basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

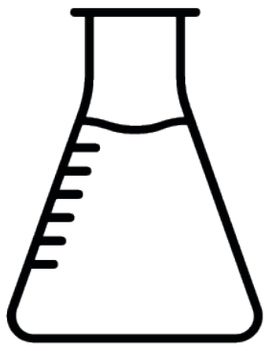
NATIONAL EDUCATION COLLABORATION TRUST

2030 NDP

Read to Lead
A Reading Nation is a Leading Nation

Planner & Tracker for Recovery ATP

Natural Sciences & Technology



Grade 5 Term 3

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.

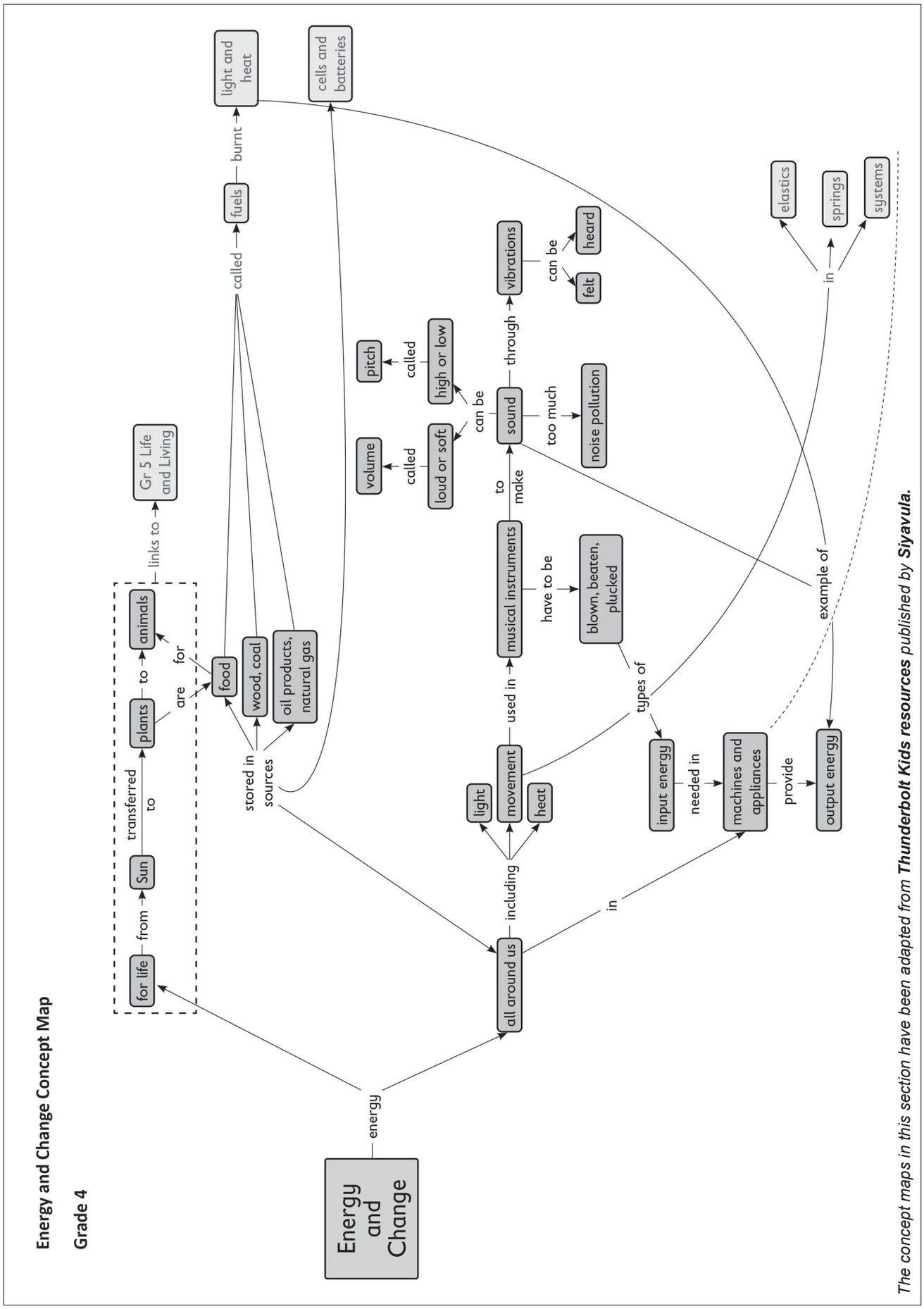
- At the core of all scientific activities is the need to **ask questions**. These questions help us seek answers through observation and experimental design. The results of these questions should raise more questions. It is this natural curiosity that all teachers, and especially science teachers, should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

