Curriculum:

Progression in Mathematics

INTENT - The Mathematics Curriculum

The 2014 National Curriculum for Maths aims to ensure that all children:

- Become fluent in the fundamentals of Mathematics
- Are able to reason mathematically
- Can solve problems by applying their Mathematics

At Hunton and Arrathorne, these skills are embedded within Maths lessons and developed consistently over time. We are committed to ensuring that children are able to recognise the importance of Maths in the wider world and that they are also able to use their mathematical skills and knowledge confidently in their lives in a range of different contexts. We want all children to enjoy Mathematics and to experience success in the subject, with the ability to reason mathematically. We are committed to developing children's curiosity about the subject and supporting them through innovative teaching styles, accompanied by rich resources and cross-curricular links.

IMPLEMENTATION - Progression Mathematics: Rationale

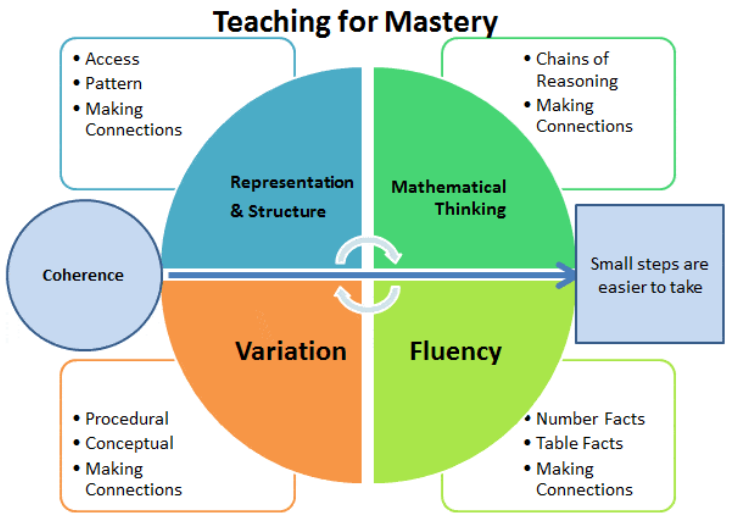
We have bespoke calculation policies for both written and mental calculations which demonstrate what progress looks like across school. These calculation policies have been designed with our children in mind and are in fully in line with the National Curriculum. As a basis for our learning we follow White Rose Maths Mixed Age Planning and the White Rose Maths Schemes of Learning for our children. Teachers use these planning tools as a start point for objectives; ideas of reasoning and challenging children to work at greater depth. They then use a variety of other resources to supplement the WRM scheme and give our children the varied diet of mathematics they including the Teaching for Mastery documents which further propel us towards our goal of children in all year groups and of all abilities developing strengths in their reasoning and problem-solving skills. This approach is further developed through our involvement in the Maths Hubs 'Teaching for Mastery' programme. As a school, we follow the CPA (concrete-pictorial-abstract) approach – ensuring children are given access to concrete manipulatives, varied fluency and a range of reasoning and problem-solving opportunities. This underpins both our lessons and our learning environments.

Within each small step, teachers follow an approach of 'Teach It' which includes clear modelling; 'Twist It' where varied fluency is applied and 'Deepen It' where reasoning and problem solving is applied. We recognise that sometimes, this will happen over more than one lesson as children may need the opportunity for deep practice.

Mental and written calculations, as well as counting skills, are taught through the National Curriculum mathematics lessons. In Lower Key Stage 2, these skills are further embedded with daily mental arithmetic sessions to prepare pupils fully for the Multiplication Check at the end of Year 4. These are supplemented by daily 'Flashback 4' sessions in all classes which take place first thing every morning. Sessions provide pupils the opportunity to consolidate or learn new calculation skills and cover whole class gaps in learning. Children in Reception and Year 1 have daily 'Mastering Number' sessions to embed number-sense and fluency.

Alongside planning and progression documents, to aid teacher's in their delivery of mathematics lessons the policy ensures consistency for our children in terms of work-books, learning environments and lesson structure.

IMPLEMENTATION - Progression Mathematics: Teaching Expectations



We have developed a system for teaching mathematics which is consistent across school and in line with our intent for all children to be able to master mathematics confidently.

Planning Structure

As a school, we follow the White Rose Maths Hub long term plan. In Y1 and Y6 teachers follow single age planning. In Y2/3 and Y4/5 mixed age planning s followed, with progression taught through the mixed age planning documentation. Although teachers use the White Rose plans to sequence lessons appropriately we are committed to ensuring children receive a wide diet of mathematics tasks and therefore activities will not be exclusively from the White Rose resources. The small steps guidance provides staff with continual CPD about how to break down the concepts into small progressive chunks.

