#### **Green Lane Church of England Primary School**

#### Maths Learning Plan **Term 1**

#### Year 5

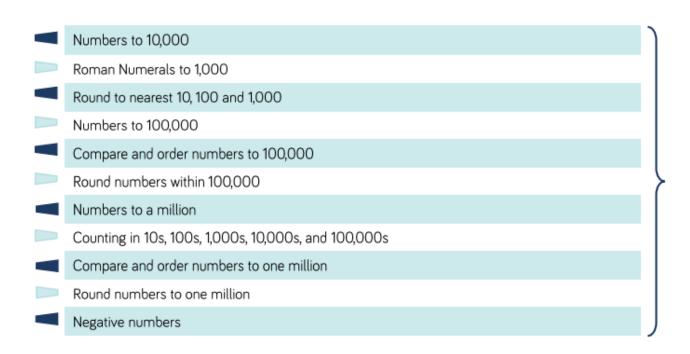
Topic or Activity	Year 5 Term 1 Knowledge Based Learning Objectives
Number: Place Value	Read, write, order and compare numbers to at least 1000 000 and determine the value of each digit
	Count forwards or backwards in steps of powers of 10 for any given number up to 1000 000
	Interpret negative numbers in context, count forwards and backwards with positive and negative
	whole numbers, including through zero
	Round any number up to 1000000 to the nearest 10, 100, 1000, 10000 and 100000
	Solve number problems and practical problems that involve all of the above
	Read Roman numerals to 1000 (M) and recognise years written in Roman numerals
Number: Addition & Subtraction	Add and subtract numbers mentally with increasingly large numbers
	Add and subtract whole numbers with more than 4 digits, including using formal written methods
	Use rounding to check answers to calculations and determine, in the context of a problem, levels of
	accuracy
	Solve addition and subtraction multi-step problems in contexts, deciding which operations and
	methods to use and why
Statistics	Solve comparison, sum and difference problems using information presented in a line graph
	Complete, read and interpret information in tables, including timetables
Number: Multiplication &	Multiply and divide numbers mentally drawing upon known facts
Division	Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000
	Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers
	Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3)
	Solve problems involving multiplication and division including using their knowledge of factors and multiples, squares and cubes
	Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers
	Establish whether a number up to 100 is prime and recall prime numbers up to 19

Measurement: Perimeter & Area	Measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
	Calculate and compare the area of squares and rectangles including using standard units, square
	centimetres (cm <sup>2</sup> ) and square metres (m <sup>2</sup> ) and estimate the area of irregular shapes

#### Year 5 | Autumn Term | Week 1 to 3 - Number: Place Value



# Overview Small Steps



## **NC** Objectives

Read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit.

Count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000

Interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers including through zero.

Round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000

Solve number problems and practical problems that involve all of the above.

Read Roman numerals up to 1,000 (M) and recognise years written in Roman numerals.

#### Year 5 | Autumn Term | Week 4 to 5 - Number: Addition & Subtraction



# Overview Small Steps

- Add whole numbers with more than 4 digits (column method)

  Subtract whole numbers with more than 4 digits (column method)
- Round to estimate and approximate

  Inverse operations (addition and subtraction)
- Multi-step addition and subtraction problems

## **NC** Objectives

Add and subtract numbers mentally with increasingly large numbers.

Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction). Use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy.

Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.

#### Year 5 | Autumn Term | Week 6 to 7 – Statistics



# Overview

# Small Steps



# **NC** Objectives

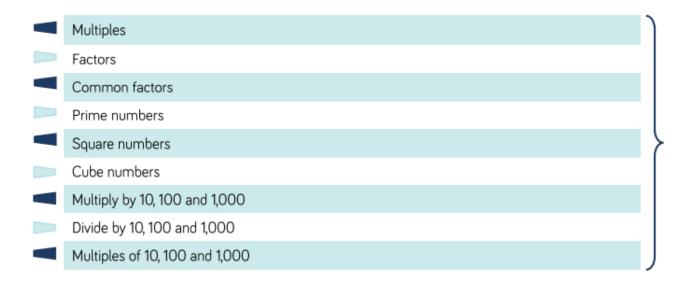
Solve comparison, sum and difference problems using information presented in a line graph.

Complete, read and interpret information in tables including timetables.

#### Year 5 | Autumn Term | Week 8 to 9 – Number: Multiplication & Division



# Overview Small Steps



## **NC** Objectives

Multiply and divide numbers mentally drawing upon known facts.

Multiply and divide whole numbers by 10, 100 and 1,000

Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers.

Recognise and use square numbers and cube numbers and the notation for squared ( 2) and cubed ( 3)

Solve problems involving multiplication and division including using knowledge of factors and multiples, squares and cubes.

Know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.

