

Yellow highlight indicates additional to the National Curriculum

At Woodhouse Primary School we encourage our pupils to be confident, resilient mathematicians with a love of learning and no fear of 'grappling' with difficult concepts and those expressed in an unfamiliar way.

In our school, children are scaffolded, extended and supported through rapid teacher intervention, use of equipment and choice of strategies e.g. jottings/mental/resources. As such teaching is both enabling and extending.

Term :	Lesson Design : Curriculum objectives	Any adjustments/comments
Autumn 1	<p><u>Number: Place Value</u></p> <ul style="list-style-type: none"> • 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 • use negative numbers in context, and calculate intervals across zero • solve number and practical problems that involve all of the above. <p><u>Number: Fractions (including decimals and percentages)</u></p> <ul style="list-style-type: none"> • identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places • solve problems which require answers to be rounded to specified degrees of accuracy <p><u>Number: Addition, Subtraction, Multiplication and Division</u></p> <ul style="list-style-type: none"> • perform mental calculations, including with mixed operations and large numbers • identify common factors, common multiples and prime numbers • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why <p><u>Measurement: Length and Height/ Capacity and Volume/Mass and Weight /Time</u></p> <ul style="list-style-type: none"> • 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 up to three decimal places • solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate <p><u>Geometry: Properties of Shapes</u></p> <ul style="list-style-type: none"> • draw 2-D shapes using given dimensions and angles • compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons • recognise, describe and build simple 3-D shapes, including making nets 	<p>Solving problems involving negative numbers</p>

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<p>Autumn 2</p>	<p><u>Number: Addition, Subtraction, Multiplication and Division</u></p> <ul style="list-style-type: none"> perform mental calculations, including with mixed operations and large numbers multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why solve problems involving addition, subtraction, multiplication and division <p><u>Number: Fractions (including decimals and percentages)</u></p> <ul style="list-style-type: none"> use common factors to simplify fractions; use common multiples to express fractions in the same denomination compare and order fractions, including fractions > 1 associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375) for a simple fraction (for example $\frac{3}{6}$) recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. use written division methods in cases where the answer has up to two decimal places <p><u>Measurement</u></p> <ul style="list-style-type: none"> 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 up to three decimal places solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate 	
<p>Spring 1</p>	<p><u>Number: Fractions (including decimals and percentages)</u></p> <ul style="list-style-type: none"> multiply one-digit numbers with up to two decimal places by whole numbers use written division methods in cases where the answer has up to two decimal places solve problems which require answers to be rounded to specified degrees of accuracy <p><u>Algebra</u></p>	

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	<ul style="list-style-type: none"> • use simple formulae • generate and describe linear number sequences • express missing number problems algebraically • find pairs of numbers that satisfy an equation with two unknowns • enumerate possibilities of combinations of two variables. <p><u>Measurement: Area and Perimeter</u></p> <ul style="list-style-type: none"> • 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 the area of parallelograms and triangles • calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm^3) and cubic metres (m^3), and extending to other units [for example, mm^3 and km^3]. • solve problems involving area and perimeter <p><u>Geometry: Position and Direction</u></p> <ul style="list-style-type: none"> • describe positions on the full coordinate grid(all 4 quadrants) • draw and translate simple shapes on the coordinate plane, and reflect them in the axes <p><u>Statistics</u></p> <ul style="list-style-type: none"> • interpret and construct pie charts and line graphs and use these to solve problems • calculate and interpret the mean as an average 	
<p>Spring 2</p>	<p><u>Number: Addition, Subtraction, Multiplication and Division</u></p> <ul style="list-style-type: none"> • identify common factors, common multiples and prime numbers • perform mental calculations, including with mixed operations and large numbers • divide numbers up to 4 digits by a two-digit whole number using the formal written method of short division where appropriate , interpreting remainders according to the context • use their knowledge of the order of operations to carry out calculations involving the four operations • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy <p><u>Ratio and proportion</u></p> <ul style="list-style-type: none"> • 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 the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison 	

