

# Our Maths Curriculum

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St. Peter's CE Primary Academy, Hednesford

# Reach for the Sky!

# Intent

At St. Peter's we strive to deliver a Maths curriculum that is engaging and contextualised to develop children's love of Maths and an understanding of how these skills are relevant to life outside of the classroom. We aim to do this using problem-based situations and an interactive approach to Maths where children can use manipulatives to support understanding.

As we aim to develop children's key mathematical skills, we use a spiraled mastery approach. Thus, we aim for skills and concepts to get progressively more difficult within lessons through variation that children can build up to at a pace appropriate to them. This approach aims to deliver a curriculum where mastery is available to all pupils. Because times tables are a key concept to support many areas of Maths, we aim to give children a deep conceptual understanding of their times tables to support quick, fluent recall of multiplication facts.

Our Academy has chosen to develop our approach to Maths using the White Rose Maths curriculum as it closely matches expectations of the National Curriculum for Key Stages 1 and 2, while using a spiral approach to learning mathematical skills. This curriculum design enables all children to acquire effective Maths learning and build upon it over the course of sequences of lessons (and over time) to become fluent in number, problem solving and reasoning. The use of concrete, pictorial and abstract learning methods is at the heart of this curriculum, reflecting current best practice in pedagogy. As the expectations within the White Rose curriculum match or exceed those in the National Curriculum, our curriculum is ambitious for pupil attainment and enables teachers to tailor learning to meet the needs of their pupils by considering how best to deliver new learning. The White Rose curriculum is divided into major topic areas (Number, Measurement, Geometry and Statistics) and these sequentially develop to match objectives for each year group within the National Curriculum. This approach shows teachers exactly the concepts and skills that must be mastered in each year group (as well as detailing prior learning that must be built upon) whilst clearly showing how conceptual understanding is developed over time.

The White Rose curriculum is also a cumulative curriculum which means that once a topic has been taught, it is regularly revisited in different topics and contexts to help children retain learning and apply known concepts. The White Rose progression document shows year on year progression in skills, aligned to National curriculum expectations, and when these are covered within each year group.

[White Rose National Curriculum Progression Documentation](#)

More information about White Rose can be found at: <https://whiterosemaths.com/>



# Implementation

Our Maths curriculum aims to embody the school motto of 'REACH' encouraging children to be resilient and aim for their best in everything they do. Following a 'Singapore Maths' approach this is developed through the use of a concrete – pictorial – abstract model: children use concrete equipment and a context to introduce and develop understanding of concepts, draw pictures to develop understanding and relationships and finally developing efficient, abstract methods (using numbers, mathematical symbols and processes). The stages of this model are not discrete stages and children could call upon any stage of the model to support them during their development of a concept. Key skills are also varied through this approach, so children develop an ability to manipulate their knowledge to solve problems.

To facilitate a consistent 'Singapore Maths' curriculum, at St. Peter's we use White Rose Maths to support children's development of skills and use of the CPA model. Using the structure of White Rose, there are three stages within a lesson which aim to deliver the CPA model.

**Starters:** Each lesson will begin with a quick starter. These are generally a quick, independent activity to relate to a skill from previous lessons for children to recap key skills which will be built on. Starters may also be used to recap skills that children have learnt from other units but may be useful with their current topic (for example in an area lesson a starter could recap arrays before looking at the area of a shape).

**In Focus:** This stage of the lesson introduces learning in a context, usually using a problem or reasoning discussion. The aim of an in focus is contextualise learning so children can see a use for Maths outside of the classroom. Another aim for this part of the lesson is for children to investigate mathematical concepts using manipulatives (concrete resources) or pictorial representations and discuss Maths, aiming to give the opportunity to develop key Maths skills of problem solving and reasoning. This also gives children a good chance to explore concepts and how Maths areas relate together. This is a great opportunity for discussion between pupils in groups or pairs and for the teacher to question and join in discussion. At this point, it is also a chance for children to be speaking using mathematical language and for adults within the classroom to reinforce this skill.

