

Name of School**Subject**

Social Sciences - Geography

Examiner**Date**

Term 2

Total marks

80

Type

Test / Exam: Climate regions and climate change

Duration

2 periods

Grade

8

Moderator**Special Instructions/Equipment**

This is a prepared assessment focused on introducing additional cross-curriculum topics to create a better foundation for the learners.

Note: Learners need to complete the assessment alone with no group discussions or additional support. For further details, refer to the lesson plan.

CAPS Link

Term 2 Test / Exam – Week 8 – Climate regions (South Africa and the world).

Skills Developed

- Use and draw maps
- Identify and extract information from texts, atlases and other sources, including visual sources such as photographs
- Work with data and statistics in the form of graphs, tables and diagrams
- Cross-reference information using different sources.
- Tackling real issues and finding solutions
- Use the information to describe, explain and answer questions about people, places and the relationship between the two.
- Communicate ideas and information.
- Interpretation of data and drawing conclusions.
- ESD – Climate Action

Specific Link and alignment with other Subject Assessments include:

Natural Science Term 4 – Research report– Third planet from the Sun
English Home Language Term 1 – Task 1 – Prepared reading – Passage on Climate Variability.

**SOCIAL SCIENCE - GEOGRAPHY
JUNE EXAM****GRADE 8
MARKS:75****TERM 2
DURATION: 2 HOURS****Instructions:**

- 1) The paper consists of
 - a. Section A: Map Skills
 - b. Section B: Climate Regions
- 2) Answer all questions on the question paper.
- 3) Answer all questions in full sentences unless stated otherwise.
- 4) Take note of the mark allocation per question.
- 5) You will not be allowed to use a dictionary or atlas during the exam.
- 6) Read carefully and write your answers neatly and legibly.

SECTION A: Map Skills**Question 1 – Multiple choice questions**

Write down only the letter of the correct answer for each of the following questions:

- 1.1 How many degrees of longitude are there on the Earth? (1)
- A 180
B 120
C 90
D 360
- 1.2 The Earth is divided into time zones. How many degrees of longitude are there in each time zone? (1)
- A 15
B 30
C 10
D 25
- 1.3 What is the main cause of the Earth having day and night? (1)
- A The Earth's revolution around the Sun
B The Earth rotating on its own axis
C Day and night take 24 hours
D The Earth's axis is tilted at $23\frac{1}{2}^{\circ}$

- 1.4 Which map scale is the largest? A 1: 10 000 (1)
- B 1: 20 000
C 1: 30 000
D 1: 50 000
- 1.5 1.1.5 The representative fraction of 1: 50 000 can also be written (1)
as a word scale. Choose the correct option below:
- A One centimetre on the map represents half a kilometre
B One centimetre on the map represents 50 000 kilometres
C One centimetre on the map represents 500 centimetres
D One metre represents 50 000 metres
- 1.6 1.1.6 Which statement below is NOT true? (1)
- A The Greenwich Meridian is found at 0° W/ E
B The International Date Line separates places on Earth with different dates.
C The Equator is also called the Prime Meridian.
D The South Pole is located at 90°S
- 1.7 1.1.7 Which statement about the Seasons is NOT true? (1)
- A The Seasons are caused by the Earth's revolution around the Sun
B The tilt of the Earth's axis causes places to experience long days in summer, and long nights in winter
C The southern and northern hemisphere experience opposite seasons.
D The solstices occur in autumn and spring

[7]

QUESTION 2 - Maps

Study the map below of the Easter Cape below and answer the questions that follow.

