OXFORD

SCHOOL Improvement

CAPS

PLANNER & TRACKER

Natural Sciences and Technology
Grade 4

- *Progress tracker*
- *Intervention strategies*
- *Worksheets and exam papers*
- *Assessment support*
- *Key vocabulary*

ALIGNED TO RRATP • DOWNLOAD MORE SUBJECTS •

Contents

The worksheets in this Teacher's Resource Book were developed for use with *Oxford Successful Natural Sciences and Technology* Grade 4 Learner's Book. The answers to the worksheets can be found in the *Oxford Successful Natural Sciences and Technology* Grade 4 Teacher's Guide.

Progress tracker

Term 1

Term 2

Term 3

Term 4

TERM 1

Progress tracker for *Oxford Successful Natural Sciences and Technology* Grade 4						
	STRAND 1 **NATURAL SCIENCES: Life and Living** **TECHNOLOGY: Structures**					
Weeks	**Content and concepts (as per CAPS and 2023/24 ATP)**	**Learner's Book page**	**Time allocated (as per ATP)**	**Formal assessment activities**	**Date of completion**	**Teacher reflection**
1–2	**Living and non-living things** – Living things – Non-living things	**10** 10 16	2 weeks (7 hours)			
3–4	**Structure of plants and animals** – Structure of plants – Structure of animals	**18** 18 22	2 weeks (7 hours)			
5	**What plants need to grow** – Conditions for growth	**26** 26	1 week (3,5 hours)	Practical task:: Activity 1 LB: p. 27 TG: p. 50 OR Practical task: Activity 2 LB: p. 28 TG: p. 51		
6–7	**Habitats of animals** – Different habitats – Need for a habitat	**30** 30 34	2 weeks (7 hours)			
8–9	**Structures for animal shelters** – Animal shelters	**36** 36	2 weeks (7 hours)			
10–11	Revision Strand 1: Summary LB: p. 42			Exemplar test (term 1) LB: p. 43 Control test TG: p. 132		

TERM 2

Progress tracker for *Oxford Successful Natural Sciences and Technology* Grade 4						
STRAND 2 **NATURAL SCIENCES: Matter and materials** **TECHNOLOGY: Structures**						
Weeks	**Content and concepts (as per CAPS and 2023/24 ATP)**	**Learner's Book page**	**Time allocated (as per ATP)**	**Formal assessment activities**	**Date of completion**	**Teacher reflection**
1–4	**Materials around us** – Solids, liquids and gases – Change of state – The water cycle	**46** 46 48 52	4 weeks (14 hours)	Practical task: Activity 2 LB: p. 50 TG: p. 69		
5–6	**Solid materials** – Raw and manufactured materials – Properties of materials	**54** 54 56	2 weeks (7 hours)			
7–8	**Strengthening materials** – Ways to strengthen materials	**58** 58	2 weeks (7 hours)	OR Practical task: Activity 1 LB: p. 60 TG: p. 78		
9	**Strong frame structures** – Struts and frame structures – Indigenous structures	**62** 62 66	1 week (3,5 hours)			
10–11	Revision Strand 2: Summary LB: p. 69			Control test (Terms 1 and 2) TG: p. 135 Exemplar revision test (Term 2) LB: p. 70 Exemplar test (Terms 1 and 2) LB: p. 72		

TERM 3

Progress tracker for *Oxford Successful Natural Sciences and Technology* Grade 4						
STRAND 3 **NATURAL SCIENCES: Energy and Change** **TECHNOLOGY: Structures**						
Weeks	**Content and concepts (as per CAPS and 2023/24 ATP)**	**Learner's Book page**	**Time allocated (as per ATP)**	**Formal assessment activities**	**Date of completion**	**Teacher reflection**
1–3	**Energy and Energy transfer** – Energy for life – Energy from the Sun	**76** 76 80	2,5 weeks (8,75 hours)			
3–5	**Energy around us** – Energy – Input and output energy	**84** 84 88	2 weeks (7 hours)			
5–7	**Movement and Energy in a system** – Movement and musical instruments	**91** 91	2,5 weeks (8,75 hours)	Practical task: Activity 3 LB: p. 93 TG: p. 99		
8–9	**Energy and Sound** – Vibrations and sound – Making sounds – Noise pollution	**96** 96 100 103	2 weeks (7 hours)	OR Practical task: Activity 1 LB: p. 96 TG: p. 100		
10–11	Revision Strand 3: Summary LB: p. 108			Exemplar test (Term 3) LB: p. 109 Control test TG: p. 140		

TERM 4

Progress tracker for *Oxford Successful Natural Sciences and Technology* Grade 4						
STRAND 4 **NATURAL SCIENCES: Planet Earth and Beyond** **TECHNOLOGY: Structures**						
Weeks	**Content and concepts (as per CAPS and 2023/24 ATP)**	**Learner Book page**	**Time allocated (as per ATP)**	**Formal assessment activities**	**Date of completion**	**Teacher reflection**
1–2	**Planet Earth** – Features of the Earth – Earth and space	**112** 112 116	2 weeks (7 hours)			
3	**The Sun** – Our closest star	**118** 118	1 week (3,5 hours)			
4	**The Earth and the Sun** – Moving around the Sun – The Sun and life	**120** 120 124	1 week (3,5 hours)			
5–6	**The Moon** – Features of the Moon – Phases of the Moon – Moon stories	**126** 126 128 132	2 weeks (7 hours)	Practical task: Activity 1 LB: p. 131 TG: p. 124		
7–8	**Rocket systems** – Modelling a rocket	**134** 134	2 weeks (7 hours)	OR Practical task: Activity 1 LB: p. 135 TG: p. 126		
9	Revision Strand 4: Summary LB: p. 136			Control end-of-year exams TG: p. 143 Exemplar revision test (Term 4) LB: p. 137 Exemplar end-of-year exam (Terms 1-4) LB: p. 138		

STRAND 1: Science vocabulary

DESERT

Pronunciation	***dez**-urt*
Part of speech	noun (plural: deserts)
Definition	a large, dry area with little water and few plants
Afrikaans	woestyn
IsiXhosa	intlango
IsiZulu	ugwadule

EXCRETE

Pronunciation	*ik-**skreet***
Part of speech	verb (excreting; extruded)
Definition	to get rid of waste material from the body
Afrikaans	uitskei
IsiXhosa	-gutyula
IsiZulu	-khiphela ngaphandle; -phumisa

EXCRETION

Pronunciation	*ik-**skree**-shuhn*
Part of speech	noun (no plural)
Definition	the process of getting rid of waste material from the body
Afrikaans	uitskeiding
IsiXhosa	ukugutyula; umgutyulo
IsiZulu	-phumisa

FLOWER

Pronunciation	***flow**-wuh*
Part of speech	noun (plural: flowers)
Definition	the coloured part of a plant that holds male and female parts
Afrikaans	blom
IsiXhosa	intyatyambo
IsiZulu	imbali

FOREST

Pronunciation	***fo**-rist*
Part of speech	noun (plural: forests)
Definition	a large area of land covered with trees
Afrikaans	woud; bos
IsiXhosa	ihlathi
IsiZulu	ihlathi

FRUIT

Pronunciation	***froot***
Part of speech	noun (plural: fruits)
Definition	the fleshy part of plant that holds the seeds
Afrikaans	vrug
IsiXhosa	iziqhamo
IsiZulu	izithelo

GERM

Pronunciation	***jurm***
Part of speech	noun (plural: germs)
Definition	a very small living thing that makes you sick
Afrikaans	kiem
IsiXhosa	intsholongwane
IsiZulu	igciwane

GERMINATE

Pronunciation	***jurm**-i-nayt*
Part of speech	verb (germinating; germinated)
Definition	to start to grow and develop
Afrikaans	ontkiem
IsiXhosa	ntshula
IsiZulu	-mila; -qhuma

GERMINATION

Pronunciation	*jurm-i-**nay**-shuhn*
Part of speech	noun (no plural)
Definition	the process in which a seed begins to grow and develop
Afrikaans	ontkieming
IsiXhosa	ukuntshula; ukuhluma
IsiZulu	ukumila; ukuqhuma

HABITAT

Pronunciation	***hab**-i-tat*
Part of speech	noun (plural: habitats)
Definition	the natural place where a plant or an animal lives
Afrikaans	habitat
IsiXhosa	indawo yokuhlala
IsiZulu	isikhungo

LEAF

Pronunciation	***leef***
Part of speech	noun (plural: leaves)
Definition	a green flat part that grows on a plant or tree, catching sunlight
Afrikaans	blaar
IsiXhosa	igqabi
IsiZulu	iqabunga

