

# Question Booklet

## 2005 National Geographic Channel

### Australian Geography Competition

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

- 1 Fill in your **name**, **school code** (your teacher will give you this), school's **post code**, your **gender** and **age**. You must fill in the ovals, not just write the letters and numbers, as the computer only reads the ovals. For example, a filled-in post code (for some other school) would look like the sample on the right.
- 2 If you are 13 years or under on 31 August 2005 complete Questions 1-30, or continue to Question 40 to be eligible for major prizes.
- 3 If you are 14 or 15 years old on 31 August 2005 complete Questions 1-40.
- 4 If you are 16 years or over on 31 August 2005 complete Questions 16-50.
- 5 Answer all questions by filling in **only one** oval on the answer sheet corresponding to the most appropriate answer for each question.
- 6 You have 30 minutes to answer the questions. The time to fill in the preliminary information is extra.
- 7 Do not mark the front or back of the answer sheet in any other way as this can lead to errors in the computerized marking, or to your not getting a result.

POST CODE

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0	0	0	0
1	1	1	1
2	2	2	2
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8	8	8	8
9	9	9	9



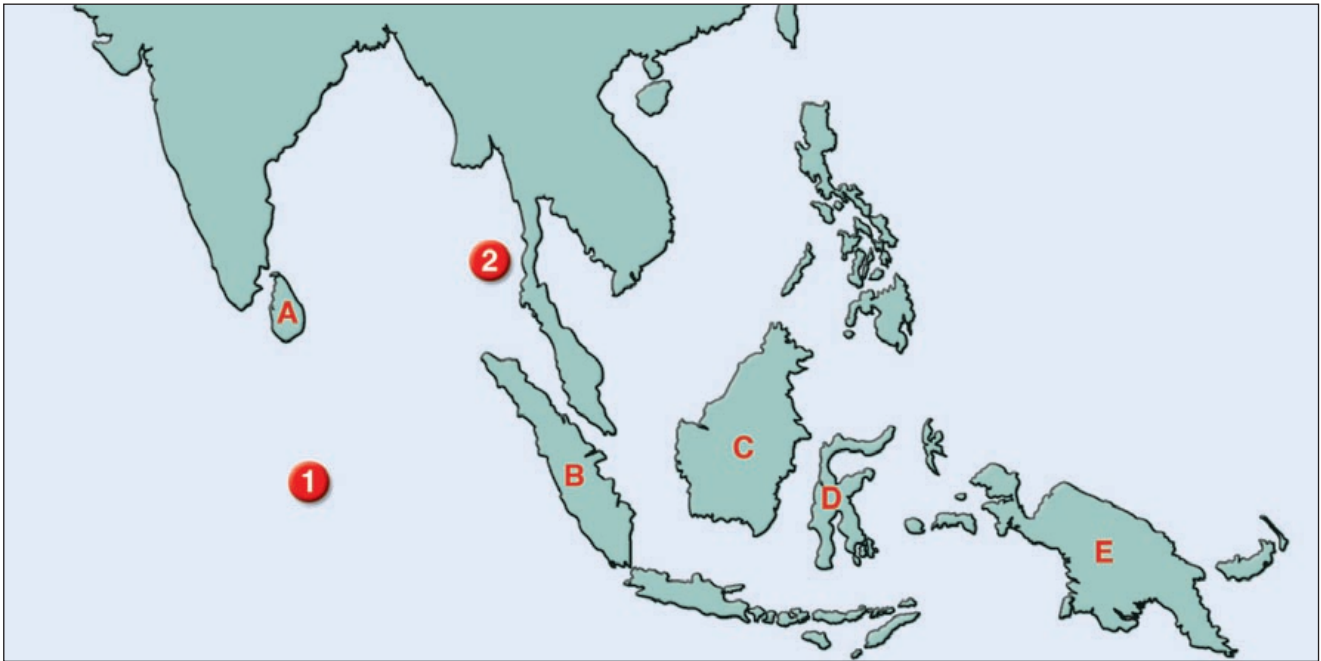
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**Figure 1.**

Start at Question 1 if you are **under 16 years** old on 31 August 2005.  
Start at Question 16 if you are older.

