OXFORD

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South African

Thematic Atlas for grades 7–9

Worksheets

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Contents

How to use an atlas in the classroom

An atlas does not only contain maps, it also has a great deal of geographic information. The information is organised with a table of contents at the beginning and an index at the end. These allow for easy access to the information contained in the atlas. The study of geography, history, political science and many other subjects is enhanced by the knowledge of how to use an atlas.

Before using the atlas, take time to page through it and to enjoy not only the maps, but the pictures, graphs, text boxes and much more. There are five sections included in the *Oxford South African Thematic Atlas for grades 7–9*, namely:
• Geoskills (or mapskills)
• Geothemes
• Geomaps: South Africa and Africa
• Geomaps: The world
• History

There are a great deal of text features found in this atlas:
• A table of contents is like a map of the atlas. It tells what is in the atlas and provides page numbers to help readers find information.
• Captions are words that accompany a picture, photo or graph. They are the connection between the visuals in the atlas and the rest of the information.
• Photos and illustrations work with other text features to help the readers understand the information in the atlas.
• Diagrams, charts and graphs are included in a text to add further meaning to it.
• An index at the back of the atlas helps readers locate information they may be looking for.
• Information boxes draw the reader's attention to some important information relevant to a particular map.

TYPES OF MAPS IN ATLASES

Maps provide the majority of information in an atlas.
• Some maps in an atlas feature all of the Earth's surface.
• Other maps are of continents, countries or smaller and more specific regions.
• The two most common types of maps found in atlases are political maps and physical maps.
• Some maps in atlases represent information that is classified as comparative data. These sort of maps include information about rainfall, as well as population distribution and density.

Activity 1
Draw up a list of 10 different kinds of information that the atlas contains. This could be done as a collective class exercise.

Activity 2
Pages 38 and 39 of the atlas in the Geothemes section contain information about volcanoes.

1. Identify FOUR different types of text features included on those two pages.

2. Join in a discussion with the class as to why the author chose to add those particular text features.

Activity 3
This can be done as a game in which learners try to find information in an atlas. The answers to these questions are to be found in the Geomaps sections of the atlas. Work in groups of two or three. Team work will help you to win!

Questions

1. Using the index, on what page would you find the Drakensberg? _____

2. What sea is between England and the Scandinavian Peninsula? _____

3. Name the biggest country in South America. _____

4. Iceland is between which two countries? _____

5. On which continent is Kazakhstan located? _____

6. Using the index, on which page would you find the Eastern Cape? _____

7. In which province of South Africa will you find the Waterberg? _____

8. Name three cities that are located on the equator. _____

9. What continent is closest to Antarctica? _____

10. What outdoor activities might you enjoy in North West province? _____

11. What countries border the United States of America? _____

12. Name the country shaped like a boot in Europe. _____

13. Which countries border the Red Sea? _____

14. Where are the Atlas Mountains located? _____

15. How many people live in the Western Cape? _____

16. Name the country to the north of Nigeria. _____

17. What is the capital of India? _____

18. On which continent will you find Uluru? _____

19. Which continents does the Prime Meridian (PM) go through? _____

20. Mpumalanga is one of South Africa's provinces. What is the meaning of the word "Mpumalanga"?

_____

Geoskills

Worksheet 1: Street maps (Grade 7)

1. Use the grid reference for the map of Caledon on page 8 to answer the following questions. Give the grid references of the following places:

	Place	Grid reference
e.g.	**Sports Ground**	**CC 12**
1.1	Caledon Springs	
1.2	West End	
1.3	Caledon Hospital	
1.4	Vleiview	
1.5	Caledon Traffic Department	
1.6	Caledon Nature Reserve and Flower Gardens	

(6 x 2 = 12)

2. Find the following places by using the grid references on page 8 of the atlas.

   2.1   Name the restaurant in CC 11. _____

   2.2   Name the museum in CB 12. _____

   2.3   Name the primary school in CB 11. _____

   2.4   Name the bridge in CB 12. _____

   2.5   Name the senior school in CD 13. _____ (5 x 2 = 10)

3. Use the map index on page 9 to answer these questions.

   For example: On which page of the atlas would you find reference to Ceder Avenue?

   Answer: Page 221

   3.1   In which town is Chiraz Street situated? _____

   3.2   Give the grid reference of Charon Street on the Grabouw map. _____

   3.3   Give the grid reference of Cestrum Avenue in Robertson. _____

   3.4   On which page will you find Chakkie in Saldanha? _____

   3.5   On what page will you find a map of Malmesbury? _____

   3.6   Name the street/close that is to be found on page 208 LD 11. _____

   3.7   Name the street that is to be found on page 209 LH 11. _____ (7 x 2 = 14)

4. On page 9 of the atlas there is an explanation of how to describe a route. Read this carefully.

4.1 Describe the route from the Caledon Police Station in Church Street (CC 11) to the Sports Ground in Smal Avenue (CC 12).

_____

_____

_____

_____

_____

_____ (8)

4.2 The following directions were given to a tourist who wanted to get from the Caledon Springs (CB 13) to the Libanon B&B (CB 11). However, an error was made in these instructions.

"From Caledon Springs turn left into Nerina Street. At the intersection with Plein Street turn left. Take the third road to the right and follow Prince Alfred Road. Turn right into van Riebeek Street (6th road), and then turn right into Krige Street. You will now be outside Libanon B&B."

Identify the error that was made in these instructions.

_____

_____ (1)

Total: 45 marks

Worksheet 2: Distances on a map (Grades 7, 8 and 9)

1. From the list that follows, choose the correct answer to questions 1.1 to 1.4. Please note, one of the answers can be used twice.

10 millimetres	= 1 centimetre
100 centimetres	= 1 metre
1 000 metres	= 1 kilometre
100 000 centimetres	= 1 kilometre
10 000 square metres	= 1 hectare

   1.1   10 millimetres   = _____

   1.2   100 000 centimetres = _____

   1.3   100 centimetres   = _____

   1.4   1 000 metres   = _____   (4)

2. Read through the information on page 10 of the atlas to help you to explain the term "perspective".

_____

_____ (2)

3. Read the information on estimating distances on page 10 of the atlas and study the photograph.

   3.1   Points A and B are approximately 150 m apart. The distance from house A to house C is about 1000 m (1 km). Estimate the length of the cultivated land from A to D. (Hint: It is the approximate length of four soccer fields.)

       Estimating distances is not easy to do using a photograph, as the distances between places that are closer are out of proportion to those places that are further away.

       _____ (1)

   3.2   Explain why maps that are drawn from above (vertical) are more accurate than maps drawn from the side (oblique).
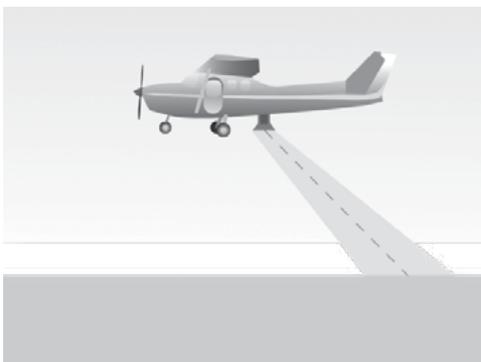
Oblique

Vertical

_____

_____

_____

_____ (3)

4. Use the map of Zanzibar on page 11 to help you to calculate the following distances. The scale of this map is expressed as 1 cm = 5 km on the ground.

For example, on the map, Zanzibar measures 15 cm from north to south. The straight line distance is thus 15 cm x 5 km from north to south, which is 75 km.

4.1 Find Zanzibar Town on the west coast and Bwejuu on the east coast. On the map they are 6,6 cm apart. Calculate the distance in kilometres from Zanzibar Town to Bwejuu.

_____

_____ (2)

4.2 Calculate the straight line distance in kilometres from Pongwe on the east coast to Kama on the west coast.

_____

_____ (2)

4.3 How far would you fly from Ras Nungwi in the north to Mnemba Island to the east of Zanzibar?

_____

_____ (2)

4.4 Use a piece of string or cotton to help you to calculate the following indirect distance:

A motorist drives from Ras Nungwi at the northern tip of Zanzibar southwards towards Kinyasini. At Kinyasini he turns westwards (to the right) and drives to Mahonda. From Mahonda he continues southwards to Zanzibar Town, going through the towns of Chuini and Beit El Ras.

_____

_____ (4)

Total: 20 marks

Worksheet 3: Scale (Grades 7, 8 and 9)

1.1 If a model car has a scale of 1:200, how many times smaller is the model car than an actual car?

_____ (1)

1.2 If Africa is represented on a map with a scale of 1:5 000 000, how many times bigger is the actual continent of Africa compared to how it is drawn on the map?

