
OXFORD SOUTH AFRICAN THEMATIC

ATLAS

for Grades 4–7

TEACHER'S RESOURCE BOOK

OXFORD
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Published in South Africa by
Oxford University Press Southern Africa (Pty) Limited

Vasco Boulevard, Goodwood, N1 City, Cape Town, South Africa, 7460
P O Box 12119, N1 City, Cape Town, South Africa, 7463

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First published 2004
Second edition 2017

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Oxford South African Thematic Atlas for Grades 4–7 Teacher's Resource Book

ISBN PROM190725587

Typeset in Melior and Helvetica Light 11.5 pt on 15 pt

Acknowledgements

Publisher: Elaine Williams
Illustrators: James Berrangé, James Whitelaw
Typesetter: Magenta Media
Based on content supplied by Karen Morrison

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Introduction

This resource book focuses on map skills and complements the *Oxford South African Thematic Atlas for Grades 4–7*. The atlas and this book follow the Social Sciences Curriculum and Assessment Policy Statement (CAPS) on teaching map skills in Grades 4–7. It includes graded activities with answers and work sheets.

Geography aims in Grades 4–7

The activities in the *Oxford South African Thematic Atlas for Grades 4–7 Teacher’s Resource Book* facilitate the specific aims of Geography CAPS for the Intermediate Phase by allowing opportunities for:

- understanding and working with maps, statistical data, and photographs.
- developing problem-solving skills.
- prompting discussion and debates.
- developing curiosity about the world we live in by letting learners engage with and discuss interesting data about their provinces, country and the world. Learners are often asked to compare one data set with another and to think about why there are differences between them.
- a general understanding of the natural environment, different places, society and natural forces at work on Earth. The relationship between, for example, society and the natural environment is illustrated by explaining that rainfall influences natural vegetation, which in turn influences farm production and where people live.
- highlighting our responsibilities towards the environment and fostering sensitivity regarding environmental issues.

Map skills in Grades 4–7

The table on the next page gives you the key CAPS map-skills related topics and where they are addressed in the *Oxford South African Thematic Atlas for Grades 4–7* and this book.

CAPS map skills-related topics

Topic	Subtopic	Grade & term	Pages in <i>Oxford South African Thematic Atlas for Grades 4–7</i>	Pages in this Teacher's Resource Book
Map skills				
What is a map?	Side views and plan views	Grade 4 Term 2	Pages 8–11	1–5
	Symbols and keys	Grade 4 Term 2	Pages 8–11	6–8
	Grid references	Grade 4 Term 2	Page 12	15–17
	Compass directions Four points of the compass Eight points of the compass	Grade 4 Term 2 Grade 5 Term 1	Page 13 Page 13	11–14
	Distance and scale Concept of scale Small and large scale maps Measuring straight-line distances Measuring indirect distances	Grade 6 Term 1 Grade 7 Term 1	Pages 14–15 Pages 14–15	
The globe	The Earth is round like a ball	Grade 4 Term 2	Page 16	18–21
	World map Position of equator, north and south poles on a globe	Grade 5 Term 1	Page 17, pages 82–85	38
	Latitude and longitude	Grade 6 Term 1	Page 17	
	A map of South Africa A globe and map of the world	Grade 4 Term 2	Pages 18–19, pages 56–57	
Local maps	Local maps and street maps	Grade 7 Term 1	Pages 20–21	
	Landmarks and explaining the way	Grade 4 Term 1	Pages 20–21	
	Sketch maps	Grade 7 Term 1	Pages 22–23	
All about atlases	Atlases, global statistics and current events Kinds of information provided in an atlas How the contents page is organised Own province in an atlas The world's three biggest, longest, highest	Grade 6 Term 1 Grade 6 Term 1 Grade 6 Term 1 Grade 6 Term 1 Grade 6 Term 1	Pages 24–25 Pages 24–25 Pages 24–25 Pages 58–75 Pages 26–27	15
	The world's three biggest, longest, highest	Grade 6 Term 1	Pages 26–27	
South Africa: Political map	Sea and land on a map Names of oceans Provinces Main cities and towns	Grade 4 Term 2	Pages 18–19, pages 56–57 Pages 58–75	34
South Africa: Physical map	South Africa from above Physical features of South Africa Rivers Physical features and human activities	Grade 5 Term 2	Pages 54–55	35
Africa: Political map	Africa our continent Oceans, countries and main cities	Grade 5 Term 2	Pages 78–79	37
Africa: Physical map	Physical map of Africa	Grade 5 Term 2	Pages 76–77	36
Images of Africa		Grade 5 Term 2	Pages 77, 79	

CAPS Geography topics				
Places where people live	People and places; people and their needs	Grade 4 Term 1	Pages 30–31	Pages 9, 30, 31
Food and farming in South Africa	People and food Ways of farming Crop and stock farming Unprocessed and processed foods	Grade 4 Term 3	Pages 32–33	Pages 6, 8, 9, 30, 31
Water in South Africa	Uses of water Water as a resource and the natural water cycle How people get their water Pollution and wastewater	Grade 4 Term 4	Pages 34–35	Pages 9, 30, 31
Weather climate and vegetation of South Africa	Weather Rainfall Climate Natural Vegetation	Grade 5 Term 3	Pages 36–37	Pages 9, 30, 31
Climate and vegetation around the world	Climate around the world Tropical rainforests Hot deserts Coniferous forests	Grade 6 Term 3	Pages 38–39	Pages 8, 9, 30, 31
Minerals and mining in South Africa	Mineral and coal resources Mining and the environment Mining and people	Grade 5 Term 4	Pages 40–41	Pages 8, 9, 30, 31
Population –where do people live where they do? SA	South Africa’s population People and provinces in South Africa Why people live where they do	Grade 6 Term 4	Pages 42–43	Pages 9, 30, 31
Population world	World population People around the world	Grade 6 Term 4	Pages 44–45	Pages 9, 30, 31
Population growth and change	World population Population concepts Factors affecting birth rates and death rates World population growth	Grade 7 Term 3	Pages 44–45	Pages 9, 30, 31
Trade	Why people trade What people trade Resources and their values Fair trading	Grade 6 Term 2	Pages 46–47	Pages 9, 30, 31
Volcanoes and earthquakes	Structure of the earth Volcanoes Earthquakes	Grade 7 Term 2	Pages 48–49	Pages 8, 30, 31
Natural resources and conservation in South Africa	Natural resources Management of resources Water in South Africa including floods	Grade 7 Term 2, 4	Pages 50–51	Pages 8, 30, 31

About this book

This resource book is designed to help teachers and learners get the most from the *Oxford South African Thematic Atlas for Grades 4–7*. It is divided into chapters, which each introduce (for teachers) a specific skill or concept (for example, direction). The objectives of each are stated clearly at the start of each chapter. Each chapter includes a range of activities; these generally start with teacher-facilitated activities and are

followed by activities that learners can do on their own, in pairs or in groups. The activities are also categorised as Level 1 or Level 2 based on the difficulty of the questions. Many of the activity sheets are suitable for photocopying and handing to the class. Finally, Chapter 8 includes a set of photocopiable worksheets that can be used for summative assessment. It also includes master maps that can be copied.

1 Understanding what maps are

This chapter covers:

- what a plan view (or bird's-eye view) is
- the differences between maps and photographs
- matching horizontal and vertical views
- how to draw a plan of an area
- why we use maps.

Plan views and side views

In order to understand and work with maps, learners need to understand that all maps are drawn from a “bird’s-eye” perspective. In other words, they show the world as it would appear if you were flying above it and looking straight down. A view from above is also called a plan view or an aerial view. When something is drawn like it would look from the side, it is called a side view.

Aerial photographs and maps

If you fly in an aeroplane and look down, you also have a ‘bird’s-eye view’ of the area below. Some aeroplanes have cameras mounted under them, and these are used to take photographs of the area below. These photographs are called aerial photographs (meaning that they are taken from the air). An aerial photograph gives you a plan view of the Earth. An aerial photograph shows a real view of a place at a specific time: animals, people and vehicles that are in the area at that time are shown on the photograph. Maps, on the other hand, use symbols to represent real objects and do not include living things or moving objects. Maps are therefore usually clearer than photographs.

A side and plan view of a hut

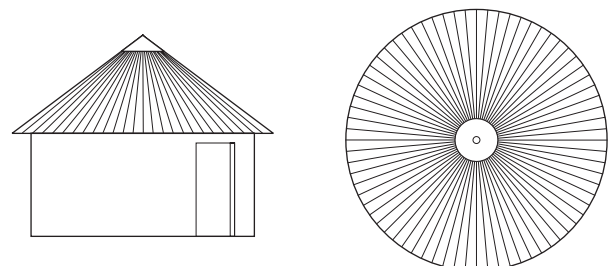
How maps show height and depth

Plan views also include a vertical dimension. In other words, they can indicate height or depth. For example, a symbol can be used to show a tunnel that goes under a road, or a river going under a bridge. Colour can also be used to show the heights of different areas on a map, and the depth of the sea.

Introducing learners to maps

Most learners will have been introduced to maps in the Foundation Phase classes. However, the concept of plan views may still be confusing for young learners because they do not normally view the world from above. Initially it may be difficult for them to visualise what an area would look like when viewed from above. Let them look at the pictures of side views and plan views on page 8 of the atlas. We recommend that you introduce or revise the concept with the activity on page 2 of this book.

In order to work with plan views, learners need some understanding of the spatial relationship between things shown in the view: they need to consider the distances between places on a plan view, and they need to work out mentally where things would be in relation to each other and the space they are in. Simple plans of the classroom, or of their homes, can help them to understand this concept. Allow for the fact that most learners need a lot of practice before they can work confidently with plan views.



Once learners understand what a plan view is, they should be able to:

- match the plan view with a side view of the same object or area
- draw a plan of a simple object (e.g. a table)
- draw a plan of an area
- recognise depth (the vertical dimension) in a plan view
- identify correct spatial relationships in a plan view.

Why do we use maps?

We use maps for many reasons. The most obvious reasons are to find our way from one place to another, and to get a clear picture of our province, our country, and the world. However, as learners work through the atlas, many other reasons should become apparent. This is a question that we will return to at the end of this book.



Practical activities with plan views

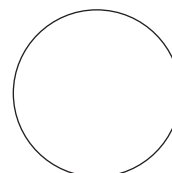
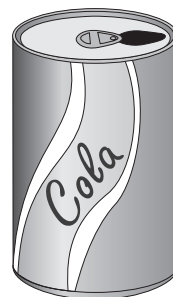
As learners work through these activities, they will also begin to develop their skills in other areas. They will start to use symbols and they will reduce items to fit their plan, thus beginning to work with scale. These skills are handled separately in later chapters and developed more formally through the activities included in those chapters.

(Answers are given at the end of this Teacher's Resource Book.)

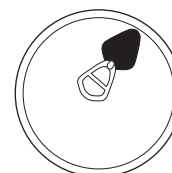
Level 1

Teacher-facilitated activities

- 1 Give the learners various solid shapes. You can use tins, bottles, tubes, and boxes. Ask learners to draw around these shapes to show what they would look like if they were viewed from above. Encourage them to look down at the solid shapes and identify any features that should be shown on their outlines. For example:



Draw the outline

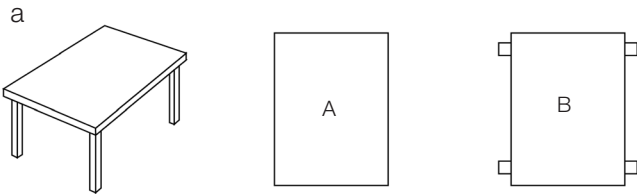


Fill in details

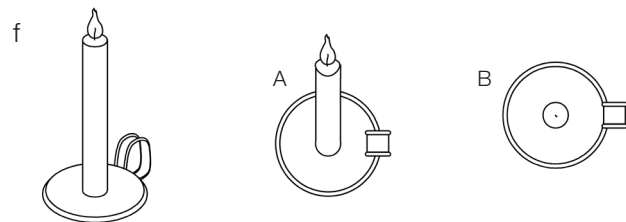
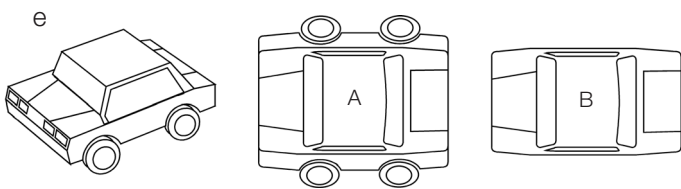
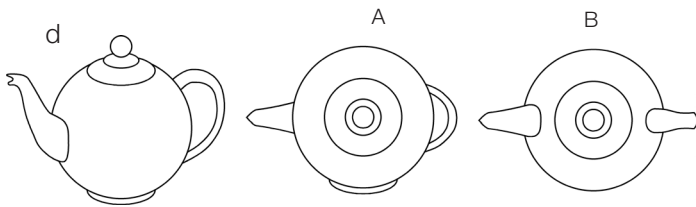
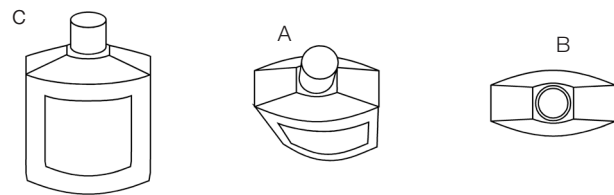
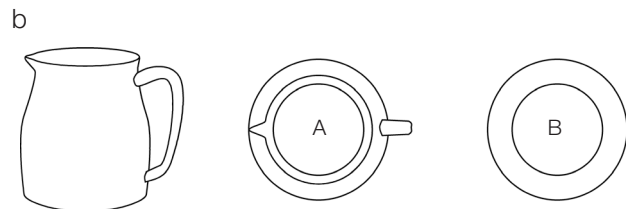
- 2 Draw a plan view of your classroom on the chalkboard – just the walls, with no details. Ask the learners to add to it:
 - the windows and door
 - the position of the chalkboard
 - the desks and any other furniture.
 Get them to label the plan so that other people can interpret it. Labelling is an important aspect of mapping, and will be covered in more detail in Chapter 2. You can see an example of a classroom plan view on page 4 of this book.
- 3 Get the learners to open the *Oxford South African Thematic Atlas for Grades 4–7* on pages 9–11. Give them time to examine the drawings, and then ask them to:
 - a name ten things or places they can see in the picture of Hope Town on page 9
 - b then (working with a partner), look at the plan view of Hope Town on page 10 and identify where those ten places or objects are
 - c look at the map on page 11 and find the following places: the roads, the lake and the school, and then identify three other places that they recognise on the map.

Learner activities

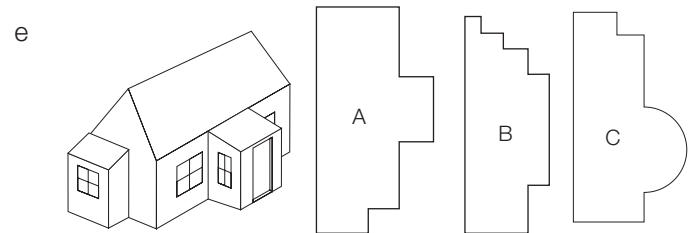
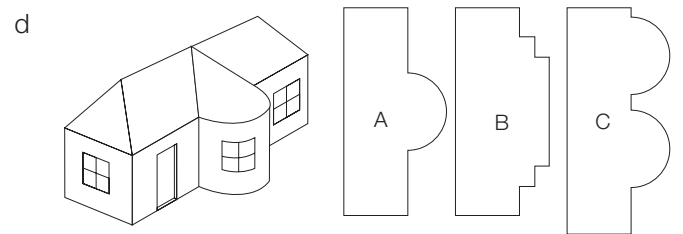
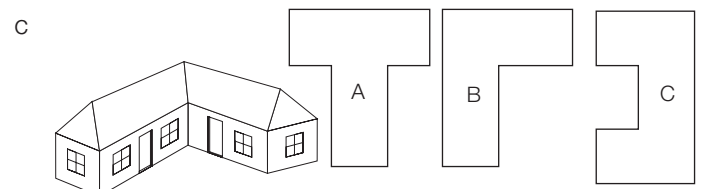
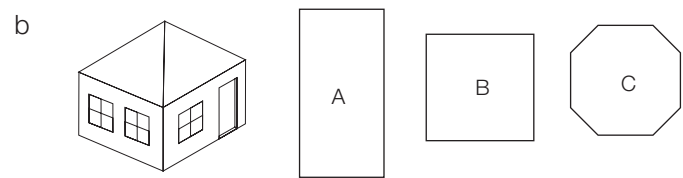
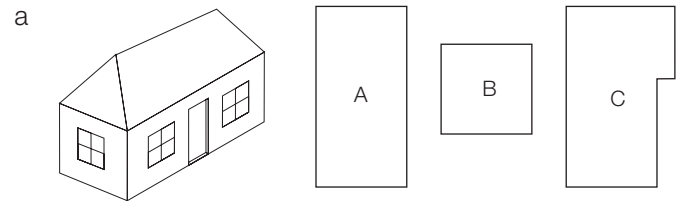
- 1 Match the object on the left to the correct view on the right that shows what it would look like in a plan view (from directly above).



