Maths Policy

Codsall Middle School

A school to be proud of

Our Vision

At Codsall Middle School, our vision is to create a caring environment where pupils are happy and safe, enabling them to flourish academically and personally. *We are truly a school to be proud of!*

We aim to enable all our learners to become **responsible, reflective and resilient.**

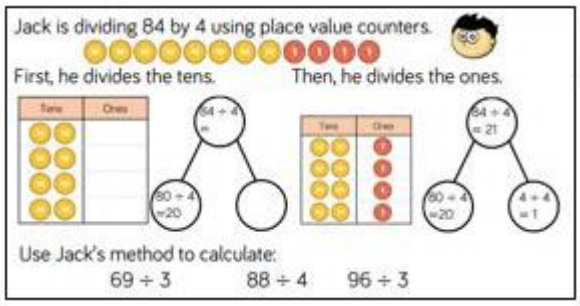
Mathematics equips pupils with a uniquely powerful set of tools to understand and change the world. These tools include logical reasoning, problem-solving skills and the ability to think in abstract ways.

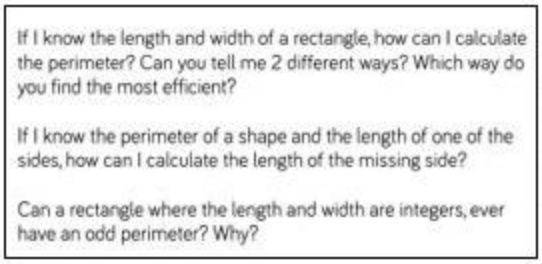
Curriculum Intent

Our Maths curriculum provides breadth and balance, is both challenging and enjoyable. It is intended that all pupils, regardless of their starting point, will maximise their academic achievement and leave Codsall Middle School with an appreciation and enthusiasm for Maths, resulting in a lifelong positive relationship with number. We want pupils to become fluent in the fundamentals of mathematics, to be able to reason and to solve problems.

Our curriculum embraces the National Curriculum aims and provides guidance to help pupils throughout their journey to become:

Visualisers – we expose pupils to conceptual variation to embed mathematical understanding and to make connections between different representations.





Describers – we place great emphasis on mathematical language and questioning so pupils can discuss the mathematics they are doing, and to support them to take ideas further.

Experimenters – as well as being fluent mathematicians, we want pupils to love and learn more about mathematics through reasoning and problem solving.

Curriculum Implementation

At Codsall Middle School, pupils in year 5 and 6 study mathematics for 6 hours each week with additional sessions devoted to number proficiency, as part of our Core Skills scheme of work. In year 7 and 8, children receive 4 hours of maths each week. Pupils are taught in ability groups and we aim to 'Teach to the Top'. Through this, many activities include high ceiling tasks that enable groups to access the same, age-appropriate content but on deeper levels.

Curriculum Design

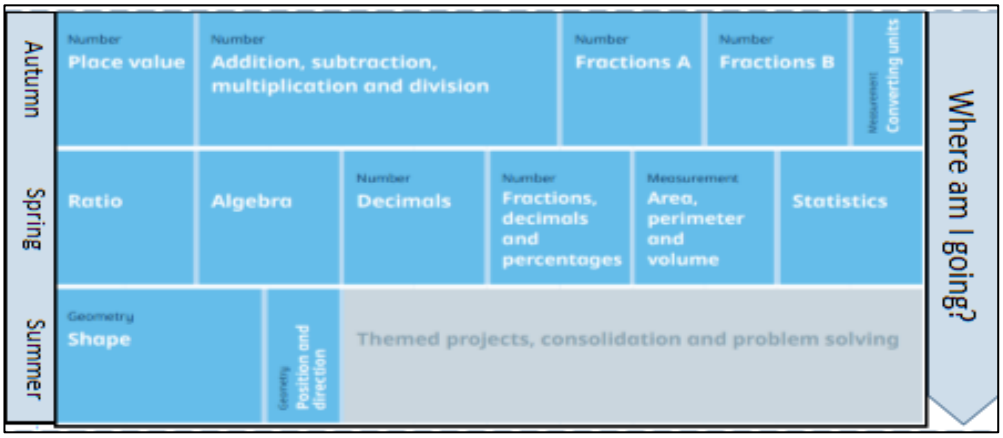
We believe that our teaching combines the best of both 'mastery' and 'spiral' approaches in our curriculum. It follows many of the mastery principles – spending longer on topics to help gain deeper understanding, making connections, keeping the class working together on the same topic and a fundamental belief that, through effort, all pupils are capable of understanding, doing and improving at mathematics. We also recognise that pupils may need to see a topic again and again in different contexts and across different years to help them truly develop their understanding on their journey to mastery so we've built in the revisiting and reinforcing features of spiral curricula too.

