

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Algebraic Thinking						Place Value and Proportion					
	Sequences		Understand and use algebraic notation		Equality and equivalence		Place value and ordering integers and decimals			Fraction, decimal and percentage equivalence		
Spring	Applications of Number						Directed Number			Fractional Thinking		
	Solving problems with addition & subtraction		Solving problems with multiplication and division		Fractions & percentages of amounts		Operations and equations with directed number			Addition and subtraction of fractions		
Summer	Lines and Angles						Reasoning with Number					
	Constructing, measuring and using geometric notation			Developing geometric reasoning			Developing number sense		Sets and probability		Prime numbers and proof	

Sequences

Small Steps

- Describe and continue a sequence given diagrammatically
- Predict and check the next term(s) of a sequence
- Represent sequences in tabular and graphical forms
- Recognise the difference between linear and non-linear sequences
- Continue numerical linear sequences
- Continue numerical non-linear sequences
- Explain the term-to-term rule of numerical sequences in words
- Find missing numbers within sequences**

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Understand and use notation

Small Steps

- ▶ Given a numerical input, find the output of a single function machine
- ▶ Use inverse operations to find the input given the output
- ▶ Use diagrams and letters to generalise number operations
- ▶ Use diagrams and letters with single function machines
- ▶ Find the function machine given a simple expression
- ▶ Substitute values into single operation expressions
- ▶ Find numerical inputs and outputs for a series of two function machines
- ▶ Use diagrams and letters with a series of two function machines
- ▶ Find the function machines given a two-step expression
- ▶ Substitute values into two-step expressions
- ▶ Generate sequences given an algebraic rule
- ▶ Represent one- and two-step functions graphically

Equality and Equivalence

Small Steps

- ▶ Understand the meaning of equality
- ▶ Understand and use fact families, numerically and algebraically
- ▶ Solve one-step linear equations involving $+/−$ using inverse operations
- ▶ Solve one-step linear equations involving \times/\div using inverse operations
- ▶ Understand the meaning of like and unlike terms
- ▶ Understand the meaning of equivalence
- ▶ Simplify algebraic expressions by collecting like terms, using the \equiv symbol

Place Value

Small Steps

- ▶ Recognise the place value of any number in an integer up to one billion
- ▶ Understand and write integers up to one billion in words and figures
- ▶ Work out intervals on a number line
- ▶ Position integers on a number line
- ▶ Round integers to the nearest power of ten
- ▶ Compare two numbers using $=$, \neq , $<$, $>$, \leq , \geq
- ▶ Order a list of integers
- ▶ Find the range of a set of numbers
- ▶ Find the median of a set of numbers
- ▶ Understand place value for decimals
- ▶ Position decimals on a number line
- ▶ Compare and order any number up to one billion

Place Value

Small Steps

- ▶ Round a number to 1 significant figure
- ▶ Write 10, 100, 1000 etc. as powers of ten H
- ▶ Write positive integers in the form $A \times 10^n$ H
- ▶ Investigate negative powers of ten H
- ▶ Write decimals in the form $A \times 10^n$ H

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FDP Equivalence

Small Steps

- ▶ Represent tenths and hundredths as diagrams
- ▶ Represent tenths and hundredths on number lines
- ▶ Interchange between fractional and decimal number lines
- ▶ Convert between fractions and decimals – tenths and hundredths
- ▶ Convert between fractions and decimals – fifths and quarters
- ▶ **Convert between fractions and decimals – eighths and thousandths** H
- ▶ Understand the meaning of percentage using a hundred square
- ▶ Convert fluently between simple fractions, decimals and percentages
- ▶ Use and interpret pie charts

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FDP Equivalence

Small Steps

- ▶ Represent any fraction as a diagram
- ▶ Represent fractions on number lines
- ▶ Identify and use simple equivalent fractions
- ▶ Understand fractions as division
- ▶ Convert fluently between fractions, decimals and percentages
- ▶ **Explore fractions above one, decimals and percentages**

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Addition and Subtraction

Small Steps

- ▶ Properties of addition and subtraction
- ▶ Mental strategies for addition and subtraction
- ▶ Use formal methods for addition of integers
- ▶ Use formal methods for addition of decimals
- ▶ Use formal methods for subtraction of integers
- ▶ Use formal methods for subtraction of decimals
- ▶ Choose the most appropriate method: mental strategies, formal written or calculator
- ▶ Solve problems in the context of perimeter
- ▶ Solve financial maths problems