(A is the correct plan view of the table.)



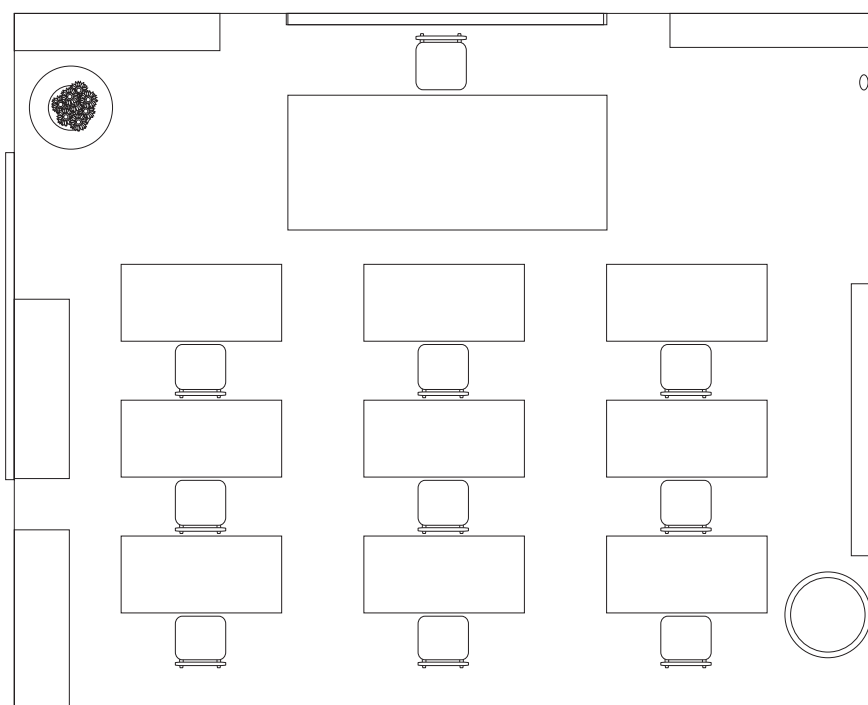
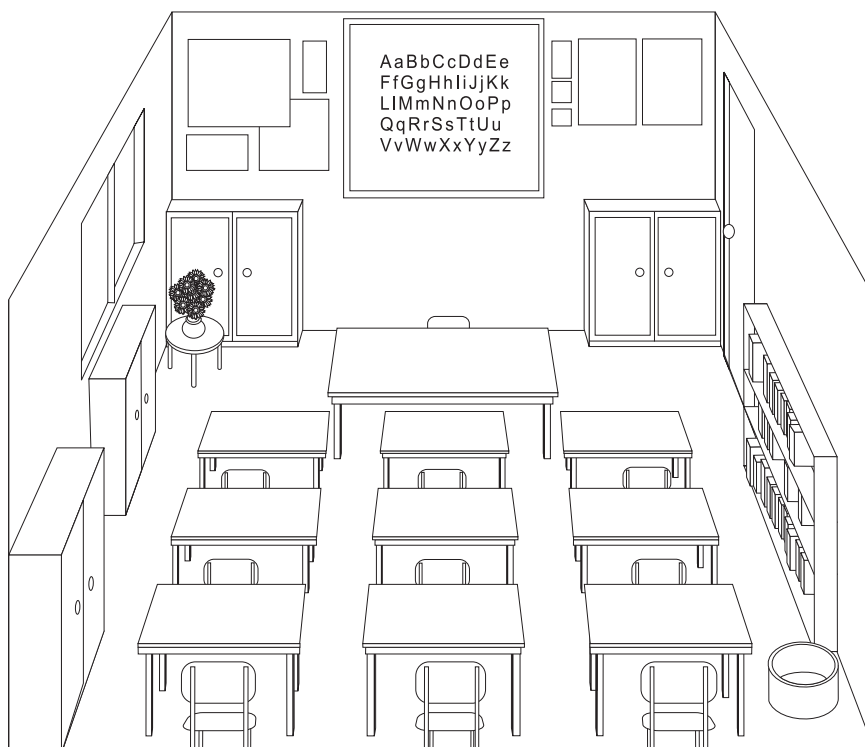
- 2 These five houses are next to each other in a street. A town planner has drawn a plan view of each house. Match each house to its plan view: colour the roof of each house, then colour the correct plan view to match.



- 3 Here is a drawing of a classroom and its plan view. Work with a partner and label these things on the plan view

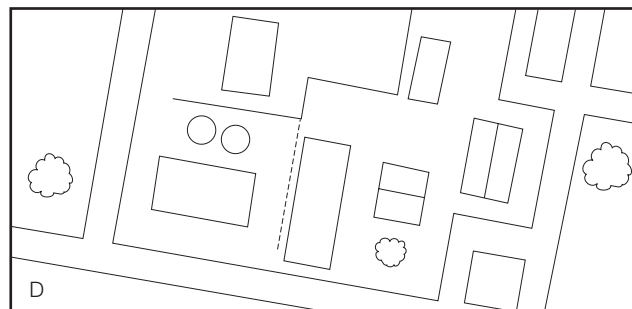
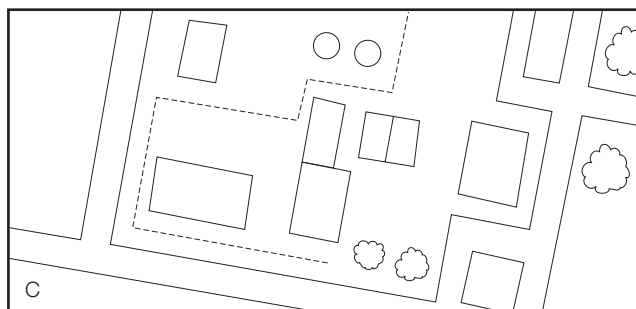
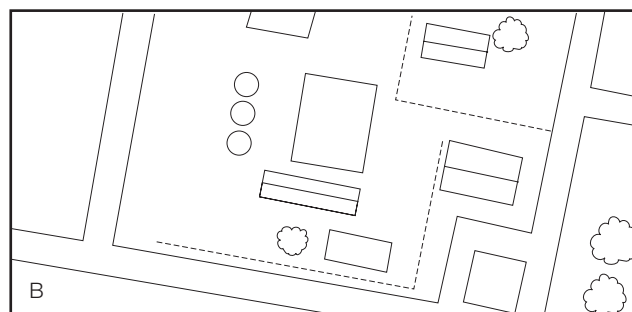
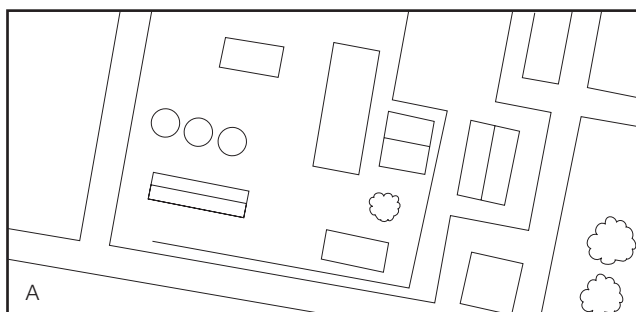
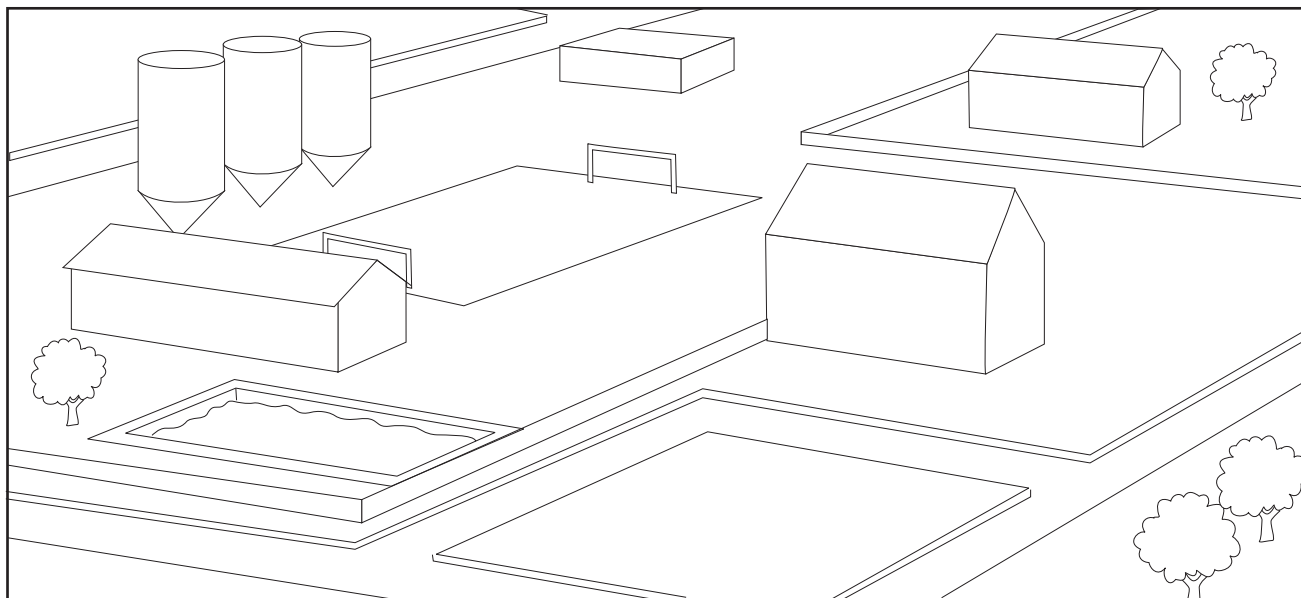
- the teacher’s desk
- the teacher’s chair

- the chalkboard
- the waste-paper bin
- the door
- the bookshelf
- the vase of flowers.



Level 2**Learner activities**

- 1 Here is a picture of a farm, and below it are four maps of the same farm. Only one map is correct. Which one is it?
- 2 Explain to your partner how you decided which map was correct.



2 How to use maps: Symbols, keys and labels

This chapter covers:

- signs and symbols
- different types of symbols on maps
- map conventions
- map keys.

Symbols and labels

Most learners will be familiar with a range of signs and symbols that are used in everyday life. For example, they might recognise and be able to understand traffic signs (stop signs, speed limit signs, zebra crossing lines), product logos (the Ouma rusks' grandma, the Simba lion), sports icons (the Olympic rings, the Springbok) and many others such as the man and woman symbols used on public toilets. Make sure that learners understand that signs and symbols are often used to give information clearly and quickly without language or words.

The words we find on maps are called labels. Labels tell us the names of places, roads, streets, rivers, mountains, oceans, etc. Sometimes we do not understand the language in which the labels are written, and then we need to look at the symbols to understand the map.

Why do we find symbols on maps?

Symbols are used on maps to represent physical features (mountains, rivers), buildings (churches, farms, cities) and communications systems (roads, telephone lines, railways). Symbols are used because they allow the mapmaker to show detail without making the map difficult to read. They also allow people who do not understand the language of a particular place to read a map of that place.

It is important for learners to recognise that symbols on maps are used to represent features found in the real world. They should also understand that one symbol can be chosen to represent all varieties of a particular feature. For example, the symbol **P** might be used to show a police station. Everywhere a police station appears on the map, they will see **P**. This does not mean that all the police stations on the map look the same in the real world! On some maps, the symbols used for a police station may be different. For this reason, a key (sometimes called a legend) is normally found next to a map to show what the symbols represent. Let learners look at the map key on page 12 of the atlas. You will find many other examples of keys in the *Oxford South African Thematic Atlas for Grades 4–7*. Encourage learners to look through their atlases and to say what the keys alongside different maps tell them.

Different kinds of symbols on maps

Points and icons

The most common symbols on maps showing large areas are points and icons. Points are used to show towns and cities. Icons are used to show land use, products, or natural resources. If you look at the map of South Africa on page 19 in the *Oxford South African Thematic Atlas for Grades 4–7*, you can see that the ○ symbol (a point) has been used to show towns. On page 33, an icon similar to this one  has been used to show where maize is grown. You can find many other examples of points and icons in the atlas. Again, you can encourage learners to look through their atlases to find examples of these.

Lines and arrows

Some information on maps is best shown by lines or arrows. Borders (such as borders between countries) and transport routes (roads, railway lines, etc.) are usually shown in this way. Lines used can vary in terms of thickness and style. When some sort of movement or direction is indicated, the mapmaker normally uses an arrow. You can find examples of lines that show boundaries and transport routes on the provincial maps (pages 58–75).

Colours

Colour can be used in many different ways and show many different things on maps. For example, on the map of South Africa on page 19 of the atlas, different colours are used to show land and sea.

On the political map of Africa on page 78, the colours show different countries. Colour is used for the same purpose on the maps of the other continents (pages 88–91).

Colours on maps can be used to show features such as water and height above sea level. On the physical map of the world on pages 82–83, colour has been used to show differences in the height of the land above sea level and also the depth of the sea. Again, the key tells you what land height each colour represents.

Conventions used on maps

The symbols used on maps are called conventional signs. These signs are normally similar on all maps produced in a country. Official South African maps are produced by the Chief Directorate: National Geo-Spatial Information (CD: NGI), which also produces a list of conventional signs. Most other mapmakers in South Africa use these signs as well to make it easier to read and understand any map.

Colour conventions

Certain colours are used on maps to indicate specific features:

- Blue is usually used to show water features such as oceans, rivers, dams, and wetlands.
- Green is normally used for natural vegetation, and it is commonly found on physical maps.
- Green is also part of a graded set of colours used to indicate height on maps.
- Red is used on maps to show transport routes. Often, the main roads are shown in red.
- Brown is used to show landforms and the height above sea level. You can see brown used in this way on the physical map of the world on pages 82–83, or on the physical map of South Africa on pages 54–55.
- Black is used for many map labels. In addition, symbols for towns and human-made features may also be shown in black.

Map keys

The key to a map is essential for fully understanding the map. Think of the key as the tool for unlocking the meaning of the map. Look at the key on page 12 of the atlas. All the maps in the *Oxford South African Thematic Atlas for Grades 4–7* have a key that tells you what the symbols and colours used on the map represent. When learners draw their own maps, they should always provide a key.



Practical activities on symbols

(Answers are given at the end of this Teacher's Resource Book.)

Level 1

Teacher-facilitated activity

- 1 Work through the “Look closer” activity on page 12 of the atlas. If you feel the need to give more practice in recognising symbols, draw these signs on the chalkboard. Ask learners to say what each one represents.



Learner activities

- 1 Turn to the map of Hope Town on page 12 of your atlas. Answer these questions about the map:
 - a What colour is used to show main roads?
 - b What symbol is used to show the hospital? Draw a hospital symbol in your book.
 - c What symbol shows the fire station? Draw it in your book.
 - d Draw the school and police station symbols in your book.
 - e How is the hiking trail shown?
- 2 Find the map of your own province in the atlas (pages 58–75). Answer these questions:
 - a What colour line shows the border of the province?
 - b How many airports can you find in your province?
 - c How are national routes (roads) shown? Draw the symbol in your book.
 - d What is the symbol for built-up areas? Draw it in your book.
 - e How are the labels for capital cities written?
 - f In what colour are the river labels written?