**Guided Practice:** This stage of the lesson is more teacher led and aims to cover key learning points and any misconceptions from the In Focus. This stage of the lesson is a key modelling opportunity and aims to ensure children have the key knowledge to build upon independently. This stage is generally more pictorial or abstract but teachers should take the opportunity to use concrete resources to help build concepts; this could be through the use of technology and moving equipment or through the use of actual manipulatives and modelling. Any pictorial or abstract representations should be modelled and discussed. This part of a lesson is a great opportunity to cover misconceptions and model language use.



**Independent Practice:** This stage of a lesson is for children to use their skills independently. In some lessons, activities will use pictorial representations and become more abstract as the lesson develops, aiming to spiral and develop the necessary skills. Children could continue to work using concrete equipment to support their understanding if necessary. These independent activities will be set out using the 'Sky, Moon and Stars' approach and will increase in difficulty and challenge as children progress. Within these independent activities, problem solving and reasoning questions are also included so these are part of all lessons and embedded within the Maths curriculum. White Rose resources give examples and opportunities of how children could use different concrete, pictorial and abstract skills using symbols. There are also symbols for reasoning and challenging questions.



A **cube** symbol suggests the use of concrete manipulatives.



A **draw** symbol encourages drawing.



A **bar model** symbol: as bar models are a particular type of drawing, this symbol gives a clear hint when it might be the best method to use.



A **talk** symbol stimulates mathematical talk to get students to vocalise their thinking.



A **think** symbol indicates a question where students have to think that little bit deeper.

Some lessons may also include hot and cold tasks to demonstrate learning. Hot tasks are used as a task to consolidate learning and check children's skills within a unit of work. They are described as hot tasks as they follow teaching related to specific units. On the other hand, cold tasks are related to learning that have been completed in previous weeks, topics, terms or even previous years. These are a good indicator of retention of learning and can be used as an assessment tool and to plan future learning.

To encourage multiplication fact learning children are introduced to counting in multiples using rhymes and songs. At St. Peter's Academy we have a rolling numbers programme to introduce counting in multiples as well as teachers' own initiatives. To support fact recall, from Year 2 children have Times Tables Rock Star accounts, which can be used in school but also supports learning from home. In class, teachers also regularly use two-minute madness to encourage the need for quick fact recall. This is focused on a particular times table and is progressive when children are ready to move onto a new set.

In Early Years, the CPA model and mastery are still applied within the curriculum, with the main focus on developing children's understanding of the number system as a firm base for national curriculum learning. This aim uses 'touch Maths' where numbers have touch points to support the development of value behind numbers and supports the relationship between addition and subtraction. Touch Maths also enables the idea of place value and counting on to be introduced and develop key skills.



# Impact

## As a learner:

At St. Peter's we believe that the key to confident mathematicians is a mastery curriculum where children have the opportunity to develop the three Maths competencies: fluency, problem solving and reasoning. Children will show mastery when they can use the following five mastery skills in a given area:

1. Show a physical model. This is using concrete equipment to represent a mathematical concept and/or using a context when showing how a concept work.
2. Draw an appropriate model. This could be drawing a pictorial representation to show how a concept is completed or could be through the use of bar modelling for areas such as ratio, proportion or problem solving.
3. Explain the problem or concept orally. This could be in groups with other children or adults when working through a problem or concept. Using the correct mathematical vocabulary verbally is also important.
4. Explain in a written form. This involves children explaining a concept in writing, using the appropriate, mathematical vocabulary where appropriate.
5. Challenge themselves. This is where children can use their knowledge to make concepts more challenging. Whilst teachers and teaching assistants will also look for opportunities to challenge pupils, a student who truly understands a concept will have ideas about how to make it more challenging, either through writing their own problems or asking themselves 'what if' questions about a concept.

## As a member of society:

Children will develop confident Maths skills which will enable them to apply Maths skills in the world around them. From their Maths learning, children will start to recognise how Maths is used in a wide variety of aspects in the world. Children will recognise the importance of Maths in relation to future ambitions and careers.

