
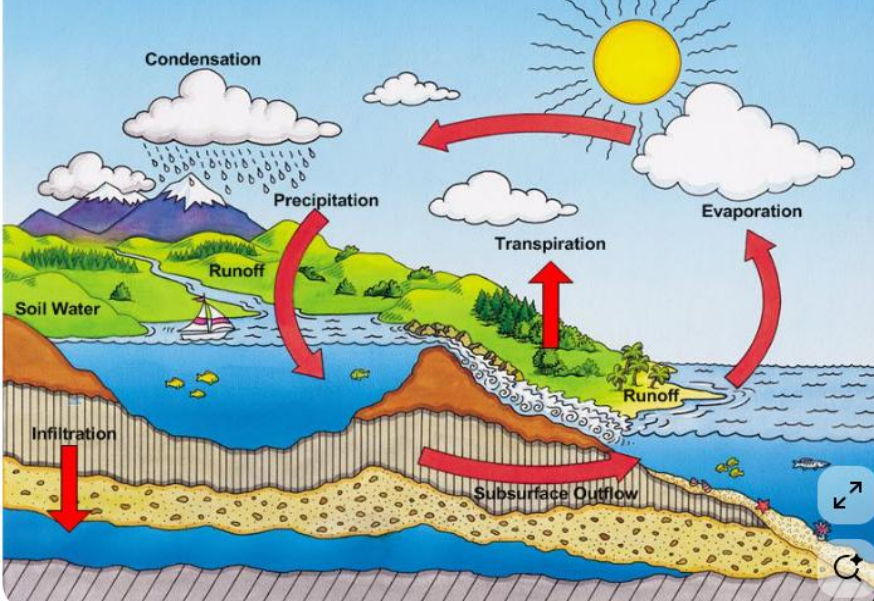


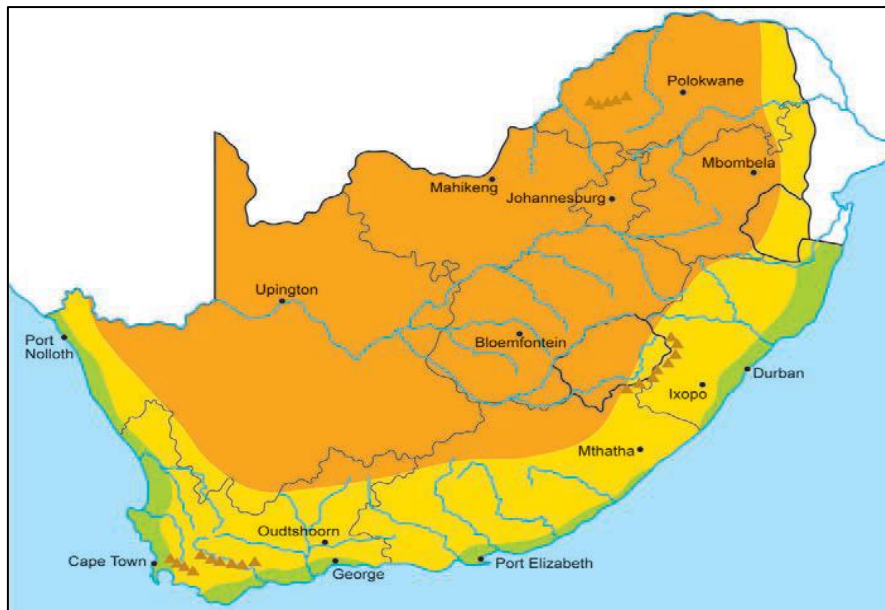
## Factors that influence temperature and rainfall and South Africa's climate

 <p>120 100 80 60 40 20 0 0 20 40 50 40 30 20 10 0 -10 -20</p> <p>ACCURATEMP</p>	<p><b>Temperature:</b> is the measure of the warmth or coldness of an object or material.</p> <p><b>Celsius:</b> The most common form of measuring temperature in day-to-day situations. The Celsius scale is used to measure temperature in South Africa.</p> <p>Temperature is measured using a device called a thermometer.</p>
<p><b>RAINFALL:</b> the precipitation of liquid water droplets from clouds to the Earth's surface, acting as a crucial component of the water cycle.</p>	 <p>Condensation Precipitation Runoff Soil Water Infiltration Transpiration Evaporation Runoff Subsurface Outflow</p>