**1 What caused the devastating tsunami on 26 December 2004?**

- A avalanche
- B earthquake
- C global warming
- D meteor impact
- E volcanic eruption

**2 In Figure 1, which body of water is situated at Location 1?**

- A Arctic Ocean
- B Atlantic Ocean
- C Indian Ocean
- D Pacific Ocean
- E Southern Ocean

**3 Which island in Figure 1 is the Indonesian island of Sumatra?**

- A Island A
- B Island B
- C Island C
- D Island D
- E Island E

**4 What is the main religion in Sumatra?**

- A Buddhism
- B Christianity
- C Hinduism
- D Islam
- E Judaism

**5 In Figure 1, which separatist movement is active on Island A?**

- A Free Aceh Movement
- B Free Papua Movement
- C Palestine Liberation Organization
- D Patriotic Union of Kurdistan
- E Tamil Tigers

**6 In Figure 1, which body of water is situated at Location 2?**

- A Andaman Sea
- B Coral Sea
- C Java Sea
- D Red Sea
- E Timor Sea

**7 Which of these is an adaptation of some desert plants to their harsh environment?**

- A aerial roots
- B buttress roots
- C elongated leaf tips
- D flowering twice a year
- E thorns instead of leaves

**Table 1.** Life expectancy (years) for world and selected regions

Source: GeoData, UNEP

Region	1970-75	1975-80	1980-85	1985-90	1990-95	1995-00	2000-05
World	56.8	58.3	59.7	61.4	62.1	62.7	63.4
Australasia	71.7	73.3	74.9	75.8	77.3	78.5	79.0
Northern Africa	51.3	54.0	56.7	60.3	62.6	64.5	66.1
Southeast Asia	52.2	55.1	58.1	61.2	63.3	65.2	66.7
Southern Africa	47.4	49.7	51.0	51.7	50.2	45.5	40.6
Western Europe	72.0	73.3	74.5	75.6	76.8	77.7	78.6

**8 In Table 1, the people of which region had the highest life expectancy in 1980-85?**

- A Australasia
- B northern Africa
- C southeast Asia
- D southern Africa
- E western Europe

**9 To what does the United Nations attribute the fall in southern Africa's life expectancy?**

- A AIDS
- B falling birth rate
- C famine
- D improved statistics
- E war

**Table 2.** Projection of world's most populous countries in 2050 Source: Population Reference Bureau

Rank	Country	Population (millions)
1	???	1628
2	China	1437
3	USA	420
4	Indonesia	308
5	Nigeria	307

**10 Which country name is missing from Rank 1 in Table 2?**

- A Bangladesh
- B Brazil
- C India
- D Pakistan
- E Russia

**11 Which state has the smallest population?**

- A New South Wales
- B Queensland
- C South Australia
- D Tasmania
- E Victoria

**12 In which of these countries is corn a staple food?**

- A Canada
- B Ireland
- C Japan
- D Mexico
- E New Zealand

**13 Which of these Australian settlements is at the greatest height above sea level?**

- A Burnie
- B Cooma
- C Katherine
- D Mildura
- E Townsville

**14 Which of these is a famous fjord in the southern hemisphere?**

- A Bay of Plenty
- B Cook Strait
- C The Coorong
- D Cradle Lake
- E Milford Sound

**15 The map in Figure 2 (next page) shows a portion of which state or territory?**

- A Australian Capital Territory
- B New South Wales
- C Queensland
- D Victoria
- E Western Australia



