

Secondary Maths

Syllabus Adjustment for 2021



RETURN TO SCHOOL INFORMATION

Policy for syllabus adjustment in Primary and Secondary Schools in 2021 to take account of Covid school closures in 2020.

Background

1. Learners have missed much of the 2020 school year because of Covid closures. It is therefore necessary to adjust the syllabuses for 2021 to allow learners to 'catch up with' parts of the syllabus they missed, and to move quickly through the 2021 syllabus.
2. For learners moving into Primary 1, they must follow the P1 textbooks which are aligned to the new curriculum. For Learners in P3, P5, P7 and S3, they must begin with textbook Chapter 1 from the previous year. (P2,4,6, and S2.) Further guidance for adjusting the syllabus in P3, P5, P7 and S3 will come to schools in June.
3. Those learners moving into Primary 2, 4 and 6 started the new curriculum and textbooks in 2020. For these learners there will be a syllabus adjustment which will take the form of completing some of the units from the textbook that was appropriate to them in 2020, and some units from the textbook appropriate for 2021. The total number of units to be covered is similar to that expected in a year
- 3a. Learners in P8 will continue with the old syllabus working towards their exams as they missed so much of the new curriculum in P7.

4. The basis for the selection is set out below. It is important for teachers to understand the reasons for the units selected to ensure the correct focus on learning.
5. The Primary 8 Examinations will be based on the old syllabus.
6. The units to be followed by learners entering P2,4,6 and Secondary 2 are set out below for each subject.

Other considerations

7. Missing so much schooling will cause problems in:
 - Social and emotional – there will need to be a period of social and emotional re-adjustment for young people who have spent so long away from school
 - Learning – some young people will inevitably have forgotten some things that they previously knew and will also take a while to re-adjust to learning in a school environment
8. There will therefore need to be a period of re-adjustment on return to school and schools will need to be understanding of learners' needs at this time.

Syllabus adjustment

9. The process of syllabus adjustment means selecting elements from the year that was missed along with elements from the syllabus that should be followed in 2021. The criteria for the selection are based on:
 - Development of key concepts within the subject
 - Development of key subject skills
 - The need for things to be learned in the right order
10. The selection has been made with reference to the Expected Learning Outcomes of the South Sudan Subjects Overviews for the relevant year.
11. The selection also takes account of the requirements for each subject of the South Sudan Examination Specifications and Blueprints. These only apply directly to Primary 8 and Secondary 4, but, of course, have implications for all other years.
12. There are detailed documents for each subject for Primary and Secondary schools. These set out clearly the textbook units, or parts of units, that need to be followed. They also give the reasons for the selections. It will be helpful for teachers to understand these reasons in order to plan learning effectively.

Sharing textbooks

13. This approach means that learners entering P2,4 & 6 and S2 in 2021 will need to use, at the beginning of the year, the textbooks for the previous year. Of course, these same textbooks will also need to be used by learners now entering P1,3,5&7 and S1&3. How can two year-groups use the same books at the same time? The answer is that, because of specialist subject teaching, it is unlikely that two adjacent year-groups will be studying the same subject in the same period – because the same teacher will be teaching both year-groups. If there is a clash, then the school will need to adjust its timetable.
14. It will be necessary for the textbooks to be collected in and transferred from class to class at the end of each period. In the second part of the year, this problem will disappear because learners will be studying from the textbook appropriate to their year group.

More information

More information is available in the County Education Centres, the Ministry of general Education and Instruction and can also be obtained by visiting the website:

[Education and learning materials | CGA Technologies](#)

PRIORITIES FOR SCHOOL REOPENING

Priorities to consider when preparing to reopen schools.

Engage the whole school community, including children and young people, in back-to-school planning and campaigns using a variety of methods including making phone calls, sending messages and by generally speaking to members of the school community. Use appropriate communication formats to reach girls, women and other vulnerable groups who often have less access to information channels.

Clean and disinfect school facilities with emphasis on surfaces that are touched by many people. Engage the whole school community in cleaning and maintenance for school reopening. Ensure that cleaning and disinfection measures are effective and regular.

Take action to ensure all children and young people return to school, prioritizing the most vulnerable. Monitor absences and implement measures to manage or prevent health risks.

Plan to prioritize psychosocial support and socio-emotional learning activities in the reopening period.

Contact all teachers to determine whether they can return to teaching in the school. Organize meetings with all teachers, school management and other school staff to train on reopening protocols.

EVERY CHILD, EVERY RIGHT



UN Rights of the Child

The Convention applies to every child without discrimination, whatever their ethnicity, gender, religion, language, abilities or any other status, whatever they think or say, whatever their family background (Article 2).