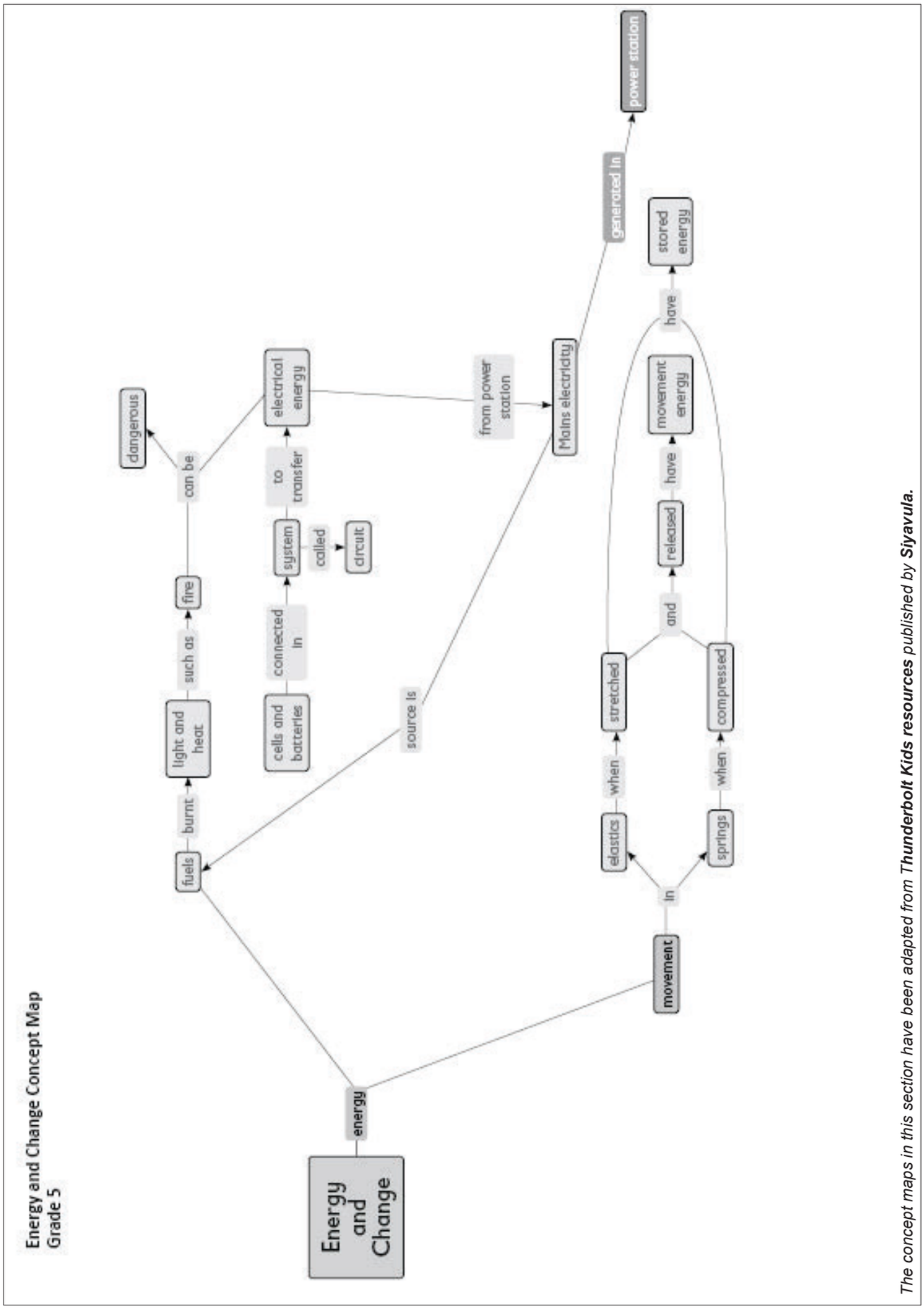
- Using the **CONCEPTUAL CHAIN** provided, **work together** as a department to:
  a. Check that all **concepts for the phase are covered** in your school's recovery plan.
  b. **Check for overlaps** across the grades.
  c. **Identify the weak links in the conceptual chain** - points where learners struggle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

