

Question Booklet

2017 Australian Geography Competition

I N S T R U C T I O N S

- 1** Use a 2B pencil to complete the answer sheet. You will need a clean eraser to erase your mistakes.

YOU MUST FILL IN THE REQUIRED OVALS. The answer sheet is computer marked and all the ovals you fill in are recorded. See the left side of the Answer sheet for instructions on how to fill in the ovals correctly.

- 2** **Before the start of the test**

Fill in your name by writing the letters of your name in the required boxes. Then fill in the corresponding ovals beneath the letters of your name. See the **First name** example to the right. You must do this for both your **First name** and **Last name**.

On the lower left of the Answer sheet, please print your school's name where asked. Write the numbers your teacher will give you in the **School Code** and **Postcode**.

On the bottom of the Answer sheet, fill in the oval beside your **Year level**.

If you are in **Year 11**, fill in the oval beside your **age at 30 June 2017**.

Fill in the oval beside your **Gender**.

If you need to, your teacher will advise you to fill in an oval under **School assigned**.

- 3** **Answer** each question by filling in only one oval that corresponds to the most appropriate answer choice for that question. If you change your mind, you must erase the wrong answer completely so that only one oval is filled in for each question.

If you are in **Year 7 or younger**, or **Year 8** answer Questions 1–30.

If you are in **Year 9** or **Year 10** answer Questions 1–40.

If you are in **Year 11** or **Year 12** answer Questions 16–50 (starting on page 5).

- 4** Do not mark the front or back of the answer sheet in any other way as this can lead to errors in the computerised marking, or to you not getting a result.

- 5** You have **35 minutes** to answer the questions.

First name	
→	G A I L
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B	<input type="radio"/>
C	<input type="radio"/>
D	<input type="radio"/>
E	<input type="radio"/>
F	<input type="radio"/>
G	<input checked="" type="radio"/>
H	<input type="radio"/>
I	<input checked="" type="radio"/>
J	<input type="radio"/>
K	<input type="radio"/>
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M	<input type="radio"/>



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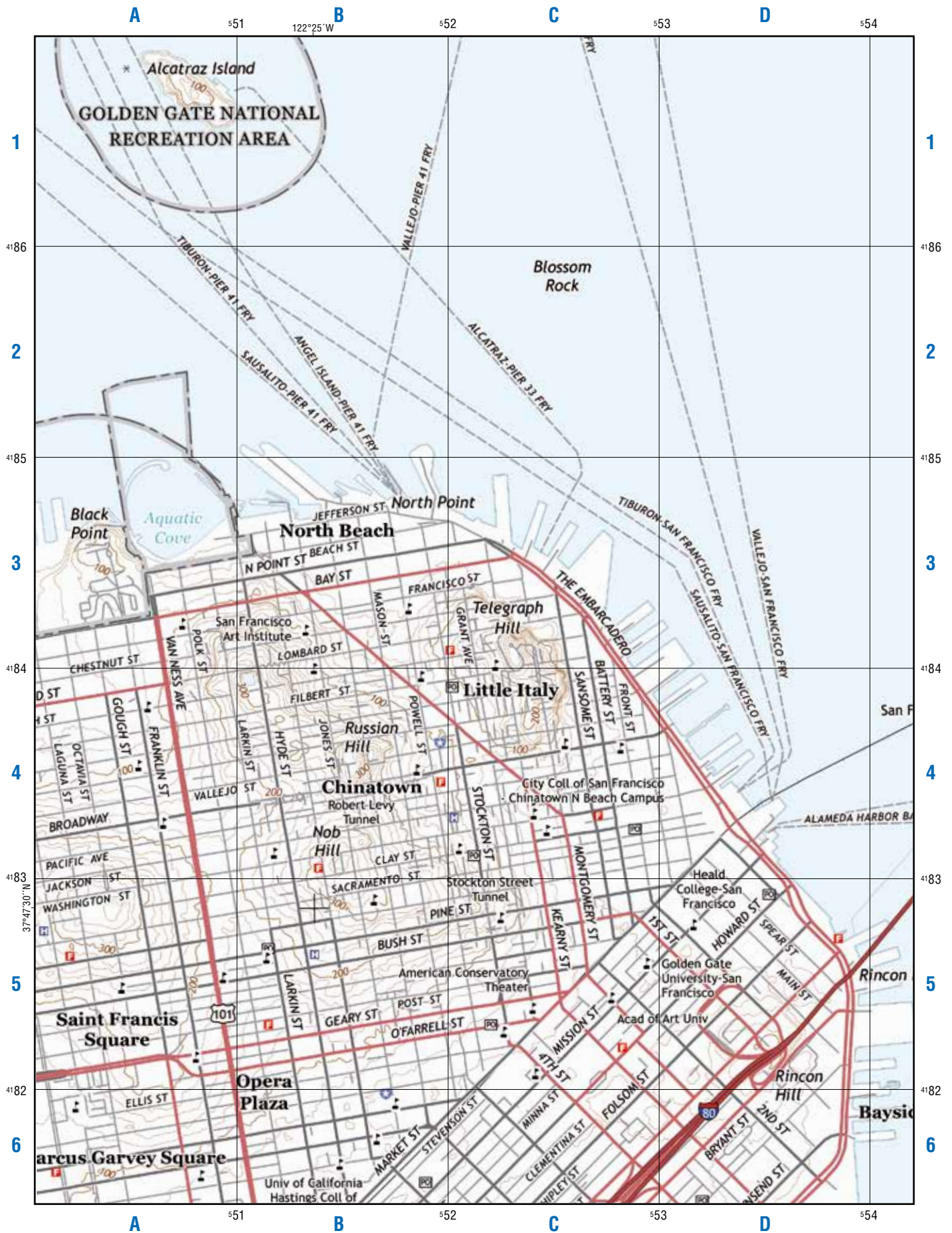