Image: hreusa.org

Priorities for classroom practice when schools reopen.

-  **1-2-3 Establish Routines** – Routines are series of actions that the teacher asks students to follow. These create safe, efficient and productive learning environments.
-  **Set Expectations** – Give clear directions for work and set clear expectations for student behaviour both with regards to how learners treat each other and how they respond to the work they are given.
-  **Reinforce Routines and Expectations**
Consistency is crucial in helping learners to feel safe and in helping them to develop 'healthy habits' for learning and behaviour.
-  **Check for Understanding** – Pause to ask basic questions to see whether learners understand the lesson so far.
-  **Give Feedback** – As soon as you can, explain to the learner what they are doing well and help them to fix mistakes.
-  **Adjust Instruction** – Change your teaching according to how students are performing in the lesson.
-  **Challenge stereotypes and Biases** – Be active in your work against the stereotypes that might exist in your community. Create opportunities for ALL students to learn.
-  **Build Relationships** – Get to know learners better so that understand them as individuals.
-  **Demonstrate and Practice** – Show learners how to perform a new task and then ask learners to practice the same task.
-  **Promote Deeper Thinking** – Ask learners challenging questions that have more than one correct answer. Ask learners to explain their thinking.
-  **Capture Interest** – Use a story, object, fact or question to introduce a lesson and get learners excited about it.

SECONDARY MATHS

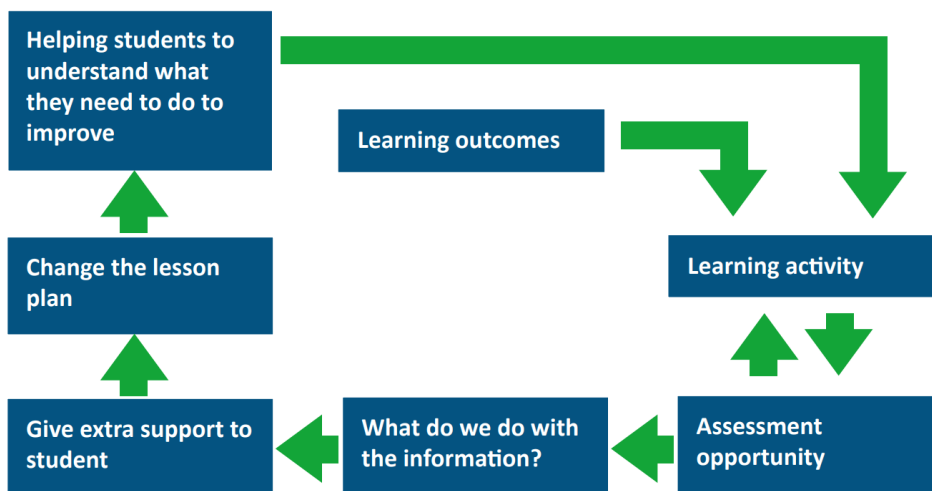
SYLLABUS ADJUSTMENT FOR 2021

The process of syllabus adjustment

Learners have missed much of the 2020 school year because of Covid closures. It is therefore necessary to adjust the syllabus for 2021 to allow learners to 'catch up with' parts of the syllabus they missed and to move quickly through the 2021 syllabus.

The basis for the selection of units is set out in the following pages. It is important for teachers to understand the reasons for the units selected to ensure the correct focus on learning.

The total number of units to be covered is similar to that expected in a year. For learners in S4, they will continue with the old syllabus, upon which the exam will be based because they have covered so little of the new curriculum.



The cycle of formative assessment should help teachers to identify what learners need to do to improve and when it is time to move on to the next unit.

Values and Principles

The adjusted syllabus will continue to promote the Values and Principles as set out in the Curriculum Framework.

In order to build a modern society where young people can prosper and achieve their aspirations, the curriculum needs to be built on a clear set of values that will permeate learning and become embedded in young people's approach to life. Young people need to be clear about their South Sudanese identity. Justice, democracy, tolerance and respect need to be more than words; they need to become an essential part of the

curriculum and young people's lives. Human rights and gender equity must become the norm.

Young people's understanding of, and commitment to, these values is essential to the country's future, and must therefore permeate the curriculum. To achieve this, the curriculum must be based on firm and shared values, and adhere to a set of clear principles.