LIMB

Pronunciation	***lim***
Part of speech	noun (plural: limbs)
Definition	the part of body used for movement such as an arm, leg, fin or wing
Afrikaans	ledemaat
IsiXhosa	ilungu; ilungu lomzimba
IsiZulu	isitho

PREDATOR

Pronunciation	***pred****-uh-tuh*
Part of speech	noun (plural: predators)
Definition	an animal that kills and eats other animals
Afrikaans	roofdier
IsiXhosa	irhamncwa; udlezinye
IsiZulu	udlezinye

REPRODUCE

Pronunciation	*ree-pruh-****dyooss***
Part of speech	verb (reproducing; reproduced)
Definition	when plants, animals and humans reproduce, they have young ones
Afrikaans	voortplant
IsiXhosa	ukuvelisa; ukuzala
IsiZulu	-zala; -khiqiza

REPRODUCTION

Pronunciation	*ree-pruh-****duk****-shuhn*
Part of speech	noun (no plural)
Definition	the process of producing babies or young animals or plants
Afrikaans	voortplanting; reproduksie
IsiXhosa	uveliso; ukuzala
IsiZulu	ukuzalana; ukukhiqiza

SCALE [FISH SCALE]

Pronunciation	***skayl***
Part of speech	noun (plural: scales)
Definition	a hard or bony plate that covers the bodies of some animals
Afrikaans	skub
IsiXhosa	uqweqwe lwentlanzi
IsiZulu	izenga lenhlanzi; izenga likafishi

SEED

Pronunciation	***seed***
Part of speech	noun (plural: seeds)
Definition	the small hard part of plant from which a new plant grows
Afrikaans	saad
IsiXhosa	imbewu
IsiZulu	imbewu

SENSE [SENSE ORGAN]

Pronunciation	***senss***
Part of speech	noun (plural: senses)
Definition	the part of the body uses to see, hear, smell, taste or touch
Afrikaans	sintuig
IsiXhosa	iimvakalelo
IsiZulu	umuzwa

SHELTER

Pronunciation	***shel****-tuh*
Part of speech	noun (plural: shelters)
Definition	a place that protects you from bad weather or danger
Afrikaans	skuiling
IsiXhosa	indawo yokukhusela
IsiZulu	umpheme; ikhosela

STEM

Pronunciation	***stem***
Part of speech	noun (plural: stems)
Definition	a part of the plant that supports the leaves, fruit and flowers
Afrikaans	stingel
IsiXhosa	isiqu
IsiZulu	isiqu

ACTIVITY 1: Identify, sort and compare living and non-living things

Name:_____ **Grade:**_____

1. Look at the pictures of living and non-living things in Figure 4 on page 17 of the Learner's Book and answer the following questions.

   1.1 Identify the *non-living things* in the pictures.

   _____

   _____

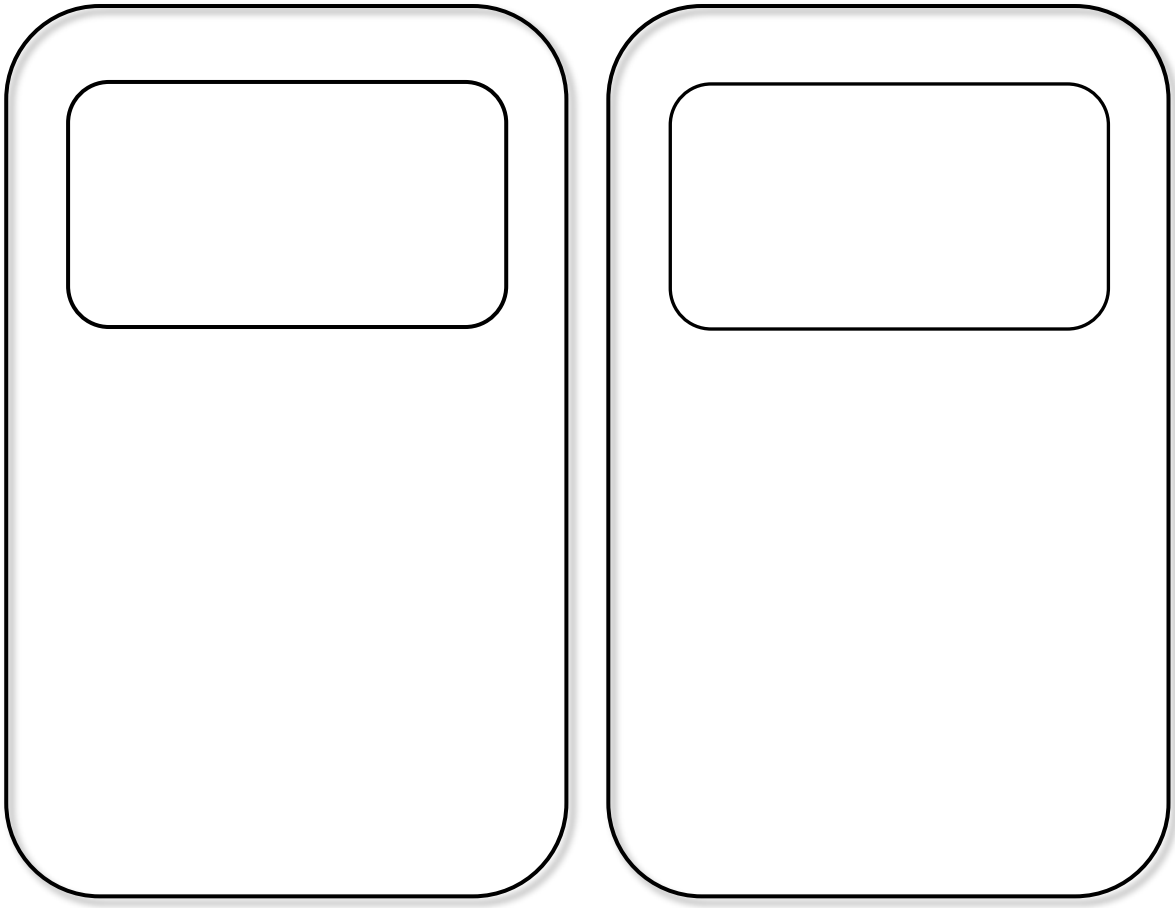
   1.2 Identify the *living things* in the pictures.

   _____

   _____

   _____

2. Look at the two cards in Figure 5 on page 17 of the Learner's Book that compare a dung beetle and a ball of dung. Make your own two cards that compare one living and one non-living thing.



ACTIVITY 1: Identify, label and describe the parts of a plant

Name:_____ **Grade:**_____

1. Find a weed, such as a dandelion, in the school grounds. You can also use the bean plant you grew in Unit 1 of the Learner's Book.
   1.1 Carefully pull it out of the soil roots and all.
   1.2 Take a good look at your plant. Write a sentence to describe each of its parts.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

2. Look at the picture of a dandelion plant in Figure 2 on page 19 of the Learner's Book. Write down the missing labels 1–4.

   1: _____

   2: _____

   3: _____

   4: _____

ACTIVITY 1: Draw, label and describe the parts of an animal

Name:_____ Grade:_____

Look at the picture of a goldfish in Figure 4 on page 23 of the Learner's Book.

1. Draw a large, clear picture of the fish in pencil.
2. Label its five main parts.

3. Write one sentence to describe each part of the fish.

_____

_____

_____

_____

_____

ACTIVITY 2: Investigate the growth of plants from seeds

Name:_____ **Grade:**_____

Aim: In this activity you will grow a bean plant from a seed and measure its growth.

Materials and method: Refer to pages 28 and 29 of the Learner's Book for a list of materials and step-by-step instructions.

Questions

1. Make three drawings of your bean seed to show how it changes as it grows. (7)

2. Use your measurements to make a bar graph, like the one shown in Figure 7 on page 29 of the Learner's Book. Make one graph for plant height and another graph for the number of leaves.

(4)

(4)

Total: 15 marks

ACTIVITY 2: Match animals to their habitats

Name:_____ Grade:_____

The 12 animals on page 33 of the Learner's Book each belong to one of the habitats shown in Figures 5, 6 and 7 on pages 32 and 33.

1. Match each animal to its habitat.
2. Give a reason why the animal lives where it does.

Animal	Habitat	Reason
Scorpion		
Polar bear		
Frog		
Penguin		
Seagull		
Shark		
Meerkat		
Jellyfish		
Lion		
Dragonfly		
Zebra		
Toucan		

ACTIVITY 3: Design, draw and evaluate an animal shelter

Name:_____ **Grade:**_____

Draw a picture of a dog like the one in Figure 12 on page 41 of the Learner's Book. Imagine that this is your dog and you need to build it a kennel for shelter.