Energy and Change Concept Map

Grade 4

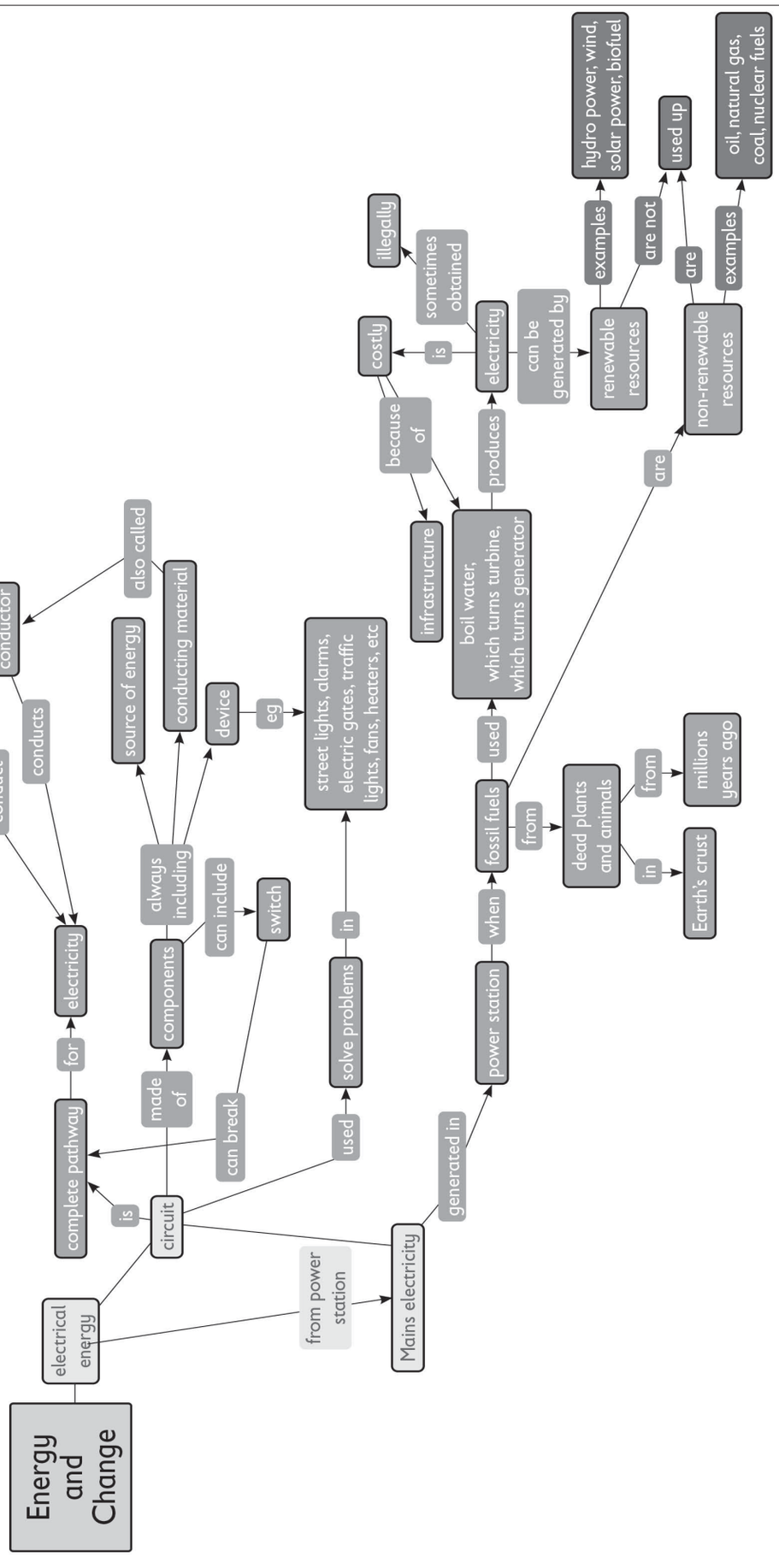


*The concept maps in this section have been adapted from **Thunderbolt Kids resources** published by **Siyavula**.*



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

Energy and Change Concept Map
Grade 6



*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**, however, this content has been arranged as follows for Grade 5 Term 3, in order to ensure key conceptual development, and to address common learning losses:

- **Some topics remain the same**:
  1. Stored energy in fuels (3 weeks)
  2. Energy & Electricity (3 weeks)
  3. Energy & Movement (1 week)

- **Some topics have been cut out completely/removed:**
  1. Systems for moving things

- **Some topics from Grade 4 have been included/recovered:**
  1. Energy & Energy transfer (2 weeks)
  2. Energy around us (1 week)

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 5 are as follows:

	TERM 1	TERM 2	TERM 3	TERM 4
Practical Task/Investigation	20 marks	20 marks	20 marks	-
Test	35 marks	50 marks	35 marks	50 marks

Sample Assessment Tasks and Memoranda / Rubrics for Grade 5 Term 3 are included in this document.