Figure 1. Extract of San Francisco North, CA, map

© United States Geological Survey

Legend

STRUCTURES

Fire Station	
Hospital	
Police	
Post Office	
School	

TRANSPORTATION

Railroad	
Expressway	
Secondary Hwy	
Ramp	
Local Connector	
Local Road	
Ferry	
Tunnel	
Interstate Route Shield	
US Route Shield	

HYDROGRAPHY

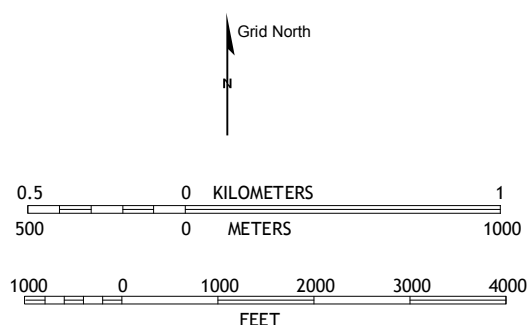
Perennial Stream	
Intermittent Stream	
Rock	
Coastline	
Nonnatural Shore	
Ocean	

TERRAIN

Index Contour	
Intermediate Contour	
Depression Index Contour	

BOUNDARIES

State or Territory	
National Park Service	



Contour Interval 20 Feet

Start at Question 1 if you are in **Year 10 or younger**. Start at Question 16 (on page 5) if you are in Year 11 or 12.

- Which type of map is shown in Figure 1?
 - choropleth map
 - geological map
 - political map
 - thematic map
 - topographic map
- If you caught the ferry to Alcatraz Island (grid square A1, Figure 1), in which direction would you be travelling for most of the route?
 - north
 - northeast
 - northwest
 - southeast
 - southwest
- Approximately how long is Sansome Street (C3, C4, C5)?
 - 1.2 km
 - 1.7 km
 - 4.8 km
 - 5.8 km
 - 12.1 km
- Which of these is located in grid square D5?
 - 1 fire station, 1 school, 1 post office
 - 1 hospital, 4 schools
 - 1 police station, 1 school, 1 fire station
 - 1 post office, 3 schools, 1 hospital
 - 5 schools, 1 fire station
- Using Figure 1, which of these statements about San Francisco is correct?
 - All the ferries leave from Pier 41.
 - It is situated on a coastal plain.
 - Some neighbourhoods are named after its immigrant communities.
 - Students need to travel a long way to school.
 - There is no public transport.

Fold this page back on itself to see the map at the same time.



Figure 2. Satellite image of an area in San Francisco
© USGS DigitalGlobe

6 Using Figures 1 and 2, what is the name of the feature in the northeast section of the satellite image?

- A Alameda Harbor
- B Aquatic Cove
- C Black Point
- D The Embarcadero
- E North Point



Figure 3. A street in San Francisco famous for its zigzags
© Daniel Cukier (CC BY-ND 2.0)

7 Using Figure 1, which street is shown in Figure 3?

- A Battery St in grid square C4
- B Bryant St in grid square D6
- C Lombard St in grid square B3
- D Market St in grid square B6
- E Mission St in grid square C5

8 What is the predominant street pattern in San Francisco?

- A curvilinear
- B grid
- C irregular
- D organic
- E radial

9 From your own knowledge, why has San Francisco experienced major earthquakes?

- A Fracking for shale gas has fractured nearby rock strata.
- B It is at the junction of the Pacific and Australian Plates.
- C It is located at the foot of the Popocatepetl volcano.
- D It is situated beside the San Andreas fault.
- E Pressure from water in a nearby reservoir has been the trigger.

