basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

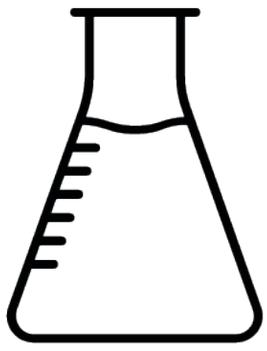
NATIONAL EDUCATION COLLABORATION TRUST

2030 NDP

Read to Lead
A Reading Nation is a Leading Nation

Planner & Tracker for Recovery ATP

Natural Sciences & Technology



Grade 6 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.

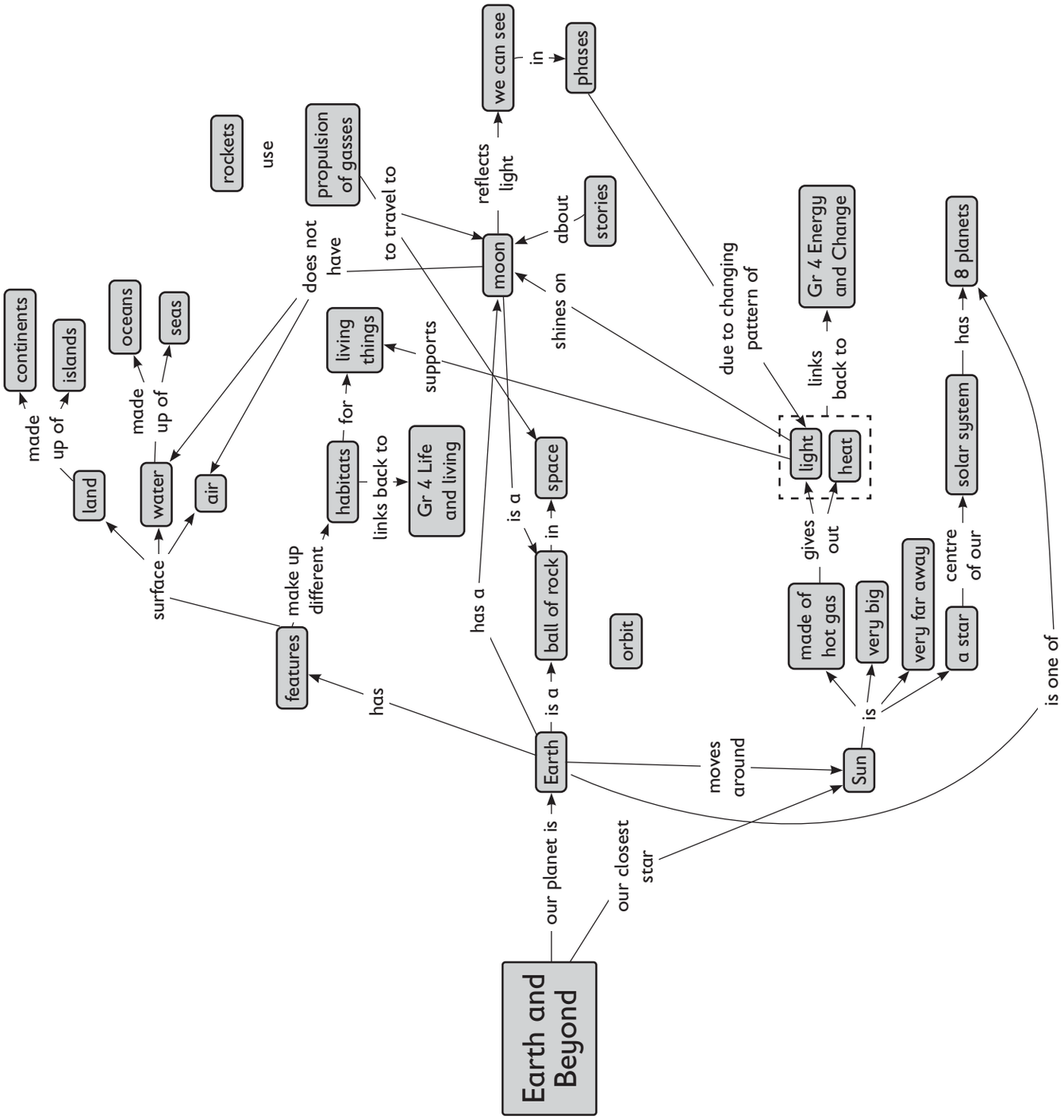
- At the end of every topic, come back to the topic overview, and **reflect on what has been learnt and taught**. In particular, it is important to note your challenges and ideas for future improvement, so that you can improve your teaching the next year.