PART 2: Design your shelter

Steps 1–3 Refer to page 41 of the Learner's Book.

Step 4 Draw a detailed picture of your dog kennel. Label the different parts of your kennel (see Figure 13 on page 41 of the Learner's Book).

STRAND 1: Control test

Name:_____ Grade:_____

1. Identify which of the things in the box are non-living. (3)

Sun	bean seed	stone	mushroom	ant	water

_____

_____

_____

2. Complete the table that lists two things that a plant needs to grow. (4)

What plants need to grow	Where it comes from	The plant part that gets it
2.1	soil	2.3
2.2	Sun	2.4

2.5 List one other thing that plants need to grow. (1)

_____

3. Compare the fish and the bird by filling in the words in the table. (4)

Part of the body	Fish	Bird
Limb	3.1	3.2
Body covering	3.3	3.4

4. Name the life process of plants and animals that gets rid of waste from their bodies. (1)

_____

5. Describe a monkey's habitat. (2)

_____

_____

_____

_____

_____

Total: 15 marks

STRAND 2: Science vocabulary

ABSORB

Pronunciation	*uhb-**zawb***
Part of speech	verb (absorbing; absorbed)
Definition	to take in or soak up something, such as liquid and heat
Afrikaans	absorbeer; opsuig
IsiXhosa	ukufunxa; ukutsala
IsiZulu	-munca; - donsa; -habula

ABSORBENT

Pronunciation	*uhb-**zaw**-buhnt*
Part of speech	adjective
Definition	when a material can soak up or take in a liquid
Afrikaans	absorberend
IsiXhosa	into efunxayo
IsiZulu	into emuncayo

CONDENSATION

Pronunciation	*kon-den-**say**-shun*
Part of speech	noun
Definition	the process of cooling down a gas into a liquid
Afrikaans	kondensasie
IsiXhosa	ukujiya
IsiZulu	ukujiyisa; inguqukomhwamuko

CONDENSE

Pronunciation	*kuhn-**denss***
Part of speech	verb (condensing; condensed)
Definition	to cool down a gas into a liquid
Afrikaans	kondenseer; vloeibaar maak
IsiXhosa	jiyisa
IsiZulu	-jiyisa

EVAPORATE

Pronunciation	*i-**vap**-uh-rayt*
Part of speech	verb (evaporating; evaporated)
Definition	to heat a liquid into a gas
Afrikaans	verdamp
IsiXhosa	ukuba ngumphunga
IsiZulu	-hwamuka

FLEXIBLE

Pronunciation	***flek**-sib-l*
Part of speech	adjective
Definition	when a material can bend easily without breaking
Afrikaans	buigsaam
IsiXhosa	epetyepetye; evobelayo
IsiZulu	-thambile; -gobekayo

FRAME STRUCTURE

Pronunciation	***fraym struk**-tshuh*
Part of speech	noun (plural: frame structures)
Definition	a structure made of strips that are joined together
Afrikaans	raamstruktuur
IsiXhosa	ger
IsiZulu	uhlaka

FREEZE

Pronunciation	***freez***
Part of speech	verb (freezing; froze)
Definition	to cool down a liquid into a solid
Afrikaans	vries
IsiXhosa	khenkca; ukwenzeka komkhenkce
IsiZulu	ukwenzaqhwa

GAS

Pronunciation	***gass***
Part of speech	noun (plural: gases)
Definition	a substance like air that is not a solid or a liquid
Afrikaans	gas
IsiXhosa	igesi
IsiZulu	igesi

INDIGENOUS

Pronunciation	*in-**dij**-uh-nuhss*
Part of speech	adjective
Definition	someone or something that is found naturally in an area
Afrikaans	inheems
IsiXhosa	-yemvelo
IsiZulu	-kokudabuka; -kwemvelo

LIQUID

Pronunciation	***lik**-wid*
Part of speech	noun (plural: liquids)
Definition	a substance like water that is not a solid or a gas
Afrikaans	vloeistof
IsiXhosa	ulwelo
IsiZulu	uketshezi

MANUFACTURE

Pronunciation	*man-yuu-**fak**-tshuh*
Part of speech	verb (manufacturing; manufactured)
Definition	to make something useful from a raw material
Afrikaans	produseer
IsiXhosa	ukuvelisa
IsiZulu	akha; -enza; -khiqiza

MELT

Pronunciation	***melt***
Part of speech	verb (melting; melted)
Definition	to heat a solid into a liquid
Afrikaans	smelt
IsiXhosa	ukunyibilikisa
IsiZulu	-ncibilikisa

PROPERTY

Pronunciation	***prop**-uh-tee*
Part of speech	noun (plural: properties)
Definition	the quality or characteristic of something
Afrikaans	eienskap
IsiXhosa	ipropati; into onayo
IsiZulu	uphawu

SOLID

Pronunciation	***sol**-id*
Part of speech	noun (plural: solids)
Definition	a substance that is hard, not like a liquid or a gas
Afrikaans	vaste stof
IsiXhosa	isiqina
IsiZulu	-qinile; isigaxa

STIFF

Pronunciation	***stif***
Part of speech	adjective
Definition	when a material cannot be bent or moved easily
Afrikaans	styf
IsiXhosa	-qinile; -lukhuni
IsiZulu	-lukhuni

STRUCTURE

Pronunciation	***struk**-tshuh*
Part of speech	noun (plural: structures)
Definition	something built or made of parts and that supports or holds something
Afrikaans	struktuur
IsiXhosa	isakhiwo; umumo
IsiZulu	isakhiwo; ukumila

STRUT

Pronunciation	***strut***
Part of speech	noun (plural: struts)
Definition	a tube or bar that makes a structure stronger
Afrikaans	stut
IsiXhosa	intsika
IsiZulu	insika

WATER CYCLE

Pronunciation	***waw**-tuh **sike**-uhl*
Part of speech	noun
Definition	the process by which water moves constantly between the Earth's oceans, air and land
Afrikaans	watersiklus
IsiXhosa	umjikelo wamanzi
IsiZulu	umzungezo wamanzi; ukunikezelana kwamanzi

WATERPROOF

Pronunciation	***waw**-tuh-proof*
Part of speech	adjective
Definition	something that is waterproof, does not let water go through it
Afrikaans	waterdig
IsiXhosa	ngangeni manzi
IsiZulu	ngangeni manzi; ngangeni mvula

ACTIVITY 1: Sort common materials into solids, liquids and gases

Name:_____ Grade:_____

Look at the 10 pictures of common materials on page 47 of the Learner's Book and complete this table.

1. Write down the solids in the first column.
2. Write down the liquids in the second column.
3. Write down the gases in the third column.

Solid	Liquid	Gas

ACTIVITY 1: Draw and write about the water cycle

Name:_____ Grade:_____

1. Draw the water cycle. Use the labels provided on page 53 of the Learner's Book.

2. Use the word bank to answer the questions below.

condensation	melting	freezing	evaporation

2.1 Name the process when water changes into a gas.

_____

2.2 Name the process when water vapour into clouds.

_____

2.3 State the process when rain into a solid.

_____

2.4 State the process when hail stones change from a solid to a liquid.

_____

3. Write your answers using complete sentences.

3.1 Explain what caused the water to change from a liquid to a gas.

_____

_____

_____

3.2 Describe, in one sentence, how melting occurs in the water cycle.

_____

_____

_____

3.3 State what can melt in the water cycle.

_____

_____

3.4 Identify where condensation happens in the water cycle.

_____

_____

ACTIVITY 1: Build a tower

Name:_____ **Grade:**_____

Design brief: Use your knowledge of frame structures to make a model of a tower. Decide what the function of the tower will be.

PART 1: Investigate towers

Step 1 Look at the designs of towers for ideas. Look at the pictures of a cellphone tower and a lifeguard tower in Figure 3 and Figure 4 on page 68 of the Learner's Book. Look at towers around your community.

Step 2 Write down what they have in common.

_____

_____

_____

PART 2: Design a tower

Step 1 Make a freehand sketch of your tower.

Step 2 Colour in the shape of at least three squares, rectangles or trapezoids in your design.

Step 3 Using a different colour, draw in struts that will turn the squares, rectangles or trapezoids (see Figure 2 on page 67 of the Learner's Book) into triangles.

