Weather and Climate Skills

Activities created by Lorraine Chaffer, Vice President GTANSW & ACT

A student worksheet for this activity is in Appendix 1 on the GTA NSW & ACT website with this edition

SYNOPTIC CHARTS

1. **Synoptic Charts** show weather conditions and **climatic graphs** show features of climate.
   Explain the difference between weather and climate.

2. **Refer to Source A**

   a. What evidence suggests that this is a summer weather map?

   b. State the air pressure at:
   – 30 South, 160 degrees East
   – Melbourne

   c. State the wind direction and wind speed at:
   – Perth
   – Adelaide

   d. Identify the feature at 15 degrees South, 150 degrees east

   e. Explain why it has rained in the past 24 hours:
   – along the east coast of Australia
   – in the southwest corner of Western Australia

   Refer to types of rainfall, wind direction and air masses in your answer

   f. Describe how the weather condition at Perth would have changed over the previous day with the passing of the cold front. Refer to air pressure, wind direction, wind, temperature, and precipitation in your answer

Challenge question

There is a low-pressure cell south of the cold front, that cannot be seen on the map.
Explain why this cell would be a low pressure cell and not a high pressure cell.

3. **Refer to Source B**

   a. State the air pressure at:
   – Perth
   – Alice Springs

   b. Where is the highest air pressure on the map?

   c. Where is the lowest air pressure on the map?

   d. State the wind direction and wind speed at:
   – Port Headland
   – Alice Springs

e. Describe what the weather would be like at:
   – Perth
   – Townsville.
   Give reasons for your answers.

f. Describe the spatial pattern of rainfall in the past 24 hours.
   – Explain why it has rained in this location.
   – Predict the weather in the next 24 hours.

CLIMATE GRAPHS

4. **Refer to Source C**

   a. Identify the hottest and coldest months of the year

   b. Calculate the average daily temperature for the month of May

   c. Describe the annual rainfall distribution.

   d. Calculate the Annual Precipitation

   e. Give a reason why station X would be located in coastal Queensland and not in Tasmania or Japan.

5. **Refer to Source D**

   Graph the climate statistics for STATION Y using the template provided

6. **Refer to Source E**

   Describe the climate at STATION Y using terminology in the Describing Climate guidelines.
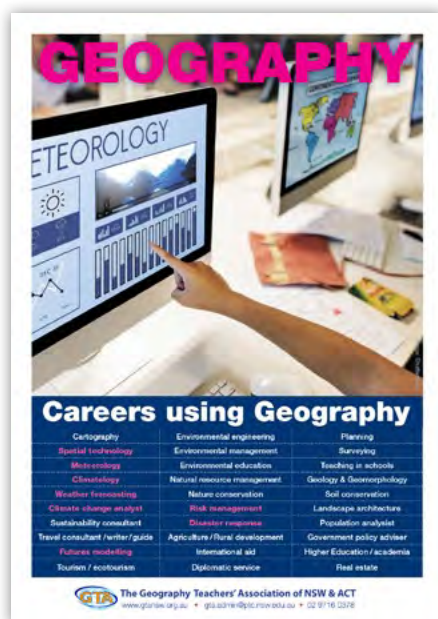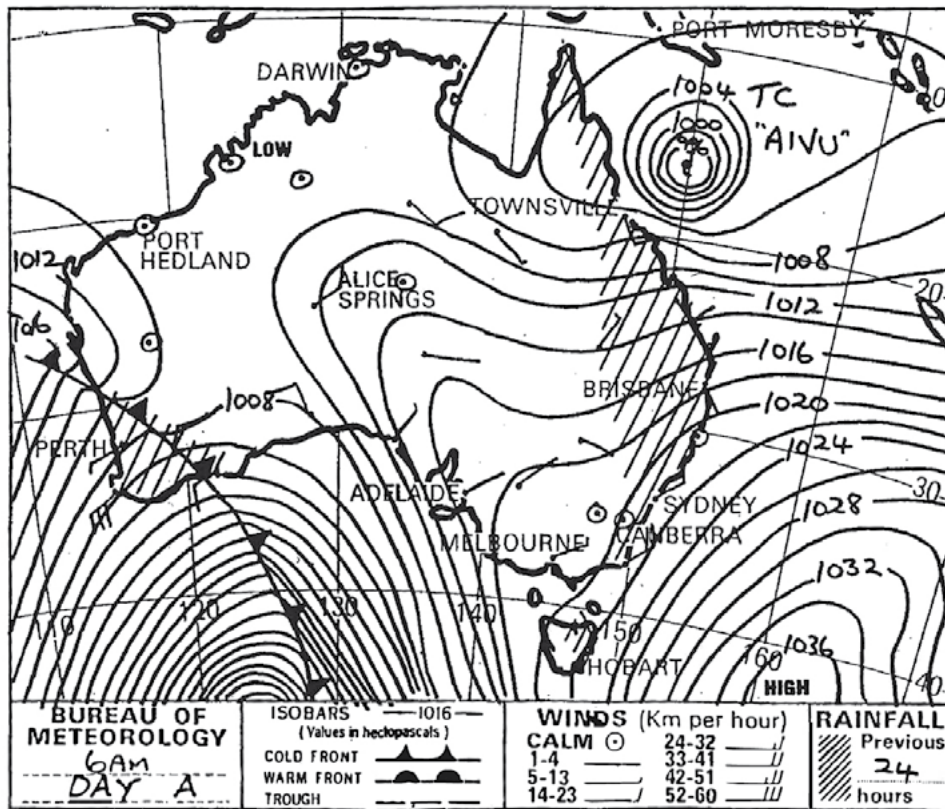