_____ (1)

2. A word scale is a scale expressed in words. For example, 1 cm = 10 km. This means that 1 cm on the map measures 10 km on the ground. Explain the meaning of the following word scales:

   2.1   1 cm = 200 km _____

   2.2   1 cm = 30 m _____

   2.3   1 cm = 14 000 km _____ (3 x 2 = 6)

3.1 Use the line scale from the KwaZulu-Natal map on page 13 of the atlas to calculate the straight line distances from:

   i)   Amanzintoti to Park Rynie _____

   ii)   Durban to Verulam _____

   iii)   Pietermarizburg to Wartburg _____

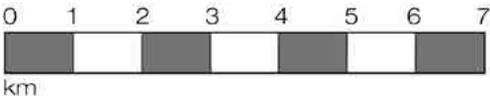   **iv)**   Durban to Isipingo _____

   v)   Estcourt to Zenzani _____ (5 x 2 = 10)

3.2 Use the line scale of the map of South Africa (page 13) to calculate the straight line distances:

   i)   Port Elizabeth to East London _____ (1)

   ii)   Durban to Margate _____ (1)

4. Fill in the answers on the following table:

	Scale	Type of scale
4.1	1 cm = 20 km	
4.2		
4.3	1:340 000	
4.4	1 cm = 300 meters	
4.5	1:20	

(5)

Total: 25 marks

Worksheet 4: Compass directions (Grades 7, 8 and 9)

Read the information on page 14 of the atlas to revise your knowledge on compass directions.

1. Name the country to the:

    1.1   north of Sudan _____

    1.2   south west of Zimbabwe _____

    1.3   west of Zambia _____

    1.4   south east of Algeria _____

    1.5   south of Chad _____

    1.6   north east of Namibia _____

    1.7   east of Zimbabwe _____

    1.8   north west of Ethiopia _____   (8)

2. Read through the information about how a compass works and then answer the following questions.

    2.1   Name the mineral found in the Earth's core that gives the Earth its natural magnetic field.

    _____   (1)

    2.2   Underline the correct words:

    The needle of a compass points to true north / magnetic north.   (1)

3. Why does the sun appear to rise in the east and set in the west?

    _____

    _____   (2)

4. There are a number of practical exercises that you can use to find north in the outdoors. Read the instructions in your atlas on page 15 and practise finding north out of the classroom. This knowledge could be very useful one day!

    4.1   Imagine that it is 6 o'clock in the morning and you are facing the sunrise, which direction is to your left?

    _____   (2)

    4.2   Imagine that it is 6 o'clock in the evening and you are facing the sunset, which direction is to your left?

    _____   (2)

5. The diagram below shows the Southern Cross constellation (group of stars) and the two pointer stars. The Southern Cross is a constellation that is very easy to identify in our night sky. The Southern Cross and the two pointer stars have long been used for navigation purposes. The diagram on page 15 of the atlas explains how to locate the South Pole using these stars.

Follow steps 1, 2 and 3 in the atlas to help you to locate the position of the South Pole on the diagram below. (4)
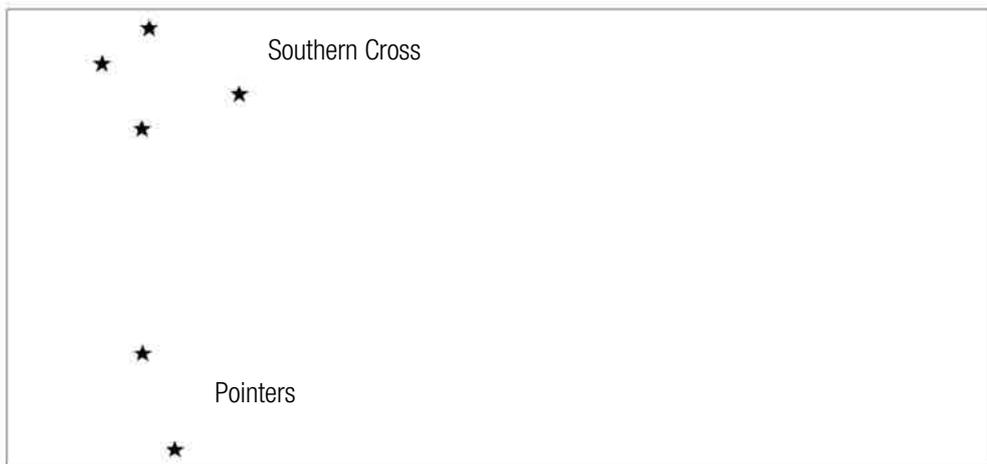
Total: 20 marks

Worksheet 5: Sketch maps (Grade 7)

1. Read through the information about sketch maps on page 16 of the atlas. List the FIVE essential features that a sketch map should have.

   _____

   _____

   _____

   _____

   _____ (5)

2. Read the instructions on page 17 of the atlas that show you how to draw a sketch map.

   The aerial photograph below shows a portion of the Cape Town suburb Goodwood in the Western Cape. Draw a sketch map of this photographed area.

   - Before you start your sketch map, divide the photograph into four equal parts. Do the same thing in the block provided for your sketch map. Fit the various features of Goodwood correctly into each quadrant.
   - Choose a symbol to represent each of the features listed below. The key to the sketch map on page 17 will give you some ideas on the choice of appropriate symbols.
   - On your sketch map, draw in:
     » all the roads and label those that are named on the photograph
     » the residential areas
     » the business areas and shopping centre
     » the golf course
     » the railway
     » the traffic department and fire brigade

Aerial photograph of Goodwood, Cape Town (Western Cape)

Sketch map of Goodwood, Cape Town (Western Cape)

Key									

(10)

Total: 15 marks

Worksheet 6: The globe: Earth's rotation – day and night (Grade 8)

Pages 18 and 19 of the atlas illustrate the effects of the Earth's rotation around its axis. Use this information to do the following activities:

1.1 In 1543 Copernicus, a Polish astronomer, suggested that the sun, not the Earth, was in the centre of our solar system. Why had people previously believed that the Earth was at the centre of the solar system?

_____

_____ (2)

1.2 What explanation did Copernicus give for the sun appearing to rise in the east and set in the west?

_____

_____ (2)

2. The picture of the Earth on page 18 shows that East Asia is experiencing day. However, it is still night in India, the Middle East and Europe.

    2.1 Underline the correct answer:

        i) The Earth rotates from east to west.

        or

        ii) The Earth rotates from west to east. (1)

    2.2 Describe what the Earth is doing when we say that the Earth rotates.

_____

_____ (2)

    2.3 At what speed is the Earth rotating at the equator?_____
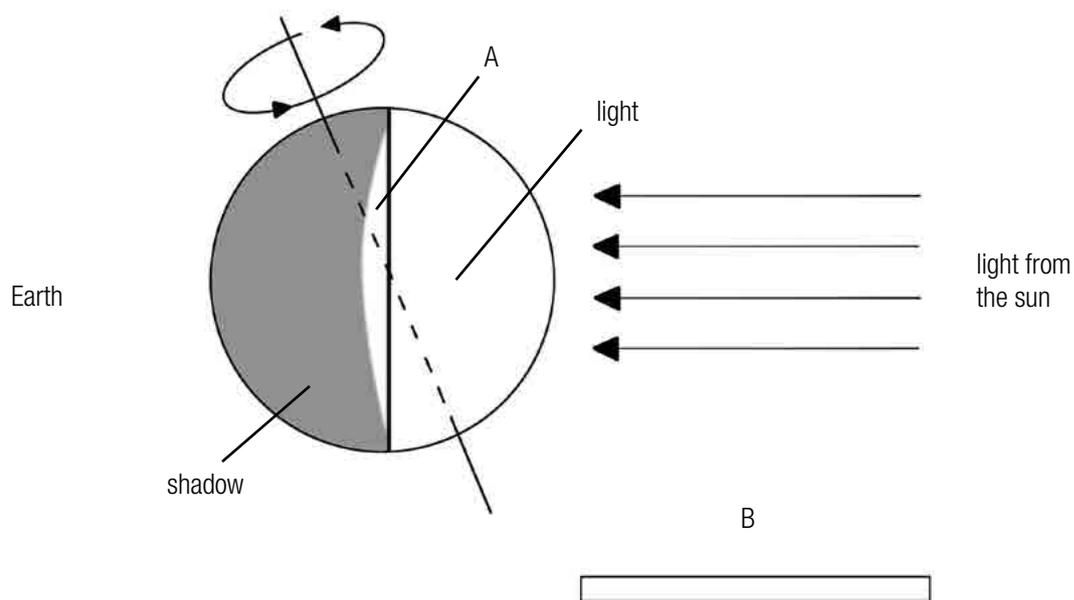
_____ (1)

3.1 On the photograph of Earth on page 18, name the triangular shaped country that is about to experience sunrise?

_____ (2)

3.2 Will the time in Europe be ahead or behind the time in India? Explain your answer.

_____

_____

_____

_____ (4)

4. The diagram below shows the rotation of the Earth that results in us experiencing day and night.

4.1 What determines which side of the Earth is experiencing daylight?

_____

_____ (2)

4.2 Write the following information on the diagram above.

    i) At (A), show the angle of tilt of the Earth.

    ii) On the diagram, label the day and night sectors.

    iii) At (B), complete the arrow to indicate the direction in which the Earth is spinning. (3)

5. In which season are the days the longest? _____ (1)

Total: 20 marks

Worksheet 7: The globe: latitude and longitude (Grade 8)

Lines of latitude and longitude are used to give the position of places on Earth.