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	<ul style="list-style-type: none"> • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. <p><u>Measurement:Conversions</u></p> <ul style="list-style-type: none"> • convert between miles and kilometres 	
<p>Summer 1</p>	<p><u>Number: Addition, Subtraction, Multiplication and Division</u></p> <ul style="list-style-type: none"> • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • use their knowledge of the order of operations to carry out calculations involving the four operations • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy <p><u>Measurement: Length and Height/ Capacity and Volume/Mass and Weight /Time</u></p> <ul style="list-style-type: none"> • solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate <p><u>Number: Fractions (including decimals and percentages)</u></p> <ul style="list-style-type: none"> • 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 (for example $\frac{1}{4} \times \frac{1}{2} = \frac{1}{8}$) • divide proper fractions by whole numbers [for example, $\frac{1}{3} \div 2 = \frac{1}{6}$ • associate a fraction with division and calculate decimal fraction equivalents [for example, 0.375] for a simple fraction (for example $\frac{3}{8}$) <p><u>Geometry: Properties of Shapes</u></p> <ul style="list-style-type: none"> • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius • recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles. <p><u>Measurement: Area and Perimeter</u></p> <ul style="list-style-type: none"> • solve problems involving area and perimeter <p><u>Measurement:Conversions</u></p> <ul style="list-style-type: none"> • convert between miles and kilometres <p><u>Ratio and proportion</u></p>	

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	<ul style="list-style-type: none"> • 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 the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. 	
<p>Summer 2</p>	<p><u>Number: Addition, Subtraction, Multiplication and Division</u></p> <ul style="list-style-type: none"> • solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why • use estimation to check answers to calculations and determine, in the context of a problem, an appropriate degree of accuracy • solve problems involving addition, subtractions, multiplication and division <p><u>Measurement: Length and Height/ Capacity and Volume/Mass and Weight /Time</u></p> <ul style="list-style-type: none"> • solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate <p><u>Geometry: Position and Direction</u></p> <ul style="list-style-type: none"> • illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius <p><u>Ratio and Proportion</u></p> <p><u>Measurement: Area and Perimeter</u></p> <ul style="list-style-type: none"> • solve problems involving area and perimeter <p><u>Measurement:Conversions</u></p> <ul style="list-style-type: none"> • convert between miles and kilometres <p><u>Ratio and proportion</u></p> <ul style="list-style-type: none"> • 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 the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison • solve problems involving unequal sharing and grouping using knowledge of fractions and multiples. • solve problems involving similar shapes where the scale factor is known or can be found 	

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We aim that all pupils:

- Become **fluent in the fundamentals** of mathematics so that they develop the **conceptual** as well as **procedural** understanding that underpins a concept and the ability to recall and apply knowledge rapidly and accurately.
- Can **reason mathematically** by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.
- Can **solve problems** by applying their mathematics to a variety of problems with increasing sophistication, including unfamiliar contexts and real-life scenarios.
- Can use the **language of mathematics** accurately discussing their learning with confidence and precision.

In mathematics lessons you will see:

- Teachers and children having fun and demonstrating positive 'can do' attitudes.
- High expectations of learning where ALL children are challenged and 'grappling' with concepts; they will demonstrate resilience and independence.
- Insistence on mathematical terminology being used accurately and confidently to explain learning and understanding
- Children confidently using resources from around the classroom to support their learning.
- Well-designed lessons to build upon previous learning to help learners to remember in the long term. **e.g.** repetition of stem sentences for 'sticky knowledge'; small steps; layered learning to enable and extend
- Timely and rapid interventions to address misconceptions.
- Effective questioning where teachers adapt learning within the lesson to support the progress of all learners.
- Application of skills to non-standard situations including the use of non-examples to challenge thinking.

Helpful Resources:**Maths Generic : Curriculum 2019**

- ❖ **Bespoke Woodhouse Progression Documents** : Number Fluency; Shape Dictionary; Measurement Charts
- ❖ **White Rose Maths Documents** : Small Steps ; Maths Glossary; Maths Questions
- ❖ **Mastery**: Staff Training; WR Mastery Documents; Quigley Mastery Examples
- ❖ **Quigley Milestones**: B A D examples