basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

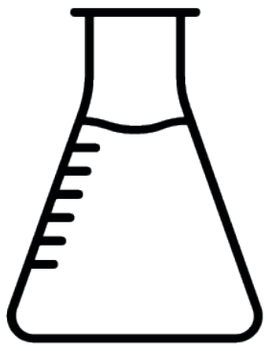
NATIONAL EDUCATION COLLABORATION TRUST

2030 NDP

Read to Lead
A Reading Nation is a Leading Nation

Planner & Tracker for Recovery ATP

Natural Sciences & Technology



Grade 4 Term 4

Table of Contents

Introduction

Dear Natural Sciences & Technology Teachers,

The COVID-19 Pandemic has left us with an enormous challenge in education. As we return to 'normal schooling', we all have to work smarter and harder to ensure that our system recovers.

This document is designed to help you achieve this. By systematically working through this plan, we are confident that you can address the loss of teaching and learning time, and bring your learners to the level where they need to be in terms of NS & Tech.

We thank you in advance for the commitment, dedication and hard work that is required of you.

You are truly building our nation.

With very best wishes for the term ahead,

The DBE / NECT Recovery ATP Trackers Team

Overview

Please continue to keep the following key principles in mind throughout the recovery journey:

- The development of **Science Process Skills** is key to the teaching and learning of the subject. Focussing on these skills is critical.

- Learners should be given as many opportunities as possible to **write regularly and read for meaning** in Natural Science and Technology, in order to develop **language skills** as well. Due to learning losses, as a result of the Covid pandemic, it is the responsibility of every educator to develop these literacy skills.

- It is very important to give learners a sense of **how science applies to their daily lives**, and of **the value that science adds to their lives**. Hold a brief discussion on this point when introducing a new topic, and invite learners to contribute their ideas on the uses and value that this topic has.

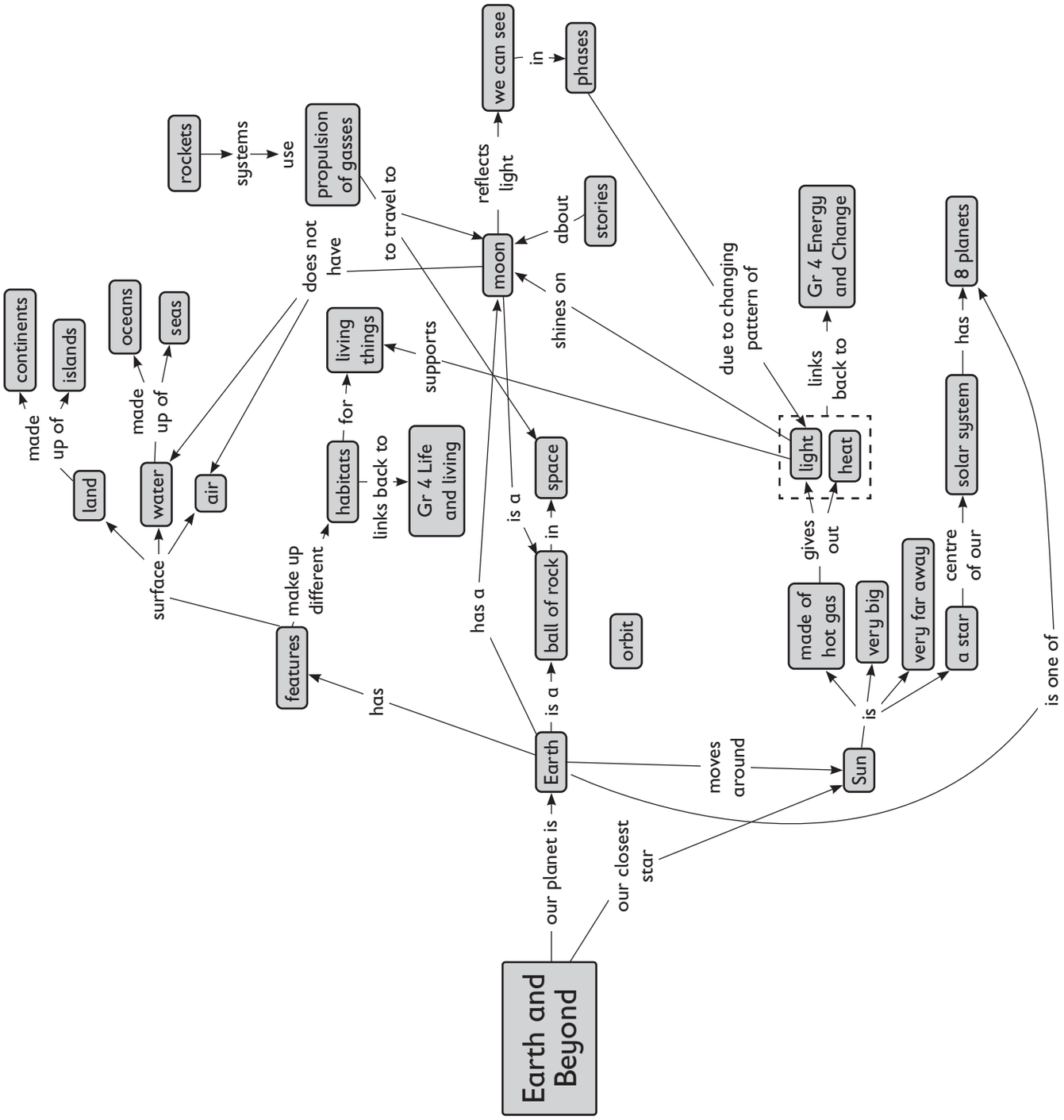
- At the end of every topic, come back to the topic overview, and **reflect on what has been learnt and taught**. In particular, it is important to note your challenges and ideas for future improvement, so that you can improve your teaching the next year.

