Year 7 Curriculum Plan
Maths

	Term 1	Term 2	Term 3
PRIOR LEARNING	From KS2 pupils should have learnt: • Place value of numbers up to 10 000 000. • Rounding numbers to the nearest 10, 100, 1000, 10 000 and 100 000. • Rounding decimals to 1, 2 or 3 decimal places. • Ordering negative numbers on a number line. • Multiplying and dividing numbers by 10, 100 and 1000. • Adding and subtracting whole numbers with pen and paper and mentally. • Using rounding to check answers to calculations. From Year 7 half term one pupils should have learnt: • Vectors on a number line.	From KS2 pupils should have learnt: • Multiplying and dividing on paper and mentally. • Using rounding to check answers to calculations. From Year 7 term one and half term two pupils should have learnt: • Place value. • Vectors on a number line. • Multiples and factors. • Addition and subtraction. • Exponents and roots.	From Year 7 term one or two pupils should have learnt: • Addition and subtraction. • Multiplication and division. • Exponents and roots. • Directed numbers. • Order of operations. • Number lines. • Decimals and fractions. • Finding a fraction of a number. • Number lines: single and double. • Approximating numbers. • Inequalities. • Exponents. • Expressions.

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KNOWING WHAT...

Number units 1-3:
Writing integers and decimals in expanded form and in words.
Ordering positive integers and decimals.
Ordering positive and negative numbers.
Multiplying/dividing by positive and negative powers of 10.
Rounding 'to the nearest', d.p. and s.f.
Common metric conversions.
Finding the midpoint of two numbers.
The median of discrete data.
Complement of a decimal (able to find 1-p, given p).
Inverting addition and subtraction, additive inverse, additive identity.
Zero pairs.
Finding the perimeter of a polygon.
Basic angle facts.
Mean & range of a data set.

Number units 3-5:
Multiplication tables to 12x12.
Multiplication of positive integers and decimals.
Multiples and LCM.
Division of positive integers and decimals.
Inverse operations.
Factors and HCF.
Multiplicative reasoning: getting from one number to another by multiplying.
Rectilinear area.
Volume of cubes and cuboids, and other prisms (including cylinders).
Squares to 15^2 and cubes to 10^3 by heart.
Calculating powers, evaluating numerical
Expressions with powers, understanding index form, understanding the key on calculator for squares other powers and roots.
Addition and subtraction rules with positive indices.
Prime numbers, product of primes.
Order of operations with the four operations including exponents.
Breaking the order of operations with brackets.
Writing numerical expressions using the order of operations; practice with integers and decimals.

Number units 6-9
Ordering positive and negative numbers.
Negative numbers in context (temperature, finance).
Addition and subtraction of directed numbers.
Multiplication and division with negative numbers.
Powers of negative numbers.
Order of operations with negatives.
Solving simple 'unknown value' problems.
Substituting numbers for variables.
Proper and improper fractions, equivalent fractions, simplifying fractions, comparing Fractions, complement of a fraction.
Four operations for fractions, fraction of an amount.
Equivalence of FDP and ordering FDP.
Recurring and terminating decimals.
% of an amount; percentages greater than 100%, percentage of an amount with decimal multipliers, expressing one number as a % of another, percentage increase and decrease.
Multiplying by numbers between 0 and 1.
Interpreting pie charts and simple interest.
Using the calculator effectively.
Approximating powers and roots.
Error intervals for rounded numbers.
Estimating the answer to calculations.
Related calculations.
Truncation and error intervals.

Algebra units 1-2:
Algebraic notation, collecting like terms writing expressions.
Simplifying indices

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KNOWING HOW…

- Using a number line and symmetry around 0.
- Using the complement of 0.
- Using inverse calculations.
- Using the commutative and associative laws.
- Zero pairs.

- Formal and informal techniques, commutativity, associativity and distributivity.
- Writing division as a fraction, formal and informal techniques, incl. distributivity; divisibility rules.
- Inverse operations, multiplicative inverse creating the multiplicative identity, non-commutativity, and non-associativity of division.
- Systematic listing.

- Using a number line for negative numbers.
- Using symmetry for subtraction.
- Shading shapes.
- Bar models.
- Complement of fractions.
- Algebraic notation - ab for a x b, 3y for y+y+y and 3 x y, a^4 for axaxaxa, a^2b for a x a x b, a/b for division, coefficients as fractions not decimal.

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After each unit pupils complete a short assessment based on each bullet point from above. The test is split into 3 parts.

Part 1 - skill questions and key definitions/literacy.

Part 2 - more difficult reasoning questions.

Part 3 - problem solving questions which also link to prior knowledge from other units.

Pupils also sit two larger assessments; one is at the halfway point for the year and the other is during whole school exam week in June.

ASSESSMENT...

Assessment 1

- writing integers and decimals in expanded form and in words
- ordering positive integers, decimals and negative numbers
- multiplying/dividing by positive and negative powers of 10.
- rounding 'to the nearest', d.p. and s.f.
- metric conversions
- finding the midpoint of two numbers
- addition & subtraction
- finding the perimeter of a polygon
- basic angle facts
- find averages and range.
- linear sequences
- multiplication tables to 12x12
- multiplication and division
- multiples and LCM
- factors and HCF
- multiplicative reasoning
- volume of cubes and cuboids, and other prisms (including cylinders)
- Squares to 15^2 and cubes to 10^3 by heart
- Calculating powers, evaluating numerical expressions with powers, index form,
- addition and subtraction rules with positive indices
- Prime numbers, product of primes,

Assessment 2

- Order of operations
- negative numbers in context
- ordering positive and negative numbers
- calculations with directed numbers
- Generalising number to algebra, concept of an 'unknown variable' and understand algebraic notation.
- Simplifying simple linear expressions with no more than three variables
- Substituting numbers for variables
- concept of a fraction, multiple visual representations - shading shapes, bar models, placing on a number line
- proper and improper fractions,
- equivalent fractions, simplifying fractions, comparing the size of fractions.
- adding and subtracting fractions, including proper, improper and mixed
- fraction of an amount expressing one number as a fraction of another, find original amount if you know a fraction of it.
- multiplying and dividing fractions, fraction of an amount
- equivalence of FDP, techniques to convert, ordering FDP.
- multiple representations of % - shading shapes, bars, % of an amount; percentages greater than 100%, percentage of an amount with decimal multipliers, expressing one number as a % of another, percentage increase and decrease
- the effect of multiplying by numbers between 0 and 1 compared with numbers greater than 1.
- applications and problems, including interpreting pie charts and simple interest.

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