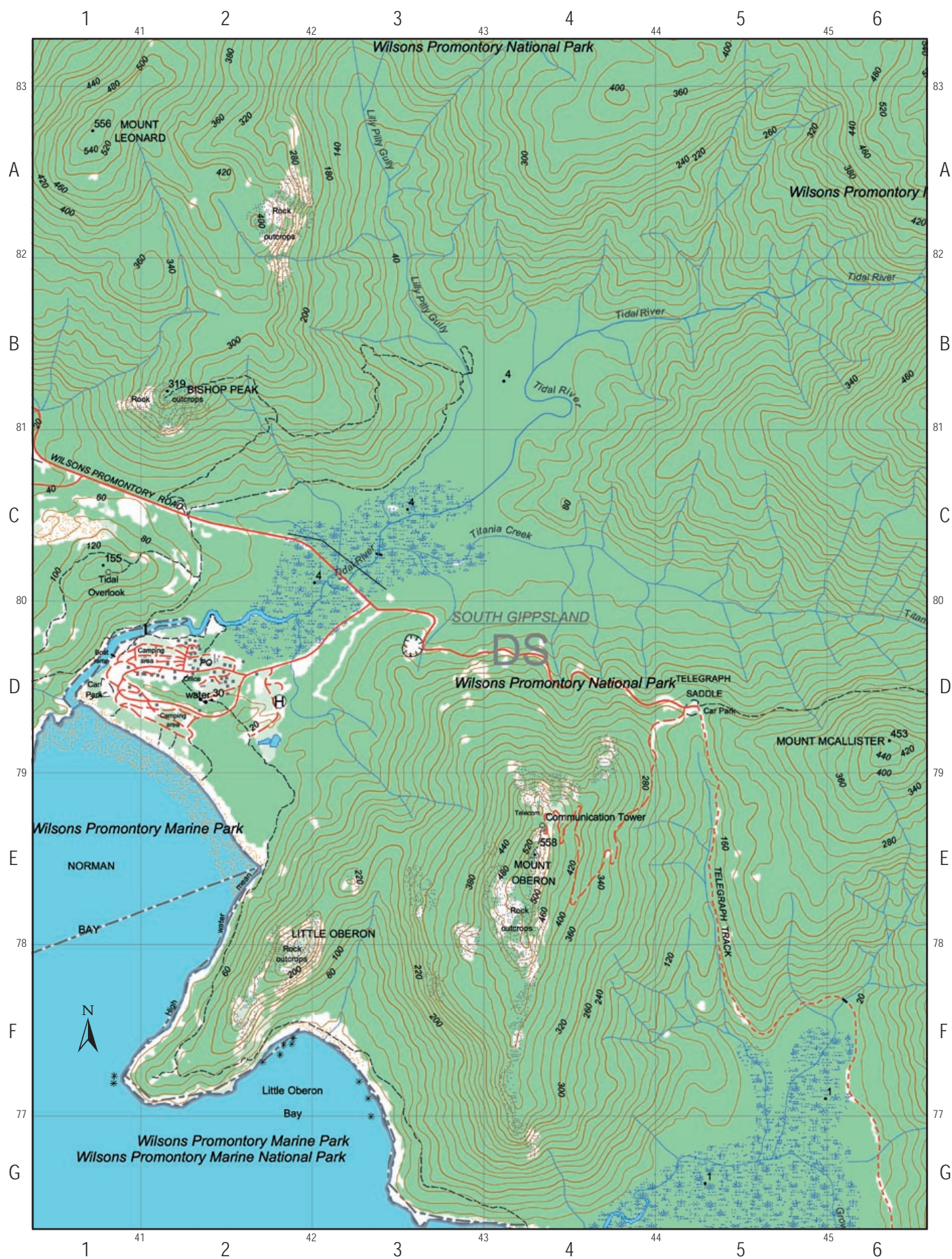
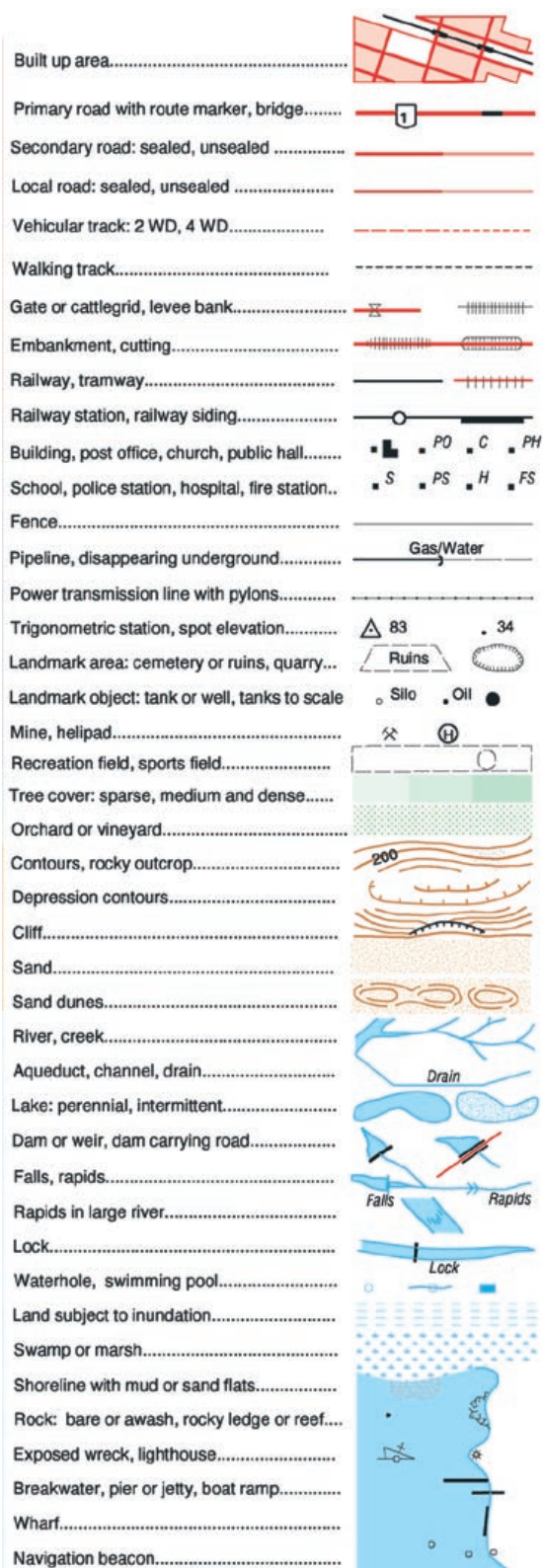


Figure 2. Topographic map



## Legend



0 250 500 750 1,000  
Metres

20 metre contour interval

Start at Question 16 if you are **16 years** old or over on 31 August 2005. If you are younger, continue answering questions.