- At the core of all scientific activities is the need to **ask questions**. These questions help us seek answers through observation and experimental design. The results of these questions should raise more questions. It is this natural curiosity that all teachers, and especially science teachers, should be encouraging in their classrooms. **Encourage curiosity** and **questions that investigate, inquire and probe.**

- **Build a solid conceptual foundation** for learners. A **conceptual chain** for the phase is provided at the start of this document. It is important for all NS & Tech teachers to work cohesively, to ensure that learners are equipped with a solid understanding of the required concepts, by the time they leave the phase.

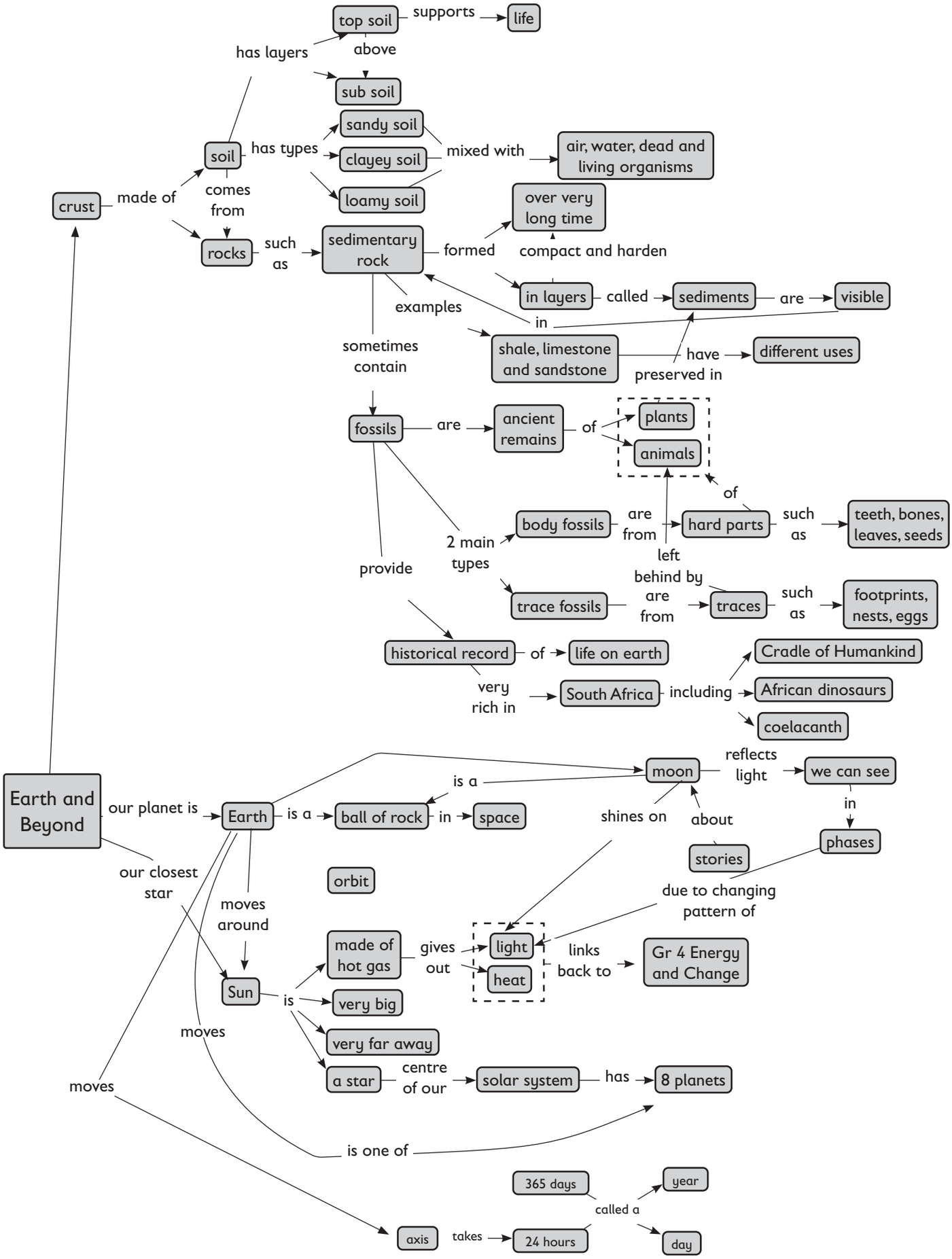
- Using the **CONCEPTUAL CHAIN** provided, **work together** as a department to:
  a. Check that all **concepts for the phase are covered** in your school's recovery plan.
  b. **Check for overlaps** across the grades.
  c. **Identify the weak links in the conceptual chain** - points where learners struggle and may be the source of misconceptions or common errors.
  d. Decide how to **emphasise critical concepts from previous grades,** especially where topics have moved from a different grade in the revised ATP.

