**MATHS**

**at**

**ALL SAINTS CE PRIMARY SCHOOL**

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Maths is a flourishing subject in our school because….

Our staff believe that all pupils can achieve in maths and support pupils to become resilient learners who share and critique answers and strategies. All pupils are encouraged to have a ‘growth mindset’ and believe that by working hard at maths they can succeed.

Class teachers have strong subject knowledge and a sound understanding of the curriculum and progression within it. Concepts are built from early years and developed each school year. Pupil’s knowledge and mathematical vocabulary are re-visited and expanded upon and significant time is spent developing deep knowledge of the key ideas that are needed to underpin future learning.

Pupils are taught in mixed age groups through whole class interactive teaching, where the focus is on all pupils working on the same lesson content at the same time. Lessons have a clear structure with a carefully sequenced journey through learning. In a typical lesson, the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration and discussion.

Maths teaching is provided at an appropriate level for individual pupils based on maths mastery principles. Within this model, lower attaining pupils are supported with additional representatives, concrete resources, scaffolding and adult support. Pre-teaching and rapid intervention supports learning. Procedural and conceptual fluency is developed whilst giving pupils the opportunity to apply their learning in problem-solving and reasoning activities. Opportunities for pupils to develop a greater depth of understanding are provided through, for example, Dive Deeper tasks, yellow box challenges, anchor tasks and careful teacher questioning. In the Early Years, the children explore key concepts through a carefully planned and evolving environment and through their natural play.

We recognise the power of talk to stimulate and extend pupils’ thinking and advance their learning and understanding. Our approach to ‘dialogic teaching’ allows teachers to precisely diagnose pupils’ needs and assess their progress.

Assessment of pupils is ongoing. Although data is obviously important, the children’s books and formative assessment drive our data and reflect precisely where the children are in their learning.

The National Curriculum forms the basis of our teaching but we do not use a set scheme. We use the following to support our planning and teaching:

Maths No Problem

NCETM progression materials

White Rose Maths

Our curriculum covers the following areas:

|  |  |  |  |
| --- | --- | --- | --- |
| Class | Autumn | Spring | Summer |
| Mars  (EYFS) | Numbers 1 – 5  (including addition and subtraction)  *Shape and measure is taught across the year in EYFS.* | Numbers 6 – 10  (including addition and subtraction) | Teen Numbers  (including addition and subtraction) |
| Saturn  (Year 1 and 2) | Number and Place Value  Addition and Subtraction | Money  Multiplication and Division  Geometry  Fractions | Measurement  Time  Position and Direction  Statistics |
| Jupiter  (Year 3 and 4) | Number and Place Value  Addition and Subtraction  Measure (Length, Perimeter and Area)  Multiplication | Multiplication and Division  Geometry  Money  Time  Measure (Mass and Capacity) | Fractions  Decimals  Statistics  Position and Direction |
| Sun  (Year 5 and 6) | Number and Place Value  Addition and Subtraction  Multiplication and Division  Statistics | Fractions  Decimals  Percentages  Measurement  Area and Perimeter | Geometry  Position and Direction  Algebra  Problem Solving and applying Maths for SATs |

**GROW BLOSSOM FLOURISH TEACHING FOR LEARNING MODEL**

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| --- | --- | --- |
| **What are the adults doing?** | **What will the teaching and learning *look like* in the classroom?** | **What are the children doing?** |
| **FLOURISH:**  affirmation  challenge  active listening  observing  checking understanding  anticipating the project outcome | **CREATION FROM LEARNING:** | **FLOURISH:**  formative mistakes  justifying reasoning demonstrating  choosing and explaining  reviewing and reflecting  cooperation  taking the initiative |
| **BLOSSOM:**  variation of learning  strengthening connections  exploring misconceptions  hypothesising  setting challenges  recapping | **APPLICATION OF LEARNING:** | **BLOSSOM:**  independent learning  grappling  experimentation  problem solving  application  making links between learning  supported reasoning |
| **GROW:**  Modelling discussion  verbalising thinking  checking understanding/learning reviews  success criteria and scaffolding  worked examples/ concrete models  anticipating misconceptions | **(SMALL STEPS IN) GUIDED LEARNING:** | **GROW:**  guided practice in groups, pairs, solo  knowledge retrieval  using vocabulary  answering using stem sentences  acting on feedback  over-learning |
| **TRUNK:**  transfer of knowledge, revisiting learning  vocab identification, identifying purpose of learning  classroom organisation, subject knowledge | **LEARNING PREPARATION:** | **TRUNK:**  following routines  active listening  being prepared and organised  ready for learning  engaged in the process  commitment to the learning |
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**MATHS LONG TERM PLAN**

