CAM Trust Mathematics Department

This document outlines the main activities you will complete this year. Use this as a guide to prepare for lessons or check your understanding.

C scheme

Learning log 2023/24

Name:	
Maths teacher(s):	
Maths group:	

I will:

- work to the best of my ability, showing all my workings
- complete my homework to a good standard by the deadline set
- show tenacity when solving problems
- always have the correct equipment for all lessons

Signed:

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The Mathematics Department will:

- help you develop fluency in mathematical concepts
- help you develop your mathematical communication and reasoning
- help you develop problem solving skills
- set appropriate homework
- regularly assess your progress
- give you regular feedback and let you know what else you need to do to maintain or increase your progress

Signed:

Maths Department

Sparx Maths

Online homework tasks will be set at www.sparxmaths.com
You will use your school log-in details.

Use this space to keep track of your Sparx XP-level:

XP level	

Every lesson you will need to bring this equipment:

- exercise book
- learning log
- scientific calculator
- black pen × 2
- pencil × 2
- ruler
- eraser
- pencil sharpener
- highlighter

When advised, you will also need to bring:

- protractor
- pair of compasses

Optionally:

- colouring pencils

	HW		Objectives Term 1 Autumn	Sparx
CNum1	—		Use, convert and compare metric measures: length (mm, cm, m, km), mass/weight (mg, g, kg, tonne), capacity (ml, cl, l)	M772, M530,, M761
			Have an appreciation for the rough size of common metric units and make sensible estimates of a range of measures in everyday and real-life settings	M487
			Multiply and divide decimals by 10, 100, 1000, 0.1, 0.01, etc	M113
			Add, subtract, multiply and divide negative numbers	M106, M288
			Use the symbols =, ≠, <, and >	M384
			BIDMAS to include decimals, negatives and extend to include squaring and cubing	M521
			Recognise prime numbers up to 100	M322
			Be able to carry out prime factor decomposition, using factor trees	M108
		metric, cm, m, mm, km, l, ml, cl, g, kg, mg, tonnes, estimate, measure, mass, length, capacity, time, conversion factor, inequality symbols, negatives, powers of 10, BIDMAS, order of operations, operation, prime, factor, multiple, product of prime factors		
CAlg1	—		Understand the meaning of the words: equation, formula, identity, expression, unknown and variable.	M830
			Write an expression in algebra for perimeter or area	M813
			Multiply a bracket by a number or a letter, eg $a(3a+5)$, $b(2a-3b)$, $2c(4c-5)$, $-4(3x+2)$	M237, M792
			Understand how to simplify algebraic expressions by collecting like terms where x^2 is involved, eg simplify $x^2+4x+5x+20$ to give $x^2+9x+20$	M949
			Use formulae to substitute positive and negative integer variables, eg given that $a=4, b=-2, c=1$, work out $m=2(a+b)-c$	M327
		equation, formula, identity, expression, variable, expand, term, simplify, like terms, formula, formulae, substitute, positive, negative, forming		
CGeom1	—		Use the rules that, on parallel lines, alternate angles are equal and corresponding angles are equal as well	M606
			Show a proof for the sum of the angles of a triangle being 180°, and the sum of the angles in a quadrilateral being 360°	M351
			Use the sum of the interior angles of a polygon to work out the size of each angle in a regular polygon, with particular emphasis on polygons with 5, 6, 8, 9, 10 & 12 sides, and link this to exterior angles.	M653,
			Work out if different polygons will tessellate	
			State the properties of common 2D shapes, with a focus on special quadrilaterals	M276, M393
			Use, draw and find bearings	M260, M416
		parallel, perpendicular, alternate angles, corresponding angles, proof, prove, polygon, triangle, quadrilateral, pentagon, hexagon, heptagon, octagon, nonagon, decagon, exterior angle, interior angle, tessellate, quadrilateral, square, rectangle, rhombus, parallelogram, trapezium, kite, properties of a shape, definition of a shape, bearing, clockwise, compass, three-figure bearing, return bearing		
CData1	—		Recall the data handling cycle: understanding what is involved at each stage	U322
			Understand the advantages and disadvantages of primary and secondary data	
			By considering a specific research question or hypothesis, decide which type of graph would be most useful. Include: pictograms, tally charts, different types of bar charts and pie charts.	
			Construct a pie chart from a frequency table;	M574, M165
			Compare data represented in a pie chart and a bar chart	
		specify the problem, collect data, process data, represent data, interpret, discuss, survey, experiment, data collection sheet, primary data, secondary data, sample, representative, pie chart, hypothesis, unitary method, frequency table, bar chart, dual bar chart		