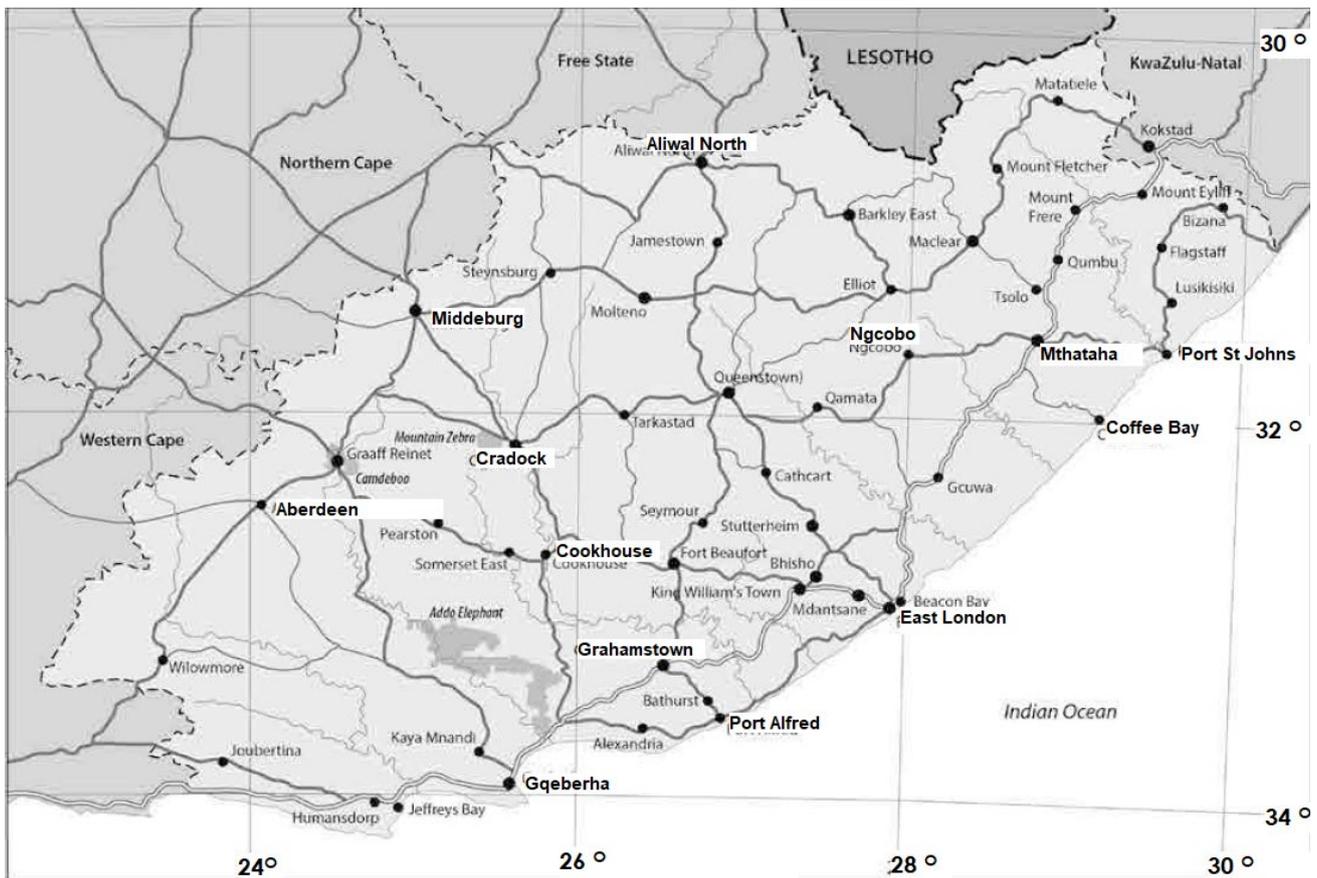


Figure 1: Map of the Easter Cape¹

Name the towns found at each of the following sets of co-ordinates:

2.1 32°10' S; 25°40' E (1)

2.2 33°55' S; 25°40' E (1)

2.3 31°40' S; 28°40' E (1)

[3]

¹ https://www.mapsofworld.com/lat_long/south-africa-lat-long.html

QUESTION 3 – Time zones

Answer the following questions in full sentences.

- 3.1 On which line of longitude does South Africa base its time? (1)
- 3.2 Why do some countries have many time zones, and some only a few? (2)
- 3.3 Choose the correct options in the following statement: (2)
Places in the Eastern hemisphere have a time that is **earlier/ later** in the day than places in the Western hemisphere. This is because the Earth rotates from **west to east/ east to west**.
- 3.4 A world cup soccer match is being played between Argentina and Brazil at 14:00 in Argentina. Ayanda, in Gqeberha, South Africa, wants to watch the game live on television. Will he need to turn on his television at 08:00 or at 20:00? Explain your answer. (2)

[7]

QUESTION 4 – Aerial illustration

Refer to the aerial picture and illustration below and answer the questions that follow.

