

Mathematics Syllabus

General Background

This is the revised P7 Mathematics Syllabus for Uganda. It aims at helping learners to:

- appreciate the value of Mathematics and its usefulness.
- develop confidence in their ability to foster a sense of personal achievement.
- encourage continuing and creative interest in Mathematics.

The syllabus has been designed in such a way that learners develop a variety of problem-solving strategies, thinking ability, logical reasoning and numerical skills. These will be powerful tools in their further study and later work in exploring the environment. In P7, you have the task of making Mathematics a reality in life by emphasising learning by doing and collaborating. The curriculum emphasises the development of skills, concepts, understanding and attitudes in the learner which will enable him/her to cope confidently with the Mathematics of everyday life. Therefore, integrated skills and approaches in all disciplines are important.

Mathematics is not an isolated skill or procedure. It is everywhere and relates to other subjects. Therefore, Mathematics must be integrated with and related to other subjects. In order to do so, there is a need to seek opportunities for drawing mathematical experiences out of a wide range of learner's activities. Many curricular areas and activities give rise to the need to use Mathematical concepts, principles or ideas.

Rationale

The constant use of the Mathematical approach to situations and the formation of important concepts are the main aims of this syllabus. The learning of Mathematics at all levels involves more than acquisition of basic concepts and skills. It also involves an understanding of the underlying Mathematical thinking, general strategies of problem-solving, positive attitude and appreciation of Mathematics. Therefore, a strong command of Mathematics knowledge and thinking is essential to enable learners solve new problems on a regular basis. Teachers should know the philosophy and rationale underlying the intended curriculum and pay special attention to the scope, depth and linkages of different

topics. This will enable learners make connections and use Mathematics knowledge to develop transferable skills in numeracy in order to become the emotionally intelligent and flexible learners needed for the 21st century.

Note

Learning Mathematics does not occur as learners take in Mathematics knowledge in ready-made pieces but as they build up Mathematical meaning on the basis of their experiences in the classroom. Therefore, practical work plays a big role in consolidating what the learners already know before new ideas are brought in.

Methodology

Methods and approaches to learning experiences should emphasise higher order thinking and creativity in Mathematics. Therefore, teaching Mathematics should be done effectively through the application of concepts and skills in an interesting and realistic context that is personally meaningful to the learners. This implies that Mathematics is best taught by helping learners to solve problems drawn from their own experiences. Therefore, teaching methods to be emphasised are those that allow the learners to learn from their mistakes. This will help the learners to develop stronger Mathematical habits that make the future of Mathematics more efficient. In this way, Mathematics should be taught following the concrete, pictorial and symbolic approach so as to assist the learners to easily discover and actively experiment during learning. The choice of a method to use in a lesson largely depends on a number of factors. It is, however, important to note that all methods used are always learner-centred. The following are examples of learner-centred methods:

1. Group discussion
2. Think- pair- share
3. Demonstration
4. Guided discovery
5. Role-play

Note

- You are encouraged to use concrete objects and learner's real life experiences while teaching. This will help to enhance retention of Mathematics concepts besides making learning meaningful and enjoyable.

- Give learners time to solve problems on the chalkboard and allow them to explain to their classmates. This will enhance their confidence and ability to attempt Mathematics problems.
- Take time to read 'guidance to the teacher' notes at the end of each topic. This will enable you make lesson preparations and presentations better.

Competences

Subject competences

These are the abilities the learner demonstrates to show that learning has occurred. While making your lesson, use verbs that can help you to develop the learner's competences. Think carefully about activities that develop competences without much difficulty. At the end of every topic, these are the very competences that will be assessed.

Language competences

In this syllabus, emphasis is put on language competences. These will help the learner to communicate effectively using the appropriate vocabulary for a particular topic. You will realise that each topic has its own technical words and therefore you should ensure that the learner develops the language competences throughout the teaching/learning process.