- 16 Using Figure 2, in which general direction does the lower section of Tidal River flow?**
- A E  
B NE  
C NW  
D SE  
E SW
- 17 Using Figure 2, what is the approximate distance between the peaks of Mount Oberon (E4) and Bishop Peak (B2)?**
- A 2.4 km  
B 2.7 km  
C 3.4 km  
D 3.7 km  
E 4.4 km
- 18 Which of these landforms is located at F2 in Figure 2?**
- A bar  
B cape  
C spit  
D tombola  
E tor
- 19 Using Figure 2, what is the approximate height of the carpark at Telegraph Saddle (D5)?**
- A 170 - 180 m  
B 180 - 200 m  
C 200 - 230 m  
D 300 - 350 m  
E 360 - 380 m
- 20 What is located at Grid Reference 418794 in Figure 2?**
- A beach  
B carpark  
C helipad  
D hospital  
E post office

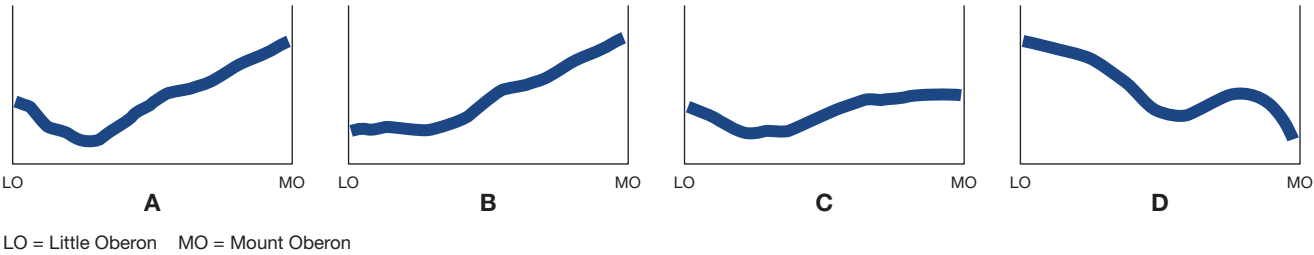


Figure 3.

- 21 Which sketch diagram in Figure 3 approximates the cross section from Little Oberon (E2) to Mount Oberon (E4) in Figure 2?
- A diagram A
  - B diagram B
  - C diagram C
  - D diagram D
  - E none of the above

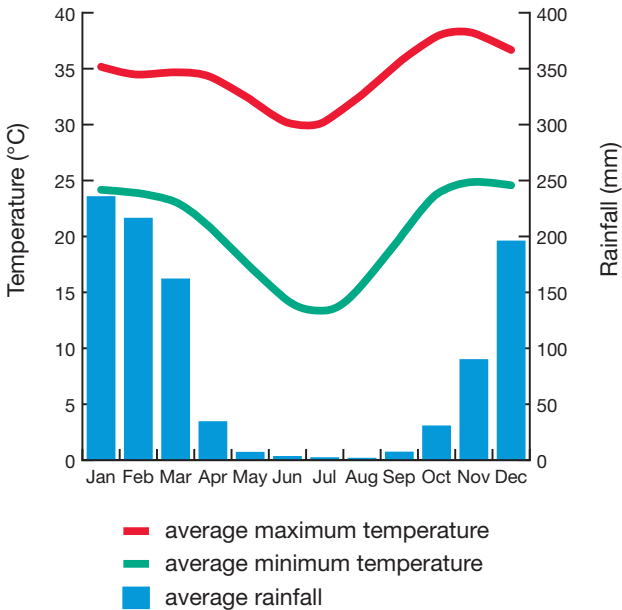


Figure 4. Climate graph, Jawoyn country  
Source: Bureau of Meteorology

- 22 Using Figure 4, what is the average December rainfall in Jawoyn country?
- A 19 mm
  - B 195 mm
  - C 234 mm
  - D 244 mm
  - E 365 mm
- 23 Using Figure 4 and Table 3, in which Jawoyn season does July fall?
- A Bungarung
  - B Jiorrk
  - C Malaparr
  - D Wakaringding
  - E Worrwopmi
- 24 Given the information in Figure 4, where is the traditional country of the Jawoyn?
- A central Victoria
  - B eastern New South Wales
  - C northern Northern Territory
  - D southern Western Australia
  - E western South Australia
- 25 What do Tokyo, São Paulo, Mexico City and Mumbai have in common?
- A Their urban agglomerations have over 15 million people.
  - B They are coastal cities.
  - C They are located in developing countries.
  - D They were designed and built as capital cities.
  - E all of the above