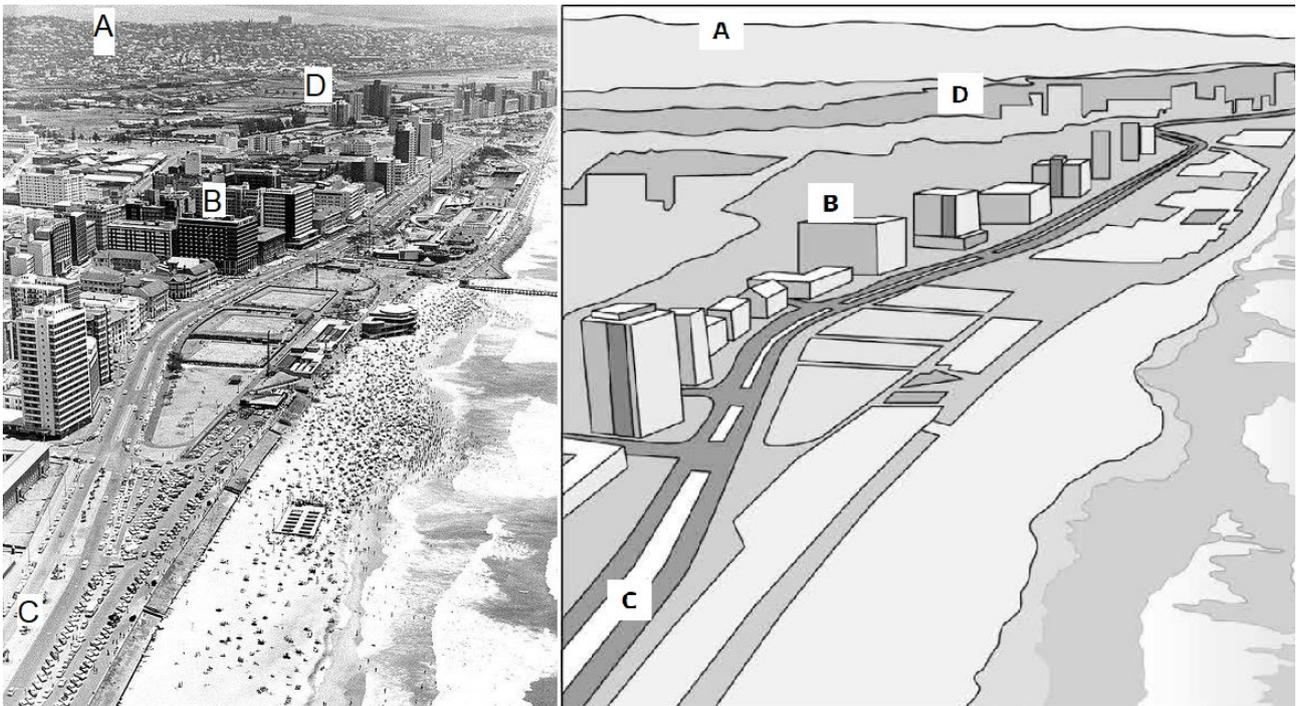


Figure 2: Aerial images and illustration of Durban beach

- 4.1 Match each of the following land-use areas with the letters A to D on the illustration: (4)
- i. Recreation / leisure
 - ii. Residential housing
 - iii. High-density accommodation
 - iv. Parking area
- 4.2 What evidence in the illustration suggests that Durban is a prime tourist city? (2)
- 4.3 From the illustration, describe the general relief (topography) of the area shown. (2)
- [8]**

SECTION B: CLIMATE REGIONS

Question 5 – General climatic concepts

- 5.1 Outline the difference between 'weather' and 'climate'. (4)
- 5.2 Name three elements of weather. (3)
- 5.3 a) State the general relationship between latitude and temperature. (2)
- b) Mt Kilimanjaro (Africa's highest mountain, at 5 885 m) is situated in Tanzania, just a few degrees away from the Equator. However, this mountain is snow-covered for most of the year. Explain how this is possible. (3)
- [12]**

Question 6 – South African Climate

Durban and Port Nolloth, (shown on the map below) are both coastal cities in South Africa. Study the map of South Africa and the table with selected cities' temperatures. Answer the questions that follow.

