

Intent

The aim of our Maths curriculum at St Rose is for our children to be capable, confident and have a positive attitude towards mathematical concepts. We teach them that God has given them talents that they are entrusted to develop and use for the good of others. We have clear intentions for the three fundamental aims of the National Curriculum - fluency, reasoning and problem solving. Fluency is not simply the recall of number facts, but being able to see links between topics and learning. Reasoning requires the children being able to justify their answers and strategies. Problem solving is the ability to understand how a task should be approached and what steps are involved. The children should be taught that there are times when multiple strategies might be applied to solve the same problem and then evaluate which is the most appropriate. We see them as highly connected aspects of teaching. They are covered in each topic and should appear in most individual lessons.

The aims of the National Curriculum are to develop fluency and the ability to reason mathematically and solve problems. Reasoning is not only important in its own right but impacts on the other two aims. Reasoning about what is already known in order to work out what is unknown will improve fluency; for example, if I know what 12×12 is, I can apply reasoning to work out 12×13 . The ability to reason also supports the application of mathematics and an ability to solve problems set in unfamiliar contexts. (NCETM)

It is our aim to develop the use of mathematical vocabulary and discussion. To develop this, we have spent time working on written journaling and this style of task (including the teacher modelling orally in teaching) will continue to be developed. To further develop and deepen the understanding of mathematical vocabulary, we have developed a Vocabulary Progression Document which sets out vocabulary to be taught in each year group. We have also developed 'star vocabulary' that will feature in each maths lesson.

Teaching children precise mathematical language and insisting upon its use supports children's ability to think mathematically. Having the language and using it empowers children's ability to think about the concept. (NCETM)

To ensure that our children 'know more and remember more', lessons are carefully structured into small steps of teaching. These steps should be small enough steps so that most children can keep up, not need to catch up. These 'small steps' also occur across lessons. Lesson sequences are carefully planned and sequenced across a topic, in each year group from EYFS to Y6. These are set out in our Whole School Progression Document. It is important to us that children 'master' their year group curriculum: they should develop a deep understanding of their year groups' objectives and not be rushed to move on too quickly. These are made clear in each year groups' Unit Markers.

Carefully structured teaching is planned in small steps. This provides both the necessary scaffold for all to achieve, and the necessary detail and rigour of all aspects of the maths to facilitate deep

thinking. The small steps are connected and concepts are built. This leads to generalisation of the maths, and the ability to apply it to multiple contexts and solve problems. (NCETM)

We believe that our children should focus on Place Value, Calculation (the four operations) and Fraction before developing the rest of the mathematical content. We believe that if the children have a deep understanding of these areas, that the rest of the content should be more accessible. To allow for this, we have ordered the Whole Year Maps to give these topics priority focus. Teachers also know that the whole year maps are a guide and that they are flexible. If the class show that they need longer on a topic to allow for depth, the teachers, in conversation with the subject lead, can edit and develop them as necessary. We plan to monitor progression through the Whole School Coverage document at regular intervals to ensure that it is current and that classes are covering everything needed.

We believe that all children should have access to our Maths curriculum and that, unless a child has a specific learning need (set out in an EHCP), that they should be accessing the same content as their peers. Unless they have a specific learning need, children should be taught in class and be supported by their peers, teaching assistants and the class teacher. Differentiation will come through support, questioning and resources. We believe that in working alongside their peers, children who might need additional support, benefit from hearing the modelling of other children and of the adults in their classroom.

Mastery is characterised by a belief that, by working hard, all children are capable of succeeding at mathematics. On this basis, children are taught all together as a class and are not split into 'prior attainment' groupings. (NCETM)

Alongside their main Maths lessons, our children also receive further development of basic skills: this is done through sessions such as Big Maths; the use of Times Table Rock Stars; through interventions that support the lessons; arithmetic support and through the tasks set on their arrival into school (often referred to as "5-a-day"). These are planned by class teachers and should complement the deepening of understanding of their year groups' objectives.

The long-term intent of our Maths curriculum

We hope that our Maths teaching inspires our children of Weoley Castle in our charge to enjoy maths and to feel confident and adept at the subject. We hope that our children might choose to go on to study Maths in further education as at the moment only 32% of people in our catchment have NVQ4+ or equivalent qualifications and sadly 32% have low or no qualifications at all. We hope that they leave St Rose with the ambitions of applying mathematical skills when working in higher skilled occupations as currently Weoley Castle has 38% of its population working in lower skilled jobs and the employment stands at just 60%. We intend to teach the children that through hard work, ambition and positive attitudes that they can grow to be adults in occupations that help improve, not only their own futures, but that create a better world for others using their mathematical skills and knowledge. Being in an area that is in the most deprived 10% of Birmingham means it is important to talk to our children about how we want them to grow up knowing how to use their mathematical understanding to manage their finances and not get into debt. To achieve these ambitious intentions, our teachers talk positively about Maths, give real-life examples and discuss the importance of it in everyday lives. We

talk to children about their vocation and how God calls them to be the best version of themselves, giving them the talents they need to achieve.