Level 2**Learner activities**

- 1 Find three different points used as symbols in your atlas. Draw each one and write down what it symbolises.
- 2 Look at the physical map of South Africa on pages 54–55. What does each colour on the map represent?
- 3 Draw and correctly colour the symbols used to represent the following:
 - a sheep farming (page 33)
 - b coniferous forests (page 39)
 - c diamonds (page 40)
 - d volcanoes (page 49)
 - e national parks (page 50)
 - f capital cities (pages 84–85)
- 4 Find the map of South Africa on pages 56–57. Plan a train journey to a place you want to go to. Name the place where the journey will start. Name five places you will pass through, and name the place where the journey will end.

3 Different kinds of maps

This chapter covers:

- physical maps
- political maps
- thematic maps (e.g. land-use maps)
- locator maps.

Atlases include many different types of maps designed to give different information about places. On page 24 of the *Oxford South African Thematic Atlas for Grades 4–7*, you can see examples of some of the different kinds of maps that you will find in the atlas, namely a political map, a thematic map, a street map, an environment map and a physical map. Each of these maps has a different purpose. The main types of maps that you will work with in this atlas are:

Physical maps

These maps show natural features such as rivers, lakes, deserts, mountains, and other landforms. Colour is normally used on these maps to show you the height of the land. You can find the following physical maps in the atlas:

- South Africa (pages 54–55)
- Africa (page 76)
- the world (pages 82–83).

Political maps

These are maps that show the features of a region created by people, such as towns and cities, and political divisions such as province boundaries and country boundaries. Colour is used on these maps only to distinguish between different places. You can find examples of political maps on the following pages in the atlas:

- South Africa (pages 56–57)
- Africa (page 78)

- the world (pages 84–85)
- North America (page 88)
- South America (page 89)
- Europe (page 87)
- Asia (page 86)
- Australia and Oceania (page 90)
- Antarctica (page 91)

Thematic maps

Thematic maps give information about a particular topic, such as climate, what land is used for (land use), population, vegetation, rainfall, etc.

Thematic maps can use colour or shading to give information. (These are called choropleth maps – but learners are not required to know this term at this level.) The map showing the location of tropical rainforests, coniferous forests and hot deserts on page 39 is an example of a shaded thematic map.

Isoline maps are used mainly to show climate data. On these maps, lines are used to join places with equal temperature or rainfall measurements. The areas in between the isolines are shaded in different tones of the same colour. Lines that join places having the same rainfall are called isohyets. Lines joining places with the same temperatures are called isotherms. You can find isoline maps on pages 37 and 38. (These terms are given for teachers' information, but learners are not required to know them at this level.)

Locator maps

The maps of the provinces (pages 58–75) include small maps of South Africa that are designed to show the relevant province in relation to the rest of the country. These are called locator maps. There are locator maps showing the relevant continent in relation to the rest of the world on pages 86–91.



Practical activities on types of maps

Level 1

Teacher-facilitated activities

- 1 Look at the political map of South Africa on pages 56–57. Use it to answer these questions:
 - a What is colour used for on this map?
 - b How many provinces are there? List all the provinces in a table like the one below and add the capital of each province to the table.

Province	Capital

- 2 Turn to the world map on pages 82–83.
 - a List the seven continents.
 - b List the four oceans.
 - c List three islands in the Atlantic Ocean.
 - d Name two seas in Asia.
 - e What is the main mountain range in South America called?
 - f Name a high mountain range in North America.
 - g Which continent has no very high mountains?
 - h What famous African river flows from Lake Victoria to the Mediterranean Sea?
 - i Is the world mostly covered by land, or by sea?

Level 2

Learner activities

- 1 Look at the political map of Africa on page 78.
 - a List the six countries that share a border with South Africa. Name the capital cities of the six countries. Set your answer out in a table like this:

Country	Capital
Namibië	Windhoek

- 2 Look at the physical map of South Africa on pages 54–55, and use it to answer these questions:
 - a What does the colour blue represent?
 - b What colour is used to show the lowest parts of South Africa (the parts closest to sea level)?
 - c What colour is used to show the highest parts of South Africa?
 - d At about what height above sea level is the Richtersveld?
 - e Mafadi is South Africa's highest mountain. How high is it?
 - f What is the name of the highest mountain range in South Africa?
 - g Name two rivers that flow from the Drakensberg Mountains into the Indian Ocean.
- 3 Thematic maps give you information about particular topics. Work with a partner to find out where you will find thematic maps giving information about the following. Set your answers out in a table like the one below.

	Page number	Page heading
a	37	Rainfall in South Africa

- a rainfall
 - b where you will find tropical rainforests growing
 - c where farmers grow sugar cane
 - d the main wheat-farming areas
 - e where gold is mined
 - f where iron is mined
 - g where most of the world's people live
 - h temperature
 - i where our World Heritage Sites are situated
 - j where earthquakes have occurred.
- 4 Think about the uses of each of the maps on your list. Choose three of the maps and say who might find those maps most useful.

4 Direction

This chapter covers:

- basic directions
- the points of the compass: north, south, east, and west
- other methods of finding direction
- orientating maps.

Basic directions

Most learners will have done some work on basic directions. At the very least, they should be able to follow directions using words like left, right, ahead, behind, in front of and next to. You might like to test what they know by playing some games and giving them instructions to follow to reach a particular place.

As learners learn to use maps they will need to work with the four cardinal points: north, south, east, and west. They will also use the intermediate points: northeast, southeast, southwest, and northwest. These are introduced on page 13 of the atlas.

Most maps, including those in the atlas, are positioned so that north is at the top edge. The direction arrow next to the map shows where north is.

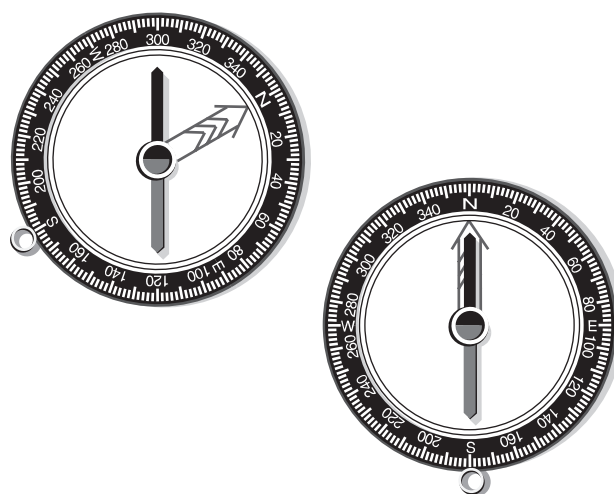
North and south, west and east

The sun always rises in the east and always sets in the west. In the southern hemisphere, the sun is at a position to the north of us at midday (12 o' clock). You can use this knowledge to get learners to understand where north, south, east and west are. We suggest you take them outside the classroom at midday; ask them to point out where the sun rises, and where it sets, and where

it is now. From that they can work out where north and south are. You can mark these in the school grounds using stones as markers (or on the classroom floor using a felt-tipped pen).

How a compass works

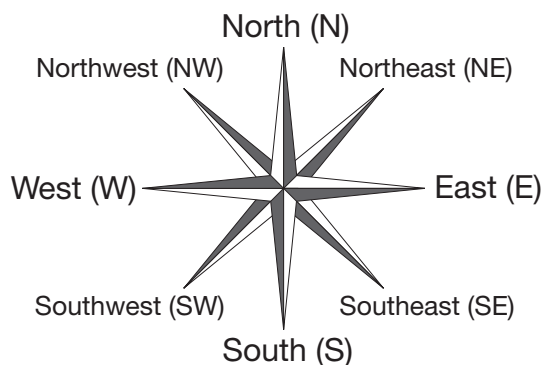
A compass is an instrument that is used to find north using the Earth's magnetic force. Inside each compass is a magnetic needle that is attracted by the natural magnetic force of the Earth. This force pulls (attracts) the needle so that it always points north. The needle is suspended in the compass and the person using the compass turns the base of the compass so that the letter N (or 0 degrees) is directly under the needle. You can see this in the diagrams below and on page 13 of the atlas. Once you know where north is, you can work out all the other compass directions.



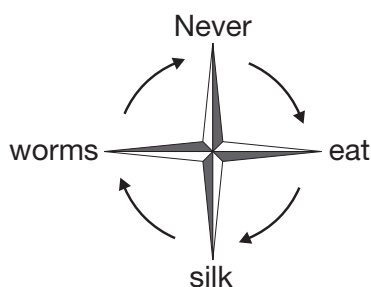
Technically, the compass points to a point on the Earth known as magnetic north. Navigators find magnetic north and then use this point to work out where true north is. True north corresponds with the north pole of the Earth. The north pointers in the atlas point to true north.

Points of the compass

The four main points on a compass – north, south, west, and east – are called the cardinal points. In-between the cardinal points are other points that are named according to the directions between which they are found. You can see eight compass points on the diagram below.

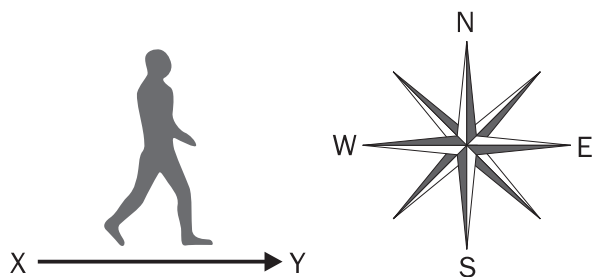


Make sure that learners know the names of the compass points. This mnemonic may help:



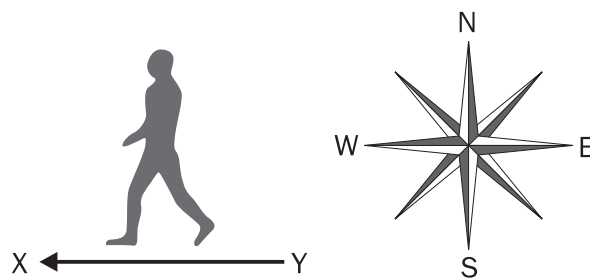
Giving directions using the points

On a map, you give directions according to the direction in which you are moving. For example:



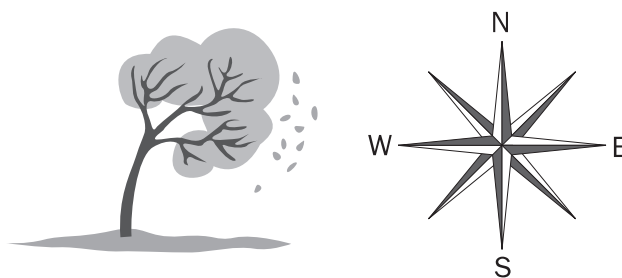
The direction from X to Y above is east because the man is moving towards the east or in an easterly direction.

The direction from Y to X above is west because the man is moving towards the west or in a westerly direction.

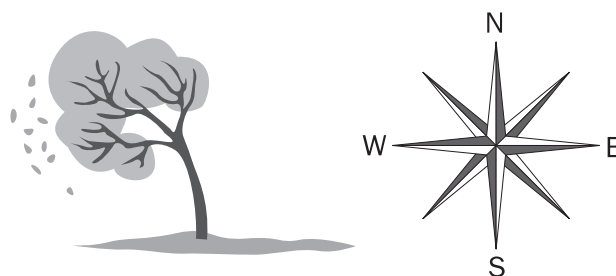


Wind directions

Wind directions are different. These are given according to where the wind is blowing **from**:



This wind is a westerly wind because it is blowing **from** the west.



This wind is an easterly wind because it is blowing **from** the east.

Show the learners the pictures on page 36 of the *Oxford South African Thematic Atlas for Grades 4–7*. The weather map on page 36 is a good example of how wind direction is indicated.

Orientating a map

When you are using a map in the real world to plot a route or find your way, you need to turn the map so that north on the map faces north in the place where you are standing. This allows you to match the positions of features on the map and on the ground. In the classroom it is not practical or necessary to orientate maps in this way.



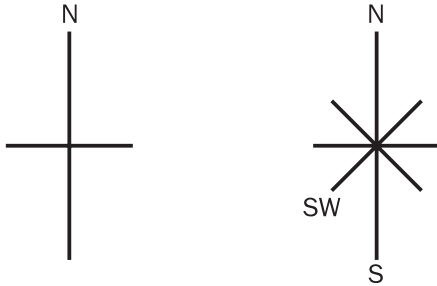
Practical activities on direction

Level 1

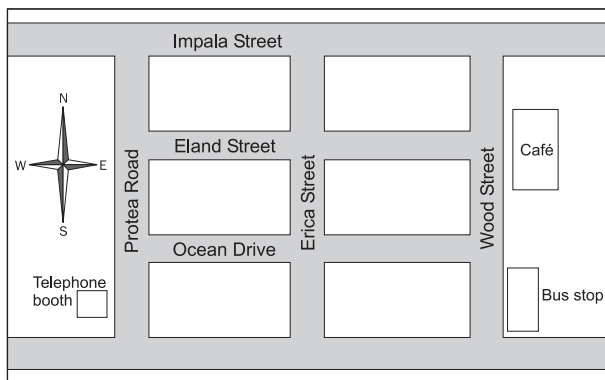
Teacher-facilitated chalkboard activities

(Alternatively, the activities can be photocopied and handed to the learners.)

- 1 Draw these compass roses. Fill in the missing directions:



- 2 Draw this map and get learners to give directions from one place to another.



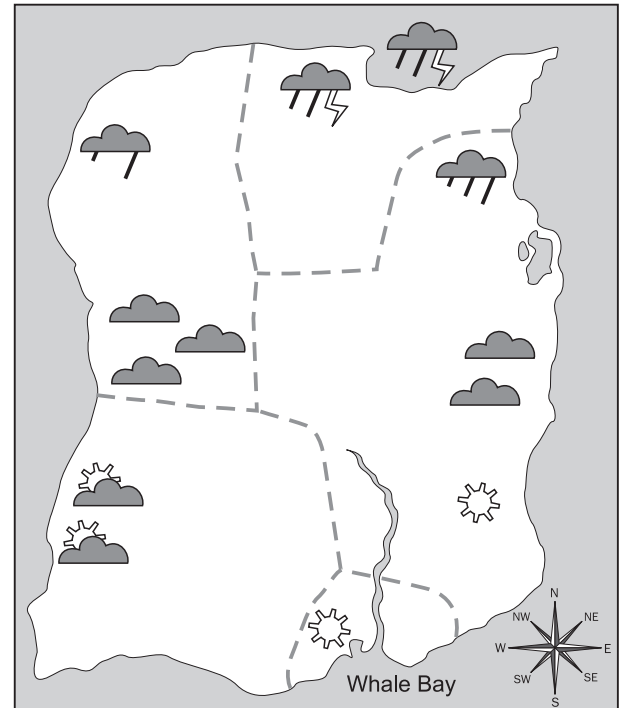
What direction will you be walking in if you go from:

- a Impala Street to Eland Street
- b Protea Road to Erica Street
- c Protea Road to Wood Street
- d Ocean Drive to Impala Street
- e Erica Street to Protea Road
- f the bus stop to the café
- g the café to the phone booth
- h the phone booth to the café?

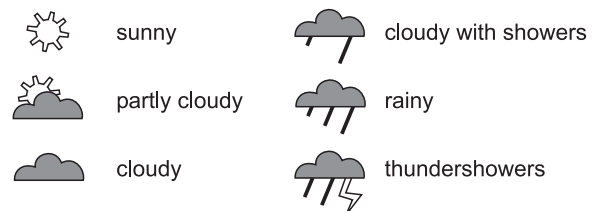
If the learners need more practice with this, add more questions.

Learner activities

- 1 This is a weather map of an island called Turtle Island. Use the key to check what the symbols mean and complete the sentences below.



Key



- a In the southeast and the the weather is fine.
 - b In the southwest it is
 - c In the east and west it is
 - d In the it is cloudy with showers.
 - e In the there are thundershowers.
 - f In the there is rain.
- 2 Find the map of Africa on page 78, and answer the questions:
 - a What is the most southerly country in Africa?
 - b What are the three most northerly countries in Africa?
 - c What is the most easterly country in Africa?

- d What ocean is on Africa’s west coast?
- e What ocean is on the east coast of Africa?
- f Name a sea to the north of Africa.
- g What large island is east of Africa?
- h Name two islands west of Africa.
- i Find the equator. List three African countries that are south of the equator, and three north of the equator.
- j Name two African countries on the equator.