Table 3. Jawoyn seasons

Source: Bureau of Meteorology

Worrwopmi	Wakaringding	Jiorrk	Bungarung	Jungalk	Malaparr
Early build-up; hot and sticky	The build-up; first rains	Main part of wet rains	Last rains; drying out	Early hot dry	Middle dry; cooler; burning time

Permission to use the Jawoyn seasonal calendar was given by the Jawoyn Association on behalf of its traditional owners.

**26 Which is the odd one out?**

- A barrio
- B favela
- C hamlet
- D shanty town
- E squatter settlement

**27 Which state is Australia's largest producer of black coal?**

- A Queensland
- B South Australia
- C Tasmania
- D Victoria
- E Western Australia



**Figure 5.** © National Geographic Channels International, Jeff Hutchens

**28 What is the final process that results in the surface shown in Figure 5?**

- A condensation
- B evaporation
- C perspiration
- D precipitation
- E transpiration

**29 What is magma?**

- A geyser water
- B molten rock
- C solidified lava
- D volcanic ash
- E weathered pumice

**30 Which of these cloud types is found only at high altitudes?**

- A altostratus
- B cirrus
- C cumulonimbus
- D cumulus
- E stratus

If you are **under 14 years** old on 31 August 2005 you may stop at Question 30 or continue to Question 40 to be eligible for major prizes.

**31 The Tidbinbilla Deep Space Tracking Station, important to many space exploration programmes, is near which city?**

- A Albany
- B Canberra
- C Launceston
- D Sydney
- E Woomera



**Figure 6.** Lake Eyre

**32 Which three rivers/creeks are sketched in Figure 6?**

- A Burdekin, Fitzroy, Leichhardt
- B Cooper, Macumba, Warburton
- C Daly, Roper, Victoria
- D Gascoyne, Murchison, Ord
- E La Trobe, Ovens, Snowy

**33 Which strategy does this year's International Year of Microcredit highlight?**

- A giving money to poor people for necessities such as food and health care
- B lending money to poor people for small-scale enterprises that build self-sufficiency
- C loans from the World Bank to rich countries for them to give to small countries
- D low interest loans to poor countries to help them repay debt
- E money lent to poor countries for them to establish industries that will create jobs

**34 Purnululu, with its banded beehive structures and sandstone towers, was World Heritage listed in 2003. By what other name is it known?**

- A Bungle Bungles
- B Fraser Island
- C Kakadu
- D Tasmanian Wilderness
- E Willandra Lakes

**35 In October 2004 the Australian Government announced it would look at off-shore sites for nuclear waste storage. Which answer option does NOT match a site with a potential problem?**

- A Ashmore Reef – small, low-lying area near hazardous reefs
- B Christmas Island – close to well-populated parts of Indonesia
- C Cocos Islands – close to geologically unstable parts of New Zealand
- D Macquarie Island – has existing high-level environmental protection
- E Norfolk Island – has permanent population and tourism

**36 What does the ozone layer do?**

- A absorbs ultraviolet radiation
- B destroys chlorofluorocarbons
- C prevents global warming
- D reduces greenhouse gases
- E reflects carbon dioxide



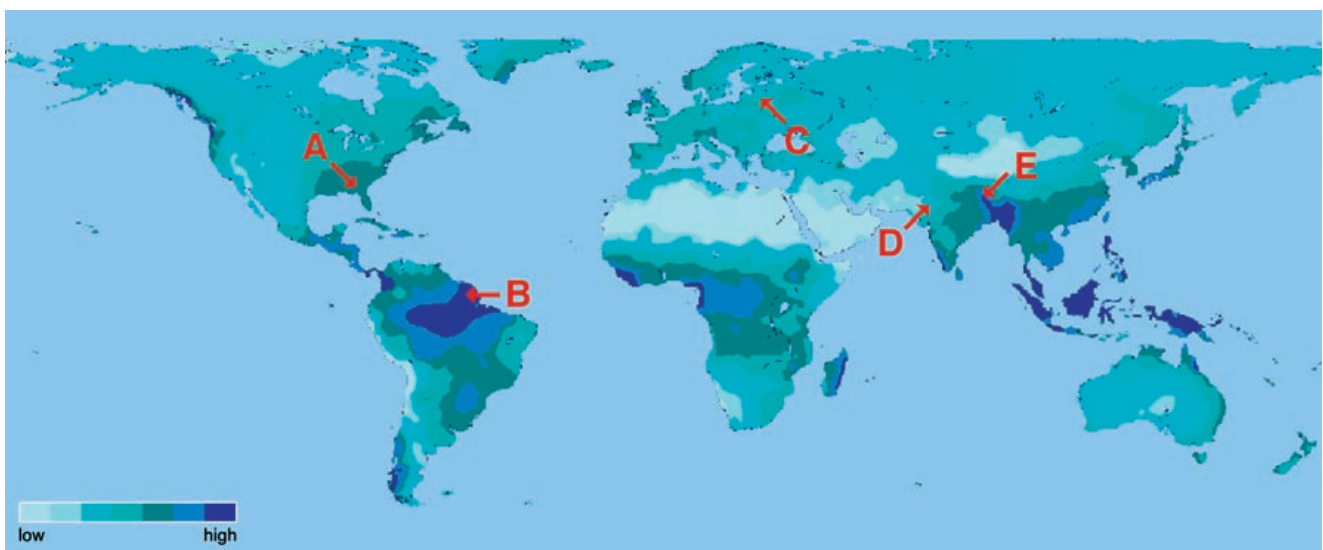
**Figure 7.** World map, Mercator projection

