Mathematics KS3 at a Glance

HOULTON SCHOOL

Year 9 Term 6

Enlargement And Similarity
Revisit similarity and enlargement.
Ratio and Proportion
Revisit conversion graphs; Solve direct proportion problems; Inverse proportion; *Inverse proportion graphs;* Speed, distance and time; Density; Compound units; *Converting compound measures*

Year 9 Term 5

Maths and Money
Revisit and extend Y7/Y8 work in the context of financial maths; Reverse percentages; Financial maths; *Repeated percentage change;* Unit pricing problems
Rotations and Translations
Recognise rotational symmetry; Rotate points about a given point; Translate shapes and describe translations; *Perform a series of transformations*
Pythagoras
Understand and use Pythagoras' theorem; Show that a triangle is right-angled; *Use Pythagoras' theorem in 3D shapes;* Prove a triangle is/isn't right angled; *Explore proofs of Pythagoras's theorem. Explore ratios in right angled triangles*

Year 9 Term 4

Solving Equations
Change the subject of a formula; Testing algebraic conjectures; Expand a pair of binomials; *Change the subject of more complex formula;* Form and solve equations and inequalities with unknowns on both sides.
3D Shapes
Surface area of cuboids and cylinders; Volume of cuboids, cylinders and other prisms; *Explore volume of cones, sphere and compound shapes; Surface area of prisms;* Properties of 3D shapes; 2D shapes in 3D shapes

Year 9 Term 3

Data Handling Cycle
Revise and extend Y7/8; Collecting data; Multiple bar charts; Line graphs; Misleading graphs; Find the mode; Identify outliers; Compare distributions using statistical measures; *Find the mean from a grouped or ungrouped frequency table*
Straight Line Graphs
Revise and extend Y7/8 coverage; Rearranging $y = mx + c$; Simplify, use and interpret $y = mx + c$; Parallel lines; *Solve simultaneous equations graphically; Explore perpendicular lines*

Year 9 Term 2

Number Sense
Round to given numbers of dp and sf; Revisit and extend Y7/8 work including; Convert between units of time; Order of operations; Calculate with money; Use estimation; *Use error interval notation;* Review and extend Y7 work on metric units; *Covert area and volume measures*
Trapezium and Circles
Area of trapezium; Area of a circle, circumference of circle; Area of compound shapes
Reflections
Recognise line symmetry; Reflect shapes in a given line; Revise equations of lines

Year 9 Term 1

Fractions and Percentages
Revise and extend Y7 coverage; Express on number as a fraction of another; Explore Calculator and non-calculator methods; Percentage increase and decrease; Using multipliers Express on quantity as a percentage of another; compare two quantities using percentages; Work with percentages higher than 100%; *Finding the original after percentage change*
Standard Index Form
Revisit Y7 comparing and ordering; Write numbers of any size in standard form; *Use negative and fractional indices*
Angles in Parallel Lines
Revise and extend Y7 notation; Revise and extend Y7 coverage; *Explore diagonals of quadrilaterals;* Revise Y7 coverage; Angles in parallel lines; Interior and exterior angles of polygons; *Angles formed by diagonals of quadrilaterals;* Find and prove simple geometric facts

Year 8 Term 6

Indices
Work with indices; *Explore powers of powers*

Year 8 Term 5

Equations and Inequalities
Revise and extend Y7 coverage; Solve inequalities; Form and solve equations with brackets; Identify and use formulae, expressions and identities and equations; Form and solve equations and inequalities–
Sequences
Revise and extend Y7 coverage to include more complex rules; *Find the rule for the nth term of a linear sequence*
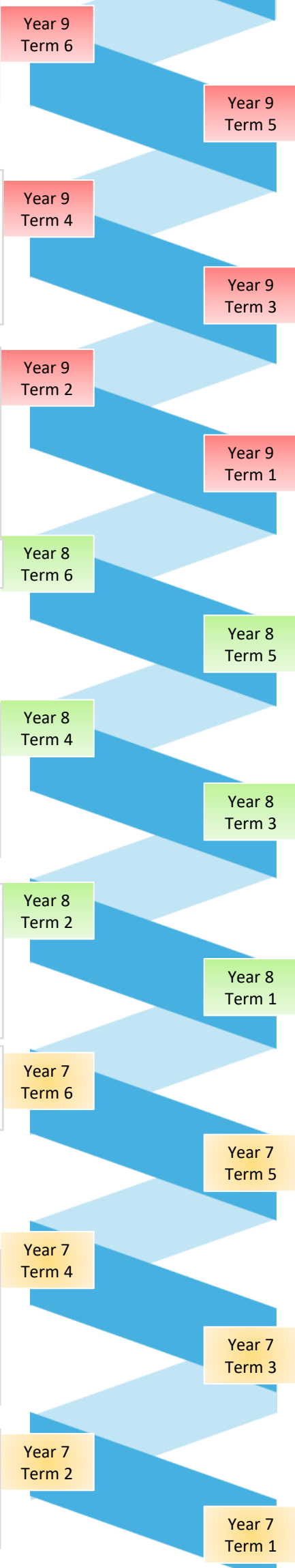
Year 8 Term 4