Values

Education in South Sudan will be based on a shared commitment to:

- Human rights and gender equity
- Respect and integrity
- Peace and tolerance
- Compassion and social justice
- Democracy and national pride

Principles

The South Sudan Curriculum should provide:

- A culture of excellence that supports innovation, creativity, continuous improvement and effectiveness
- An environment of empowerment that promotes independence, individual learning, critical thinking, problem-solving and emotional intelligence
- A context of South Sudanese heritage and culture that builds national pride and identity within an understanding of global citizenship
- A spirit of hope, respect, peace, reconciliation, unity and national pride, democracy and global understanding

The values and principles will guide the construction of the curriculum and also guide the way it is taught. They will underpin and guide the subject syllabuses, and the way schools are run and how teachers are trained.

KEY FEATURES OF SECONDARY MATHS SYLLABUSES AND STRUCTURE OF TEXTBOOKS

Key features of Maths syllabus

There are five strands to Mathematics: Number, Measurement, Geometry, Algebra and Statistics. A sixth strand, Calculus is in S3&4 only. Within these stands, learners are expected to:

- Understand key concepts and carry out key procedures
- Solve problems
- Communicate their reasoning
- Analyse data and construct mathematical models

In selecting from the units, it is therefore important to ensure that all of the strands are represented so that the conceptual base is covered and that sufficient opportunities are provided for learners to develop the necessary skills.

Structure of textbook units

The textbooks follow the structure of the syllabuses with one textbook unit for each syllabus unit.

Identifying sections within the textbook units is confusing. The sections are listed in the 'Table of Contents' but they are not numbered. In the text, new sections often start part way down a page without any section divider. It is therefore important to check the selected sections against the "Table of Contents" to ensure that the correct sections are being covered. **The sections (as listed in the "Table of Contents") must not be confused with the exercises and activities that are numbered in the textbook units!**

S4 Final Examinations

A shortened version of the specifications for the S4 examination in 2021 are set out below. Although these specifications do not apply directly to years other than S4, they show clearly the direction that development must take in earlier years in order to achieve these expectations.

The table below sets out the:

- category of questions that will appear on the examination paper
- the elements of the curriculum that this entails
- the level of performance that is expected

Category	Expectations	Curriculum Element
<p>Concepts & Procedures. Students can explain and apply mathematical concepts and interpret and carry out mathematical procedures with precision and fluency.</p>	<ol style="list-style-type: none"> Apply number and measurement concepts and procedures with precision and fluency Apply geometric concepts and procedures with precision and fluency Apply algebraic concepts and procedures with precision and fluency Apply statistical concepts and procedures with precision and fluency Apply calculus concepts and procedures with precision and fluency 	<ul style="list-style-type: none"> Number Measures Geometry Trigonometry Algebra Statistics Calculus <p>(See full “S4 Examination Specifications and Blueprints” for details)</p>
<p>Problem Solving. Students can solve a range of complex problems in mathematics, making productive use of their understanding of mathematical concepts and problem-solving strategies.</p>	<ol style="list-style-type: none"> Apply mathematics to solve problems in pure mathematics and those arising in everyday life, society, and the workplace Select and use appropriate tools strategically Interpret results in the context of a situation. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas) 	
<p>Communicating Reasoning. Students can clearly and precisely construct viable arguments to support their own reasoning and to critique the reasoning of others.</p>	<ol style="list-style-type: none"> Test propositions or conjectures with specific examples Construct, autonomously, chains of reasoning that will justify or refute propositions or conjectures. State logical assumptions being used. Use the technique of breaking an argument into cases Distinguish correct logic or reasoning from that which is flawed, and, if there is a flaw in the argument, explain what it is. Base arguments on concrete referents such as objects, drawings, diagrams, and actions. Determine conditions under which an argument does and does not apply. 	

KEY FEATURES OF SECONDARY MATHS SYLLABUSES AND STRUCTURE OF TEXTBOOKS

Category	Expectations	Curriculum Element
<p>Modelling and Data Analysis. Students can analyse complex, real-world scenarios and can construct and use mathematical models to interpret and solve problems.</p>	<ol style="list-style-type: none"> a. Apply mathematics to solve problems arising in everyday life, society, and the workplace b. Construct, autonomously, chains of reasoning to justify mathematical models used, interpretations made, and solutions proposed for a complex problem c. State logical assumptions being used. d. Interpret results in the context of a situation. e. Analyse the adequacy of and make improvements to an existing model or develop a mathematical model of a real phenomenon f. Identify, analyse and synthesize relevant external resources to pose or solve problems. g. Identify important quantities in a practical situation and map their relationships (e.g., using diagrams, two-way tables, graphs, flowcharts, or formulas). 	<ul style="list-style-type: none"> • Number • Measures • Geometry • Trigonometry • Algebra • Statistics • Calculus <p>(See full “S4 Examination Specifications and Blueprints” for details)</p>

