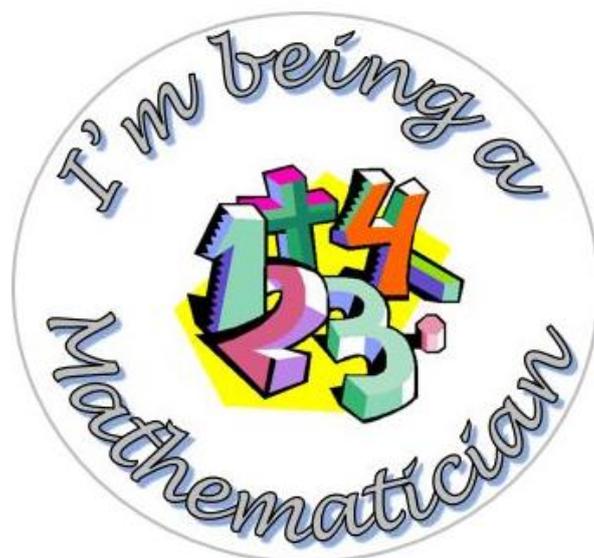




Being a Mathematician at St Chad's



'Pure mathematics is, in its way, the poetry of logical ideas.'

Albert Einstein

At St Chad's, we believe that maths is integral to everyday life; it teaches children how to make sense of the world around them through developing an ability to calculate, reason and solve problems. We want our children to appreciate the beauty and power of mathematics and to have a love of learning in line with our school vision.



Power through the 5C's of Learning

Alongside St Chad's vision of 'learning to love, loving to learn', St Chad's 5C's of learning drive the creation of our Curriculum. Further information as to how the 5C's of learning positively support the teaching of Maths can be identified in the table below.

St Chad's 5C's	Using our 5C's within Maths
Community	<ul style="list-style-type: none"> • Visits and Visitors • Participation in different local events • Be a <u>ROCKSTAR</u> Day • Fair Trade event
Communication	<ul style="list-style-type: none"> • Progression of mathematical vocabulary • Use of APE structure to support mathematical fluency and reasoning. • STEM sentence starters to support all children across the school.
Curiosity	<ul style="list-style-type: none"> • Opportunities to secure mathematical understanding through problem solving. • Developing children's understanding of how manipulatives can be used in different ways to support learning.
Collaboration	<ul style="list-style-type: none"> • Working in groups on problem solving activities. • Self and peer-assessment within lessons. • Collaborative partner work when discussing mathematical thinking.
Creativity	<ul style="list-style-type: none"> • Make links with our Connected Curriculum as well as with Science and Computing. • Exploring mathematical knowledge through real-life contexts both inside and outside of the classroom.

Maths in the EYFS Curriculum

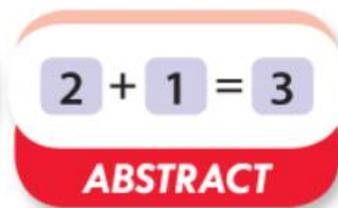
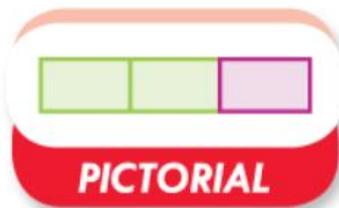
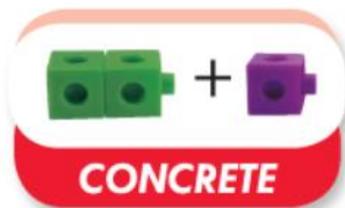
Developing enthusiastic and motivated mathematicians at St Chad's begins with the learning that takes place within the EYFS classroom. Ensuring the teaching of maths using concrete apparatus is imperative to support children with their early mathematical understanding. With a large focus on counting, comparison, composition, pattern and shape and space, this ensures children progress through EYFS with a good level of development. Using a large amount of repetition helps to ensure children are embedding taught knowledge within their long term memory. Even through the teaching of 'Drawing Club', and within continuous provision, mathematical knowledge is constantly drip fed to the children to progress children's knowledge and ensure security as they progress through their time in the EYFS classroom.

Meeting Our Curriculum Drivers

As a school, we meet our curriculum drivers through a robust system of planning, a consistent approach to teaching mastery of maths (including varied fluency, problem solving and reasoning), supportive learning environments and a triangulated approach to assessment.

