

Question Booklet

2007 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. Also fill in an oval in the school assigned column if instructed to do so by your teacher. Otherwise leave it blank.
- 2 If you are 13 years or under on 31 August 2007 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 2007 complete Questions 1-40.
- 4 If you are 16 years or over on 31 August 2007 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.

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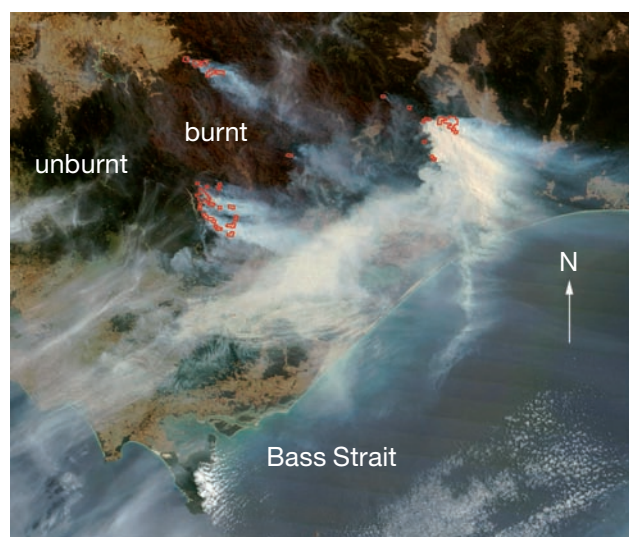


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 Actively burning fires

Figure 1. Satellite image, 10 January 2007

Source: NASA

Start at Question 1 if you are **under 16 years** old on 31 August 2007.
Start at Question 16 if you are older.

- 1 The satellite image in Figure 1 shows a portion of which state or territory?
 - A New South Wales
 - B Northern Territory
 - C South Australia
 - D Tasmania
 - E Victoria
- 2 From which direction was the wind blowing when the image in Figure 1 was taken?
 - A north
 - B northeast
 - C northwest
 - D southeast
 - E southwest
- 3 In Table 1, fires from which cause burnt the smallest amount of the state?
 - A agricultural
 - B campfire
 - C cigarettes/matches
 - D lightning
 - E public utilities

Table 1. Causes of bushfires in an Australian state

Source: DSE

Fire cause	Average no. of fires each year	Average area burnt (ha/yr)
Lightning	149	53 096
Deliberate	145	15 649
Agricultural	96	7 799
Campfires	59	1 466
Cigarettes/matches	41	444
Cause unknown	37	2 974
Miscellaneous	26	10 009
Machinery/exhausts	15	2 551
Prescribed burn escapes	9	5 274
Public utilities	7	16 256
Total	584	115 518

- 4 Which statement about bushfires is supported by the information in Table 1?
 - A Deliberately-lit fires account for the majority of the area burnt.
 - B Investigators found the cause for all bushfires.
 - C The majority of the bushfires were a result of lightning strikes.
 - D Most bushfires were due to a wide range of human activities.
 - E A significant proportion of bushfires were the result of prescribed burns.
- 5 Which of these is NOT a contributing factor to Australia's bushfire risk?
 - A the encroachment of urban areas into surrounding bushland
 - B the generally hot, dry and drought-prone nature of the climate
 - C the high humidity levels in many areas during the dry season
 - D the high oil content of eucalypt trees
 - E the reduction of controlled burning
- 6 Which is the most populous city in the Murray-Darling catchment?
 - A Brisbane
 - B Canberra
 - C Melbourne
 - D Perth
 - E Sydney