- 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.

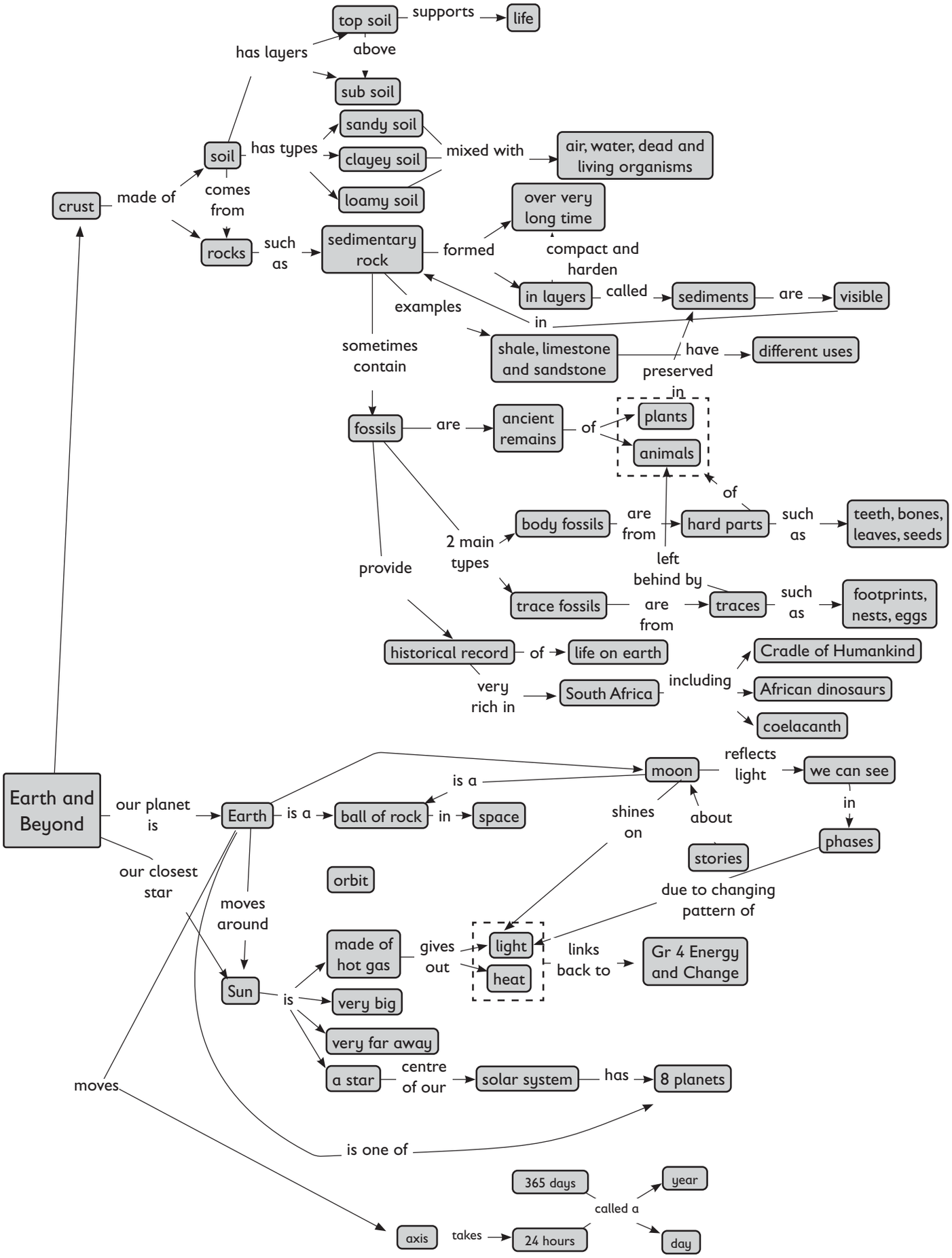
- Using the **CONCEPTUAL CHAIN** provided, **work together** as a department to:
  a. Check that all **concepts for the phase are covered** in your school's recovery plan.
  b. **Check for overlaps** across the grades.
  c. **Identify the weak links in the conceptual chain** - points where learners struggle 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

