St Edward's Maths Curriculum Map

Year 5 - Maths

Autumn 1	Autumn 2
Number and place value ● 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 ● round any number up to 1 000 000 to the nearest 10, 100, 1000, 10 000 and 100 000 ● solve number problems and practical problems that involve all of the above **Multiplication and division** ● multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 **Fractions (including decimals and percentages)** ● read and write decimal numbers as fractions [for example, 0.71 = $^{71}/_{100}$] ● 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 ● read, write, order and compare numbers with up to three decimal places ● solve problems involving number up to three decimal places **Measurement** ● convert between different units of metric measure (for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre) ● solve problems involving converting between units of time. **Success criteria** Pupils can represent and explain the multiplicative nature of the number system, understanding how to multiply and divide by 10, 100 and 1000. Pupils make appropriate decisions about when to use their understanding of counting, place value and rounding for solving problems including adding and subtracting. **Addition and subtraction**	**Multiplication and division** ● identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers ● multiply numbers up to 4 digits by a one-digit number using a formal written method ● multiply and divide numbers mentally drawing upon known facts ● 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 ● *multiply and divide whole numbers and those involving decimals by 10, 100 and 1000* ● solve problems involving multiplication and division including using their knowledge of factors and multiples ● solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign **Measurement** ● *use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation including scaling.* **Success criteria** Pupils can solve problems involving multiplication and division in different contexts, appropriately choosing and using number facts, understanding of place value and mental and written methods. They can explain their decision making and justify their decisions. **Geometry: properties of shapes** ● identify 3-D shapes, including cubes and other cuboids, from 2-D representations ● 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°)

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Year 5 - Maths

- add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)
- add and subtract numbers mentally with increasingly large numbers
- 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

Measurement

- use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation including scaling

Statistics

- solve comparison, sum and difference problems using information presented in a line graph
- complete, read and interpret information in tables including timetables.

Success criteria

Pupils can solve addition and subtraction problems in different contexts, appropriately choosing and using number facts, understanding of place value and mental and written methods. They can explain their decision making and justify their solutions.

– angles at a point on a straight line and ½ a turn (total 180°)
– other multiples of 90°

- 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.

Success criteria

Pupils can explain angle as a measure of turn, draw and measure angles and use their understanding of angle to describe the properties of different shapes.

Number and place value

- *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, 1000, 10 000 and 100 000*
- *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

Multiplication and division

- *multiply and divide whole numbers and those involving decimals by 10, 100 and 1000*

Fractions (including decimals and percentages)

- *read and write decimal numbers as fractions [for example, 0.71 = $^{71}/_{100}$]*
- *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*
- *read, write, order and compare numbers with up to three decimal places*
- *solve problems involving number up to three decimal places*

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Year 5 - Maths

	Measurement ● *convert between different units of measure (e.g. kilometre and metre; metre and centimetre; centimeter and millimetre; kilogram and gram; litre and millilitre)* ● *solve problems involving converting between units of time.* **<u>Success criteria</u>** **Pupils can make appropriate decisions about when to use their understanding of counting (including counting below zero), place value and rounding for solving problems including adding and subtracting. Pupils can explain the representation of three-digit positive numbers as Roman numerals.**

St Edward's Maths Curriculum Map

Year 5 - Maths

Spring 1	Spring 2
Addition and subtraction ● *add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)* ● *add and subtract numbers mentally with increasingly large numbers* ● *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* **Fractions (including decimals and percentages)** ● *solve problems involving number up to three decimal places* **Measurement** ● *use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation including scaling* ● *measure and calculate the perimeter* **Statistics** ● *solve comparison, sum and difference problems using information presented in a line graph* ● *complete, read and interpret information in tables, including timetables.* **<u>Success criteria</u>** **Pupils can solve addition and subtraction problems in different contexts, appropriately choosing and using number facts, understanding of place value and mental and written methods. They can explain their decision making and justify their solutions.** **Multiplication and division** ● *multiply and divide whole numbers and those involving decimals by 10, 100 and 1000*	**Multiplication and division** ● *identify multiples and factors, including finding all factor pairs* ● know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers ● *solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates* ● establish whether a number up to 100 is prime and recall prime numbers up to 19 ● *multiply numbers up to 4 digits by a one-digit number using a formal written method* ● *multiply and divide numbers mentally drawing upon known facts* ● *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* ● *multiply and divide whole numbers and those involving decimals by 10, 100 and 1000* ● 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 ● solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign **Fractions (including decimals and percentages)** ● solve problems which require knowing percentage and decimal equivalents of ½, ¼, ⅕, ⅖, ⅘ and those with a denominator of a multiple of 10 or 25 **Measurement** ● *use all four operations to solve problems involving measure [for example, length, mass, volume, money]*

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Year 5 - Maths

Fractions (including decimals and percentages)

- compare and order fractions whose denominators are all multiples of the same number
- 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, $^{2}/_{5} + {}^{4}/_{5} = {}^{6}/_{5} = 1{}^{1}/_{5}$]
- *read and write decimal numbers as fractions [for example, 0.71 = $^{71}/_{100}$]*
- *recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents*
- 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, and as a decimal
- identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths.