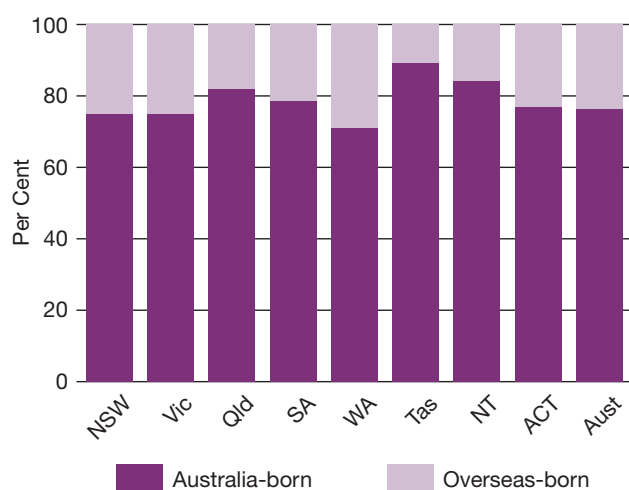


Figure 2. Composition of state populations by birthplace, 2001 Census

Source: Australian Bureau of Statistics

- 7** From Figure 2, which state has the highest proportion of its population born overseas?
- New South Wales
 - Queensland
 - Tasmania
 - Victoria
 - Western Australia
- 8** Around 60 million Hindus bathed at the junction of which rivers during the Ardh Kumbh festival this year?
- Amazon and Jurua
 - Ganges and Yamuna
 - Mississippi and Ohio
 - Volga and Kama
 - Yangtze and Wu
- 9** Which nation reached a population of 300 million in late 2006?
- Australia
 - Canada
 - China
 - India
 - USA
- 10** The traditional country of Torres Strait Islanders includes the islands of:
- Bathurst, Melville, Croker
 - Flinders, King, Cape Barren
 - Fraser, Moreton, Bribie
 - Rottneest, Barrow, Monte Bello
 - Thursday, Murray, Badu
- 11** Using Table 2, approximately what percentage of the world's population currently lives in less developed regions?
- 20%
 - 50%
 - 70%
 - 80%
 - 90%
- 12** From Table 2, which region is expected to have the highest rate of population growth between 1950 and 2050?
- Africa
 - Asia
 - Europe
 - Latin America/Caribbean
 - North America

Table 2. Population of the major regions of the world, 1950, 2006 and 2050

Source: Population Reference Bureau

Region	Number in millions			Percent		
	1950	2006	2050	1950	2006	2050
World	2 521	6 555	9 243	100.0	100.0	100.0
More developed regions	813	1 216	1 261	32.2	18.6	13.6
Less developed regions	1 709	5 339	7 982	67.8	81.4	86.4
Africa	221	924	1 994	8.8	14.1	21.6
Asia	1 402	3 968	5 277	55.6	60.5	57.1
Europe	547	732	665	21.7	11.2	7.2
Latin America/Caribbean	167	566	797	6.6	8.6	8.6
Northern America	172	332	462	6.8	5.1	5.0
Oceania	13	34	48	0.5	0.5	0.5

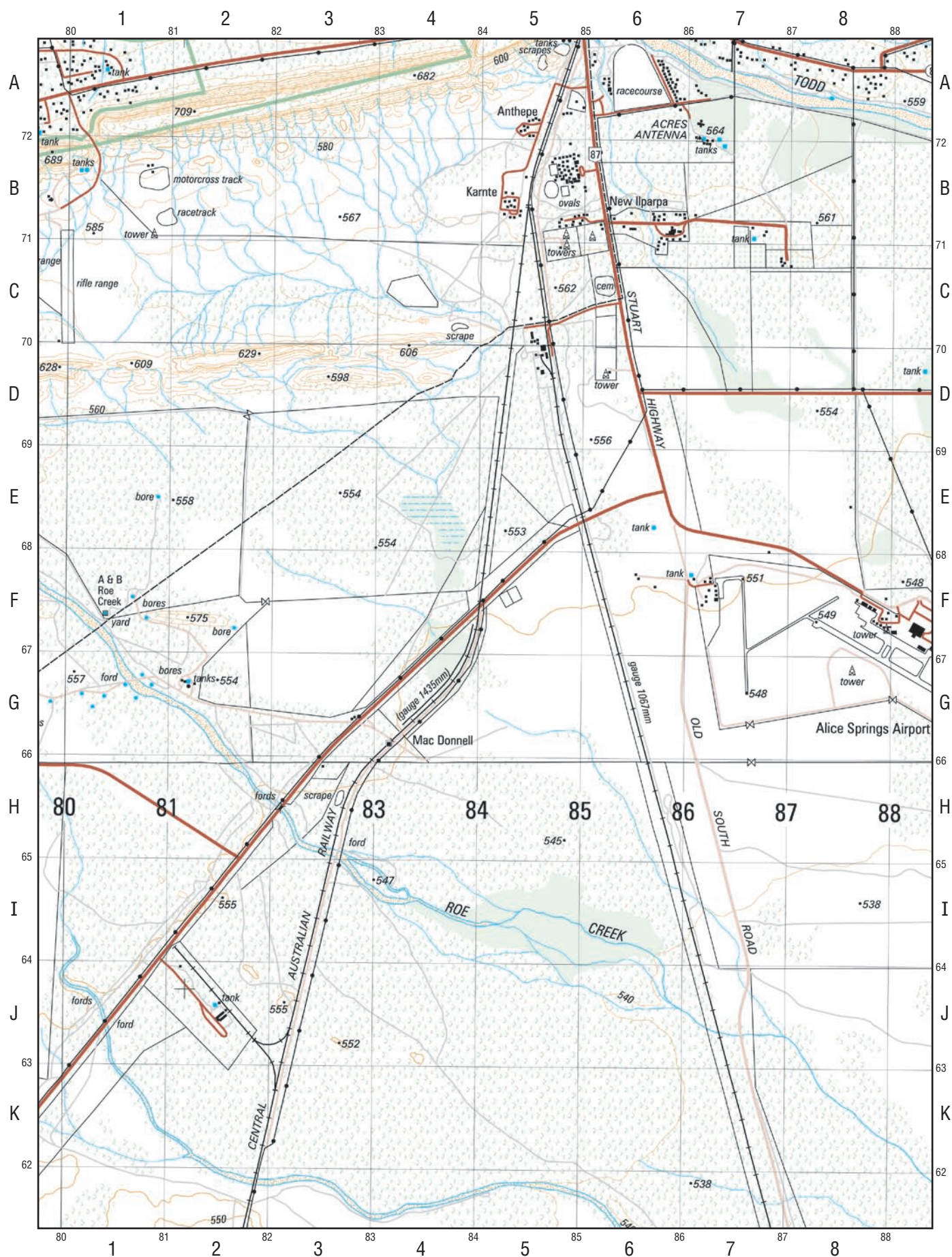
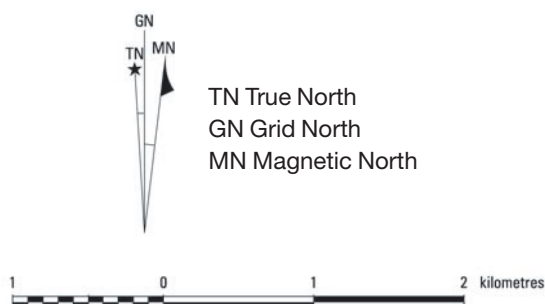