Table 1. Impacts of the Loma Prieta earthquake, California, 1989
Source: USGS, EERI and University of California Transportation Center

Economic	Environmental	Social
direct economic loss US\$5 billion	over 1,000 landslides and rockfalls	10,603 homeless
major structural damage to bridges	slowdown in retail sales activity	65 people killed

10 In Table 1, which impact is incorrectly classified?

- A 65 people killed
- B direct economic loss US\$5 billion
- C major structural damage to bridges
- D over 1,000 landslides and rockfalls
- E slowdown in retail sales activity

11 Which of these is the most effective strategy to reduce future loss of life from earthquakes?

- A broadcasting warning sirens during an earthquake
- B enforcing regulations for earthquake resistant buildings
- C evacuating cities the day before an earthquake
- D forming neighbourhood self-help groups
- E predicting when an earthquake will strike

12 A liveable city can best be described as:

- A a centre of global economic and cultural activity
- B a city that is rebuilding its infrastructure
- C a city that ranks low on the Human Development Index
- D a healthy, attractive and enjoyable place for all people
- E a place that has several world heritage sites

Table 2. World's most liveable cities, 2016, based on liveability index¹ Source: Economist Intelligence Unit (EIU)

2016 rank ²	City	2015 rank
1	Melbourne, Australia	1
2	Vienna, Austria	2
3	Vancouver, Canada	3
4	Toronto, Canada	4
=5	Calgary, Canada	=5
=5	Adelaide, Australia	=5
7	Perth, Australia	8
8	Auckland, New Zealand	9
9	Helsinki, Finland	=10
10	Hamburg, Germany	13
11	Sydney, Australia	7

¹ The liveability index uses 30 factors spread across 5 categories: stability, healthcare, culture & environment, education, and infrastructure.

² 1 = most liveable

13 According to EIU's rankings in Table 2, which of these cities became less liveable between 2015 and 2016?

- A Auckland
- B Hamburg
- C Helsinki
- D Perth
- E Sydney

14 Which generalization about EIU's most liveable cities is accurate? They are all:

- A in densely-populated countries
- B in the northern hemisphere
- C in the southern hemisphere
- D in wealthy countries
- E megacities

15 Which of these reasons for migrating to Australia is most influenced by Australia's liveability?

- A better climate
- B career opportunities
- C English-speaking country
- D family reunion
- E for love

Start at Question 16 if you are in Year 11 or 12. Other students continue answering questions.

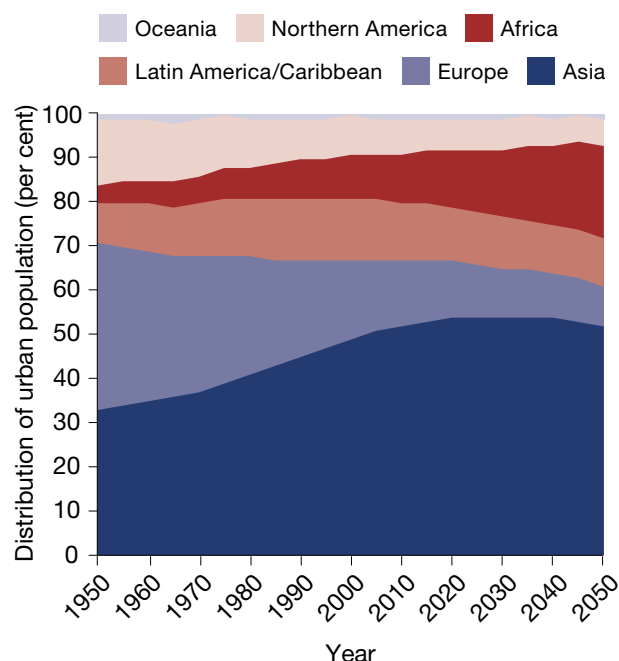


Figure 4. Distribution of urban population, 1950-2050
Source: UN Population Division

16 From Figure 4, which region has the largest share of the world's urban population today?

- A Africa
- B Asia
- C Europe
- D Latin America/Caribbean
- E Northern America

17 From Figure 4, the urban population of which region is expected to grow the fastest in the next 30 years?

- A Africa
- B Asia
- C Europe
- D Latin America/Caribbean
- E Northern America

18 Which of these contributes to the increasing populations of some rural Australian towns?

- A Australians' preference for coastal living
- B mechanisation of farming
- C role as regional service provider
- D small size of overall population
- E all of the above