To support teaching and learning, we have adapted the White Rose Maths Scheme of Learning: this allows for depth and breadth of learning within each strand of mathematics.

To learn mathematics effectively, some things have to be learned before others, e.g. place value needs to be understood before working with addition and subtraction, addition needs to be learnt before looking at multiplication. We believe that number underpins almost every area of mathematics. Without firm foundations in number, pupils are likely to struggle with other aspects of mathematics. That is why our scheme devotes so much time to number. For some other topics, the order isn't as crucial, e.g. Shape and Statistics need to come after number, but don't depend on each other. We have designed the sequence of blocks to mix these so pupils have as wide a variety of mathematical experiences as possible in each term and year, as shown in the Learning Journeys of each year group.

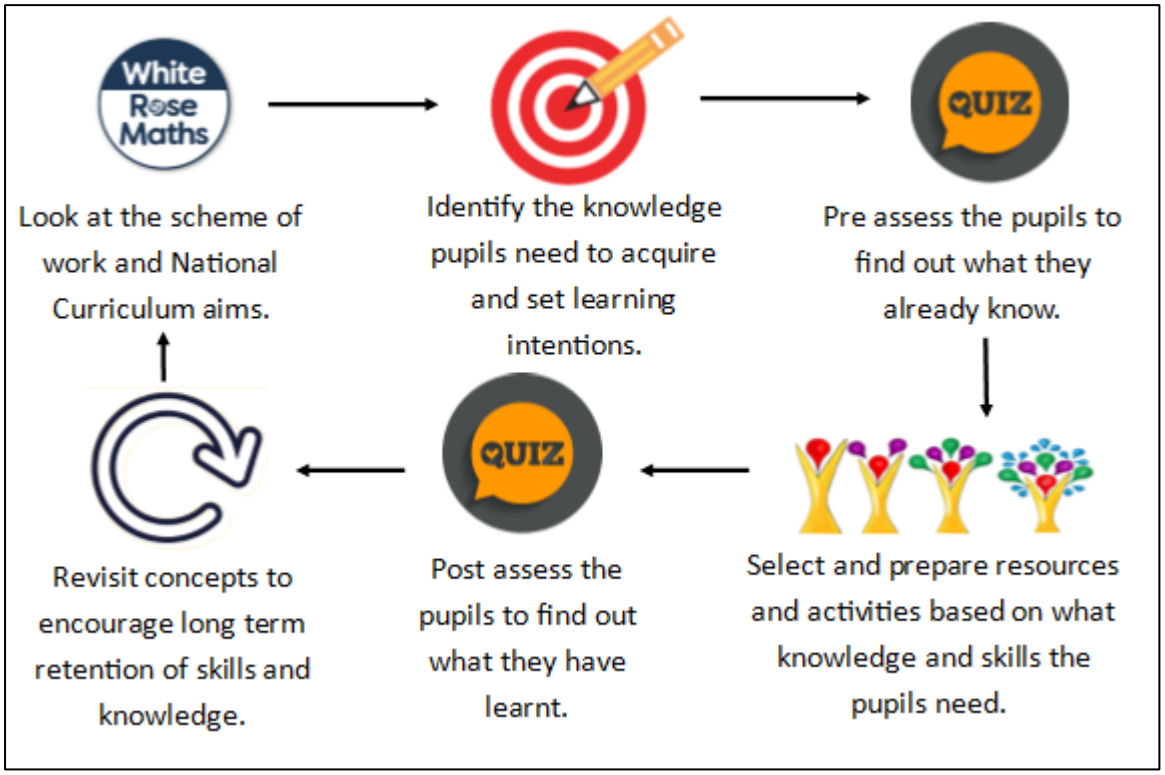
Similarly, as pupils progress into KS3, the curriculum is designed to start with algebra as this is key to the secondary curriculum as well as being comparatively new for pupils. The skills are carefully ordered using 'small steps' revisiting the concepts in other areas of the curriculum and making sure that topics are covered so pupils experience variety as well as consolidation.