Addition and Subtraction

Small Steps

- ▶ Solve problems involving tables and timetables
- ▶ Solve problems with frequency trees
- ▶ Solve problems with bar charts and line charts
- ▶ Add and subtract numbers given in standard form

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Multiplication and Division

Small Steps

- ▶ 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 multiply decimals
- ▶ Use formal methods to divide integers
- ▶ Use formal methods to divide decimals

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Multiplication and Division

Small Steps

- Understand and use order of operations
- Solve problems using the area of rectangles and parallelograms
- Solve problems using the area of triangles
- Solve problems using the area of trapezia** H
- Solve problems using the mean
- Explore multiplication and division in algebraic expressions** H

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Fractions & Percentages of Amounts

Small Steps

- Find a fraction of a given amount
- Use a given fraction to find the whole and/or other fractions
- Find a percentage of a given amount using mental methods
- Find a percentage of a given amount using a calculator
- Solve problems with fractions greater than 1 and percentages greater than 100%** H

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Directed Number

Small Steps

- ▶ Understand and use representations of directed numbers
- ▶ Order directed numbers using lines and appropriate symbols
- ▶ Perform calculations that cross zero
- ▶ Add directed numbers
- ▶ Subtract directed numbers
- ▶ Multiplication of directed numbers
- ▶ Multiplication and division of directed numbers
- ▶ Use a calculator for directed number calculations
- ▶ Evaluate algebraic expressions with directed number
- ▶ Introduction to two-step equations

Directed Number

Small Steps

- ◀ Solve two-step equations
- ▶ Use order of operations with directed numbers
- ◀ **Roots of positive numbers**
- ▶ **Explore higher powers and roots**

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Fractional Thinking

Small Steps

- Understand representations of fractions
- Convert between mixed numbers and fractions
- Add and subtract unit fractions with the same denominator
- Add and subtract fractions with the same denominator
- Add and subtract fractions from integers expressing the answer as a single fraction
- Understand and use equivalent fractions
- Add and subtract fractions where denominators share a simple common multiple
- Add and subtract fractions with any denominator
- Add and subtract improper fractions and mixed numbers
- Use fractions in algebraic contexts
- Use equivalence to add and subtract decimals and fractions
- Add and subtract simple algebraic fractions**

Fractional Thinking

Small Steps

- Use fractions in algebraic contexts
- Use equivalence to add and subtract decimals and fractions
- Add and subtract simple algebraic fractions**

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Construction and Measuring

Small Steps

- Understand and use letter and labelling conventions including those for geometric figures
- Draw and measure line segments including geometric figures
- Understand angles as a measure of turn
- Classify angles
- Measure angles up to 180°
- Draw angles up to 180°
- Draw and measure angles between 180° and 360°
- Identify perpendicular and parallel lines
- Recognise types of triangle
- Recognise types of quadrilateral

Construction and Measuring

Small Steps

- 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

Geometric Reasoning

Small Steps

- ▶ Understand and use the sum of angles at a point
- ▶ Understand and use the sum of angles on a straight line
- ▶ Understand and use the equality of vertically opposite angles
- ▶ Know and apply the sum of angles in a triangle
- ▶ Know and apply the sum of angles in a quadrilateral
- ▶ Solve angle problems using properties of triangles and quadrilaterals
- ▶ Solve complex angle problems

Geometric Reasoning

Small Steps

- ▶ Find and use the angle sum of any polygon H
- ▶ Investigate angles in parallel lines H
- ▶ Understand and use parallel line angle rules H
- ▶ Use known facts to obtain simple proofs. H

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Developing Number Sense

Small Steps

- ▶ Know and use mental addition and subtraction strategies for integers
- ▶ Know and use mental multiplication and division strategies for integers
- ▶ Know and use mental arithmetic strategies for decimals
- ▶ Know and use mental arithmetic strategies for fractions
- ▶ Use factors to simplify calculations
- ▶ Use estimation as a method for checking mental calculations
- ▶ Use known number facts to derive other facts
- ▶ Use known algebraic facts to derive other facts
- ▶ Know when to use a mental strategy, formal written method or a calculator

Sets and Probability

Small Steps

- Identify and represent sets
- Interpret and create Venn diagrams
- Understand and use the intersection of sets
- Understand and use the union of sets
- Understand and use the complement of a set**
- Know and use the vocabulary of probability

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Sets and Probability

Small Steps

- 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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Prime Numbers and Proof

Small Steps

- Find and use multiples
- Identify factors of numbers and expressions
- Recognise and identify prime numbers
- Recognise square and triangular 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

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