19 "The spread of an urban area into what used to be countryside" best defines:

- A gentrification
- B internal migration
- C ribbon development
- D settlement
- E urban sprawl

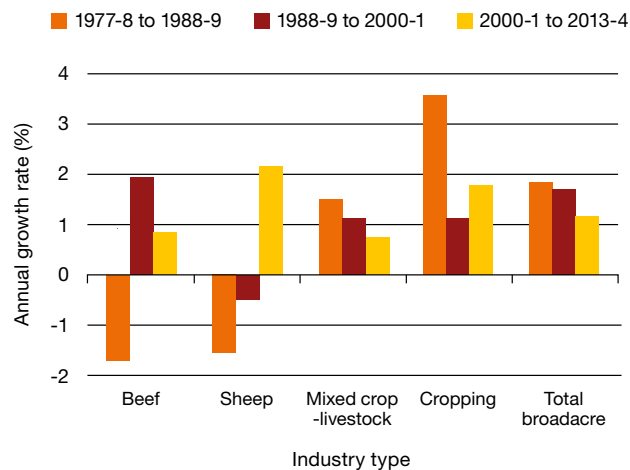


Figure 5. Productivity growth by broadacre industry, 1977-78 to 2013-14 *Source: ABARES*

20 From Figure 5, which of these industries had the greatest productivity growth from 2000-01 to 2013-14?

- A beef
- B cropping
- C mixed crop-livestock
- D sheep
- E total broadacre

21 What is agricultural productivity a measure of?

- A the \$ value of what is produced
- B the amount produced
- C the efficiency of production
- D the quality of the product
- E the raw materials used in production

22 What is one reason why cropping productivity growth has slowed since the period 1977-89?

- A better water management
- B decreasing labour costs
- C improved plant varieties
- D increasing farm size
- E increasing pesticide resistance

Table 3. Value of Australia's agricultural exports, 2015-16, with top 5 destination countries itemised

Source: ABARES

Destination country	\$m
China	8 978
United States	4 628
Japan	4 311
Korea, Rep. of	3 267
Indonesia	3 147
Total all countries	44 632

23 From Table 3, approximately what share of Australia's agricultural exports (by value) go to our five largest markets?

- A 5%
- B 25%
- C 40%
- D 55%
- E 70%

Table 4. Value of Australia's agricultural imports, 2015-16, with top 5 source countries itemised

Source: ABARES

Source country	\$m
United States	1 864
China	1 040
Singapore	972
Italy	718
Thailand	693
Total all countries	17 262

- 24 Which statement is best supported by the evidence in Tables 3 and 4?**
- A Australia has significant two-way trade with Thailand.
 - B Australia imports more agricultural products than it exports.
 - C Most agricultural products are imported to Australia from Europe.
 - D Most Australian agricultural products are exported to North America.
 - E The value of Australia's agricultural exports is higher than of its imports.

- 25 Why is the market for Australian food in China growing?**
- A changes in food preferences
 - B changing lifestyles
 - C rapid urbanization
 - D rising income levels
 - E all of the above

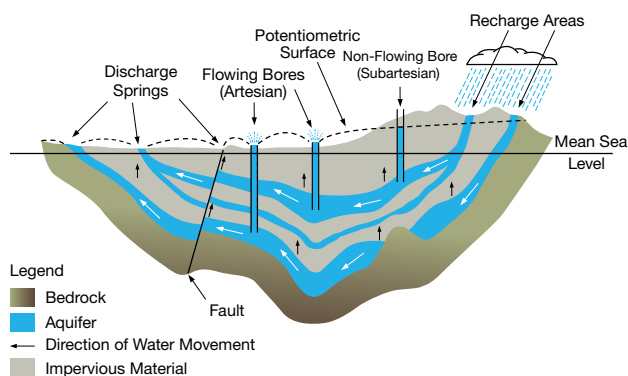


Figure 6. Main features of an artesian basin
© Commonwealth of Australia

- 26 Using Figure 6, the water in artesian basins is classified as:**
- A groundwater
 - B ice
 - C soil moisture
 - D surface water
 - E water vapour
- 27 What is an aquifer (see Figure 6)?**
- A a bluish-green coloured rock
 - B any water that is found below the earth's surface
 - C a lake of high quality water that forms underground
 - D an underground stream that can supply water to bores
 - E a wet layer of geological material that water can flow through