STRAND 2: Control test

Name:_____ Grade:_____

1. Match the word in Column A to a definition in Column B. (5)

Column A	Column B
1.1 Solid	**A** Material that takes the shape of its container
1.2 Liquid	**B** Material in which the particles move quickly with large spaces between them
1.3 Melting	**C** Water changes into water vapour
1.4 Evaporating	**D** Material that keeps its shape
1.5 Gas	**E** Candle wax changes into a liquid

2. Fill in the missing word to describe the water cycle. (4)
   2.1 Water _____ into a vapour.
   2.2 Water vapour is not a liquid, it is a _____.
   2.3 The water vapour _____ into a cloud.
   2.4 The cloud rains _____, which flows into rivers.

3. State whether the following are raw or manufactured materials. (4)
   3.1 Glass: _____
   3.2 Ceramic: _____
   3.3 Wood: _____
   3.4 Leather: _____

4. Define a frame structure. (1)

   _____

5. State the purpose of a strut for a frame structure. (1)

   _____

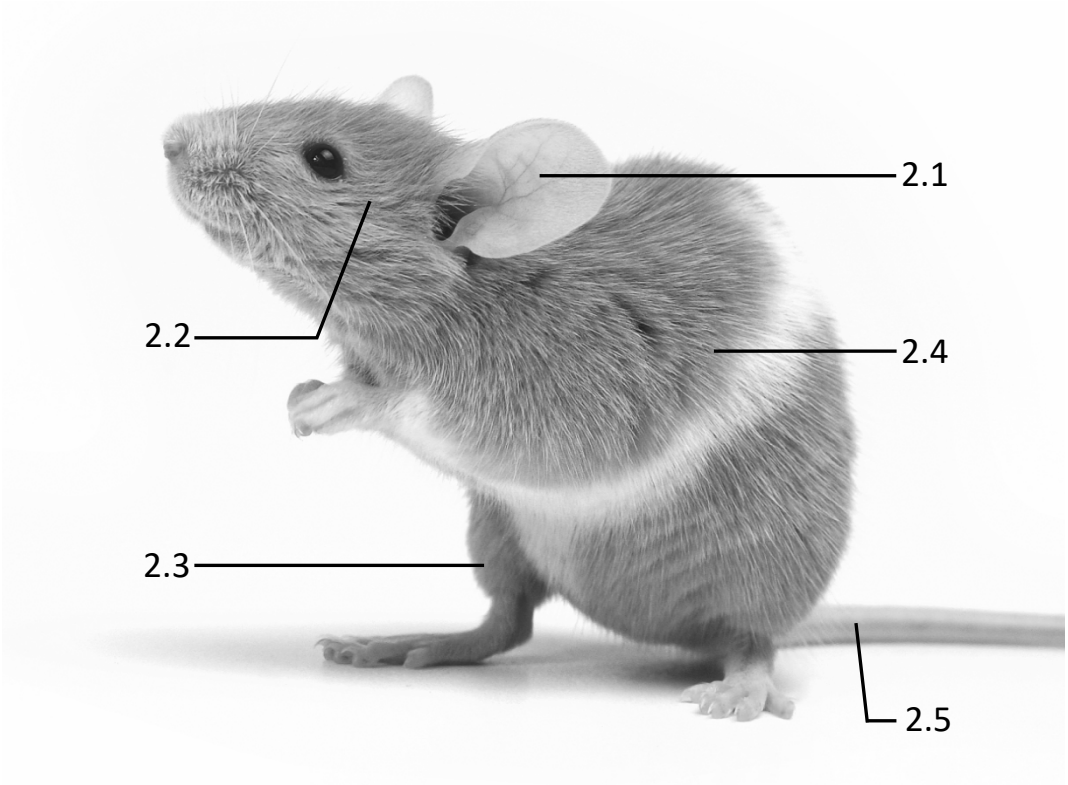
Total: 15 marks

STRAND 2: Control test (Terms 1 and 2)
Name:_____ Grade:_____

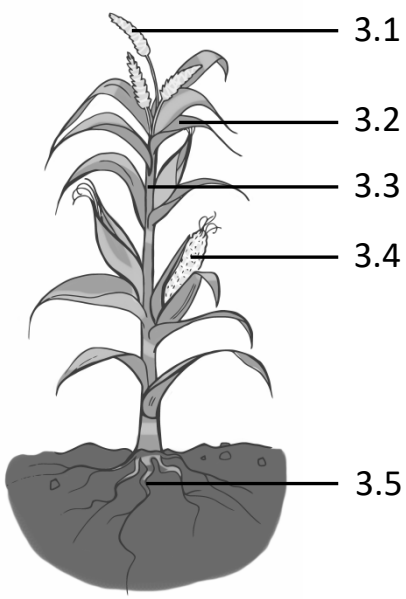
1. Match the life processes in Column A with their examples in Column B. (6)

Column A	Column B
1.1 Reproducing	**A** a human sweats
1.2 Growing	**B** a hen lays an egg
1.3 Sensing	**C** a tree trunk becomes wider
1.4 Excreting	**D** a lion kills a zebra
1.5 Feeding	**E** a dolphin comes to the water's surface for air
1.6 Breathing	**F** a plant grows towards the light

2. Fill in the missing labels for the mouse. (5)



3. Fill in the parts of the mielie plant. (5)



4. Compare a forest habitat with a grassland habitat. (4)

_____

_____

_____

_____

5. Describe the following states of materials: (2)

5.1 Gas

_____

5.2 Liquid

_____

6. Write down an example of each of the following: (3)

6.1 Gas

_____

6.2 Solid

_____

6.3 Liquid

_____

7. Draw a simple diagram of the water cycle. Clearly label where the following processes happen: (6)

   7.1 Condensation 7.2 Evaporation 7.3 Melting

8. Write down the raw material that is used to make the following: (3)

   8.1 Glass

   _____

   8.2 Plastic

   _____

   8.3 Paper

   _____

9. Answer the following questions in full sentences.

   9.1 Define a nomadic person. (1)

   _____

   _____

   9.2 State two features of an indigenous nomadic home. (2)

   _____

   _____

   9.3 List the building materials used for nomadic homes. (3)

   _____

   _____

Total: 40 marks

STRAND 3: Science vocabulary

CONSTRAINT [TECHNOLOGY]

Pronunciation	***kuhn**-straynt*
Part of speech	noun (plural: constraints)
Definition	something that limits or restricts someone or something else
Afrikaans	begrensing; beperking
IsiXhosa	umqathango; ummiselo
IsiZulu	umgoqo; isithiyo

DESIGN [TECHNOLOGY]

Pronunciation	*di-**zine***
Part of speech	verb (designing; designed)
Definition	to plan and draw a solution
Afrikaans	ontwerp
IsiXhosa	ukuyila; ukuzoba iplani
IsiZulu	umqopho; umdwebo

ENERGY

Pronunciation	***en**-uh-jee*
Part of speech	noun
Definition	ability of something to do work, such as to make heat and light
Afrikaans	energie
IsiXhosa	amandla
IsiZulu	amandla; umdlandla

ENERGY TRANSFER

Pronunciation	***en**-uh-jee **traanss**-fur*
Part of speech	noun
Definition	a change of energy form into another energy
Afrikaans	energieoordrag
IsiXhosa	udluliso lwamanda
IsiZulu	ukweduliswa kwamandla

FOOD CHAIN

Pronunciation	***food chayn***
Part of speech	noun (plural: food chains)
Definition	a series of living creatures in which each creature feeds on the one below it in the series
Afrikaans	voedselketting
IsiXhosa	ikhonkco lokutya
IsiZulu	umzungezo wokudla

FOOD WEB

Pronunciation	***food web***
Part of speech	noun (plural: food webs)
Definition	a system of linked food chains that depend on each other
Afrikaans	voedselweb
IsiXhosa	ikhonkco lokutya
IsiZulu	umzungezo wokudla

FUNNEL

Pronunciation	***fun**-l*
Part of speech	noun (plural: funnels)
Definition	a tube that is wide at the top and narrower at the bottom end
Afrikaans	tregter
IsiXhosa	ifanele
IsiZulu	isetho; isimbumbuthelo; ifonela

INSTRUMENT

Pronunciation	***in-**struh-muhnt*
Part of speech	noun (plural: instruments)
Definition	something that you use to do a special job
Afrikaans	instrument
IsiXhosa	isixhobo
IsiZulu	okokusebenza

INVESTIGATE

Pronunciation	*in-**vess**-ti-gayt*
Part of speech	verb (investigating; investigated)
Definition	to research or study something to find out facts and information
Afrikaans	ondersoek
IsiXhosa	phanda
IsiZulu	-cwaninga; -phenya