Learning Journeys



Learning Journeys are used to develop pupil awareness of the 'bigger picture' and show the sequence of learning. From these, pupils gain a sense of ownership over their learning, to help them to become independent learners in relation to their goals, progress and next steps. They are always aware of what they've learnt and where to next, which helps them to make connections throughout the blocks of learning. *E.g. Year 6*

Teaching and Learning - Lesson Planning with the End in Mind



Modelled Teaching

- Introduce the learning intention
- Use key vocabulary
- Where appropriate, model with CPA to reveal the mathematical structures
- Talk through the mathematical procedures

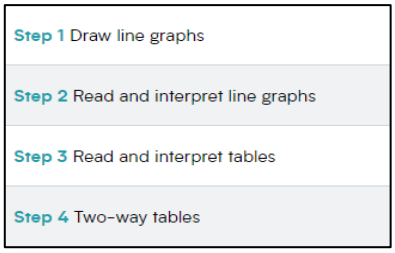
Guided Practice

- Encourage the use of key vocabulary
- Talk about the learning and procedures being followed
- Address misconceptions
- Ask key questions
- Explore different variations together

Independent Practice

- 3-5 questions at a time
- Differentiate through depth of learning: *fluency, reasoning and problem solving*
- Provide scaffolds and supports (The Pit Stop)
- Teachers to focus on small groups to provide support or challenge

Small Steps



Small steps are sequenced in order of difficulty and dependency. Each step builds carefully from the previous step, building on pupils' prior knowledge to develop new skills, in-line with the National Curriculum aims. Extract from the Year 5 Statistics block.**>**

Teachers utilise pre assessment results to pinpoint the starting points for their classes, using the small steps as a guide to build knowledge.

In KS3, some blocks start with "review steps". This is material that will have been covered in KS2 or Year 7. Teachers can use their knowledge of their classes to decide how and when to cover these and then move on to the KS3 material, again building up slowly and ensuring that pupils can become fluent with both calculator and non-calculator methods.

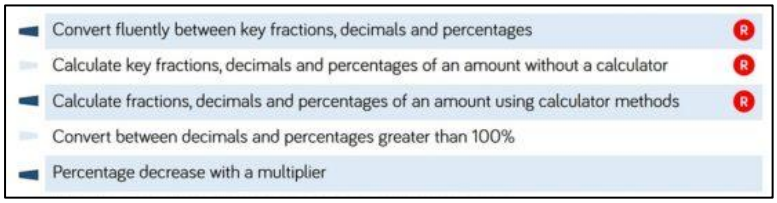
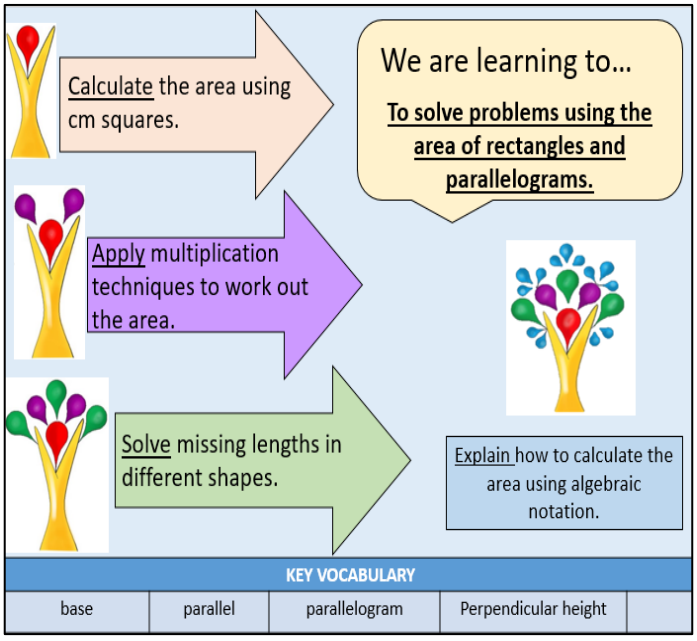
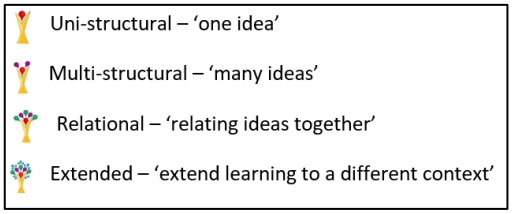