For I know the plans I have for you, declares the Lord, plans to prosper you and not to harm you, plans to give you hope and a future. (Jeremiah 29:11)

Mathematics is a creative and highly inter-connected discipline that has been developed over centuries, providing the solution to some of history's most intriguing problems. It is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. (DfE, 2014)

Implementation

To support the intent of our curriculum, we have worked hard to implement a number of actions that we believe will help us achieve our ambitious goals.

Lesson Structure

We have decided that in most lessons we want to see: -

- An LO frame which has the lesson focus, knowledge goals and key vocabulary. This should include a 'star word'. We believe that the correct use and understanding of mathematical vocabulary is essential for mastery of maths. This should be on display during 'Your turn' sessions and, where they are available, should be accessible on the children's tablets for them to refer to with ease. During these times, the children should also be able to see the 'step for depth' task on the LO frame.
- 'Prior Learning' starter. This requires children to draw on and recall learning from previous lessons. This helps build confidence and model links to previous teaching to support fluency and reasoning.
- During teaching slides, teachers should use questioning to elicit pupils' understanding and to model how problems might be scaffolded to solve them. The teaching slides should use clear models, pictures and any written text should be clear to read. Teachers should be modelling clearly including the correct use of mathematical vocabulary. They should be encouraging the children to do the same, with particular emphasis on the 'star vocabulary' for the lesson.
- Teaching slides should include 'Have a think' questions which encourage children to talk and engage in mathematical dialogue where they explore the mathematical vocabulary, concepts and teaching. Teachers and Teaching Assistants should visit different children and tables to ensure they have understood and are using the vocabulary correctly. Children are encouraged to discuss in pairs or as a group in order to allow them thinking time before sharing answers with the class.

- 'Your turn' - this is where children have a go at answering the carefully thought through questions which have been designed for variation and to deepen understanding. These 'Your turn' sessions should break up the teaching - not just happen at the end of the lesson. This is part of the 'small steps' approach that was covered in the Intent.
- During 'Your turn', live marking should be taking place - from Teachers, Teaching Assistants and at times the children themselves. We believe that live marking is essential to ensure children are grasping the small steps and are understanding what has been taught. Where misconceptions are identified, the child or children should be supported to enable them to move forward. Children should be given opportunity to respond to any corrections in their green pens to show their new understanding.
- Teaching should be broken up by the 'Your turn' sessions but teachers should regroup and regain children's attention to further develop or to address misconceptions if they identify that a number of children have misunderstandings that need addressing as a collective group. They should not limit themselves to 'sticking to the plan' if their class are showing that they need intervention. The same goes if children are working with ease and the teacher thinks that they can further deepen their learning past what was originally planned for the lesson.
- Step for depth tasks should be available for those who complete the work sheets. These tasks should deepen understanding, not move them on.

Using the classroom as a Tool for learning

We know that the classroom itself can be a huge tool in supporting our children in their learning. For this reason, we ensure that our displays are 'working walls'.

These should include:

- clear and easily readable topic specific vocabulary
- an enlarged copy of the topic's unit marker so that children can see the progression across the topic
- examples of work modelled by the teacher
- examples of children's work (as the topic progresses)
- examples of how concrete resources can be used (where appropriate)
- examples of appropriate pictorial representations related to the topic being taught
- sentence starters to promote oral explanation and reasoning

Concrete resources are very important and should be available to all children. They should be relevant and easily accessible as and when children should need them. Children should be able to collect/locate a resource should they want or need it. Adults should have thought carefully about resources before teaching the topic and, if they are whole school resources (e.g. clocks) then have collected them from the resource area for their class to use. We are very fortunate that we have a range of resources that each class for their own use. These should be in regular use.

Inclusion

It is our belief that all children should be taught together in the same classroom and have the same opportunities as each other, regardless of whether they are disadvantaged or part of the 'lowest 20%'. Unless they have a specific learning need which has been outlined by an EHCP, all children should have access to the same curriculum content. Differentiation should come through questioning, adult support and resources. The 'small steps' can be made smaller where necessary. We believe that the use of concrete resources and pictorial images can support all children to visualise what is being taught and asked. Examples of these and how they can be used can be found in the Calculation Policies. The use of concrete resources and pictorial images are modelled and used for all groups of learners.

Children should be sat in mixed ability groups to enable them to share knowledge and learn from one another. As much as reasonably possible, there should be a mixture of genders and disadvantaged and non-disadvantaged children. Seating should enable discussion to take place.

SEND

Children identified as SEND will have IEPs and those who have an EHCP will be working on their own individual targets related to their continuum. They should be making progress from their starting points and adults working with them should know where they are and what they're working on. To the best of their capabilities, they should be encouraged and expected to participate with the whole class teaching and learning. Once teachers can see that they have reached their limit, they will move to work on their personal targets.

Assessment

We use regular assessment to determine how well children, classes and identified groups are doing in Maths. Termly assessments are from Rising Stars and evaluate the whole year objectives. We also use assessment questions related to each topic from The White Rose to evaluate the children's learning at the end of a topic.