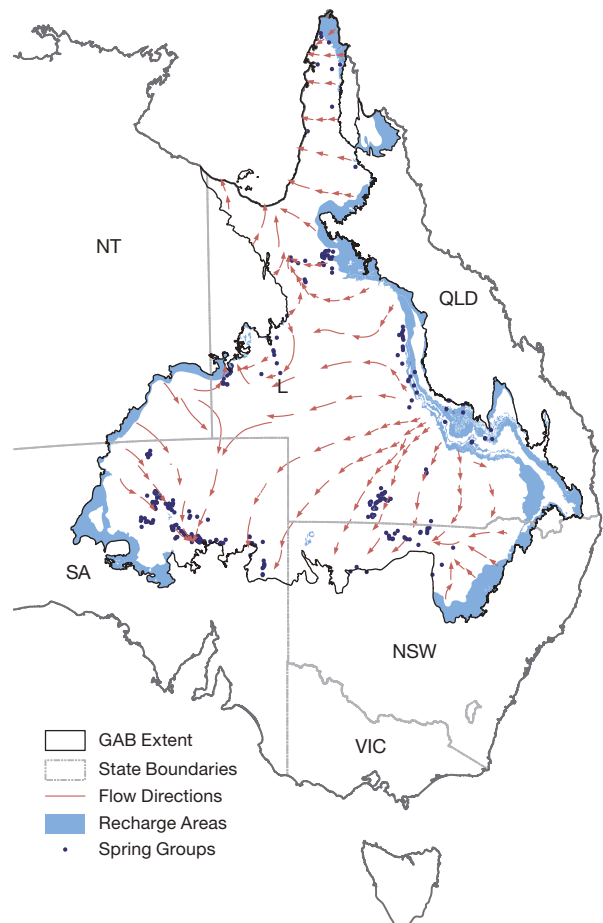


Figure 7. Map of Great Artesian Basin
© Commonwealth of Australia

- 28 From Figure 7, what is the general direction of water flow over most of the Great Artesian Basin?**
- A circular
 - B east to north
 - C north to south
 - D south to north
 - E west to east
- 29 Why is the water of the Great Artesian Basin important to EACH of these groups – traditional owners, early European explorers and all current inhabitants?**
- A It allowed the development of major agricultural industries.
 - B It enabled Aboriginal trade routes through desert areas.
 - C It is the most reliable water source over a large area.
 - D It is woven into the creation stories of Aboriginal people.
 - E It supports unique species in the discharge springs habitats.

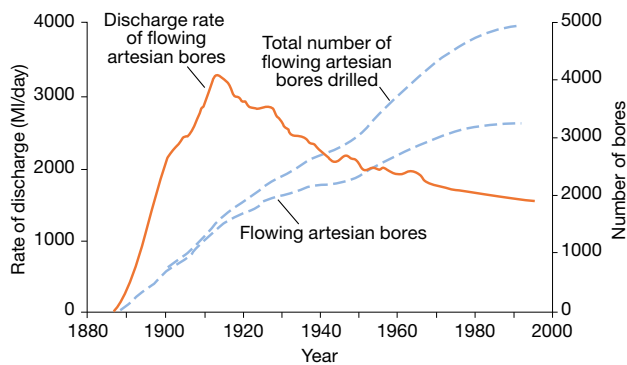


Figure 8. Great Artesian Basin bore discharge and bores drilled
© Commonwealth of Australia

30 From Figure 8, approximately when was the maximum discharge rate of water from flowing artesian bores in the Great Artesian Basin?

- A 1888
- B 1915
- C 1942
- D 1951
- E 1990

Stop at Question 30 if you are in **Year 8 or younger**. Other students continue answering questions.

31 Which statement about the Great Artesian Basin is supported by the evidence in Figure 8?

- A After the discharge rate decreased, no new bores were drilled.
- B Inland Queensland no longer needs water from the Great Artesian Basin.
- C The maximum discharge rate was over 4000 ML per day.
- D Most new bores were drilled in the 1940s.
- E Over 1500 bores no longer have flowing artesian water.

32 Which of these is **NOT** a significant issue arising from the sinking of bores in the Great Artesian Basin?

- A decreased water flows to discharge springs
- B erosion around bores
- C reduction of water quality in rivers
- D spread of feral animals that need access to water
- E weed invasions due to the increased moisture