Level 2

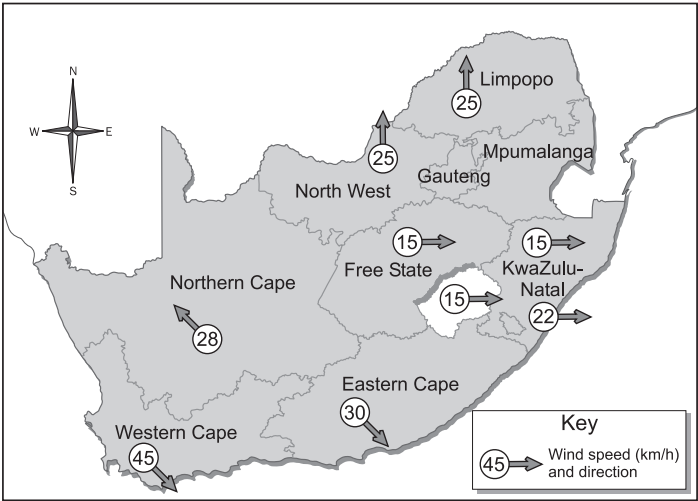
Learner activities

- 1 Turn to the political map of South Africa on pages 56–57 and answer these questions:
- a What is the most northerly province in South Africa?
 - b What is the most southerly province?
 - c Do you know what the name Mpumalanga means? If not, try to find the answer on the Internet or ask your teacher. How do you think the province got its name?
 - d If you flew directly west from Durban to Port Nolloth, what provinces would you pass over? What neighbouring country would you fly over?

- 2 Turn to the map of your province (pages 58–75) and answer these questions:
- a What is to the south of your province?
 - b What is to the east of your province?
 - c Look at the small locator map. What is the position of your province in South Africa (i.e. is it in the south–east, or the north, etc.)?
- 3 Turn to the map of your province (pages 58–75). Find your home town (or if it is not marked, find the town nearest your home). Name five towns or cities near your home and say what direction you would travel in to get to them. Set your answer out in a table like the one below:

Home town	Neighbouring town	Direction
Greytown	Dundee	northwest

- 4 On this weather map of South Africa the arrows indicate wind direction. Complete the information in the table. (Remember that a west wind blows **from** the west towards the east.)



Region	Wind direction	Wind speed
North West	southerly	25 km/h
Western Cape		
Eastern Cape		
KwaZulu-Natal coast		
KZN interior, Lesotho & Free State		
Northern regions		
Northern Cape/Karoo		

5 Finding your way around maps and atlases

This chapter covers:

- grid references
- finding your way around an atlas
- using an index to find places.

Most maps include a grid of lines that is there to help you to find places on maps quickly. In the *Oxford South African Thematic Atlas for Grades 4–7*, these are alphanumeric grids. Show learners the example of a map with an alphanumeric grid on page 12 of the atlas. At higher intermediate and senior levels, learners will work with the grid of lines that longitude and latitude form.

Grid references

The diagram below has been divided into columns (running from top to bottom) and rows (running from left to right). The lines on the diagram form a grid. Each line on the grid has been given a letter or number to identify it. By referring to the numbers and letters on the grid, we can pinpoint blocks on the grid. For example, E1 refers to the block with the black triangle in it.

	1	2	3	4	5
A					
B			*		
C					■
D					
E	▲				

E1 gives us the position of a certain square on the grid. We call this an alphanumeric grid reference because it contains a letter of the alphabet and a number. Grid references like this one can be used to give the exact or rough position of

places on maps. Refer learners to the map with the alphanumeric grid on page 12 of the atlas. The “Note” explains how to use the grid. Allow learners to practise using the alphanumeric grid by doing the “Look closer” activity on page 12 of the atlas. Activities later in this chapter give more practice in using an alphanumeric grid.

Latitude and longitude

Turn to pages 16–19 of the atlas. Explain to learners that the Earth is round, while a map is flat. Allow them to study the pictures on pages 16 and 18, which show how the round Earth is drawn on a flat piece of paper. Let them find South Africa on the world map on page 18 and then let them find their own location on the map of South Africa on page 19. Explain that lines of latitude and longitude are lines that form a grid on the Earth. Lines from north to south are lines of longitude. Lines from west to east are lines of latitude. The equator is a line of latitude that divides the Earth into two hemispheres: the northern hemisphere and the southern hemisphere. The Greenwich Meridian is a line of longitude that divides the Earth into the western and the eastern hemispheres.

Once learners understand that lines of latitude and longitude form an imaginary grid on the Earth’s surface, they can begin to understand how these lines are used to give the position of places on a map.

Using an index to find places

An index is an alphabetical list of all the places in the atlas. In order to use it effectively, the learners should understand alphabetical order. This skill will help them to use dictionaries and other alphabetically arranged reference works. Some ideas for developing this skill are given in the practical activities for this section.

Pages 120–124 of the atlas contain the index. It gives you information about the places on the maps, and also tells you where to find them. You will find:

- the place name
- the country (if relevant)
- a page number
- an alphanumeric grid reference.

If a learner is trying to find Caledon (for example) on a map in the atlas, these are the steps to follow:

- 1 Find Caledon in the index.
- 2 Write down the page number and grid reference given there.
- 3 Turn to this page in the atlas and find the block in the grid.
- 4 Find Caledon in the block.

Some towns can be found in several different maps in the atlas, but in most cases the index only lists the most important map for that town.

Remember that the way some maps are drawn means that the lines of latitude and longitude may be curved. In this case, the grid does not form uniform square blocks. For example, the map on page 87 in the atlas has curved lines, but you can still use the same method to find places on the grid.



Practical activities using an alphanumeric grid

Level 1

Teacher facilitated activity

- 1 Draw the grid below on the chalkboard. Ask learners to say what position the following shapes are in:

- the triangle
- the circle
- the X
- the star
- the ✱

If they still need practice, leave the grid on the board but rub out the shapes and ask individual learners to come up and colour in the blocks that you specify (e.g. “Colour block A3 red”). If you don’t have coloured chalk, get them to write their initials in the blocks you specify.

	1	2	3	4	5	
A		△				A
B					☆	B
C				○		C
D	✱		×			D
E						E
	1	2	3	4	5	

Level 1**Learner activities**

- 1 Turn to the street map on page 20 in your atlas. Find the position of these places on the map, and complete the table in your books:

Place	Position
Traffic department	CC11
Caledon hospital	
Calendon clinic	
Overberg High school	
Vleiview	
Railway station	
Libanon B&B	
Library	

- 2 Look at the contents page of your atlas. On which pages can you find the following?
- a map showing South Africa and its provinces
 - a map of the Northern Cape
 - a map showing commercial farming in South Africa
 - a map of the world
 - a map of South America
 - the index
- 3 Read the whole question before you start your answer. Draw a table like the one below, then use it to set out your answers.
- Write these places in alphabetical order: Bhisho, Alexander Bay, Zeerust, Giyani, Polokwane, Ulundi.
 - Now find these places in the index. On what page of the atlas would you find each place?

Place	Page number
Alexander Bay	33

- 4 When places start with the same letter, they can still be placed in alphabetical order. How would you put these places in alphabetical order?
- Gansbaai, Grahamstown, Giyani, Goegap
 - Howick, Hangklip, Hluhluwe, Hermanus
 - Atlantis, Alberton, Alexandria, Arniston
 - Mahikeng, Madibong, Mabopane, Maclear

- 5 (Extension activity) What do these abbreviations in the index stand for?

SA UK
WC USA
KZN DRC
Mt.

Help learners find the answers in a dictionary if they do not already know them.

Level 2**Learner activities**

- 1 Use the index to complete the information in this table. Write abbreviations out in full.

Place	Description	Page	Grid position
Balkhash	lake		
Kilimanjaro			
Lesotho			
Magaliesberg			
Mangoky			
Mongolia			
Nile			
Sicily			
Zambezi			

- 2 (Extension activity) In what other books do we use alphabetical order? How does this help us?
- 3 Turn to the world map on pages 42 and 43. On which continent and/or ocean are the following locations? Set your answer out as a table like this one:

Location	Continent	Ocean
F6	South America	Pacific
B7		Atlantic
D11		
E10		
G8		
C7		
B4		
B13		
B10		
H20		
H15		
F17		

6 Scale and distance

This chapter covers:

- understanding scale
- representing scale
- measuring and calculating distance.

Pages 14–15 in the atlas introduce learners to distance and scale.

Understanding scale

Maps are scale representations of the real world. This means that they are much smaller than the real areas that they show. The scale of a map tells you how much smaller the map is than the real area. It also gives you the information you need to calculate how long the distances shown on the map actually are on the ground.

Representing scale

Scale on maps can be given in three ways:

- as a line scale
- as a word scale
- as a ratio scale.

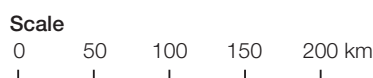
Word scale

A word scale is a clear statement in words, for example:

One centimetre (cm) on the map represents 50 kilometres (km) on the ground.

Line scale

A line scale is a line that is divided into equal sections. Each section represents a certain distance on the ground. For example:



Ratio scale

Many maps give scale as a ratio, for example:

1:2 000

A ratio of 1:2 000 means that the map is $\frac{1}{2\,000}$ th of the size of the real area. In other words, one unit of measurement on the map is equal to 2 000 of the same units on the ground. So, 1 cm on the map would represent 2 000 cm (that is, 20 metres) on the ground.

Large scale and small scale

A large-scale map usually shows a small area in generous detail. So on a large-scale map of Durban, for example, the map on page 15 of the atlas, you would see streets, parks, etc.

A small-scale map shows a much larger area, and it has to leave out many details. Therefore, on a small-scale map of KwaZulu-Natal (see page 15 of the atlas), Durban is shown as a dot.

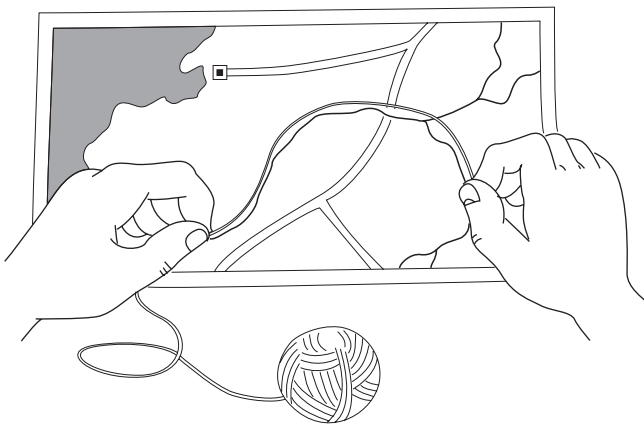
Measuring and calculating distance

Pages 14–15 of the atlas give clear step-by-step instructions on how to measure straight-line distances as well as curved or indirect distances

on a map. Learners can measure straight or curved distances on maps using a ruler, paper, string or a pair of dividers.

A ruler or a straight edge of paper can be used to measure straight line distances on a map. Once learners have measured, they place the ruler against the line scale on the map and read off the real distance.

Roads and rivers on maps are usually curved. The best way to measure curved distance on a map is to use a thin piece of cotton or string to follow the distance being measured. The distance can then be worked out by placing the string against the line scale.

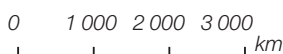
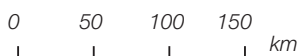
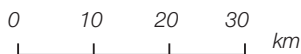


Practical activities on scale and distance

Level 1

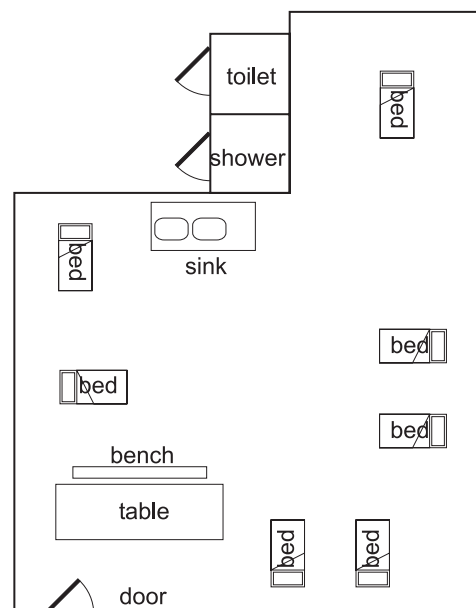
Learner activities

- Look at these line scales. What does one centimetre represent in each one?



- Turn to page 14 in your atlas, and look at the map of Zanzibar.
 - Measure the length of the island of Zanzibar from north to south.
 - What distance does this represent in kilometres on the ground?

- Find Makoba in the northwest of the island. How many kilometres is it by car to Kama?
 - If an aeroplane flew straight from Makoba to Pongwe on the east coast of the island, what distance would it fly?
 - How far would you have to walk from the Sugar State Farm to reach the Mnagapwani Slave Caves?
- Look at this plan of the holiday hut on Zanzibar.
 - What is the scale of this plan in words?
 - How long is the hut in the plan?
 - How long is the hut in real life?
 - How wide is the hut in the plan?
 - How wide is the hut in real life?
 - How long are the beds?
 - How long is the table?



Scale



Level 2**Teacher-facilitated activity**

- 1 You can use any map in the atlas to set measuring tasks. Ask learners to measure distances between places on the map and then to convert these to kilometres using the scale.

Learner activities

- 1 Compare the maps of South African provinces on pages 58–75.
 - a Which province is drawn at the largest scale?
 - b Why do you think this province has been drawn at a larger scale?
- 2 Turn to the map of Africa on page 78.
 - a A yacht-owner is planning to sail all the way around the coast of Africa. She will start at Tripoli in Libya, and travel via Cape Town, stopping at ports on the way and ending up back at Tripoli. Approximately how long will the journey be? Calculate it in kilometres.
- 3
 - a Turn to the map of the Eastern Cape on page 60 of the atlas. Work with a partner. Find Port Elizabeth and Port Alfred on the map. Your uncle arrives at Port Elizabeth International Airport and wants to drive to Port Alfred for a holiday. He asks you how far it is from Port Elizabeth to Port Alfred by road. Can you guess how far it is?
 - b Now measure the distance of the shortest route (by road) with a piece of string. Hold your piece of string against the line scale on the map and read off the distance in kilometres.
 - c How accurate was your guess in Question 3b?
 - d If a bird flew straight from Port Elizabeth to Port Alfred, what is the distance?
4. A pilot needs to know the flight distances between the cities below. Turn to the continents maps on pages 86–91 of the atlas. Copy the table below into your book and fill in the distances.

Map	Flight route (direct)	Distance on map (cm)	Distance in km
Asia on page 86	Jakarta (F10) to Manila (E11)		
Europe on page 87	Madrid (D5) to Rome (D7)		
North America on page 88	Washington DC (F11) to Port-au-Prince (H11)		
South America on page 89	Quito (C4) to Rio de Janeiro (E7)		
Australia and Oceania on page 90	Sydney (F6) to Wellington (G8)		
Antarctica on page 91	South Pole to Sanae IV (B18 – South Africa’s research base on Antarctica)		

7 Using and interpreting thematic maps

This chapter covers:

- thematic maps: what they are
- understanding the titles of thematic maps
- thematic maps in the *Oxford South African Thematic Atlas for Grades 4–7*
- ideas for integrating thematic maps into classroom activities.

Thematic maps

In Chapter 3, thematic maps were defined as maps that give information about specific topics. Some of these topics are climate, vegetation, natural resources, and land use. Thematic maps can give information about just one topic, as in the population distribution map on page 43, or they can provide information about different, but usually related topics. Such an example can be found on page 36. The weather map provides information about the minimum and maximum temperatures, weather conditions, and wind speed and direction. It also shows us different provinces, important towns and cities, as well as the names of the surrounding oceans.

The meaning of map titles

In order to make sense of thematic maps, learners need to be alert to map titles and what these signal in terms of information on the map. Some of these titles are self-explanatory, such as *World population*. Others will be less familiar to the learners, and we recommend that you spend some time making sure that they read and understand them. They are explained in the section that follows.

One way of helping learners to understand map names is by getting them to find thematic map titles in their atlas contents list and to write these down. They can then guess (hypothesise) what they think each of these atlas pages will contain. By turning to the pages and looking at what they do cover, they can see how well they predicted and also learn what is meant by the titles.