1. How many degrees make up a:

   1.1 sphere _____

   1.2 hemisphere _____

   1.3 quadrant? _____ (3)

2. Correct the following statements:

   2.1 There are 180° of longitude; 90° to the north of the equator and 90° to the south of the equator.

   _____

   2.2 The Greenwich Meridian divides the Earth into northern and southern hemispheres.

   _____

   2.3 180° is also known as the International daily line.

   _____

   2.4 The equator stretches from the North Pole to the South Pole.

   _____

   2.5 The 180° line lies on the opposite side to the equator.

   _____ (5 x 2 = 10)

3. From the list below choose suitable labels for the latitude and longitude lines labelled (1) to (4). Write the correct labels on the diagram. (4 x 2 = 8)

   • latitude lines
   • longitude lines
   • Greenwich Meridian (0°)
   • equator (0°)
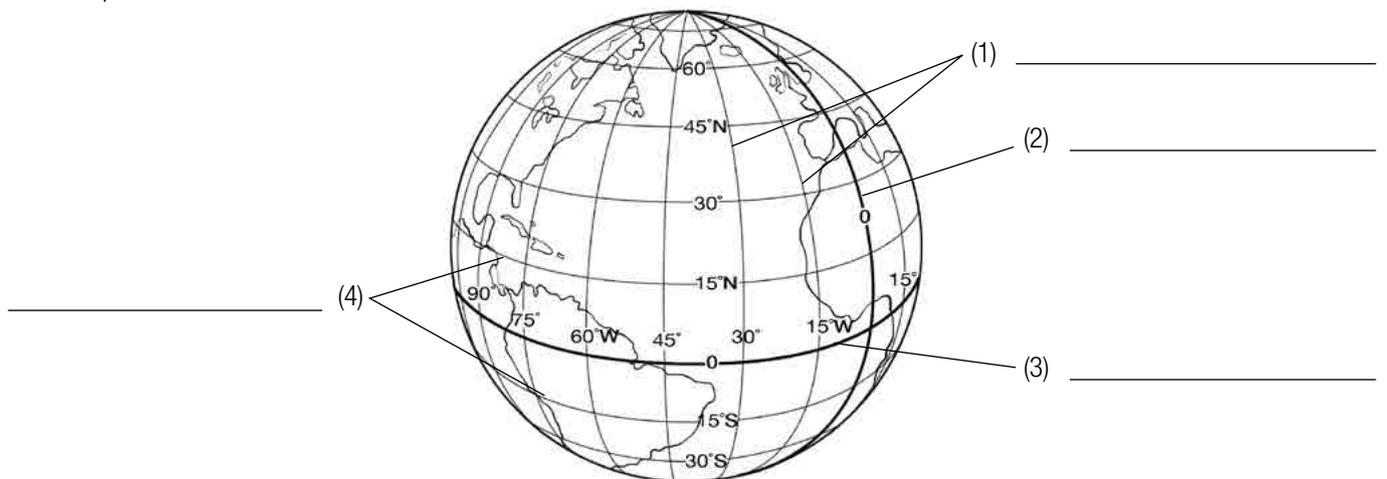
4.1 How many degrees of latitude are there in total north and south of the equator? _____ (2)

4.2 How many degrees of longitude are there in total? _____ (2)

4.3 What is the latitude 35°N north of? _____ (2)

4.4 What is the longitude 60°W west of? _____ (2)

4.5 Use the map of the world on page 21 of the atlas to do this activity. Correct the latitude and longitude of points X, Y and Z.

	Incorrect latitude and longitude	**Correct latitude and longitude**
Point X	0°; 150°E	
Point Y	30°N; 30°E	
Point Z	15°S; 165°W	

(6)

5. State the latitude of the South Pole. _____ (1)

6. How many minutes are there in a degree of latitude and in a degree of longitude? _____ (1)

7. State the approximate distance in kilometres between two degrees of latitude. _____ (2)

8. Use the map on page 22 of the atlas and name the places that are located at the following co-ordinates:

    8.1 25°31'S; 27°57'E _____

    8.2 25°49'S; 27°30'E _____

    8.3 26°25'S; 28°30'E _____ (3 x 2 = 6)

Total: 45 marks

Worksheet 8: How to use an atlas (Grade 8)

1. What does the contents page tell you about an atlas?

_____

_____ (3)

2. Why is it important to include the following on every map?

    2.1 a key _____ (2)

    2.2 a scale _____ (2)

3. The table below is an extract from the index of the *Oxford South African Thematic Atlas for grades 7–9*. The index is found at the back of the atlas. It is an alphabetical list of the features in the atlas. Each entry in the index includes the following information:

- country
- page number
- grid reference
- latitude in degrees and minutes
- longitude in degrees and minutes

Use the information from this index, to complete the table below.

	Page	Grid reference	Latitude	Longitude
Ras Dashan				
Randfontein				
Rabat				
Reykjavik				

(16 x ½ = 8)

Total: 15 marks

Worksheet 9: The globe: time zones (Grade 8)

In 24 hours the Earth rotates through 360°. This results in some places experiencing daylight while others experience night.
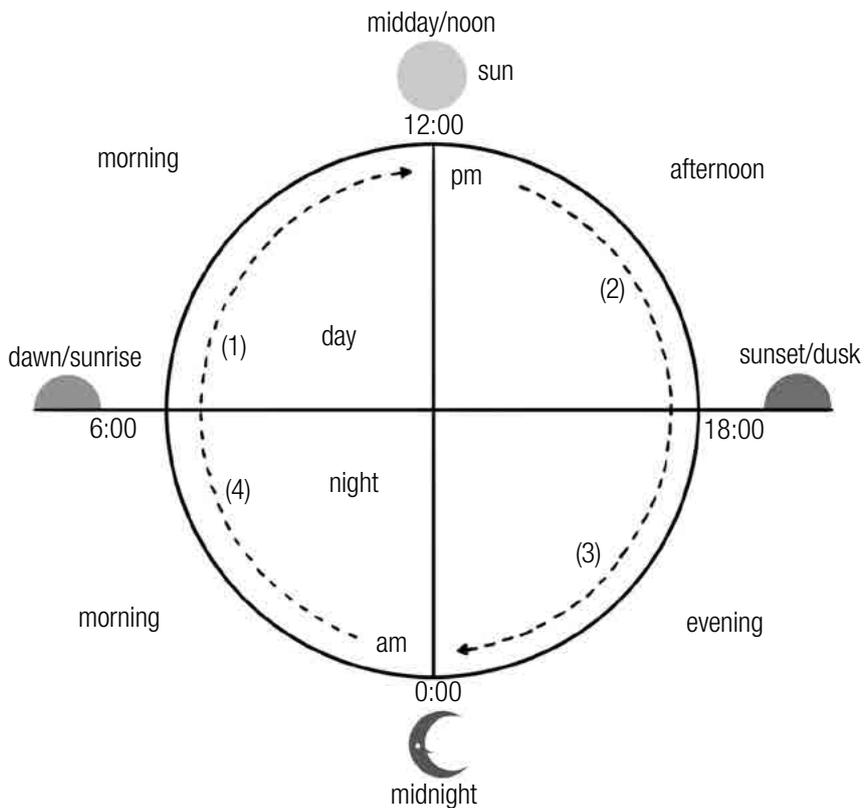
1. Use the information on page 24 of the atlas and the diagram above to answer the following questions.

   1.1 State how long it takes the Earth to make one rotation on its axis. _____ (1)

   1.2 In which direction does the Earth rotate? _____ (1)

   1.3 How long does it take the Earth to rotate through 15°? _____ (1)

   1.4 According to the diagram, what time is sunrise? _____ (1)

   1.5 Through how many degrees has the Earth rotated after sunrise for the time to be 12 midday?

   _____ (2)

   1.6 Estimate the time at the places numbered (1), (2), (3) and (4) on the diagram.

   (1) _____

   (2) _____

   (3) _____

   (4) _____ (4)

2. As the Earth rotates, different places experience day followed by night. This means that different places on Earth have different times. Times in different parts of the world are measured from the Greenwich Meridian (0°). For every 15° to the east of the Greenwich Meridian, the time is one hour ahead of Greenwich Mean Time (GMT) and for every 15° to the west of the Greenwich Meridian the time is one hour behind GMT.