ATP / NECT Lesson Plan / Textbook Alignment: Grade 5 Term 3

Notes:

- **Column 1** shows the **time allocation** per topic.
- **Column 2** shows the **Recovery ATP requirements** for Grade 5 Term 3.
- **Column 3** explains any **changes** that have been made to the teaching plan.
- **Column 4** shows **where in the NECT lesson plans** this is covered.
- **Column 5** shows **where in the approved textbooks** this is covered.
- Finally, if, for any reason, the **Term 3 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 5 Cambridge University Press
VIVA	Viva Natural Sciences and Technology Grade 5 Vivlia
PLAT	Platinum Natural Sciences and Technology Grade 5 Maskew Miller Longman
SFA	Solutions for All Natural Sciences and Technology Grade 5 MacMillan
DbD	Day by Day Natural Sciences and Technology Grade 5 Maskew Miller Longman
OX	Oxford Successful Natural Sciences and Technology Grade 5 Oxford University Press
SO	Spot On Natural Sciences and Technology Grade 5 Pearson
TC	Top Class Natural Sciences and Technology Grade 5 Shuter and Shooter
SIBB	Sasol Inzalo Bk B Natural Sciences and Technology Grade 5 Sasol

ATP / NECT Lesson Plan / Textbook Alignment: Grade 5 Term 3

Note: These are the Grade 4 textbook references for the Grade 4 included/recovered topics.

SFA	Solutions for All Natural Sciences and Technology Grade 4 MacMillan
S&M	Study & Master Natural Science 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 Bk B Natural Sciences and Technology Grade 4 Sasol

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NOTES	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Week 1 -2 6 hours	Energy and Energy Transfer 1. Energy for Life 2. Energy from the Sun	***This section has been recovered from Grade 4 term 3***	<u>Grade 4 Term 3 Lesson Plans</u> Lesson 1A: Energy for Life Lesson 1B: Energy from Food Lesson 1C: Energy in food comes from the sun Lesson 2A: Energy from the Sun Lesson 2B: Food Chains Lesson 2C: Energy around us	SFA Gr 4	133 -135	
				S&M Gr 4	95 – 101	
				DbD Gr 4	93 – 100	
				PLAT Gr 4	110 - 115	
				VIVA Gr 4	98 – 100	
				SO Gr 4	56 - 59	
				OS Gr 4	76 - 83	
				SIBB Gr 4	4 – 15	
				TC Gr 4	77 - 90	

Scaling down

If the Term 3 teaching time is reduced, ensure that learners have a thorough understanding of the following key content and concepts:

- Energy for Life
- Every living thing on earth needs energy
- Energy in our food comes from the Sun
- Plants use the energy from the Sun to make food for themselves and for animals and people
- Energy is transferred from the Sun to plants, and to animals in a sequence known as an energy or food chain
- So all energy comes from the Sun

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NOTES	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Week 3 3 hours	Energy around us 1. Energy 2. Input & Output Energy	***This section has been recovered from Grade 4 Term***	<u>Grade 4 Term 3 Lesson Plans</u> Lesson 3A: Types of Energy Lesson 4B: Input & Output energy Lesson 4C: Using Machines	SFA Gr 4	140 – 150	
				S&M Gr 4	102 – 109	
				DbD Gr 4	103 – 110	
				PLAT Gr 4	118 – 125	
				VIVA Gr 4	102 – 106	
				SO Gr 4	60 - 65	
				OS Gr 4	83 – 90	
				SIBB Gr 4	18 – 34	
				TC Gr 4	83 - 92	

If the Term 3 teaching time is reduced, ensure that learners have a thorough understanding of the following key concepts:

- Energy is all around us - light, heat, sound & movement
- Energy is stored in sources such as food, wood, coal, oil products, and natural gas
- Energy can be transferred from a source to where it is needed
- Input and output energy – machines and appliances, like musical instruments, need input energy - bang a drum, to provide output energy – sound of the drum.