Following the teaching of the '5 Big Ideas' we recognise that varied representations, including the use of concrete and pictorial resources, is highly beneficial; teachers are encouraged to use these models throughout a unit of learning.

In addition to the White Rose overviews, we also have bespoke progression document for the teaching of calculations. When teaching these aspects, teachers follow to these.

Lesson Structure

Active Counting (5 minutes)

Each class has approximately 5 minutes rapid recall of counting per day – this could include key number bonds, multiplication tables or other curriculum related tasks. Such activities might include: use of the counting stick, times table songs, relay work, chanting etc.

Retrieval (5 minutes)

Each lesson begins with an open-ended retrieval activity following a 'free-goal approach'. This allows children to investigate one mathematical problem in an open-ended way. Teachers use highly skilled questioning to adapt teaching; pupils are encouraged to talk purposefully and apply mathematical vocabulary whilst developing speaking and listening skills.

Teach It

High quality teacher modelling should include concrete, pictorial and abstract representations with the adult or adults modelling clearly initially. Utilise the 'I do' / 'We do' / 'You do' approach so the children apply what they have learnt during teacher modelling. In Maths, teachers model using squared paper on the easel. Pupils can work on squared whiteboards, on their tables or using concrete resources.

Twist It

The objective is presented in a different way (varied fluency) and modelled clearly once again by the teacher. Children apply their knowledge in a different context.

Deepen It

The children are given the opportunity to explore the objective at a deeper level through reasoning and problem-solving tasks.

Challenge
An additional extension challenge which some children may access.

Plenary
This may involve a recap of knowledge, children self-marking or additional extensions. Where possible, real life links should be clearly explained to the children.

The teacher may decide to follow the above sequence within the initial lesson and stop the children after each part, moving some children on. Equally, they may decide to hold a whole class input first and then allow the children to work through problems independently.

Learning Environments

Learning environments should be maths rich. Resources should be readily accessible to the children. In addition, each classroom should include:

Age appropriate number lines (linked to curriculum objectives)

Permanent Features:

- A hundred square
- Concrete resources which are readily accessible
- 'Talk Like a Mathematician' poster
- Vocabulary in calculations posters
- Place value chart / Inequalities posters

Working Wall:

-Each class begins each unit with a blank space which the teacher uses to model and display key learning throughout the term. This should include concrete, pictorial and abstract representations.
-At the start of each unit, the topic title, key vocabulary and sentence stems should be added.

Presentation

Children work in squared maths books which are clearly labelled in the school style. Children use one square per digit and are encouraged to present their work to the best of their ability. When paper is used, it is trimmed and children are taught how to stick it in neatly. All work has a date and learning objective which starts with 'I can…' and an objective clearly linked to the national curriculum. Objectives may be provided for the children or written themselves depending on their age and ability. Children start a new page for each piece of work.

Marking & Feedback

Our emphasis will be on 'live marking' with either the children marking their own work (purple pen) or teacher marking (blue pen). Children are given the opportunity to correct any incorrect answers in purple pen.

IMPLEMENTATION – LONG TERM PLANNING

We follow the White Rose Scheme of Work, using the small steps to support planning but adapted to meet the needs of our children. Reception for 'Mastering Number', Year 1 and Year 6 follow single-aged planning and Years 2/3 and 4/5 follow mixed aged planning.

We supplement this with guidance from the WR scheme materials to ensure that pupils are taught skills and knowledge systematically though we encourage children to provide a 'varied diet' and draw on resources from elsewhere as well. By supplementing this with our bespoke approach within lessons, we can be confident that pupils receive a comprehensive and varied range of mathematical tasks.

Please see our LTP on the next page, whilst White Rose resources, including mixed age planning, can be found here:

https://whiterosemaths.com/resources/primary

Hunton & Arrathorne Community Primary School

Maths Long Term Plan – Year 1

Overview of the Year							
Autumn **12 Maths Weeks**	Place Value (Within 10) *(5 weeks)*				Addition & Subtraction *(5 weeks)*	Place Value (Within 20) *(2 weeks)*	
Spring **9 Maths Weeks**	Place Value (Within 20) *(1 week)*	Addition & Subtraction *(3 weeks)*			Place Value (Within 50) *(2 weeks)*	Multiplication & Division *(3 weeks)*	
Summer **9 Maths Weeks**	Fractions *(2 weeks)*	Place Value (Within 100) *(2 weeks)*	Shape *(1 week)*	Mass & Volume *(1 week)*	Money *(1 week)*	Position & Direction (1 week)	Time *(1 week)*
We follow the guidance and 'small steps' within White Rose to ensure progression across units. In some cases, the White Rose Long Term Plan has been adjusted to suit the needs of our pupils and cohorts – for example to ensure an adequate amount of coverage over a sustained period of time, or to ensure sufficient coverage ahead of statutory assessments.							

