities people were involved in when they travelled to other places as tourists?

This answer will depend on the sample and on the location of the student. Travel destination and the purpose for the travel will influence this response.

- e. Describe the key features of your respondents' travel patterns. For example, were there particular continents or countries, or even regions within countries that were more popular than others?

This answer will depend on the sample and on the location of the student.

Checklist

I have:

- asked no more than 10 questions
- ensured that each question focuses on one thing
- made almost all questions closed questions, providing choices for participants to select from
- used simple and direct language
- included questions respondents will be able to answer without needing too much time to think
- ensured questions can be answered briefly
- put questions in a logical order
- ensured that questions avoid bias
- not included questions that are of a personal nature
- ensured that data/results can be summarised.

SkillBuilder: Constructing ternary graphs

Student: Class: Due date:

- 1. Use the data presented in TABLE 2 to construct a ternary graph on labour force by occupation, 2011–12, in selected countries. Use the checklist to ensure you cover all aspects of the task.**

TABLE 2 Labour force by occupation, 2011–12, selected countries

Country	Agriculture %	Manufacturing %	Services %
Australia	4	21	75
Colombia	18	14	68
Finland	4	24	74
Germany	2	24	74
India	53	19	28
Indonesia	38	13	49
Italy	4	28	68
Sri Lanka	32	26	42
South Korea	6	24	70
Thailand	41	13	46
Venezuela	7	22	71
Vietnam	48	22	30

Ternary graph on labour force by occupation, 2011–12, in selected countries

A good ternary graph:

- is constructed as an equilateral triangle
- has each side of the triangle divided into 10 lines
- has lines drawn across the triangle that always total 100 per cent
- contains accurately plotted data
- has labelled axes
- includes a clear title.

2. Apply your skills to answer the following questions.

- a. Which country has the greatest percentage of its population employed in agriculture?**

India had the greatest percentage of its population employed in agriculture.

- b. Which country has the greatest percentage of its people employed in services?**

Australia had the greatest percentage of its population employed in services.

- c. Which countries have the lowest percentage of people employed in manufacturing?**

Indonesia, Thailand and Colombia had the lowest percentage of people employed in manufacturing.

- d. Which country has the most even distribution across the three areas of employment?**

Sri Lanka was the country with the most even distribution across the three areas of employment.

- e. On your graph, plot where you think the following countries would be placed: the United States, Gambia and Argentina. Explain your answer.**
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Checklist

I have:

- constructed an equilateral triangle
- divided each side of the triangle into 10
- drawn lines across the triangle that always total 100 per cent
- accurately plotted the data
- labelled the axes
- provided a clear title.

SkillBuilder: Constructing and describing proportional circles on maps

Student: Class: Due date:

- Using the data on WFP funding contributors in TABLE 2, complete a proportional circles map to show the level of WFP funding across the world in 2018. Use the checklist for drawing proportional circles to ensure you cover all aspects of the task.**

TABLE 2 Selected funding contributors to the World Food Programme in 2018 (US\$)

United States of America	2 541 479 166	Italy	35 421 720
Germany	849 141 329	China	32 644 030
United Kingdom	617 188 873	Ireland	28 191 994
Canada	222 172 109	Belgium	16 053 224
Sweden	148 185 097	Finland	15 939 371
Japan	130 001 824	Pakistan	15 930 489
Norway	89 996 849	Benin	13 461 901
Switzerland	75 520 814	Luxembourg	11 153 437
Netherlands	71 558 728	Burundi	8 476 285
Australia	71 268 872	New Zealand	5 661 439
Republic of Korea	67 897 569	South Sudan	5 066 242
Denmark	55 940 285	Brazil	444 977
Russian Federation	44 882 539	Colombia	405 856
Figures current as at 28 April 2019			

Make sure you have included the following in your answer:

- drawn in pencil using a mathematical compass
- drawn circles that are accurate according to the scale provided in the legend
- included a key/legend to show the proportions of the circles
- included a title.