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Week 4 - 6 9 hours	Stored energy in Fuels 1. Fuels 2. Burning Fuels 3. Safety with Fire	<u>Grade 5 Term 3 Lesson Plans</u> Lesson 1A: Energy is stored in fuels Lesson 1B: Fuels as sources of energy Lesson 1C: Everyday fuels Lesson 2A: Fuels give useful output energy Lesson 2B: Investigate fuels Lesson 2C: Fuels need heat and air Lesson 3A: Investigate candles burning Lesson 3B: Fires are a threat Lesson 3C: What to do if there are candles burning	S&M Gr 5	108 – 119	
			VIVA Gr 5	114 – 127	
			PLAT Gr 5	111 – 125	
			SFA Gr 5	129 – 145	
			DbD Gr 5	103 – 111	
			OX Gr 5	80 – 90	
			SO Gr 5	47 – 53	
			TC Gr 5	75 – 86	
			SIBB Gr 5	4 - 25	

If the Term 3 teaching time is reduced, ensure that learners have a thorough understanding of the following key concepts:

Stored energy in fuels

- Energy is stored in fuels like coal, wood, petrol, paraffin, gas, candle wax
- Fuels need heat and air to burn to give out energy
- The energy we get from fuels is heat, light, movement and sound
- The dangers of fire and the importance of safety around fire

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Week 7 - 9 9 hours	Energy & Electricity 1. Cells and Batteries 2. Mains Electricity 3. Safety with electricity	<u>Grade 5 Term 3 Lesson Plans</u> Lesson 4A: Cells and Batteries Lesson 4B: Electrical Energy is transferred Lesson 4C: Making a simple circuit Lesson 5A: Mains electricity Lesson 5B: Source of energy for a power station Lesson 5C: How mains electricity gets to appliances Lesson 6A: Drawing the path of mains electricity Lesson 6B: Safety with electricity	S&M Gr 5	120 – 129	
			VIVA Gr 5	129 – 142	
			PLAT Gr 5	128 – 139	
			SFA Gr 5	148 – 159	
			DbD Gr 5	113 – 120	
			OX Gr 5	91 – 101	
			SO Gr 5	54 – 61	
			TC Gr 5	88 – 97	
			SIBB Gr 5	30 - 40	

If the Term 3 teaching time is reduced, ensure that learners have a thorough understanding of the following key concepts:

Energy and Electricity

- Energy is stored in cells and batteries
- A circuit is a system that transfers electrical energy to where electricity is needed
- A power station transfers electricity in a circuit to our homes and back to the power station
- The power station needs a source of energy from a fuel like coal
- Safety precautions around electricity

TIME ALLOCATION	DBE RECOVERY ATP REQUIREMENTS	NECT LESSON PLANS: LESSONS	APPROVED TEXTBOOKS		DATE COMPLETED
Week 10 3 hours	Energy & Movement 1. Elastic and springs	Grade 5 Term 3 Lesson Plans Lesson 6C: Make things move with elastic & springs Lesson 7A: Energy is stored Lesson 7B: Movement energy	S&M Gr 5	130 – 132	
			VIVA Gr 5	147 – 151	
			PLAT Gr 5	142 – 147	
			SFA Gr 5	163 – 171	
			DbD Gr 5	123 – 126	
			OX Gr 5	102 – 107	
			SO Gr 5	62 – 65	
			TC Gr 5	99 – 102	
			SIBB Gr 5	44 - 52	

If the Term 3 teaching time is reduced, ensure that learners have a thorough understanding of the following key concepts:

Energy and movement

- We get movement energy from elastic and springs
- Energy is stored in the twisted elastic or compressed spring
- Describing things that use this energy for movement

Below is a set of sample assessment tasks and memoranda. Please feel free to use these tasks 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 5
Practical Task
Term 3

Time: 40 minutes
(15 minutes preparation, 25 minutes task time)
Marks: 20

NOTES TO THE TEACHER

1. This practical activity will be completed as part of Section E of lesson 3A.
2. This practical will take place during the lesson after the teaching component in Section D, "Accessing Information".
3. The first 15 minutes will be used to teach section D and prepare learners for the practical task.
4. The next 25 minutes will be used to complete the practical activity as outlined in Section E.
5. The instructions and content of the practical task should be written on the chalkboard for the learners.
6. The memo for assessing the practical task is provided.
7. The learners will be working in groups and will need the following items for each group to complete the tasks:
   - Three glass bottles or glasses of different sizes: small, medium and large
   - Four candles
   - Four saucers or bottle lids
   - Matches
   - A cellphone timer, clock or a watch
8. Ensure that all the materials have been collected before the practical lesson. This may take a few days. Allow enough time for this.
9. The learners should complete their drawings with a sharp pencil and the written answers should be completed in pen.
10. Tell the learners that they are going to be doing an investigation.
11. Divide the learners into groups so that each group has access to the materials.
12. Write the following onto the chalkboard (always try to do this before the lesson starts):

PRACTICAL TASK

1. This practical task will be done in groups.
2. Each group will be doing tasks to explore the relationship between combustion and the presence of oxygen.
3. Each person in the group must participate in the investigation and complete the answers to the written activities in their workbooks.
4. Each group will need the following materials and equipment to do the investigation:
   - Three glass bottles or glasses of different sizes: small, medium and large
   - Four candles
   - Four saucers or bottle lids
   - Matches
   - A cellphone timer, clock or a watch
5. You will be working with lit candles. BE CAREFUL AND BE RESPONSIBLE AT ALL TIMES.