33 Increasing environmental awareness best relates to the geographic concept of:

- A interconnection
- B place
- C scale
- D space
- E sustainability

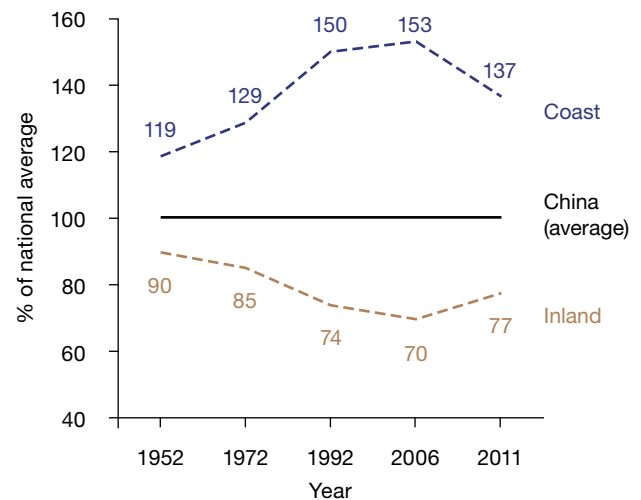


Figure 9. Gross Domestic Product (GDP) per capita gap between coastal and inland provinces in China

Source: CEPII

34 Which of these is the most accurate definition of GDP, as it is applied in Figure 9?

- A the market value of goods and services produced in a province in a year
- B the market value of goods produced in a province in a year
- C the market value of services produced in a province in a year
- D total government receipts and expenditure in a province in a year
- E the value of services produced by governments in a province in a year

35 From Figure 9, between 2006 and 2011 the GDP per capita gap between coastal and inland provinces in China:

- A decreased
- B diverged
- C fluctuated
- D increased
- E remained constant

36 Which of these has contributed most to the changing disparity between coastal and inland provinces in China?

- A China's one-child policy
- B dependence on agriculture
- C government policies on investment priorities
- D less access to education in rural areas
- E reduced rates of construction

37 If the trend from 2006 to 2011 (see Figure 9) has continued, what would be the GDP per capita for the inland provinces in 2017, as a percentage of the national average?

- A approximately 75%
- B approximately 85%
- C approximately 100%
- D approximately 120%
- E approximately 135%

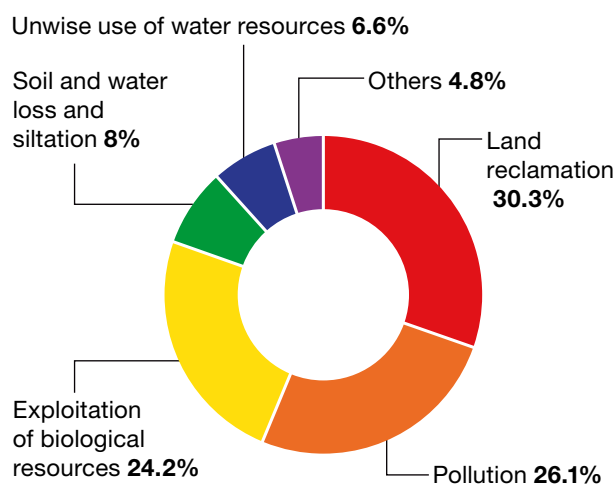


Figure 10. Wetland threats in China Source: CCICED

38 From Figure 10, what is the principal factor degrading wetlands in China?

- A exploitation of biological resources
- B land reclamation
- C pollution
- D soil and water loss and siltation
- E unwise use of water resources

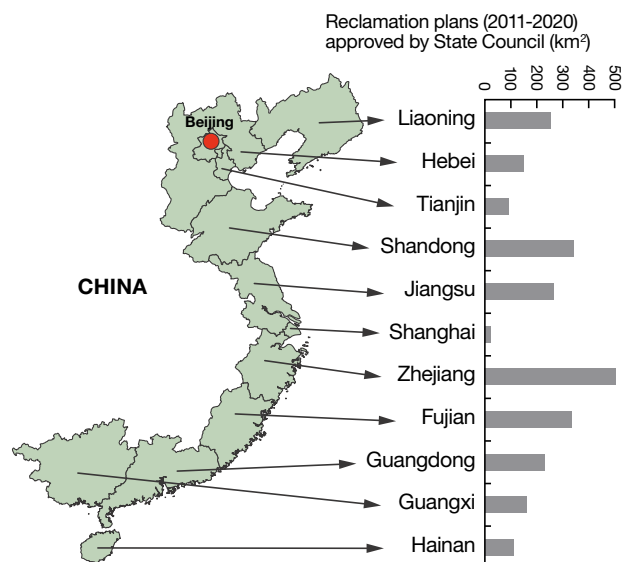


Figure 11. Reclamation plans in China's coastal provinces, 2011-2020 © Society of Wetland Scientists

39 Using Figures 10 and 11, which province is likely to have the greatest decline in wetland environments by 2020?

- A Hainan
- B Liaoning
- C Shandong
- D Shanghai
- E Zhejiang

40 Which of these is a spatial management strategy for wetlands?

- A allocating funds to local landcare groups
- B creating a government portfolio for wetlands
- C declaring nature reserves to protect wetlands
- D a public awareness campaign aimed at residents
- E revegetation of degraded wetlands

Stop at Question 40 if you are in Year 9 or 10. Year 11s and 12s continue answering questions on next page.