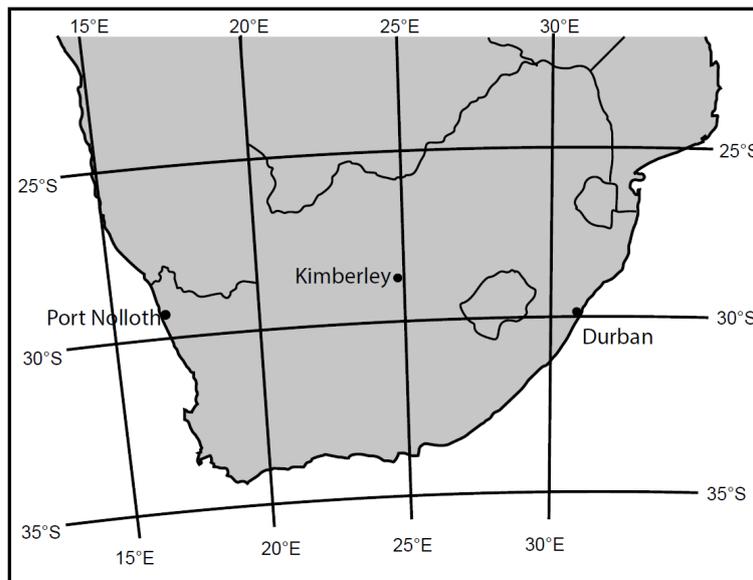


Figure 3: Map of South Africa

Table 1: Temperatures of specific cities shown in Figure 3.

Place	Highest temperature	Lowest Temperature	Temperature range
Kimberley	33°C	-4°C	
Durban	28°C	10°C	18°C
Port Nolloth	24°C	9°C	15°C

- 6.1 What is meant by the 'temperature range?' (1)
- 6.2 Calculate the temperature range for Kimberley. Show your calculations. (2)
- 6.3 State which of the three towns has the greatest range of temperatures, and explain the climatic reasons why this is the case. (4)

- 6.4 Durban and Port Nolloth are both at sea level, and Port Nolloth is slightly closer to the Equator than Durban. Durban, however, has higher summer and winter temperatures than Port Nolloth. Explain why this is so. (4)
- 6.5 Mountains affect rainfall patterns. Draw a simple, well-labelled diagram to show how mountains create wet or dry regions on either side of the mountain range. (7)
(Remember to include a heading for your diagram.)

Read the following case study on the effects of climate change on South Africa's weather patterns.

Effects of climate change on South Africa's weather patterns

Climate change in South Africa is leading to increased temperatures and rainfall variability. Our average annual temperatures have increased by at least 1.5 times more than the observed global average of 0.65°C in the past 50 years.

Evidence shows that extreme weather events are becoming more prominent due to climate change. Added to this, extreme rainfall events have increased, such as the catastrophic floods that wrecked the coastal city of Durban and surrounding areas, killing hundreds of people and destroying thousands of homes in 2022.

According to a new analysis by the research consortium World Weather Attribution, the likelihood of an event this severe happening at all has more than doubled because of global warming. A warmer atmosphere can hold more water, allowing storms to dump more rain. That doesn't necessarily mean storms will happen more frequently — but in many places, they'll be stronger when they do happen.

This is a critical concern for South Africans as climate change will affect the overall status and well-being of the country. The various effects of climate change on rural communities are expected to include: drought, depletion of water resources and biodiversity, soil erosion, decreased subsistence economies and cessation of cultural activities. South Africa contributes considerable CO₂ emissions, being the 14th largest emitter of CO₂ in the world.

Written by: Chelsea Harvey

Available at: <https://www.scientificamerican.com/article/climate-change-doubled-the-likelihood-of-devastating-south-african-floods/>

- 6.6 Identify two ways in which climate change is affecting South Africa's weather. (2)
- 6.7 Discuss how global warming is doubling the changes of extreme rainfall in South Africa. (2)