## CLIMATE:

The average, long-term state of the atmosphere, including variability over seasons, years, or decades

## South Africa's different physical regions:



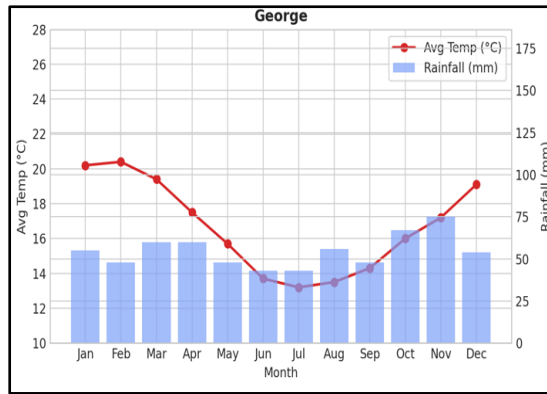
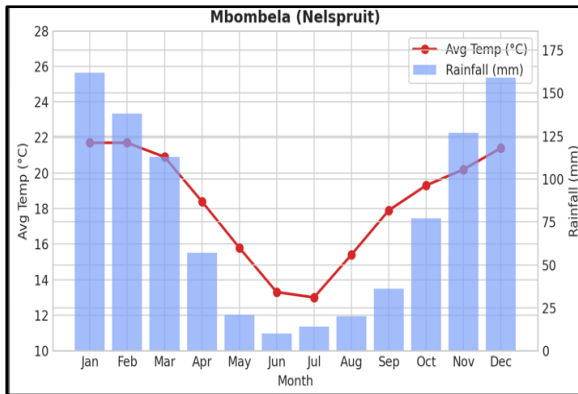
The plateau; the escarpment, lowlands and coastal plain. Different physical regions have different climatic conditions.

## Distance from the equator (latitude)



Places close to the equator have higher temperatures than places close to the poles. The further away from the equator you go, the lower the average temperatures.

The reason for the difference in temperature is explained by the amount of heating the earth receives from the sun closer to the equator.



### Monthly Climate: Mbombela vs George (Avg Temp & Rainfall)

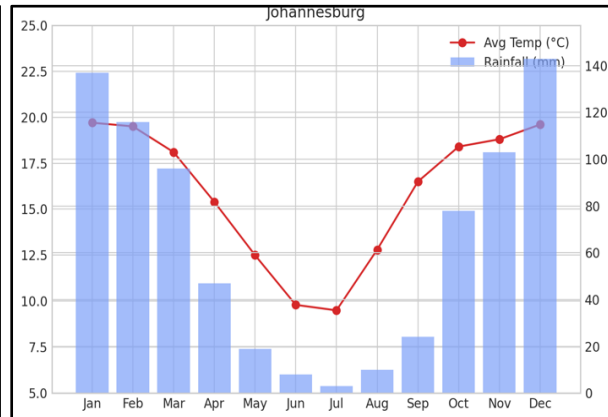
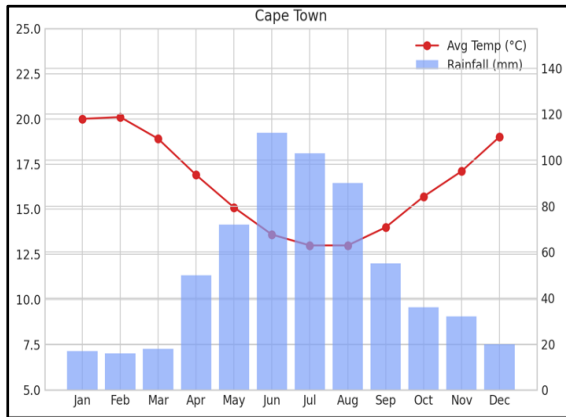
	<b>MBOMBELA</b>	<b>GEORGE</b>
<b>Avg Annual Temp</b>	<b>23.45°C</b>	<b>19.24°C</b>
<b>Warmest Month</b>	<b>Dec (≈30.7°C)</b>	<b>Feb (≈29.5°C)</b>
<b>Coldest Month</b>	<b>Jun (≈9.3°C min)</b>	<b>Jul (≈5.4°C min)</b>
	<b>Hot summers, often above 30°C. Mild, dry winters.</b>	<b>Warm but not hot summers. Cool, wet winters (lowest temps near freezing on coldest nights).</b>