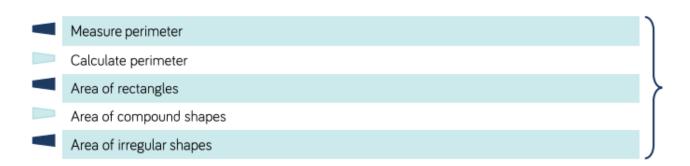
Establish whether a number up to 100 is prime and recall prime numbers up to 19

#### Year 5 | Autumn Term | Week 10 to 11 - Measurement: Perimeter & Area



# Overview

# Small Steps



## **NC** Objectives

Measure and calculate the perimeter of composite rectilinear shapes in cm and m.

Calculate and compare the area of rectangles (including squares), and including using standard units, cm², m² estimate the area of irregular shapes.

#### **Green Lane Church of England Primary School**

#### Maths Learning Plan **Term 2**

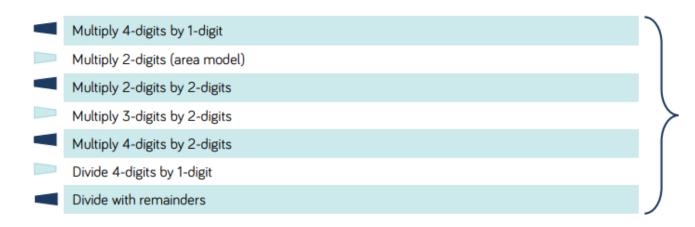
#### Year 5

Topic or Activity	Year 5 Term 2 Knowledge Based Learning Objectives
Number: Multiplication &	Multiply and divide numbers mentally drawing upon known facts
Division	Multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers
	Divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context
	Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
Number: Fractions	Compare and order fractions whose denominators are all multiples of the same number
	Identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths
	Recognise mixed numbers and improper fractions and convert from one form to the other and write
	mathematical statements > 1 as a mixed number (e.g. $^2/_5 + ^4/_5 = ^6/_5 = 1^1/_5$ )
	Add and subtract fractions with the same denominator and multiples of the same number
	Multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams Not in WRMaths
Number Desimals 0	Read, write, order and compare numbers with up to three decimal places
Number: Decimals &	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
Percentages	Round decimals with two decimal places to the nearest whole number and to one decimal place
	Solve problems involving numbers up to three decimal places
	Recognise the per cent symbol (%) and understand that per cent relates to "number of parts per hundred", and write percentages as a fraction with denominator 100 as a decimal fraction
	Read and write decimal numbers as fractions (e.g. $0.71 = \frac{71}{100}$ )
	Solve problems which require knowing percentage and decimal equivalents of $\frac{1}{2}$ , $\frac{1}{4}$ , $\frac{1}{5}$ , $\frac{2}{5}$ , $\frac{4}{5}$ , and
	those with a denominator of a multiple of 10 or 25

#### Year 5 | Spring Term | Week 1 to 3 - Number: Multiplication & Division



# Overview Small Steps



## **NC** Objectives

Multiply and divide numbers mentally drawing upon known facts.

Multiply numbers up to 4 digits by a one or two digit number using a formal written method, including long multiplication for 2-digit numbers.

Divide numbers up to 4 digits by a 1digit number using the formal written method of short division and interpret remainders appropriately for the context.

Solve problems involving addition and subtraction, multiplication and division and a combination of these, including understanding the use of the equals sign.

#### Year 5 | Spring Term | Week 4 to 9 - Number: Fractions



# Overview Small Steps

- Equivalent fractions
- Improper fractions to mixed numbers
- Mixed numbers to improper fractions
- Number sequences
- Compare and order fractions less than 1
- Compare and order fractions greater than 1
- Add and subtract fractions
- Add fractions within 1
- Add 3 or more fractions
- Add fractions
- Add mixed numbers
- Subtract fractions
- Subtract mixed numbers
- Subtract breaking the whole

## **NC** Objectives

Compare and order fractions whose denominators are multiples of the same number.

Identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths.

Recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements >1 as a mixed number [for example  $\frac{2}{5} + \frac{4}{5} = \frac{6}{5} = 1\frac{1}{5}$ 

Add and subtract fractions with the same denominator and denominators that are multiples of the same number.

#### Year 5 | Spring Term | Week 10 to 11 - Number: Decimals & Percentages



# **Overview**

# Small Steps



### **NC** Objectives

Read, write, order and compare numbers with up to three decimal places.

Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents.

Round decimals with two decimal places to the nearest whole number and to one decimal place.

Solve problems involving number up to three decimal places.

Recognise the percent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal.

Solve problems which require knowing percentage and decimal equivalents of  $\frac{1}{2}$ ,  $\frac{1}{4}$ ,  $\frac{1}{5}$ ,  $\frac{2}{5}$ ,  $\frac{4}{5}$  and those fractions with a denominator of a multiple of 10 or 25