Intermediate Phase Conceptual Chain: Grade 4



*The concept maps in this section have been adapted from **Thunderbolt Kids resources** published by **Siyavula.***

Intermediate Phase Conceptual Chain: Grade 5



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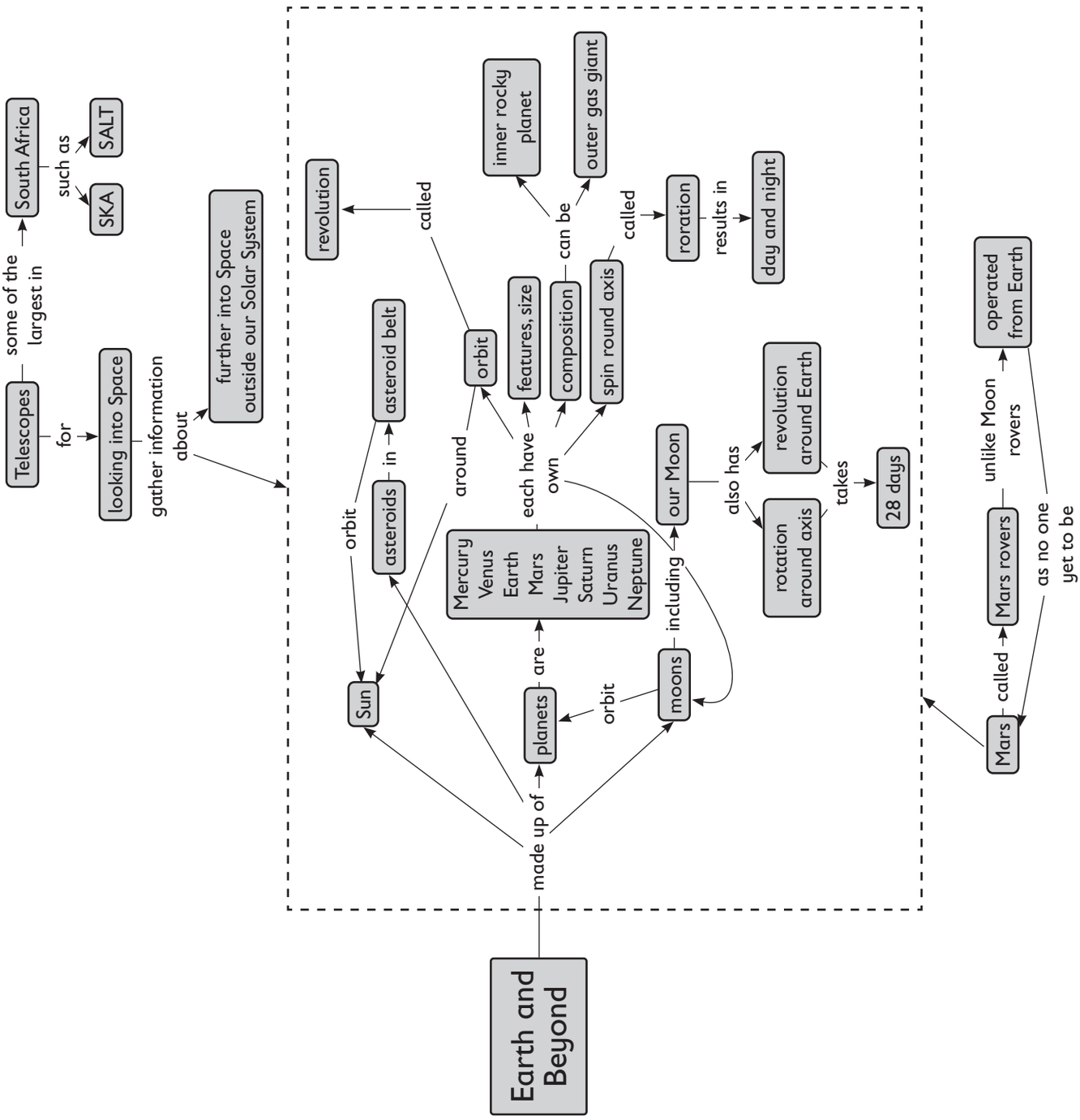