13. Read through the practical task with the learners.
14. Remind the learners that combustion is a scientific word for burning of fuel.
15. Tell the learners that today they are going to be investigating the relationship between fire and oxygen.
16. Have each group collect the equipment they will need for the task.
17. Tell the learners that they will have 5 minutes to set up the experiment and then they will be given the tasks to complete.
18. The following will need to be written onto the chalkboard. (Try to do this before the lesson starts):

EXPERIMENT SET-UP

1. Light one of the candles.
2. Drip a little bit of wax on each lid or saucer.
3. Stand one candle on each of the four saucers or plates in the melted wax.
4. The four candles should now be standing firmly on each plate.
5. Blow out the burning candle.

19. Read through the experiment set-up with the learners.
20. Ask them if they have any questions.
21. Tell the learners they have 5 minutes to set up the experiment.
22. Supervise the learners whilst they complete the task and answer any questions they may have.
23. After 5 minutes call the learners back to attention.
24. Tell the learners that they are now going to complete task 1.
25. The following will need to be written on the chalkboard::

TASK 1: (4 MARKS)

- The aim of this experiment is to see what happens when we burn a candle inside a glass jar compared to a candle that is burning outside of a glass jar.

1a. What do you predict the difference will be between the candle burning outside of the jar and the candle burning inside the glass jar?

1b. What is the heat source in this experiment?

1c. What is the fuel source in this experiment?

1d What else do the candles need to keep burning?

26. Read through task 1 with the learners.
27. Ask them if they have any questions.
28. Tell the learners they have 3 minutes to answer these questions in their workbooks.
29. Supervise the learners whilst they complete the task and answer any questions they may have.
30. After 3 minutes call the learners back to attention.
31. Tell the learners that they are now going to complete Task 2.
32. The following will need to be written on the chalkboard:

TASK 2: (16 MARKS)

2a. Draw the following table into your workbooks:

JAR	ESTIMATED TIME	ACTUAL TIME
Small		
Medium		
Large		

- Carefully light one candle.
- Place the medium sized glass jar over the burning candle.
- Watch the candle flame.

2b. What do you observe happens to the flame after a few minutes?

2c. Why do you think this has happened?

2d. What three things are necessary for a fire to burn?

- Now complete the ESTIMATED TIME on the table.
- Estimate how long you think the candle will burn under the small jar.
- Estimate how long you think the candle will burn under the medium jar.
- Estimate how long you think the candle will burn under the large jar.
- Record your answers.

2e. Which candle do you think will stop burning first? Give reasons for your answer.

- Now light all four candles.
- Place one jar each over 3 of the candles.
- Using a cellphone timer, a clock or a watch, measure the amount of time it takes for each candle to stop burning.
- Record the ACTUAL TIMES on the table.
- Looking at the data you collected and recorded on the table, answer the following questions:

2f. Which candle stopped burning first?

2g. Why do you think this candle stopped burning first?

2h. Which covered candle stopped burning last?

2i. Why do you think this candle burnt for longer than the candle under the small jar?

2j. Which candle is still burning?

2k. Why is this candle still burning?

33. Read through task 2 with the learners.
34. Ask them if they have any questions.
35. Tell the learners they have 15 minutes to complete task 2.
36. Tell learners that each person in the group must record their individual answers in their workbooks for assessment.
37. Supervise the learners whilst they complete the task and answer any questions they may have.
38. After 15 minutes call the learners back to attention.
39. Tell the learners to return all equipment and to tidy their work areas.
40. Collect books for assessment.