Image taken from our Year 8 Fractions and Percentages block**. ^**

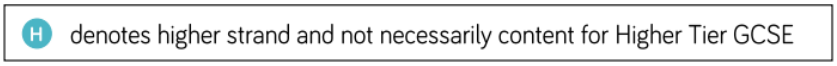
Success Criteria and Learning Intentions



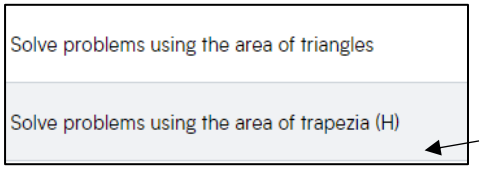
Every lesson, pupils are given a learning intention (linked to the small steps) to inform the pupils about what they will be learning about. This is supported by success criteria, which breaks down the learning even further. Each statement uses a SOLO verb and taxonomy symbol to represent the levels of challenge. This enables the learners to visualise their learning journey.



Challenge



Pupils are exposed to reasoning and problem solving questions that are designed to be accessible to all children. Many questions are open-ended and thorough exploration of these will provide challenge to those who are high prior attainers. In year 7 and 8, teaching staff utilise the 'High Attainers Guidance' to extend the learning of those who have exceeded the learning intention associated with each small step. In addition to this, all 'Set 1' pupils have the opportunity to transfer their skills and access *'HIGHER'* curriculum content.



TTRS

We are committed to ensuring that pupils continue to secure their knowledge of times tables and related divisional facts throughout year 5 and 6. Our pupils engage in regular low stakes testing through Times Tables Rock Stars to practice fluent recall 3 times a week: form time, as part of Core Skills lessons and during one rotational lesson (e.g. science, history or geography).

Core Skills

In year 5 and 6, a weekly Core Skills lesson is delivered to pupils consisting of 15 minutes independent reading, times table practice through the use of ttrockstars tests and practice of Maths skills. Staff delivering Core Skills use White Rose lessons or videos to support pupils in recapping skills previously learnt during Maths lessons. The use of the White Rose worksheets provide both and challenge to meet the needs of all pupils within the class.

SATS

Throughout Year 6, pupils are prepared for their SATs. They develop their arithmetic and reasoning skills through regular practice in the classroom while past SATs papers are used in November, January and April for mock SATs tests. Mock tests show pupils what is expected of them in terms of test content and gives them practice of answering questions in a specific time frame. The mock results are then used to inform teachers of gaps in pupils' learning that can be consolidated in lesson time as well as identifying any pupil who would benefit from intervention outside of the classroom.