To answer Questions 41-50, use Figures 12-16, Table 5 and your own knowledge.

- Ebola virus disease is a severe, often fatal illness in humans.
- The virus is transmitted to people from wild animals and spreads in the human population through human-to-human transmission.
- The first outbreaks, from 1976, occurred in remote villages in Central Africa, but the 2014-15 outbreak in West Africa has involved major urban as well as rural areas.

Figure 12. Key facts on Ebola

Source: World Health Organization (WHO)



Figure 13. West African countries with Ebola cases in the 2014-15 outbreak Base map © FreeVectorMaps.com

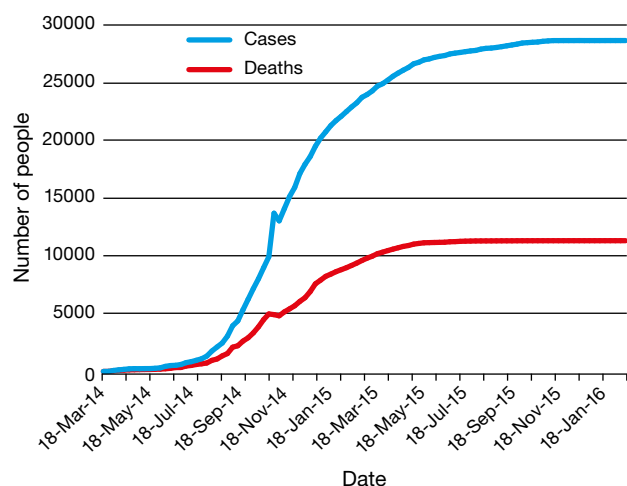


Figure 14. Cumulative cases and deaths, Ebola outbreak to 18 February 2016

Source: WHO

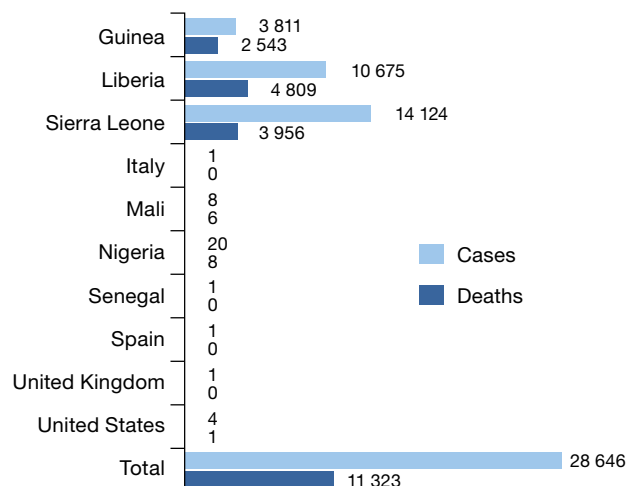


Figure 15. Cases and deaths by country, Ebola outbreak to 27 March 2016

Source: WHO

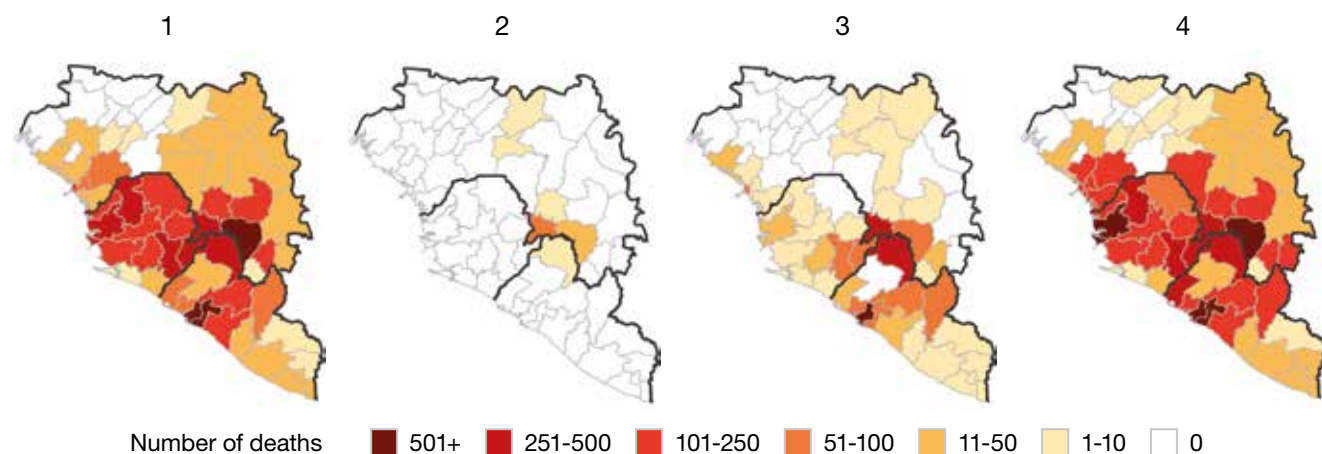


Figure 16. Time series of cumulative Ebola deaths in the districts of Guinea, Liberia, and Sierra Leone, 2014-15