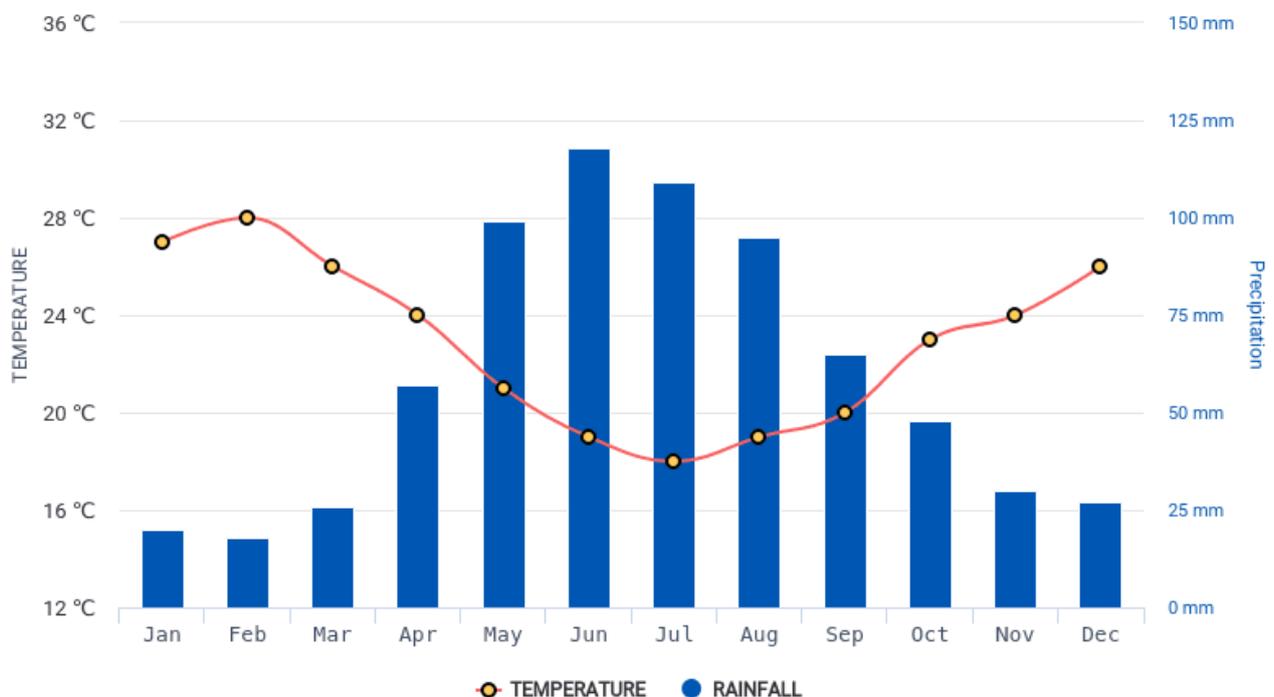
[22]

Question 7 – Case Study – Cape Town

Study the Climate graph for Cape Town and answer the questions that follow.

Cape Town South Africa Average Monthly Rainfall

AVERAGE PRECIPITATION & TEMPERATURES 1850-2016



hikersbay.com/climate/southafrica/capetown

Figure 4: Climate Graph for Cape Town, South Africa.

(* 01=12 indicate months of the year, January to December)

- 7.1 What evidence from this graph indicates that Cape Town is in the southern hemisphere? (2)
- 7.2 State the average maximum and minimum temperatures recorded in Cape Town. (2)
- 7.3 During which season does Cape Town receive most of its rain? Quote from the graph to support your answer. (2)

- 7.4 Cape Town can be described as having a Mediterranean climate. Quote THREE pieces of evidence from the graph above to support this statement. (3)
- 7.5 Name TWO other regional climate types in South Africa. (2)

[11]

Question 8 – News story

Read the bulletin below from a news site and answer the questions that follow.
Read the bulletin below from a news site

18-19 April 2021

The Editors' Table | On the firebreak: Covering Cape Town's inferno

On Sunday morning, a fire started on Table Mountain in Cape Town.

It has since wreaked havoc on the area. With temperature spiking to around 37 degrees Celsius, humidity at less than 10% and extremely strong winds on Monday, the mountain was engulfed in thick smoke, and a convoy of helicopters dropped water on the flames as firefighters tried to hold the line.

Cape Town fire: Residents start returning home; mop-up operations continue

A devastating veldfire on the slopes of Table Mountain has destroyed 650 hectares - and firefighters will be on standby throughout the night to prevent any flare-ups.

SANParks fire chief, Philop Prins, said: "More than 150 firefighters from Table Mountain National Park/contract wildfire crews (NCC Wildfires), Working on Fire, Volunteer Wildfire Services and City of Cape Town were deployed on the fire line, with assistance from fire aerial support helicopters that began suppressing the fire in the City Bown area from 07:00 on Tuesday morning."