Children are evaluated as 'working towards', 'secure' or 'greater depth' their year group's objectives and should move through these as the year develops depending on each child's starting point. There may be times when some of our SEN learners are identified as working 'below' their year group expectations. The intent is for all children to reach 'secure' or above in their year groups' objectives (with the exception being those with EHCPs that state otherwise).

Low stake testing is a valuable too. These might include the following:

- '5 A DAY' morning tasks as they arrive to school
- Times Table Rock Stars and Numbots also enable children to test themselves on recall facts for the four operations
- Big Maths is used to support basic skills teaching and the tests that go alongside this help inform further teaching that is necessary to support each child

Each of these types of assessment has a purpose and informs future teaching.

Making sure Intent is being implemented in the classroom

The subject leader works hard to ensure that the 'Intent' is understood and shared by all delivering the Maths curriculum. In order to achieve this, staff are kept up to date, know that they can approach the subject leader if they have any concerns, questions, resource requests or CPD needs and the staff know that the subject leader is here to work with them - not just instruct them. Staff voice takes place in order to ensure that staff are happy, confident and that they have opportunity to share.

Planning is monitored regularly to ensure that the teaching includes all the aspects covered in the 'lesson structure' outline. This is completed using the One Drive. Books are monitored regularly to see how teaching is impacting the children and to see what they have learnt and are able to achieve. Pupil voice takes place to ensure that children are receiving the intended Maths curriculum and give them a chance to share their own thoughts about the curriculum they are receiving. Assessment is used to identify possible areas that need further support and development. Through this thorough monitoring, the subject leader is able to ensure that everything is in alignment to offer the children of St Rose the best possible chance of achieving to the best of their abilities in Maths. Any concerns are quickly picked up and actions are set and adults are updated to support the progress of the children in Maths.

Impact

We work hard to ensure that what we intend and implement has the desired effect on our children here at St Rose: that they are confident in their maths abilities and are attaining the necessary skills and knowledge for their year group. Children should be fluent, to be able to reason and to capable at problem solving at the correct pitch for their age. They should be able to discuss their understanding using the relevant vocabulary and give examples of their learning.

Assessment

In each mathematics lesson, teachers identify and quickly address misconceptions. This will determine their teaching, further questions they ask and how they support children in their classroom. Their 'assessment' might come from pupil responses to questions or through their live marking.

We ensure that termly assessments that are completed are valuable and they are used to determine how well children, classes and identified groups are doing in Maths. The results from termly assessments are used to set targets and there might be times when a specific group or class need to complete half-termly assessments to ensure that they are making the necessary progress. If children are not progressing their way through their 'working towards', 'secure' and "exceeding" for their year group's objectives at the necessary rate, depending on each child's starting point, then interventions or targets will be set that support them.

To ensure that children are making progress within topics, in their year group objectives and across the school, we have regular conversations as a staff: these are often informal and are extremely supportive. As a school, we are very fortunate that our staff are an amazing team who share ideas and feel comfortable discussing any concerns that have with each other to draw on each other's experiences where possible. Staff often come to the subject leader to ask for advice or to clarify uncertainties if necessary. We also have phase and leadership meetings where specific children, groups or classes might be discussed if there is a need. These meetings

consider interventions or actions that should support the children in question to ensure that they make the required progress in mathematics.

The end of unit assessments, which are used to evaluate the children's learning at the end of a topic, should inform teachers that the topic has been taught thoroughly enough to move on. If these assessments show that longer is needed, then, in talks with the subject leader, long term planning can be changed to cater for deeper learning. These tests might also suggest which areas might need light-touch revisits through basic skills session such as 5-a-day if needed.

Low stake testing is used for children to monitor their own progress and learning as well as informing the staff working with the child.

Pupil Voice

To determine how well our maths curriculum is having the desired affect across all pupils, the subject leader completes pupil voice interviews (both in person and using 'Forms' on the OneDrive). This is a very valuable form of monitoring and gives a good insight into what happens in the classroom.

Pupil voice responses often include:

- how their teacher supports them
- how they use concrete resources
- how they use their individual tablets
- calculation strategies they might apply
- how their working walls support their learning
- their enjoyment of online resources
- their successes and where they might further improve
- what they are currently studying

Whenever these interviews take place, the subject leader always ensures to include a range of genders, abilities, SEND, ethnicities and advantaged/disadvantaged, making sure that every voice has a chance to be represented. Children's contributions, including suggestions for improvements, are valued. Teachers are given a copy of any notes or 'Forms' so that they are able to see what their children are saying about their maths learning.

End of Year 6 Impact

The desired impact is that all children leave St Rose 'secondary ready' and with a deep understanding of the skills and knowledge necessary in maths. They should leave here confident in their abilities, understanding that maths is a life-long skill needed and that it will support them as young adults as they move on. They should have a range of strategies that they are able to apply to real-life situations, not just get correct answers in a test. They should know that problem solving can often involve making mistakes and learning from them - they should be resilient and know how to alter their approach if required. They recognise the importance of maths, both in school and for the rest of society, and are able to articulate this confidently and eloquently. They should leave St Rose of a love of maths that will inspire them to study it further in the future.