Creating our Mathematics Curriculum

Our maths curriculum is based on a 'mastery approach' where children secure an understanding of mathematical concepts and processes, combined with a genuine procedural fluency. A child who has mastered a skill is able to apply their understanding in a different context and choose the appropriate method to solve different types of problems. Long term planning maps out the South Gloucestershire Age Related Expectations (ARE's) across the year in a logical order. Medium term planning plots the weekly learning objectives for arithmetic, the main teaching concepts, let's explore/ let's re-visit and times-tables expectations. Small steps planning (weekly plans) are used for daily teaching - highlighting teaching procedures as well as types of reasoning and problem solving questions to be shared with the children. Children will be taught through the process of concrete, pictorial, and abstract concepts to develop a deeper understanding.



How are lessons structured across the school?

Structure of maths across the school

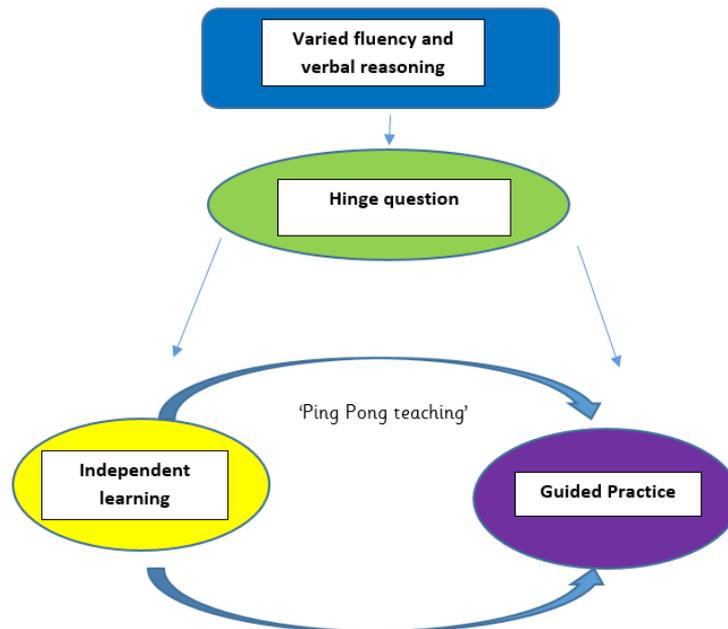
<u>Year Group</u>				
Year 1	Number, Counting, Making links	Main teaching (fluency, problem solving and reasoning)	Let's Explore/Let's revisit	Multiples /times tables
Year 2	Number, Counting, Making links	Main teaching (fluency, problem solving and reasoning)	Let's Explore/Let's revisit	Times tables
Year 3	Number, Counting, Making links	Main teaching (fluency, problem solving and reasoning)	Let's Explore/Let's revisit	Times tables
Year 4	Number, Counting, Making links	Main teaching (fluency, problem solving and reasoning)	Let's Explore/Let's revisit	Times tables MTC practice
Year 5	Number, Counting, Making links (Start 10 to tackle in term 5 and 6)	Main teaching (fluency, problem solving and reasoning)	Let's Explore/Let's revisit	Times tables Calculation
Year 6	Ten to tackle questions	Main teaching (fluency, problem solving and reasoning)	Let's Explore/Let's revisit	Time tables Calculation

First 10 minutes of the lesson
Last 10 minutes of the lesson
First 5-10 minutes after lunch

Number, counting, making links:

'Knowing more, remembering more and making links' is at the core of our mental maths teaching. Within the first ten minutes of the lesson, children will recall number facts, count in a variety of ways and make links with other areas of learning. These strategies will connect to the main teaching within the lesson (E.g. counting along a thermometer when making links to negative numbers).

Main teaching



Within the main part of the lesson, our children have the confidence to choose their level of learning from the 'hinge question' and are then directed to appropriate fluency, problem solving and reasoning activities to deepen understanding. With guided practice tailored to individual needs, each child can move in and out of support ('ping pong') where necessary. Children of all abilities develop their mathematical understanding through the use of manipulatives such as 'bar models', 'base ten', 'place value counters' and 'numicon'. There is no ceiling to achievement in our lessons and children report that they feel happy to make mistakes, enabling them to improve along their journey.

Let's explore/Let's re-visit:

We believe that making connections between the new and what has already been learned is vital to deepen knowledge and make progress. This is why the last 10 minutes of the lesson is dedicated to explore and re-visit key concepts.

St Chad's Calculation Policy

As previously suggested, within the main teaching section of a maths lesson, teachers introduce mathematical concepts through a concrete, pictorial, abstract approach to support the child's conceptual understanding of the concept being taught. St Chad's Calculation Policy is a progressive document that outlines the mathematical methods taught, and manipulatives used to do so, in each year group of the school. The focus is on supporting children to become confident at using mathematical strategies accurately and as they move up the school, they will become more efficient and independent at using these.