The map on page 25 shows the world's time zones. Use the map to answer the following questions:

2.1 South Africa uses 30°E of the Greenwich Meridian to calculate our time. How many hours are we ahead of GMT? _____ (1)

2.2 Name THREE countries in Africa whose time is also based on 30°E longitude. _____

_____ (3)

2.3 Eastern Australia calculates their time from 150°E. How many hours are they ahead of GMT? _____

_____ (2)

2.4 If it is 8.00 in the morning in South Africa, what is the time in Sydney, Australia? _____

_____ (2)

2.5 How many hours is New York, USA, behind GMT? _____ (2)

2.6 If it is 14.00 in South Africa, what is the time in New York? _____ (2)

2.7 How many time zones does the USA have? (Don't forget that Alaska and Hawaii are also part of the USA.)

_____ (2)

2.8 Moscow (Russia) uses the +3 time zone. If it is 11.00 in Moscow, what will the time be in the far eastern part of Russia? _____ (2)

2.9 Discuss a problem that this might create for a father who lives in Moscow and wants to talk to his daughter who lives in far eastern Russia.

_____

_____

_____

_____

_____ (4)

Total: 30 marks

Worksheet 10: The globe: Earth's revolution (Grade 8)

1. Match the information in column A with the correct statement in column B.

Example: 1.1 and D match.

A		B	
1.1	365¼ days	**A**	150 million kilometres
1.2	110 000 km per hour	**B**	mid-winter in the southern hemisphere
1.3	leap year	**C**	equinox
1.4	23,5°	**D**	revolution of Earth around the sun
1.5	21 June	**E**	the sun overhead at the Tropic of Capricorn
1.6	21 December	**F**	23,5° North and South
1.7	equinoxes	**G**	the longest day of the year
1.8	Tropic of Cancer	**H**	29 February
1.9	equal day and night	**I**	March and September
1.10	Earth's distance from the sun	**J**	the tilt of the Earth's axis
1.11	summer solstice	**K**	speed of Earth as it moves around the sun

1.1	*D*
1.2	
1.3	
1.4	
1.5	
1.6	
1.7	
1.8	
1.9	
1.10	
1.11	

(10)

2. The diagram below shows the revolution of the Earth around the sun. It also shows that the axis of the Earth is tilted at an angle of 23,5°. As a result, the Earth experiences seasons. Use the diagram on pages 26 and 27 of the atlas to help you to answer the following questions.

The (N) on the diagram indicates the North Pole.
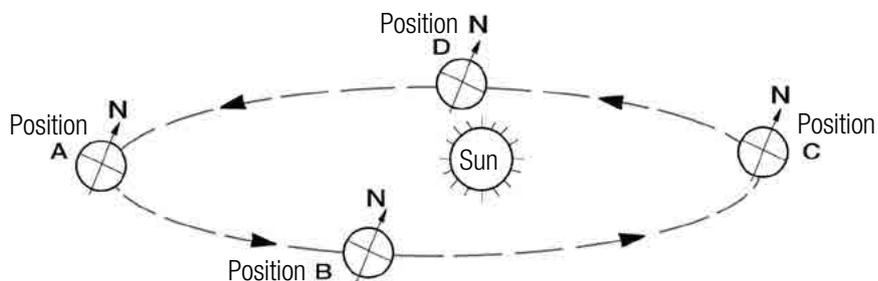
2.1 Identify the seasons in the southern hemisphere when the Earth is in position A, B, C and D.

A _____

B _____

C _____

D _____ (4)

2.2 On the diagram, label the dates when the Earth is at positions (A), (B), (C) and D. (4)

2.3 What is the season in the northern hemisphere, when it is spring in the southern hemisphere?

_____ (1)

2.4 Give the dates of the summer and winter solstices in the southern hemisphere.

_____ (2)

2.5 What is the length of the day on the 21 December at the South Pole?

_____ (2)

3. The eight planets that revolve around our sun are shown on page 27 of the atlas.
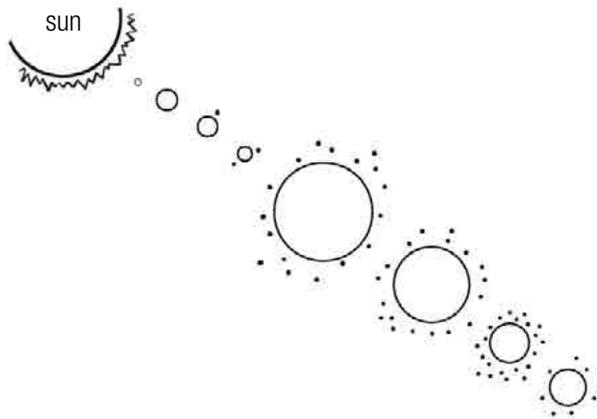
3.1 On the diagram, label each of the eight planets in our solar system in their correct order from the sun. (8)

3.2 Why is our Earth sometimes called the third rock from the sun?

_____ (2)

3.3 How many suns (stars) are estimated to be in our Milky Way galaxy?

_____ (2)

Total: 35 marks

Worksheet 11: Satellite images (Grade 8)

1. Satellites are constantly taking pictures of the Earth. They use shorter and longer light waves, both of which humans cannot see. They also use the visible light spectrum to which our human eyes are sensitive.

   1.1 Complete the sentence: Remote sensing is the process whereby satellites constantly

   _____ (2)

   1.2 What happens to all these data sets that are collected during the remote sensing process?

   _____ (2)

   1.3 List FIVE ways in which satellite images help geographers to study the Earth.

   i) _____

   ii) _____

   iii) _____

   iv) _____

   v) _____ (5)

2. Meteosat and Landsat are satellites that give South Africa a great deal of useful information.

   Meteorology is the study of the atmosphere and the atmosphere is thus the focus of Meteosat's images. As its name implies, Landsat concentrates on gathering data from the land surface of the Earth.

   The following information about these two satellites has been scrambled. Identify which statement is relevant to which satellite. Put an X in the column to which the statement refers.

	Statements	Meteosat	Landsat
2.1	This satellite gathers data to construct images of the Earth's surface.		
2.2	Every 30 seconds this satellite sends us images of clouds and air temperature.		
2.3	Synoptic maps that are used for weather forecasts are drawn from the images of our atmosphere that are transmitted by this satellite.		
2.4	This satellite's sensors use the sunlight and infra-red light radiated by the Earth to take photographs.		
2.5	False colour images are captured by this satellite.		

(5 x 2 = 10)

3. The satellite images of Sumatra in Indonesia before and after the tsunami on 26 December 2004 (page 29) show how the devastation of a natural disaster can be examined. Study the two photographs carefully, paying attention to the how the landscape changed after 26 December 2004.