There are many careers that use skills related to weather and climate. When doing these activities refer students to posters such as the GTA NSW & ACT Geography Careers posters

SYNOPTIC CHARTS

SOURCE A

Source unknown

SOURCE B
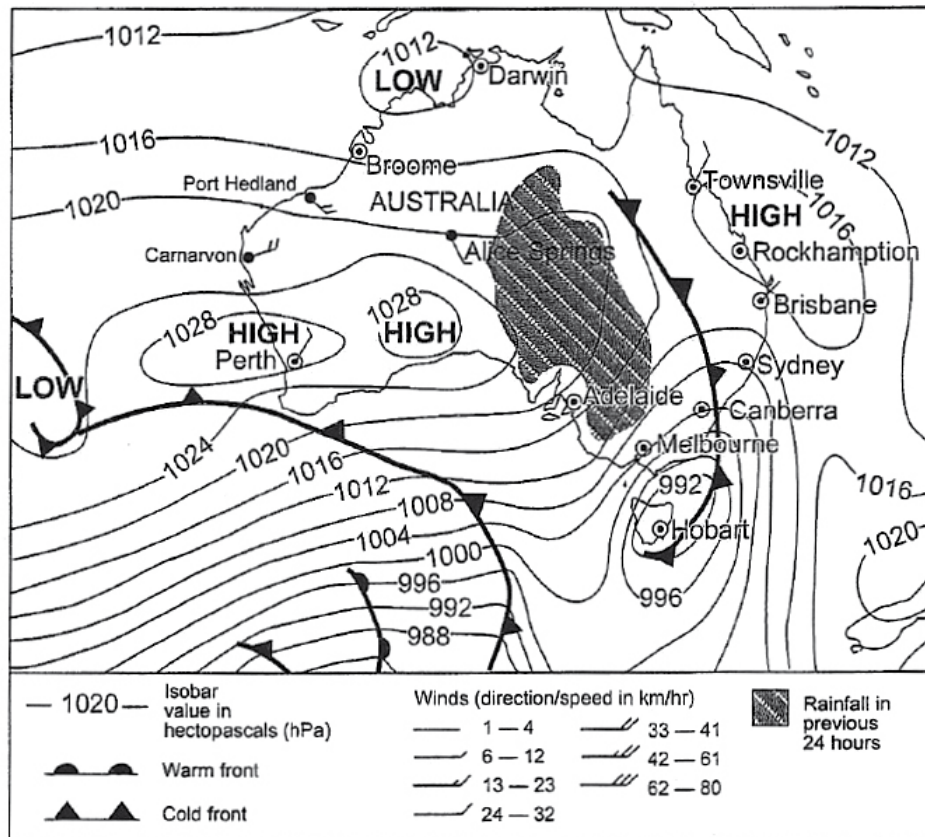
Image source: POWERPOINT GEOGRAPHY, Blake Education 2007
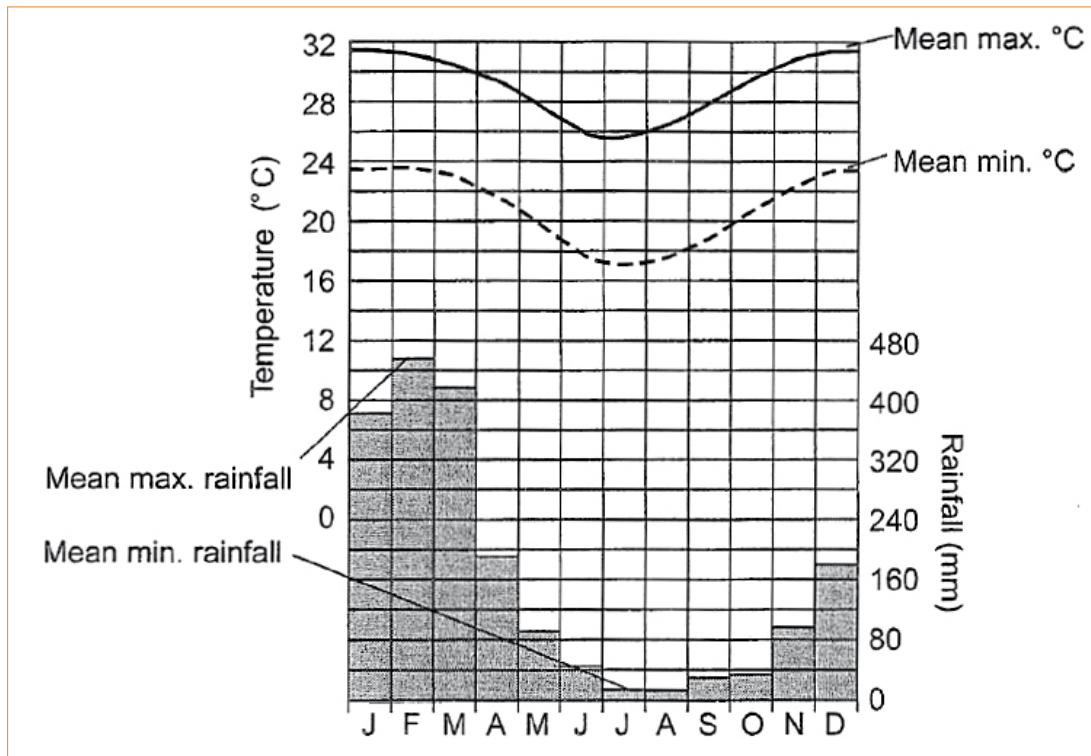
CLIMATE GRAPHS

