

Every child is a National Asset

A THREE YEAR CURRICULUM RECOVERY GUIDELINE

Mediation of the National Recovery ATP

TECHNICAL SCIENCES Grade 10 - 12

Implementation date : January 2021



basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA



Read to Lead
A Reading Nation is a Leading Nation

Presentation Outline

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8. Amendments to the Annual Teaching Plan;
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10. Conclusion

Purpose

The Three Year Curriculum Recovery Guideline outlines the development of the three year recovery ATPs to manage learning loss over a period of three years **2021 Recovery ATPs as stipulated in Circular S13 of 2020.**

Introduction



COVID 19 led to losses in teaching and learning time due to:

- the lockdown period and **phased reopening** of schools,
- Alternating time tabling models and
- the related health and safety **protocols**.

Furthermore, the revision of the school calendar **and** intermittent closure of many schools negatively **impacted** the **ability** of teachers to **implement** the **revised 2020 ATPs** as envisioned.

To mediate the impact and support teachers in managing teaching, assessment and learning within the reduced **time**, the DBE in 2020 implemented:

- **Circular S3** that outlined and guided teachers to conduct **context specific subject trimming**, in consultation with subject advisors.
- **National Assessment Circular 02** and **Circular E 11** to guide school-based assessment in phases and subjects

Vision 2024

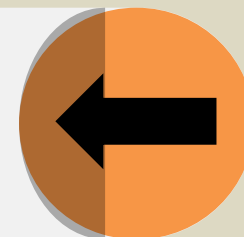


- Conceptualisation of a Curriculum Strengthening process that encompasses Competencies required for the Changing World;
- Develop Revised Modernised Curriculum Policy Statements in alignment with amended CAPS Section 4 and 2020 Assessment Circulars;
- Develop an Assessment for Learning pedagogical strategy, and
- Develop Educator Mediation Programmes.

Rationale for the Guideline

To outline the process to develop **the Three-year Recovery Plan** in managing the learning losses over a period of three years

**RATIONALE FOR
THIS GUIDELINE**



LEARNING LOSSES

the purpose of this exercise
are defined as:



Learning Outcomes (*content, skills & competencies, values & attitudes*) as stated in the revised ATPs not achieved during the 2020 school year.



Principles

1

Use of the 2020 Curriculum Recovery Framework as the base document

2

Learning losses inform the Three Year Recovery Plans for School –based Assessment

3

Management of the learning losses and the School Based Recovery Plans

4

Create opportunities through adjusted ATPs to strengthen pre-knowledge, consolidation, revision, and deeper learning

5

Entrench Assessment for Learning as a Pedagogical Approach to address the learning losses



Principles

6

The 2021 Recovery ATPs maintains the use of current LTSM and resources already available in the system.

7

Content topics removed in 2020 were not automatically returned in the 2021 Recovery ATPs.

8

Fundamental and core topics were retained in the Recovery ATPs

9

To guide and support effective teaching and learning



Underpinning Assumptions



1

1

ASSUMPTION 1

All learners will return to school from day 1 of the 2021 academic year and norm-times as stipulated in the CAPS will be adhered to for the entire school year;

2

2

ASSUMPTION 2

Learning losses due to COVID-19 across grades and subjects will vary from school to school, class to class and even within classes.

3

3

ASSUMPTION 3

Each Teacher will have a record of learning losses and Departmental Heads and Subject Advisors will monitor progress in learning loss recovery;

Underpinning Assumptions



4

4

ASSUMPTION 4

All schools will develop & implement school-based support programmes for all grades/years with particular focus on all the exit grades/years (3, 6, 9 and 12) throughout the three-year period.

5

5

ASSUMPTION 5

All Circulars related to the 2020 ATPs including SBA to be withdrawn and revised to align to the 2021 ATPs.

6

6

ASSUMPTION 6

Schools have systems in place to manage the possibility of a second wave of the pandemic in Q1 and Q3 of the 2021

The Development of the 2021 Recovery ATPs

The Recovery ATPs are aligned to the:

- 2021 School calendar
- Abridged S4 of CAPS
- Curriculum and assessment principles as prescribed in the CAPS policy for **Technical Sciences**.