Written by Sheldon Morais

Available at: https://www.news24.com/news24/opinions/reader_hub/the-editors-table-on-the-firebreak-covering-cape-towns-inferno-20210420

- 8.1 Identify three climatic reasons why summer fires in Cape Town are so difficult to extinguish. (3)
- 8.2 Do you think that climate change will have an effect on the frequency of veldfires in the Western Cape. Give a reason for your answer. (2)
- 8.3 Discuss how the use of technology (helicopters, satellite photos, hourly weather information, and the use of drones) could help to minimise danger to fire fighters and residents. (5)

[10]

TOTAL

[80]

**SOCIAL SCIENCE - GEOGRAPHY
JUNE EXAM MEMO**

SECTION A: Map Skills

Question 1 – Multiple choice questions

- 1.1. A ✓
1.2. A ✓
1.3. B ✓
1.4. A ✓
1.5. A ✓
1.6. C ✓
1.7. D ✓

[7]

QUESTION 2 - Maps

- 2.1 32°10' S; 25°40' E: Cradock ✓
2.2 33°55' S; 25°40' E: Gqeberha ✓
2.3 31°40' S; 28°40' E: Mthatha ✓

[3]

QUESTION 3 – Time zones

No.	Answer	Mark
3.1	On which line of longitude does South Africa base its time? 30°E ✓	(1)
3.2	Why do some countries have many time zones, and some only a few? Small countries, such as South Africa, find it inconvenient to operate within more than one time zone. ✓ Large countries, like the USA and Russia, need more than one time zone, as there may be a time difference of 8 hours between the western and eastern parts of the country. ✓ One time zone would be impractical. ✓ (Any two marks)	(2)

3.3	Choose the correct options in the following statement: Places in the Eastern hemisphere have a time that is earlier/ later ✓ in the day than places in the Western hemisphere. This is because the Earth rotates from west to east ✓ / east to west.	(2)
3.4	A world cup soccer match is being played between Argentina and Brazil at 14:00 in Argentina. Ayanda in Gqeberha, South Africa, wants to watch the game live on television. Will he need to turn on his television at 08:00 or at 20:00? Explain your answer. Ayanda will need to turn on his television in Gqeberha at 20:00 ✓, because South Africa is ahead of Argentina in time. (South Africa is further east) ✓	(2)
		[7]

QUESTION 4 – Aerial illustration

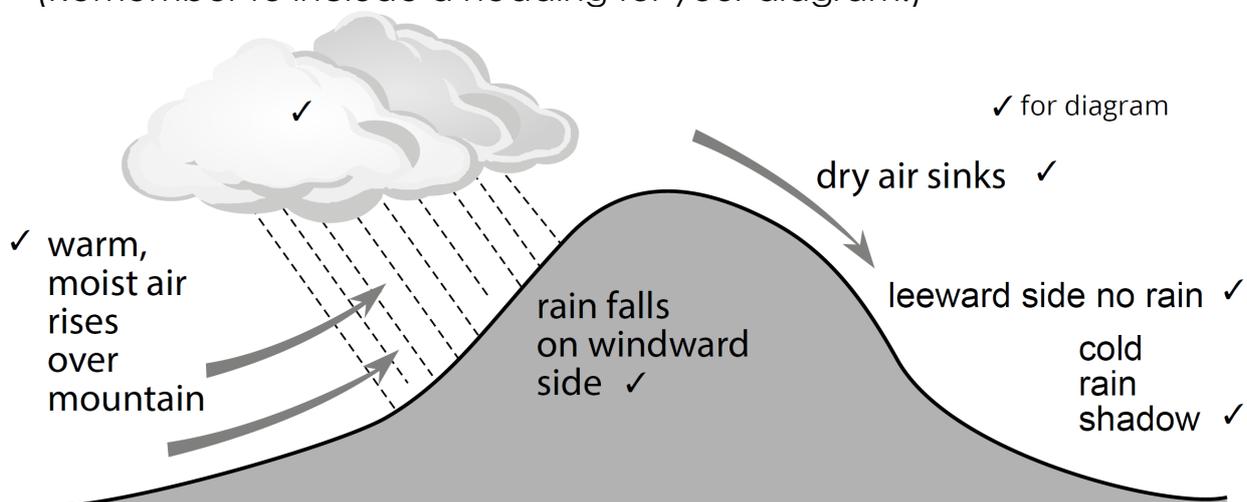
4.1	Match each of the following land-use areas with the letters A to D on the illustration: v. Recreation / leisure D ✓ vi. Residential housing A ✓ vii. High-density accommodation B ✓ viii. Parking area C ✓	(4)
4.2	What evidence in the illustration suggest that Durban is a prime tourist city? There is a large beach, with many people on the beach and swimming in the ocean. The large parking area adjacent to the beach is full of cars. ✓ There are also many buildings that look like hotels or holiday apartment right along the beachfront. ✓	(2)
4.3	From the illustration, describe the general relief (topography) of the area shown. The foreground, (including the beachfront) area is fairly flat, allowing for high-rise buildings and sports fields. ✓ In the distance, the area is hillier, and this land is used for residential housing. ✓	(2)
		[8]

