

Mathematics in the OCL Primary Curriculum

Intent

The OCL Curriculum Statement of Intent has been carefully considered for each curriculum area to ensure the content designed meets this at every opportunity.

The context that our children and young people live in:

- Our children live in a world where they require the skills and qualifications, flexibility, emotional intelligence and expertise to be leaders and to thrive as human beings.
- Our children live in world where accepting themselves as individuals and celebrating who they are is key in navigating a complex and ever-changing environment.
- Our children live in a world where they need to feel a sense of ability to change things for the better and have self efficacy.
- Our children live in a world where they need a network of relationships and a network of support to thrive and excel.
- Our children live in a world where early development of vocabulary skills is the single most important factor to get right as early as possible.

We want our children and young people to:

- Be inspired to improve the world around them.
- Have the ambition, skills and expertise to thrive in a fast changing, interconnected and communication rich world, with the confidence and technical expertise to thrive.
- Have a network that supports them.
- Be comfortable in who they are and able to continuously explore who they are becoming.
- Be rich in language with a passion for learning.
- Seek to include others, be other-centred and celebrate difference.
- Have a values approach to life and a sense of what is right and wrong through the lived experience of the 9 habits.

Therefore, we focus on developing character, competence and community. The Maths curriculum specifically meets the OCL statement of intent by focussing on character, competence and community in the following areas:

	<p>Character: All children will have a positive, growth mindset towards mathematics, understanding its importance in everyday life and within our world</p>
	<p>Competence: Children will be fluent in the core mathematical concepts, using precise mathematical vocabulary across a range of problem solving and reasoning situations and applying these to real life situations.</p>
	<p>Community: Children will understand the interconnectedness of mathematics across subjects as well as understand its importance in everyday life, within communities and our world. They will learn about famous mathematicians and the impact they have in society today.</p>

Implementation

To ensure our intent transfers into everyday classroom practice, we use current research in cognitive science to develop pedagogy and specific CPD to ensure subject content is expertly delivered. This is alongside individualised coaching in constantly striving to continually improve practice. Responsive feedback approaches, delivered through out highly effective one-to-one horizons approach, ensure each adult knows the relevant next steps to maximise learning opportunities.

Using research from Dan Willingham’s Models of Memory, Sweller’s Cognitive Load Theory, Rosenshine’s Principles of Instruction and the thinking behind Ebbinghaus’ Forgetting Curve, the curriculum is implemented effectively through a set of core concepts, developed for each curriculum area. This enables children to assimilate new information into growing schema as they move through the academy. By presenting new information to students as another example of these core concepts it allows them to process information in relation to previously learned knowledge and make connections.

The core concepts for Maths:

Core Concepts in Mathematics	
Number: Place Value	Calculation: Addition and subtraction
Calculation: Multiplication and division	Fractions
Decimals	Ratio, proportion and algebra
Measurement	Geometry
Statistics	

The curriculum is mapped using these core concepts. We plan for progression using the key points outlined in the impact section below. Lesson content is planned towards these progression points and follows the model of direct instruction, shared and modelled practice before culminating in independent practice and mastery. Specific knowledge is acquired through the knowledge organisers in each curriculum area and unit of study to ensure broad and balanced coverage and as a tool for children to add to, revise and structure that knowledge.