NATURAL GAS

Pronunciation	***nat**-yuu-ruhl **gass***
Part of speech	noun (plural: natural gases)
Definition	a gas formed from plants or animals
Afrikaans	aardgas
IsiXhosa	igesi yendalo
IsiZulu	umoy

PHOTOSYNTHESIS

Pronunciation	*foh-toh-**sin**-thuh-siss*
Part of speech	noun (no pural)
Definition	the process by which plants take in Sun energy to make food
Afrikaans	fotosintese
IsiXhosa	ukwenziwa kokutya zizityalo ngelanga
IsiZulu	ukwakhiwa kokudla kwesihlahla

PITCH

Pronunciation	***pich***
Part of speech	noun (plural: pitches)
Definition	how high or low a sound is
Afrikaans	toonhoogte
IsiXhosa	ukuphakama kwelizwi
IsiZulu	ukukhwela nokwehla kwephimbo

POLLUTION

Pronunciation	*puh-**loo**-shuhn*
Part of speech	noun (no plural)
Definition	action of making the air, water or soil dirty and dangerous
Afrikaans	besoedeling
IsiXhosa	ungcoliseko
IsiZulu	ukudunga; ukungcolisa; ukunukubeza

SOLAR ENERGY

Pronunciation	***soh**-luh **en**-uh-jee*
Part of speech	noun (no plural)
Definition	heat energy from the Sun
Afrikaans	sonenergie
IsiXhosa	amandla elanga
IsiZulu	amandla okushisa kwelanga

SOUND

Pronunciation	***sownd***
Part of speech	noun (plural: sounds)
Definition	something that you hear
Afrikaans	klank; geluid
IsiXhosa	isandi
IsiZulu	umsindo

SPECIFICATION [TECHNOLOGY]

Pronunciation	***spess**-i-fik-ay-shuhn*
Part of speech	noun (plural: specifications)
Definition	a detailed description of a product and the materials used to make it
Afrikaans	spesifikasie
IsiXhosa	iimpawu ezifunekayo
IsiZulu	incasiselomcikilisho

TRANSFER

Pronunciation	***traanss**-fur*
Part of speech	verb (transferring; transferred)
Definition	to move something or someone from one place to another
Afrikaans	oordrag
IsiXhosa	unikezelo
IsiZulu	ukwedlulisela

VIBRATE

Pronunciation	*vy-**brayt***
Part of speech	verb (vibrating; vibrated)
Definition	to move continuously and rapidly to and fro
Afrikaans	vibreer; tril
IsiXhosa	-ngcangcazela; -ngcangcazelisa
IsiZulu	-vevezela; -thuthumela; -dlidliza; -zamazama

VIBRATION

Pronunciation	*viy-**bray**-shuhn*
Part of speech	noun (plural: vibrations)
Definition	process whereby something is moved continuously to and fro
Afrikaans	vibrasie; trilling
IsiXhosa	ungcangcazelo
IsiZulu	umpheme; ikhosela

VOLUME [SOUND VOLUME]

Pronunciation	***vol**-yoom*
Part of speech	noun (plural: volumes)
Definition	the amount of sound that something produces
Afrikaans	volume
IsiXhosa	isandi
IsiZulu	izinga lomsindo

ACTIVITY 1: Draw and write about the energy chain

Name:_____ **Grade:**_____

1. Look at Figure 3 on page 82 of the Learner's Book and answer the following questions.
   1.1 Pick one food chain and write about how the energy from the Sun travels in this chain.
   1.2 Use drawings in your explanation.

_____

_____

_____

_____

_____

   1.3 Report back to the class once you have finished your energy chain.
2. Identify the problems in the food chains shown on page 83 of the Learner's Book.
   2.1 _____
   2.2 _____
   2.3 _____
   2.4 _____
   2.5 _____
   2.6 _____

ACTIVITY 2: Describe the input of energy

Name:_____ Grade:_____

Look at the eight pictures from Activity 1 on page 88 of the Learner's Book. Describe the input of energy by completing the table below.

Appliance or machine	What is the input energy?	Where does the energy go?
kettle	electricity	Travels in the kettle
stove		
torch		
radio		
iron		
hairdryer		
truck		
chainsaw		

ACTIVITY 3: Analyse the output energy of machines and appliances

Name:_____ **Grade:**_____

Look at the table from Activity 2 on page 89 of the Learner's Book that you completed on the previous worksheet.

1. List the output energy for each of the appliances or machines.
2. Report back to your class.

kettle: _____

stove: _____

torch: _____

radio: _____

iron: _____

hairdryer: _____

truck: _____

chainsaw: _____

ACTIVITY 3: Research, design and make a musical instrument

Name:_____ **Grade:**_____

Design brief: You have decided to enter your school's talent show called "Have you got talent?" You decide to make a musical instrument. Your instrument must be able to make a sound by blowing, plucking, shaking or beating! Use recycled things to make your instrument.

PART 2: Design an instrument

Step 1 List the specifications and constraints.

Specifications: (3)

_____

_____

_____

_____

_____

_____

_____

_____

Constraints: (2)

_____

_____

_____

_____

_____

_____

_____

_____

Step 2 Make a rough sketch of your musical instrument. Label all the materials Give your sketch a heading. (4)

Step 3 Draw a neat sketch of your instrument. Include a heading. Label your materials. (4)

Step 4 Make a list of the materials and tools you will need. (2)

_____

_____

_____

_____

Total: 15 marks

ACTIVITY 1: Describe sources of noise pollution

Name:_____ **Grade:**_____

Look at the picture of a noisy street in Figure 1 on page 103 of the Learner's Book.

1. List all the sources of noise.

   _____

   _____

   _____

   _____

2. Pick two from the list you make and then answer these questions:
   2.1 Do you think the object or thing makes a loud noise?
   Object 1: _____
   Object 2: _____
   2.2 Does this object make a low- or high-pitched sound?
   Object 1: _____
   Object 2: _____
   2.3 If you had to stand next to this object, would the sound coming from the object hurt your ears as the noise vibrated inside them?
   Object 1: _____
   Object 2: _____

3. List two other harmful noises that you have heard in and around your home.
   1: _____
   2: _____

4. Report back to your class.

STRAND 3: Control test

Name:_____ **Grade:**_____

1. Match up the words in Column A with their meanings in Column B. (6)

Column A	Column B
1.1 Food	**A** Energy that goes into something
1.2 The Sun	**B** Number of liked food chains
1.3 Energy	**C** Where energy, such as oil, comes from
1.4 Food web	**D** Source of energy for living things
1.5 Energy source	**E** Power, such as light, heat or electricity
1.6 Input energy	**F** Stored energy for animals

2. List two types of movement input energy for musical instruments. (2)

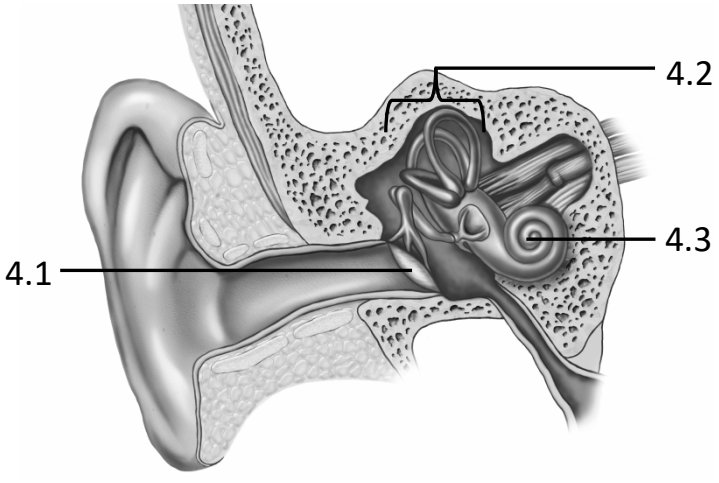
_____

_____

3. Give an example of noise pollution. (1)

_____

4. Label the following drawing of the human ear: (3)



5. Identify the output energy for each of the following appliances: (3)

5.1 Toaster: _____

5.2 Torch: _____

5.3 Radio: _____

Total: 15 marks

STRAND 4: Science vocabulary

AXIS [MOVEMENT AROUND …]

Pronunciation	***ak**-siss*
Part of speech	noun (plural: axes)
Definition	the centre around which something rotates
Afrikaans	spil; as
IsiXhosa	iaksisi
IsiZulu	i-eksizi; i-akisisi