- 2. Describe the distribution pattern revealed by your map. Use the checklist for describing proportional circles to ensure you cover all aspects of the task.**

Make sure you have included the following in your answer:

- effectively communicated differences in values or amounts of something over space
- identified places
- used directions.

- 3. Based on what you have learned in this SkillBuilder, apply your skills to answer the following questions.**

- a. On which continent/s are the countries that have made the greatest financial contribution to the WFP?**

The top three contributors to the WFP are from North America and Europe.

- b. Which other region has a number of countries that have made significant contributions?**

Europe is a region that has a number of countries that have made significant contributions to the WFP.

- c. Describe the pattern of WFP contributions across the world.**

Almost half of the contributing nations are located within Europe, contributing

US\$2,045,413,459. Countries within Asia contributed over US\$494,381,871 and countries in

Africa contributed around US\$27,004,428. Australia alone donated over US\$71,000,000.

- d. Are there any countries that surprised you in their level of contribution to the WFP? Explain your answer.**

Individual response required.

Checklist

In drawing a map of proportional circles I have:

- drawn in pencil using a mathematical compass
- drawn circles that are accurate according to the scale provided in the legend
- included a key/legend to show the proportions of the circles
- included a title.

In describing a map of proportional circles, I have:

- effectively communicated differences in values or amounts of something over space
- identified places
- used directions.

SkillBuilder: Constructing and describing isoline maps

Student: Class: Due date:

1. Use the data in TABLE 1 and base map provided in FIGURE 3 to construct an isoline map of the travel times by bicycle throughout Copenhagen to the city centre. Use the following steps to help you.

TABLE 1 Travel times by bicycle to Copenhagen city centre

Suburb of Copenhagen	Travel time (minutes)
Albertslund	45
Ballerup	48
Brøndby	40
Frederiksberg	25
Furesø	50
Gentofte	33
Glstrup	40
Gladsaxe	38
Herlev	48
Hvidovre	34
Ishøj	55
Lyngby-Taarbæk	45
Rødovre	35
Tårnby	30

FIGURE 3 A base map of the suburbs around Copenhagen city centre



- Plot on the map the number of minutes it takes to travel from each place to Copenhagen city centre by writing the number of minutes by the dot beside each placename.
 - Draw a line (an isoline) connecting all the places from which it would take 30 minutes to travel to the centre of Copenhagen.
 - Draw in additional isolines at 5-minute intervals to show travel times to Copenhagen city centre.
- Use the checklist for constructing isoline maps to ensure you cover all aspects of the task.

Your isoline map should look like this:

FIGURE 3 A base map of the suburbs around Copenhagen city centre



Source: © Open Street Map contributors. Map drawn by Spatial Vision

- Describe the pattern evident on your isoline map. Use the checklist for describing isoline maps to ensure you cover all aspects of the task.

In describing an isoline map check that you have done the following:

- identified and communicated key features
- clearly represented and communicated the data.

- Based on what you have learned in this SkillBuilder, apply your skills to answer the following questions.

- Is Copenhagen city centre more accessible to Furesø or Hvidovre by bicycle? Use figures in your answer.

Hvidovre is more accessible at 34 minutes by bicycle from the city centre of Copenhagen.

Furesø takes 50 minutes of riding.

- b. Does Tårnby or Brøndby provide easier bicycle access to the city? Quote the distances involved.**

Tårnby is the shortest route time-wise, taking 30 minutes, while Brøndby takes 40 minutes.

- c. From which direction would you have the greatest level of access to the city centre by bicycle? Use figures in your answer.**

The north-west direction has the most bicycle paths, some that intersect and one that goes

beyond the 50-minute ride time. In some areas around 25–30 minutes from the CBD, living

between the bicycle pathways gives a wide range of options to select.

- d. Which part of the map would encourage cyclists to live in the area? Explain your answer using figures.**

The Frederiksberg area has many different bicycle paths close at hand while being only 25

minutes from the CBD.

