

Intent, implementation and impact



At Stocksbridge Nursery Infant School we have a bespoke approach to teaching mathematics using a combination of White Rose, NCEM and other additional resources to ensure the most effective and carefully selected curriculum suits the individual needs and learning styles of our children.

Intent

We believe that mathematical learning is a journey explored through clarification, practice and application over time. At each stage of learning, children should be able to demonstrate a deep, conceptual understanding of maths and be able to build on this over time. Mathematical thinking is central to how pupils learn mathematics and includes looking for patterns and relationships, making connections, conjecturing, reasoning, and generalising. Alongside this we support our children to develop and use [mathematical language](#).

We aim to deepen children's understanding of maths by segmenting learning into three distinct areas:

I know **what...** (components) – **facts (declarative knowledge)**

I know **how...** (components) – **methods (procedural knowledge)**

I know **when...** (composite) – **strategies (conditional knowledge)**

This 'mastery approach' to teaching maths is the underlying principle of ours.

Our school uses [White Rose](#) to guide the teaching of maths. In addition to this we are supported by:

- [EYFS Statutory Framework](#)
- [KS1 National Curriculum](#)
- [DfE Ready to Progress criteria](#)
- [DfE Research and Analysis. Coordinating mathematical success: the mathematics subject report](#)

Alongside the White Rose overview, our curriculum and planning aims to embed the '[5 Big Ideas of Mastery](#):'

1. Mathematical Thinking
2. Fluency
3. Variation
4. Representation and Structure
5. Coherence

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Implementation

The specific [curriculum overviews](#) provide an amalgamation of White Rose, NCEM, Nrich, the Early Years Statutory Framework and Ready to Progress materials. One scheme alone would not cater for all learning, so we've combined a range to accommodate all needs and learning styles.

The learning end points signify the learning we want children to have by the end of the block. These align with either the Early Years Statutory Framework or the Ready to Progress materials.

Children learn [Key Instant Recall Facts \(KIRFS\)](#) each term to support their **declarative** knowledge.

NCEM's "[Mastering Number at Reception and KS1](#)" gives all children access to an additional fifteen minutes of daily maths, separate to the main lesson, where children can deepen their mathematical fluency. This **declarative** knowledge is one of the knowledge components needed for deeper understanding.

We develop children's **procedural** and **conditional** knowledge by implementing The NCEM 5 Big Ideas. Stocksbridge Nursery Infant School is part of the South Yorkshire Maths Hub which aims to embed the 5 Big Ideas into classroom practice.

We use Nrich to support children to apply their learning to a range of problem questions. The NCEM key questions can be repeated in any block or unit such as true or false, spot the mistake, do then explain, what do you notice etc. However, examples specific to this particular block are focused on under each heading.

Impact

Teachers review pupils' work on a daily basis to identify any pupils who need same day intervention and to inform planning.

Assessments are used throughout the lesson, week, term and year to inform teacher assessment, to identify gaps and content to be covered in maths catch up lessons.

Assessment is against the Ready to Progress statements or EYFS assessment framework. The curriculum is adapted based on outcome of these assessments to ensure all children are 'ready to progress' or achieve "Early Learning Goal."

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NCETM
NATIONAL CENTRE FOR EXCELLENCE
IN THE TEACHING OF MATHEMATICS

	Declarative Concepts, facts, representations, and vocabulary	Procedural Methods can be applied quickly, accurately and using minimal steps	Conditional Using declarative facts that have been rehearsed and combined with procedural methods
Early Years	<ul style="list-style-type: none"> • numbers and number bonds to 10 • concepts and vocabulary for talking about maths and mathematical patterns (size, weight, capacity, quantity, position, distance, time) 	<ul style="list-style-type: none"> • accurate counting, single digit addition and subtraction • halving, doubling and sharing 	<ul style="list-style-type: none"> • play games/sing songs, answer questions • talk about everyday objects • solve problems using objects within continuous provision
Years 1 and 2	<ul style="list-style-type: none"> • simple fractions • basic arithmetic: the numbering system and its symbols, place value, conventions for expressions and equations, counting, addition, subtraction, equal sharing, doubling, balancing simple arithmetic equations, classifying numbers (odd, even, teens), inverse operations, estimation, numerical patterns • basic measurement: length; capacity; time; position; relative size, position, direction, motion, quantity • geometry: 2D and 3D shapes, geometric patterns • maths facts: all number bonds within and between 20; key number bonds within and between 100, all multiplication facts for the 2, 5 and 10 multiplication tables, key 'fraction facts' such as 'half of 6 is 3', key 'time facts' such as the number of minutes in an hour 	<ul style="list-style-type: none"> • counting up and down in 1s, 2s, 5s, 10s and 1/2s, addition, subtraction, equal sharing, division and multiplication • reading, writing of the digits/symbols, vocabulary and phrases required for working with simple fractions, arithmetic expressions and equations • measuring length, capacity, time and monetary value presentation and layout of calculations • using a ruler • spotting and making geometric and numerical patterns • construction and interpretation of categorical data: pictograms, charts, tables 	<ul style="list-style-type: none"> • Complete written exercises • Solve missing number problems • Solve simple word problems involving arithmetic, money, time and fractions • Solve data and measurement problems