*The concept maps in this section have been adapted from **Thunderbolt Kids resources** published by **Siyavula.***

Amendments to the Annual Teaching Plan

The Recovery ATP for Natural Sciences & Technology has the **same content as in CAPS**.

It is important to note that all the topics for Grade 4 Term 4, NS and Tech have been **brought back as per CAPS (Grade 4)**. Therefore, there is no change to the topics and time allocation.

- **All topics remain the same**:
  1. Planet Earth (2 weeks)
  2. The Sun (1 week)
  3. The Earth and Sun (1 week)
  4. The Moon (2 weeks)
  5. Rocket Systems (2 weeks)

Directions on how to cover all required topics are provided in the Tracker that follows.

Amendments To The Programme Of Assessment

- The Programme of Assessment is aligned to the Revised Section 4 of CAPS.
- Both formal and informal assessment should continue as normal.
- Recording of the informal assessment is left to the discretion of the teacher.
- The 2021 formal assessment tasks for Grade 4 are as follows:

	TERM 1	TERM 2	TERM 3	TERM 4
Practical Task/Investigation	20 marks	20 marks	20 marks	-
Test	20 marks	40 marks	20 marks	40 marks

Sample Assessment Tasks and Memoranda / Rubrics for Grade 4 Term 4 are included in this document.

ATP / NECT Lesson Plan / Textbook Alignment: Grade 4 Term 4

Notes:

- **Column 1** shows the **time allocation** per topic.
- **Column 2** shows the **Recovery ATP requirements** for Grade 4 Term 4.
- **Column 3** shows **where in the NECT lesson plans** this is covered.
- **Column 4** shows **where in the approved textbooks** this is covered.
- Finally, if, for any reason, the **Term 4 teaching time** for NS & Tech **is reduced,** please ensure that the **KEY CONCEPTS** listed under 'Scaling Down' are thoroughly covered.

Key To Approved Textbook Abbreviations:	
SFA	Solutions for All Natural Sciences and Technology Grade 4 MacMillan
S&M	Study & Master Natural Sciences and Technology Grade 4. Cambridge University Press
DbD	Day by Day Natural Sciences and Technology Grade 4 Maskew Miller Longman
PLAT	Platinum Natural Sciences and Technology Grade 4 Maskew Miller Longman
VIVA	Viva Natural Sciences and Technology Grade 4 Vivlia
SO	Spot On Natural Sciences and Technology Grade 4 Pearson
OS	Oxford Successful Natural Sciences and Technology Grade 4 Oxford University Press
TC	Top Class Natural Sciences and Technology Grade 4 Shuter and Shooter
SIBB	Sasol Inzalo Book B Natural Sciences and Technology Grade 4 Sasol
S&S	Shuter and Shooter