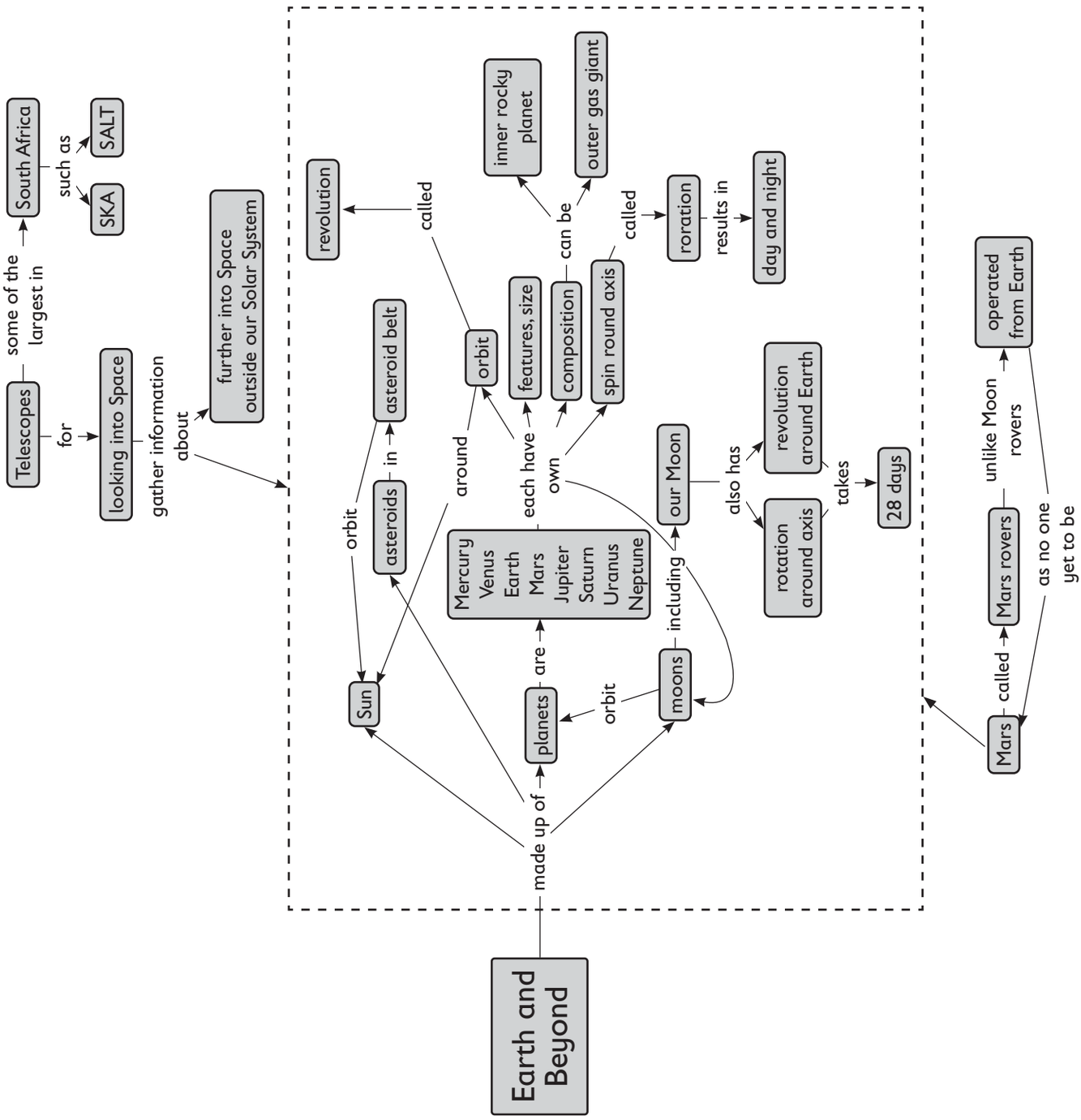


*The concept maps in this section have been adapted from **Thunderbolt Kids resources** published by **Siyavula.***

Intermediate Phase Conceptual Chain: Grade 5



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



*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 Gr 6 Term 4, NS and Tech remain as per CAPS (Grade 6). Therefore, there is no change to the topics and time allocation.