## As a school:

Our aim at St. Peter's Academy is for children to become confident mathematicians who can use their key skills and manipulate these to solve everyday problems. Attainment in Maths is measured using the statutory assessments at the end of Key Stage One and Two; these results are measures against the Maths attainment of children nationally. Additionally, children have a statutory times table test at the end of year 4 where they are given a recall score out of 25.

Children will develop a secure understanding of mathematical concepts to enable them to develop these as they move onto the next step of their education and future. This will support them in recognising the importance of Maths in the wider world.



The following pages are taken from the White Rose Scheme of Learning to show the curriculum coverage for each year group. For more information on the specific skills taught in each year group, please use the link below. When you arrive at the White Rose Maths page, please select the year group you wish to look at and then click on the area of learning you wish to explore e.g. Number: Place Value.

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6						
Week	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value		Number: Addition, Subtraction, Multiplication and Division			Number: Fractions			Geometry: Position and Direction			
Spring	Number: Decimals		Number: Percentages		Number: Algebra		Measurement: Converting Units	Measurement: Perimeter, Area and Volume		Number: Ratio		Statistics
Summer	Geometry: Properties of Shape		Consolidation or SATs preparation		Consolidation, investigations and preparations for KS3							

You can gain specific information about each unit for each year group by clicking on the title of the unit in the overview. This will give information related to mathematical talk, use of concrete, pictorial, abstract model and possible problem solving and reasoning activities for each objective and lesson.



<https://whiterosemaths.com/resources/primary-resources/primary-sols/>



# Year 1 overview:

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value (within 10)				Number: Addition and Subtraction (within 10)					Geometry: Shape	Number: Place Value (within 20)	
Spring	Consolidation	Number: Addition and Subtraction (within 20)			Number: Place Value (within 50)			Measurement: Length and Height		Measurement: Weight and Volume		Consolidation
Summer	Consolidation	Number: Multiplication and Division			Number: Fractions		Geometry: Position and Direction	Number: Place Value (within 100)		Measurement: Money	Measurement: Time	



# Year 2 overview:

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction				Measurement: Money		Number: Multiplication and Division	Consolidation	
Spring	Number: Multiplication and Division				Statistics		Geometry: Properties of Shape	Number: Fractions				
Summer	Measurement: Length and Height		Geometry: Position and Direction		Consolidation and problem solving		Measurement: Time	Measurement: Mass, Capacity and Temperature			Consolidation	





# Year 3 overview:

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction					Number: Multiplication and Division			
Spring	Number: Multiplication and Division			Measurement: Money	Statistics		Measurement: Length and Perimeter			Number: Fractions		Consolidation
Summer	Number: Fractions			Measurement: Time			Geometry: Properties of Shape	Measurement: Mass and Capacity				Consolidation



# Year 4 overview:

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value				Number: Addition and Subtraction			Measurement: Length and Perimeter	Number: Multiplication and Division			
Spring	Number: Multiplication and Division			Measurement: Area	Number: Fractions				Number: Decimals			Consolidation
Summer	Number: Decimals		Measurement: Money		Measurement: Time		Statistics	Geometry: Properties of Shape		Geometry: Position and Direction		Consolidation



# Year 5 overview:

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value			Number: Addition and Subtraction		Statistics		Number: Multiplication and Division			Measurement: Perimeter and Area	
Spring	Number: Multiplication and Division			Number: Fractions						Number: Decimals and Percentages		Consolidation
Summer	Consolidation	Number: Decimals			Geometry: Properties of Shape			Geometry: Position and Direction		Measurement: Converting Units		Measurement: Volume



# Year 6 overview:

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number: Place Value		Number: Addition, Subtraction, Multiplication and Division				Number: Fractions					Geometry: Position and Direction
Spring	Number: Decimals	Number: Percentages		Number: Algebra		Measurement: Converting Units	Measurement: Perimeter, Area and Volume		Number: Ratio		Statistics	
Summer	Geometry: Properties of Shape			Consolidation or SATs preparation		Consolidation, investigations and preparations for KS3						

