Maths Curriculum map 2020-2021   Year 6   Fawbert and Barnard's Primary School

KIRFs (Key Instant Recall Facts)		
Autumn	**Spring**	**Summer**
• Derive multiplication and division facts using decimal numbers (e.g. 8 x 0.7 = 5.6) • I can identify common factors of a pair of numbers • Recall prime numbers up 100, square number and square roots (year 5)	• I know common fraction, decimal and percentage equivalences • I know the first 5 cube numbers • Recall how multiply and divide facts using decimal numbers	• Know doubles and halves of 2-digit decimals • I know the formulae for finding the area of different shapes • Recall conversions of fractions, decimals and percentages

Quick overall focus curriculum map:

Strand	Number of weeks	Autumn	Spring	Summer
Place value	**1**	**Round, compare, order place value to 1,000,000**	**Round, compare, order place value to 10,000,000**	**Solve number and practical problems using negative numbers**
Four operations	**2/3**	**Reinforce the four operations up to 4-digits**	**Ensure children can solve a 4-digit number divided by a 2-digit number using long division**	**Solve multi-step problems using all four operations**
Fractions	**2/3**	**Compare, order, and convert fractions, decimals and percentages.**	**Add and subtract fractions and decimals and simply where possible**	**Multiply and divide fractions and simply where possible**
Ratio and proportion	**1**	**Understand what ratio and proportion is**	**Solve problems involving ratio and proportion**	**Use ratio and proportion in pie charts and percentage problems**
Algebra	**1**	**Understand symbols and letters can represent variables and unknowns in mathematical situations**	**Able to express formulas algebraically**	**Able to solve two unknown values algebraically**
measurements	**1/2**	**Use, read, write and convert between standard and imperial units,**	**Calculate the area of quadrilaterals and triangles,**	**Calculate the volume of a given shape**
Geometry	**1**	**Draw accurately 2D shapes with a protractor and ruler**	**Solve any missing angle in a triangle, quadrilateral or regular shape**	**name parts of circles, including radius, diameter and circumference**
Transformation	**1**	**Describe positions on the full coordinate grid (one quadrant)**	**Describe positions on the full coordinate grid (two quadrant)**	**Describe positions on the full coordinate grid (all four quadrant)**
Statistics	**1**	**Calculate and interpret the mean as an average.**	**Interpret and construct pie charts and line graphs and use these to solve problems**	**draw appropriate graphs relating two variables**
Daily Maths	**daily**	Time, shapes, reading tables and graphs, times tables, multiplying and dividing by powers of 10, roman numerals		

	Autumn	Spring	Summer
Number and place value (1 week)	**(PM unit 1)** **Focus 1 000 000** • **Read, write, order and compare numbers up to 1 000 000 and determine the value of each digit** • **Round any whole number to a required degree of accuracy up to 1 000 000** • **Solve number and practical problems that involve number, place value and rounding up to 1 000 000** • **Use negative numbers up to 50 in context, and calculate intervals across zero**	**(PM unit 1)** **Focus 10 000 000** • **Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit** • Round any whole number to a required degree of accuracy up to 1 000 000 • Use negative numbers up to 100 in context, and calculate intervals across zero • Solve number and practical problems that involve number, place value and rounding up to 10 000 000	**(PM unit 1)** **Focus negative numbers** • **Use negative numbers up to and beyond 100 in context, and calculate intervals across zero** • Read, write, order and compare numbers up to 10 000 000 and determine the value of each digit • Round any whole number to a required degree of accuracy up to and beyond 10 000 000 • Solve number and practical problems that involve number, place value and rounding up to and beyond 10 000 000
CC	**History – dates or periods of time** **Geography- distances on maps** **Science- distances and diameters of planets, temperature – negative numbers**		