   Use the copy of the 2 January 2005 satellite photograph on the following page. On the satellite photograph there are numbers 1 to 6. Identify and describe the changes that have occurred to this landscape at each of these sites.
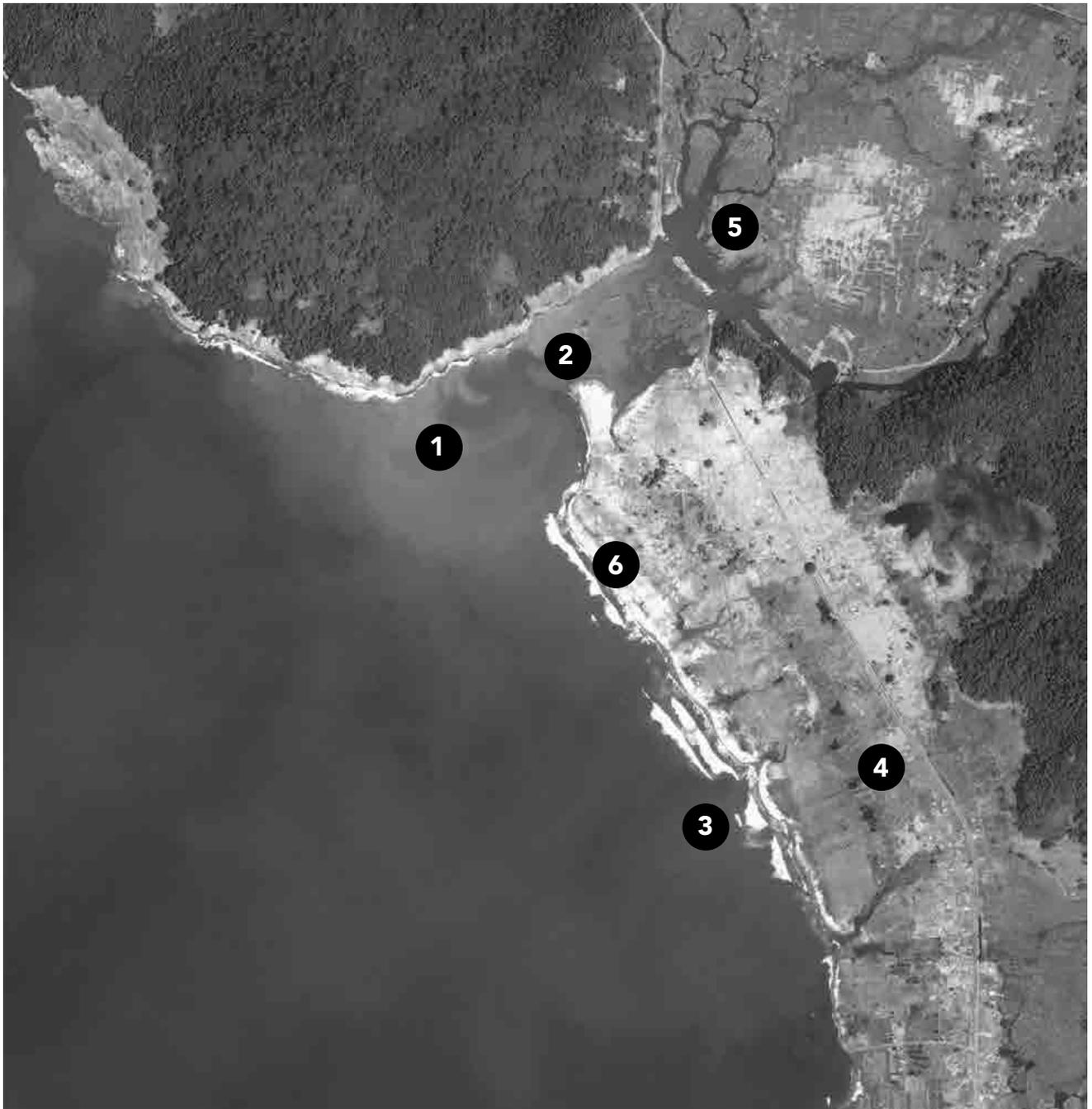
1. _____

2. _____

3. _____

4. _____

5. _____

6. _____ (6)

Total: 25 marks

Worksheet 12: Understanding height on maps (Grade 9)

1. Two of the most common ways of showing height on a map are relief shading and contour lines. Relief shading only gives an indication of height differences whereas contours show the ups and downs of the land very accurately.

   1.1   What colour is used to indicate the highest height on the relief shaded map of the Virunga National Park (page 30 of the atlas)? _____   (1)

   1.2   What colour is used to show the lowest height on the relief shaded map of the Virunga National Park?

   _____   (1)

   1.3   Identify the type of mountains that make up the Virunga National Park.

   _____   (2)

2.1 Use the text on page 30 to help you to write down a definition of a contour line.

_____

_____

_____   (4)

2.2 Use the contour map of Virunga National Park to find the height of Mikeno. _____   (1)

2.3 On the relief shaded map, steep slopes are shown by the use of specific colours. How are steep slopes shown on contour maps?

_____   (2)

2.4 On the contour map, some contours are drawn darker than others. What is the contour interval (difference in height) between these darker contours? _____   (2)

2.5 On the contour map, six volcanoes are shown. Which volcano is the tallest?

_____   (2)

2.6 Which THREE countries share the Virunga National Park?

_____   (3)

3. On page 31 of the atlas there are landforms shown by contour maps. Look at each of the landforms and then relate their shapes to the contour patterns.

   3.1   Why do the contour lines always join up when a hill is drawn?

   _____   (2)

   3.2   Identify the difference between the contour pattern for a valley and the contour pattern for a spur.
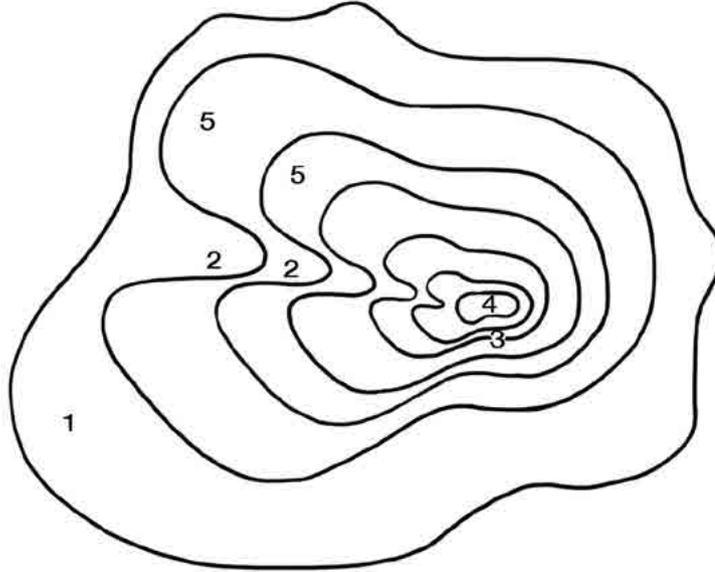
   _____

   _____   (4)

3.3 How is a cliff identified on a contour map?

_____ (2)

3.4 Give a definition of a plateau.

_____

_____ (2)

3.5 The contour map below shows various landforms.

i) From the following list identify the landforms numbered 1, 2, 3, 4 and 5. Write them in on the contour map.

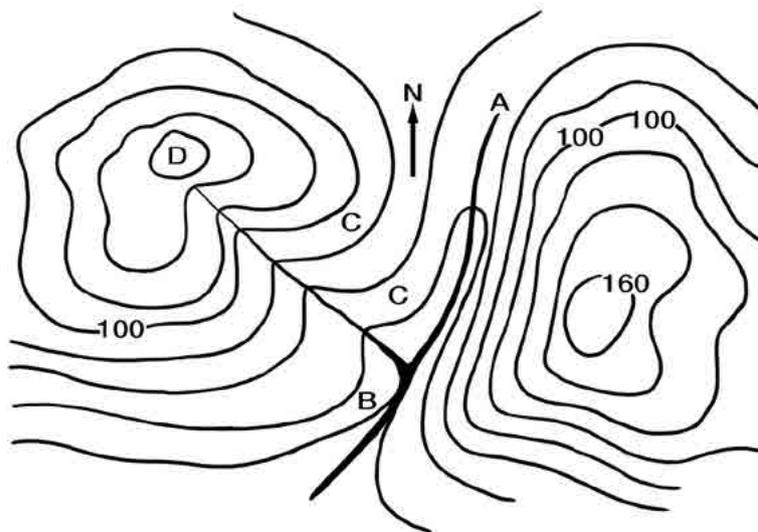hill   spur   river valley   gentle slope   steep slope

1 _____

2 _____

3 _____

4 _____

5 _____ (5 x 2 = 10)

ii) On the contour map, draw in the river. Use an arrow to show the direction in which the river is flowing. (2)

4. The contour map below shows hills, valleys and spurs. Page 31 of the atlas will help you to answer these questions.

4.1 There is a river flowing from (A) to (B). How do the contours indicate that this is indeed a river valley?

_____

_____ (3)

4.2 The landform shown by (C) is a spur. How do the contours indicate that this is indeed a spur?

_____

_____ (3)

4.3 What is the contour interval on this contour map?

_____ (2)

4.4 Calculate the height of the hill at (D).

_____ (2)

Total: 50 marks

Worksheet 13: Aerial photographs (Grade 8 and 9)

1. In what way does an aerial photograph differ from a horizontal photograph?

_____

_____ (2)

2. The diagrams below show the three different kinds of aerial photographs: vertical, low oblique and high oblique aerial photographs.