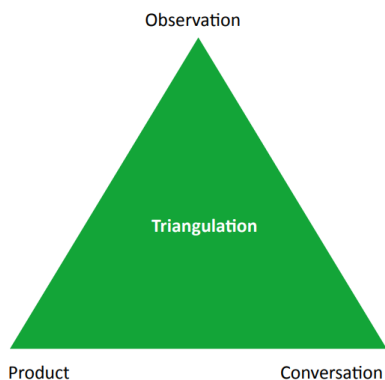
School-based formative assessment

Ongoing classroom-based assessment is even more important in 2021 as we try to ensure that all learning is matched to the needs of learners who are likely to have had a range of experiences whilst schools have been closed. It is important to look for opportunities to find out how well learning is going through the use of the 'triangulation' approach set out in the 'South Sudan Assessment Guidance':

- conversation with learners
- observations of what they do
- analysis of the work that they produce

The expectations for each unit are set out clearly in the syllabuses and Teacher Guides.

Assesment Triangle



Triangulation of assessment opportunities

Sharing Textbooks

It is recognised that if books from an earlier year are being used, then the same books will also be needed by learners in that year. However, it is unlikely that two year-groups will be doing the same subject in the same period, and so it will be possible to share use of the textbooks. This will mean that the teacher will need to collect in the textbooks at the end of a lesson and take them to another class. However, this will only happen at the beginning of the year, because by the end of the year all classes will be on the appropriate book for them.

Units to be covered in S2

The following pages set out the units to be used in S2. In each case, teachers should start with the units from the earlier book.

SECONDARY MATHS

SYLLABUS ADJUSTMENT FOR 2021

Secondary 2 Maths

Key Feature of Secondary 1&2

In S1&2, the focus of learning is on understanding a range of key concepts in Maths that give a basic understanding of the key aspects of the subject. It is therefore important that learners should experience a wide range of these topics rather than cover a few in depth.

Key Learning Outcomes

By the end of Secondary 2, learners are expected to understand:

- Indices, rational and irrational numbers
- Simple and compound interest, compound interest formula, depreciation and appreciation, hire purchase and income tax
- Areas of geometrical figures Surface areas of solids. Pythagoras' Theorem and its application
- Quadratic expressions and equation. Expansion, Identification, Factorization
- Sets and set notation
- Mean, mode, median and assumed mean

Textbook Units

The selection omits the more abstract concepts such as transformations, trigonometry, probability, surds, vectors, matrices, function notation and cumulative frequency. Given the relatively little development of straight-line graphs, these are also omitted. Apart from cumulative frequency, these topics are revisited in S3 &4 anyway so can be picked up later.

The units to be followed are therefore:

Secondary 1 Textbook

Unit 1: Natural numbers, factors and proportion

All sections

Unit 2: Measurement

All sections

Unit 3: Geometry and trigonometry

Sections 1 to 4 (Polygons, Quadrilaterals, Solids & Polyhedra)

Unit 4: Algebra

All sections

Unit 5: Statistics and probability

Section 1 only (Mean, mode and median)

Secondary 2 Textbook

Unit 1: Numerical Concepts

Sections 1 & 2 and 8 to 15
(Omit the 5 sections [3-7] dealing with Surds)

Unit 2: Geometric figures and Pythagoras Theorem

Sections 1 (Surface area of shapes) and 5
(Proving Pythagoras' Theorem)

Unit 3: Algebra

Sections 1 to 4 (Algebraic expressions and equations, Expansion (P33), Expansion (P36) & Solving quadratic equations)

Unit 4: Statistics

Sections 1 (Mean, mode and median) and 2
(Assumed mean)

Space to write notes

The New National Curriculum for South Sudan

In setting out this curriculum, we set out our ambitions for the nation: for peace and prosperity, for growth and development, for harmony and for justice.

To achieve the ambitions of the nation, we need:

- A vibrant and dynamic curriculum
- A curriculum that will provide challenge to all learners
- A curriculum that can stimulate and inspire
- An inclusive curriculum that provides for all learners
- A curriculum that raises aspirations and broadens horizons.