**37 Which of these is drawn in Figure 7 most like its true shape and relative size?**

- A Antarctica
- B Brazil
- C Canada
- D Greenland
- E Russia

**38 The water use in Figure 9 is typical of which location in Figure 8?**

- A Location A
- B Location B
- C Location C
- D Location D
- E Location E



**Figure 8.** World average precipitation

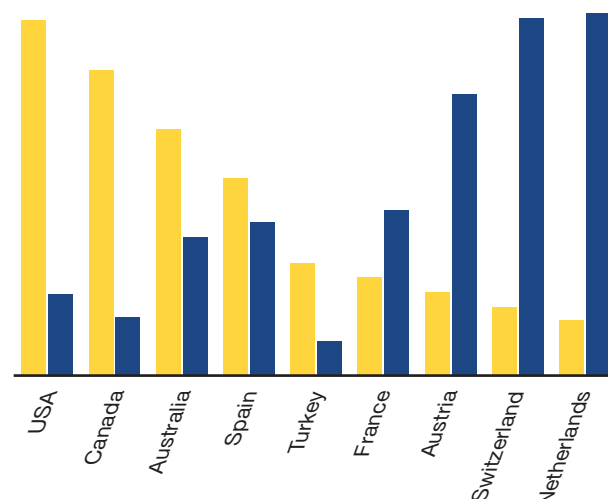
Source: GeoData, UNEP



**Table 4.** National statistical averages for water resources in selected countries

Source: OECD

	Precipitation <sup>1</sup> (billion m <sup>3</sup> )	Available water <sup>1</sup> (billion m <sup>3</sup> )	Water used <sup>2</sup> (billion m <sup>3</sup> )	Water used per capita <sup>2</sup> (m <sup>3</sup> )	Price of water in major city <sup>3</sup> (US\$/m <sup>3</sup> )	GDP per capita <sup>4</sup> (US\$)
Australia	3252	352	24	1300	0.73	26400
Austria	98	84	4	440	1.48	31500
Canada	4930	2792	47	1610	0.31	27100
France	475	191	30	520	0.87	28600
Netherlands	30	91	4	290	1.91	31600
Spain	346	111	41	1040	0.81	20600
Switzerland	60	53	3	360	1.88	43500
Turkey	501	234	39	590	0.18	3400
USA	6440	2478	492	1870	0.43	37600

<sup>1</sup> Estimates of renewable freshwater resources: long term annual averages<sup>2</sup> Annual freshwater abstraction, c.1999<sup>3</sup> c.1999; assume price is representative of country<sup>4</sup> 2003**Figure 9.** © National Geographic Society, James Stanfield**Figure 10.** Two factors from Table 4

**39** From the countries in Table 4, rank in descending order the four countries which have the highest water use per capita.

- A Canada, USA, Australia, Turkey
- B Spain, Australia, Canada, USA
- C Turkey, Spain, Canada, USA
- D USA, Canada, Australia, Spain
- E USA, Canada, Spain, Turkey

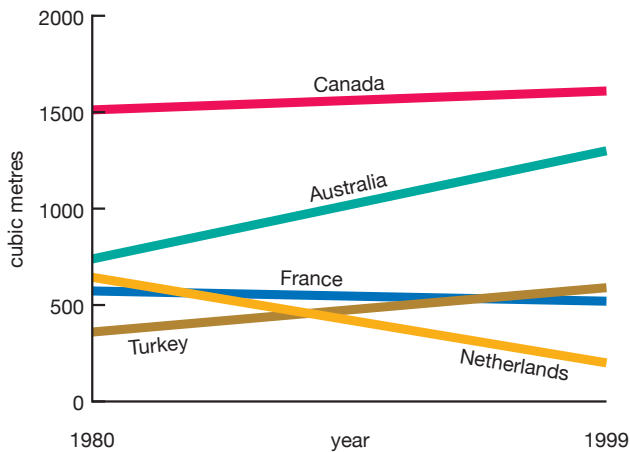
**40** In the graph in Figure 10, which factors from Table 4 are represented by firstly the yellow bars, and secondly the blue bars?