**Amendments to the Content
Map for Grades 10-12
Technical Sciences**

Summary: Amendments to the Content Overview for the Phase

Grade 10	Grade 11	Grade 12
<p style="text-align: center;"> *Trimmed * Reorganised *No amendment </p>		
<p>Mechanics</p>	<p>Mechanics</p>	<p>Mechanics</p>
<ul style="list-style-type: none"> • Units and measurement • Scientific notation • Working with formulae • Rate, vectors, scalars and graphical representation of vectors. • Motion in one dimension • Kinds of forces, force diagrams and free body diagrams. • Equilibrant and equilibrium of forces in one dimension. • Moment of force (torque). • Laws of moments • Simple machines • Energy • Beams have been removed. 	<p style="color: blue;">Added the following from grade 10, as revision:</p> <ul style="list-style-type: none"> • Vectors and scalars • Motion in one dimension • Kinds of forces, force diagrams and free body diagrams. • Equilibrant and equilibrium of forces in one dimension. <ul style="list-style-type: none"> • Introduction to mechanics • Sign conventions • Graphs • Theorem of Pythagoras • Co-linear and co-planar vectors. • Resultant forces in two dimensions. • Resolution of forces • Frictional forces 	<ul style="list-style-type: none"> • Newton's laws of motion. • Momentum and impulse. • Work, energy and power. • Elasticity • Viscosity • Hydraulics

Summary: Amendments to the Content Overview for the Phase

Grade 10	Grade 11	Grade 12
<p style="text-align: center;"> *Trimmed * Reorganised *No amendment </p>		
<p style="color: green;">Electricity and Magnetism</p>	<p style="color: green;">Electricity and Magnetism</p>	<p style="color: green;">Electricity and Magnetism</p>
<p style="color: green;">Electric circuits</p> <ul style="list-style-type: none"> • Components of electric circuits. • Current, potential difference and resistance. • Resistors in series. • Resistors in parallel. <p style="color: green;">Electrostatics</p> <ul style="list-style-type: none"> • Two kinds of charge. • Charge conservation 	<p style="color: blue;">Moved from term 1 to term 2:</p> <ul style="list-style-type: none"> • Magnets and the magnetic field. • The earth's magnetic field. <p style="color: blue;">Added the following from grade 10, as revision:</p> <ul style="list-style-type: none"> • Two kinds of charge. • Components of an electric circuit. • Current, potential difference and resistance. • Resistors in series. • Resistors in parallel <p style="color: green;">Electrostatics</p> <ul style="list-style-type: none"> • Coulomb's law • Electric field <p style="color: green;">Electric circuits</p> <ul style="list-style-type: none"> • Ohm's law • Circuit calculations • Emf and internal resistance 	<p style="color: green;">Electrostatics</p> <ul style="list-style-type: none"> • Capacitors and capacitance <p style="color: green;">Electric circuits</p> <ul style="list-style-type: none"> • Power • Heat in a resistor <p style="color: green;">Electromagnetism</p> <ul style="list-style-type: none"> • Magnetic field around a current-carrying conductor. • Faraday's Law • Lenz's Law • Step-up and step-down transformers. • Generators and motors

Summary: Amendments to the Content Overview for the Phase

Grade 10	Grade 11	Grade 12
<p style="text-align: center;"> *Trimmed * Reorganised *No amendment </p>		
<p style="text-align: center; color: green;">Matter and materials</p>	<p style="text-align: center; color: green;">Matter and materials</p>	<p style="text-align: center; color: green;">Matter and materials</p>
<ul style="list-style-type: none"> • Metals, metalloids and non-metals. • Electrical conductors, semiconductors and insulators. • Structure of an atom <p style="color: red;">The following have been removed:</p> <ul style="list-style-type: none"> • Thermal conductors and insulators. • Magnetic and non-magnetic materials. • Isotopes • Electron configuration. • Structure of an atom <ul style="list-style-type: none"> • Isotopes • Electron configuration 	<p style="color: blue;">Added the following from grade 10, as revision:</p> <ul style="list-style-type: none"> • Electrical conductors, semiconductors and insulators. • Classification of matter. • Naming of compounds • Molecular formulae • Balancing of equations 	<p style="color: green;">Electronic properties of matter.</p> <ul style="list-style-type: none"> • Semiconductors and doping. • p-n junction diode. <p style="color: green;">Organic chemistry</p> <ul style="list-style-type: none"> • Molecular and structural formulae. • Functional groups • IUPAC naming • Physical properties • Chemical properties • Plastics and polymers