Figure 3. Topographic map

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Legend

Built-up area; Divided highway; State route marker	
Recreation reserve with oval; Drive-in theatre; Underpass	
Sealed road two or more lanes; National route marker	
Sealed road one lane; Cutting; Embankment	
Unsealed road two or more lanes; Culvert; Causeway	
Unsealed road one lane; Approximate position (AP)	
Vehicle track; Road bridge; Gate; Stock grid	
Foot track; Foot bridge	
Multiple track railway; Siding; Station	
Single track railway; Light railway	
Railway tunnel, bridge, Expansion (point of change)	
Power transmission line	
Administrative boundary	
Mine; Building; Ruin; Yard	
Windmill; Communication tower; Dish	
Fence; Horizontal control point; Spot elevation	
Contour with value and cliff; Depression contours	
Sand; Distorted surface; Sand dune	
Levee; Sand ridge	
Ridgeline; Fault line	
Trees; Dense, medium, scattered; Cleared lane	
Scrub; Scrub Light	
Rain forest; Pine; Lone tree	
Orchard; Line of trees or windbreak	
Watercourse definite; Watercourse indefinite	
Area subject to inundation; Swamp	
Perennial lake; Watercourse	
Intermittent lake; Watercourse	
Mainly dry lake; Watercourse	
Rapids; Falls; Spring	
Tank or small dam; Waterhole	
Saline coastal flat; Intertidal flat	
Lighthouse; Intertidal ledge or reef	
Exposed wreck; Submerged wreck	
Submerged reef; Submerged rock	
Mangrove; Rock bare or awash	



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13 The map in Figure 3 shows a portion of which state or territory?

- A Australian Capital Territory
- B Northern Territory
- C Queensland
- D South Australia
- E Victoria

14 Which of these landforms is shown in square B1, Figure 3?

- A depression
- B gap
- C lateral moraine
- D spit
- E U-shaped valley

15 Which is the best estimate of the height above sea level of the racetrack in B1?

- A 575 m
- B 580 m
- C 585 m
- D 590 m
- E 595 m

Start at Question 16 if you are **16 years** old or over on 31 August 2007. If you are younger, continue answering questions.

16 What is the approximate distance between the tower in B1 and the tank in E6 in Figure 3?

- A 3.6 km
- B 4.1 km
- C 5.1 km
- D 5.6 km
- E 6.1 km

17 What is located at Grid Reference 812664?

- A hill
- B mainly dry creek
- C tanks
- D two-lane sealed road
- E vehicle track

18 In which general direction is Roe Creek (I4 in Figure 3) flowing?

- A north
- B northeast
- C northwest
- D southeast
- E southwest

19 Which of these towns are in the rich agricultural Riverina district of New South Wales?

- A Broken Hill and Menindee
- B Bunbury and Busselton
- C Townsville and Ayr
- D Wagga Wagga and Griffith
- E Whyalla and Port Pirie

20 In 2007, the majority of the world's population will for the first time:

- A have completed secondary school
- B live in developing countries
- C live in urban areas
- D live past 75 years of age
- E use the internet