Thematic maps in the *Oxford South African Thematic Atlas for Grades 4–7*

- *Climate and natural vegetation (page 38–39)*
Learners need to understand that climate means the general weather pattern in an area over a long time. The climate of a place is influenced by its altitude (height above sea level – the higher you are, the cooler the temperature); latitude (the closer you are to the equator, the warmer the climate usually is); rainfall patterns through the year; temperature patterns through the year; and winds and ocean currents.

The atlas has been designed to help learners to see connections in geography. For example, by examining the temperature and rainfall maps on pages 38–39, learners will discover how temperature and rainfall help to determine what natural vegetation grows in different parts of the world.

- *Farm production (page 33)*
The map shows what types of commercial farming are practised in different parts of the country. It has close links to the rainfall map on page 37. It is important for learners to work out and understand these connections.

Subsistence farming (traditional small-scale farming) is another important source of food and other means of livelihood.

- *South Africa’s mineral resources (page 40)*

As learners can see from the table, South Africa is the world’s top producer of several important minerals. The mines provide thousands of jobs, and the sale of minerals to other countries brings a lot of money into South Africa. But the mines are also a source of problems: for example, many miners get lung diseases, and the environment is damaged by mining.

- *South Africa’s population (pages 42–43)*

The map and graphs dealing with South Africa’s population include information about population growth, population density (how many people live in an area), the numbers of people in each age group, and the shift over the past century from rural to urban areas.

- *World population (pages 44–45)*

The map and graph dealing with world population issues include information about world population distribution, world population growth and population concepts including birth rate, death rate, population growth rate, infant mortality rate and life expectancy rate.

- *Trade (page 46)*

The map on page 46 shows South Africa’s most important export and import trading partners.

- *Volcanoes and earthquakes (page 49)*

This map shows the location of the tectonic plates, as well as the direction of plate movement. It also shows the location of the world’s major volcanoes and earthquakes.

- *South Africa’s conservation areas (page 50)*

The map on this theme shows the location of South Africa’s national parks, transfrontier parks, marine protected areas and World Heritage Sites.

8 Worksheets

	Worksheet topic	Skills and knowledge that can be assessed
1	Map skills: plan views	– identifying correct plan views
2	Map skills: map symbols	– drawing maps – understanding symbols – understanding keys
3	My province in South Africa	– basic knowledge of the learners' own province – interpretation of maps and their labels – interpretation of data from tables, graphs and symbols
4	Atlas skills: symbols and referencing	– knowledge of map symbols – interpretation of colour on physical maps – understanding the uses of maps – researching information from different sources (index, maps, etc.)
5	South Africa	– locational knowledge – interpretation of maps and their symbols and labels – researching information – completing a table
6	The world	– knowledge of what continents and oceans are – locational knowledge – map skills: labelling and colouring – researching information and presenting it – knowledge of direction
7	Map skills: maps and land height	– interpreting physical maps – creating physical maps – completing a map key – designing a map symbol
8	Map skills: distance, scale, direction	– using a scale to work out distances – working out directions – working with tables – recognising patterns in data – recognising differences between seasons in the northern and southern hemispheres
	Master sheets for South Africa, Africa, and the world	– wide range of activities that teachers can plan

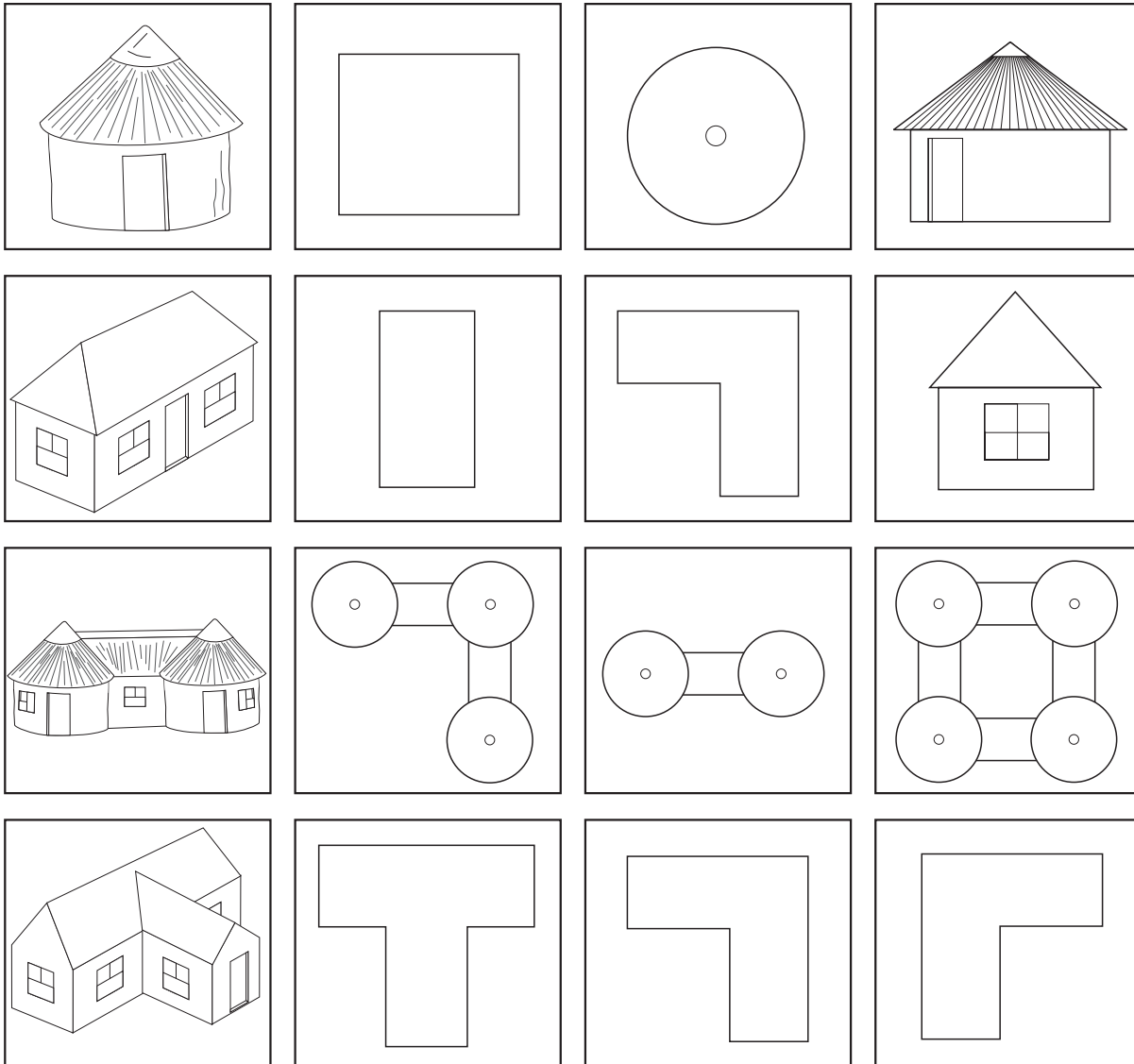
Worksheet 1

Map skills: plan views

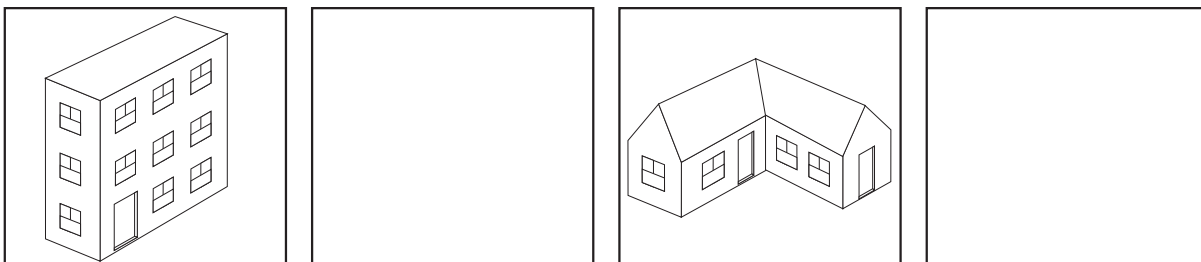
Looking down at buildings

A view from above is called a plan view.

Colour the roof of each building in the left column. Then colour each building's plan view.

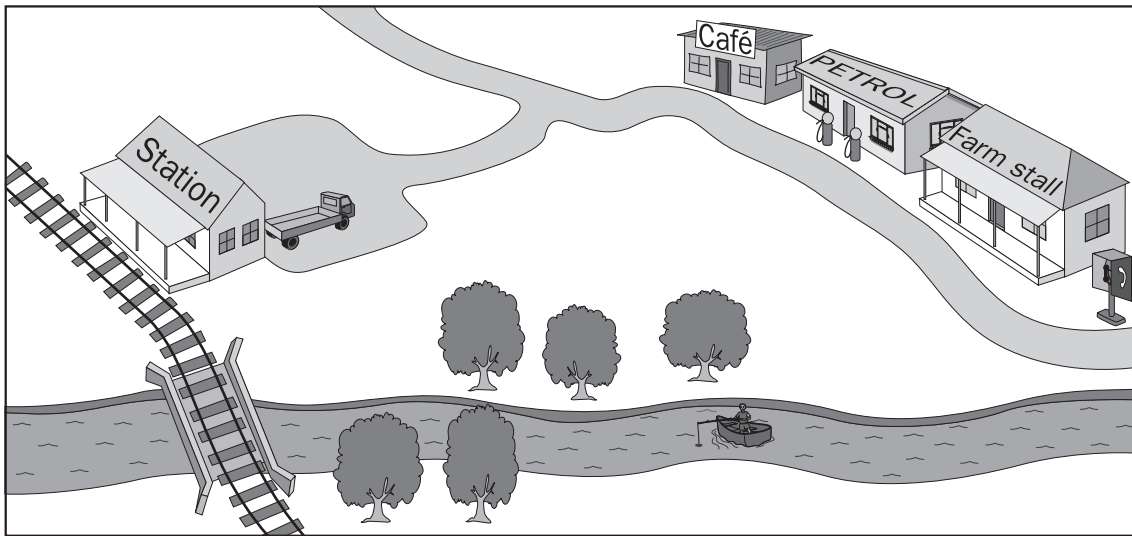


Draw the plan view of each of these buildings.



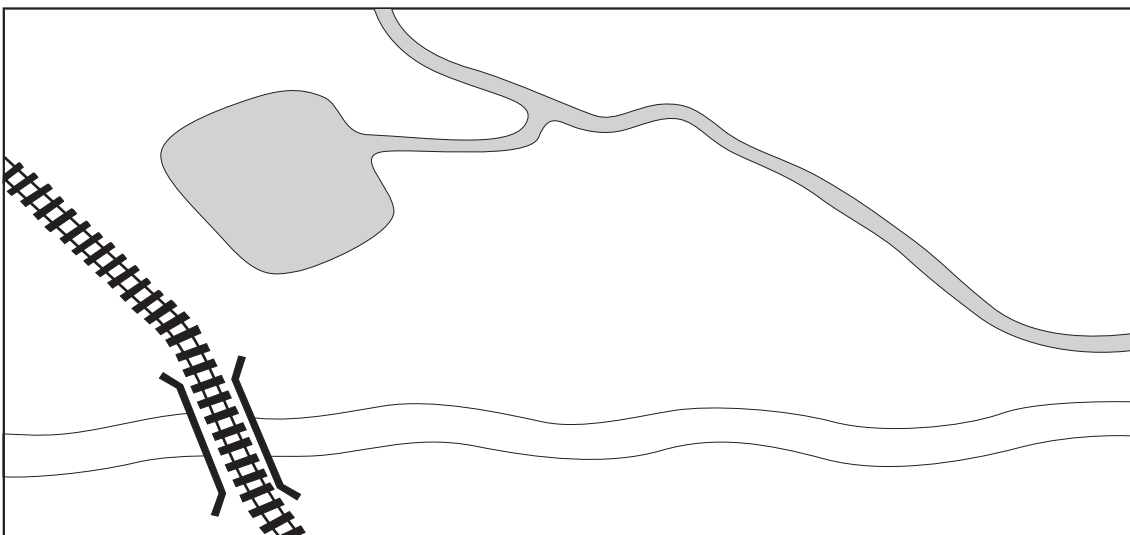
Worksheet 2

Map skills: map symbols



Design and draw the missing symbols in the key.
Using the key, complete the map.

Key			
 road	 river	 train station	 phone
 petrol station	 bridge	 parking area	 café



Worksheet 3

My province in South Africa

Use the map of your province together with the political map of South Africa on pages 56–57, and the table underneath your province's map, to complete this worksheet.

Find your province on this map of South Africa, and colour it in. Write its name in the space below the map. Mark the capital and label it. Colour the sea blue.



My province: _____

Population of province: _____

Area in km²: _____

Towns or cities with airport: _____

Neighbouring provinces: _____

Three main home languages (list them in order, starting with the language with the most speakers):

Neighbouring countries: _____

Physical features

Main rivers: _____

Mountain ranges: _____

Main nature reserves or national parks (name three): _____

Worksheet 4

Atlas skills: symbols and referencing

You will need to look at your *Oxford South African Thematic Atlas for Grades 4–7* while you complete this worksheet.

1 Draw a symbol that is used in your atlas to represent the following:

capital city	airport
river	sunflower farms
international boundary	sheep farms
large town	gold
railway	diamonds
built-up area	copper

2 What colours are used on the physical map of South Africa to show:

- the sea _____
- the highest land _____
- rivers and dams _____
- the lowest land? _____

3 Find three different maps in your atlas. Complete this table for the three maps you choose. An example has been done for you.

Map title	Atlas page number	People who might use a map like this
Rainfall	37	A farmer; also a foreign person planning a beach holiday in South Africa

4 Look at the place names in the box. Underline all the continent names in red. Underline the ocean names in blue. Draw a circle around the names of countries. Put a star next to all the names of towns or cities.

Atlantic Asia India Pacific Botswana Lesotho Pretoria France Australia Namibia
Windhoek Argentina Europe North America Canada Washington Paris Durban Egypt
Mexico Queenstown Swaziland Harare Lusaka South America

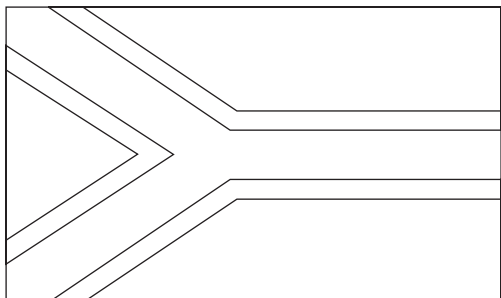
Worksheet 5

South Africa

Use the political and physical maps of South Africa on page 54–57 in your atlas to complete this worksheet.

Find South Africa on this map of Africa. Colour in South Africa. (Remember to leave Lesotho clear.) Label it. Mark and label the three capital cities. Colour the sea and label the two oceans.

Colour the flag. (Use the correct colours.)



Basic facts

South Africa’s population: _____

South Africa’s official languages:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Provinces

Province	Capital	Population	Main home language

National symbols

(You may need to visit the internet to complete this section or ask your parents to help you.)

Imagine that you have been asked to choose a national insect. Draw it and name it.