### Distance from the sea



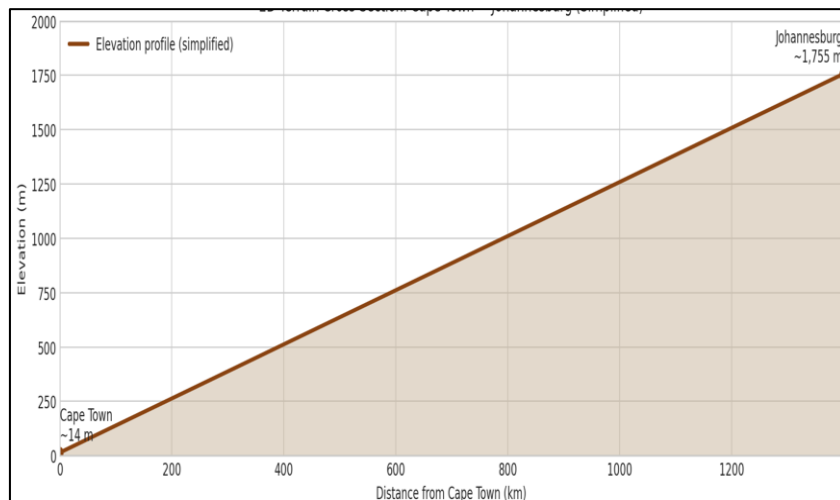
- Places away from the sea have more extreme temperatures than places close to the sea.
- Johannesburg is 400 km from the Atlantic Ocean.
- In summer the land around Johannesburg heats up quickly.

- Heat from the land warms the air above it.
- The land remains cold. Winter temperatures at Johannesburg are quite low for a place which is 28° S (not that far from the equator).
- The air over the sea helps to keep winter temperatures higher in.
- In summer the sea is cooler than the land.
- This helps to lower summer temperatures.
- Cape Town's temperatures are moderated by the influence of the ocean.



	Johannesburg	Cape Town
Summer Conditions	Warm with afternoon storms	Warm, dry, windy
Winter Conditions	Sunny, dry, cold nights	Cool, wet, cloudy
Temperature Range	Larger (cold nights)	Narrower (ocean-moderated)
Johannesburg is an inland city with warm, stormy summers and cold, dry winters(extreme)		
Cape Town is a coastal city with warm, dry summers and cool, rainy winters. (moderate)		

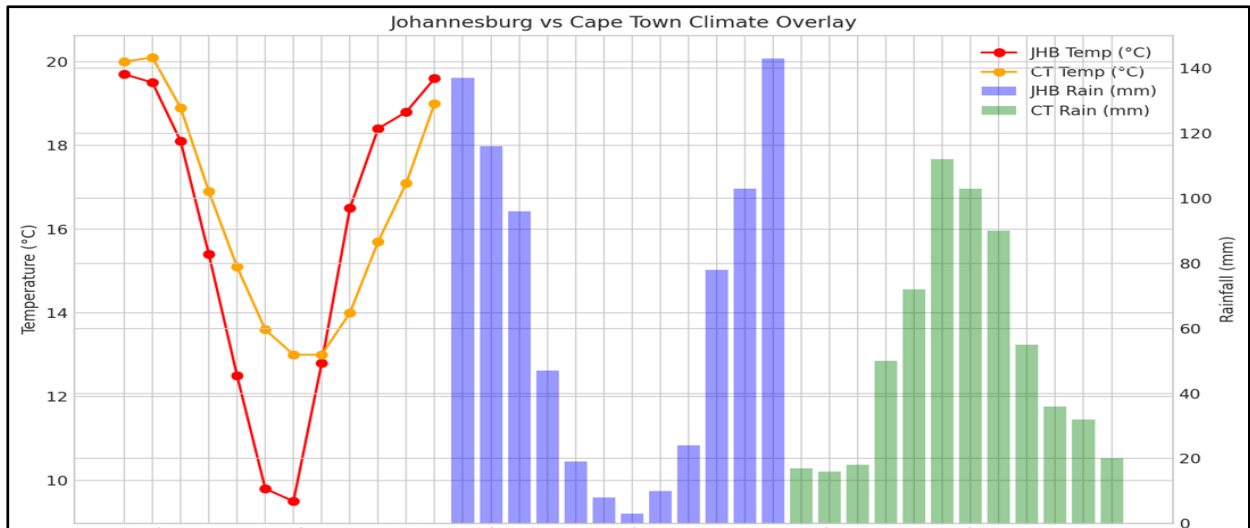
### Height above sea level (altitude)