i)
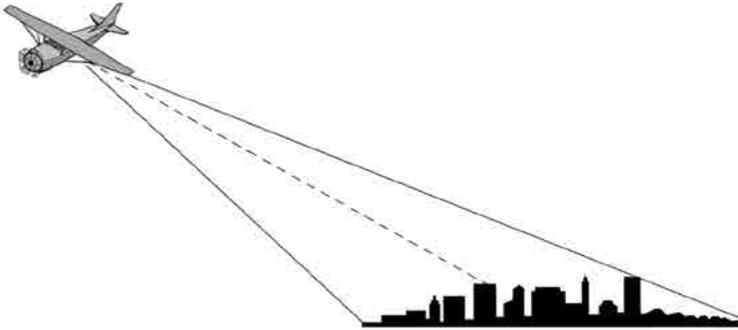
ii)
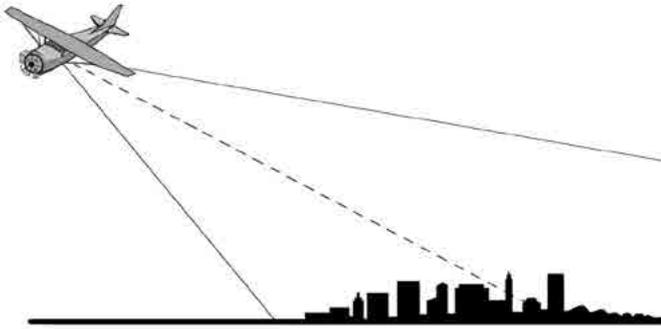
iii)
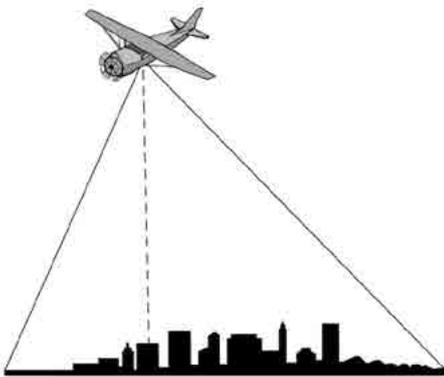
2.1 Identify each type of above aerial photograph given above in the table.

i)	
ii)	
iii)	

(6)

2.2 Underline the correct answer:

i) Vertical aerial photographs view the Earth from the side / above.

ii) Low oblique aerial photographs do not show the horizon / show the horizon.

iii) The aerial photograph that can be accurately scaled is a vertical photograph / an oblique photograph.

iv) A stereoscope is used to give a 2D / 3D image of two overlapping vertical aerial photographs.

v) The vertical aerial photograph of Plettenberg Bay on page 32 of the atlas is in black and white / full-colour. (5)

2.3 List FOUR ways in which height is shown on an orthophoto map.

i) _____

ii) _____

iii) _____

iv) _____ (4)

2.4 Topographic maps have a scale of 1:50 000. This means that 1 cm on the map represents 50 000 cm (500 m) on the ground. Orthophoto maps usually have a scale of 1:10 000.

i) If 1 cm represents 500 m on a topographic map, how many meters does 1 cm represent on an orthophoto map? _____ (2)

ii) How much more detail does an orthophoto map show than a topographic map?

_____ (2)

2.5 How are you able to see from the orthophoto map of Plettenberg Bay on page 33 of the atlas that Robberg (south east) has a very hilly landscape?

_____

_____ (2)

2.6 There are cliffs along the coast in the south west corner of the map. In what way do the contours indicate these cliffs?

_____

_____ (2)

Total: 25 marks

Worksheet 14: Topographic maps (Grade 9)

Topographic maps are the most common way of showing the surface of the Earth. They show a large amount of detail, both natural and man-made. Symbols and colours are very effectively used.

1. The conventional symbols for topographic maps are shown on page 35 of the atlas.

   A selection of these symbols is listed in the table below. In the correct column, mark with an X whether the symbol is a point, line or area symbol.

Symbol	Point	Line	Area
main road			
post office			
excavation			
dry pan			
reservoir			
provincial boundary			

   (6)

2. Examine the topographic map of Plettenberg Bay.

   2.1 State what the green colours indicate on the map.

   _____

   _____ (3)

   2.2 The Piesang River at 33°03'45"S; 23° 22E is shown as a solid blue line. The river at 34°40'S; 23°22E is shown as a dotted blue line.

   Explain the difference between these two rivers.

   _____

   _____

   _____ (4)

   2.3 The southern coastline is shown as very rocky. In the space below draw the symbol for coastal rocks.
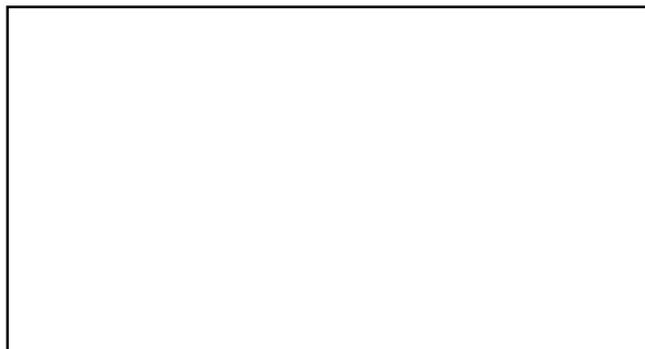
   (2)

   Total: 15 marks

Answers to worksheets

How to use this atlas in the classroom activities

Activity 1

Examples of the kinds of information found in the atlas include maps, diagrams, horizontal photographs, aerial photographs, keys, text boxes, graphs, word compasses, map scales, climatic regions and so on.

Allow learners to give other examples and discuss their answers as a class.

Activity 2
1. Answers can include: maps, keys, labels, diagrams, captions and text.
2. Lead the class discussion. Encourage learners to participate and give their opinions.

Activity 3
1. page 67
2. North Sea
3. Brazil
4. Norway and Greenland
5. Asia
6. page 68
7. Limpopo
8. Quito, Libreville, Kampala, Yaren
9. South America
10. game viewing, hiking, hot air-ballooning (Accept any other relevant, correct answers.)
11. Canada and Mexico
12. Italy
13. Saudi Arabia, Yemen, Egypt, Sudan, Eritrea
14. Morocco in Africa
15. 5,8 million
16. Niger
17. New Delhi
18. Australia and Oceania
19. Europe, Africa, Antarctica
20. land of the rising sun

Geoskills

Worksheet 1: Street maps (Grade 7)
1.

	Place	Grid reference
e.g.	Sports Ground	CC 12
1.1	Caledon Springs	CB 13 ✔✔
1.2	West End	CB 10 ✔✔
1.3	Caledon Hospital	CB 12 ✔✔
1.4	Vleiview	CD 12 ✔✔
1.5	Caledon Traffic Department	CC 11 ✔✔
1.6	Caledon Nature Reserve and Flower Gardens	CB 11 ✔✔

(12)

2.1 The Barn Restaurant ✔✔

2.2   Caledon Museum ✓✓
2.3   Overberg Primary School ✓✓
2.4   Bath River Bridge ✓✓
2.5   Swartberg Senior School ✓✓   (10)
3.1   Robertson ✓✓
3.2   GV 12 ✓✓
3.3   RP 10 and RP 11 ✓✓
3.4   page 210 ✓✓
3.5   page 212 ✓✓
3.6   Chios Close ✓✓
3.7   Caudata Close ✓✓   (14)
4.1   Turn left into Church Street. ✓ Follow Church Street. ✓ At the third intersection ✓ turn right into
       Mill Street. ✓ Take the fourth road ✓ to the right (Smal Avenue). ✓ Follow Smal Avenue. ✓ You will
       see the entrance to the Sports Ground on your left. ✓
4.2   Turn LEFT into Krige Street. ✓   (9)

Total: 45 marks

Worksheet 2: Distances on a map (Grades 7, 8 and 9)
1.1   1 centimetre ✓
1.2   1 kilometre ✓
1.3   1 metre ✓
1.4   1 kilometre ✓   (4)
2.   Perspective is when objects close to us look bigger ✓ than similar objects that are further away. ✓   (2)
3.1   400 m ✓ (Allow learners to explain how they got to their answers if it differs from your own.)
3.2   The objects being drawn or photographed are all more or less the same distance from
       the camera. ✓✓ Perspective does not play a big part in the relative size of the objects being
       drawn or photographed. ✓   (4)
4.1   6,6 cm x 5 km = 33 km✓✓
4.2   3,2 cm x 5 km =16 km ✓✓
4.3   2,3 cm x 5 km = 11,5 km ✓✓
4.4   8,5 cm to 9,5 cm x 5 km = 42,5 km to 45 km ✓✓✓✓   (10)
(Learners' answers for questions 4.2 to 4.4 may differ from yours, as they may not have measured the distances on
the map accurately. Check their calculations to ensure they understand how to use scale to calculate distances.)
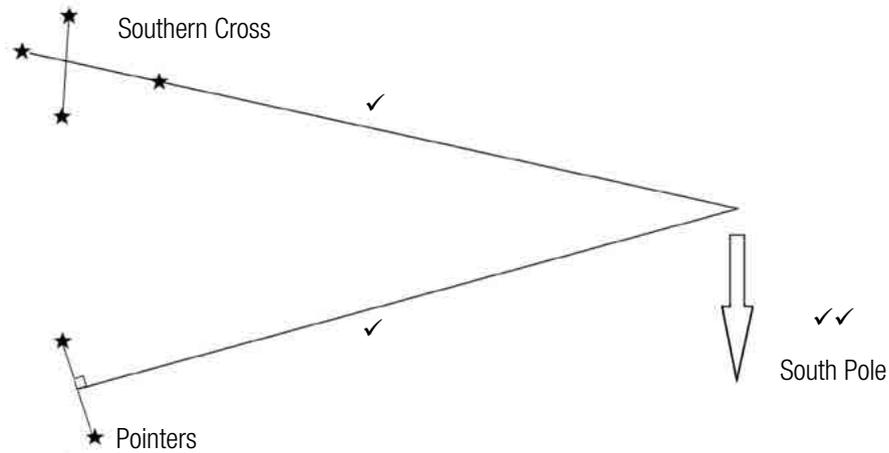
Total: 20 marks