CONTINENT

Pronunciation	***kon**-ti-nuhnt*
Part of speech	noun (plural: continents)
Definition	one of seven large masses of land on the Earth's surface
Afrikaans	vasteland
IsiXhosa	ilizwekazi; iknontinenti
IsiZulu	izwekazi; ikhontinenti

CRATER

Pronunciation	***krayt**-uh*
Part of speech	noun (plural: craters)
Definition	a large bowl-shaped dent in a surface
Afrikaans	krater
IsiXhosa	umlomo wentabamlilo
IsiZulu	imbobo entabeni ephuquka umlilo

EARTH

Pronunciation	***urth***
Part of speech	noun (no plural)
Definition	the planet on which we live
Afrikaans	aarde
IsiXhosa	umhlaba
IsiZulu	umhlaba

ISLAND

Pronunciation	***ile**-uhnd*
Part of speech	noun (plural: islands)
Definition	a small mass of land that is surrounded by water
Afrikaans	eiland
IsiXhosa	isiqithi
IsiZulu	isiqhingi

LAKE

Pronunciation	***layk***
Part of speech	noun (plural: lakes)
Definition	a big area of water that is surrounded by land
Afrikaans	meer
IsiXhosa	ichibi
IsiZulu	ichibikazi

MOON [LUNAR MEANS "FROM THE MOON"]

Pronunciation	***moon***
Part of speech	noun (plural: moons)
Definition	large natural object or satellite that moves around a planet
Afrikaans	maan
IsiXhosa	inyanga
IsiZulu	inyanga

OCEAN

Pronunciation	***oh**-shuhn*
Part of speech	noun (plural: oceans)
Definition	one of the three very big seas
Afrikaans	oseaan; see
IsiXhosa	ulwandle
IsiZulu	ulwandlekazi

ORBIT

Pronunciation	***aw**-bit*
Part of speech	noun (plural: orbits)
Definition	path of a planet, satellite or asteroid around another object
Afrikaans	wentelbaan
IsiXhosa	indlela yesijikelezi-langa; umjikelo emajukujukwini
IsiZulu	umkhondo wokuhamba kwekanyezi

PHASE [OF THE MOON]

Pronunciation	***fayz***
Part of speech	noun (plural: phases)
Definition	ongoing change in the appearance of the Moon
Afrikaans	fase
IsiXhosa	imbonakalo
IsiZulu	senyanga

PLANET

Pronunciation	***plan**-uht*
Part of speech	noun (plural: planets)
Definition	large object in space that moves around the Sun or another star
Afrikaans	planeet
IsiXhosa	iplanethi
IsiZulu	iplanethi

POLAR REGION

Pronunciation	***poh**-luh **ree**-juhn*
Part of speech	noun (plural: polar regions)
Definition	the area surrounding the South or North Pole of the Earth
Afrikaans	poolstreek
IsiXhosa	ummandla ongasencamini yomhlaba
IsiZulu	impola

REVOLVE

Pronunciation	***ri**-volv*
Part of speech	verb (revolving; revolved)
Definition	to orbit around an object
Afrikaans	draai om; wentel om
IsiXhosa	jikeleza
IsiZulu	zungeleza

RIVER

Pronunciation	***riv**-uh*
Part of speech	noun (plural: rivers)
Definition	a long, wide line of water that flows into the sea
Afrikaans	rivier
IsiXhosa	umlambo
IsiZulu	umfula

ROTATION

Pronunciation	*roh-**tay**-shuhn*
Part of speech	noun (plural: rotations)
Definition	the movement of an object when it spins on its own axis
Afrikaans	rotasie
IsiXhosa	ukujikeleza
IsiZulu	umzungezo

SATELLITE

Pronunciation	***sat**-uh-lite*
Part of speech	noun (plural: satellites)
Definition	a moon or other object in space that orbits a planet
Afrikaans	satelliet
IsiXhosa	isathelayithi
IsiZulu	isishwibeyana

SEA

Pronunciation	***see***
Part of speech	noun (plural: seas)
Definition	a large area of salt water
Afrikaans	see
IsiXhosa	ulwandle
IsiZulu	ulwandle

SOLAR SYSTEM

Pronunciation	***soh**-luh **siss**-tuhm*
Part of speech	noun (plural: solar systems)
Definition	a sun with planets, satellites and asteroids that move around it
Afrikaans	sonnestelsel
IsiXhosa	ilanga nezijikelezi
IsiZulu	isimo sokuhambo kwelanga nezinkanyezi

STAR

Pronunciation	***staa***
Part of speech	noun (plural: stars)
Definition	large ball of burning gas in space that you see as a point of light
Afrikaans	ster
IsiXhosa	inkwenkwezi
IsiZulu	inkanyezi

SUN

Pronunciation	***suhn***
Part of speech	noun (no plural)
Definition	the star at the centre of our solar system, shining in the sky in daytime giving heat and light
Afrikaans	son
IsiXhosa	ilanga
IsiZulu	ilanga

ACTIVITY 1: Identify features of the Earth

Name:_____ **Grade:**_____

1. Study the model of the Earth in Figure 4 on page 114 of the Learner's Book. Add the following labels to this model:

continent	ocean	sea	lake	island	polar	ice cap

1.1: _____ 1.2: _____

1.3: _____ 1.4: _____

1.5: _____ 1.6: _____

2. Describe each of the features of the Earth labelled above. Write one sentence to describe each feature.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

ACTIVITY 3: Revise the planets

Name:_____ Grade:_____

Look at the planets in our solar system in Figure 6 on page 123 of the Learner's Book. Answer the following questions.

1. Name the four planets closest to the Sun.

   _____ _____

   _____ _____

2. Look at each of these planets' distance from the Sun. Explain what you think the temperature might be like on each of these planets. Write one sentence for each planet.

   _____

   _____

   _____

   _____

   _____

   _____

3. Name the other planets.

   _____ _____

   _____ _____

4. Explain what you think the temperature is like on these planets compared to the first four.

   _____

   _____

   _____

   _____

ACTIVITY 1: Investigate and record the phases of the Moon

Name:_____ Grade:_____

Complete this table from page 131 of the Learner's Book. Number the blocks for each day of the month. Write the month and year at the top of the table. (3)

Draw the shape of the Moon every day for a month. If it is cloudy on some nights and you cannot see the Moon, you have to write this in the table. (9)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday

When your table is complete, try to answer the following questions:

1. How many days could you not see the moon? (1)

   _____

2. How many days had a full moon? (1)

   _____

3. How many days did it take the Moon to go from full Moon to full Moon again? (1)

   _____

Total: 15 marks

ACTIVITY 1: Design, make and evaluate a rocket model

Name:_____ **Grade:**_____

You will design and build a model rocket. You will then evaluate your model.

PART 3: Evaluate the rocket

Steps 1–2 Refer to page 135 of the Learner's Book.

Step 3 Record how far your rocket moves along the line. (2)

	Distance (in centimetres)	Time (in seconds)
My group's rocket		

Step 4 Share your results with the class. Make a table to record all the information from the class. (4)

Group attempts	Distance (in centimetres)	Time (in seconds)
My group		
Group _____		
Group_____		
Group_____		

Step 5 Draw bar graphs to display the information written in the table. (6)

Graph for distance

Graph for time

Step 6 What did you do to make your rocket go further and faster? (1)

Did you have any control over the distance and speed that your rocket travelled? (1)

What could you change in the design to make this happen? (1)

Total: 15 marks

STRAND 4: Control test

Name:_____ Grade:_____

1. Give meanings for the following words: (4)

   1.1 Crater: _____

   _____

   1.2 Satellite: _____

   _____

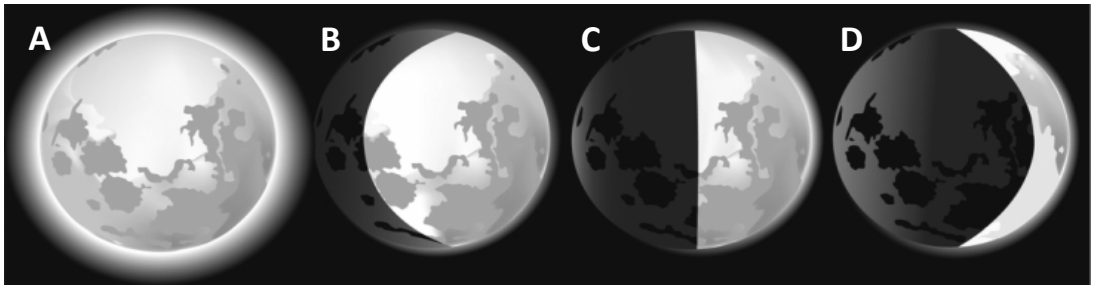
2. Name three things that we can find in our solar system. (3)

