Christ Church CE & Lewis Street Primary Schools
Maths Intent (January 2024)

Aims

The national curriculum for mathematics aims to ensure that all pupils:

- Become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

Intent

What are we trying to achieve for our children in maths?

- We want our pupils to develop a love of maths and enjoyment of learning
- We aim to develop number fluency across the school to empower children with basic skills
- We want our pupils to be problem solvers in many contexts. The skills that they develop and learn at Christ Church should be meaningful beyond a maths lesson, and transferable to other aspects of the curriculum and their lives
- We aspire for all children to develop strong reasoning skills as part of the maths curriculum
- We promote oracy skills meaning that pupils speak with confidence and justify their answers clearly
- We endeavor for children to make links and see patterns in maths through the use of variation in representation and mathematical discussion
- We aim to provide sufficient challenge and support to all our learners
- We aim to create and embed an attitude of growth mindset and to develop pupils resilience
- We aim to develop the confidence of all children whilst focussing on providing the opportunity of mastery within the subject

Implementation

How is the curriculum delivered?

- We follow agreed Small Steps of Progress to ensure progression within year groups and across year groups as well as to increase consistency of approach, whilst tailoring lessons and tasks to the needs of our cohorts
- We are developing a mastery approach to teaching and learning to include concrete, pictorial and abstract exposure and application for all

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learners

- We have frequent opportunities for paired, group and whole class discussions
- Using staff meetings, INSET and planning support from maths team
- Fluency focussed activities beyond the usual maths lessons
- Whole class differentiation through carefully planned questioning and reasoning and problem solving opportunities
- Pre/post teaching tasks for individual children where necessary. This supports children to 'keep up and not catch up.'
- Providing opportunities through cross-curricular links
- Use of Turing North West Maths Hub to identify external CPD opportunities for all levels of staff
- Usage of a TRG to observe teaching in other settings
- Parental sessions/workshops in EYFS

Impact

What difference is the curriculum making?

- Staff and pupil voice are strong and reflect a love of the subject
- Through maths observations, evidence of resilience and increased enjoyment has been observed
- Learning walks show evidence of concrete, pictorial and abstract within teaching
- Book scrutiny used to monitor progress over year
- Books evidence pre/ post teaching opportunities and adaptations to effectively meet pupil needs where necessary
- Data is being monitored, evaluated and reviewed and interventions used to support children identified

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Fluency

Mathematical Thinking

Variation

Problem-Solving

Coherence

Theme interwoven throughout the 4 drivers above.

Representation and Structure

Theme interwoven throughout the 4 drivers above.

Resilience

Theme interwoven throughout the 4 drivers above.

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Threshold Concept	Milestone 1 Years 1 and 2	Milestone 2 Years 3 and 4	Milestone 3 Years 5 and 6
Fluency • Number Facts • Times Tables • Making Connections	• Secure understanding of place value up to hundreds, tens and ones. • Recall number bonds for all numbers up to 20. • Identify and describe patterns in number sequences. • Rapid recall of times tables for 2s, 5s and 10s. • Use number facts to calculate efficiently with addition and subtraction.	• Secure understanding of place value up to and beyond 1000. • Knowledge of place value of decimals up to hundredths. • Apply knowledge of number Bonds to calculate efficiently. • Rapid recall of all times tables up to 12 x 12. • Make links between fractions and decimals for fractions that they have met so far.	• Identify common factors, common multiples and prime numbers. • Apply knowledge of place value to multiply and divide using tens, hundreds and thousands. • Knowledge of place value of decimals up to hundredths. • Apply knowledge of number bonds to calculate efficiently. • Rapid recall of all times tables up to 12 x 12 to apply to calculation strategies. • Apply knowledge of fractions, decimals and percentages to calculate efficiently.

