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.

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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)	U388, U497	
			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		
			Multiply and divide decimals by 10, 100, 1000, 0.1, 0.01, etc	M113	
			Add, subtract, multiply and divide negative numbers	U742, U548	
			Use the symbols =, ≠, <, and >	U509	
			BIDMAS to include decimals, negatives and extend to include squaring and cubing	U976	
			Recognise prime numbers up to 100	U236	
			Be able to carry out prime factor decomposition, using factor trees	U739	
		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.		
			Write an expression in algebra for perimeter or area	U613	
			Multiply a bracket by a number or a letter, eg $a(3a+5)$, $b(2a-3b)$, $2c(4c-5)$, $-4(3x+2)$	U179	
			Understand how to simplify algebraic expressions by collecting like terms where x^2 is involved, eg simplify $x^2+4x+5x+20$ to give $x^2+9x+20$	U105	
			Use formulae to substitute positive and negative integer variables, eg given that $a=4$, $b=-2$, $c=1$, work out $m=2(a+b)-c$	U201	
		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	U826	
			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°	U628, U732	
			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	U427	
			Work out if different polygons will tessellate		
			State the properties of common 2D shapes, with a focus on special quadrilaterals	U121	
			Use, draw and find bearings	U525, U107	
		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	U332	
			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.	U571	
			Construct a pie chart from a frequency table;	U508	
			Compare data represented in a pie chart and a bar chart	U172	
		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	U742 U548
			Work with imperial units including miles, feet, pounds, pints, gallons	
			Convert roughly between metric and imperial measures	U388
			Use a calculator to evaluate algebraic expressions	
			Use a calculator to do multi-stage problems, such as $\frac{7.32+\sqrt{9.45+3}}{12.822}$	U926
			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 $2(3x - 4) = 5(8 - 2x)$	U325
			Write and solve an equation from an *I think of a number* problem	U755
			Write and solve equations from practical situations and diagrams	U599
			Change the subject of a formula eg: $a = 2b + c$, make c the subject	U556
		equation, unknown, balancing, bracket, fraction		
CGeom2	—		Work out the area of a trapezium	U265
			Work out the area of a shape made from rectangles, parallelograms and triangles	U970
			Solve problems involving area and circumference of a circle	U604, U950
			Illustrate and name parts of a circle: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment	U767
			Be able to solve problems involving circles, area and circumference, including semi-circles and quarter-circles; and physical problems	U950
		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	U557
			Decide which average is most suitable for a set of data	U717
			Compare data using averages, range and different kinds of graphs	U854
		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	U475, U224
			Work out a fraction of an amount	U881
		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 $y = x + 3$, $x + y = 4$	U315
			Plot lines such as $y = x$, $y = -x$, $x = -1$, $y = 3$	M797, U741
		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	U671
			Compare ratios (unitary method)	U687
			Solve ratio problems (unitary method)	U577
			Use graphs that represent situations that are directly proportional	U238
			Create scale drawings	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	U551
			know that shapes are congruent if they have a scale factor of 1	U790
			solve problems involving congruent and similar shapes, finding missing angles and sides	U578, U866
			know what changes and what stays the same when objects are enlarged	U519, U134
			know the effects of rotating, reflecting, translating and enlarging shapes objects	U196, U799, U696
		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	U104
			Calculate probabilities from sample space diagrams	U408
			Explain the meaning of mutually exclusive	U683
			Work out the probability of something not happening, if I know the probability of it happening	
		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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