Kimberley has the greatest temperature range, because it is far inland. ✓ The ocean has a moderating effect on places at the coast ✓, while places far from the coast have greater extremes of temperature ✓, both between day and night, and between summer and winter. ✓ (Clouds and moisture in the air help to retain heat, so places inland are drier, and have less water vapour to retain heat) (4)

6.4 Durban and Port Nolloth are both at sea level, and Port Nolloth is slightly closer to the Equator than Durban. Durban, however, has higher summer and winter temperatures than Port Nolloth. Explain why this is so. (4)

Ocean currents affect the temperatures of coastal places. ✓ Durban has the warm Agulhas current flowing alongside ✓, which brings warm water southwards from the Equator. A cold current, the Benguela current ✓, flows northwards along the west coast, lowering the temperatures at Port Nolloth. ✓

6.5 Mountains affect rainfall patterns. Draw a simple, well-labelled diagram to show how mountains create wet or dry regions on either side of the mountain range. (Remember to include a heading for your diagram.) (7)



6.6 Identify two ways in which climate change is affecting South Africa's weather. (2)

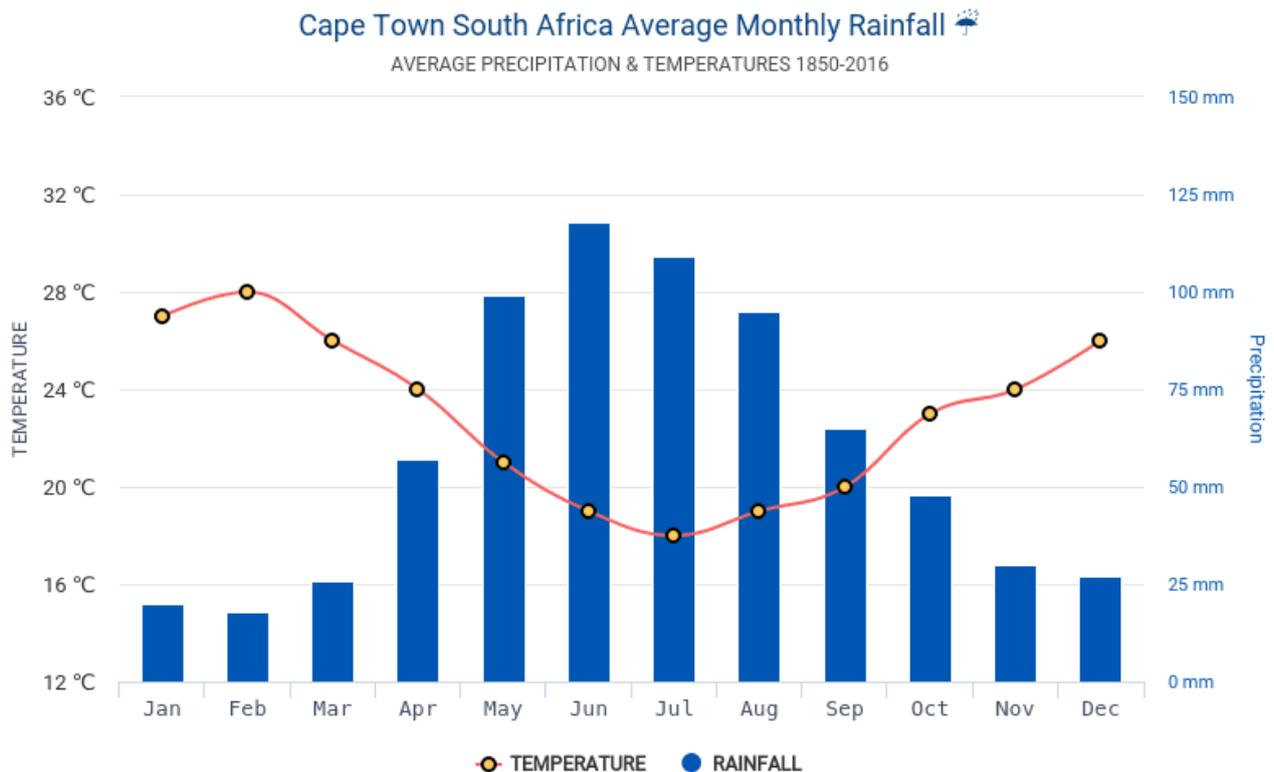
Increased temperatures ✓ and rainfall variability ✓