- e. In which area of the city would you prefer to live if you had to cycle to the city centre each day for work? Explain your answer, including figures.**

The Frederiksberg area has many different bicycle paths close at hand while being only 25

minutes from the CBD, so I would choose that area.

Checklist

In drawing an isoline map I have:

- plotted data using small dots
- joined the dots to create a fine isoline
- drawn using pencil
- coloured or shaded between the isolines
- completed my map with BOLTSS.

In describing an isoline map I have:

- identified and communicated key features
- clearly represented and communicated the data.

SkillBuilder: Constructing and describing a flow map

Student: Class: Due date:

- 1. Using a blank world map and the data in TABLE 1, construct a flow map of ivory smuggled from Africa to Asia. Think carefully about the scale you choose, as the data for China is high. Note that the flow is from Africa to Asia, so the arrows need to go from Africa to the appropriate country in Asia. Use the checklist for drawing a flow map to ensure you cover all aspects of the task.**

TABLE 1 Ten Asian countries with the most ivory seized, 1989–2011 — total weight of seizures in kilograms

India	Singapore	Malaysia	Japan	Philippines	Vietnam	Taiwan	Hong Kong	Thailand	China
6758	8028	8527	8618	10 659	13 426	18 370	20 638	21 364	41 095

Source: TRAFFIC, Tom Milliken



Flow map of ivory smuggled from Africa to Asia

In drawing a flow map, check that you have:

- drawn in pencil initially and then coloured appropriately
- used arrows to indicate flow directions
- used scaled arrow widths, which are also explained in a key/legend
- included labelled features as necessary
- provided a clear title, which identifies places and dates.

2. Based on what you have learned in this SkillBuilder, apply your skills to answer the following questions.

In interpreting a flow map, check that you have:

- identified and communicated key features of the movement, patterns and places shown
- clearly represented and communicated the data with the use of statistics, places and dates.

3. Apply your skills in interpreting a flow map to answer the following questions.

- a. Which Asian country had the most smuggled ivory seized?**

China, with 41 095 kilograms of smuggled ivory seized.

- b. Which Asian country had the least smuggled ivory seized?**

India, with 6758 kilograms of smuggled ivory seized.

- c. Describe the areas of Asia to which smaller quantities of ivory are smuggled and the areas to which larger quantities are smuggled.**

Least smuggled ivory goes into southern Asia; most smuggled ivory goes into eastern Asia

- d. Does distance seem to affect the amount of ivory smuggled? Explain your answer, using the map scale to help you.**

No, distance does not seem to have an effect: eastern Asia is the furthest from Africa and has the most smuggled ivory.

- e. Does the level of a country's development influence the smuggling of ivory? Explain your answer.**

No; Hong Kong which is a developed economy, receives a large amount of ivory. India, which has development issues, receives less ivory than some more developed places.

Checklist

In drawing a flow map I have:

- drawn in pencil initially and then coloured appropriately
- used arrows to indicate flow directions
- used scaled arrow widths, which are also explained in a key/legend
- included labelled features as necessary
- provided a clear title, which identifies places and dates.

In interpreting a flow map I have:

- identified and communicated key features of the movement, patterns and places shown
- clearly represented and communicated the data with the use of statistics, places and dates.

GEOGRAPHY

SkillBuilder: Constructing a table of data for a GIS

Student: Class: Due date:

1. Create tables of data for the two maps shown in FIGURES 6 and 7. TABLE 1 should be for the polygons (states) and TABLE 2 for the points (ports). TABLE 1 should have two columns, or fields, and TABLE 2 should have four columns. Identify the text and integer fields in each table. Use the checklist to ensure you cover all aspects of the task.