Practical Task Memorandum (see Section E of Lesson 3A for instructions and questions)

<table>
<tr><th>CAPS Topic</th><th>Task</th><th>Expected answer/outcome</th><th>Marks</th></tr>
<tr><td></td><td>1</td><td></td><td></td></tr>
<tr><td>Stored energy in fuels</td><td>1a</td><td>Answers will vary ✓</td><td>1</td></tr>
<tr><td>Stored energy in fuels</td><td>1b</td><td>Flame from match ✓</td><td>1</td></tr>
<tr><td>Stored energy in fuels</td><td>1c</td><td>Wax from candle ✓</td><td>1</td></tr>
<tr><td>Stored energy in fuels</td><td>1d</td><td>Oxygen or Air ✓</td><td>1</td></tr>
<tr><td></td><td>2</td><td></td><td></td></tr>
<tr><td>Stored energy in fuels</td><td>2a</td><td><table><tr><td>JAR</td><td>ESTIMATED TIME</td><td>ACTUAL TIME</td></tr><tr><td>Small</td><td></td><td></td></tr><tr><td>Medium</td><td></td><td></td></tr><tr><td>Large</td><td></td><td></td></tr></table>(Note: One mark for each size jar, if both estimated times and actual times are recorded). ✓ ✓ ✓</td><td>3</td></tr>
<tr><td>Stored energy in fuels</td><td>2b</td><td>The flame starts to flicker and eventually goes out. ✓</td><td>1</td></tr>
<tr><td>Stored energy in fuels</td><td>2c</td><td>Answers will vary, e.g.: no air, no oxygen ✓</td><td>1</td></tr>
<tr><td>Stored energy in fuels</td><td>2d</td><td>Fuel, oxygen and heat ✓</td><td>1</td></tr>
<tr><td>Stored energy in fuels</td><td>2e</td><td>Answers will vary – should link air/oxygen, size of jar, to life of flame ✓ ✓</td><td>2</td></tr>
<tr><td>Stored energy in fuels</td><td>2f</td><td>The candle under the smaller jar ✓</td><td>1</td></tr>
<tr><td>Stored energy in fuels</td><td>2g</td><td>There was less air and so less oxygen filling the space in the smaller jar ✓ ✓</td><td>2</td></tr>
<tr><td>Stored energy in fuels</td><td>2h</td><td>The candle under the largest jar ✓</td><td>1</td></tr>
<tr><td>Stored energy in fuels</td><td>2i</td><td>The jar is larger and so holds more air and so has more oxygen that is needed for the candle to burn. ✓ ✓</td><td>2</td></tr>
<tr><td>Stored energy in fuels</td><td>2j</td><td>The candle that was not covered ✓</td><td>1</td></tr>
<tr><td>Stored energy in fuels</td><td>2k</td><td>The candle still has fuel, oxygen and heat ✓</td><td>1</td></tr>
<tr><td colspan="3"></td><td>TOTAL 20</td></tr>
</table>

Test
35 Marks
60 Minutes

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 of the following is an example of a liquid fuel?

    a. gas

    b. petrol

    c. wood

    d. coal

You have answered correctly if you have circled (b)

Grade 5 Natural Sciences & Technology Term 3 Assessment

QUESTION 1: MULTIPLE CHOICE [4]

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

1a. Which one of these is NOT needed for a fire to burn?

a. oxygen
b. heat source
c. fuel
d. CO_2

1b. Which of these statements is FALSE?

a. Fuels store energy
b. Energy cannot be stored
c. Electricity is a type of energy
d. When fuels are burnt they give off heat, light and/or movement energy

1c. What is the voltage of electricity by the time it reaches our homes?

a. 22 000 volts
b. 120 volts
c. 240 volts
d. 400 000 volts

1d. The Sun provides us with two kinds of energy. These are:

a. light and plants
b. light and glucose
c. heat and light
d. glucose and heat

1e What kind of energy does a cell store?

a. electric
b. chemical
c. positive
d. negative

QUESTION 2 **[14]**

Write one word that means the same as the sentence:

2a. High structures built to hold electrical cables off the ground.

_____

2b. A rapid burning or chemical change that produces heat and light.

_____

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

_____

2d. The buildings where the strength of electricity is changed.

_____

2e. Complete the table below.

FUEL	SOLID, LIQUID or GAS
Coal	Solid
Petrol	_____
Wax	_____
Methane	_____

2f. **These are some of the activities that Sandile did on 15 February:**

Sandile woke up at 6.00a.m. He had hot tea for breakfast. He used his kettle.

He drove to work in his car.

When he got home in the evening, he cooked supper on his gas stove.

When he went to bed there was load shedding, so he used a candle to read for an hour before he went to sleep.

Complete the table below. Identify all the different energy items that Sandile used during the day. Say what each item did and what fuel it used.

ITEM USED	WHAT IT DID	WHAT FUEL IT USED

2g. Use the example of a Parafin Lamp for light.

Explain how stored energy is changed to output energy.