National flower: _____

National animal: _____

National tree: _____

National fish: _____

National bird: _____

Neighbouring countries

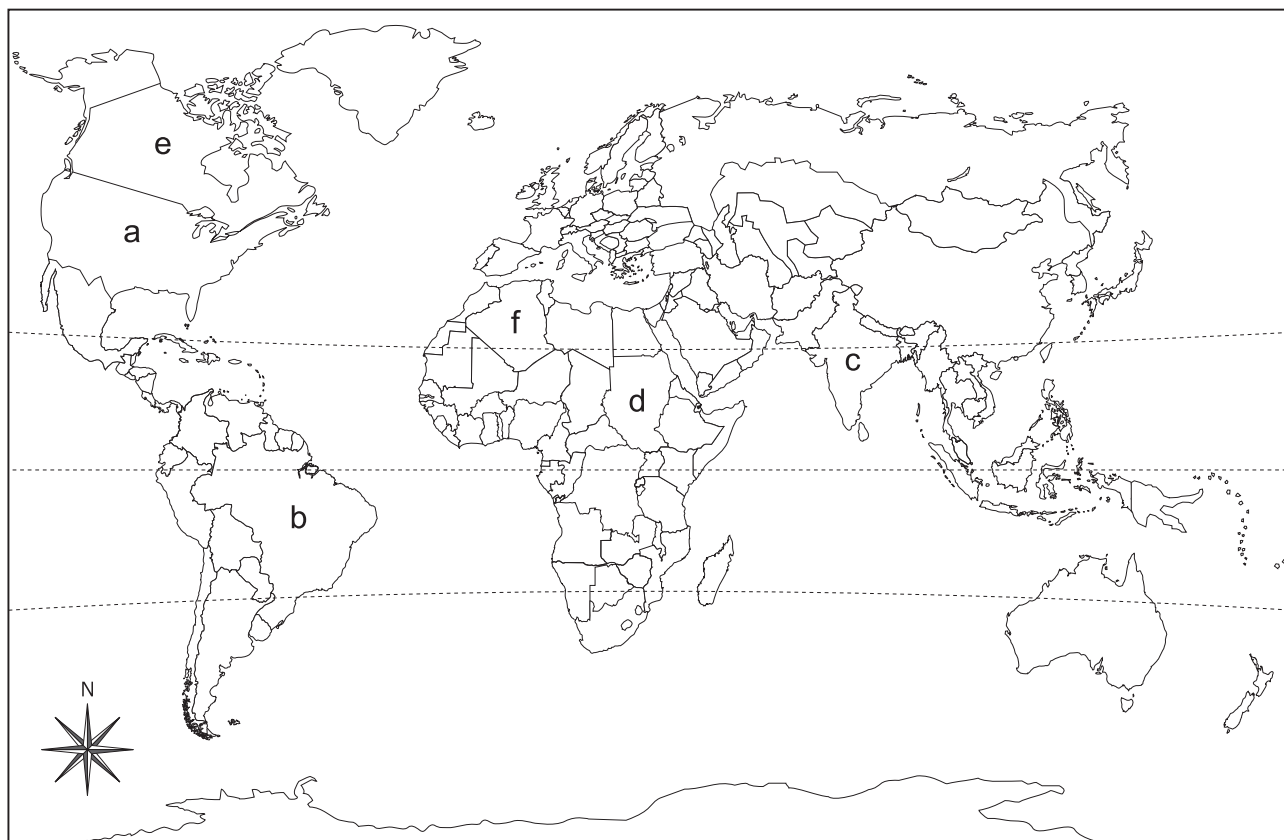
On the map you can see our neighbouring countries numbered 1–6. Name the countries and their capitals.

Country	Capital
1	
2	
3	
4	
5	
6	

Worksheet 6

The world

Refer to your atlas while you complete this worksheet, especially the world map and the continents on pages 81–91.



- 1 Choose a different colour for each of the seven continents. Colour them in.
- 2 Label each continent.
- 3 Colour the seas and oceans blue. Label the oceans.
- 4 Label South Africa.
- 5 Label the equator.
- 6 Complete the labels on the eight-point compass diagram.
- 7 Name the countries that are marked on the map:

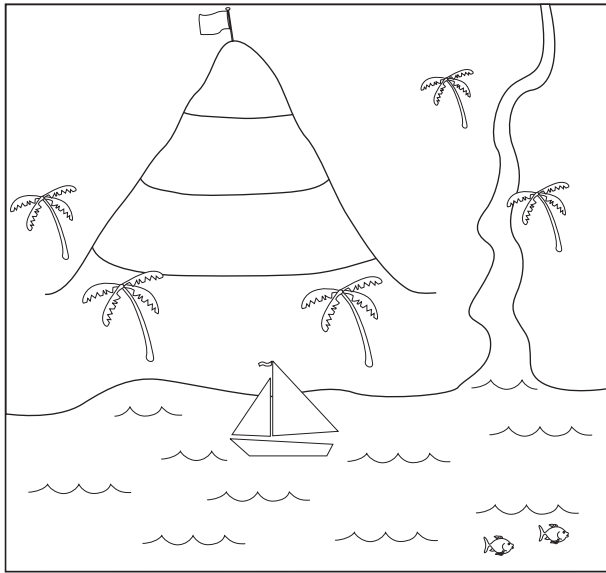
a _____	d _____
b _____	e _____
c _____	f _____

Worksheet 7

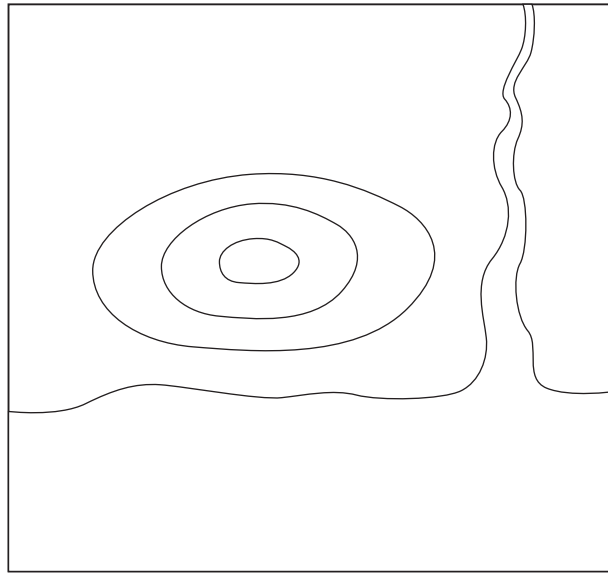
Map skills: maps and land height

Key

- ☐ 30–40 m above sea level
- ☐ 20–30 m
- ☐ 10–20 m
- ☐ 0–10 m
- ☐ flag



Porcupine Peak (side view)



Physical map of Porcupine Peak (plan view)

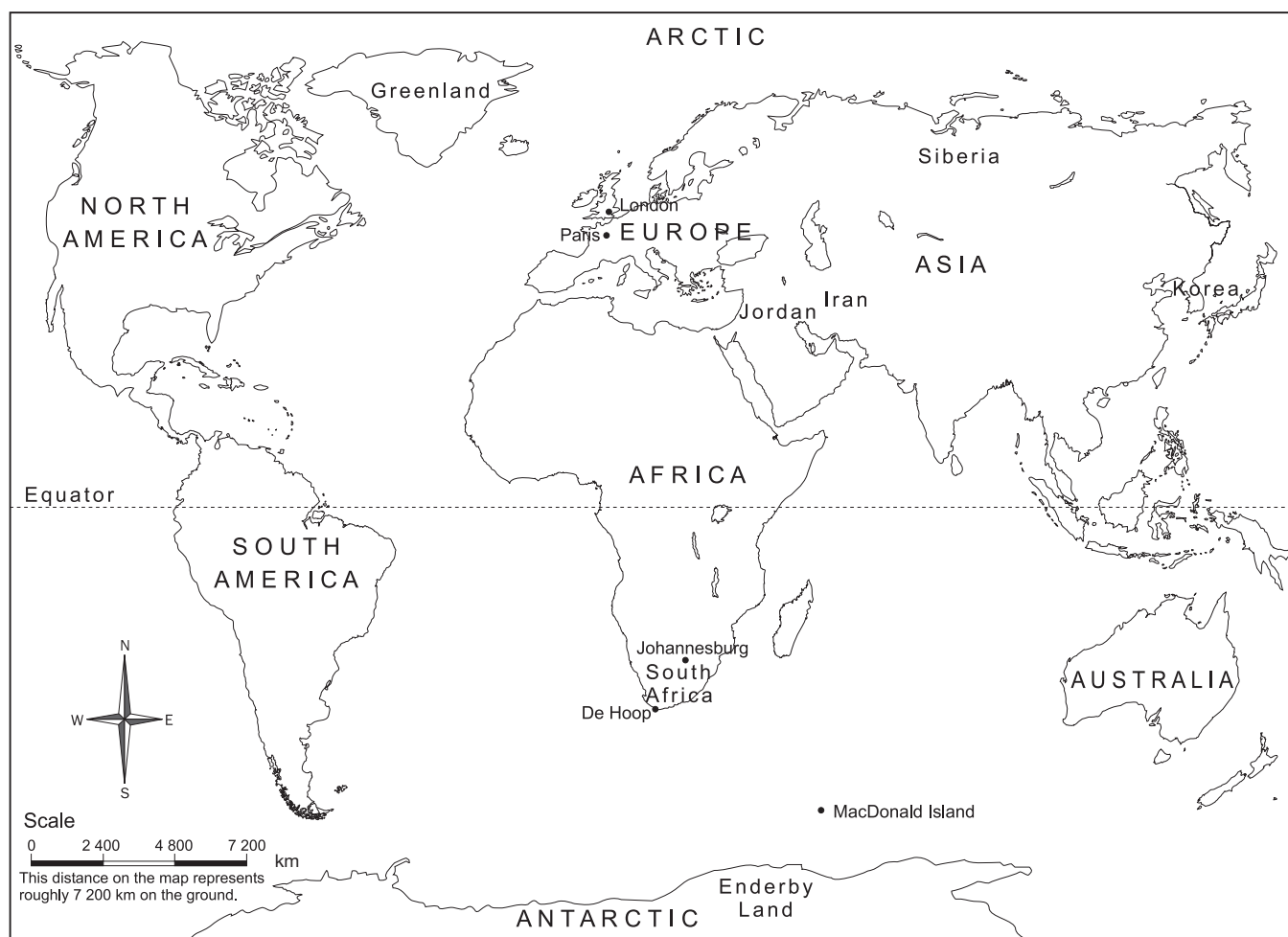
- 1 Above is a sketch of Porcupine Peak and a map of the same area. You need to colour both to show the land height. Follow these steps:
 - a Choose a different colour for each band of land height on Porcupine Peak. Colour each band in.
 - b Colour the key to show what height each colour represents.
 - c Using the same colours, colour the map of Porcupine Peak to show the land height.
 - d Colour the sea and the river and label them.
 - e Design your own symbol for the flag and add it to the map and the key.
- 2 Turn to the physical world map on pages 82 and 83.
 - a Which side of South America has the highest land – the east or west side? _____
 - b Which side of North America has the highest land? _____
 - c Which part of southern Africa has the highest land? _____
 - d How high is the land in most of Australia? _____
 - e If you wanted to climb the highest mountain in the world, where would you go?
 Name the mountain, the mountain range, and the continent. _____

Worksheet 8

Map skills: distance, scale, direction

Amazing migrants

The migrations of animals from one part of the world to another are among the most amazing events in nature. Each year, hundreds of bird species fly thousands of kilometres to breed. A few months later they fly all the way back to where they came from.



Work out the answers to these questions and write them in the table. Write them in pencil first so you can check and correct them if you need to. (It will help if you draw lines on the map to show the birds’ routes. The distances you work out will be approximate; it is not possible to work them out completely accurately.)

- 1 In October, a flock of Eurasian swallows flies from London to Johannesburg to breed.
 - a Approximately what distance do they fly?
 - b In what direction do they travel?
 - c When they return, in what direction do they travel?
 - d In a year, what distance do they travel in their migration?

Provide the same answers (a, b, c, d) for the following birds:

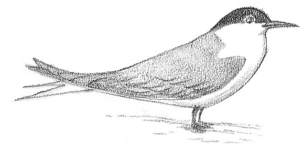


Steppe buzzard

Steppe buzzards catch small animals by dive-bombing them. They often perch on telephone posts.

Where they live:

April to September: Europe and Asia
October to March: Africa



Arctic tern

These sea birds are the long-distance champions of migration. They fly further than any other birds.

Where they live:

April to October: Antarctic
September to March: Arctic



White stork

Storks are large birds that make platforms of sticks to nest in. They are good at catching air-currents and cruising very high up.

Where they live:

April to September: Europe and Asia
October to March: southern Africa

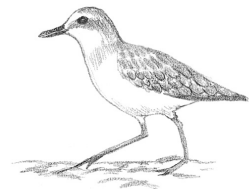


Eurasian swallow

These amazingly fast birds catch insects as they fly. They gather in huge flocks – sometimes millions of birds – before migrating.

Where they live:

April to October: northern hemisphere
November to March: southern hemisphere



Sand plover

Sand plovers search for food on the sea shore and edges of lagoons.

Where they live:

April to September: Asia (Korea, Iran, Jordan) October–March: southern Africa, Australia

** Migration dates are approximate.*

- 2 In September, Steppe buzzards fly from Siberia to De Hoop in South Africa.
- 3 In October, Arctic terns fly from the northern coast of Greenland to Enderby Land in the Antarctic.
- 4 In October, a flock of sand plovers leaves Iran and flies to De Hoop.
- 5 In October, a flock of white storks flies from Paris to De Hoop.

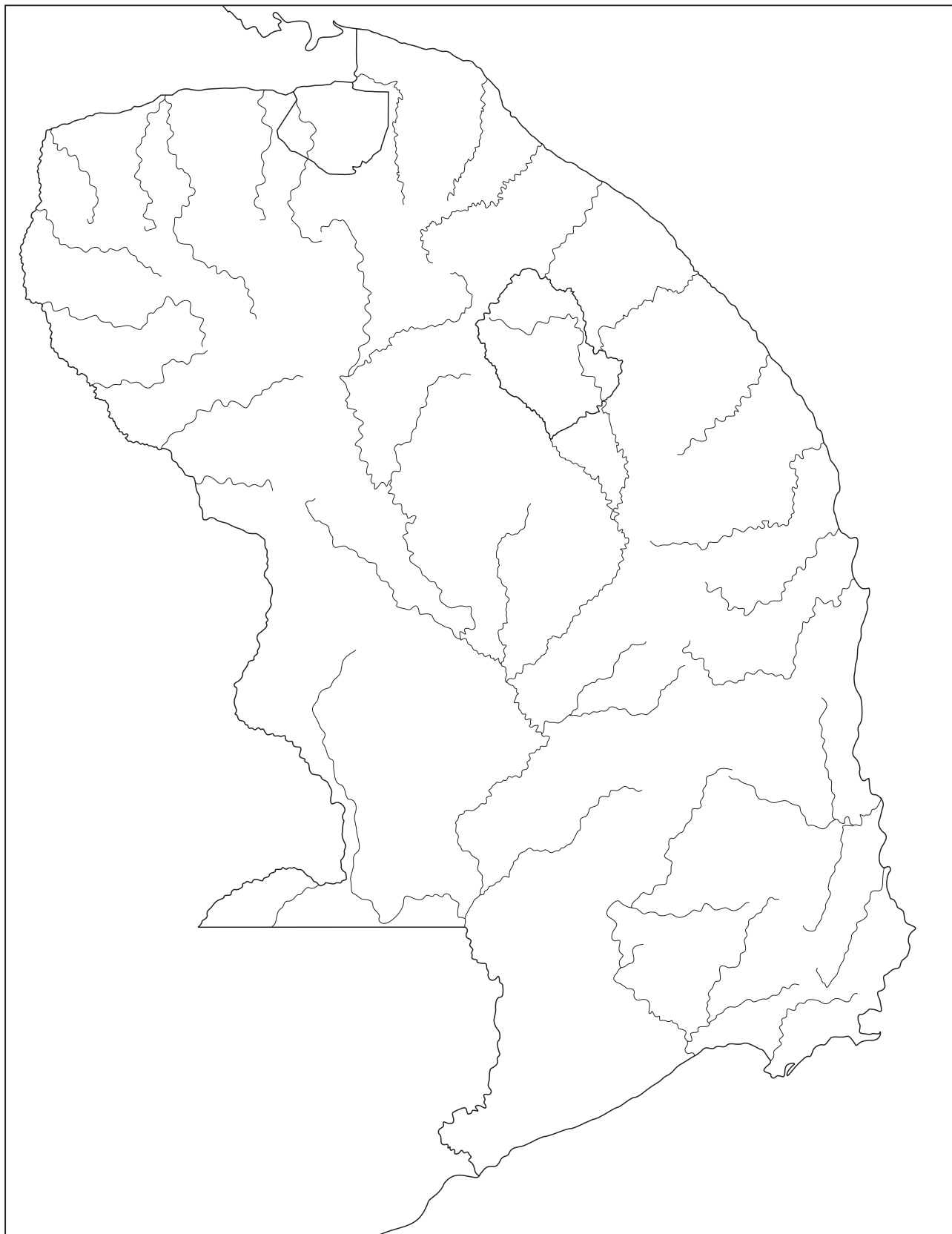
Bird	a. distance of one migration	b. direction	c. direction of return flight	d. total distance of two migrations
1 Eurasian swallow				
2 Steppe buzzard				
3 Arctic tern				
4 Sand plover				
5 White stork				

- 6 When you have completed the table above, look at the answers to b and c. And also look at the lines you drew on the map to show the birds' routes. What do you notice?