Tables and Probability
Review and extend Y7 coverage; Construct sample spaces for more than one event; Use sample spaces to find probabilities; Use tables and Venn diagrams to find probabilities; *Use the product rule for finding the total number of outcomes*
Brackets
Revise and extend Y7 coverage to include more complex expressions
Expand over a single bracket; Simplify expressions involving brackets; Identify and use formulae, expressions, identities and equations; *Expand a pair of binomials*

Year 8 Term 3

Working in Cartesian Plane
Using coordinates; Plotting graphs: $y=k$, $x=k$; $y=kx$; $y=x+a$; $y=mx+c$; *Exploring gradient; Exploring non-linear graphs*
Representing Data
Recognise different types of data; Construct and interpret frequency tables, grouper and ungrouped and two-way tables

Year 8 Term 2

Multiplicative Change
Work with scale factors; Conversion graphs; *Direct proportion graphs* Understand and use scale factors; Scale diagrams and maps; Currency conversions; Conversion graphs; Similar shapes; *Direct proportion graphs*
Constructions
Standard ruler and compass constructions; *Loci;* Explore congruency
Multiplying and Dividing Fractions
Multiply and divide fractions; *Multiply and divide mixed numbers*

Year 8 Term 1

Developing Geometric Reasoning
Angles at a point; Adjacent angles on a straight line; Vertically opposite angles; Angles in triangles and quadrilaterals; *Angles in parallel lines; Simple angle proofs*
Sets and Probability
Use the language of probability; Calculate simple probabilities; Use the probability scales; Sample spaces; Understand and use set notations, including Venn diagrams; Know the sum of the probabilities is 1; *Complement of a set*
Prime and Proof
Prime factorisation; HCF and LCM; *Explore related algebraic expressions*
Ratio and Scale
Understand and use ratio notation; Divide into a ratio; Work out parts and wholes

Year 7 Term 6

Constructing, Measuring and Using Geometric Notation
Geometric notation; Draw lines, angles and simple shapes; Parallel and perpendicular lines; Name and construct polygons; Properties of triangles and quadrilaterals; Construct and interpret pie charts

Year 7 Term 5

Number Continuation
Adding and Subtracting Fractions
Add and subtract fractions including mixed numbers; *Simple algebraic fractions*

Year 7 Term 4

Fractions and Percentages of Amounts
Find fractions of an amount (up to 1); *Solve problems with fractions greater than 1;* Find percentage of amounts using mental and calculator methods (up to 100%); *Explore over 100%*
Directed Numbers
Order directed number ; Use the four operations with directed number; Revisit notation and substitution in the context of directed number; Revisit collecting like terms in the context of directed numbers; Form and solve two-step equations

Year 7 Term 3

Addition and Subtraction
Solve perimeter problems; Solve problems with line charts and bar charts; Use the four operations with positive integers and decimals; Use a calculator
Multiplication and Division
Areas of rectangles, parallelograms and triangles; *Area of trapezium;* Find the mean; Use factors and multiples ; Use the four operations with positive integers and decimals; Use a calculator; Multiply and divide by positive powers of 10; Order of operations; *Multiply by 0.1 and 0.01*

Year 7 Term 2

Place Value and Ordering
Understand and use place value; Compare and order numbers; Round to powers of 10 and 1sf; *Write 1sf numbers in standard form;* Find the median and the range
Fractions, Decimals & Percentages
Interchange between fractions, decimals and percentages up to 100%; *Explore over 100%*

Year 7 Term 1

Sequences
Recognise linear and non-linear sequences
Algebraic Notation
Function machines; Algebraic notation; Substitute into expressions; Represent functions graphically; Generate sequences from an algebraic rule.
Equality and Equivalence
Understand the difference between equality and equivalence; Collecting like terms; Form and solve one-step equations

Start