Addition, subtraction, multiplication and division (2/3 weeks)	**(PM unit 2 and 3)** **Focus fluency on four operation questions** • **Continue to practise the four operations for larger numbers (4-digits) using the formal written methods of columnar addition and subtraction, short and long multiplication, and short division** • Perform mental calculations, including with mixed operations and large numbers up to 1 000 000 • Solve addition and subtraction multi- step problems in contexts, deciding which operations and methods to use and why of numbers up to 1 000 000 • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy • Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • Begin to look at using long division when dividing by 2 digits • Solve problems involving addition, subtraction, multiplication and division of numbers up to 4 digits • Use written division methods in cases where the answer has up to two decimal places	**(PM unit 2 and 3)** **Focus long division** • **Continue to practise the four operations for larger numbers (5-digits) using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and <u>long</u> division** • Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • Perform mental calculations, including with mixed operations and large numbers up to 10 000 000 • Solve addition and subtraction multi- step problems in contexts, deciding which operations and methods to use and why of numbers up to 10 000 000 • Solve problems involving addition, subtraction, multiplication and division of numbers up to 5 digits • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy • Identify common factors, common multiples and prime numbers up to 100 • Recognise and use square numbers and cube numbers, and the notation for squared (^{2}) (up to 12^2) and cubed (^{3}) (up to 5^3) • Use written division methods in cases where the answer has up to two decimal places	**(PM unit 2 and 3)** **Focus multi-step problems** • **Solve multi-step problems involving addition, subtraction, multiplication and division of numbers up to 5 digits** • Continue to practise the four operations for larger numbers using the formal written methods of columnar addition and subtraction, short and long multiplication, and short and long division • Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication • Perform mental calculations, including with mixed operations and large numbers up to 10 000 000 • Solve addition and subtraction multi- step problems in contexts, deciding which operations and methods to use and why up to 10 000 000 • Use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy • Identify common factors, common multiples and prime numbers up to 100 Recall and use square numbers and cube numbers, and the notation for squared (^{2}) (up to 12^2) and cubed (^{3}) (up to 5^3) • Use written division methods in cases where the answer has up to two decimal places
CC	**DT- Food and calories in a meal** **Science – Height of plants growth** **Geography – distance between countries, height of mountains** **History – Creating pyramids with square numbers**		

Fractions, percentages and decimals (2/3 weeks)	**(PM unit 4,5 7,8)** **Focus on converting fractions into decimals, and percentages**	**(PM unit 4,5 7,8)** **Focus on the adding and subtracting fractions and decimals; begin to multiply and divide.**	**(PM unit 4,5 7,8)** **Focus on multiplying and dividing fractions**
	● Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts	**● Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions**	**● Multiply simple pairs of proper fractions, writing the answer in its simplest form**
	●Use common factors to simplify fractions; use common multiples to express fractions in the same denomination	● Multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers	**● Divide proper fractions by whole numbers**
	● List equivalent fractions to identify fractions with common denominators	● Use common factors to simplify fractions; use common multiples to express fractions in the same denomination	● Solve percentages of a quantity to any given percentage
	● Compare and order fractions, including fractions >1	● Compare and order fractions, including fractions >1	● Use a variety of images to support understanding of multiplication with fractions
	● Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places	● Associate a fraction with division and calculate decimal fraction equivalents	Use common factors to simplify fractions; use common multiples to express fractions in the same denomination
	● Multiply one-digit numbers with up to two decimal places by whole numbers	● Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places	● Add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions
	●Associate a fraction with division and calculate decimal fraction equivalents	Solve problems which require answers to be rounded to specified degrees of accuracy and check the reasonableness of answers.	● Identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places
	●Solve percentages of a quantity to powers of 10	● Recall and use equivalences between simple fractions, decimals and percentages, including in different contexts.	● Multiply and divide numbers with up to two decimal places by one-digit and two-digit whole numbers
		●Solve percentages of a quantity to powers of 5	● Solve problems which require answers to be rounded to specified degrees of accuracy and check the reasonableness of answers.
CC	**DT- Fractions of foods and balanced diet**		

| Ratio and proportion (1 week) | **(PM unit 12)**
Focus on basic understanding of ratio and proportion

• **Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts**

• Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples | **(PM unit 12**
Focus on solving problems involving ratio and proportion

• **Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples**

• Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts

• Solve problems involving similar shapes where the scale factor is known or can be found

• Solve problems involving the calculation of percentages (e.g. measures) such as 15% of 360 and the use of percentages for comparison

• Link percentages of 360° to calculating angles of pie charts | **(PM unit 12)**
Focus on ratio involved in pie charts and percentages

• **Solve problems involving the calculation of percentages (e.g. measures) such as 15% of 360 and the use of percentages for comparison**

• **Link percentages of 360° to calculating angles of pie charts**

• Solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts

• Solve problems involving similar shapes where the scale factor is known or can be found

• Solve problems involving unequal sharing and grouping using knowledge of fractions and multiples |
| **CC** | **DT – cake ratios**
Science – Experiments with liquids that need to be in a ratio 2 parts to 1 | | |

Algebra (1week)	**(PM unit 9)** **Focus on basic algebra understanding** ●**Use symbols and letters to represent variables and unknowns in mathematical situations such as:** - **missing numbers, lengths, coordinates and angles** - **mathematics and science formulae** - **arithmetic rules** ● Express missing number problems algebraically ● Use simple formulae expressed in words ● Enumerate all possibilities of combinations of two variables ● Find pairs of numbers that satisfy number sentences involving two unknowns.	**(PM unit 9)** **Focus expressing algebraic equations** ● **Express missing number problems algebraically** ●Use symbols and letters to represent variables and unknowns in mathematical situations such as: - missing numbers, lengths, coordinates and angles - mathematics and science formulae - arithmetic rules ●generalising number patterns ● Use simple formulae expressed in words ● Enumerate all possibilities of combinations of two variables ● Generate and describe linear number sequences	**(PM unit 9)** **Focus finding two unknowns using algebra** ● **Find pairs of numbers that satisfy number sentences involving two unknowns.** ●Use symbols and letters to represent variables and unknowns in mathematical situations such as: - missing numbers, lengths, coordinates and angles - mathematics and science formulae - arithmetic rules ●generalising number patterns ● Express missing number problems algebraically ● Use simple formulae expressed in words ● Enumerate all possibilities of combinations of two variables ● Generate and describe linear number sequences
CC	**Science – formulas**		