Life Skills

Life skills are abilities that will help the learner to develop positive behaviour and to function purposely in society. Skills cannot be developed in a short period, there are indicators for every life skill which you expect to identify in the learner. For example, critical thinking as a skill has the following indicators:

- Responding to questions appropriately
- Giving reasons for action taken
- Analysing statements

In your scheme of work and lesson plan, always show life skills and indicators.

Values

Values, on the other hand, are the desired standards or qualities that are generally acceptable in society. For example, endurance, patience, appreciation, perseverance, care, respect, trustworthiness, togetherness, self-reliance, empathy, independence, responsibility and cooperation.

Role of the Teacher

Your role as a teacher is to put in place an environment that will enable learners develop as many skills and values as possible by the end of a lesson, through various activities, especially using the practical methods. Build the mental capacity of the learners by providing mental work at every beginning of a lesson. Make it a routine exercise and put much emphasis on multiplication tables.

Use a variety of textbooks to support your teaching.

Assessment Guidelines

Assessment is aimed at finding out the attainment of the learner. Use continuous assessment to supplement on the formative and summative assessments. This can be done through observation, class work, homework and topical tests.

The syllabus should be your major guide in formulating competences for assessment (at the end of every topic, there are assessment competences which act as a guide.) Besides, it is important to construct a table of specification whenever you are setting test items together with a marking guide. Categories of knowledge, comprehension and application requiring deductive and inductive reasoning should be an integral part of assessment. Emphasise on being orderly, use of correct units and always insist on correct use of language in the process of getting the answer. There are assessment competences at the end of every topic which will guide you to formulate other relevant ones.

Scope and Sequence

The syllabus is arranged in six major themes and in each theme there are various topics and sub topics. Themes include Sets, Numeracy, Geometry, Interpretation of graphs and data, Measurement and Algebra. There are twelve (12) topics in this syllabus, namely:

1. Sets
2. Whole Numbers
3. Operation on Whole Numbers
4. Patterns and Sequences
5. Fractions
6. Integers
7. Data Handling
8. Construction
9. Time
10. Length, Mass and Capacity
11. Algebra

The above topics are taught in the three school year terms as follows.

Topic Outline

Term I

Themes	Topics to be covered	Sub-topics	Number of Periods
1. Sets	1. Sets Concepts	<ul style="list-style-type: none"> • Finite and infinite sets • Subsets • Venn diagram (2 events) • Probability 	14
2. Numeracy	2. Whole Numbers	<ul style="list-style-type: none"> • Numbers up to 99,999,999 • Roman numerals up to MM • Bases 	20
	3. Operations on Whole Numbers	<ul style="list-style-type: none"> • The four basic operations • Expanded form using indices • Standard form (Scientific notation) • Prime factorisation 	25
	4. Patterns and Sequences	<ul style="list-style-type: none"> • Tests of divisibility • Numbers • Number patterns and sequence 	11

Term II

Themes	Topics to be covered	Sub-topics	Number of Periods
	1. Fractions	<ul style="list-style-type: none"> • Fractions • Decimals • Proportion and percentages 	14
	2. Integers	<ul style="list-style-type: none"> • Integers • Clock arithmetic. (Modular/ finite system) 	10
3. Interpretation of Graphs and Data	3. Data Handling	<ul style="list-style-type: none"> • Pie charts and travel graphs • Graphs of ordered pairs of coordinates • Measures of central tendency and range • Probability of numbers 	19
4. Geometry	4. Construction	<ul style="list-style-type: none"> • Parallel and skew lines • Line segments and angles • Simple polygons • Regular polygons • Bearing and scale drawing 	18
5. Measurement	5. Time	<ul style="list-style-type: none"> • 12 and 24-hour clocks • Timetables (travel, class and work timetable) 	7

Term III

Themes	Topics to be covered	Sub-topics	Number of Periods
	1. Length, Mass and Capacity	<ul style="list-style-type: none"> • Length • Perimeter • Area • Volume • Capacity 	18
6. Algebra	2. Algebra	<ul style="list-style-type: none"> • Algebraic expressions • Substitution • Equations • Inequalities and solution sets • Algebra in real life situations 	20