6.7 Discuss how global warming is doubling the changes of extreme rainfall in South Africa. (2)

A warmer atmosphere can hold more water✓, allowing storms to dump more rain✓. However, this does not mean it will rain more frequently, but when it rains it will be more extreme.

[22]

Question 7 – Case Study – Cape Town



hikersbay.com/climate/southafrica/capetown

- 7.1 What evidence from this graph indicates that Cape Town is in the southern hemisphere? (2)
 The highest temperatures for Cape Town occur at the beginning and end of the year, ✓ which is the time when the southern Hemisphere has summer. (Summer solstice is in December) ✓
- 7.2 State the average maximum and minimum temperatures recorded in Cape Town. (2)
 Maximum average temperature is about 28°C, ✓ and the average minimum average temperature is 18°C in Cape Town. ✓
- 7.3 During which season does Cape Town receive most of its rain? (2)
 Quote from the graph to support your answer.

Cape Town receive most of its rain in winter: The bar graphs show highest figures in the middle of the year, e.g. approximately 120 mm in June, ✓ and 105 mm in July. ✓ (Learners estimate read on graph might vary slightly)

7.4 Cape Town can be described as having a Mediterranean climate. Quote THREE pieces of evidence from the graph above to support this statement. (3)

2.3.4 Cape Town can be described as having a Mediterranean Climate:

- Annual rainfall is about 900 mm (Estimate, might differ from students calculations) ✓
- Winter rainfall ✓
- Hot, dry summers. ✓

7.5 Name TWO other regional climate types in South Africa. (2)
Subtropical, (e.g. KwaZulu-Natal) ✓ Semi-desert, (e.g. Northern Cape) [11]
✓ Desert, (e.g. West Coast) ✓ Temperate (e.g. Knysna area) ✓

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SANParks fire chief, Philop Prins, said: "More than 150 firefighters from Table Mountain National Park/contract wildfire crews (NCC Wildfires), Working on Fire, Volunteer Wildfire Services and City of Cape Town were deployed on the fire line, with assistance from fire aerial support helicopters that began suppressing the fire in the City Bown area from 07:00 on Tuesday morning."

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- 8.1 Identify three climatic reasons why summer fires in Cape Town are so difficult to extinguish. (3)
High temperatures, ✓ dry vegetation that catches ablaze quickly, ✓ low humidity, ✓ low water in dams (dry summers), ✓ strong summer winds. ✓
Any three of the above
- 8.2 Do you think that climate change will have an effect on the frequency of veldfires in the Western Cape. Give a reason for your answer. (2)
Yes, ✓with hotter and drier spells veldfires will occur more often. ✓
- 8.3 Discuss how the use of technology (helicopters, satellite photos, hourly weather information, and the use of drones) could help to minimise danger to fire fighters and residents. 5
Satellite photos can determine current wind direction, and possible changes in wind speed and direction. ✓ These can be used to issue warnings, to evacuate people timeously, or to create firebreaks to stop the fire in its path. ✓ Drones can reach areas too hot for people or vehicles, to drop first-aid supplies, food, ✓ etc. and helicopters can ferry water from the nearest water storage facilities to 'water bomb' the fires. ✓ Computer modelling can predict areas most at risk. ✓ Television and radios, including cell phones, can be used to keep the public informed. ✓
Any five marks .

TOTAL**[80]**