FIGURE 6 Cargo handled by ports in Australian states and territories, in mass tonnes, 2011–12

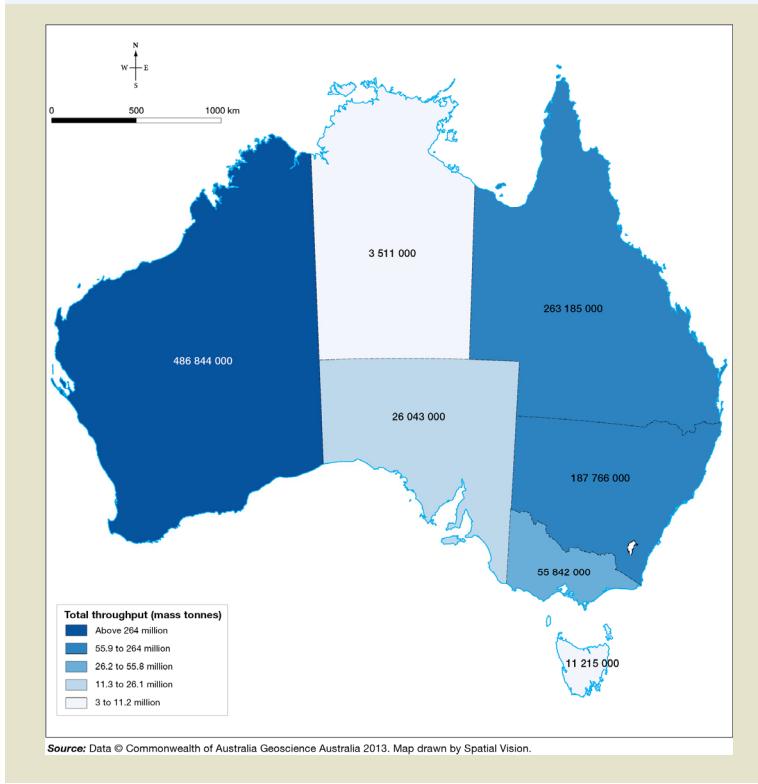


TABLE 1

State/territory	Mass (tonnes)
Western Australia	486 844 000
Northern Territory	3 511 000
Queensland	263 185 000
New South Wales	187 766 000
Victoria	55 842 000
South Australia	26 043 000
Tasmania	11 215 000

FIGURE 7 Ports exporting iron ore, coal and wool, in mass tonnes, 2011–12

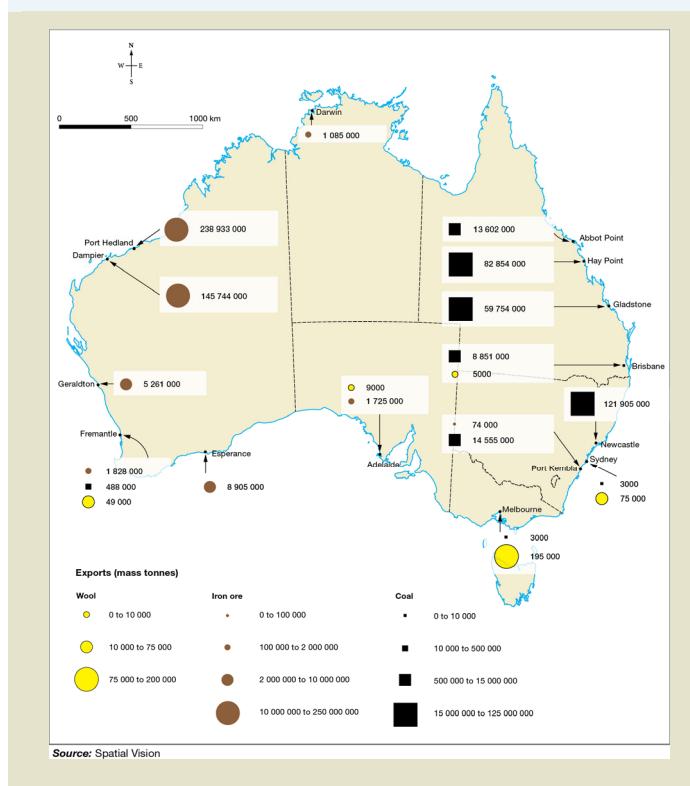


TABLE 2

Port	Wool (tonnes)	Iron one (tonnes)	Coal (tonnes)
Port Hedland	0	283 933 000	0
Dampier	0	145 744 000	0
Geraldton	0	5 261 000	0
Fremantle	49 000	1 828 000	488 000
Esperance	0	8 905 000	0
Adelaide	9000	1 725 000	0

