ក្រសួងអប់រំ យុវជន និង កីឡា

MATHEMATICS

STRAND	3	6	9
NUMBER	• Read, count, write, order and compare whole numbers up to 10,000 in Khmer and Arabic notation. • Use knowledge of whole numbers to read and write accurately everyday numerical information including house numbers, street numbers, telephone numbers, licence plate numbers and years.	• Read, count, write, order and compare whole numbers not exceeding 7 digits and numbers with decimal fractions to two decimal places. • Read, write, order and compare fractions and mixed numbers. • Round decimal numbers to the nearest whole number.	• Compare, order and carry out four operations with integers, decimals and fractions. • Round off decimal numbers to a specified level of accuracy. (eg the nearest hundredth). • Use degrees up to the power of five to express positive integers (eg 52 = 25; 35 = 243).
	• Add and subtract whole numbers where each number is up to 10,000. • Use mental arithmetic to calculate addition and subtraction of numbers in multiples of 5 up to 100. • Recall and use multiplication tables up to 5 x 10.	• Add, subtract, multiply and divide whole numbers using two kinds of brackets. • Add and subtract fractions with the same denominator. • Add and subtract decimal numbers with two decimal places.	• Recall and use perfect squares and square roots of numbers up to 100, and use $\sqrt{}$ sign to represent squares (eg $\sqrt{81} = 9$).
	• Multiply and divide whole numbers up to 3 digits by 1 digit.	• Multiply and divide whole numbers up to 4 digits by 2 digits. • Use estimation strategies to check multiplication, addition and division of whole numbers.	
	• Use pictures and items to identify fractions from 1/10 to 1.	• Rename common fractions (less than one) as decimals and percentages. • Calculate simple ratios and direct proportions (eg 2 people need 4 cups of water so 6 people need 12).	• Calculate inverse proportions (eg. if 6 workers take 12 days to complete a task, so how many days would 9 workers take?).
	• Use currency for buying, selling and changing up to R10,000.	• Calculate average costs, profit and loss, and write and verify receipts. • Use standard measuring instruments and read scales to the nearest gradation to determine:	• Calculate simple interest and discount rates (eg loan of money, sale of goods). • Express one quantity as a percentage of another (eg 5 girls out of 50 students is 10%).
MEASUREMENT	• Measure and compare everyday objects to determine: • length in metres, decimetres or Terks, and centimetres (eg buildings, fields) • weight (mass) in kilograms, grams and Kham (eg rice, fruit, cement) • capacity in litres (eg water, kerosene).	• Length from kilometres to millimetres (eg. wood, roads) • Capacity from litres to millilitres (eg. medicine, cooking oil) • Weight (mass) from kilograms to grams (eg vegetables, rice and meat) • Time from hours to seconds.	• Select appropriate metric units for measuring quantities and rates (eg height of trees in meters, volume of medicine in millilitres).
	• Read the time in hours and minutes from an analogue clock.	• Read and express accurately time in analogue, digital, 12 and 24 hours representations.	• Convert the standard units of length, mass, capacity and time to larger and smaller units. • Carry out the four operations using units of time (hours, minutes and seconds).
	• Read a simple timetable accurately.	• Interpret a simple scale bar on a map and use the map to calculate distance between places. • Calculate average travel times using given speeds and distances.	
GEOMETRY	• Identify and draw 2D shapes with up to 4 sides.	• Name acute, right, obtuse and straight angles and construct angles using rulers, protractors and compasses.	• Identify axes of symmetry of simple two-dimensional geometric figures in a plane.
	• Use the following terms to describe 2D shapes: base, sides, length, width, top, height, diagonal.	• Construct and label circles using the following terms: radius, centre, diameter and circumference.	• Use formulae to find the circumference, radius, diameter and area of a circle. • Construct and label triangles and simple quadrilaterals from given data.
	• Identify the following simple 3D shapes in daily life: cube, cuboid, cylinder.	• Make models of prisms, cones, pyramids and cylinders.	• Calculate unknown angles formed with parallel lines cut by a transversal. • Calculate unknown angles using angle properties of triangles and parallelograms. • Find side, hypotenuse and height lengths of right angled triangles using Pythagoras' theorem or similar triangles.
	• Identify the area of rectangles and squares using pictorial representations.	• Measure the perimeter and find the area of triangles, squares, and rectangles.	• Use formulae to find the areas of triangle, square, rectangle, trapezium, parallelogram and rhombus.
		• Find the volume of solids made up of unit cubes.	• Sketch and find the volume and surface area of cubes, cuboids and cylinders.
STATISTICS	• Work in groups to construct a simple survey and collect data from up to three sources.		• Find mean, median and mode from data sets, including frequency distribution tables, and distinguish the purpose of each.
	• Interpret and construct picture graphs.	• Construct and interpret data presented in tables, line graphs, bar charts and simple pie charts.	• Estimate the probability of an event on the basis of repeated trials of a simple experiment (eg repeated tossing of dice).
ALGEBRA AND PATTERNS	• Find patterns from given examples and supply missing elements in a pattern. (eg. ΔO□;Δ □;Δ…)	• Find the value of simple algebraic expressions using substitution methods involving addition and subtraction (eg. 3 + b =?; 8 - b= ? where b is 4).	• Express information provided in words in simple equations and inequalities using >; < and = signs (eg the sum of two numbers must be between 6 and 20 becomes 6 < x + y < 20).
		• Simplify simple algebraic expressions using addition and subtraction method. (eg. 4x + 2x = ?).	• Solve linear fractional equations with one unknown and none in the denominator (eg $\frac{x-2}{12} = 6$). • Solve a system of first degree equations with two unknowns (eg if person A buys 2kg of fish and 6kg of rice for R29,000, and person B buys 1kg fish and 1kg rice for R11,600, what is the cost of fish per kg?). • Construct the graph of the line y = ax + b (where a and b are integers).
REASONING	• Make decisions about how to approach simple two-step problems by deciding which mathematics techniques to use and breaking a problem into parts.	• Explain a short chain of reasoning used to approach and solve a problem that involves an analysis of data through the selection and use of mathematical techniques.	• Develop a problem in a real life situation and develop a solution using a range of mathematical techniques.