Maths Long Term Plan Year 11 Foundation

Chichester Free School
Nurture • Challenge • Inspire

Temperance Term

W/C	1	2	3	4	5	6	7	
Area of Study	**Ratio and Proportion**			**Geometry 2**				HALF TERM
Core learning	**Ratio** To use ratio notation to write ratios for diagrams and word statements and to simplify ratios. To divide a quantity into two or more part given a specified ratio and to write the division of quantities into parts as a ratio. To use a unitary method to solve ratio and proportion problems and relate ratios to fractions and linear functions in order to solve problems, including real-life ones such as conversion and scaling.	**Proportion** To use direct proportion to solve problems. To use the unitary method to solve proportion problems. To solve direct proportion questions graphically. To solve direct proportion questions using algebraic manipulation. To solve inverse proportion questions, based on y = 1/x.	**Growth and Decay** To calculate with simple growth, such as simple interested rates. To calculate with compund growth, such as compound interest rates. To solve word problems using simple and/or compound growth. To calculate with simple decay. To calculate with compound decay, such as depreciation. To solve word problems using simple and/or compound decay.	**3D Objects** To apply what you already know about the properties of 3D objects. To work with 2D representations of 3D objects. To construct and interpret plans and elevations of 3D objects.	**Units and Measure** To convert metric units for capacity, mass and length. To convert metric units of area and volume. To understand units of time are not metric. To convert units of time and solve related problems. To convert currencies using scale factors. To convert compound measurements. To use formulae: s = d/t, d = m/v and p = f/a, to find any one of the variables given values for the other two. To read and use scales on maps including both line/bar scales and ratio scales. To form scales to construct scale drawings to fit a given dimension. To read and use bearings in scale drawings.	**Volume and Surface Area** To calculate the volume of prisms (including cylinders). To calculate the surface area of prisms (including cylinders). To calculate the volume and surface area of a cone. To calculate the volume and surface area of a sphere. To calculate the volume and surface area of composite 3D shapes. To find the volume and surface area of a pyramid.		
Opportunities for Challenge: Open middle, goal free, exam questions, “by example”, SSDD are good resources but always choose problems based on the current topic.								
Assessment		Mocks?			Progress check			

W/C	8	9	10	11	12	13	
Area of study	**Algebra 3**				**Revision for mocks**		CHRISTMAS
Core learning	**Graphs of Linear Functions** To use a table of values to plot graphs of linear functions. To identify the main features of straight-line graphs and use them to sketch graphs. To sketch graphs from linear equations in the form of y=mx+c. To find the equation of a straight-line using gradient and points on the line. To identify lines that are parallel by considering their equations. To find the equation of a line parallel to a given line (perhaps passing through a known point). To solve problems involving straight-line graphs.	**Interpreting Graphs** To construct and interpret graphs in real-world contexts. To interpret the gradient of a straight-line graph as a rate of change.	**Graphs of Other Functions and Equations** To work fluently with equations of straight-line graphs. To identify and plot graphs of quadratic functions i.e. parabolas. To find roots of quadratic equations from the x-intercept of the parabola of the quadratic equations that defines the graph. To know the features of graphs of quadratic equations. To sketch parabolas. To work fluently with cubic polynomials and their graphs. To sketch cubic graphs. To work fluently to calculate reciprocals of numbers and plot functions involving reciprocals. To identify hyperbolas and match them to their equations. To plot and sketch graphs from given functions. To recognise linear, quadratic and reciprocal graphs.				
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Assessment		Progress check		Progress check		Mocks	

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Justice Term

W/C	14	15	16	17	18	19	
Area of study	**Geometry 3**						HALF TERM
Core learning	Vector geometry Represent vectors as a diagram or a column vector. Add and subtract vectors. Multiply vectors by a scalar. Recognise parallel vectors.	Transformations Carry out, identify and describe reflections, rotations, translations and enlargements.	Construction and loci Use ruler, protractor and compasses to accurately construct angles and shapes. Accurately copy diagrams using rulers and compasses only. Construct perpendicular bisectors. Construct a perpendicular at a given point on a line. Construct a perpendicular from a given point to a line. Bisect an angle. Use constructions to solve loci problems. Apply construction and loci knowledge to solve contextual problems.	Similarity Know what "mathematically similar" means. Determine when two objects are mathematically similar. Know what is meant by "mathematical enlargment". Enlarge a given shape by a positive, rational scale factor. Know what a "centre of enlargement" is. Enlarge a shape given a scale factor and the centre of enlargement. Determine a given centre of enlargement and scale factor from a diagram. Determine similar polygons.	Congruence Know what is means for two objects to be congruent. Congruence conditions for triangles. SSS, ASA, SAS, RHS. Apply the conditions to different situations.	
Opportunity for Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic.							
Assessment							

W/C	21	22	23	24	25	26	
Area of study	**Mocks in this half term somewhere**	**Geometry 4**					EASTER
Core learning		Pythagoras' theorem Derive the theorem and use it to find the length of the hypotenuse in any RA triangle. Know and use the theorem to find any missing length of a RA triangle. Use the theorem to show if a triangle is RA or not. Apply the theorem to problems in 2D. Link the theorem to real-life skills for industry.		Trigonometry Use the trig ratios given by the sine, cosine and tangent functions to find unknown lengths and angles in 2D RA triangles. Know the exact ratios given by sine and cosine of 0, 30, 45, 60 and 90 degrees and the exact ratios given by the tangent function for 0. 30. 45 and 60 degrees. Know the difference between an angle of depression and an angle of elevation. Identify when the trig ratios need to be used instead of Pythagoras to solve problems in 2D, including contextual problems.		
Opportunity for Challenge: Open middle, goal free, exam questions, "by example", SSDD are good resources but always choose problems based on the current topic.							
Assessment							

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Courage Term

W/C	27	28	29	30	31	31	
Area of study	Revision		Revision				HALF TERM
Core learning							
Opportunity for Challenge: Open middle, goal free, exam questions, “by example”, SSDD are good resources but always choose problems based on the current topic.							
Assessment							
W/C	32	33	34	35	36	37	
Area of study	**Exams**						SUMMER
Core learning							
Opportunity for Challenge: Open middle, goal free, exam questions, “by example”, SSDD are good resources but always choose problems based on the current topic.							
Assessment							