Source: WHO and Humanitarian Data Exchange

Table 5. Statistical data on selected countries affected by the 2014-15 Ebola outbreak, last available year

Source: WHO

	Guinea	Liberia	Mali	Nigeria	Sierra Leone
Population (million)	12.61	4.50	17.60	182.20	6.45
Gross National Income per capita (PPP ¹ \$)	1 160	790	1 540	5 360	1 750
Government health expenditure per capita (PPP ¹ \$)	33	31	25	55	38
Physicians per 100,000 people	10.0	1.4	8.3	40.8	2.2
Population using improved sanitation (%)	20	17	25	29	13

¹ Purchasing Power Parity (PPP) is used to make comparisons across different currencies

41 Which is the most accurate definition of an epidemic?

- A a disease that affects large numbers of people across the world
- B a disease that occurs only in a specific area or country
- C a lifestyle disease that occurs in wealthy countries
- D the study of infectious diseases that affect people
- E a sudden increase in the number of cases of a disease in an area

42 In the graph in Figure 14, the anomaly that occurred in October 2014 is most likely a result of:

- A additional humanitarian medical response
- B the geographic location of the pathogen changing
- C inaccurate reporting that was later adjusted
- D an increase in new cases and subsequent decrease
- E new cases being diagnosed and reported in Nigeria

43 Which is a correct observation of the Ebola outbreak as at January 2016?

- A The aggregate number of deaths had decreased.
- B The number of deaths had surpassed the reported cases.
- C The number of new cases and deaths was continuing to increase.
- D The outbreak had been contained and new cases were rare.
- E There were over 28,000 new cases in January 2016.

44 Which sequence of the maps in Figure 16 best demonstrates the geographic spread of the disease in the three most affected countries?

- A 2 1 3 4
- B 2 1 4 3
- C 2 3 1 4
- D 2 3 4 1
- E 3 2 1 4

45 Looking at the changes from Map 2 to Map 1 in Figure 16, which statement about the Ebola outbreak is correct?

- A Guinea was the worst affected country.
- B It spread through all the districts in Guinea.
- C It spread to Guinea from Sierra Leone.
- D It started in coastal areas and spread inland.
- E It started in Guinea and spread to Liberia.

46 Which calculation gives Guinea's fatality rate from Ebola during this outbreak?

- A $2,543 \div 3,811$
- B $2,543 \div 12,610,000$
- C $3,811 \div 2,543$
- D $3,811 \div 12,610,000$
- E $12,610,000 \div 2,543$

47 Which of these countries is likely to have had the best systems in place to respond to Ebola?

- A Guinea
- B Liberia
- C Mali
- D Nigeria
- E Sierra Leone

48 One factor that made the 2014-15 Ebola outbreak significantly worse than previous ones, was that:

- A it affected countries with very weak health systems
- B it affected the most populous countries in Africa
- C it was confined to rural areas without health services
- D it was ignored by the World Health Organization
- E no vaccine was available

“The economy has been deflated by 30% because of Ebola,” Sierra Leone’s Agriculture Minister Joseph Sam Sesay told the BBC.

Figure 17. Quote from Minister Sesay, 21 August 2014
Source: BBC

49 Which of these impacts would NOT have contributed to the deflation of Sierra Leone’s economy (Figure 17)?

- A additional expenditure on health workers
- B hotels empty as tourism adversely affected
- C mining operations reduced as expatriate staff left the country
- D quarantine prevented the movement of goods and labourers
- E some farms abandoned as people fled to non-infected areas.

50 A geographer researching the spatial distribution of Ebola hypothesises that there is a link between poverty and the prevalence of the disease. Which of these strategies would best enable the geographer to explore the hypothesis?

- A interviewing doctors and nurses who have treated Ebola cases
- B interviewing Ebola patients and family members
- C mapping Ebola cases
- D using an Excel spreadsheet to list cases of Ebola and GDP per capita
- E using GIS to correlate Ebola incidences with socio-economic data

Thank you for taking part in the 2017
Australian Geography Competition.