   1: _____

   2: _____

   3: _____

3. Name the following phases of the Moon. (4)



   A: _____ B: _____ C: _____ D: _____

4. Explain what would happen if the Earth was closer to the Sun. (2)

   _____

   _____

5. Explain how day and night occurs. (2)

   _____

   _____

Total: 15 marks

STRAND 4: Control end-of-year exam

Name:_____ **Grade:**_____

1. Match the words in Column A with their meanings in Column B. (6)

Column A	Column B
1.1 Pitch	**A** Loud or soft sound
1.2 Battery	**B** Types of movement input energy for musical instruments
1.3 Vibrate	**C** Output energy of the Sun
1.4 Volume	**D** High or low sound
1.5 Heat	**E** Move quickly and continuously to and fro
1.6 Plucking	**F** Source of electric input energy

2. Name the bones of the middle ear. (1)

_____

_____

3. State the part of the inner ear which sends the message to the brain.(1)

_____

4. Complete the food chain with the two words from the box below: (2)

coal	grass	guitar	lion	toad

Sun → _____ → caterpillar → _____

5. Give two examples of: (4)

5.1 Input energy

_____

_____

5.2 Output energy

_____

_____

6. Imagine your house was built next to a freeway and the noise keeps you awake at night. Explain how you would solve the noise pollution problem. Give at least one solution to the problem. (1)

_____

_____

_____

7. List three types of movement energy for musical instruments. (3)

_____

_____

_____

8. List the key energy source of each of the following: (3)

8.1 Kettle _____

8.2 Chainsaw _____

8.3 Torch _____

9. State how many days it takes the Moon to orbit the Earth. (1)

_____

10. Give the meaning of the word crater. (2)

_____

_____

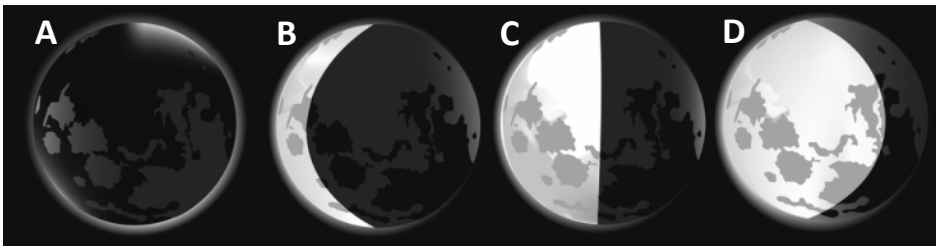
11. State three types of land found on Earth. (3)

_____

_____

_____

12. Name the following four phases of the Moon. (4)



A:_____ B:_____ C:_____ D:_____

13. Explain what the solar system is. (2)

_____

_____

_____

14. Describe what the surface of the Moon looks like. Use three full sentences. (4)

_____

_____

_____

_____

_____

15. Suggest three reasons why there is life on Earth. (3)

_____

_____

_____

Total: 40 marks

How to develop rubric and checklist assessment tools

Rubrics

A rubric is a tool teachers use to assess a learner's performance on a specific task. It is presented in the form of a grid that clearly outlines the criteria used for assessment as well as different levels of performance per criterion.

Benefits of using a rubric

- A rubric helps learners to understand objectives. Developing rubrics with your learners will help them to understand the purpose and content and help them to prepare for the assessment.
- A rubric has a clear and standardised approach to assessment, which ensures that learners are assessed consistently and fairly.
- A rubric allows teachers to provide specific feedback to learners, highlighting areas of strength and areas for improvement.
- A rubric helps learners get a clear idea on how to improve their performance after assessment.
- A rubric allows learners to self-improve. Encourage learners to use the rubric before they hand in their work.
- A rubric is easy to use and can be easily adapted to meet changing needs.

Steps to creating a rubric

Step 1: Clearly define the purpose of the assessment. Use the assessment guidelines in the curriculum documents to determine what task/assignment the learners are required to complete.

Step 2: Define the criteria.
Use the objectives in the curriculum documents to consider what skills, knowledge or behaviours the assessment will evaluate.

Make sure that:
- criteria can be observed and measured
- criteria are important to the task at hand
- each criteria assesses a single aspect of the task.

- Each criteria contains levels of performance. When creating these, consider:

- what will constitute outstanding achievement
- how will you define moderate or adequate achievement
- how would you define work that falls below expectations.

- Ask yourself: Are there key criteria points that should carry a greater weight than others?

Step 3: Design a rating scale that clearly defines the levels of performance.
Check your mark allocation to ensure that your rubric falls in line with curriculum expectations. Make sure you use language and terminology that the learner is familiar with so that they have a clear understanding of what is required of them.

Provide a scale of achievement that can assess the learners' overall competency in completing the task. For example, you can provide an overall mark according to the seven-point scale of achievement:

Rating code	Description of Competence	Percentage
7	Outstanding achievement	80–100
6	Meritorious achievement	70–79
5	Substantial achievement	60–69
4	Adequate achievement	50–59
3	Moderate achievement	40–49
2	Elementary achievement	30–39
1	Not achieved	0–29

Step 4: Write descriptions of expected performance at each level of the rating scale.
Describe observable and measurable behaviour and use parallel language across the scale. Indicate the degree to which the standards are met. Ensure that learners understand the expectations before and during the assessment.

Step 5: Create the rubric.
Try to keep it to one page. Ask your colleagues for feedback and consider testing it before you use it for assessment. After you use the rubric, consider how effective it was and make any necessary revisions.
Exemplar:

Research, design and make a musical instrument					
Criteria	**0 – 1 mark**	**2 – 3 marks**	**4 marks**	**5 marks**	**Total** **5 marks**
Design brief	Each learner gets 5 marks for this section. Deduct 1 mark for each of the following: • Not neatly drawn • Missing some or all labels on the drawing • List of materials (missing some or all) • List of tools (missing some or all)				

Appearance of instrument	No effort made towards appearance. [1 mark]	The learner has made a little effort towards appearance. [2 marks]	The learner has made a good effort towards appearance. [3 marks]	The learner has made a very good effort towards appearance. [4 marks]	The learner has made an excellent effort towards appearance. [5 marks]
Sound of instrument	Makes no sound. [1 mark]	Makes a slight sound or noise. [2 marks]	You can hear a reasonable sound. [3 marks]	You can hear a reasonable sound. [3 marks]	You can hear a reasonable sound. [3 marks]
Total: 15 marks					

Checklists

A checklist is a simple assessment tool that provides a list of items or criteria to be checked off. It differs from a rubric in that it provides learners with the criteria of the requirements of an assignment rather than a means of assessing acquired knowledge. A checklist can be used solely by you as a teacher, or you can give your learners a checklist that they can refer to in order to make sure that they have included the required components for a task.

Checklists usually consist of a number of statements that refer to specific criteria and where the answer will be, for example, “Yes” or “No”, or “Achieved”, “Not yet” or “Almost”.

Benefits of using a checklist

- A checklist ensures that all relevant criteria are assessed and evaluated.
- A checklist helps to ensure consistent assessment of specified criteria.
- A checklist can be used by learners as a self-assessment tool.
- A checklist identifies learning needs in a clear and simple way.
- A checklist is easy to create and use and provides an uncomplicated guide for assessment.

Steps to create a checklist

Step 1: Define the purpose and what you want to assess.
This could be specific skills or a general assessment.

Step 2: Identify the criteria.
What specific elements or content will be assessed?

Step 3: Create your checklist.
Check that it contains everything you want to assess.

Exemplar:

Criteria			
The learner …	**Yes**	**Partly**	**No**
followed the instructions in the Learner's Book and understood what to do. (2)			
drew a neat calendar with 30 days. (3)			
wrote the month and year at the top of the calendar. (5)			
completed 30 blocks of observations. (5)			
Total: 15 marks			

Intervention strategies

Baseline assessment and intervention strategies

Some learners may experience academic backlogs for various reasons, including the impact on learning due to the COVID-19 pandemic, underlying learning barriers or special education needs such as visual or hearing impairments or intellectual barriers. Baseline assessment will help you identify learners that may be experiencing these barriers.

Analysing baseline assessment questions will provide insight into learners' current knowledge and skills regarding certain topics, as well as their preparedness for the work ahead. The results of baseline assessments can help to identify the areas where learners require support and/or intervention.