Cross Curricular Links

	Science (Miss Denne)	Computing (Mrs Cuthbert)	Geography (Mrs Morris)	Art (Miss Culverwell)	DT (Miss Gilead)
Y5	Science – graphs and averages. Autumn 2 and throughout		Geography rotation – coordinates. Throughout the year		DT – proportion of ingredients for recipes. Throughout the year
Y6	Science – graphs and averages. Throughout the year	Computing rotation – shapes, angles and perimeter. Throughout the year	Geography – enquiry topic. Data collection and presentation. Summer 2	Art rotation Translation/reflection/ shape. Throughout the year	DT – proportion of ingredients for recipes. Summer 1 Throughout the year
Y7	Science – line graphs and lines of best fit. Throughout the year	Computing – charts/graphs. Spring 1	Geography – Working with big numbers. Spring 1		DT – proportion of ingredients for recipes. Throughout the year
Y8	Science – line graphs and lines of best fit. Throughout the year		Geography – Probability into real contexts. Spring 1		DT – proportion of ingredients for recipes. Throughout the year

Additional Support

Intervention

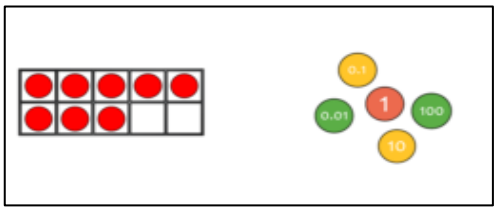
Class teachers are responsible for matching their teaching to the individual needs of the children, through differentiated and scaffolded support, thereby providing appropriate intervention at a classroom level.

Small group interventions run for a duration of 6-8 weeks by teachers and teaching assistants. Pupils are selected based on their assessment data and/or teacher recommendations. Groups are then formed using the QLA, to create focus groups based on the same curriculum content. Some groups are used to pre-teach new content; others are used to revisit and revise prior learning to build confidence.

SEND and Inclusion

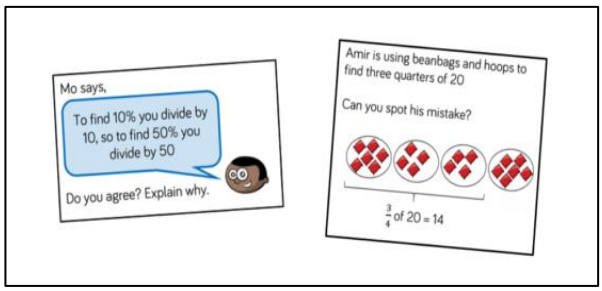
At Codsall Middle, we have a committed and caring team who are proud of the progress and achievement of our pupils with Special Educational Needs. We acknowledge that children have different starting points and that at some time in their school career some children need special arrangements to reach their full potential. Many of the teaching strategies we advocate in maths for all pupils are particularly useful for pupils with SEND. For example:

- **Using concrete and pictorial representations -** Our teaching materials are replete with pictorial examples in all year groups to develop these strategies to deepen and embed understanding.



- **Revisiting and reminding** - the curriculum is designed to include multiple opportunities to look at topics again in new contexts. This enables teachers to support students who have struggled with a topic to spend more time reconsidering and developing their understanding.

- **Plan for misconceptions –** Teachers use activities which include many examples of where pupils could go wrong, challenging the pupils to spot, explain and rectify errors. Pupils' responses to these prompts helps teachers to identify and tackle misunderstandings early on rather than let these incorrect ideas become established in pupils' minds.



<u>Learning Pit</u>

In every classroom, there is a learning pit display where pupils can independently access resources and support to improve their work. Alongside this, pupils can access the **'Pit Stop'** which contains tools to support learning for all pupils. Maths resources are included in this area differ for each classroom, but include overlays, number lines, 'to do now' checklists, counters and place value charts.

Curriculum Impact

At Codsall Middle School, we expect that by the end of Y8 our children are:

- **Visualisers** – pupils can make connections between different representations and demonstrate fluency in the fundamentals of maths using pictorial representations.
- **Describers** – pupils can reason using mathematical language to deepen their learning and explain how mathematical procedures work.
- **Experimenters** – pupils enjoy exploring mathematics through reasoning and problem solving and can transfer their skills between topics and subjects.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. We aim for each child to be confident in each yearly objective and develop their ability to use this knowledge to develop a greater depth understanding to solve varied fluency problems as well as problem solving and reasoning questions. Those who are not sufficiently fluent with earlier material consolidate their understanding, including through additional practice, before moving on. Where necessary, earlier material is used to consolidate their understanding, including through additional practice, before moving on.