Worksheet 3: Scale (Grades 7, 8 and 9)
1.1   200 times ✓
1.2   5 000 000 times ✓   (2)
2.1   1 cm on the map equals 200 km on the ground. ✓✓
2.2   1 cm on the map equals 30 m on the ground. ✓✓
2.3   1 cm on the map equals 14 000 km on the ground. ✓✓   (6)
3.1   i)   34 km – 40 km ✓✓
       ii)   21 km – 22 km ✓✓
       iii)   25 km – 26 km ✓✓
       iv)   16 km – 17 km ✓✓
       v)   38 km – 40 km ✓✓
3.2   i)   250 km – 260 km ✓
       ii)   120 km – 130 km ✓   (12)
4.1   word scale ✓
4.2   line scale ✓
4.3   ratio scale ✓
4.4   word scale ✓
4.5   ratio scale ✓   (5)

Total: 25 marks

## Worksheet 4: Compass directions (Grades 7, 8 and 9)
1.1   Egypt ✓
1.2   Botswana ✓
1.3   Angola ✓

1.4 Niger ✔
1.5 Central African Republic ✔
1.6 Zambia ✔
1.7 Mozambique ✔
1.8 Sudan ✔ (8)
2.1 iron ✔
2.2 The needle of a compass points to magnetic north. ✔ (2)
3. Because the Earth rotates from west to east. ✔✔ (2)
4.1 north ✔✔
4.2 south ✔✔ (4)
5. (4)

Total: 20 marks

Worksheet 5: Sketch maps (Grade 7)
1. Accept any five of the following:
   i) a frame ✔
   ii) symbols on the map ✔
   iii) direction arrow ✔
   iv) scale ✔
   v) title ✔
   vi) a key with symbols and explanations ✔ (5)
2. An example of a sketch map of Goodwood, Cape Town (Western Cape):

(10)
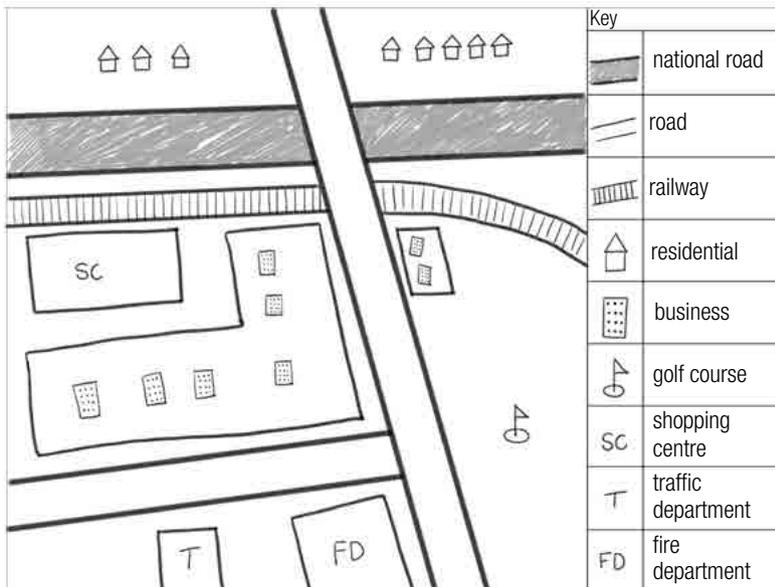
Total: 15 marks

Worksheet 6: The globe: Earth's rotation – day and night (Grade 8)

1.1 The sun rises in the east and sets in the west. ✓ Therefore it looks as though the sun is going around the Earth. ✓

1.2 He suggested that the Earth was rotating on its axis from west to east. ✓✓ (4)

2.1 ii) The Earth rotates from west to east. ✓

2.2 The Earth is spinning on its own axis. ✓✓

2.3 1 670 km per hour ✓ (4)

3.1 India ✓✓

3.2 Europe's time is behind India's time. ✓✓ Europe is further west than India and so experiences sunrise later than India. ✓✓ (6)

4.1 The side that is facing the sun will experience daylight at that point. ✓✓

4.2
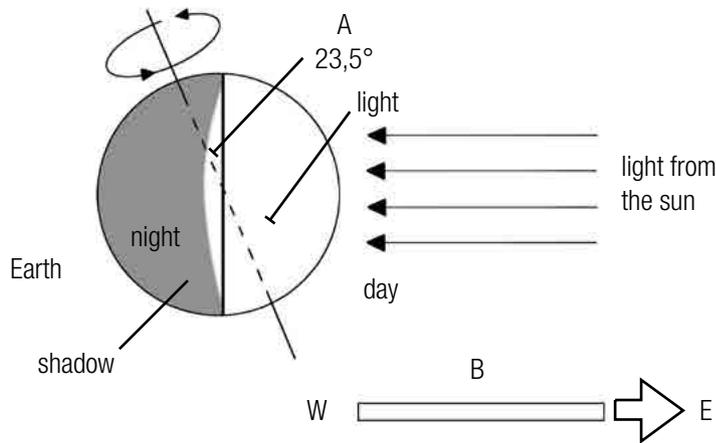
5. summer ✓ (6)

Total: 20 marks

Worksheet 7: The globe: latitude and longitude (Grade 8)

1.1 360° ✓

1.2 180° ✓

1.3 90° ✓ (3)

2.1 There are 180° of **latitude**; 90° to the north of the equator and 90° to the south of the equator. ✓✓

2.2 The Greenwich Meridian divides the Earth into **eastern and western** hemispheres. ✓✓

2.3 180° is also known as the International **date** line. ✓✓

2.4 The **lines of longitude / Greenwich Meridian / International date line** stretch from the North Pole to the South Pole. ✓✓

2.5 The 180° line lies on the opposite side to the **Greenwich Meridian**. ✓✓ (10)

3. The correct labels on the diagram are:
   (1) longitude lines ✓✓
   (2) Greenwich Meridian (0°) ✓✓
   (3) equator (0°) ✓✓
   (4) latitude lines ✓✓ (8)

4.1 180° ✓✓

4.2 360°✓✓

4.3 the equator (0°) ✓✓

4.4 Greenwich Meridian (0°) ✓✓

4.5 The latitude and longitude of points X, Y and Z are:

	Correct latitude and longitude
Point X	30°N;30°E ✓✓
Point Y	15°S; 165°W ✓✓
Point Z	0°; 150°E ✓✓

(14)

5. 90°S ✓ (1)
6. 60 minutes in both ✓ (1)
7. 111 km ✓✓ (2)
8.1 Mabopane ✓✓
8.2 Magaliesburg ✓✓
8.3 Nigel ✓✓ (6)

Total: 45 marks

Worksheet 8: How to use an atlas (Grade 8)

1. The contents page tells you about the information contained in the atlas. It tells you which pages specific information is on. ✓✓✓ (3)
2.1 The key explains the symbols on the map. ✓✓
2.2 The scale shows how distances are measured on the map. ✓✓ (4)
3. Use the information from this index, to complete the table below.

	Page	Grid reference	Latitude	Longitude
Ras Dashan	80 ✓	D7 ✓	13°15'N ✓	38°27'E ✓
Randfontein	74 ✓	B1 ✓	26°10'S ✓	27°41'E ✓
Rabat	81 ✓	B3 ✓	34°02'S ✓	6°51'W ✓
Reykjavik	91 ✓	B3 ✓	64°09'N ✓	21°58'W ✓

(16 x ½ = 8)

Total: 15 marks

Worksheet 9: The globe: time zones (Grade 8)

1.1 24 hours ✓
1.2 west to east ✓
1.3 one hour ✓
1.4 6.00 in the morning ✓
1.5 90° ✓✓
1.6 1) 7.00 ✓
    2) 16.00 ✓
    3) 20.30 ✓
    4) 5.00 ✓ (10)
2.1 2 hours ✓
2.2 Any of the following: Zambia, Zimbabwe, Botswana, Mozambique, Eastern DRC, Egypt and Libya. ✓✓✓
2.3 10 hours ✓✓
2.4 16.00 (4.00 p.m.) ✓✓
2.5 5 hours ✓✓
2.6 7.00 ✓✓
2.7 6 time zones ✓✓
2.8 20.00 ✓✓
2.9 The father will have to make sure that he does not phone when his daughter is asleep. ✓✓ If he phones her at 19.00 (7.00 p.m.) her time will be 4.00 in the morning and she will still be asleep. ✓✓ (20)

Total: 30 marks

Worksheet 10: The globe: Earth's revolution (Grade 8)

1.