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Threshold Concept	Milestone 1 Years 1 and 2	Milestone 2 Years 3 and 4	Milestone 3 Years 5 and 6
Mathematical Thinking • Chains of Reasoning • Making Connections	• Can explain connections with number facts to 20 and derive new facts using known facts. E.g. 2+8=10 so 20+80=100. • Can explain connections with multiplication facts for 2, 5 and 10 and derive new facts using known facts. E.g. 5x4=20 so 4x5=20. • Applying mathematical understanding to explain new methods to solve one and two step problems. • Understand and use correct vocabulary. • Presenting solutions using their preferred mathematical method. • Begin to estimate the answer to problems.	• Can explain connections with number facts beyond 1000 and derive new facts using known facts. E.g. using inverse operations • Combine knowledge of number facts and rules of arithmetic to solve mental and written calculations. E.g. 2x6x5 = 10x6 • Explaining the links between fractions and known number facts. E.g. division facts or decimals. • Explaining how an answer is incorrect through reasoning. • Understand and use correct vocabulary as outlined in the NC. • Applying mathematical understanding to explain new methods to solve one and two step problems. • Presenting solutions using a variety of methods.	• Embed and consistently apply number relationships to explain how to solve complex word problems involving all four operations. • Securely explaining the links between fractions, decimals and percentages. • Using FDP as different ways to express proportions. • Solve problems involving unequal quantities in ratio and proportion. • Explore and make conjectures about converting a simple fraction to a decimal fraction. E.g. 3÷8= 0.375. • Explaining how an answer is incorrect through reasoning and being able to explain how to correctly answer it. • Understand and use correct vocabulary as outlined in the NC • Generalisation of number patterns through algebraic thinking.

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Threshold Concept	Milestone 1 Years 1 and 2	Milestone 2 Years 3 and 4	Milestone 3 Years 5 and 6
Variation • Procedural • Conceptual • Making Connections	• Ordering numbers as cardinal and ordinal • Comparing numbers • Starting counting at different points. • Varying structure of equations. 7=?-9 and ?=?+? • Making connections between arrays, number patterns and step counting. • Making connections with inverse to create fact families number bonds to 20 and for 2x 5x and 10x table. • Images to support understanding of concepts.	• Counting in steps starting from alternative numbers instead of 0. E.g. 1,6,11,16 • Comparing more than two numbers • Ordering numbers involving units of measure • Varying equations • Investigating sharing and grouping using knowledge of times tables to efficiently calculate	• Investigating unequal sharing and grouping in varying contexts. E.g. perimeter, area. • Generalisation of number patterns for algebra • Missing numbers, lengths, coordinates and angles • Provide children with opportunities to investigate non-examples of the procedure or concept. E.g. how can they not be correct? How is this not correct?

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Threshold Concept	Milestone 1 Years 1 and 2	Milestone 2 Years 3 and 4	Milestone 3 Years 5 and 6
Problem-Solving	• Children in Years 1 and 2 solve problems using their knowledge number, addition and subtraction, division and multiplication, fractions, measurement, geometry (properties of shape), geometry (position and direction). • Solve one-step problems and problems involving addition and subtraction, multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher where needed, and missing number problems. Applying their increasing knowledge of mental and written methods. • Discuss and solve problems in familiar practical context. • Solving problems in fractions using shapes, objects and quantities. • Using their understanding of numbers of at least to 100 pupils solve a variety of related problems.	• Pupils solve number problems in practical situations involving numbers up to 1000 (including counting from 0 in multiples of 4, 8, 50 and 100.) • Pupils solve problems, including missing number problems, using number facts, place value and more complex addition and subtraction, with answers up to 1000 • Solving number problems which have a number of possible outcomes using a systematic approach. • Discuss and solve problems in a range of contexts. E.g. measuring and scaling. • Solve problems in contexts, choosing the appropriate operation, working with increasingly harder numbers.	• Solve multi-step problems involving all four operations in contexts, deciding which operations and methods to use why. • Solve number and practical problems involving numbers to at least a million and include negative numbers. • Solve problems involving converting measures including units of time. • Expressing missing number problems algebraically. • Solve problems which require answers to be rounded to specified degrees of accuracy. E.g. making a decision about what to do with remainders.

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