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Number	Algebra	Geometry	Data	Revision	Total	
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	HW		Objectives Term 2 Spring	Sparx
CNum2	—		Add, subtract, multiply and divide decimal and negative numbers	M106, M288
			Work with imperial units including miles, feet, pounds, pints, gallons	
			Convert roughly between metric and imperial measures	M772
			Use a calculator to evaluate algebraic expressions	
			Use a calculator to do multi-stage problems, such as $\frac{7.32+\sqrt{9.45+3}}{12.822}$	U757
			Read tables, bills and timetables to solve problems	M963
		metric, imperial, conversion, feet, gallons, pounds, pints, gallons, capacity, mass, algebraic expression, order of operations, decimal		
CAlg2	—		Solve equations with brackets such as $2(2x + 1) = 3(x + 7)$ and $2(3x - 4) = 5(8 - 2x)$	M707, M509
			Write and solve an equation from an *I think of a number* problem	M957
			Write and solve equations from practical situations and diagrams	U599
			Change the subject of a formula eg: $a = 2b + c$, make c the subject	M184
		equation, unknown, balancing, bracket, fraction		
CGeom2	—		Work out the area of a trapezium	M705
			Work out the area of a shape made from rectangles, parallelograms and triangles	M269
			Solve problems involving area and circumference of a circle	M231, M169
			Illustrate and name parts of a circle: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment	M595
			Be able to solve problems involving circles, area and circumference, including semi-circles and quarter-circles; and physical problems	
		triangle, parallelogram, trapezium, compound shape, dimension, base, height, length, circle, radius, diameter, area, circumference, pi, centre, tangent, sector, segment, semi-circle, chord, arc		
CData2	—		Find the mean, median, mode and range from a bar chart or pie chart	M738
			Decide which average is most suitable for a set of data	M440
			Compare data using averages, range and different kinds of graphs	
		frequency table, ungrouped data, bar chart, stem and leaf diagram, interpret, shape of the data, representative, unrepresentative, bias, extreme values, qualitative data, quantitative data, raw data, data values, normal shaped data, shape of data, hypothesis, conclusion		

Number	Algebra	Geometry	Data	Revision	Total	
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	HW		Objectives Term 3 Summer	Sparx
CNum3	—		Multiply a fraction by a fraction	M157
			Work out a fraction of an amount	M695, M684, M158
			Recap previous work done on fractions	M698, M601
		improper fraction, mixed number, ordering fraction, percentage		
CAlg3	—		Recognise and solve problems involving square and triangular numbers	U680
			Know the Fibonacci sequence	U680
			Know how to work out the gradient of a line segment	
			Plot points on a coordinate grid that fit a rule $y = x + 3$, $x + y = 4$	M544
			Plot lines such as $y = x$, $y = -x$, $x = -1$, $y = 3$	M797, M932
		distance, time, acceleration, speed, function, mapping, linear, input, output, variable, dependent, gradient, intercept		
CRatio3	—		Find one quantity as a percentage of another	M939
			Find a percentage increase/decrease	M533
			Compare ratios (unitary method)	M543
			Solve ratio problems (unitary method)	U577
			Use graphs that represent situations that are directly proportional	
			Create scale drawings	M112 U257
			Know how to use scale drawings to answer questions ranging from interpreting distances to showing the simple locus of a point drawn to scale	
		direct, proportion, constant, scale, bearings, percentage Increase/decrease, reverse percentage, decimal multiplier, simple interest, compound interest, ratios, unitary method, comparison		
CGeom3	—		understand the meaning of similarity	M377
			know that shapes are congruent if they have a scale factor of 1	M124
			solve problems involving congruent and similar shapes, finding missing angles and sides	M324
			know what changes and what stays the same when objects are enlarged	M178
			know the effects of rotating, reflecting, translating and enlarging shapes objects	M290, M139, M910
		similar, similarity, congruency, congruent, multiplier, scale factor, length, angle, transformations, enlargement, translation, rotation, reflection, between ratio, unitary ratio, corresponding sides, corresponding angles		
CData3	—		List all the outcomes from two events systematically	
			Show the outcomes from two combined events in a sample space diagram	M718
			Calculate probabilities from sample space diagrams	M718
			Explain the meaning of mutually exclusive	M755
			Work out the probability of something not happening, if I know the probability of it happening	M755
		outcome, event, probability, Carroll diagram, possibility tree, sample space diagram, two-way table, mutually exclusive, pie chart, bar chart, random, chance, theoretical probability, experimental probability, biased		

Number	Algebra	Ratio	Geometry	Data	Total	
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