Measurements (1/2 week)	**(PM unit 10 + 11)** **Focus on converting metric and imperial units of measure** • **Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to three decimal places** • Convert between miles and kilometres and other units commonly used • Recognise that shapes with the same areas can have different perimeters and vice versa • Recognise when it is possible to use formulae for area of shapes • Calculate the area of triangles, relating it to the area of rectangles, • Solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate	**(PM unit 10 + 11)** **Focus on area of quadrilaterals and triangles** • **Calculate the area of parallelograms and triangles, relating it to the area of rectangles** • Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to three decimal places • Recognise that shapes with the same areas can have different perimeters and vice versa • Recognise when it is possible to use formulae for area and volume of shapes • Calculate, estimate and compare volume of cubes and cuboids using standard units, cubed (cm3) and cubic metres (m3) .	**(PM unit 10 + 11)** **Focus on volume of a given shape** • **Recognise when it is possible to use formulae for area and volume of shapes** • **calculate, estimate and compare volume of cubes and cuboids using standard units** • Use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to three decimal places • Recognise that shapes with the same areas can have different perimeters and vice versa • Calculate the area of parallelograms and triangles, relating it to the area of rectangles • Solve problems involving the calculation and conversion of units of measure, using decimal notation to three decimal places where appropriate • convert between miles and kilometres and other units commonly used
CC	**Art – painting specific areas – cubism** **Geography – size of land** **Business – creating a theme park, consider where to place what.** **History – size of armies, land gained through war**		

Geometry (1 week)	**(PM unit 12)** **Focus on drawing 2D shapes accurately using a protractor and ruler** • **Draw 2-D shapes using given dimensions and angles** • Recognise, describe and build simple 3-D shapes, including making nets • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles	**(PM unit 12)** **Focus on finding unknown angles in a triangle, quadrilateral or regular polygon** • **Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons** • Recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles •Recap how to draw 2-D shapes using given dimensions and angles • Recognise, describe and build simple 3-D shapes, including making nets	**(PM unit 12)** **Focus on parts of a circle** • **Illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius** •Recap how to draw 2-D shapes using given dimensions and angles • Recognise, describe and build simple 3-D shapes, including making nets • Compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons
CC	**DT – designing buildings, sketching and creating nets** **Art – Cubism** **Computing – rotation and angles**		
Position and direction (1 week)	**(PM unit 12)** **Focus on the positive quadrant** • **Describe positions on the full coordinate grid (one quadrants)** • Draw and translate simple shapes on the coordinate plane and reflect them in the axes. • Predict missing coordinates of quadrilaterals by using the properties of shapes, which may be expressed algebraically	**(PM unit 12)** **Focus on both x quadrants** • **Describe positions on the full coordinate grid (two quadrants)** • Draw and translate simple shapes on the coordinate plane and reflect them in the axes. • Predict missing coordinates of quadrilaterals by using the properties of shapes, which may be expressed algebraically	**(PM unit 12)** **Focus on all four quadrants** • **Describe positions on the full coordinate grid (all four quadrants)** • Draw and translate simple shapes on the coordinate plane and reflect them in the axes. • Predict missing coordinates of quadrilaterals by using the properties of shapes, which may be expressed algebraically
CC	**Art – Cubism, sketching faces** **Geography – reading coordinates** **PE – orienteering**		

Statistics (1 week)	**(PM unit 15)** **Focus on solving the mean of a set of numbers** • Calculate and interpret the mean as an average. • Interpret and construct line graphs and use these to solve problems	**(PM unit 15)** **Focus on constructing pie charts** • Interpret and construct pie charts and line graphs and use these to solve problems • Encounter and draw graphs relating two variables, arising from their own • Calculate and interpret the mean as an average.	**(PM unit 15)** **Focus on creating a suitable graph for sets of data** • Encounter and draw graphs relating two variables, arising from their own enquiry and in other subjects. • Interpret and construct pie charts and line graphs and use these to solve problems • Calculate and interpret the mean as an average.
CC	**Science – Drawing pie charts, line graphs reading tables and various other graphs** **PSHE – creating findings of a decision, creating a bar chart to show outcome** **Day to day time table**		