

Year 8 Scheme of Work		
Topics		Notes
Properties of 2D and 3D shapes	Identify the properties of shapes and identify shapes from their properties. Parameters – numbers of sides, equal sides, equal angles, right angles, parallel sides, diagonals	Islamic Patterns w/s Investigation of quadrilaterals Names of polygons Special triangles and quadrilaterals. Pentominoes
Nets		Drawing nets of prisms and pyramids. Finding surface area of shapes as a result. Includes a review of constructing triangles
Angle Bisectors	Construction of angles using compass and ruler.	Include practical application with shapes.
Perimeter	Simple and complex shapes	Revision from year 7.
Area of Quadrilaterals	Square, Rectangle, Parallelogram, Trapezium, Rhombus, Kite. Visual proofs are a good introduction. Formulae can be introduced, but is not a requirement. Emphasis on correct units	Include revision of triangles, composite shapes, parallelogram, rhombus, trapezium and kite
Volume of Cuboids	Emphasis on correct units.	Include composite shapes
Circumference of circle	Finding the circumference given radius or diameter. Also radius or diameter given the circumference.	Including manipulation of formulae $C = \pi D$
Area of Circle	Finding area given radius or diameter <i>Ext: Radius given the area</i> <i>Parts of circles</i>	$A = \pi r^2$
Volume of Prisms	Finding the volume of common prisms <i>Ext: Volume of cylinders</i> Volume of complex shapes	Base area x height

Surface area of cuboids	Ext : surface area of prisms	
Four rules with decimals	Emphasis on positioning of the decimal point.	
Powers and Roots	Understanding of roots and powers Knowledge of common roots and powers. Squares and square roots up to 12 times tables Cube and cubed roots up to 5. Use of calculator to find roots and powers. Use of other methods to find square root. Ext: introduction of basic rules of indices through investigation.	
Converting Percentages + F + D		
Ordering Decimals and fractions	Note: Make sure with lower groups that students add 0's to decimals	
Converting Fractions, percentages and Decimals	Students should KNOW the basic fractions – 50%, 75%, etc. Calculator use allowed for more difficult fractions. Ext: turning recurring decimals into fractions	
Equivalent Fractions	Revision of reducing fractions to lowest form Finding the missing value to make an equivalent fraction	
Converting mixed numbers and improper fractions		
Fraction of Amount	Finding the fraction of an amount Includes use of improper and mixed fractions	

	With money based problems – values should be given to 2 d.p.	
Adding and Subtracting Fractions	Same denominator and different denominators – including mixed fractions	
% of amount	Finding the percentage of an amount either by converting to a decimal or a fraction first.	
Giving one number as a % of another	Continual use by converting test scores etc.	
Finding % changes	Percentage profit and loss	
Coordinates	Revisión of work from year 7.	All four quadrants
Interpreting Graphs	Simple examples Ext: calculation of speed from a distance time graph Drawing simple distance time graphs (Possible homework – travel graph from home over a weekend) Emphasis on difference between distance from a place and distance travelled.	Travel graphs $Speed = \frac{distance}{time}$ Conversion graphs Analyse frequency diagrams.

Straight Line Graphs	Drawing straight line graphs <ul style="list-style-type: none"> • Using table of results • From equation $y=mx + c$. Plotting intercept and next point. (investigation spreadsheet available). Finding the gradient and intercept of straight line graphs Ext: Drawing graphs of the type $2x + 3y=6$ Simple quadratic graphs Finding perpendicular lines using the principle of negative reciprocal	This would be a good time to investigate with the graphing package.
Solution of simultaneous graphs using graphical methods	Possible demonstration using computers or/ and graphical calculator	
Symmetry and Reflections	Line symmetry Drawing a reflection Putting in the line of symmetry	
Rotations	Finding the order of rotational symmetry Rotating a shape around a center of rotation	
Enlargements	Enlarging a shape around a centre of enlargement. Finding the center of enlargement and scale factor of an enlargement Rules for congruency	
Bearings	3 figure bearings from diagrams Drawing diagrams to represent given bearings Ext. Back bearings	
Loci	Simple Loci – distance from a point, distance	Can use distance from two lines to revise

	from a line, distance from a corner. Application to problems	the bisector of the angle.
Approximating to decimal places		
Approximating to significant figures	Approximating decimal values to 1, 2 or 3 significant figures Approximating larger numbers e.g. 2365 to 1, 2 or 3 significant figures Approximating the answer to a calculation by first rounding each value to 1 s.f. then calculating	
Basic Sequences	Finding and describing the pattern	Finding patterns
Using n^{th} term	Linear expressions	
Finding n^{th} term	Linear expressions	
Other Sequences	Simple quadratic equations Fibonacci sequence Triangle numbers	
Negative Numbers	Review of addition and subtraction. Multiplication and division	
Simplifying	E.g. $3x+2+4x-6$ $3(x+6)+4(3x-2)$	Requires a review of expanding brackets Note: include -ve numbers e.g. $-3(2x-6)$
Factorisation	Factorisation by removal of a common factor	
Writing expressions/equations		Using algebra to express written problems
Substitution		
Solving by flowchart	Number machines	Solving equations of the type $3x+2=11$ $2x+3=6x-4$
Solving by trial and improvement		

Solving by balancing		
Basic Angle Rules		Review of angles on a straight line, etc.
Angles in Parallel Lines		Calculating missing angles and identifying pairs of corresponding, alternate and interior angles
Angles in Special Triangles		Isosceles and equilateral triangles, combination with other angle information.
Discrete and Continuous data		Identifying data as discrete or continuous. Grouping continuous data
Piecharts		Drawing and interpreting
Bar charts		Discrete and continuous data
Exterior Angles in Polygons	Understanding that polygons are not necessarily regular. Drawing external angles onto a polygon. Total of angles =360°	
Interior Angles in Polygons		
Basic Probability		$P(A) = \frac{n(A)}{n(\text{total})}$
Not rule		$P(\text{not } A) = 1 - P(A)$
Table of outcomes	Sample space diagrams	For 2 events
Absolute and relative frequency	Introduction of terms only.	
Exhaustive events		
Mutually exclusive events		
Writing and simplifying Ratio		Introduction of principles and use of ratio. Using form a:b

Using Ratio		Finding amount given ratio. Splitting in a given ratio Inverse ratio with practical problems – make sure that problems are clear.
Scale drawings	Use practical examples – classroom, kiosk etc.	
Pythagoras theorem	Extension material only – finding the shorter or the longer side of a right angled triangle. Application to problems. Investigation of proof (visual only)	