21 Which latitudes give the best boundaries for the subantarctic zone? (Figure 4 may help.)

- A $40\frac{1}{2} - 50^\circ\text{S}$
- B $50 - 66\frac{1}{2}^\circ\text{S}$
- C $66\frac{1}{2} - 75^\circ\text{S}$
- D $75 - 86\frac{1}{2}^\circ\text{S}$
- E $86\frac{1}{2} - 90^\circ\text{S}$

22 Which of these will NOT contribute to the sea level rise expected from global warming?

- A melting of Antarctic icesheets
- B melting of Arctic sea ice
- C melting of Greenland icecap
- D melting of Iceland's glaciers
- E thermal expansion of the oceans as water warms

23 "An extensive, thick layer of ice floating on the sea but still attached to the land" defines an:

- A iceberg
- B icecap
- C icefloe
- D icesheet
- E iceshelf

24 Australia lies to the north of which large letter on the map in Figure 4?

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

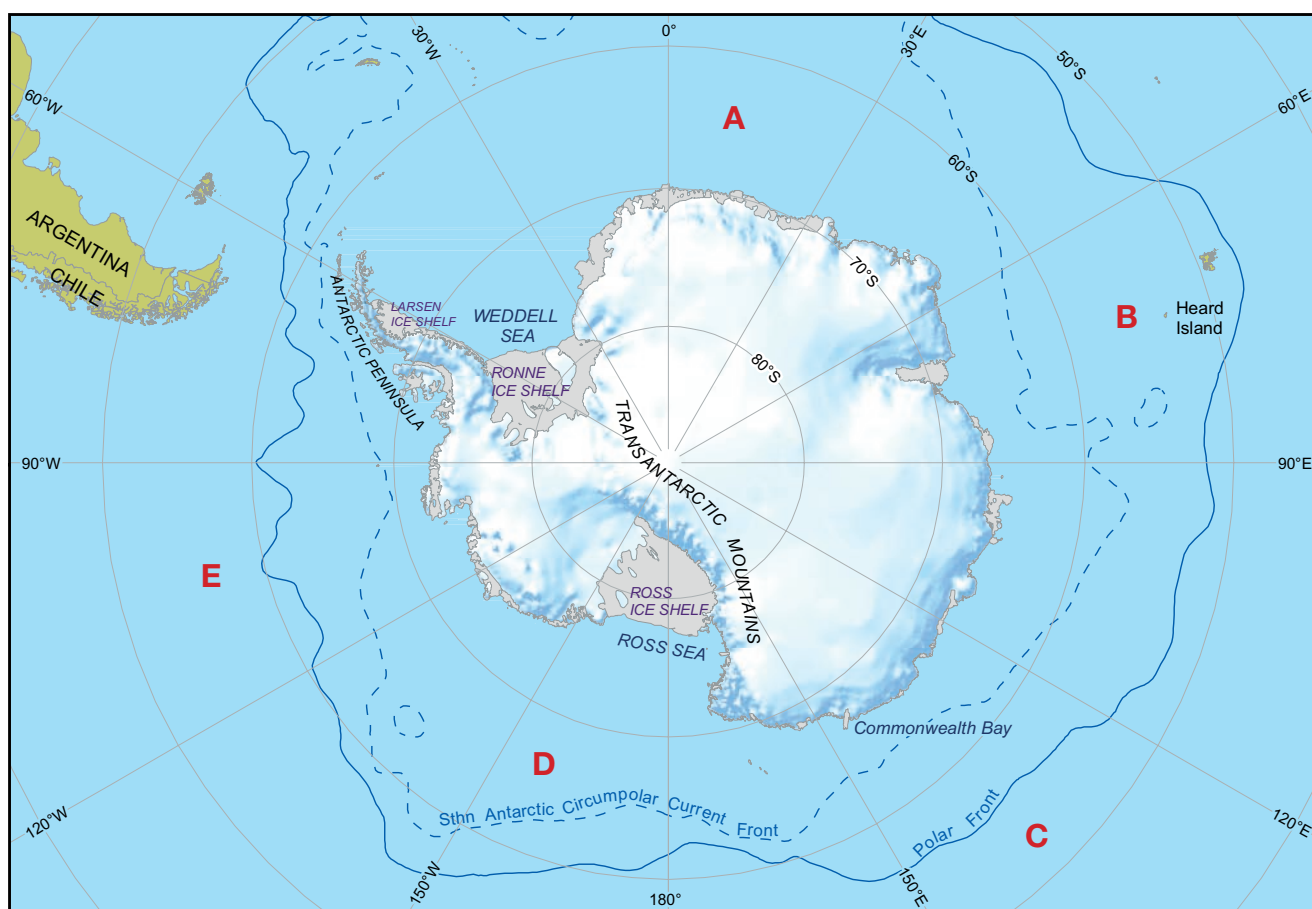


Figure 4. Antarctica and the Southern Ocean

Source: Australian Government Antarctic Division

25 Which energy type is NOT matched with its key limitations?

- A Coal – raises atmospheric CO₂, thereby contributing to global warming
- B Geothermal – can contaminate underground water and drilling expensive to set up
- C Hydro – highly dependent on cloud cover and time of day
- D Nuclear – expensive to construct and problem of long-term waste storage
- E Wind – high construction costs and winds are inconsistent