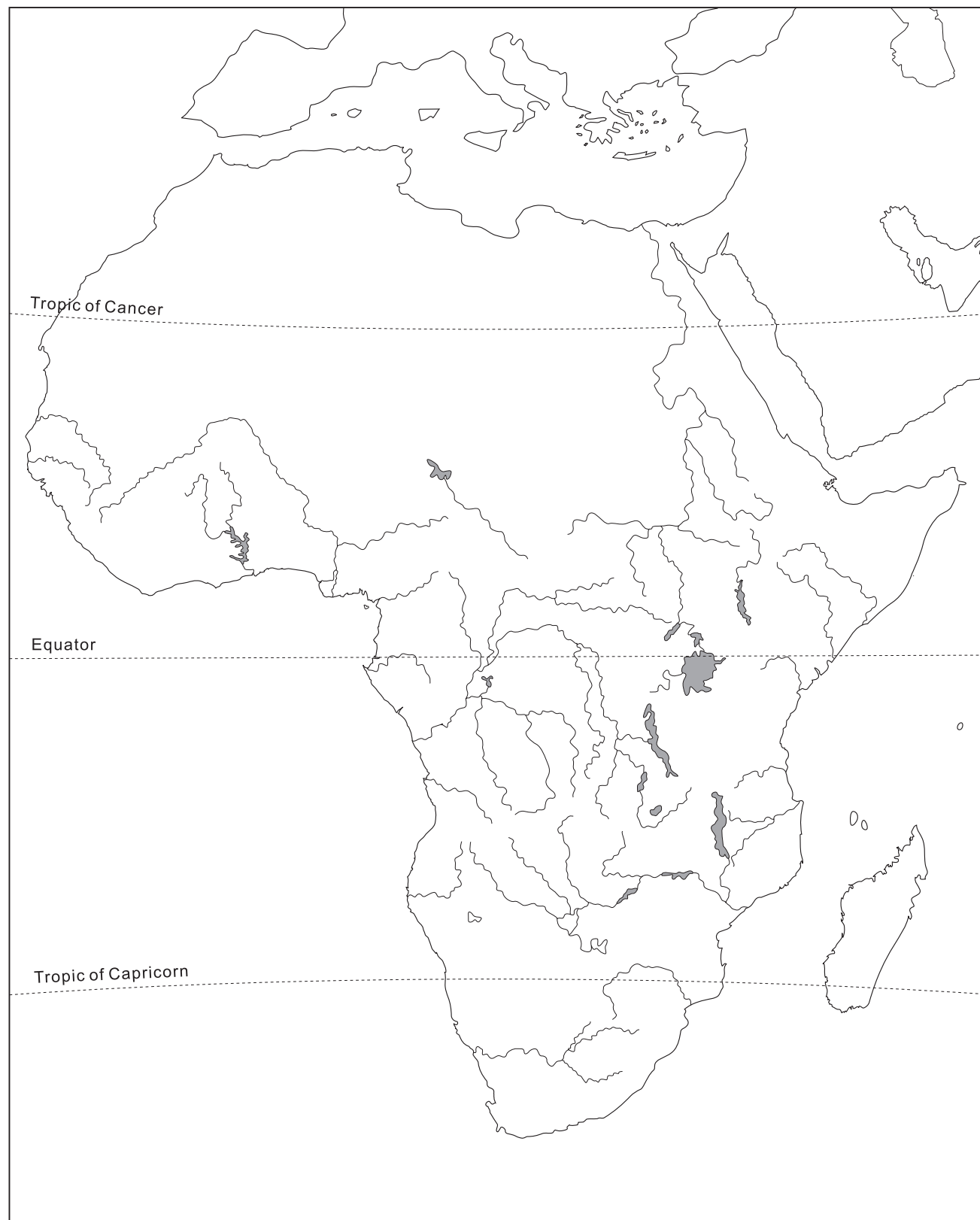
South Africa's provinces



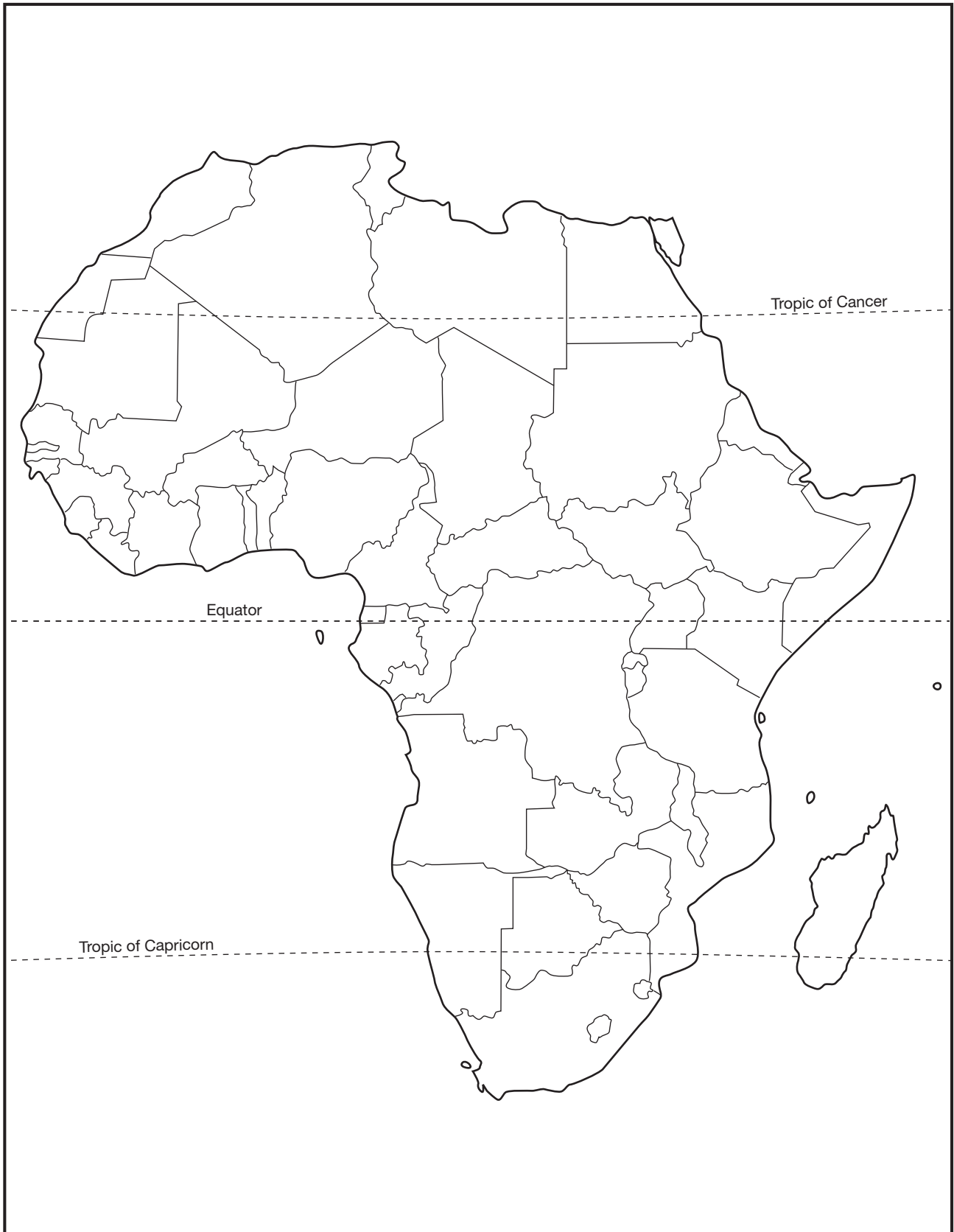
South Africa: physical map



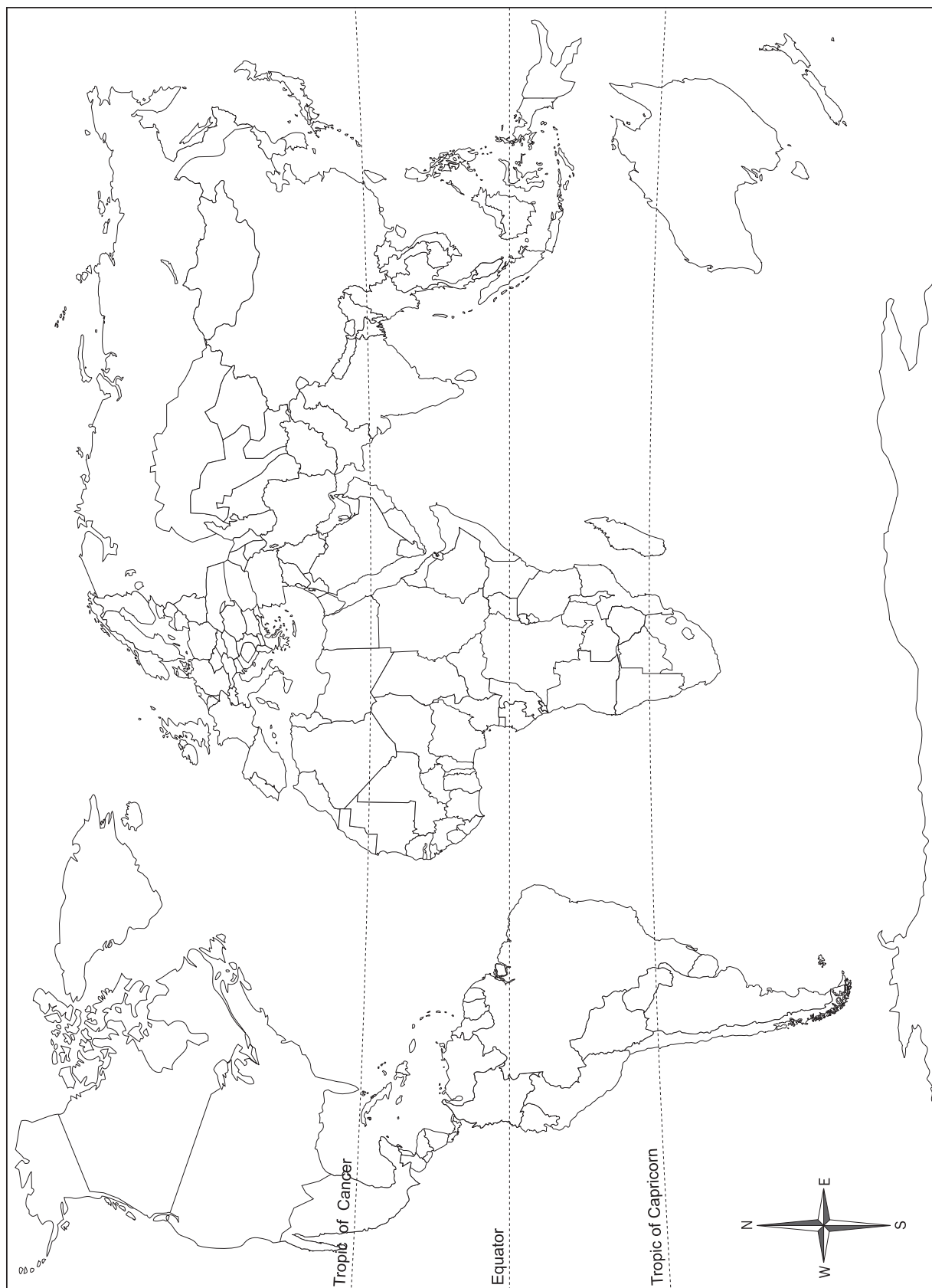
Africa: physical map



Africa: political map



World: political map



Answers to activities

Chapter 1 Understanding what maps are

Level 1

Teacher-facilitated activities (page 2)

- 1 Check that learners' drawings of plan views show that they have understood the concept.
- 2 If you want an example of a classroom plan view to refer to, see the diagram on page 4.
- 3 The purpose of these activities is to give learners practice in interpreting plan views, and in making links between normal views of places and plan views. Their answers should enable you to see whether they have understood the concepts of plan views and maps. These are fundamental skills, so don't move on to other map work until they can do this confidently.
 - a Examples are houses, trees, hospital, people, various cars, the school building, soccer field, school bus, swimming pool, pedestrian crossing, etc.
 - b The teacher will need to check answers.
 - c The purpose of this activity is to get learners to look closely at the picture and the map and to make the links from observation. (Later in the atlas they will also have symbols and labels to help them interpret maps.)

Learner activities (page 3–4)

- 1
 - a A is the correct plan view.
 - b A
 - c B
 - d B
 - e B
 - f B
- 2
 - a The first plan view (A) is the correct one.
 - b B
 - c B
 - d A
 - e A
- 3 You will need to check the answers.

Level 2

Learner activities (page 5)

- 1 B is the correct map.

Chapter 2 Signs and symbols on maps

Level 1

Teacher-facilitated activity (page 7)

- 1 The signs mean:
 - People may not enter
 - Route for pedestrians (or people)
 - No cars allowed

Learner activities (page 8)

- 1 You will need to check the learners' drawings against the symbols in the atlas.
 - a Grey.
 - b A white cross in a red circle.
 - c A red star.
 - d Learners must draw the school and police station symbols.
 - e The swimming pool is shown by a blue shape.
- 2
 - a Province borders are pink.
 - b Northern Cape has two airports marked; the Western Cape has two airports marked; the Eastern Cape has two airports marked; KwaZulu-Natal has two marked (the red flag covers one airport symbol); Mpumalanga has two marked; Free State has one marked; Gauteng has two marked; North West has two marked; Limpopo has two airports marked. (Note that these are major and secondary commercial airports; in addition there are many smaller landing strips for aeroplanes, which it has not been possible to include on the maps.)
 - c Learners should draw the red line with the symbol and number shown in the key.
 - d Learners should reproduce the orange squares and circles shown in the key; it would also

be correct to reproduce the more spread-out symbols used on the maps for bigger cities (e.g. Bloemfontein, Cape Town).

- e Check that learners write the label of their capital city in capital letters.
- f Blue.

Level 2

Learner activities (page 8)

- 1 Examples of points are the orange points used for built-up areas (see key on page 58); black points showing towns and cities (page 15); red points used to show cities on the continent maps (pages 86–91).
- 2 The main thing to check is that learners have understood that the colours on the map represent different heights of land above sea level, and different ocean depths. (They could draw and colour the land height key in their books, and label the land heights and ocean depths in the appropriate places.)
- 3 The teacher will need to check answers against the keys in the atlas.
- 4 To do this activity learners must check that the symbol for railway lines runs through the places they choose. You could encourage discussion about the destinations the children choose. For example, you could ask why they want to go there, what they know about these places, what they plan to do there, and whether they have been there before. This should give a good informal opportunity for learners to bring their knowledge and ideas to the classroom, and to expand the class's knowledge of the country. We suggest you work with a large map of South Africa when you discuss the answers.

Chapter 3 Different kinds of maps

Level 1

Teacher-facilitated activities (page 10)

- 1
 - a Colour is used to show each province.
 - b There are nine provinces. The provinces and their capitals are:

Provinsie	Hoofstad
Northern Cape	Kimberley
Western Cape	Cape Town
Eastern Cape	Bhisho
KwaZulu-Natal	Pietermaritzburg
Mpumalanga	Mbombela
Gauteng	Pretoria
North West	Mahikeng
Limpopo	Polokwane
Free State	Bloemfontein

- 2 The main purpose of these questions is to check that learners know the meanings of the terms "continent", "ocean", "island", etc.
 - a The seven continents are Africa, Asia, Europe, South America, North America, Australia and Antarctica.
 - b The four oceans are the Pacific, Atlantic, Indian, and Southern Oceans. (It is also correct to call the Southern Ocean the Antarctic Ocean.)
 - c Examples of islands in the Atlantic Ocean are the Canary Islands, the Azores, the Cape Verde Islands, Ascension Island, Madeira Islands, Tristan da Cunha, Iceland, the British Isles, the islands of the West Indies, Cuba, the Falkland Islands, and Greenland.
 - d Two seas in Asia are the Caspian Sea and the Aral Sea. Learners might also correctly name seas off the coast of Asia, for example the Sea of Okhotsk, the South China Sea, the Arabian Sea, the East Siberian Sea and the Laptev Sea.
 - e The Andes.
 - f The Rocky Mountains.
 - g Australia has no very high mountains.
 - h The Nile.
 - i Most of the world is covered by sea (about 70%).