2. Then apply your skills to answer the following questions.

- a. Which state handled the most cargo by tonnage in 2011–12, and which two states handled the least cargo?

The state or territory that handled the most cargo by tonnage in 2011–12 was Western

Australia. The two that handled the least amount of cargo were Tasmania and the Northern

Territory.

- b. Name the two main ports exporting:

- i. iron ore

The two main ports exporting iron ore are Port Hedland and Dampier.

- ii. coal

The two main ports exporting coal are Newcastle and Hay Point.

- c. Compare the distribution of coal-exporting ports with that of iron ore-exporting ports. What does this tell us about the location of these resources in Australia?

Coal is exported from Australia's eastern states, mainly New South Wales and Queensland.

Iron ore is exported mainly from Western Australia. Coal is found in large quantities in New

South Wales and Queensland and iron ore is found in Western Australia. Both of these

commodities are bulky and heavy and are therefore exported from ports close to where the

resources are mined.

- d. Why are the values for wool exports much smaller than those for iron ore and coal?

The values provided are in mass tonnes. Wool is much lighter than the heavier coal or iron ore.

- e. Why is wool exported from ports in the southern part of Australia?

Sheep rearing takes place in the drier interior of Western Australia, South Australia, Victoria

and New South Wales, and to an extent in Queensland. Sheep are less suited to the northern

tropical areas of Australia.

Checklist

I have:

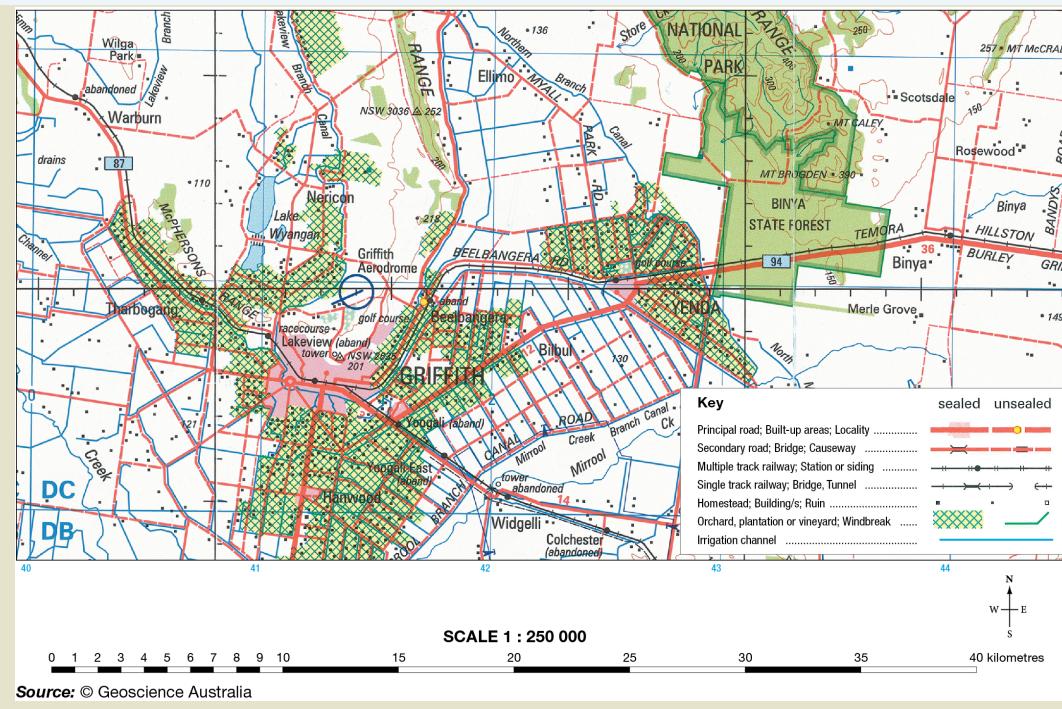
- created separate tables for polygon and point data (and line data, where relevant)
- created rows in the table that relate to the points, lines or polygons on the map
- identified the text and numeric fields
- ensured that the field headings have been shortened if necessary and contain no spaces
- entered the data as correctly as possible
- added explanatory notes (metadata) about the source of the data and the values in each field
- included a title for the tables.