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Weeks 1 and 2 6 hours	Planet Earth 1. Features of the Earth 2. Earth and Space	<u>Grade 4 Term 4 Lesson Plans</u> Lesson 1A: Features of the Earth Lesson 1B: Features of the Earth Lesson 1C: Features of the Earth Lesson 2A: Earth seen from Space Lesson 2B: Earth and Space Lesson 2C: Earth and Space	SFA Gr 4	193 – 202	
			S&M Gr 4	114, 132	
			DbD Gr 4	137 – 144	
			PLAT Gr 4	153 – 161	
			VIVA Gr 4	125 – 134	
			SO Gr 4	84 – 86	
			OS Gr 4	112 – 117	
			SIBB Gr 4	82 – 98	
			S&S Gr 4	112 - 121	

Scaling down

If the Term 4 teaching time is reduced, ensure that learners have a thorough understanding of the following key content concepts:

- What the Earth looks like from Space
- The main features as found on the surface of the Earth
- Identification of continents, islands and oceans, seas
- The atmosphere of the Earth
- Various habitats on Earth
- Differences between stars and planets
- Why the sun only shines on half the Earth at a time.

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Week 3 3 hours	The Sun 1. Our closest star 2. Gives us energy for life	Grade 4 Term 4 Lesson Plans Lesson 3A: The Sun Lesson 3B: The Sun and Life Lesson 3C: The Sun and Life	SFA Gr 4	206	
			S&M Gr 4	146	
			DbD Gr 4	147	
			PLAT Gr 4	164	
			VIVA Gr 4	138	
			SO Gr 4	87	
			OS Gr 4	118	
			SIBB Gr 4	100	
			S&S Gr 4	119	

If the Term 4 teaching time is reduced, ensure that learners have a thorough understanding of the following key concepts:

- The Sun as our closest star.
- The Earth's position from the Sun.
- Sizes of Earth and Sun
- Characteristics of the Sun - made of hot gas
- Why we need the Sun - gives off light and heat – vital for life on Earth
- The dangers of the Sun

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Week 4 3 hours	The Earth and Sun 1. Moving around the Sun 2. The Sun and life	Grade 4 Term 4 Lesson Plans Lesson 4A: The Earth's orbit around the Sun Lesson 4B: Planets in the Solar System Lesson 4C: The Sun and Life	SFA Gr 4	214 - 220	
			S&M Gr 4	148 – 155	
			DbD Gr 4	155 – 160	
			PLAT Gr 4	167 -170	
			VIVA Gr 4	144 - 145	
			SO Gr 4	88 - 90	
			OS Gr 4	120 - 124	
			SIBB Gr 4	110 - 118	
			S&S Gr 4	121 - 123	

If the Term 4 teaching time is reduced, ensure that learners have a thorough understanding of the following key concepts:

- The orbit of the Earth around the Sun
- The Sun is the centre of our Solar System – Earth and 7 other planets are in our Solar System
- Differences between planets and stars
- The Earth gets light and heat from the Sun to support life – flow of energy

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Weeks 5 and 6 6 hours	The Moon 1. Features of the moon 2. Phases of the moon 3. Moon stories	Grade 4 Term 4 Lesson Plans Lesson 5A: Features of the moon Lesson 5B: Comparing the Earth to the moon Lesson 5C: Features of the moon Lesson 6A: Seeing the moon Lesson 6B: Phases of the moon Lesson 6C: moon Stories	SFA Gr 4	223 - 231	
			S&M Gr 4	158 - 164	
			DbD Gr 4	163 - 168	
			PLAT Gr 4	176 - 184	
			VIVA Gr 4	153 - 160	
			SO Gr 4	91 - 94	
			OS Gr 4	126 - 132	
			SIBB Gr 4	154 - 164	
			S&S Gr 4	125 - 130	

If the Term 4 teaching time is reduced, ensure that learners have a thorough understanding of the following key concepts:

- Features on the moon.
- Why life cannot exist on the moon.
- The differences between the Earth and the moon: size, temperature, light, heat, water, air, features
- Size difference between the Sun and the moon.
- The various phases of the moon.
- Why the Moon looks so bright.
- Why we only see part of the Moon. The lunar cycle.