SOURCE C: STATION X

mage source: Source: POWERPOINT GEOGRAPHY, Blake Education 2007

SOURCE D: STATION Y − 33.28° S, 151.57° E. Altitude 3 metres

	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec
Temp Max C	25.4	25.8	24.6	22.9	19.9	18.1	17.2	18.8	20.9	22.4	23.3	24.8
Temp Min C	19.4	19.9	18.7	15.8	13.2	10.8	9.8	10.6	12.8	14.7	16.5	18.4
Rainfall mm	73.1	94.8	109.6	122.8	163.5	130.8	99.0	74.5	70.8	56.6	83.4	59.2

Source: Australian Bureau of Meteorology

SOURCE E: Describing climate

Terminology needed to describe the climate of places.

Average monthly temperatures	
Temperature range	Description
above 30°C	very hot
20°C–30°C	hot
10°C–20°C	warm
0°C–10°C	cool
-10°C–0°C	cold
below -10°C	very cold

Describing average monthly temperatures

Annual temperature range	
Temperature range	Description
below 5°C	small
5°C–15°C	moderate
15°C–30°C	large
above 30°C	very large

Describing annual temperature range

Annual precipitation			
Cold to warm climates	Description	Hot to very hot climates	
below 250 mm	slight	below 375 mm	
250 mm–500 mm	small	375 mm–625 mm	
500 mm–1000 mm	adequate	625 mm–1125 mm	
1000 m–1500 mm	large	1125 mm–1750 mm	
above 1500 mm	very large	above 1750 mm	

Describing annual precipitation (rainfall)

Monthly average rainfall	
Amount	Description
below 50 mm	dry month
50mm to 150 mm	wet month
above 150 mm	very wet month

Describing monthly averages

| Rainfall distribution |
|---|
| Summer rainfall maximum: over 60 per cent in the summer half of the year |
| Winter rainfall maximum: over 60 per cent in the winter half of the year |
| Evenly distributed rainfall: no summer or winter maximum |