Success criteria

Pupils can represent and explain the relationship between decimals, fractions and percentages. They use this understanding to solve problems.

using decimal notation including scaling.

Success criteria

Pupils can explain and show properties of prime, composite, square and cube numbers and explain factor pairs related to these sets of numbers. They understand and can explain the relationship between multiplication, division, fractions and percentages. They use this understanding to derive facts and solve problems.

Geometry: properties of shapes

- *identify 3-D shapes, including cubes and other cuboids, from 2-D representations*
- *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°*
- *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*

Geometry: position and 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.

Success criteria

Pupils can explain how to reflect and translate shapes on a grid in the first quadrant and use this knowledge and understanding to solve problems.

Number and place value

- *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, 1000, 10 000 and 100 000*

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Year 5 - Maths

	● *solve number problems and practical problems that involve all of the above* **Multiplication and division** ● *multiply and divide whole numbers and those involving decimals by 10, 100 and 1000* **Fractions (including decimals and percentages)** ● *compare and order fractions whose denominators are all multiples of the same number* ● *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, $^{2}/_{5} + {}^{4}/_{5} = {}^{6}/_{5} = 1{}^{1}/_{5}$]* ● *read and write decimal numbers as fractions [for example, 0.71 = $^{71}/_{100}$]* ● *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* ● *read, write, order and compare numbers with up to three decimal places* ● *solve problems involving number up to three decimal places* **Measurement** ● *convert between different units of measure (e.g. kilometre and metre; metre and centimetre; centimeter and millimetre; kilogram and gram; litre and millilitre)* ● *solve problems involving converting between units of time.* **<u>Success criteria</u>** **Pupils can use their understanding of the multiplicative nature of the number system to convert between differentunits of measures, using how to multiply and divide by 10, 100 and 1000. Pupils make appropriate decisions aboutwhen to use their understanding of counting (including infractions), place value and rounding for solving problems including adding and subtracting.**

St Edward's Maths Curriculum Map

Year 5 - Maths

Summer 1	Summer 2
Addition and subtraction ● *add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction)* ● *add and subtract numbers mentally with increasingly large numbers* ● *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* **Fractions (including decimals and percentages)** ● *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 ● *solve problems involving number up to three decimal places* **Measurement** ● *use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation including scaling* ● *solve problems involving converting between units of time* **Statistics** ● *solve comparison, sum and difference problems using information presented in a line graph* ● *complete, read and interpret information in tables, including timetables.* **<u>Success criteria</u>** **Pupils can solve addition and subtraction problems including with fractions) in different contexts, appropriately choosing and using number facts, understanding of place value and mental and written methods. They can explain their decision making and justify their solutions.**	**Multiplication and division** ● *identify multiples and factors, including finding all factor pairs, and common factors of two numbers* ● *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* ● *multiply numbers up to 4 digits by a one- <u>or two-digit</u> number using a formal written method <u>including long multiplication for two-digit numbers</u>* ● *multiply and divide numbers mentally drawing upon known facts* ● *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* ● *multiply and divide whole numbers and those involving decimals by 10, 100 and 1000* ● *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* ● *solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign* ● *solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates.* **Fractions (including decimals and percentages)** ● *identify, name and write equivalent fractions of a given fraction, represented visually including tenths and hundredths* ● <u>multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams</u> ● *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*

St Edward's Maths Curriculum Map

Year 5 - Maths

Multiplication and division
- *multiply and divide whole numbers and those involving decimals by 10, 100 and 1000*

Fractions (including decimals and percentages)
- *compare and order fractions whose denominators are all multiples of the same number*
- *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, $^{2}/_{5} + {}^{4}/_{5} = {}^{6}/_{5} = 1{}^{1}/_{5}$]*
- *read and write decimal numbers as fractions [for example, 0.71 = $^{71}/_{100}$]*
- *recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents*
- *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, and as a decimal.*

Measurement
- *convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre].*

Success criteria

Pupils can represent and explain the relationship between decimals, fractions and percentages and how decimals and fractions fit into the number system. They use this understanding to solve problems.

Measurement
- *use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation including scaling*
- 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.*

Success criteria

Pupils can solve problems involving multiplication and division in different contexts, appropriately choosing and using number facts, understanding of place value and mental and written methods. They can explain their decision making and justify their solutions. They can explain and represent the connection between fractions and division.

Geometry: properties of shapes
- *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*

Geometry: position and 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
- measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres
- calculate and compare the area of rectangles (including squares), and including using standard units, square centimetres (cm^2) and square metres (m^2) and estimate the area of irregular shapes
- estimate volume [for example, using 1 cm^3 blocks to build cuboids (including cubes)] and capacity [for example, using water].

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Year 5 - Maths

	Success criteria **Pupils can explain how to find the perimeter and area of different shapes, using this knowledge and understanding to solve problems.**