Hunton & Arrathorne Community Primary School

Maths Long Term Plan – Year 2/3

Overview of the Year						
Autumn **12 Maths Weeks**	Place Value *(3 weeks)*		Addition & Subtraction *(6 weeks)*		Multiplication *(3 weeks)*	
Spring **9 Maths Weeks**	Division *(2 weeks)*	Statistics *(2 weeks)*	Measure, Length & Height *(1 weeks)*	Fractions *(4 weeks)*		
Summer **9 Maths Weeks**	Shape, Position, Direction & Perimeter *(4 weeks)*			Time *(2 week)*	Mass, Capacity & Temperature *(3 weeks)*	
We follow the guidance and 'small steps' within White Rose to ensure progression across units. In some cases, the White Rose Long Term Plan has been adjusted to suit the needs of our pupils and cohorts – for example to ensure an adequate amount of coverage over a sustained period of time, or to ensure sufficient coverage ahead of statutory assessments.						

Hunton & Arrathorne Community Primary School

Maths Long Term Plan – Year 4/5

Overview of the Year					
Autumn **12 Maths Weeks**	Place Value *(4 weeks)*	Addition & Subtraction *(3 weeks)*	Multiplication *(2 weeks)*	Shape & Angles *(3 weeks)*	
Spring **9 Maths Weeks**	Multiplication & Division *(2 weeks)*	Fractions *(4 weeks)*	Statistics *(2 weeks)*	Time *(1 week)*	
Summer **9 Maths Weeks**	Decimals, Percentages & Money *(6 weeks)*		Converting Units of Measure *(2 week)*	Position & Direction *(1 week)*	
We follow the guidance and 'small steps' within White Rose to ensure progression across units. In some cases, the White Rose Long Term Plan has been adjusted to suit the needs of our pupils and cohorts – for example to ensure an adequate amount of coverage over a sustained period of time, or to ensure sufficient coverage ahead of statutory assessments.					

Hunton & Arrathorne Community Primary School

Maths Long Term Plan – Year 6

Overview of the Year					
Autumn **12 Maths Weeks**	Place Value *(2 weeks)*	Four Operations *(5 weeks)*		Fractions *(4 weeks)*	Converting Measures *(1 week)*
Spring **9 Maths Weeks**	Decimals *(2 weeks)*	Fractions, Decimals & Percentages *(2 weeks)*	Ratio & Algebra *(3 weeks)*	Area, Perimeter & Volume *(2 weeks)*	Statistics *(2 weeks)*
Summer **9 Maths Weeks**	Shape *(2 weeks)*	Consolidation & Problem Solving *(7 weeks)*			
We follow the guidance and 'small steps' within White Rose to ensure progression across units. In some cases, the White Rose Long Term Plan has been adjusted to suit the needs of our pupils and cohorts – for example to ensure an adequate amount of coverage over a sustained period of time, or to ensure sufficient coverage ahead of statutory assessments.					

IMPACT

The school has a supportive ethos and our approaches support the children in developing their collaborative and independent skills, as well as empathy and the need to recognise the achievement of others. Children can underperform in Mathematics because they think they can't do it or are not naturally good at it. Our programme addresses these preconceptions by ensuring that all children experience challenge and success in Mathematics by developing a growth mindset. Regular and ongoing assessment informs teaching, as well as intervention, to support and enable the success of each child. Children are encouraged to be 'risk takers' and to challenge themselves within Maths lessons in line with our curriculum aims.

Our mathematics curriculum is high quality, well thought out and is planned to demonstrate progression. Within each objective, children should access varied fluency, the opportunity to reason and problem solve. Children use mathematics books to record their progression which are marked in accordance to our feedback policy.

The expectation is that the majority of the children will move through the domains of mathematics and where needed, will access 'keep up' interventions to ensure they do not fall behind. Staff monitor this through the use of the Insight Tracker assessment package which is formally monitored on a termly basis. In conjunction with this, teacher's make sound teacher assessment judgements through the use of summative assessments and past SAT's papers for Y6. Rigorous assessment of this tracker ensures gaps are closed readily and children are secure in their mental knowledge at the end of each stage of learning.