- A GDP; Water used per capita
- B Precipitation; Water used
- C Price of water; Precipitation
- D Water used; GDP
- E Water used per capita; Price of water

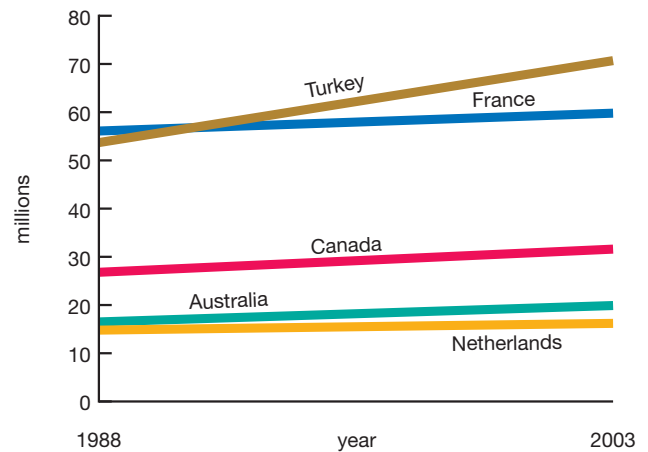
Relationships often exist between statistical variables. For example, as the values of one variable go up, those of another may also go up. This is known as a **positive correlation**. If one variable goes down as another one goes down, this is also known as a positive correlation. On the other hand, if one variable goes up where another comes down, this is known as a **negative correlation**. If a particular value of a variable does not conform to a general pattern, this is called an **anomaly**.

**Figure 11.** Statistical relationships

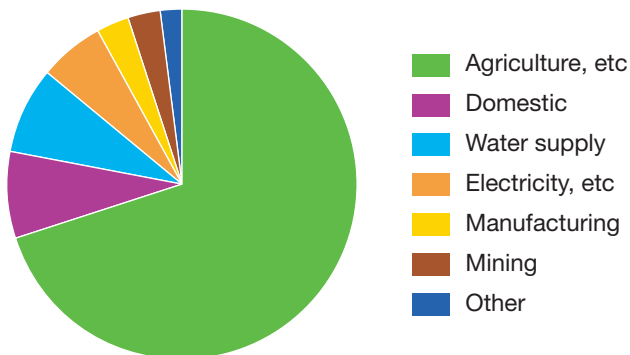
If you are **under 16 years** old on 31 August 2005 stop at Question 40. If you are older, continue to end.



**Figure 12.** Annual water use per capita Source: OECD



**Figure 13.** Population Source: OECD



**Figure 14.** Australia's water budget Source: ABS

**For Questions 41 to 45, refer to Figures 8 to 14, Table 4 and your own knowledge.**

**41 Which of these generalisations about the price of water is most accurate?**

- A It has a negative correlation with GDP.
- B It has a negative correlation with water use per capita.
- C It has a positive correlation with GDP.
- D It has a positive correlation with precipitation.
- E It has a positive correlation with water use per capita.

**42 Which of Turkey's characteristics is most likely to explain why Turkey's low price for water is an anomaly in the pattern identified in Question 41?**

- A low GDP
- B low per capita water use
- C low percentage of its water resources used
- D low population
- E low precipitation

**43 Compared with Canada, why is the amount of water available in Australia such a low proportion of its precipitation?**

- A Australia has a higher rate of evapo-transpiration.
- B Australia has a larger population.
- C Australia has higher water inflow from other countries.
- D Australia has lower precipitation.
- E Australia occupies a smaller area.

