## Block 1: Understanding Algebraic Notation


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By the end of this unit of learning all students will be able to
Calculating with the four operations

- Find the input and output from function machines using
Continuing sequences
- Generate a sequence from a rule
- Represent one- and two-step functions graphically numbers and algebra
- Find a function machine from a given expression
- Simplify algebraic expressions
- Substitute positive and negative integers into expressions
Block 2: Equality and Equivalence

By the end of this unit of learning all students will be able to

- Understand the meaning of equality
- Understand and use fact families
- Solve one step equations
- Identify like and unlike terms
- Collect like terms (using the $\equiv$ symbol)

Function
Variable
Inverse
Expression
Sequence
Substitution
Commutative

End of block assessment
Knowledge Organiser

Algebraic Notation block
Lower Attainer Guidance
Higher Attainer Guidance

Block 3: Place Value

By the end of this unit of learning all students will be able to

- Write numbers as words and integers
- Work out intervals on a number line
- Place integers on a number line
- Round integers to powers of 10
- Order and compare integers using <, >, $\neq$ symbols
- Find the range from a list of integers
- Find the median from a list of integers
- Place decimals on a number line
- Order and compare decimals
- Write 10, 100, 1000 etc. as powers of ten
- Write positive integers in the form $A \times 10^{n}$
- Investigate negative powers of ten
- Write decimals in the form $A \times 10^{n}$
- Round numbers to one significant figure

Inverse operations

Equation
Inverse
Term
Expression
Equivalent
End of block assessment Knowledge Organiser

Equivalence block
Lower Attainer Guidance
Higher Attainer Guidance
Writing numbers in words and
 integers
Rounding using scales
Finding the mid-point of two numbers
Integer

Ascending
Descending
Range
Median
Approximate

|  | End of block assessment <br> Knowledge Organiser |
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| $\frac{\text { Place Value block }}{\text { Lower Attainer Guidance }}$ <br> Higher Attainer Guidance |  |

## Block 4: Fractions, Decimals \& Percentages

By the end of this unit of learning all students will be able to

- Represent tenths and hundredths on diagrams and number lines
- Convert and compare tenths and hundredths between fractions and decimals
- Convert and compare fifths and quarters between fractions and decimals
- Convert between fractions and decimals - eighths and thousandths
- Represent percentages on a hundred grids
- Represent fractions as diagrams
- Represent fractions on number lines
Equivalent
Percent
Numerator

Denominator $\quad$| End of block assessment tables |
| :--- |
| Knowledge Organiser |

- Identify and use equivalent fractions
- Understand fractions as divisions
- Convert between fractions, decimals \& percentages
- Use and interpret pie charts
- Explore fractions above one, decimals and percentages


## Progress Point 1

Block 5: Solving problems with addition and subtraction
By the end of this unit of learning all students will be able to Understand the properties of addition and subtraction

- Use mental strategies for addition and subtraction
- Use formal methods for addition of integers and decimals
- Use formal methods for subtraction of integers and decimals
- Use a calculator to solve addition and subtraction problems
- Calculate the perimeter of a given shape
- Solve financial maths
- Solve problems involving tables and timetables
- Solve problems with frequency trees
\(\left.$$
\begin{array}{ll}\begin{array}{l}\text { Number bonds } \\
\text { Telling the time }\end{array}
$$ <br>
Commutative <br>
Inverse <br>
llaceholder <br>
Sum <br>

Difference\end{array}\right]\)| End of block assessment |
| :--- |
| Knowledge Organiser |

By the end of this unit of learning all students will be able to

- Understand the properties of multiplication and division
- Understand and use factors
- Understand and use multiples
- Multiply and divide integers and decimals by powers of 10
- Multiply by 0.1 and 0.01
- Convert metric units
- Use formal methods to multiply integers
- Use formal methods to divide integers
- Understand and use order of operations
- Solve problems using the area of rectangles and parallelograms

Lower Attainer Guidance

- Solve problems using the area of triangles
- Solve problems using the area of trapezia
- Solve problems using the mean
- Explore multiplication and division in algebraic expressions


## Block 7: Fractions and percentages of amounts

- Find a fraction of a given amount
- Use a given fraction to find the whole and/or other fractions
- Find a percentage of an amount using a calculator
- To be able to explain how to find simple percentages ( $10 \%, 50 \%$ ) of amounts.
- Solve problems with fractions greater than 1 and percentages greater than 100\%
Division
Shading parts of fractions


## Block 10: Constructing, measuring and using geometric notation

- Draw and measure line segments
- Classify angles
- Draw and measure angles up to $180^{\circ}$
- Draw and measure angles between $180^{\circ}$ and $360^{\circ}$
- Identify perpendicular and parallel lines
- Recognise types of triangle
- Identify polygons up to a decagon
- Construct triangles using SSS
- Construct triangles using SSS, SAS and ASA
- Construct more complex polygons
- Interpret simple pie charts using proportion

Interpret pie charts using a protractor

- Draw pie charts

|  | Naming 2D shapes |
| :---: | :---: |
|  | Polygon <br> Parallel Scalene triangle Isosceles triangle Acute Obtuse Reflex |
|  | End of block assessment Knowledge Organiser |
|  | Constructing, measuring \& using geometric notation block <br> Lower Attainer Guidance Higher Attainer Guidance |
|  |  |
|  | Vertically opposite <br> Interior angle <br> Sum <br> Polygon |
|  | End of block assessment Knowledge Organiser |
|  | Developing geometric reasoning block Lower Attainer Guidance Higher Attainer Guidance |
|  |  |
|  | Commutative <br> Divisor <br> Expression <br> Equation <br> Factor |
|  | End of block assessment Knowledge Organiser |
|  | Developing number sense block <br> Lower Attainer Guidance Higher Attainer Guidance |

## Block 13: Sets and probability

- Identify and represent sets
- Interpret and create simple Venn diagrams
- Know and use the vocabulary of probability
- Understand and use the intersection of sets

Understand and use the union of sets
Understand and use the complement of a set

- Generate sample spaces for single events
- Calculate the probability of a single event
- Understand and use the probability scale
- Know that the sum of probabilities of all possible outcomes is 1
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Block 14: Prime numbers and proof

- Find and use multiples
- Identify factors of numbers and expressions
- Recognise and identify prime numbers
- Find common factors of a set of numbers including the HCF
- Find common multiples of a set of numbers including the LCM
- Write a number as a product of its prime factors
- Use a Venn diagram to calculate the HCF and LCM
- Make and test conjectures
- Use counterexamples to disprove a conjecture

| Set <br> Element <br> Probability <br> Mutually exclusive <br> Bias <br> Fair <br> Random |
| :--- | :--- |
| End of block assessment <br> Knowledge Organiser | | Sets and Probability block |
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| Higher Attainer Guidance |

## Progress Point 3