26 Which city's water supply may be supplemented by a weir blocking the flow of the Murray into Lake Alexandrina?

- A Adelaide
- B Canberra
- C Hobart
- D Melbourne
- E Perth



Figure 5. © National Geographic Society, James P. Blair

27 A section of which landform is shown in the aerial view in Figure 5?

- A Amazon River
- B Canadian Shield
- C Grand Canyon
- D Great Rift Valley
- E Rocky Mountains

28 The landform in Figure 5 is the result of:

- A erosion by running water
- B glacial erosion
- C tectonic subsidence
- D volcanic activity
- E wind erosion

29 Romania and Bulgaria became the newest members of which organisation in 2007?

- A Arab League
- B Baltic Council
- C European Union
- D Nordic Council
- E United Nations

30 Australia's first large-scale seawater desalination plant became operational in November 2006. Where is it located?

- A Gold Coast
- B Launceston
- C Melbourne
- D Perth
- E Sydney

If you are **under 14 years** old on 31 August 2007 you may stop at Question 30 or continue to Question 40 to be eligible for major prizes.



Figure 6. © National Geographic Society, Sidney Hastings

31 Which type of settlement is shown in Figure 6?

- A dense urban
- B dispersed rural
- C linear coastal
- D nucleated village
- E residential suburban

32 Which city is depicted in Figure 6?

- A Amsterdam, Netherlands
- B Cairo, Egypt
- C Hong Kong, China
- D Las Vegas, USA
- E Suva, Fiji

33 The Cape Grim Baseline Air Pollution Station is located to minimize contamination from local pollution sources. Where is it?

- A central coast of NSW
- B northeast corner of NSW
- C northwest tip of Tasmania
- D Tamar estuary, Tasmania
- E tip of Yorke Peninsula, SA

34 Which animal is threatened with extinction due to logging of forests in parts of Malaysia and Indonesia?

- A bilby
- B cheetah
- C chimpanzee
- D orangutan
- E panda

35 The Himalayan mountain range is the result of:

- A the convergence of two tectonic plates
- B the divergence of two tectonic plates
- C the lateral displacement of two tectonic plates
- D a transform fault
- E volcanic eruptions

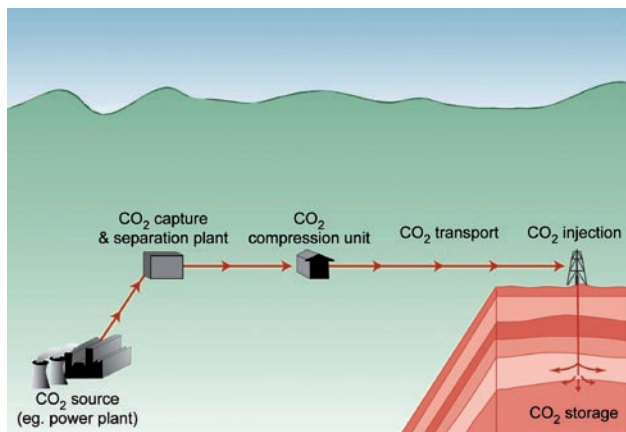


Figure 7.

© CO2CRC

36 Which process does the diagram in Figure 7 illustrate?

- A calcification
- B carbonation
- C geosequestration
- D geothermal energy generation
- E nitrogen fixation

37 Which is a correct sequence from north to south?

- A Costa Rica, Mexico, Guatemala, Panama
- B Guatemala, Costa Rica, Panama, Honduras
- C Honduras, Panama, Guatemala, Costa Rica
- D Mexico, Guatemala, Honduras, Nicaragua
- E Nicaragua, Costa Rica, Guatemala, Mexico

38 In December 2006, troops from which adjoining country crossed into Somalia in support of its interim government?

- A Algeria
- B Colombia
- C Ethiopia
- D Namibia
- E Nigeria

For the House of Representatives each state and territory is divided into electoral divisions or **seats**. The number of seats in each state and territory is determined by population. Within a state or territory, the boundaries of the seats are drawn to achieve approximately equal numbers of voters in each seat.

