

MATHEMATICSCore Curriculum
Programme Year 11National Qualifications Framework
Level 1Expectations

In order to achieve **Level 1** the learner is expected to demonstrate basic competency in applying mathematics in simple everyday situations. The student's competency is demonstrated by an ability to (a) carry out straightforward numerical calculations encountered in shopping, home, workshop or office environments (b) read basic measurement scales (c) extract and interpret straightforward information from tables and charts (d) solve problems that require a combination of basic mathematical knowledge and skills.

Assessment

A learner working at **Level 1** will be required to demonstrate the ability to understand the nature of numbers and make use of them. Assessment tasks will therefore involve simple mathematical reasoning and straightforward calculations encountered in practical real-life situations presented **in aural, oral and visual** forms to reduce demands on reading and writing which may hinder the demonstration of these competencies. Pencil and paper jottings are accepted as a means of supporting the mental processes involved when solving simple mathematical problems or tasks.

KNOWLEDGE (theoretical and/or factual)At Level 1: **Basic General Knowledge.****SKILLS** (cognitive-logical, intuitive and creative thinking, practical-manual dexterity, use of methods, materials, tools and instruments)At Level 1: **Basic skills required to carry out simple tasks.****COMPETENCES** (responsibility and autonomy)At Level 1: **Work or study under direct supervision in a structured context.**

STRANDS		KNOWLEDGE	SKILLS	COMPETENCES	Learning Outcomes		
Number and applications	Number Operations	Knows how to count, read, write and order positive whole numbers. Understands the concepts associated with the four number operations (e.g. that multiplication is repeated addition).			i	Use mental addition and subtraction of numbers up to 100.	
					ii	Use pencil-and-paper addition and subtraction of numbers up to five digits.	
					iii	Multiply whole numbers by any one-digit number.	
					iv	Divide whole numbers by a one-digit number.	
					v	Multiply/divide whole numbers by 10, 100 and 1000.	
	Fractions and Percentages	Understands the language and notation of simple fractions, decimals and percentages as applied in real life situations.	Uses simple fractions to find parts of a quantity in real life contexts (e.g. $\frac{1}{2}$ cm, $\frac{1}{100}$ m, $\frac{1}{4}$ h, €1/10).			i	Use equivalent fractions to add/subtract proper fractions where the largest denominator is a multiple of the others, e.g. $\frac{1}{5} + \frac{1}{3} + \frac{2}{15}$
						ii	Find a fraction of a quantity.
						iii	Find a percentage of a quantity.
	Time	Understands time on a 12 hour and 24 hour clock.	Calculates time intervals; Reads analogue and digital clocks.			i	Convert 12-hour to 24-hour clock and vice versa.
						ii	Read, interpret and use a calendar and a timetable.
						iii	Convert between different units of time, limited to one conversion.
						iv	Work out simple problems involving time and time intervals (Restrict to hour, half-hour and quarter hour).

STRANDS		KNOWLEDGE	SKILLS	COMPETENCES	Learning Outcomes	
Number and applications	Problem Solving		Sorts out which operations can be used to work out simple problems situated in familiar everyday contexts (to include problems involving money, length, weight, temperature, etc.); Carries out calculations and solves simple problems involving the use of the four operations. Uses the calculator to work out calculations involving any of the four operations. Rounds a figure to the nearest unit, ten, hundred or thousand.	Displays confidence in using mathematics in simple everyday applications of the subject ; Attempts to understand a problem before trying to solve it ; Uses simple mathematical language to talk about the method and solution of a simple problem ; Checks the reasonableness of the solution in a supportive environment.	i	Apply the four rules in simple problems related to length, weight and capacity.
					ii	Apply the four rules in simple problems related to money.
					iii	The use of the calculator is to be restricted to calculations involving the four rules. In order to use the calculator efficiently, students need to learn how to apply checks on the reasonableness of the answer through rough estimates.
					iv	Emphasise the importance of carrying out rough estimates to check the accuracy of calculations especially when using a calculator.
	Directed Numbers	Recognises negative numbers occurring in real life situations.			i	Arranging positive and negative numbers in order.

		KNOWLEDGE	SKILLS	COMPETENCES	Learning Outcomes		
Shape Space and Measurement	Shape	Recognises simple flat and solid shapes.	Identifies, sorts and classifies flat and solid shapes.		i	Recognise and know properties of special triangles: scalene, isosceles, equilateral and right-angled.	
					ii	Recognise and know properties of the square and the rectangle. Recognize rhombus, parallelogram and kite.	
					iii	Identify the number of faces, edges and vertices of the following solid shapes: cube, cuboid, cylinder, cone, sphere, triangular prism and square-based pyramid.	
	Measurement	Knows the units of measurement for length, area, weight and capacity.	Displays a feel for the units of measurement as applied in real life contexts ; Measures length, weight and capacity using appropriate metric units.			i	Use appropriate instruments to measure length, weight (mass) and time intervals and capacity.
						ii	Convert km to m; m to cm; cm to mm and vice versa.
						iii	Convert kg to g and vice versa.
						iv	Convert litres to millilitres and vice versa.
						v	Find the perimeter of squares, rectangles and triangles by calculation.
						vi	Find the perimeter of compound shapes.
						vii	Find the area of squares and rectangles using formula
						viii	Find the area of right-angled triangles (as half the area of a rectangle).
						ix	Find the area of compound shapes made up of squares, rectangles and right-angled triangles only.
						x	Find the volume of cubes and cuboids using formula.
Angles	Understand the concept of an angle.				i	Know that a whole turn is 360° , the angle on a straight line is 180° , a right angle is 90° and that half a right angle is 45° .	
					ii	Identify the angle between the main eight compass directions	

STRANDS		KNOWLEDGE	SKILLS	COMPETENCES	Learning Outcomes		
Algebra	Number Machines and Sequences	Understands the purpose and meaning of a formula in words.	Uses a simple formula in words.		i	Describe verbally and construct a number machine involving up to two operations.	
					ii	Work out the output of a number machine involving up to two operations.	
					iii	Describe the rule for a given sequence involving one operation.	
					iv	Extend and complete simple number sequences. E.g. 2, 4, 6, __, __. and 2, __, 6, __, 10	
					v	Generate a sequence from a rule given in words.	
Data Handling	Data	Knows that data can be represented in pictorial forms by means of tables, diagrams and charts with simple scales.	Organises and presents data in simple tabular forms; Constructs, reads and interprets simple diagrams and charts (including frequency tables, bar charts and pictograms).		i	Compile and interpret frequency tables for grouped and ungrouped data (Do not include inequality signs).	
					ii	Interpret simple pie charts. E.g. Which is the most or least favourite.	
	Probability	Differentiates between the likelihood of different events				i	Describe the occurrence of an event as impossible, very unlikely, unlikely, even chance, likely, very likely and certain.
						ii	Find the probability by experiment.
						iii	Understand and work out the probability of an event as a fraction.