Learners may require support and/or intervention for the following reasons:

- barriers to learning
- class size
- reading comprehension (the ability to understand what they have read).

Barriers to learning

Some learners may face barriers to learning. It is important to accommodate learners with barriers to learning to ensure that our classrooms remain inclusive. These learners may require and should be granted more time for completing tasks, acquiring thinking skills (own strategies), and completing assessment activities. Adapt the number of activities to be completed without interfering with learners gaining the required skills. Learners experiencing barriers to learning can also be paired with others who may be able to support them.

Class size

- Peer tutoring can be an effective intervention method when class size is problematic.
- Quieter learners often struggle in a large class, as they tend not to ask questions. Organising learners into groups or pairs can help to create a more inclusive and enabling learning environment.
- Ensure that groups are made up of learners with varying ability, so that learners who may be struggling are supported by their peers.
- Peer assessment can also be used successfully during informal assessment and allows you to gauge learners' understanding in a less intimidating manner than a formal test or assignment.
- The following strategies can be used in a large class:
    - *Thumbs up/thumbs down:* Check understanding by a show of thumbs. Thumbs up indicate that learners have understood; thumbs down show that they have not understood; thumbs sideways could show that they are not sure.
    - *Response boards:* These are small chalkboards or whiteboards where learners record their response to a question. When you say "Show your answers" they all hold up the board. This way you can quickly see who is struggling.

- *Show fingers 1-2-3:* Ask learners to show fingers to indicate if they understand activity instructions before working in a group. 1 = I do not understand; 2 = I sort of understand but I need some help; 3 = I understand completely.

Reading comprehension

- Support learners by giving them pre-reading questions and post-reading strategies to organise what they have learnt. Pre-reading questions could include asking the learners what they already know about the topic. Teach learners to summarise the content into bullet points and make use of mind maps. This requires the learners to rewrite the content in their own words.
- Write difficult terminology on the board and give simple explanations.
- Diagrams can be very useful to explain concepts in a way that learners can visualise the situation.

General teaching intervention strategies

Teach from the learner's point of view

- Put yourself in the learner's position: If you were the learner, what would you like the teacher to explain or show you that you could not learn previously?
- Remember that learners might still have emotional issues related to the COVID-19 pandemic, which you may need to address.

Reteach topic(s) for which learners achieved low scores (closing the gap)

- Focus on concepts, and not only on factual content. Then use illustrations to support learners' understanding and avoid superficial rote learning. The more "real-life" examples used, the easier it will be for the learners to conceptualise the topic.
- Make the structure of your lessons and teaching materials clear: State specific, achievable goals, provide graphic organisers to link parts of the lesson and give frequent summaries of sections of the lesson. A graphic organiser can be any visual representation of content that gives an immediate overview of main points.
- Refer frequently to your progress in terms of the lesson structure. This will help learners to develop an overall and cohesive (holistic) grasp of the content.
- Skills, knowledge and concepts run like threads through the previous grades. Explain these threads to learners, as you begin teaching a new topic or module – it will help learners to link the new content to what they already know.

Metacognition

Metacognition is the ability to understand our own thought processes. It is essential that metacognition takes place during lessons.

Learners retain information best when they can visualise situations. Visual aids, such as flash cards and mind maps, and practical work can aid with developing metacognition, or getting learners to think about and understand their own thought processes. After completing practical tasks, give learners sentence starters to complete. For example: I learnt . . .; I wonder . . .; I still want to know . . .; I still don't understand . . .; I still have a question about . . . .

Retaining information

- Flash cards and mind maps can be useful tools to help learners memorise facts.
- Encourage learners to break down content into more manageable sections. They can then create a mind map for each sub-topic. Tables can also help learners summarise content into more manageable sections.
- A mnemonic is a word, sentence or poem that helps you remember something. Mnemonics help learners to memorise content. Use the first letter of each word to create a sentence that the learners can memorise easily. For example, a mnemonic such as "**E**at **A**n **A**pple **A**s **A** **N**ice **S**nack" can help learners to memorise the names of the continents: **E**urope, **A**sia, **A**frica, **A**ustralia, **A**ntarctica, **N**orth America, **S**outh America.

Develop presentation skills

Many learners find it challenging to speak in front of the class, but this improves with practice. Encourage learners to answer questions in class and take part in class discussions by using one or more of the following strategies:

- *Use the think-pair-share method:* Posing a question and giving learners a short time to think about it, followed by discussion with a partner and then sharing with others. Learners who are shy will find it easier to share ideas with a partner first.
- *Tell-check-say:* A learner tells the answer to a friend, together they check if the answer is correct by referring to the textbook, and then the first learner says the answer out loud to the class or writes it down.
- *Target basic and then more advanced questions to specific learners based on their readiness to answer them*: A good strategy is to first ask the question to the whole class. This ensures that everyone thinks about it. Then, ask a specific learner the question.
- *Keywords on cards:* These can be used to help the learner remember their presentation. Eye contact is essential, so emphasise to learners that they should not read their presentation.

Interventions for learners with special education needs

- Special educational needs may include visual or hearing impairments or intellectual barriers. Do not form an opinion about a learner too early This could lead to an inaccurate assessment of a learner's barrier, or an inaccurate assessment of the existence of a barrier (when in fact there may not be one). If the barrier is obvious after the first term and becomes a serious obstacle to the learner, seek professional help from the district office.
- Immediate steps could include: observing the learner inside and outside of the classroom, contacting the learner's previous teachers and consulting learner progress reports to understand their needs.

TEACHER NOTES

TEACHER NOTES

TEACHER NOTES

Oxford University Press is a department of the University of Oxford.
It furthers the University's objective of excellence in research, scholarship,
and education by publishing worldwide. Oxford is a registered trade mark of
Oxford University Press in the UK and in certain other countries.

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

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

First published 2017

Oxford Successful Natural Sciences and Technology Grade 4 Teacher's Resource Book

PROM0190725105

First impression 2017

Revised impression 2023

Typeset in Calibri 14pt
Printed on [insert paper quality e.g. acid-free paper]

Acknowledgements
Publisher: Brenda van der Poel
Content developer and editor: Dariol Wicomb
Reproduction by: Name Surname
Printed and bound by: XYZ Printing Company

Photos and illustrations: p. 14 ivosar/Shutterstock; p. 15 Mindi Flemming; p. 35 Andrea Danti/Shutterstock; pp. 43, 46 jagoda/Shutterstock.

Glossary definitions adapted from Oxford South African School Dictionary, published by Oxford University Press Southern Africa in 2010, are used with the permission of the publisher.

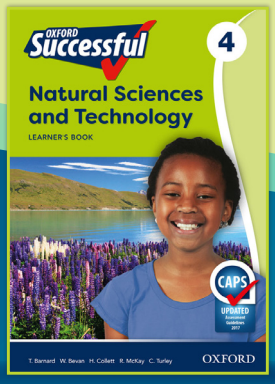
The authors and publisher gratefully acknowledge permission to reproduce copyright material in this book. Every effort has been made to trace copyright holders, but if any copyright infringements have been made, the publisher would be grateful for information that would enable any omissions or errors to be corrected in subsequent impressions.

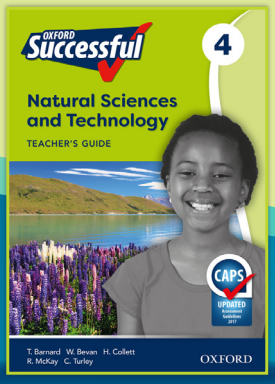
Links to third party websites are provided by Oxford in good faith and for information only. Oxford disclaims any responsibility for the materials contained in any third party website referenced in this work.

CAPS PLANNER & TRACKER

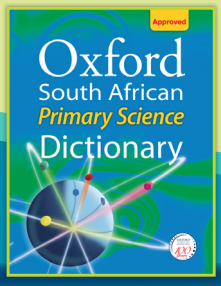
Natural Sciences and Technology
Grade 4

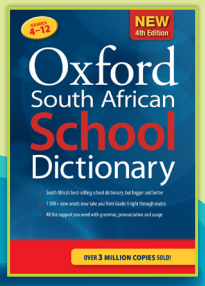
For best results, use this guide with your *Oxford Successful Natural Sciences and Technology* Grade 4 Learner's Book and Teacher's Guide.





PLUS:





CONTACT US: 021 120 0104

083 798 4588 OxfordSASchools @OxfordSASchools

THE MANDELA RHODES FOUNDATION

OXFORD UNIVERSITY PRESS

www.oxford.co.za