1.1	D
1.2	K ✓
1.3	H ✓
1.4	J ✓
1.5	B ✓
1.6	E ✓
1.7	F ✓

1.8	C ✔
1.9	I ✔
1.10	A ✔
1.11	G ✔

(10)

2.1 A) winter ✔
    B) spring ✔
    C) summer ✔
    D) autumn ✔
2.2 A) 21 June ✔
    B) 21 September ✔
    C) 21 December ✔
    D) 21 March ✔
2.3 autumn ✔
2.4 21 December; ✔ 21 June ✔
2.5 24 hours. There is no night. ✔✔   (13)

3.1
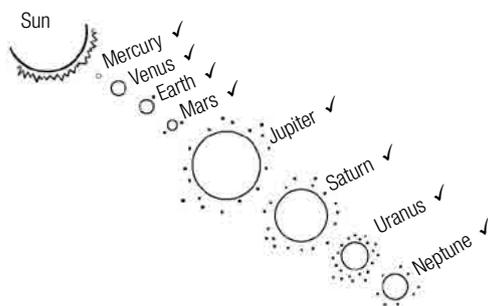
3.2 The first three planets are rocky (solid crust) planets. Earth is the third of these planets from the sun. ✔✔
3.3 100 billion suns (stars) ✔✔   (12)

Total: 35 marks

Worksheet 11: Satellite images (Grade 8)

1.1 Remote sensing is the process whereby satellites constantly **sense, record and then transmit (send) thousands of images back to Earth.** ✔✔
1.2 The sets of data are processed, stored on computers and made available for use. ✔✔
1.3 Satellite images:
   • provide a profile (the ups and downs) of the land ✔
   • give us an understanding of the way in which the land is used ✔
   • allow us to monitor the effects of man-made and natural disasters ✔
   • inform us about nature, e.g. the atmosphere, the weather, soil and vegetation ✔
   • are used when decisions regarding a number of issues are made, e.g. agriculture, mining, warfare and conservation. ✔   (9)

	Meteosat	Landsat	
2.1		X	✔✔
2.2	X		✔✔
2.3	X		✔✔
2.4		X	✔✔
2.5		X	✔✔

(10)

3. 1. The river was flooded by the tsunami. ✔
    2. The farmland and the farm houses have been destroyed. ✔
    3. The sea water is brown because of all the sediment that the tsunami churned up. ✔
    4. This farm land was also destroyed. ✔

5. The river has changed its course. ✓
6. The beach has been swept away. ✓ (6)

Total: 25 marks

Worksheet 12: Understanding height on maps (Grade 9)

1.1 dark orange ✓
1.2 light yellow ✓
1.3 round hills ✓✓ (4)
2.1 Contour lines are continuous lines that join all places of equal height above sea level. ✓✓
    The contour interval is always constant and shows the difference between two successive contour lines. ✓✓
2.2 4 437 metres ✓
2.3 The contour lines are drawn close together. ✓✓
2.4 500 metres ✓✓
2.5 Karisimbi at 4 507 metres ✓✓
2.6 Democratic Republic of the Congo, ✓ Uganda ✓and Rwanda. ✓ (14)
3.1 The contour line shows the same height as it goes around the hill, so it will join up. ✓✓
3.2 Valley: The contour lines are V-shaped and point uphill. ✓✓
    Spur: The contour lines are U-shaped and point to lower ground. ✓✓
3.3 The contour lines are very close together or even under one another. ✓✓
3.4 A large flat topped mountain with the lines quite close together on the outer edge of the plateau. ✓✓
3.5 i)

1.	gentle slope ✓✓
2.	river valley ✓✓
3.	steep slope ✓✓
4.	a hill ✓✓
5.	a spur ✓✓

ii)
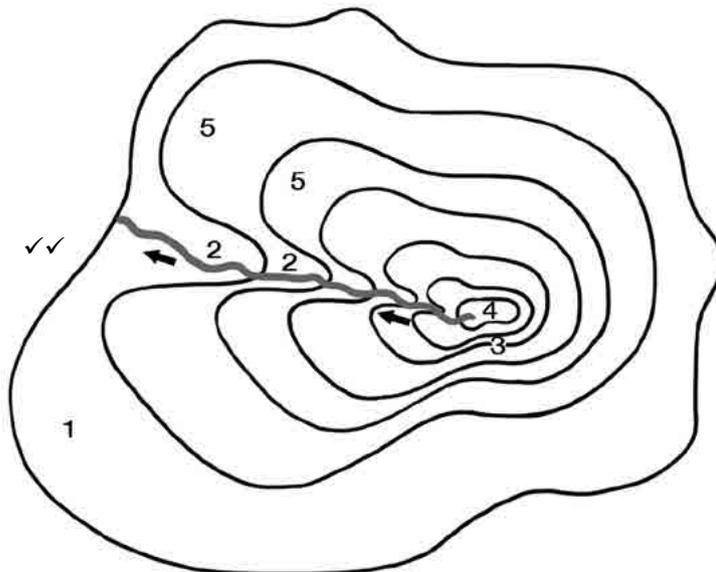
(22)

4.1 The contours are V-shaped and point uphill. ✓✓✓
4.2 The contours are U-shaped and point to lower ground. ✓✓✓
4.3 20 metres ✓✓
4.4 160 metres ✓✓ (10)

Total: 50 marks

Worksheet 13: Aerial photographs (Grade 8 & 9)

1. Horizontal photographs are taken from the side ✓ and aerial photographs are taken from above. ✓ (2)

2.1

i)	low oblique aerial photograph ✓✓
ii)	high oblique aerial photograph ✓✓
iii)	vertical aerial photograph ✓✓

2.2
i) Vertical aerial photographs view the Earth from <u>above</u>. ✓
ii) Low oblique aerial photographs <u>do not show the horizon</u>. ✓
iii) The aerial photograph that can be accurately scaled is <u>a vertical photograph</u>. ✓
iv) A stereoscope is used to give a <u>3D</u> image of two overlapping vertical aerial photographs. ✓
v) The vertical aerial photograph of Plettenberg Bay on page 32 of the atlas is in <u>full-colour</u>. ✓

2.3
i) contour lines ✓
ii) trigonometric beacons ✓
iii) spot heights ✓
iv) benchmarks ✓

2.4
i) 1 cm = 100 m ✓✓
ii) five times more detail ✓✓

2.5 The contours on the orthophoto map are drawn very close together. ✓✓

2.6 The contours are drawn under one another ✓ and appear as one dark line. ✓ (23)

Total: 25 marks

Worksheet 14: Topographic maps (Grade 9)

1.

Symbol	Point	Line	Area
main road		X ✓	
post office	X ✓		
excavation			X ✓
dry pan			X ✓
reservoir	X ✓		
provincial boundary		X ✓	

(6)

2.1 woodland or vegetation (things that are growing) ✓✓✓

2.2 The solid blue line indicates that the river flows throughout the year. ✓✓ The dotted blue line indicates that the river only flows during the rainy season. ✓✓
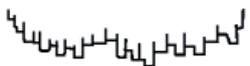
2.3 ✓✓ (9)

Total: 15 marks

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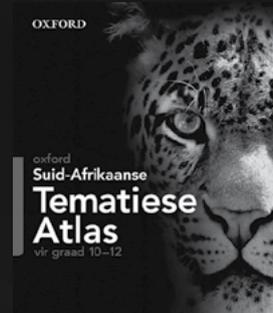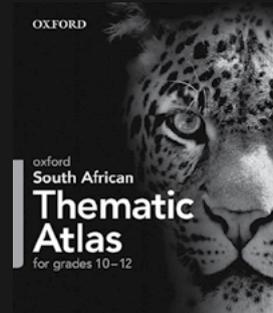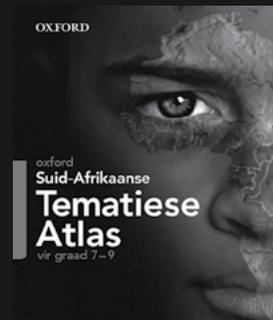
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