- **All topics remain the same**:

1. The Solar System (2,5 weeks)
2. Movements of the Earth and planets (1 week)
3. The movement of the Moon (1 week)
4. Systems for looking into Space (1 week)
5. Systems to explore the Moon and Mars (2,5 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 6 are as follows:

	TERM 1	TERM 2	TERM 3	TERM 4
Practical Task/Investigation	20 marks	20 marks	20 marks	-
Test	40 marks	60 marks	40 marks	60 marks

Sample Assessment Tasks and Memoranda / Rubrics for Grade 6 Term 4 are included in this document.

ATP / NECT Lesson Plan / Textbook Alignment: Grade 6 Term 4

Notes:

- **Column 1** shows the **time allocation** per topic.
- **Column 2** shows the **Recovery ATP requirements** for Grade 6 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 below each table are thoroughly covered.

Key To Approved Textbook Abbreviations:	
S&M	Study & Master Natural Science and Technology Grade 6 Cambridge University Press
VIVA	Viva Natural Sciences and Technology Grade 6 Vivlia
PLAT	Platinum Natural Sciences and Technology Grade 6 Maskew Miller Longman
SFA	Solutions for All Natural Sciences and Technology Grade 6 MacMillan
DbD	Day by Day Natural Sciences and Technology Grade 6 Maskew Miller Longman
OX	Oxford Successful Natural Sciences and Technology Grade 6 Oxford University Press
SO	Spot On Natural Sciences and Technology Grade 6 Pearson
TC	Top Class Natural Sciences and Technology Grade 6 Shuter and Shooter
SIBB	Sasol Inzalo Bk B Natural Sciences and Technology Grade 6 Sasol

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Weeks 1, 2 & 3 7 hours	The Solar System 1. The Sun, Planets and Asteroids 2. Moons	***Gr6 Term 4 Lesson Plans*** Lesson 1A: The Sun, planets and the 8 planets Lesson 1B: The Sun, planets and asteroids Lesson 1C: The Sun, planets and asteroids Lesson 2A: The Sun, planets and asteroids Lesson 2B: The Sun, planets and asteroids Lesson 2C: The Sun, planets and asteroids Lesson 3A: moons	S&M Gr 6	139 – 148	
			VIVA Gr 6	152 – 166	
			PLAT Gr 6	167 – 178	
			SFA Gr 6	252 – 271	
			DbD Gr 6	152- 159	
			OX Gr 6	116 – 121	
			SO Gr 6	78 – 83	
			TC Gr 6	122 – 126	
			SIBB Gr 6	94 - 129	

Scaling down

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

The Solar System

- Our Solar system is made up of the Sun, planets, asteroids and moons. Understand the features and differences.
- How the Earth, moons and planets move – rotation and revolution, orbits and gravity.
- Telescopes for looking into space. South Africa's large telescopes.
- Vehicles for exploring the moon and Mars.

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Weeks 3 - 4 3 hours	Movements of the Earth and planets 1. Rotation 2. Revolution	***Gr6 Term 4 Lesson Plans*** Lesson 3B: Rotation of the Earth Lesson 3C: Rotation of the Earth Lesson 4A: The Sun, planets and asteroids	S&M Gr 6	149 – 150	
			VIVA Gr 6	154 – 171	
			PLAT Gr 6	173 – 186	
			SFA Gr 6	256 – 279	
			DbD Gr 6	154 – 166	
			OX Gr 6	118 – 123	
			SO Gr 6	80 – 85	
			TC Gr 6	125 – 129	
			SIBB Gr 6	109 - 137	

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

Movements of the Earth and Planets

- Revolution – orbits around the Sun.
- Rotation – turning on axes, how this causes night and day.
- Features of gas planets.

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Week 4 - 5 3 hours	The movement of the moon 1. Rotation 2. Revolution	***Grade 6 Term 4 Lesson Plans*** Lesson 4B: Rotation of the moon Lesson 4C: Revolution of the moon Lesson 5A: Revolution of the Earth	S&M Gr 6	156 – 159	
			VIVA Gr 6	175 – 179	
			PLAT Gr 6	189 – 194	
			SFA Gr 6	287 – 295	
			DbD Gr 6	173 – 177	
			OX Gr 6	126 – 129	
			SO Gr 6	86 – 87	
			TC Gr 6	133 – 135	
			SIBB Gr 6	148 - 153	

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

Movement of the moon

- How the moon moves – length of a single rotation around the Earth.
- How the moon revolves around the Earth.
- Comparisons between the sun, Earth and moon.