Describing raionfall distribution

Comparing Climate Graphs

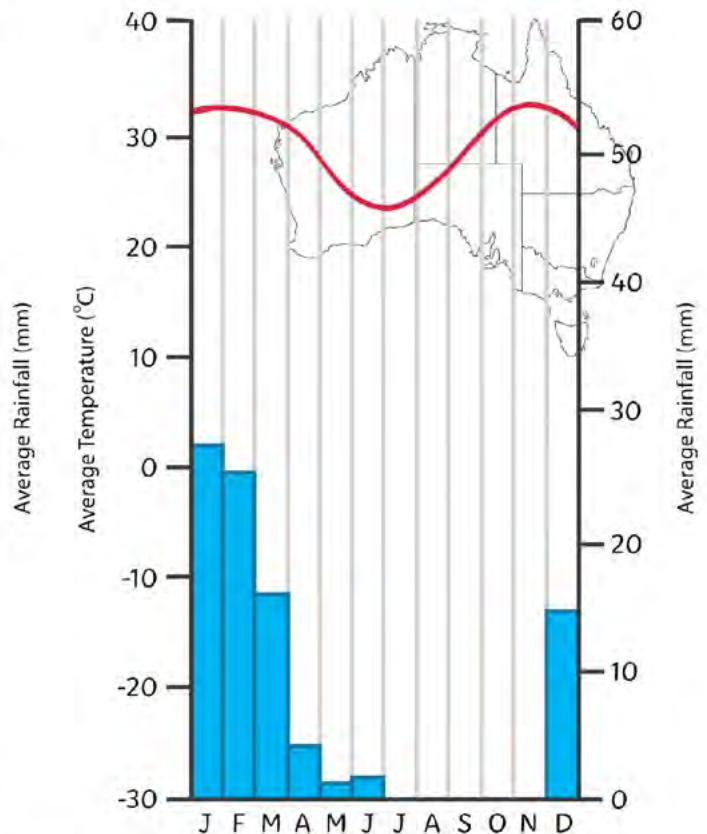Study the two climate graphs below. They show very different climates!

Can you work out which statement describes each climate graph?

Colour code your answers and complete the key.
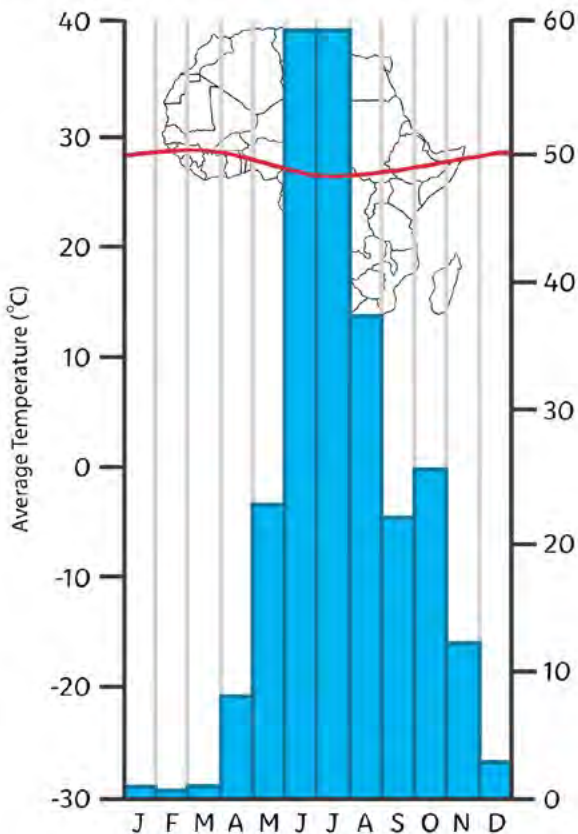
A. Monrovia, Liberia

B. Normanton, Australia

The peak rainfall is 28mm in January.

The annual range of temperature is very low – approximately 3°C.

The peak rainfall is 60mm in June and July.

The annual range of temperature is approximately 10°C

The total annual rainfall is 300mm.

Temperature is fairly constant all year.

There is a dry season from December to April.

There is a dry season from July to November.

The total annual rainfall is 94mm.

The lowest temperature is 24°C in June.

Key:

☐ Climate Graph A   ☐ Climate Graph B

Source: Twinkl.com