Figure 8. Federal seats

Source: adapted from Australian Electoral Commission

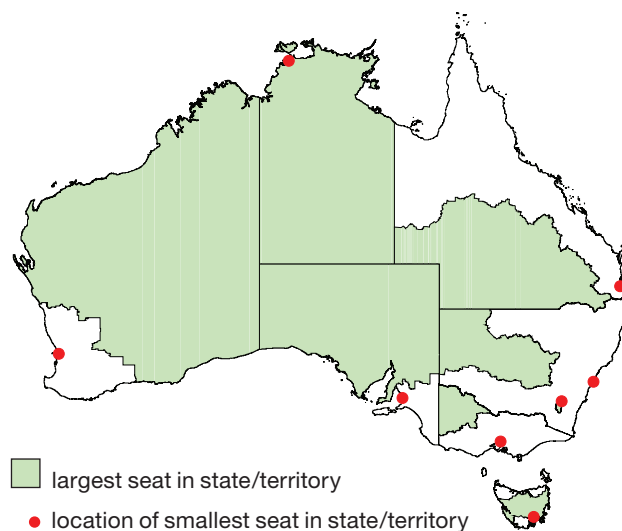


Figure 9. Location of smallest and largest seats in each state/territory, 2004 election boundaries

© University of Queensland Social Research Centre,
data source Australian Electoral Commission

Table 3. Selected data on Australian electoral seats

Source: Australian Electoral Commission and Australian Bureau of Statistics

State/ Territory	Population in 2006 ('000)	Seats at election			Largest seat in state/territory (by area)			Smallest seat in state/territory (by area)		
		2001	2004	2007	Name	Enrolled voters 2006	Area ('000 km ²)	Name	Enrolled voters 2006	Area (km ²)
NSW	6 828	50	50	49	Parkes	88 474	269	Wentworth	93 742	26
Vic	5 092	37	37	37	Mallee	90 079	71	Higgins	88 568	39
Qld	4 053	27	28	29	Maranoa	85 242	779	Griffith	86 556	59
WA	2 051	15	15	15	Kalgoorlie	78 799	2 295	Tangney	81 760	70
SA	1 555	12	11	11	Grey	97 044	905	Hindmarsh	97 688	73
Tas	489	5	5	5	Lyons	66 326	41	Denison	67 019	221
ACT	329	2	2	2	Canberra	118 004	2	Fraser	109 047	535
NT	207	2	2	2	Lingiari	57 393	1 348	Solomon	52 510	326

39 Using Figure 8 and Table 3, which state or territory had the largest increase in its share of Australia's population between 2001 and 2006?

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

40 Using Table 3 and Figure 9, which seat has the lowest density of enrolled voters?

- A Canberra (ACT)
- B Grey (SA)
- C Kalgoorlie (WA)
- D Solomon (NT)
- E Wentworth (NSW)

If you are **under 16 years** old on 31 August 2007 stop at Question 40. If you are older, continue to end.

41 Using Table 3 and Figure 9, the larger a state's population:

- A the larger in area is its largest seat
- B the larger in area is its smallest seat
- C the larger the enrolment is in its individual seats
- D the smaller in area is its smallest seat
- E the smaller the enrolment is in its individual seats

42 Using Table 3 and Figure 9, the photos in Figures 10 and 11 were taken in the seats of:

- A Grey (SA) and Wentworth (NSW)
- B Lingiari (NT) and Higgins (Vic)
- C Lyons (Tas) and Fraser (ACT)
- D Mallee (Vic) and Solomon (NT)
- E Parkes (NSW) and Griffith (Qld)

**Figure 10.**

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**Figure 11.**

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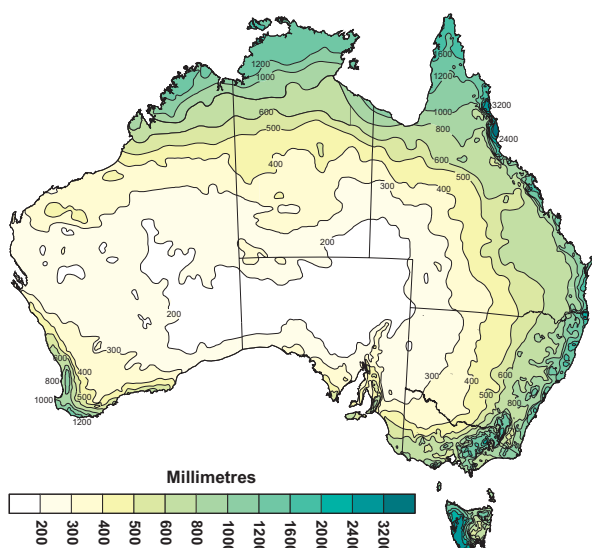