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Week 5 - 6 3 hours	Systems for looking into space 1. Telescopes	***Grade 6 Term 4 Lesson Plans*** Lesson 5B: Telescopes Lesson 5C: Telescopes Lesson 6A: Telescopes	S&M Gr 6	160 – 162	
			VIVA Gr 6	185 – 194	
			PLAT Gr 6	198 – 205	
			SFA Gr 6	298 – 306	
			DbD Gr 6	180 – 183	
			OX Gr 6	130 – 131	
			SO Gr 6	85 – 89	
			TC Gr 6	136 - 139	
			SIBB Gr 6	182 - 190	

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

Systems for looking into Space

- The uses of telescopes.
- How a lens magnifies images, how a mirror reflects light.
- What an optical telescope is.
- South Africa's large telescopes.
- The SKA – what it is, its relevance, its power.
- SALT – why it was built, its importance to scientists and astronomers.

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Weeks 6, 7, 8 8 hours	Systems to explore the moon and Mars 1. Vehicles used on the moon 2. Vehicles used on Mars	***Grade 6 Term 4 Lesson Plans*** Lesson 6B: Vehicles used on the moon and on Mars Lesson 6C: Vehicles used on Mars and the moon Lesson 7A: Vehicles used to explore the moon Lesson 7B: Design a Rover Lesson 7C: Vehicles used on the moon and Mars Lesson 8A: Vehicles used on the moon and Mars Lesson 8B: Vehicles used on the moon and Mars Lesson 8C: Vehicles used on the moon and Mars	S&M Gr 6	163 – 173	
			VIVA Gr 6	197 – 207	
			PLAT Gr 6	207 – 216	
			SFA Gr 6	310 – 327	
			DbD Gr 6	186 – 194	
			OX Gr 6	132	
			SO Gr 6	90 – 99	
			TC Gr 6	140 - 146	
			SIBB Gr 6	158 - 176	

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

Systems to explore the moon and Mars

- The surface of the moon and Mars and the special needs of vehicles travelling on the moon and Mars. E.g. Rover
- Types of wheels and axles for different environments.
- The robots that have visited Mars.
- What we use to help us find out about Mars and the moon – solar energy, kinetic energy.

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.

Natural Sciences & Technology
Grade 6
Term 4
Test
Marks: 60

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.

Which planet in our solar system is closest to the Sun?

a. Neptune

b. Mercury

c. Earth

d. Saturn.

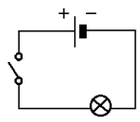
You have answered correctly if you have circled (b)

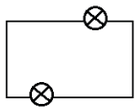
SECTION A: Energy and Change

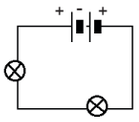
QUESTION 1: MULTIPLE CHOICE [5]

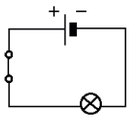
Read each question and circle the letter that shows the correct answer.

1a. In which of the following circuits will the bulb/s light up?

w. 

x. 

y. 

z. 

A. w + y

B. x + y

C. y + z

D. z only

1b. In a simple series circuit, why does the bulb light go on when you close the switch?

a. Because the switch produces electricity.

b. Because closing the switch completes the circuit.

c. Because closing the switch breaks the circuit.

d. Because the switch shorts electricity.

1c. Imagine a simple series circuit with one 1,5V battery and 1 bulb. When you add a second 1,5V battery:

a. The bulb gets brighter.

b. The bulb gets dimmer.

c. The bulb stays at the same level of brightness.

d. The bulb does not shine.

1d. In a circuit diagram, what does a circle with a cross inside it represent?

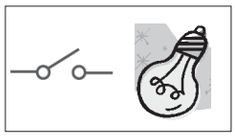
a. Bulb.

b. Battery.

c. Wire.

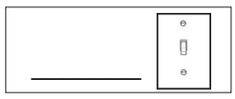
d. Switch.

1e. Which component is grouped with its symbol:

A. 

B. 

C. 

D. 