Summary: Amendments to the Content Overview for the Phase

Grade 10	Grade 11	Grade 12
<p style="text-align: center;"> *Trimmed * Reorganised *No amendment </p>		
Sound and waves	Sound and waves	Sound and waves
N/A	<ul style="list-style-type: none"> • Pulses • Waves • Wave terminology • Wave speed • Sound waves 	<p>Light</p> <ul style="list-style-type: none"> • Laws of reflection and refraction • Critical angle and total internal reflection • Dispersion of light • Convex and concave lenses <p>Electromagnetic radiation</p> <ul style="list-style-type: none"> • Electromagnetic waves • Electromagnetic spectrum • Electromagnetic radiation

Summary: Amendments to the Content Overview for the Phase

Grade 10	Grade 11	Grade 12
<p style="text-align: center;"> *Trimmed * Reorganised *No amendment </p>		
Heat and thermodynamics	Heat and thermodynamics	Heat and thermodynamics
<ul style="list-style-type: none"> • Heat and temperature • Celsius and Kelvin scale 	<p>Heat</p> <ul style="list-style-type: none"> • Specific heat capacity • Heat capacity • Law of conservation of heat <p>Thermodynamics</p> <ul style="list-style-type: none"> • Definitions of: <ul style="list-style-type: none"> ▪ Thermodynamic system, open, closed and isolated systems, thermal state of a system, internal energy of a thermodynamic system. • First law of thermodynamics • Efficiency of heat engine • Second law of thermodynamics • Refrigerators 	N/A

Summary: Amendments to the Content Overview for the Phase

Grade 10	Grade 11	Grade 12
<p style="text-align: center;"> *Trimmed * Reorganised *No amendment </p>		
Chemical Change	Chemical Change	Chemical Change
<ul style="list-style-type: none"> • N/A 	Definition of: <ul style="list-style-type: none"> • Oxidation and reduction • Oxidizing and reducing agents • Cathode and anode • Electrolysis • Assigning oxidation numbers 	Electrochemical cells <ul style="list-style-type: none"> • Electrolytic cells • Galvanic cells • Half-reactions and net-cell reactions. • Standard cell notation. • Emf of a galvanic cell.

2021 -2023 National Recovery Teaching Plan Grade 10

2021-2023 Amendment Summary:

- Beams (Term 2) was removed from the ATP.
- Classification of matter (Term 2), the following sub-topics are brought back:
 - molecular formulae and
 - balancing of equations

2021-2023 Amendment Summary:

- Electric circuits and PAT 3 experiment - topic no.1 in Term 3.
- Properties of materials reduced – only metals, metalloids and non-metal; **electrical conductors, semiconductors and insulators** - topic no.2 in Term 3.
- Structure of an atom reduced – only atomic number, mass number & number of neutrons with their symbolic representation and Periodic Table - topic no.3 in Term 3

2021-2023 Amendment Summary:

- Topics for Term 3 in the Recovery ATP are electric circuits, properties of materials and the structure of an atom.
- Electrostatics moved from Term 3 to Term 4
- Topics for Term 4 in the Recovery ATP are electrostatics, heat and temperature.