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Weeks 7 and 8 6 hours	Rocket Systems 1. Modelling of a rocket	Grade 4 Term 4 Lesson Plans Lesson 7A: Rockets Lesson 7B: Investigating rockets Lesson 7C: Design a rocket Lesson 8A: Making a rocket Lesson 8B: Testing the rockets Lesson 8C: Showing our rockets	SFA Gr 4	235 – 249	
			S&M Gr 4	166 – 173	
			DbD Gr 4	171 – 174	
			PLAT Gr 4	187 – 192	
			VIVA Gr 4	164 – 170	
			SO Gr 4	96 – 100	
			OS Gr 4	134 – 135	
			SIBB Gr 4	134 – 143	
			S&S Gr 4	132 – 135	

If the Term 4 teaching time is reduced, ensure that learners have a thorough understanding of the following key concepts:

- Uses of rockets
- How rockets propel vehicles into space

Below is a sample assessment test and memorandum. Please feel free to use this task as is, or to adapt for your context. It is important to ensure that learners are only assessed on work that has been taught.

GRADE 4
Natural Sciences & Technology
Term 4
Test
40 marks

NOTE TO THE TEACHER:

If possible, photocopy this test for each learner. If this is not possible, write the test on the chalkboard.

INSTRUCTIONS TO THE LEARNERS

1. Answer all questions in blue or black ink.
2. Read each question carefully before answering it.
3. Pay attention to the mark allocations.
4. Plan your time carefully.
5. Write your answers in the spaces provided.
6. Write neatly.

PRACTICE QUESTION

Read the question and circle the letter that shows the correct answer.

1. Which planet in our solar system is closest to the sun?

   a. Neptune

   b. Mercury

   c. Earth

   d. Saturn.

You have answered correctly if you have circled (b)

Grade 4 Natural Sciences & Technology Term 4 Assessment

SECTION A: Energy and Change & Systems and Control

QUESTION 1: MULTIPLE CHOICE **[3]**

Read each question and circle the letter that shows the correct answer.

1a. Which one of these is NOT an example of movement energy?

a. shaking a bottle
b. blowing a baloon
c. beating a drum
d. listening to music

1b. Which of these statements is NOT TRUE?

a. Energy cannot change from one form to another.
b. Energy is never lost and it cannot be destroyed.
c. The energy that goes into a system is called input energy.
d. The energy that comes out of a system is called output energy.

1c. Which of these statements is TRUE?

a. Energy cannot be transferred from one object to another.
b. Energy can be transferred from one object to another.
c. During energy transfer, the energy does not change form.
d. When energy is transferred it is lost.

QUESTION 2 **[6]**

Write one word that means the same as the sentence:

2a. Electricity that is made by the movement of water.

_____

2b. Harmful or annoying levels of noise.

_____

2c. A measure of how hot or cold something is.

_____

2d. Animals that only eat plants.

_____

QUESTION 3 **[8]**

There are many sources and forms of energy.

3a. Name two examples of stored energy in nature, that could be used for heating.

_____

_____

3b. Think about sound and light. Are they input or output forms of energy?

_____

_____

3c. What makes sound and light different from each other?

_____

_____

3d. Using the example of wood burning in fire, explain the following:

- input energy
- output energy
- energy transference

_____

_____

_____

QUESTION 4 **[5]**

Fill in the correct words in the sentences.

4a. Musical instruments make sounds through _____

4b. We can hear or _____ vibrations.

4c. The volume of sound is how loud or _____ it is.

4d. The p[itch of sound is how high or _____ it is.

4e. Sound that is too loud and can damage our hearing is called noise _____.

Grade 4 Natural Sciences & Technology Term 4 Assessment

SECTION B: Planet Earth and Beyond

QUESTION 1: MULTIPLE CHOICE **[3]**

1a. Which one of these is NOT a gas planet?

a. Venus.
b. Saturn
c. Uranus
d. Jupiter

1b. Which of these statements are NOT TRUE?

a. There is no water on the moon.
b. The moon is covered in craters.
c. The moon takes one year to move around the Earth.
d. There is no atmosphere surrounding the moon.

1c. Which of the following statements is TRUE?

a. There are 5 continents on planet Earth.
b. Most of the Earth's surface is covered in water.
c. Madagascar is a continent in the Indian Ocean near South Africa.
d. Planet earth looks mostly green from outer space.

QUESTION 2 **[4]**

Write one word that means the same as the sentence:

2a. Rocks that travel through space at very fast speeds.

_____

2b. The force that pulls everything towards the Earth.

_____

2c. Bodies in space that give off their own light.