QUESTION 2 **[5]**

Write one word that means the same as the sentence or phrase:

2a. Stored energy.

_____

2b. A material that allows electricity to pass through it.

_____

2c. A component used to turn electricity on and off.

_____

2d. Movement energy.

_____

2e. A material that does not allow electricity to pass through it.

_____

QUESTION 3: MATCH THE COLUMNS **[5]**

Instructions:

- Match the sentences in COLUMN A with the words in COLUMN B.
- Draw a line to join the sentence in COLUMN A with the correct word in COLUMN B. Do this as shown in the example.

COLUMN A	
example	Conducts electricity
3a.	Is a renewable source of energy
3b.	A source of electrical energy
3c.	A fossil fuel
3d.	An insulator
3e.	A device that transfers energy for a useful purpose

COLUMN B
A. Batteries
B. Coal
C. Buzzer
D. Rubber
E. Metal
F. Wind

QUESTION 4 **[6]**

Answer the following questions:

4a. Name the three components that make up a simple electric circuit. (3)

_____

_____

_____

4b. What is an electric circuit? (3)

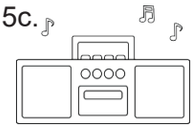
_____

_____

_____

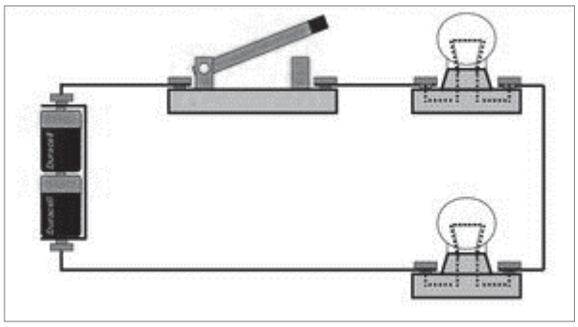
QUESTION 5 **[4]**

Write down the energy conversion for each of the following items. (Eg: electrical energy to heat energy).

5a.  Electrical energy to _____ _____	5b.  Electrical energy to _____ _____
5c.  Electrical energy to _____ _____	5d.  Electrical energy to _____ _____

QUESTION 6 : DRAWING CIRCUIT DIAGRAMS **[5]**

6a. Use the correct symbols to draw the circuit diagram for the drawing.



SECTION B: Planet Earth and Beyond

QUESTION 1: MULTIPLE CHOICE **[5]**

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

1a. Choose the answer that is false. The Sun is...

a. a ball of gases
b. a star
c. 420 times bigger than Earth
d. smaller than Earth

1b. Which planet is furtherest from the Sun?

a. Mars
b. Neptune
c. Venus
d. Mercury

1c. The four rocky planets are:

a. Earth, Venus, Mercury and Mars
b. Venus, Jupiter, Mars and Neptune
c. Earth, Saturn, Venus and Mars
d. Uranus, Earth, Mars and Mercury

1d. The asteroid belt is between:

a. Mars and Venus
b. Neptune and Uranus
c. Mars and Jupiter
d. Mercury and Venus

1e. Which planet is known as the red planet?

a. Mars
b. Neptune
c. Venus
d. Mercury

QUESTION 2 **[5]**

Write one word that means the same as the sentence:

2a. Very large rocks that travel through space at very fast speeds.

_____

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

_____

2c. A hole on the surface of the moon as a result of it being hit by other asteroids and meteorites.

_____

2d. An imaginary line running through a planet, from top to bottom.

_____

2e. The name given to the 4 outer planets.

_____

QUESTION 3 **[9]**

Answer in full sentences.

3a. What is at the centre of the solar system? (1)

_____

3b. Explain the difference between rotation and revolution. (4)

_____

_____

_____

_____

3c. Give 2 reasons as to why you can still see a footprint on the moon? (4)

_____

_____

_____

_____

QUESTION 4 **[5]**

Write the name of the planet next to the description.