Summary: Content/Topics Amended

Content	Term	Amendment
Beams	2	Removed whole topic CAPS: p 20
Thermal conductors and insulators	3	Removed topic: CAPS: p 23
Magnetic and non- magnetic materials	3	Removed topic: CAPS: p 23

Summary: Content/Topics Amended

Content	Term	Amendment
The structure of an atom	3	Removed sub-topics: Isotopes and Electron Configuration CAPS: p 23-24
Electrostatics	3	Moved topic to Term 4 CAPS: p 24
Electric current (+ PAT3)	3 & 4	Moved sub-topics from Term 4 to Term 3 CAPS: p 24, 25, 26, 27

Time for Content/Topics Amended

Content	Term	Amendment
Simple machines	2	Time increased from 4 to 5 hours
Energy	2	Time increased from 7 to 10 hours
Classification of matter	2	Time decreased from 20 to 18 hours
Electric Circuits	3	Time increased from 18 to 22 hours
Electrostatics	4	Time increased from 7 to 8 hours
Heat and Temperature	4	Time increased from 6 to 10 hours



4. Amendments School Based Assessment (SBA) Grade 10

Summary: Revised Programme of Assessment

Term	Task	SBA Weighting	PAT
1	PAT 1 Experiment		40%
	Control Test	30%	
2	PAT 2 Experiment		30%
	Control Test	40%	
3	PAT 3 Experiment		30%
	Control Test	30%	



Summary: Revision Final Examination Structure

- The final exam paper will be TWO papers.
- The total for Paper 1: Physics will be 150 marks and the duration will be 3 hours.
- The total for Paper 2: Chemistry will be 75 marks and the duration will be 1,5 hours.

Summary: Revision Final Examination Structure Paper 1

Knowledge Area	Weighting	Marks
Mechanics	68%	102
Electricity & Magnetism	32%	48
TOTAL		150



Summary: Revision Final Examination Structure Paper 2

Knowledge Area	Weighting	Marks
Matter & Material	84%	63
Heat & Thermodynamics	16%	12
TOTAL		75



5. Conclusion

Conclusion

- The ATP was trimmed in terms of some content, while other content was re-organised, i.e. moved to other terms.
- Brought back some content
- 1 hour was allocated for the feedback on each control test
- Time allocated per topic is a guideline – teaching might be shorter/longer depending on the situation in each school.
- Time allocated should be enough to complete the Recovery ATP.

2021 -2023 National Recovery Teaching Plan Grade 11

2021-2023 Amendment Summary

Sub-topics were trimmed in the following topics:

- Superposition of waves was removed.

Topics and Sub-topics were reorganised as follows:

- Magnetism and Electricity (Magnet and the magnetic field) was moved from term 1 to term 2.
- Revision of the following sub-topics from grade 10 was added.
 - Mechanics
 - Matter and Materials: Classification of Matter
 - Matter and Materials: Electrical conductors, semiconductors and insulators.
 - Electricity & Magnetism (Electrostatics and Electric Circuits).

2021-2023 Amendment Summary (cont)

Content / Topics	Term	Amendment
MECHANICS	1	Added revision of grade 10 content
SOUND AND WAVES	2	Superposition of waves removed .
ELECTRICITY AND MAGNETISM	2	Magnets: Moved from term 1 to term 2.
	3	Electrostatics: <ul style="list-style-type: none">• Added revision of grade 10 content
	3	Electric circuits: <ul style="list-style-type: none">• Added revision of grade 10 content

2021-2023 Amendment Summary (cont)

Content / Topics	Term	Amendment
HEAT AND THERMODYNAMICS	1	Brought back
CHEMICAL CHANGE	4	No amendment
MATTER AND MATERIALS Added	2	Added revision of the following Grade 10 content: Properties of material Electrical conductors, semiconductors and insulators (at the end of term 2)
	4	Classification of matter <ul style="list-style-type: none"> • Molecular formulae • Balancing equations (at the beginning of term 4)



Time for Content/Topics

Content / Topics	Term	Amendment
MECHANICS	1	Time increased from 32 to 35 hours
SOUND AND WAVES	2	Time reduced from 27 to 26 hours
ELECTRICITY AND MAGNETISM	2 & 3	Time increased from 35 to 42 hours
HEAT AND THERMODYNAMICS	1	Time reduced from 13 to 10 hours
CHEMICAL CHANGE	4	Time increased from 14 to 16 hours.
MATTER AND MATERIALS Added	2	Properties of material - 4 hours
	4	Classification of matter - 4 hours