**Temperatures decrease with altitude.**

Altitude is the key reason why Johannesburg is cooler, drier, and experiences greater temperature swings than Cape Town.

Cape Town's low elevation and ocean surroundings keep its climate mild, humid, and stable, while Johannesburg's high plateau setting produces cooler air, clearer skies, and strong day–night contrasts.



	Johannesburg	Cape Town
Altitude	1,755 m	14 m
Temperature	Milder year-round	Cooler (especially winter nights)
Diurnal Range	Larger (cold nights)	Small
	High altitude = cooler air, strong daytime heating, rapid night cooling, large diurnal temperature range.	Low elevation + ocean = mild temperatures, smaller day–night differences, less extreme cold

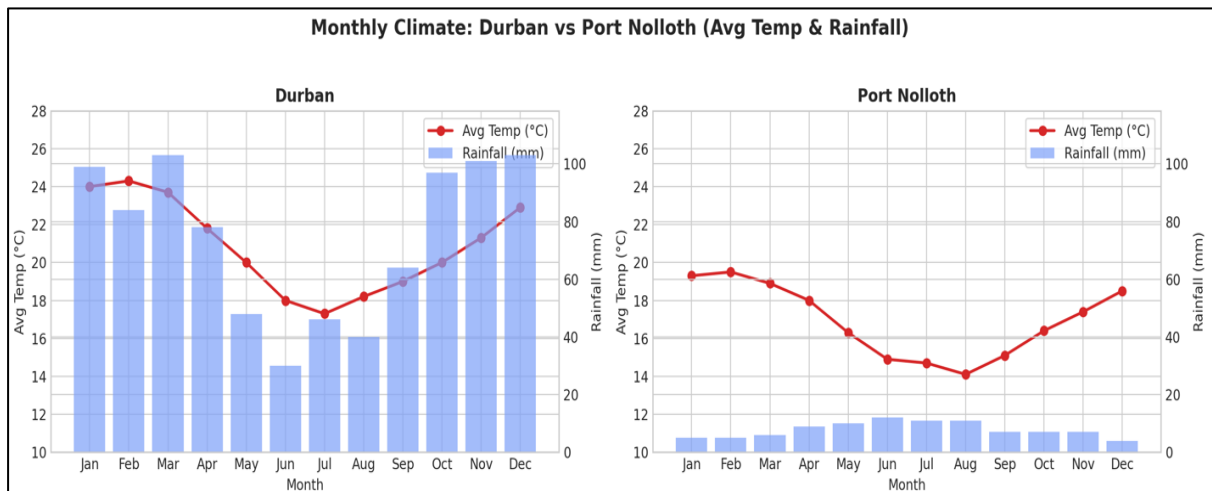
### Ocean currents



South Africa's east and west coasts experience dramatically different climates, largely because they are influenced by two very different ocean currents:

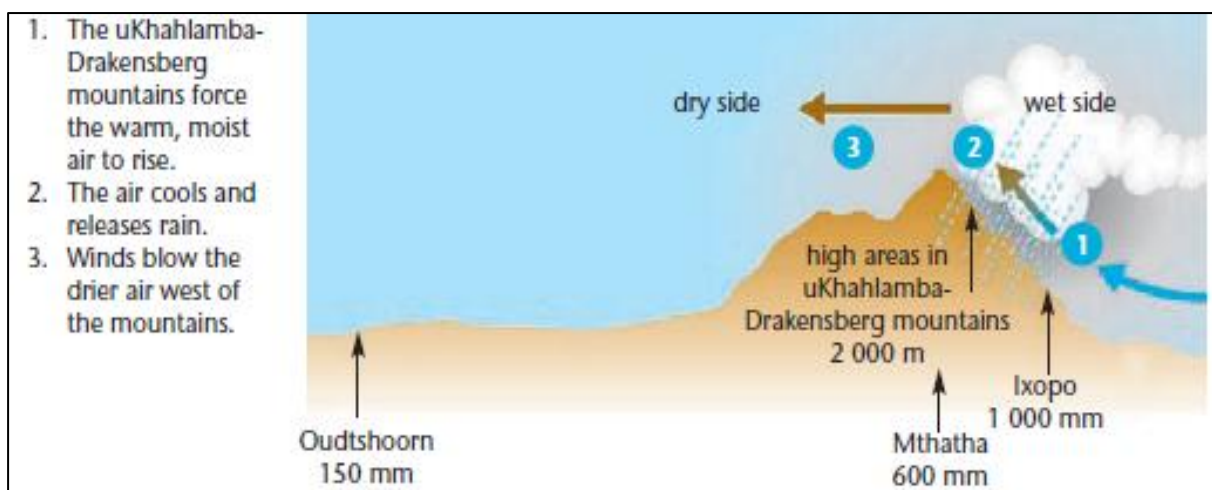
Durban (East Coast) → warmed and moistened by the warm Agulhas (Mozambique) Current

Port Nolloth (West Coast) → cooled and dried by the cold Benguela Current.



Durban	Port Nolloth
Warm Mozambique Current → warmer temperatures Increased evaporation → humid air Rising moist air → high rainfall, especially in summer Result: Warm, wet, humid coastal climate	Cold Benguela Current → cooler temperatures Low evaporation → very dry air Stable atmosphere → low rainfall Fog common, but rain rare Result: Cool, dry, desert-influenced climate

### Mountains(relief)



The Drakensberg Mountains block rain by forcing moist air from the Indian Ocean to rise and release its water as relief rain on the windward slopes, leaving the air dry as it descends into the rain shadow on the leeward side.

## GRADE 8 SOCIAL SCIENCES (GEOGRAPHY) WORKSHEET

### Multiple Choice Questions

1. Areas closer to the equator are usually:
  - a) Colder
  - b) Warmer
  - c) Very dry
  - d) Very windy
2. Coastal areas are generally:
  - a) Hotter than inland areas
  - b) Cooler than inland areas
  - c) Wetter than inland areas
  - d) Both b and c
3. The main reason why the Western Cape receives winter rainfall is because of:
  - a) Tropical cyclones
  - b) Cold fronts
  - c) Trade winds
  - d) Monsoon winds
4. As altitude increases, temperature:
  - a) Increases
  - b) Decreases
  - c) Stays the same
  - d) Doubles

Define each of the following terms:

1. Latitude
2. Altitude
3. Rain shadow
4. Ocean currents

## Factors Influencing Temperature

Answer the questions in full sentences.

1. Explain how latitude affects temperature.
2. Why do coastal areas have more moderate temperatures than inland areas?
3. Describe how altitude influences temperature.

## Factors Influencing Rainfall\*\*

Answer the questions.

1. Explain how mountains can cause rainfall through relief rain.
2. What is a rain shadow, and how does it affect rainfall?
3. Describe one way wind direction influences rainfall.
4. How do warm ocean currents affect rainfall along a coastline?

## South Africa's Climate

Answer the following.

1. Name two characteristics of South Africa's climate.
2. Which part of South Africa receives winter rainfall?
3. Give one reason why the east coast of South Africa is wetter than the west coast.
4. Explain why the interior of South Africa is generally hotter in summer than coastal areas.