**PRIORITIES AND PROGRESSION**

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| --- | --- | --- | --- | --- | --- | --- |
|  |  | | | | | |
|  | **Fluency** | **Number and Place Value** | **Addition and Subtraction** | **Multiplication and Division** | **Fractions** | **Geometry** |
| **REC** |  |  |  |  |  |  |
| **1** | Develop fluency in  addition and subtraction  facts within 10.  Count forwards  and backwards in  multiples of 2, 5 and 10,  up to 10 multiples,  beginning with any  multiple, and count  forwards and backwards  through the odd numbers. | Count within 100, forwards and backwards, starting with any number.  Reason about the location of numbers to 20 within the linear number system, including comparing using < > and =. | Compose numbers to 10 from 2 parts, and partition numbers to 10 into parts, including recognising odd and even numbers.  Read, write, and interpret equations containing addition ( + ), subtraction ( - ) and equals   ( = ) symbols, and relate additive expressions and equations to real-life contexts. |  |  | Recognise common 2D and 3D shapes presented in different orientations, and know that rectangles, triangles, cuboids, and pyramids are not always similar to one another.  Compose 2D and 3D shapes from smaller shapes to match an example, including manipulating shapes to place them in particular orientations. |
| **2** | Secure fluency in addition and subtraction facts within 10, through continued practice. | Recognise the  place value of each digit in two-digit numbers, and compose and decompose two-digit numbers using standard and non-standard partitioning.  Reason about  the location of any two-digit number in the linear  number system, including  identifying the previous  and next multiple of 10. | Add and subtract across 10.  Recognise the subtraction structure of ‘difference’ and answer questions of the form, “How many more…?”.  Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract only ones or only tens to/from a two-digit number.  Add and subtract within 100 by applying related one-digit addition and subtraction facts: add and subtract any 2 two-digit numbers. | Recognise repeated addition contexts, representing them with multiplication equations and calculating the product, within the 2, 5 and 10 multiplication tables.  Relate grouping problems where the number of groups is unknown to multiplication equations with a missing factor, and to division equations (quotative division). |  | Use precise language to describe the properties of 2D and 3D shapes and compare shapes by reasoning about similarities and differences in properties. |
| **3** | Secure fluency in addition and subtraction facts that bridge 10, through continued practice.  Recall multiplication facts, and corresponding division facts, in the 10, 5, 2, 4 and 8 multiplication tables, and recognise products in these multiplication tables as multiples of the corresponding number.  Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 10). | Know that 10 tens are equivalent to 1 hundred, and that 100 is 10 times the size of 10; apply this to identify and work out how many 10s there are in other three-digit multiples of 10.  Recognise the place value of each digit in three-digit numbers and compose and decompose three-digit numbers using standard and non-standard partitioning.  Reason about the location of any three-digit number in the linear number system, including identifying the previous and next multiple of 100 and 10.  Divide 100 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 100 with 2, 4, 5 and 10 equal parts. | Calculate complements to 100.  Add and subtract up to three-digit numbers using columnar methods.  Manipulate the additive relationship: Understand the inverse relationship between addition and subtraction, and how both relate to the part–part–whole structure. Understand and use the commutative property of addition and understand the related property for subtraction. | Apply known multiplication and division facts to solve contextual problems with different structures, including quotitive and partitive division. | Interpret and write proper fractions to represent 1 or several parts of a whole that is divided into equal parts.  Find unit fractions of quantities using known division facts (multiplication tables fluency).  Reason about the location of any fraction within 1 in the linear number system.  Add and subtract fractions with the same denominator, within 1. | Recognise right angles as a property of shape or a description of a turn and identify right angles in 2D shapes presented in different orientations.  Draw polygons by joining marked points and identify parallel and perpendicular sides. |