Figure 12. Average annual rainfall (base 1961-90)

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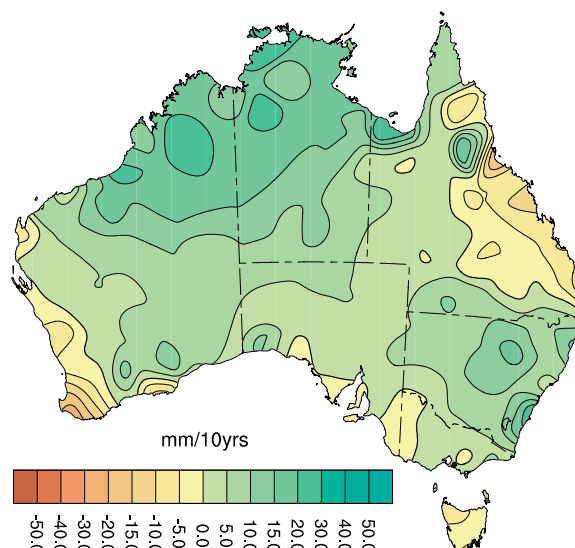


Figure 13. Trend in annual total rainfall, 1900-2006

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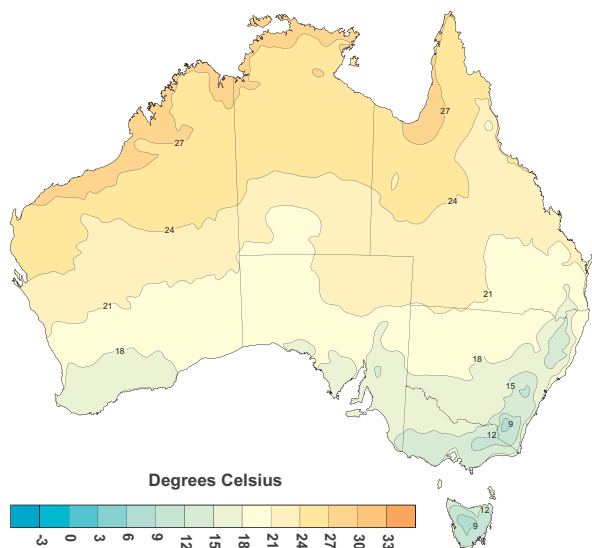


Figure 14. Average daily mean temperature annual (base 1961-90)

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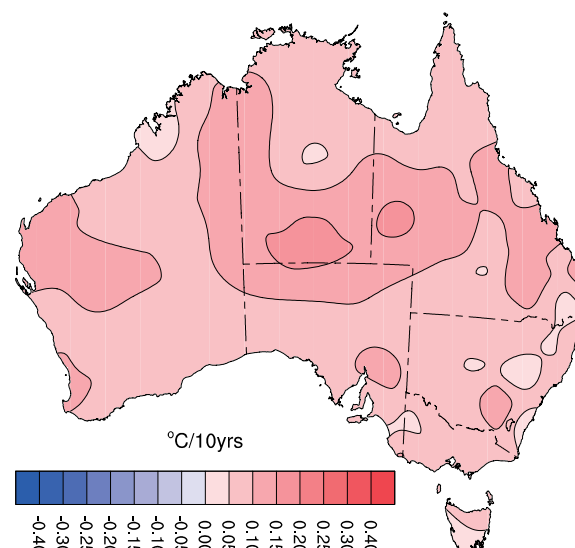


Figure 15. Trend in mean temperature, 1910-2006

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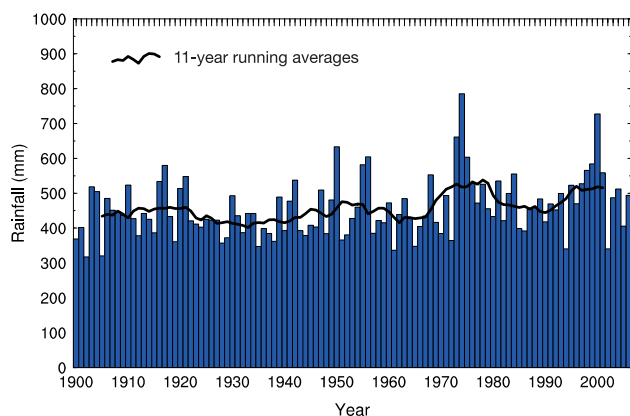