[Follow this link to see the St Chad's Calculation Policy.](#)

Developing a secure understanding of times tables

Following our times-tables progression document, each class will practice times-tables in a variety of ways including chanting in and out of order, finding corresponding fact families and using switchers. This takes place after lunch for 10 minutes each day.

[Follow this link to see the St Chad's Times Tables Progression Document](#)

How do our learning environments support development of knowledge?

In all classrooms, there is a maths learning wall, readily available manipulatives/ practical equipment and APE sentence stems. By reducing the amount on classrooms walls to focus on the key knowledge children need to achieve and progress within lessons, this helps to reduce the extraneous load for children and therefore helps to lower the cognitive overload.

Maths

Key vocabulary

Vocab cards from Laura ☺

Today's learning

We already know

7 8, 3 6 4, 2 0 1

What is the 6 worth?
Prove it!

What digit is in the millions column?
million - what mistake have I made?

Partition this number in 3 different ways.

We will be able to

4 6, 3 9 8, 3 2 2

How many million?
6 or 46?

How many tens?
2 or 4639832?

How many thousands?
3 9 8 or 8?

Place value

10,000 1,000 100 10 1 0.1 0.01 0.001

3 2 3 2 6 2 7 2

3 2 3 1 5 9 9 9

3 2 3 2 6 2 7 2

3 2 3 1 5 9 9 9

Starts same, same, same

E Starting from the column with the greatest value, the numbers are the same until the ten thousands. 20,000 > 10,000. Therefore, the first number is greater.

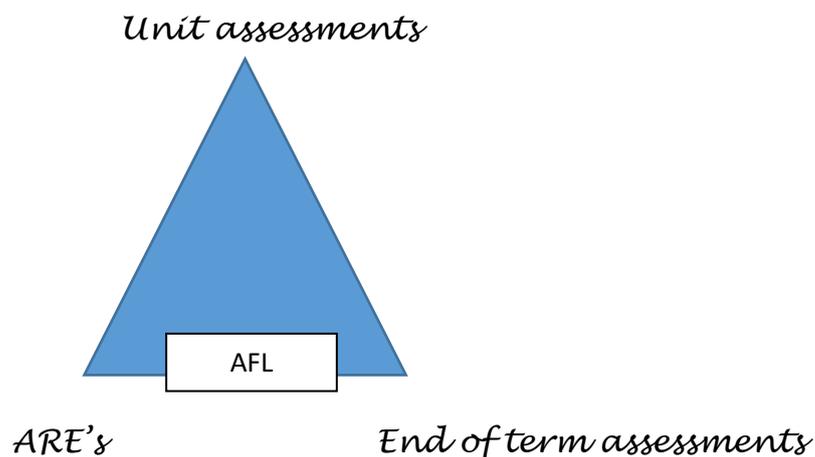
Learning walls are added to as the learning progresses, with examples of learning going on the display as they happen. They contain key vocabulary (for each unit of work) what we already know (yesterday's work), today's learning and an example of what the children will be able to do after the teaching input. These walls will act as prompts to support teaching and learning throughout maths lessons. The aim is to allow children to become more engaged with their environment and use the prompts available to them. To develop their oracy skills, children use APE sentence stems to help them explain their answers when reasoning.

How maths is linked in closely with the connected curriculum?

With maths being critical to science, technology, engineering, financial literacy and most forms of employment, cross-curricular maths is regularly embedded within lessons at St Chad's. Children are provided with real-life learning experiences and opportunities to ensure they are confident to deal with everyday mathematical challenges. Within our connected curriculum, links are explicitly made to maths on long term plans and can be seen in lessons such as computing, science, DT, and humanities. Walking through our school, you will notice our corridors are filled with high quality cross-curricular displays, reflecting the children's love of the subject. Pupils also enjoy the challenge of our annual maths tournament, where they have the opportunity to compete against other children from local primary schools.

How is maths assessed at St Chad's?

At St Chad's we have a triangulation approach to assessment 1 - End of unit White Rose assessments, 2 - ARE grid assessments, 3 - End of long term assessments with assessment for learning (AFL), in each lesson, at the centre of everything we do.



Overall, our children are provided with the tools to leave our school as confident, skilled and resilient mathematicians, who understand that mathematics is a fundamental part of everyday life and the world we live in.