SkillBuilder: GIS — deconstructing a map

Student: Class: Due date:

1. Use the map of Griffith provided in the Resources tab. Choose one point feature, one line feature and one polygon feature and create three tracing-paper overlays. Organise the layers appropriately and add BOLTSS to your map. Use the checklist to ensure you cover all aspects of the task.

FIGURE 2 Topographic map extract, Griffith, New South Wales. Using the map, landmarks can be located by their absolute location or location relative to other places on the map.



In your answer check that you have:

- traced each set of point, line and polygon data onto a separate piece of tracing paper
- used appropriate colours for the features
- layered the features, with points on top, lines underneath and polygons on the bottom
- included BOLTSS

2. Based on what you have learned in this SkillBuilder, apply your skills to answer the following questions.

- a. What is the name of the district through which the Murrumbidgee River flows?

The Murrumbidgee River flows through the Riverina district.

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- b. The original biome for this area is likely to have been forest. What has happened to this biome and how would you describe the distribution of forest in the area today?

Much of the forest biome has been cut down. However, some areas, such as Cocoparra

National Park, remain.

- c. Compare the number of creeks in the map in FIGURE 1 with the number of channels. What is the purpose of the many channels and canals?

The channels and canals will be used for distributing irrigation water.

- d. FIGURE 1 shows a part of Australia that has undergone change. Using Google Earth and the map, identify the area where there has been the least change and the area where there has been the most change. Explain your choice.

Areas of least change could be the Cocoparra National Park because the area has been

recognised as worth protecting for its natural beauty. Areas of most change could be in the

Griffith township where urban development has taken place.

- e. This area is an example of intensive farming. What does this mean? Provide at least one piece of evidence from both the map in FIGURE 1 and the satellite image in FIGURE 2 (or Google Earth) to support this statement.

Intensive farming is the continuous cultivation of small areas of land to produce high yields.

This may be achieved by using large amounts of labour or high capital investment. Evidence

for intensive farming could be the many small patches of land of different colours, which

indicate either many different crops or different stages of growth.

Checklist

I have:

- traced each set of point, line and polygon data onto a separate piece of tracing paper
- used appropriate colours for the features
- layered the features, with points on top, lines underneath and polygons on the bottom
- included BOLTSS

SkillBuilder: Interpreting a geographical cartoon

Student: Class: Due date:

- 1.** Using the steps outlined in the Show me section, write a paragraph analysing the geographical issue portrayed in the FIGURE 2 cartoon. Use the checklist to ensure you cover all aspects of the task.

FIGURE 2 Unsustainable fishing



Responses will vary

- 2. Based on what you have learned in this SkillBuilder, apply your skills to answer the following questions.**

- a. Why is the fishing trawler drawn so small?**

The trawler is drawn so small so that the focus is on the number of fish remaining after

overfishing of the area. The issue is not about the trawlers themselves but the number of fish

they are taking.

- b. Has the trawler caught many fish? Explain your answer.**

Yes the trawler has caught many fish. The issue is not about the trawlers themselves but the

number of fish they are taking.