Figure 16. Australian annual rainfall, 1900-2006

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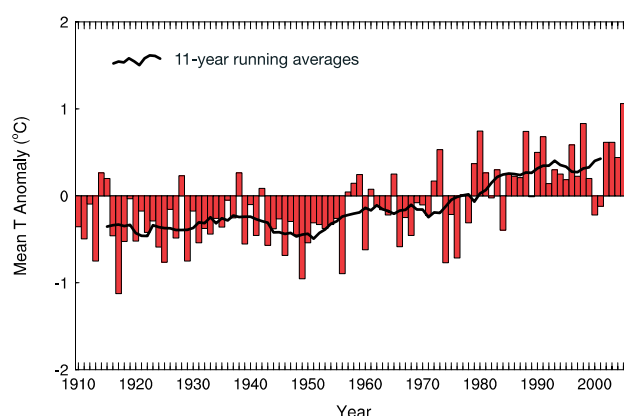


Figure 17. Australian annual mean temperature anomaly (base 1961-90), 1910-2006

© Commonwealth of Australia, Bureau of Meteorology

- 43 The lines joining points of equal rainfall in Figure 12 are:**
- A isobars
 - B isoclines
 - C isohyets
 - D isotherms
 - E isotopes
- 44 Using Figures 12 and 13, which statement best describes changes in Australia's rainfall since 1900?**
- A In general, dry areas have become drier.
 - B In general, dry areas have become wetter.
 - C In general, wet areas have become drier.
 - D In general, wet areas have become wetter.
 - E none of the above
- 45 Using Figure 15, which is the best estimate of the increase in the mean temperature around Alice Springs since 1910?**
- A 0.12 °C
 - B 0.17 °C
 - C 1.24 °C
 - D 1.68 °C
 - E 20.0 °C
- 46 Using Figure 13 and your own knowledge, which of these regions has had an increase in rainfall since 1900, but has been largely in drought for the past 5 years?**
- A coastal Queensland
 - B New South Wales
 - C northern Northern Territory
 - D northern Western Australia
 - E Tasmania
- 47 Using Figure 16, while particular years may be wetter or drier, since 1900 Australia's average annual rainfall has:**
- A decreased significantly
 - B decreased slightly
 - C increased significantly
 - D increased slightly
 - E remained constant
- 48 Using Figures 12 to 17, which statement is correct?**
- A Central Australia has the highest mean temperature.
 - B The hottest year in Australia since 1910 was 2005.
 - C In Australian regions there is a positive correlation between increasing rainfall and increasing temperature.
 - D The mean temperature in Australia in 1917 was -1.12 °C.
 - E all of the above
- 49 Which migration patterns in Figure 18 will best allow species to maintain the temperature component of their habitat requirements as climate changes?**
- A 1, 3 or both
 - B 1, 4 or both
 - C 2, 3 or both
 - D 2, 4 or both
 - E 3, 4 or both
- 50 Migration to maintain the temperature component of a species' habitat will be particularly difficult for species that live in:**
- A Australian Alps, NSW
 - B coastal Tasmania
 - C Gippsland, Vic
 - D Great Victoria Desert, SA
 - E northern Western Australia

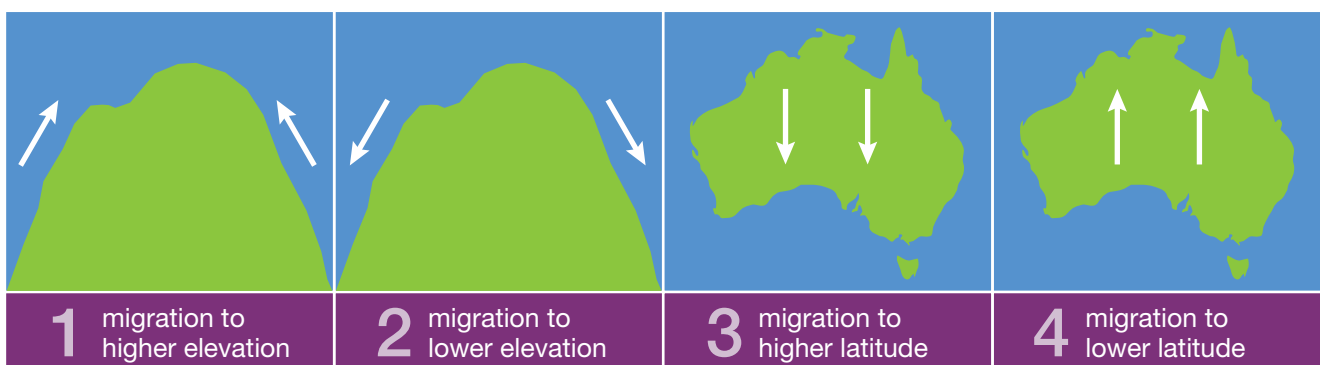


Figure 18. Selected species' migration patterns

Thank you for taking part in the
2007 National Geographic Channel
Australian Geography Competition.