| **4** | Recall multiplication and division facts up to and recognise products in multiplication tables as multiples of the corresponding number.  Solve division problems, with two-digit dividends and one-digit divisors, that involve remainders, and interpret remainders appropriately according to the context.  Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 100). | Know that 10 hundreds are equivalent to 1 thousand, and that 1,000 is 10 times the size of 100; apply this to identify and work out how many 100s there are in other four-digit multiples of 100.  Recognise the place value of each digit in four-digit numbers and compose and decompose four-digit numbers using standard and non-standard partitioning.  Reason about the location of any four-digit number in the linear number system, including identifying the previous and next multiple of 1,000 and 100, and rounding to the nearest of each.  Divide 1,000 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in multiples of 1,000 with 2, 4, 5 and 10 equal parts. |  | Multiply and divide whole numbers by 10 and 100 (keeping to whole number quotients); understand this as equivalent to making a number 10 or 100 times the size.  Manipulate multiplication and division equations and understand and apply the commutative property of multiplication.    Understand and apply the distributive  property of multiplication. | Reason about the location of mixed numbers in the linear number system.  Convert mixed numbers to improper fractions and vice versa.  Add and subtract improper and mixed fractions with the same denominator, including bridging whole numbers. | Draw polygons, specified by coordinates in the first quadrant, and translate within the first quadrant.  Identify regular polygons, including equilateral triangles and squares, as those in which the side-lengths are equal, and the angles are equal. Find the perimeter of regular and irregular polygons.  Identify line symmetry in 2D shapes presented in different orientations. Reflect shapes in a line of symmetry and  complete a symmetric figure or pattern with respect to a specified line of symmetry. |
| **5** | Secure fluency in multiplication table facts, and corresponding division facts, through continued practice.  Apply place-value knowledge to known additive and multiplicative number facts (scaling facts by 1 tenth or 1 hundredth). | Know that 10 tenths are equivalent to 1 one, and that 1 is 10 times the size of 0.1. Know that 100 hundredths are equivalent to 1 one, and that 1 is 100 times the size of 0.01. Know that 10 hundredths are equivalent to 1 tenth, and that 0.1 is 10 times the size of 0.01.  Recognise the place value of each digit in numbers with up to 2 decimal places and compose and decompose numbers with up to 2 decimal places using standard and non-standard partitioning.  Reason about the location of any number with up to 2 decimal places in the linear number system, including identifying the previous and next multiple of 1 and 0.1 and rounding to the nearest of each.  Divide 1 into 2, 4, 5 and 10 equal parts, and read scales/number lines marked in units of 1 with 2, 4, 5 and 10 equal parts  .  Convert between units of measure, including using common decimals and fractions. |  | Multiply and divide numbers by 10 and 100; understand this as equivalent to making a number 10 or 100 times the size, or 1 tenth or 1 hundredth times the size.  Find factors and multiples of positive whole numbers, including common factors and common multiples, and express a given number as a product of 2 or 3 factors.  Multiply any whole number with up to 4 digits by any one-digit number using a formal written method.  Divide a number with up to 4 digits by a one-digit number using a formal written method and interpret remainders appropriately for the context. | Find non-unit fractions of quantities.  Find equivalent fractions and understand that they have the same value and the same position in the linear number system.  Recall decimal fraction equivalents for ½ , ¼ , 1/5 and 1/10 for multiples of these proper fractions. | Compare angles, estimate, and measure angles in degrees (°) and draw angles of a given size.  Compare areas and calculate the area of rectangles (including squares) using standard units. |
| **6** |  | Understand the relationship between powers of 10 from 1 hundredth to 10 million, and use this to make a given number 10, 100, 1,000, 1 tenth, 1 hundredth or 1 thousandth times the size (multiply and divide by 10, 100 and 1,000).  Recognise the place value of each digit in numbers up to 10 million, including decimal fractions, and compose and decompose numbers up to 10 million using standard and non-standard partitioning.  Reason about the location of any number up to 10 million, including decimal fractions, in the linear number system, and round numbers, as appropriate, including in contexts.  Divide powers of 10, from 1 hundredth to 10 million, into 2, 4, 5 and 10 equal parts, and read scales/number lines with labelled intervals  divided into 2, 4, 5 and 10 equal parts. | Understand that 2 numbers can be related additively or multiplicatively and quantify additive and multiplicative relationships (multiplicative relationships restricted to multiplication by a whole number).  Use a given additive or multiplicative calculation to derive or complete a related calculation, using arithmetic properties, inverse relationships, and place-value understanding.  Solve problems involving ratio relationships.  Solve problems  with 2 unknowns. | For Year 6, Multiplication and Division are combined with Addition and Subtraction (see left column). | Recognise when fractions can be simplified and use common factors to simplify fractions.  Express fractions in a common denomination and use this to compare fractions that are similar in value.  Compare fractions with different denominators, including  fractions greater than 1, using reasoning, and choose between reasoning and common denomination as a comparison strategy. | Draw, compose, and decompose shapes according to given properties, including dimensions, angles, and area, and solve related problems. |