Summary: Amendment to weighting of content topics

Knowledge Area	WEIGHTING (according to abridged chapter 4)
Mechanics	25%
Wave, Sound & Light	25%
Electricity & Magnetism	28%
Heat and Thermodynamics	11%
Chemical Change	11%
TOTAL	100%

4. Amendments School Based Assessment (SBA) Grade 11

Summary: Revised Programme of Assessment

Term	Task	SBA Weighting
1	Control Test 1	30 %
2	Control Test 2	40 %
3	Control Test 3	30 %



Summary: Revised Practical Assessment Task (PAT)

Term	Task	PAT Weighting
1	PAT 1	40 %
2	PAT 2	30 %
3	PAT 3	30 %



Summary: Revision Final Examination Structure

- The **final examination** will consist of two papers:
- The total of paper 1 will be 150 marks and the duration will be 3 hours.
- The total of paper 2 will be 75 marks duration will be 1,5 hours.

Summary: Amendment to weighting of content topics in the examination paper.

	Knowledge Area	Weighting (According to abridged chapter 4)	Marks in final Paper
PAPER 1 150 Marks	Mechanics	32 %	48
	Electricity & Magnetism	36 %	54
	Wave, Sound & Light	32%	48
PAPER 2 75 Marks	Heat and Thermodynamics	50 %	37
	Chemical Change	50 %	38

5. Conclusion

Conclusion

- The ATP was trimmed in terms of some content, while other content was re-organised, i.e. moved to other terms.
- Brought back some content
- Time was allocated for the feedback on each control test
- Time allocated per topic is a guideline – teaching might be shorter/longer depending on the situation in each school.
- Time allocated should be enough to complete the Recovery ATP.

2021 -2023 National Recovery Teaching Plan Grade 12

2021-2023 Amendment Summary

No amendments in all 4 terms

Summary: Amendment to weighting of content topics

Content	Weighting of topics
Mechanics	41.33 %
Electricity and Magnetism	14.67 %
Matter and materials	10.67 %
Chemical change	20.67 %
Waves, Sound and Light	12.67 %



Time for Content/Topics

Content / Topics	Term	Amendment
MECHANICS	1 & 2	Time reduced from 45 hrs to 43 hrs
MATTER AND MATERIALS	2	16 hrs
SOUND AND WAVES	2	12 hrs
ELECTRICITY AND MAGNETISM	3	18 hrs
CHEMICAL CHANGE	3	10 hrs



4. Amendments School Based Assessment (SBA) Grade 12

Summary: Revised Programme of Assessment

Term	Task	SBA Weighting
1	Control Test 1	35 %
2	N/A	N/A
3	Trial Examination	65 %



Summary: Revised Practical Assessment Task (PAT)

Term	Task	Weighting
1	PAT 1	40 %
2	PAT 2	30 %
3	PAT 3	30 %



Summary: Revision Final Examination Structure

- The **trial and final examinations** will each consist of two papers
- The total of paper 1 will be 150 marks and the duration will be 3 hours.
- The total of paper 2 will be 75 marks duration will be 1,5 hours.

Summary: Weighting of content topics in the trial and final end of the year examination papers.

Paper	Knowledge Area	Weighting	Marks
1 (150 marks)	Mechanics	62 %	93
	Electricity & Magnetism	22 %	33
	Waves, Sound & Light	16 %	24
2 (75 marks)	Chemical Change	62 %	46
	Matter and Materials	38 %	29

5. Conclusion

Conclusion

- Time allocated per topic is a guideline – teaching might be shorter/longer depending on the situation in each school.
- Time allocated should be enough to complete the ATP, however schools are encouraged to use extra classes should they be too behind with their work and are not able to complete a topic within the stipulated time.
- The ATP caters for some revision. Learners should however be encouraged to also do revision on their own, outside the normal school hours as well.

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