Level 2

Learner activities (page 10)

- 1

Country	Capital
Namibia	Windhoek
Botswana	Gaborone
Zimbabwe	Harare
Mozambique	Maputo
Swaziland	Mbabane
Lesotho	Maseru

- 2
 - a Water (sea, dams and rivers).
 - b Pale yellow.
 - c Dark brown.
 - d The Richtersveld is between 1 000 and 1 500 metres above sea level.
 - e Mafadi is 3 450 metres above sea level.
 - f The Drakensberg.
 - g The uThukela, the Mfolozi, the uMkhomazi, and the Mzimvubu rivers flow from the Drakensberg into the Indian Ocean. (Learners are asked to name two.)

3

	Page number	Page heading
a	37	Rainfall in South Africa
b	39	Climate and vegetation around the world
c	33	Food and farming in South Africa
d	33	Food and farming in South Africa
e	40	Minerals and mining
f	40	Minerals and mining
g	44	World population
h	38	Climate and vegetation around the world
i	49	Volcanoes and earthquakes
j	50	Natural resources and conservation in South Africa

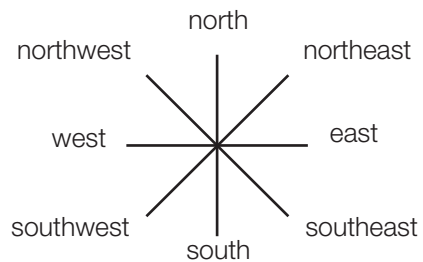
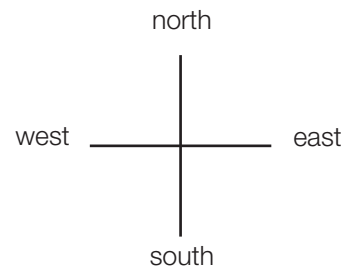
- 4 Many answers to this question are possible. Here are suggestions:
- The maps on page 38 (the January and July temperature and rainfall maps) might be useful to someone planning an overseas holiday or a journey in South Africa; they would help them decide where to go, and at what time of year, what clothes to pack, and whether it would be a good idea to camp or not.
 - The rainfall map on page 37 would be useful to a South African farmer deciding what crops to plant.
 - The map on page 33 (Commercial stock and crop farming in South Africa) might be useful to a person planning to set up a cheese factory: it would help him or her to see where there are a lot of dairy farms producing milk.

Chapter 4 Direction

Level 1

Teacher-facilitated chalkboard activities (page 13)

1



- 2
- South
 - East
 - East
 - North
 - West
 - North
 - West along Eland Street, then south down Protea Road. (Or south down Wood Street, then west along Ocean Drive, then south down Protea Road.)
 - North up Protea Road, then east along Eland Street. (Or north up Protea Road, east along Ocean Drive, and north up Wood Street.)

Learner activities (page 13–14)

- 1
- south
 - partly cloudy
 - cloudy
 - northwest
 - north (or learners could also say the north and northeast)
 - northeast

- 2 a South Africa.
 b Morocco, Algeria, and Tunisia.
 c Somalia. (The Seychelles are also part of Africa, so this answer would also be correct.)
 d The Atlantic Ocean.
 e The Indian Ocean.
 f The Mediterranean Sea.
 g Madagascar.
 h Islands west of Africa include St. Helena, Ascension Island, São Tomé and Príncipe, Bioko, Canary Islands, and Madeira Islands. (Learners are asked to name two.)
 i Countries south of the equator include Tanzania, Angola, Zambia, Malawi, etc. (See the map for others.) Countries north of the equator include the Central African Republic, Sudan, Ethiopia, Cameroon, etc.
 j African countries on the equator include Somalia, Kenya, Uganda, the Democratic Republic of the Congo, Congo, and Gabon. (Learners are asked to name two.)

Level 2

Learner activities (page 14)

- 1 a Limpopo.
 b Western Cape.
 c It means “east” and “where the sun rises” (in Siswati, Zulu and Xhosa). It was given this name because it is on the eastern side of South Africa.
 d You would fly over the following provinces: KwaZulu-Natal, Free State and the Northern Cape. You would also fly over Lesotho (a neighbouring country).
- 2 The main aim of this activity is to get learners to be familiar with their own province in relation to the rest of South Africa. The answers will depend on what province the learners are in.
- 3 The main aim of this activity is to get learners to be familiar with their own immediate area on the map. Answers will depend on where the learners live.
- 4

Region	Wind direction	Wind speed
North West	southerly	25 km/h
Western Cape	northwesterly	45 km/h
Eastern Cape	northwesterly	30 km/h
KwaZulu-Natal coast	westerly	22 km/h
KZN interior, Lesotho & Free State	westerly	15 km/h
Northern regions	southerly	25 km/h
Northern Cape/Karoo	southeasterly	28 km/h

Chapter 5 Finding your way around maps and atlases

Level 1

Teacher-facilitated activity (page 16)

- 1 The triangle is in A2.
 The circle is in C4.
 The X is in D3.
 The star is in B5.
 The asterisk is in D1.

Learner activities (page 17)

- 1 Note that this activity gives learners practice in working with grids and interpreting symbols.

Place	Position
Traffic department	CC11
Caledon hospital	CB12
Caledon clinic	CC11
Overberg High school	CB11
Vleiview	CD 12
Railway station	CC12
Libanon B&B	CB11
Library	CC12

- 2 a Page 19 or pages 56–57.
 b Page 68.
 c Page 33.
 d Pages 82–83, and pages 84–85.
 e Page 89.
 f Pages 120–124.

3

Place	Page number
Alexander Bay	56
Bhisho	57
Calvinia	56
Giyani	58
Polokwane	57
Ulundi	57
Zeerust	57

- 4 a Gansbaai, Giyani, Goegap, Grahamstown.
 b Hangklip, Hermanus, Hluhluwe, Howick.
 c Alberton, Alexandria, Arniston, Atlantis.
 d Mabopane, Maclear, Madibong, Mahikeng.
- 5 SA: South Africa WC: Western Cape
 KZN: KwaZulu-Natal
 UK: United Kingdom
 USA: United States of America
 DRC: Democratic Republic of the Congo
 Mt: Mount

Level 2**Learner activities (page 17)**

Place	Description	Page	Grid position
Balkhash	lake	86	C8
Kilimanjaro	mountain or mount	76	F7
Lesotho	country or kingdom	78	I6
Magaliesberg	mountains	55	B3
Mangoky	river	76	H8
Mongolia	country or republic	86	CP
Nile	river or delta	76	D7
Sicily	island	87	E7
Zambezi	river	76	G6

- 2 Examples of other books in which we use alphabetical order are dictionaries (to find words) and telephone directories (to find names of people, shops, offices, etc.).

3

Location	Continent	Ocean
D5	South America	Pacific
B5	North America	Atlantic
D8	Africa	Atlantic
E7		Atlantic
B7	Europe	Atlantic
B4	North America	
B11	Asia	
B8	Europe	
F4		Southern Ocean
F11	Antarctica	
E12	Australia	Southern Ocean

Chapter 6 Scale and distance**Level 1****Learner activities (page 19)**

- 1 One centimetre represents:
10 kilometres
50 kilometres
1 000 kilometres
- 2 a Zanzibar measures 15 cm from north to south.
b Multiply 15 with 5 (because 1 cm represents 5 km) to get the answer = 75 km.
c 3,7 cm. multiply with 5. Answer = 18,5 km

d 5 cm, which is 25 kilometres

e 1 cm = 5 km

- 3 a One centimetre on the plan represents 2 metres on the ground.
b The hut is 9 cm long in the plan.
c The hut is 18 metres long in real life.
d The hut is 7 cm wide in the plan.
e The hut is 14 metres wide in real life.
f The beds are 1 cm long in the plan (2 metres in real life).
g The table is 2,5 cm long (5 metres in real life).
h The table and bench can be moved to the centre of the hut, so that there is more space at the entrance.

Level 2**Learner activities (page 20)**

- 1 a Gauteng is drawn at the largest scale.
b Provinces were mapped at different scales to make the best use of the space on the pages. In addition, it made sense to map Gauteng to a large scale because it is very built up and therefore requires a lot of detail in a map.
- 2 a The distance she will sail is roughly 23 000–25 000 kilometres, assuming she follows the coastline fairly closely.
b Accept answers between 3 650 km and 3 700 km.
- 3 a. Learners should take a sensible guess at the distance. There is no wrong or right answer, but making reasoned estimates is an important skill to practice.
b. Learners should put one end of the string on the airport symbol at Port Elizabeth, then follow the N1 until it meets the secondary road that goes to Alexandria and Port Alfred. They should measure about 4 cm and read 150 km if they hold the string against the line scale.
c. This question is purely to see how accurate they guessed the distance in Question 3b.
d About 130 km.

4

Map	Page number in atlas	Flight route (direct)	Distance on map (cm)	Distance in km
Asia	page 86	Jakarta (F10) to Manila (E11)	5	2 850
Europe	page 87	Madrid (D5) to Rome (D7)	5	1 350
North America	page 88	Washington DC (F11) to Port-au-Prince (H11)	6	2 340
South America	page 89	Quito (C4) to Rio de Janeiro (E7)	13	4 550
Australia and Oceania	page 90	Sydney (F6) to Wellington (G8)	6	2 220
Antarctica	page 91	South Pole to Sanae IV (B18 – South Africa's research base on Antarctica)	6	2 220

Answers to worksheet activities

Worksheet 1 (page 24)

Make sure learners understand that they must colour the roof of each building in the left column, then choose the correct plan view of the building and colour that.

- 1 The correct plan view is in the third column (the circular plan view).
- 2 The correct plan view is in the second column (the plain rectangular plan view).
- 3 The correct plan view is in the third column (the plan view with two circles).
- 4 The correct plan view is the T-shaped plan in the second column.

Worksheet 2 (page 25)

Teachers will need to check learners' maps.

Worksheet 3 (page 26)

Answers will depend on what province the learners live in (or go to school in).

Worksheet 4 (page 27)

- 1 Capital city: Several answers are possible. Learners can choose a symbol from, for example, the key on pages 56–57, or from pages 58–75 (where the name in capital letters denotes each provincial capital), or the symbol on the continent maps (pages 86–91).
River: a blue line
International boundary: Learners can choose to show the fairly thick purple line from pages 56–57, or 58–75, or the red lines used on the continent maps (pages 86–91).
Large town: see the symbol for cities in the keys on pages 44–45; or the symbols for built-up areas, pages 58–75, in which larger towns are shown by larger squares or patches

Railway: see symbols on pages 56–57, and 58–75
Built-up area: see symbols on pages 58–75
Airport: aeroplane symbol, see pages 58–75.

Sunflower farms: symbol on page 33

Sheep farms: symbol on page 33

Gold: symbol on page 40

Diamonds: symbol on page 40

Copper: symbol on page 40

- 2 Sea: blue

– Rivers and dams: blue

– Highest land: brown

– Lowest land: green

- 3 Many answers are possible. Here are some ideas:
South Africa: provinces, towns, and cities; pages 56–57. A traveller who wants to know what places can be reached by train and aeroplane.

South Africa: provinces, towns, and cities; pages 56–57. Someone who owns a longdistance taxi-service, and who wants to know where the national roads are, and what distances will have to be covered.

Mpumalanga and Limpopo; pages 58 and 66.

Someone who wants to visit the Kruger National Park.

- 4 This will need to be checked by the teacher.
Continents: Asia, Australia, North America, Europe, South America
Oceans: Atlantic, Pacific
Countries: India, Botswana, Lesotho, France, Namibia, Argentina, Canada, Egypt, Mexico, Swaziland, Australia (also a continent)
Towns/cities: Pretoria, Windhoek, Washington, Paris, Durban, Queenstown, Harare, Lusaka

Province	Capital	Population	Main language
Northern Cape	Kimberley	1 145 861	Afrikaans
Western Cape	Cape Town	5 822 734	Afrikaans
Eastern Cape	Bhisho	6 562 053	Xhosa
KwaZulu-Natal	Pietermaritzburg	10 267 300	Zulu
Mpumalanga	Mbombela	4 039 939	Siswati
Free State	Bloemfontein	2 745 590	Sesotho
Gauteng	Johannesburg	12 272 263	Zulu
North West	Mahikeng	3 509 953	Setswana
Limpopo	Polokwane	5 404 868	Sepedi

Worksheet 5 (page 28)

On the map, the three capital cities to be marked are Bloemfontein, Cape Town and Pretoria. The Indian and Atlantic Oceans must be labelled. To check flag colours, see the flag on page 16.

Population: 51,8 million (Census 2011)

South Africa's official languages: English, Afrikaans, isiNdebele, isiXhosa, isiZulu, Sesotho, Sesotho sa Leboa, Setswana, siSwati, Tshivenda, Xitsonga

National flower: protea

National animal: springbok

National tree: yellowwood

National fish: galjoen

National bird: blue crane

1	Namibia	Windhoek
2	Botswana	Gaborone
3	Zimbabwe	Harare
4	Mozambique	Maputo
5	Swaziland	Mbabane
6	Lesotho	Maseru

Worksheet 6 (page 30)

1-6: The teacher will need to check answers.

- 7 a United States of America
- b Brazil
- c India
- d Sudan
- e Canada
- f Algeria

Worksheet 7 (page 31)

- 1 Teachers will need to check answers.
- 2 a The west side of South America has the highest land.
- b The western part of North America has the highest land.
- c An area along the eastern part of South Africa has the highest land.
- d In Australia most of the land is between 200 and 500 metres above sea level.
- e Mount Everest; the mountain range is the Himalayas, and the continent is Asia.

Worksheet 8 (page 32)

Accept very approximate answers for this; the map is too small for it to be possible to work out very accurate distances.

Bird	a. distance of one migration	b. direction	c. direction of return flight	d. total distance of two migrations
1 Eurasian swallow	15 000 km	southeast	northwest	30 000 km
2 Steppe buzzard	21 500 km	southwest	northeast	43 000 km
3 Arctic tern	30 000 km	southeast	northwest	60 000 km
4 sand plover	15 000 km	southwest	northeast	30 000 km
5 white stork	15 800 km	south	north	31 600 km

Glossary

aerial – from above; in the air
altitude – height above sea level
arid – dry; deserts and other areas of the world that receive very little precipitation are called arid lands
atmosphere – the layer of air around the Earth
boundary – the edge of any area; boundaries of countries are called international boundaries
climate – the pattern of weather recorded in an area over a period of many years
communications – the ways in which people travel, or pass ideas and information from place to place. Roads, railways, and telephone systems are examples of communications networks
conventional sign – special symbols developed and used on all maps in a particular country
co-ordinates – the numbers and/or letters used to give position in a grid reference
hemisphere – half of a sphere; the southern hemisphere is the southern half of the Earth, i.e. the part south of the equator; the northern hemisphere is the half north of the equator
horizontal – level with the horizon; running at right angles to the vertical
key – an explanation of the signs and symbols used on maps
landform – one of the features found on the surface of the Earth; rivers, hills, and mountains are all landforms
legend – another name for a map key
location – where a place is; location can be given by grid references, or in relation to landforms

meridian – another name for a line of longitude. The Greenwich Meridian (0°) is a line of longitude that runs through Greenwich near London
orientation – the way in which a map is held relative to the real world; most maps in the Junior Atlas are oriented north
perspective – point of view; a way of looking at something
plan view – a view seen from above
pole – a point on the Earth’s surface that is as far north (North Pole) or as far south (South Pole) as you can go
population – the total number of people who live in an area
precipitation – the ways in which water gets to Earth; this includes rain, hail, snow, and sleet
resources – the things that people can use; natural resources are those that come from the earth, such as gold, forests, rocks and soil
scale – the relationship between distances on a map and the same distances in the real world
sphere – a round, solid shape; the shape of a ball
symbol – a small, simple drawing used to represent something else, for example a cross may be used as a symbol for a church
vegetation – the plant life of a particular area considered in general terms
vertical – upright, running at right angles to the horizontal