

Upton Junior School – Maths Intent and Implementation



Intent

As a school, we believe that students deserve a creative and ambitious mathematics curriculum, rich in skills and knowledge, which ignites curiosity and prepares them for everyday life. Each child follows their own mathematical path, but we strive to ensure that maths is enjoyed by all, that challenges are met with a positive mindset and where mistakes are recognised as part of the learning journey.

We believe that we are part of the longer picture of maths: changing old mind-sets and attitudes towards mathematics and shaping new thinking for the generations to come. Our children will learn to make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. We want children to learn, live and love maths as they understand its importance within our world.

As our pupils progress, we intend for them to be able to have the ability to have an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject, leading to happy, confident and successful mathematicians.

Implementation

The teachers at Upton Junior School recognise - and reinforce - that all children are capable of achieving high standards in mathematics. The principles underpinning the 2014 Math National Curriculum and Teaching for Mastery feature and characterise our approach to teaching mathematics. Our approach to the teaching of mathematics develops children's confidence and ability to use formal and informal methods of calculation, reason using precise vocabulary and build confidence in number manipulation.

How we plan:

We have decided to follow the White Rose Scheme of work as our main driver of the maths national curriculum. It provides us with a yearly overview, broken into half-termly units of work, and it is supplemented with a recommended daily lesson breakdown – these form our small sequential steps of learning.

	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						

Once National Curriculum objectives have been matched to the small steps, teachers plan a series of lessons which build on one another, ensuring that a concrete, pictorial and abstract approach is taken. To aid this planning, we use the White Rose Calculation Policies, which clearly lays out the expectations at each stage of learning at each year group. Additionally, teachers use the NCETM's Ready to Progress and Professional Development Materials to ensure teaching is thorough and is to a high standard, and so that any potential gaps in knowledge can be addressed

through teaching in class. As a part of our continued drive to improve reading and vocabulary, specific teaching vocabulary and sentence stems are identified and are used throughout the unit.

A number of modelling opportunities are then built in to the small-steps, and adequate practice opportunities are provided to children to attempt. Once children are deemed confident, then are challenged with independent tasks and greater depth challenges.

Week	Day	Topic
1 04/01/2021	Monday	Decimals up to 2 d.p. NPV-2 R
	Tuesday	Understand thousandths NPV-2 R
	Wednesday	Three decimal places NPV-2
	Thursday	Multiply by 10, 100 and 1,000
	Friday	Divide by 10, 100 and 1,000

How we teach:

Children are taught in mixed ability classes meaning no child is 'capped' and every child is given the opportunity to succeed and progress. Each unit of work, and each step, follows the CPA (concrete, pictorial, abstract) approach to maths. Teachers use a variety of manipulatives, visual representations and written methods to build the children's learning and confidence at each step. As a unit of work progresses, children are grouped appropriately to support them through their learning; however, teachers and assistants constantly assess children during lessons, addressing any potential misconceptions and support, scaffold and challenge learning and thinking. Children will not be moved on to new learning until they have a full understanding of the mathematical concepts needed to be successful, which happens at different stages of learning for different children.

Each week, children complete a 'Fluency lesson'. This is a session which can be used for several opportunities: revisiting previously taught content, securing fluency skills around the four calculations, addressing misconceptions, practising methods needed for the lesson ahead, breaking down problem solving and practising times tables. Other times, teachers may work with small groups or individual children.

The main teaching in lessons follows an 'I do, partner work, you do' approach. Teachers explicitly model content using the CPA approach whilst using the selected vocabulary and sentence stems. Children then have the opportunity to practise with a partner (sometimes in books or on whiteboards) ensuring they follow the same steps that the teacher has used. More modelling may take place depending on the depth behind the concept being taught, and this may continue for a few lessons before children begin working independently, especially if working through the stages of CPA. However, when child is ready, through assessment for learning by the teacher, they will work independently through tasks to show their understanding. If a child experiences struggle, teachers will work closely with children to unpick misconceptions, and will introduce new approaches when needed.

Use of Mathematical Vocabulary

Through explicit and precise mathematical talk, children will develop the ability to articulate and discuss their thinking and understanding alongside using the correct mathematical terminology. Teachers use questioning to elicit feedback from all students to expose and address any misconceptions in learning. Where these misconceptions are seen, they are readdressed through supported practice to enable all children to succeed.

Reference to symbols on planning

I do	This shows when a teacher will be explicitly modelling a concept		Whiteboard work
Partner	Children will carry out partner work or questioning. They will take turns working, asking questions and ensuring steps are not missed.	P1	Work in book
P2			
You do	This shows when a child is working independently.		Discussion and questioning

Impact

In lessons at Upton Junior School, you will see children engaged and challenged by maths, children who are developing their independence and communication skills and learners who are brimming with self-confidence and ability to be successful. They will also be empathetic of other learners, sharing successes and recognising progress. Our children will be fluent in the fundamentals of mathematics with a conceptual understanding, and the ability to recall and apply knowledge rapidly and accurately. Children will be able to reason mathematically by following a line of enquiry and develop and present a justification, argument or proof using mathematical language.

The adults of Upton Junior School will be patient and show understanding of all learner's potential, frustrations and backgrounds – but no child will be limited in the success and progress they can make. All adults will strive to be mathematical role models, sharing their wisdom and passion to develop the most confident and competent mathematicians.