_____

_____

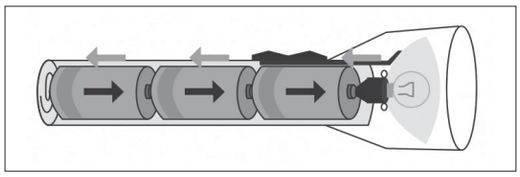
_____

_____

QUESTION 3 **[8]**

(Note to educator: Use diagram below or use Resource13)

Look at the diagram of the torch below:



3a. What is the energy source in this torch?

_____

3b. Name the output component of the torch.

_____

3c. What is the output energy of the torch?

_____

3d What does the torch need to complete the pathway of energy flow?

_____

3e Explain how to make a simple circuit.

Use the words in the box to help you.

a cell or battery	electrical wire	a light bulb	insulation tape

_____

_____

_____

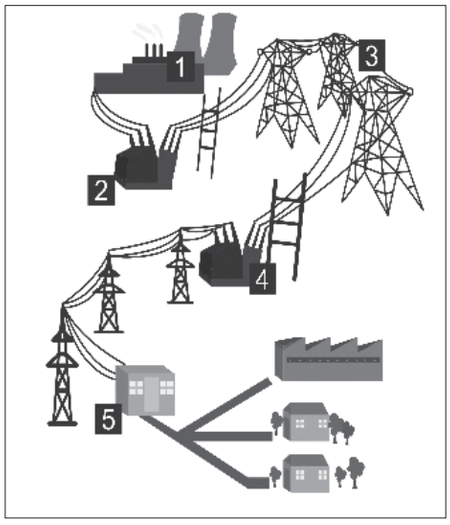
_____

_____

QUESTION 4 **[8]**

(Note to educator: Use diagram below or use Resources 19-24)

Study the diagram below:



4a. This is a diagram of the National Grid. Who is the main supplier of electricity to our National Grid?

_____

4b. What is the building represented at point 1?

_____

4c. Explain, using the words below, how electricity is generated at a coal power station.

Coal, water, steam, fan, turbine, energy, electricity

_____

_____

_____

4d. Do you think coal is a good way to generate electricity? Give a reason for your answer.

_____

4e. What does a house or building need, on the outside and inside, in order to use electricity safely and correctly?

_____

_____

TOTAL: [35]

Term 3
Test Memorandum

CAPS Topic	Questions	Expected answer(s)	Marks
	1		
Stored energy in fuels	1a	D ✓	1
Stored energy in fuels	1b	B ✓	1
Energy and electricity	1c	C ✓	1
Energy transfer	1d	D ✓	1
Energy and electricity	1e	B ✓	1
	2		
Energy and electricity	2a	pylons ✓	1
Stored energy in fuels	2b	combustion ✓	1
Systems for moving things	2c	axle ✓	1
Energy and electricity	2d	Substations ✓	1
Stored energy in fuels	2e	Petrol - Liquid ✓ Wax - Solid ✓ Methane - Gas ✓	3
Stored energy in fuels	2f	Kettle - boiled water - coal for electricity ✓ Car - moved/travelled - petrol ✓ Gas stove - heat – gas/methane ✓ Candle - light - candle wax ✓	1 1 1 1
Stored energy in fuels	2g	Small input energy, match or lighter, is used to light the paraffin (fuel). ✓ The stored energy of the paraffin is changed to useful output energy ✓ – light and (small amount of heat) ✓	3

	3		
Energy and electricity	3a	batteries ✓	1
Energy and electricity	3b	lightbulb ✓	1
Energy and electricity	3c	light ✓	1
Energy and electricity	3d	Switch ✓	1
Energy and electricity	3e	Cut the electrical wire into 2 equal lengths (remove the plastic from the end of the wire) ✓ Take 1 of the pieces of wire and tape it to one end of the cell/battery. ✓ Take the other piece of wire and tape it to the other end of the battery. ✓ Join the 2 free ends of the wire to each end of the light bulb ✓ **OR**: learners can draw the circuit and label the different components.	4
	4		
Energy and electricity	4.1	ESKOM ✓	1
Energy and electricity	4.2	Power station ✓	1
	4.3	Steam is generated by heating water using coal ✓ The steam is used to turn the blades of a giant fan called a turbine ✓ This turbine generates electrical energy ✓	3
Energy and electricity	4.3	(Answers may vary) No. Coal is not a renewable resource. It generates a lot of pollution. ✓	1
Energy and electricity	4.4	Electrical box and wall sockets ✓ ✓	2
			TOTAL 35