4a. The smallest planet - _____

4b. Has 7 rings around it - _____

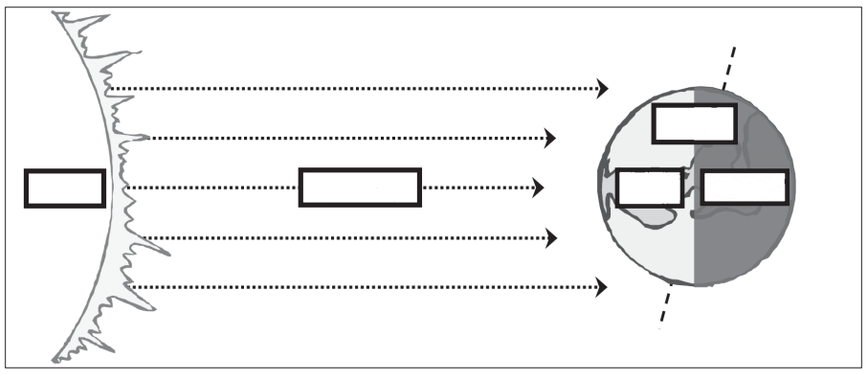
4c. Is the coldest planet - _____

4d. Can support life - _____

4e. The largest planet - _____

Question 5 **[6]**

5a. Fill in the labels on the showing how day and night occurs on Earth.

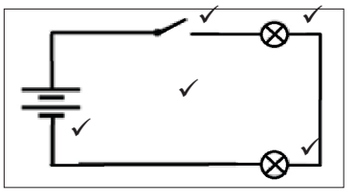


Heading: _____ ✓

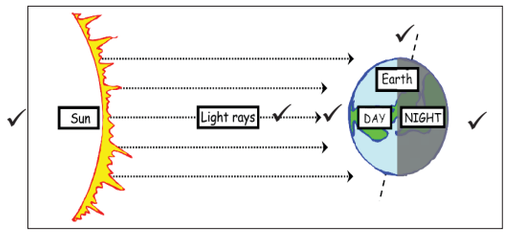
TOTAL 60

Term 4 Test Memorandum

CAPS Topic	Questions	Expected answer(s)	Marks
PART A: Energy and Change			
	1		
Electric circuits	1a	D ✓	1
Electric circuits	1b	B ✓	1
Electric circuits	1c	A ✓	1
Electric circuits	1d	A ✓	1
Electric circuits	1e	B ✓	1
	2		
Energy and electricity	2a	Potential energy ✓	1
Conductors and insulators	2b	Conductor ✓	1
Electric circuits	2c	Switch ✓	1
Energy and electricity	2d	Kinetic energy ✓	1
Conductors and insulators	2e	Insulator ✓	1
	3		
Energy around us	3a	F ✓	1
Energy around us	3b	A ✓	1
Energy around us	3c	B ✓	1
Conductors and insulators	3d	D ✓	1
Electric circuits	3e	C ✓	1

	4		
Electric circuits	4a	• A source of electrical energy – battery ✓ • Conducting material – electric wire ✓ • A device that transfers energy for a useful purpose – bulb/buzzer/motor ✓	3
Electric circuits	4b	A circuit is a complete ✓ path ✓ around which electricity can flow. ✓	3
	5		
Electric circuits	5c	Light energy ✓	1
Electric circuits	5d	Movement energy ✓	1
Electric circuits	5.3	Sound energy ✓	1
Electric circuits	5e	Heat energy	1
	6		
Electric circuits	6a		5

PART B: Earth and Beyond			
	1		
The solar system	1a	D ✓	1
The solar system	1b	B ✓	1
The solar system	1c	A ✓	1
The solar system	1d	C ✓	1
The solar system	1e	A ✓	1
	2		
The solar system	2a	Asteroids ✓	1
The solar system	2b	Gravity ✓	1
The solar system	2c	Crater ✓	1
The solar system	2d	Axis ✓	1
The solar system	2e	Gaseous ✓	1
	3		
The solar system	3a	The sun ✓	1
The solar system	3b	• Rotation – the Earth rotates on its axis which takes 24 hours. ✓ ✓ • Revolution – the Earth revolves around the sun which takes 365¼ days. ✓ ✓	4
The solar system	3c	• There is no wind to blow the footprint away. ✓ ✓ • There is no water to wash the footprint away. ✓ ✓	4
	4		
The solar system	4a	Mercury ✓	1
The solar system	4b	Saturn ✓	1
The solar system	4c	Neptune ✓	1
The solar system	4d	Earth ✓	1
The solar system	4e	Jupiter ✓	1

	5		
The solar system	5a	 Diagram to show day and night ✓	6
			TOTAL 60