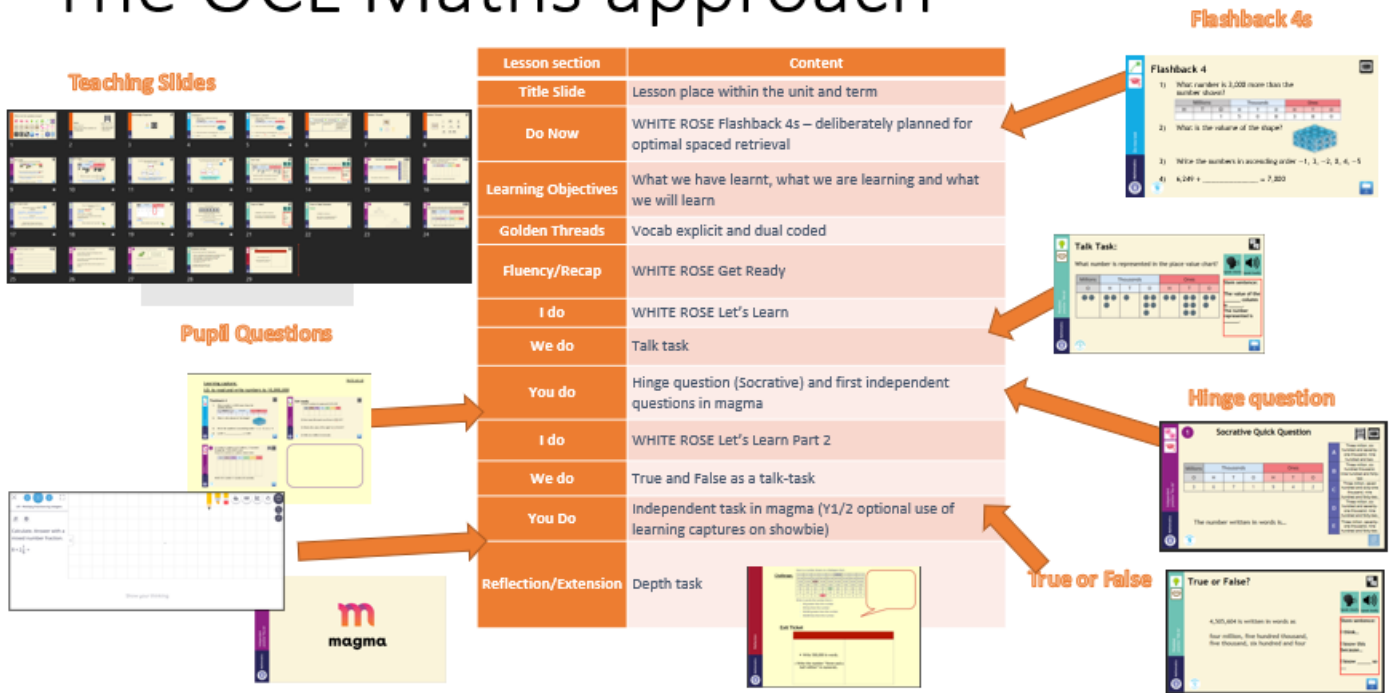
Subject Delivery

Lesson Timings	Type of delivery
Maths is taught daily (5 lesson per week) for an hour per lesson. Teaching occurs in blocked topics which allow for consolidation time across the year.	The lessons are predominantly discrete to enable focus on the core concepts of maths, although vocabulary is continually developed using sentence stems universally across the subject areas. Each maths lesson aims to deliberately encourage retrieval of core and portable knowledge.

Maths lessons and planning follow the White Rose planning overviews and make use of White Rose materials within the OCL lesson structure. Children's independent practice and application is delivered through magma maths (optional for Y1/2). Lessons are supplemented by the use of Sumdog for additional practice and number fluency of key facts to minimise cognitive overload in all new learning.

The diagram below demonstrates how the White Rose Resources have been used to feed into the Curriculum approach to teaching.

The OCL Maths approach



Adapting the slides

As with all OCL curriculum content this is critical to ensure the content is matched to the needs of the children in each class and academy. The lesson templates are adapted locally in the following way:

Lesson Part	Considerations
Do Now	Flashback 4 can be adapted for individual children or classes based on gaps in knowledge identified from pre assessments and AfL.
Balance of I do, We do, You do content	You may decide to add in additional shared examples or models. The independent content may also need adapting with additional Fluency or reasoning depending on your classes needs: this can be chosen from the Magma Oasis books.
Recording	Assignments on Magma can be adapted to fit the needs of your children with additional fluency, problem solving or reasoning chosen if required. (Y1/2 have the option of using learning captures pushed out through Showbie and teachers can adapt these accordingly)
Reflection summary	Depth tasks vary and are designed for children to show depth of knowledge through a range of mathematical processes. It is important children are given to opportunity to apply their understanding of mathematical concepts.

Annual Organisation per year group

Year 1

	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	Consolidation
Spring	Number Place value (within 20)			Number Addition and subtraction (within 20)			Number Place value (within 50)		Measurement Length and height	Measurement Mass and volume		
Summer	Number Multiplication and division			Number Fractions		Geometry Position and direction	Number Place value (within 100)		Measurement Money	Measurement Time		Consolidation

Year 2

	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				Geometry Shape			
Spring	Measurement Money		Number Multiplication and division				Measurement Length and height		Measurement Mass, capacity and temperature			
Summer	Number Fractions			Measurement Time			Statistics		Geometry Position and direction		Consolidation	

Year 3

	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 A			
Spring	Number Multiplication and division B			Measurement Length and perimeter			Number Fractions A		Measurement Mass and capacity			
Summer	Number Fractions B		Measurement Money	Measurement Time			Geometry Shape		Statistics		Consolidation	

Year 4

	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 Area	Number Multiplication and division A			Consolidation
Spring	Number Multiplication and division B			Measurement Length and perimeter		Number Fractions		Number Decimals A				
Summer	Number Decimals B		Measurement Money	Measurement Time		Consolidation		Geometry Shape		Statistics	Geometry Position and direction	

Year 5

	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 A			Number Fractions A			
Spring	Number Multiplication and division B			Number Fractions B		Number Decimals and percentages		Measurement Perimeter and area		Statistics		
Summer	Geometry Shape			Geometry Position and direction		Number Decimals			Number Negative numbers	Measurement Converting units		Measurement Volume

Year 6

	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 A		Number Fractions B		Measurement Converting units
Spring	Ratio		Algebra		Number Decimals		Number Fractions, decimals and percentages	Measurement Area, perimeter and volume		Statistics		
Summer	Geometry Shape		Geometry Position and direction	Themed projects, consolidation and problem solving								

Impact

The ultimate test of the impact of the curriculum is in whether the students know what you want them to know, and what you think they should know. This has been carefully mapped against the core concepts for mathematics in the tables on the following pages.

To determine this, we check and monitor children's learning, providing teachers and students with information about progress and analysis of deliberate retrieval practice. We need to be able to fluidly use 'checking for understanding' techniques in the moment as well as being able to know what has been learnt and retained over time and the depth of that learning:

- We use checking for understanding techniques through Socratic quizzes and hinge questions to ensure we are aware of all students learning during the lesson and adapt the pace as necessary.
- Retrieval practice is built in where most impactful to interrupt the forgetting curve and secure constructs in long term memory.
- Depth of knowledge is then assessed through spaced quizzing, end of unit assessment quizzes, Student Portfolios in Showbie and Magma maths assignments.

Maths Specific Impact Measures

In maths quizzing is used frequently as a method of assessing pupils understanding in the shared and modelled practice of the lesson and then in independent practice, where questions move through fluency, reasoning and problem-solving phases to check on an deepen understanding. Live access to pupils' answers using Socratic and Magma maths means teachers can intervene in a timely manner to address misconception or move learning forward when pupils are ready.

Each term pupils also complete a nationally standardised test in maths and results are examined at an individual academy level and trust level. This further supports staff in identifying any children in need of additional support. Question-level analysis from these assessments can then guide pupil practice focus in the following term.

- Normative, standardised tests include:
 - End of term White Rose Tests
 - KS2 SATs
 - Year 4 Multiplication Tests