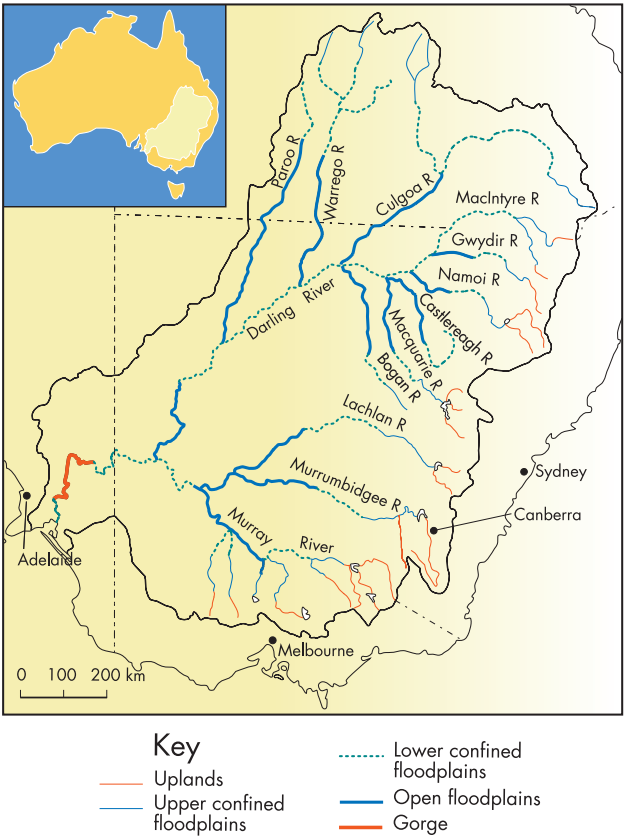
**44 From the trends shown in the graphs and the data in the table, which of these countries' water use will first become unsustainable?**

- A Australia
- B Canada
- C France
- D Netherlands
- E Turkey

**45 Which of these strategies would be most effective in reducing Australia's overall per capita water use?**

- A apply improved irrigation methods
- B build a national water grid
- C divert coastal rivers inland
- D install rainwater tanks in houses
- E seed clouds to make rain





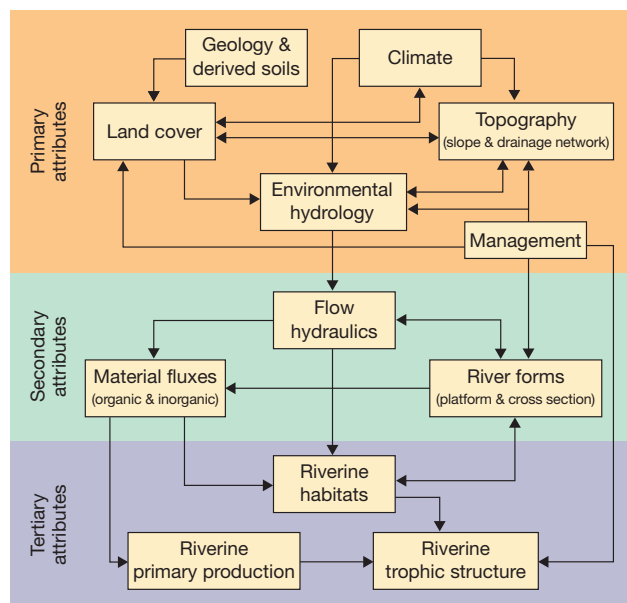
**Figure 15.** River section types in the Murray-Darling Basin  
Source: Murray Darling Basin Commission

For Questions 46 to 50, refer to Figures 15 to 17, Table 5 and your own knowledge.

- 46 The Darling River, just before it meets the Murray, could undergo which type of channel change in a timeframe of only a few years?
- A become deeper  
B become narrower  
C become shallower  
D become straighter  
E become wider
- 47 Which of these rivers does NOT follow the pattern of river section types characteristic of the Murray-Darling system in eastern NSW?
- A Castlereagh  
B Lachlan  
C Macquarie  
D Murrumbidgee  
E Namoi
- 48 Why is the Bogan River also an exception to the pattern identified in Question 47?
- A It flows south.  
B It starts east of the Great Divide.  
C Its flow is interrupted by dams.  
D Its source is on flatter land.  
E all of the above

**Table 5.** Time scales of river channel change in response to different natural or human-induced changes in flow and sediment regime  
Source: Murray Darling Basin Commission

	Upland River Sections			Lowland River Sections		
	Years	Decades	Centuries	Years	Decades	Centuries
Wider	X				X	
Narrower			X			X
Deeper	X				X	
Shallower	X			X		
Straighter		X				X
More sinuous		X				X
Steeper		X				X
Flatter		X				X



**Figure 16.** Linkages between key attributes of a river system  
Source: Murray Darling Basin Commission



**Figure 17.** © National Geographic Society, Chris Johns

**49 River system managers are able to influence river system attributes through which of these sequences?**

- A manager → climate → land cover → topography
- B manager → hydraulics → habitats → fluxes
- C manager → land cover → hydrology → hydraulics
- D manager → river forms → habitats → hydraulics
- E manager → topography → climate → hydrology

**50 The landscape in Figure 17 is typical of which river section type?**

- A cross
- B floodplain
- C gorge
- D platform
- E upland