#### **Green Lane Church of England Primary School**

#### Maths Learning Plan **Term 3**

#### Year 5

Topic or Activity	Year 5 Term 3 Knowledge Based Learning Objectives
Number: Decimals	Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents
	Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits
	in the answer as ones, tenths and hundredths Y4 objective
	Convert between different units of metric measure (e.g. kilometre and metre; centimetre and millimetre)
Geometry: Properties of Shape	Identify 3-D shapes, including cubes and other cuboids, from 2-D representations
	Use the properties of rectangles to deduce related facts and find missing lengths and angles
	Distinguish between regular and irregular polygons based on reasoning about equal sides and angles
	Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles
	Draw given angles, and measure them in degrees °
	Identify angles at a point and one whole turn (total $360^\circ$ ); angles at a point on a straight line and ½ a
	turn (total 180°); other multiples of 90°
Geometry: Position & Direction	Identify, describe and represent the position of a shape following a reflection or translation, using the
	appropriate language, and know that the shape has not changed
Measurement: Converting Units	Convert between different units of metric measure (e.g. kilometre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre)
	Understand and use equivalences between metric units and common imperial units such as inches, pounds and pints
	Solve problems involving converting between units of time
Measurement: Volume	Estimate volume (e.g. using 1 cm <sup>3</sup> blocks to build cubes and cuboids) and capacity (e.g. using water)
	Use all four operations to solve problems involving measure (e.g. length, mass, volume, money) using decimal notation including scaling.

#### Year 5 | Summer Term | Week 1 to 4 - Number: Decimals



# Overview Small Steps

- Adding decimals within 1
- Subtracting decimals within 1
- Complements to 1
- Adding decimals crossing the whole
- Adding decimals with the same number of decimal places
- Subtracting decimals with the same number of decimal places
- Adding decimals with a different number of decimal places
- Subtracting decimals with a different number of decimal places
- Adding and subtracting wholes and decimals
- Decimal sequences
- Multiplying decimals by 10, 100 and 1,000
- Dividing decimals by 10, 100 and 1,000

## **NC** Objectives

Recognise and write decimal equivalents of any number of tenths or hundredths.

Find the effect of dividing a one or two digit number by 10 or 100, identifying the value of the digits in the answer as ones, tenths and hundredths

Solve simple measure and money problems involving fractions and decimals to two decimal places.

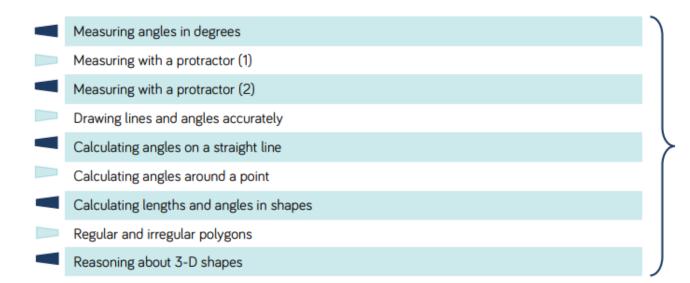
Convert between different units of measure [for example, kilometre to metre]

#### Year 5 | Summer Term | Week 5 to 7 - Geometry: Properties of Shapes



# **Overview**

# Small Steps



### **NC** Objectives

Identify 3-D shapes, including cubes and other cuboids, from 2-D representations.

Use the properties of rectangles to deduce related facts and find missing lengths and angles.

Distinguish between regular and irregular polygons based on reasoning about equal sides and angles.

Know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles.

Draw given angles, and measure them in degrees.

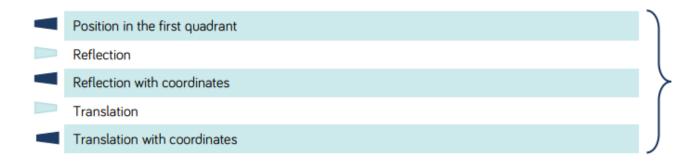
Identify: angles at a point and one whole turn (total 360°), angles at a point on a straight line and ½ a turn (total 180°) other multiples of 90°

#### Year 5 | Summer Term | Week 8 - Geometry: Position & Direction



# Overview

# Small Steps



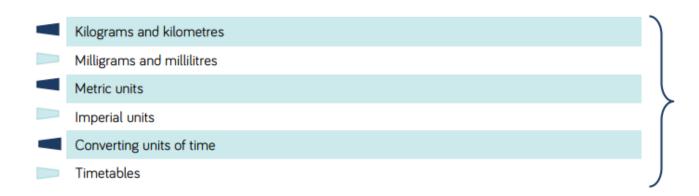
### **NC** Objectives

Identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed.

#### Year 5 | Summer Term | Week 9 to 10 - Measurement: Converting Units



# Overview Small Steps



## **NC** Objectives

Convert between different units of metric measure [for example, km and m; cm and m; cm and mm; g and kg; l and ml]

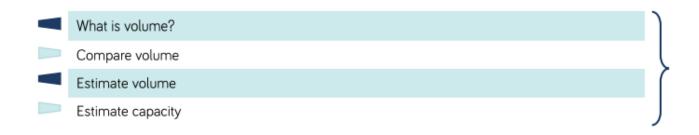
Understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints.

Solve problems involving converting between units of time.

#### Year 5 | Summer Term | Week 11 - Measurement: Volume



# Overview Small Steps



### **NC** Objectives

Estimate volume [for example using 1cm3 blocks to build cuboids (including cubes)] and capacity [for example, using water]

Use all four operations to solve problems involving measure.