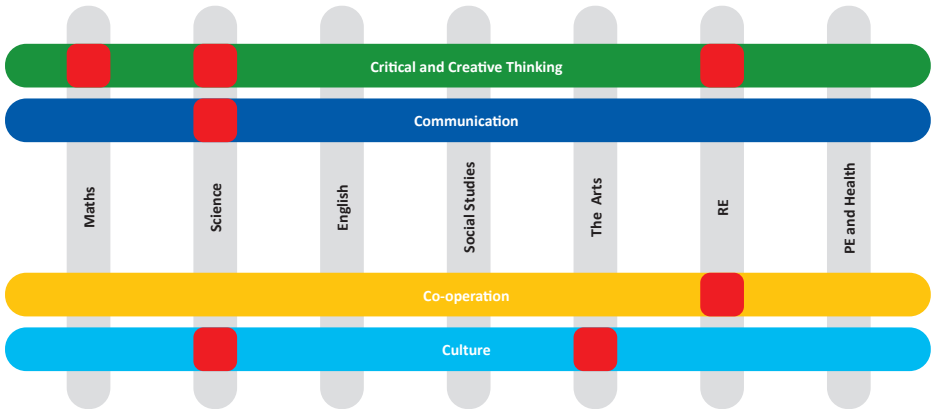
Old Curriculum	New Curriculum
Teacher-Centred	Learner-Centred
Knowledge based	Competency-based
Passive learning	Active learning
Dependent	Independent thought
Learning for exams	Learning for life
Memorization	Understanding
Shallow learning	Deeper learning
'Alien' knowledge	Relevant knowledge

Time allocation for the subjects

The number or periods to be allocated to each subject per week is set out in the tables below. Schools are able to arrange and adapt these periods over the week to fit local circumstances and needs. Periods can be put together into doubles or triples to make longer times for practical activities or longer periods of study where appropriate.

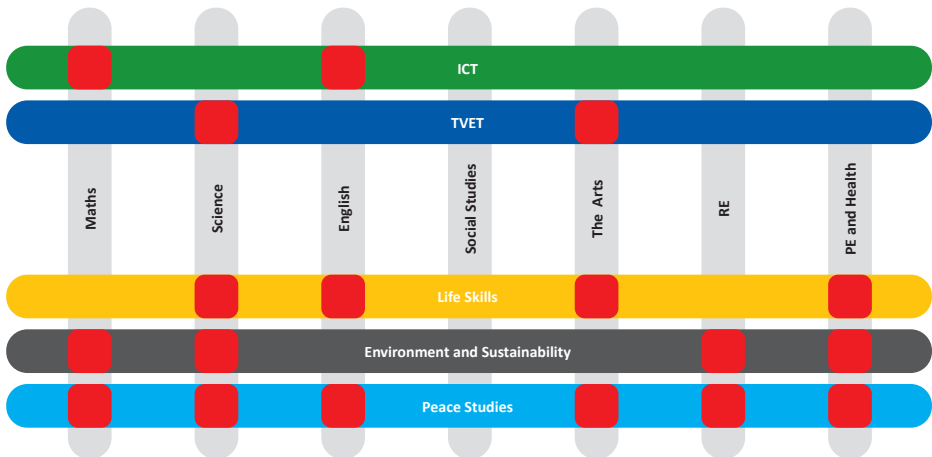
Primary School			
	Number of periods each week		
	P1-3	P4	P5-8
National language	5	5	3
English	7	7	5
Maths	6	6	5
Science	4	5	5
Social Studies	4	5	5
The Arts	3	4	4
RE	3	4	3
PE	3	4	3
Arabic			5
School programmes			2
Total	35	40	40
Time per lesson	35	40	40

Secondary School		
	Number of periods each week	
	S1-2	S3-4
English	5	6
Maths	5	6
Physics	3	
Chemistry	3	
Biology	3	
History	3	
Geography	3	
RE	2	2
Citizenship	2	2
School programmes	3	3
2 x electives (4 lessons each)	8	
3 x electives (7 lessons each)		21
Total	40	40
Time per lesson	45	45



Traditional Subjects are important but young people need to develop a set of competencies that they can apply in all subjects and throughout life. These competencies lie at the heart of every subject and enhance learners' understanding of those subjects. Competencies are needed for young people to continue to learn, to adapt to change and to thrive within the challenges of life in the 21st Century.

Competencies are made up of skills and attitudes in a particular knowledge context.



Cross-cutting Issues and Integrated Subjects. These span the whole curriculum in order for the associated knowledge, understanding, skills and attitudes to be developed in rich and relevant contexts.

South Sudanese culture and heritage

Values and Principles

Human rights, Gender equality, Respect, Tolerance, Compassion, Social justice, democracy and National pride.

Culture of Excellence
Environment of empowerment
Context of South Sudan heritage & culture
Spirit of hope, peace reconciliation

The South Sudan Curriculum

developing:

Good citizens
of South Sudan

Successful life
long learners

Creative and
productive
individuals

Environmentally
responsible
members of society

Critical and
creative thinking

Communication

Co-operation

Culture and
identity

Student Competencies