_____

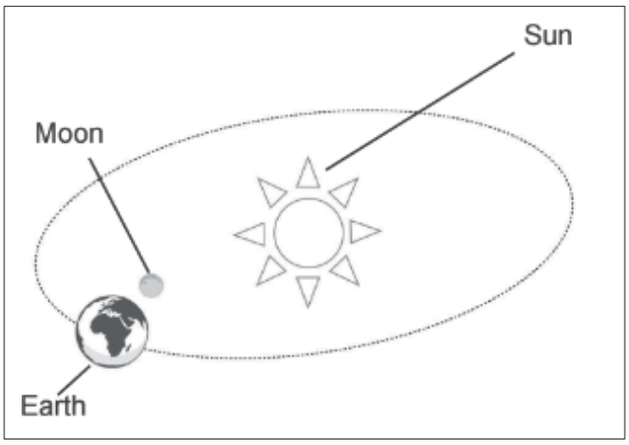
2d. The layer of gases that surrounds the Earth.

_____

QUESTION 3 **[9]**

(Note to the educator: Use the diagram below or use Resource 20)

Look at the diagram below and then answer the questions which follow:



3a. How long does it take the Earth to orbit the sun?

_____

3b. Explain how daytime and nighttime happen on Earth.

_____

_____

_____

_____

3c. Fill in the correct words in the sentences:

1. The moon shines because it is reflecting the light of the _____
2. The moon moves around the _____
3. The moons shape is always _____
4. The different shapes of the moon that we see in a month are called the _____ of the moon

QUESTION 4 **[4]**

Elon Musk is the CEO of a company called SpaceX. He was born in Pretoria and went to Pretoria Boys' High School. He plans to send people to Mars by 2024:

> "In 2024 we want to try fly four ships (to Mars). Two cargo and two crew. The goal of these initial missions is to find the best source of water…"

4a. Name two difficulties that humans face in outer space.

_____

_____

4b. Elon Musk is an engineer with big dreams. Do you think it will ever be possible for man to live on Mars? What would they need for people to live on Mars?

_____

_____

TOTAL :40

Grade 4
Natural Sciences & Technology
Term 4
Test
Memorandum

CAPS Topic	Questions	Expected answer(s)	Marks
PART A: Energy and Change & Systems and Control			
	1		
Energy and change	1a	D ✓	1
Energy around us	1b	A ✓	1
Energy around us	1c	B ✓	1
	2		
Energy around us	2a	hydroelectric ✓	1
Energy and sound	2b	noise pollution ✓	1
Energy around us	2c	temperature ✓	1
Energy and change	2d	herbivores ✓	1
	3		
Energy around us	3a	(Answers may vary) ✓ ✓ Coal and wood	2
Energy around us	3b	They are both output energy. ✓	1
Energy around us	3c	see light ✓ hear sound ✓	2
Energy around us	3d	(Any three) ✓ ✓ ✓ • The input energy in a wood fire is the wood. • The wood has stored chemical energy. • Once the fire is lit, the stored energy in the wood is transferred into light and heat energy. • This is the output energy. • If more wood is added, the stronger the output of the fire will be.	3

	4		
Energy and sound		✓ ✓ ✓ ✓✓ 1. vibrations 2. feel 3. soft 4. low 5. pollution	5
PART B: Planet Earth and Beyond & Systems and Control			
	1		
The Earth and the sun	1a	A ✓	1
The moon	1b	C ✓	1
Planet Earth	1c	B ✓	1
	2		
The moon	2a	meteoroids or asteroids ✓	1
Rocket systems	2b	gravity ✓	1
The sun	2c	star ✓	1
Planet Earth	2d	atmosphere ✓	1
	3		
The sun	3a	365 ¼ days (1 year) ✓	1
The Earth and the sun	3b	(Any 4) ✓ ✓ ✓ ✓ • The Earth spins on its own axis. • It takes the Earth 24 hours to make one full turn. • This rotation causes day and night. • Day is when our side of the sun is facing the sun. • Night is when our side of the Earth is facing away from the sun.	4

The moon	3c	✓ ✓ ✓ ✓ 1. Sun 2. Earth 3. round 4. phases	4
	4		
Rocket systems	4a	(Any two) ✓ ✓ • Lack of gravity • Lack of breathable oxygen • Cold • Lack of protection from the atmosphere	2
Rocket systems	4b	(Answers will vary) ✓ ✓ • Yes. Technology is improving all the time. source of water, shelter, air to breathe.	2
			TOTAL 40