Feedback and Assessment

As described in the Feedback Policy, a quick and effective method that is used both live and post-lesson feedback is the use of pink and green highlighters. Teachers, pupils or peers highlight or stick work in relation to success criteria to share live information regarding progress. Pupils can then make effective corrections using their purple pen.

Assessment Strategies

Pupils complete standardised GL tests at the end of each academic year to provide a standardised age score. It is also an expectation that the scheme of work is adapted annually to accommodate for focus areas which reflect the results.

Formal pre and post assessments are carried out at the beginning and end of each term to establish pupil progress Maths. These assessments incorporate a variety of surface skill to deep questions through fluency, reasoning and problem solving. Analysis of the post assessments is undertaken and fed into future planning, intervention and tuition programmes.

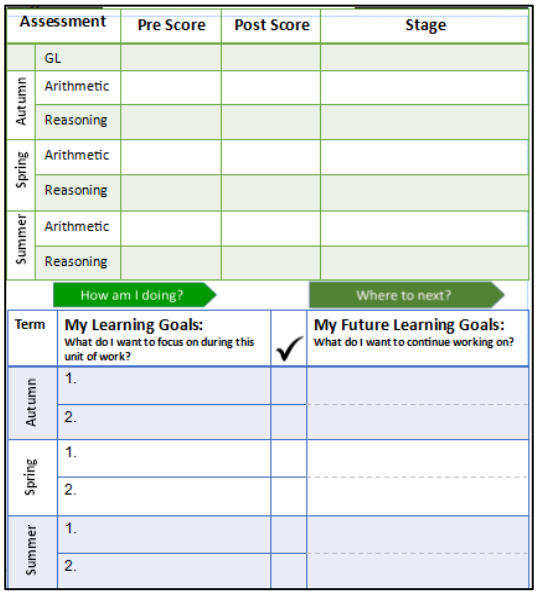
The assessments are differentiated to ensure that all pupils can access the questions:

- A **Core** paper – it is envisaged that all students will take this paper, to provide a direct comparison with the performance of the rest of the cohort. All topics from the Autumn Term will be covered and the use of a calculator is expected.
- A **Foundation** paper – pupils who are working below national expectations have the opportunity to show their understanding of the material with more straightforward questions (non-calculator).
- A **Higher** paper - students who are working at or above national expectations will have the opportunity to tackle more challenging questions on the same material, plus the extra objectives indicated as “Higher” in our scheme of learning (non-calculator).

Using prior knowledge as a starting point for all future planning and teaching, we plan lessons which are required for all pupils to make good progress. For this reason, throughout the blocks of learning, 'low stake' quizzing is used to further guide teaching and learning as shown in the *'Planning with the End in Mind'* cycle.

Progress Paths

As per the staff handbook, pupils receive feedback from their pre and post assessment and record this on their progress paths. They can use these to independently track their progress, *'How am I doing, where am I going, where to next'.*



Assessment		Pre Score	Post Score	Stage
Autumn	GL			
	Arithmetic			
	Reasoning			
Spring	Arithmetic			
	Reasoning			
Summer	Arithmetic			
	Reasoning			

How am I doing? | Where to next?

Term	My Learning Goals: What do I want to focus on during this unit of work?	✓	My Future Learning Goals: What do I want to continue working on?
Autumn	1.		
	2.		
Spring	1.		
	2.		
Summer	1.		
	2.		

Subject Monitoring

We regularly monitor the quality and impact of our mathematics curriculum through targeted learning walks and pupil conferencing.

- **Second in Maths** – Miss C Culverwell
- **KS2 Achievement** – Mrs R Morris
- **Head of Core** – Mr M De Wit