- c. Explain the discussion between the two fish.**

The two fish left appear to be scared as they have a look of fear on their faces.

- d. What message do you think is being conveyed in this cartoon?**

That big companies trawling the oceans are taking the fish stocks of the future.

- e. How does this cartoon make you feel?**

This is a personal perception.

Checklist

I have:

- recognised the issue
- analysed the components of the cartoon
- identified the cartoonist's personal opinion or message
- stated my personal response on the geographical topic.

SkillBuilder: Using advanced survey techniques — interviews

Student: Class: Due date:

1. Create a set of interview questions that seek the opinion of your local community on technology consumption and e-waste management (look at question 2 to ensure your survey provides you with the information you will need to answer these questions). Conduct your survey, organise your data and summarise your findings. Use the checklist to ensure you cover all aspects of the task.

Some examples include:

- Do you know what the term e-waste means?
- Have you ever needed to get rid of any electrical equipment? If so, what did you do?
- Are you aware of any *places* where you can recycle e-waste?
- Who do you think is responsible for recycling e-waste?
- Are e-waste recycling facilities well advertised?
- Did you know that e-waste can be harmful to people and the *environment*?
- Will you change anything about how you dispose of e-waste after this interview?

2. Apply your skills to answer the following questions.

- a. What did people understand by the term e-waste?

Responses will vary

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- b. Does the community dispose of its e-waste effectively?

Responses will vary

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- c. Are there enough e-waste recycling depots for the community?

Responses will vary

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d. Is there enough advertising about how to deal with e-waste?

Responses will vary

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e. Which local community groups ought to be responsible for e-waste management?

Responses will vary

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Checklist

I have:

- thought about the information that needs to be gathered
- worked out which groups of people to interview
- decided when is the best time to conduct the interview
- decided where is the best place to conduct the interview
- written a set of longer and more detailed predetermined questions
- written open-ended questions that allow the interviewees to express their opinions
- included no more than about 15 questions to ensure people retain interest in the interview
- developed supplementary questions in response to anticipated answers
- set a time limit of 15 to 20 minutes.

SkillBuilder: Using advanced survey techniques — interviews

Student: Class: Due date:

1. During Year 9 Geography, your class should undertake fieldwork. This SkillBuilder can only be completed after that has taken place. Some of the activities in this topic suggest undertaking fieldwork in the school grounds or at a local environment. Practise an AVD layout to report your findings for one of these environments. Use the checklist to ensure you cover all aspects of the task.

Check that you have:

- clearly structured the layout
- included a title and introduction
- provided statements of findings from a range of data sources — various graph types, tables and photographs
- provided evidence that I have identified patterns in the data, been able to describe the current situation, and synthesised data to show a clear understanding of the topic
- clearly stated limitations and successes
- added a conclusion.

2. Apply your skills to answer the following questions.

- a. What forms of land degradation might you find in this environment?

Water erosion, wind erosion and human impact erosion (such as compacted pathways) are

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- b. How would you rate your local environment in terms of degradation?

Use a ranking system, such as 1 = excellent to 5 = very degraded.

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- c. Can you suggest some activities that could help to improve the environment?

A number of options can improve environments such as fenced-off areas, redirected pathways
and garden plantings.

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d. Which local authorities ought to be concerned about this environment?

Possible organisations include the School Council, Student Council, or in the local

environment the local council and environmental groups.

e. How might you alert the local community to the degradation taking place?

Identifying degradation for the public can be done through signage with educational

explanations, leaflet drops, local media (newspapers and radio programs) and social media

(internet, Facebook, Twitter).

Checklist

I have:

- clearly structured the layout
- included a title and introduction
- provided statements of findings from a range of data sources — various graph types, tables and photographs
- provided evidence that I have identified patterns in the data, been able to describe the current situation, and synthesised data to show a clear understanding of the topic
- clearly stated limitations and successes
- added a conclusion.