



Mathematics at DSJ



Intent Statement

The National Curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

At Deeping St James, 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 appropriate contexts.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The long-term plans are, by necessity, organised into apparently distinct domains, but pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems.

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

At DSJ we intend to:

- Ensure our children have access to a high-quality maths curriculum that is both challenging and enjoyable.
- Provide our children with a variety of mathematical opportunities, which will enable them to make the connections in learning needed to enjoy greater depth in learning.
- Ensure children are confident mathematicians who are not afraid to take risks.
- Fully develop independent learners with inquisitive minds who have secure mathematical foundations and an interest in self-improvement.

We want all children to enjoy Mathematics and to experience success in the subject, with the ability to reason and problem solve mathematically.

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Implementation

At Deeping St James, mathematics skills are usually taught within the morning sessions for each year group. The children are then given opportunities to apply the skills taught during maths lessons in other areas of the curriculum when appropriate. The children cover a broad and balanced curriculum including elements of number, calculation, geometry, measures and statistics. The skills are taken directly from the National Curriculum and children are exposed to age related content relevant to their year group. Fluency, which forms the basis of our maths curriculum, is developed and enhanced through our whole school approach. This gives children opportunities to embed fundamental mathematical concepts, which they can then apply across the wider maths curriculum. Our whole school approach to the teaching and learning of mathematics involves:

- **Teacher Led Long-Term Plans:** Teachers create long-term plans for their individual year groups using their secure subject knowledge, basing these plans on the progression of skills required for the various mathematical concepts to be covered in each year group to secure progress in mathematics. This allows pupils to revisit and consolidate concepts in order to deepen their understanding.
- **PiXL Primary:** Children complete PiXL QLA Assessments based on the PiXL Primary Assessment Calendar. There are differing assessment points depending on each year group – two for Y1/2, termly for Y3-5 and four for Y6. These assessments are used strategically as a classroom resource to identify strengths/weaknesses for each cohort and form the basis for the teacher's planning. They inform teachers' understanding of pupils' misconceptions and barriers, and therefore the implications for planning and for delivery of the curriculum – aiming to target the areas where there is the most need. PiXL therapies are used for 'catch up' in gaps identified through the diagnostic assessments; these are utilised both within whole class settings or small TA led groups depending on the need for cohorts/individuals. PiXL assessments are also used to support teachers to make judgments for the PiXL Language of Assessment grades.
- **Learning Journey:** Teachers produce pre-teaching assessments to support progress in areas of learning; ensuring that fluency, problem-solving and reasoning aspects are included. These are used to assess pupils' prior understanding and form the basis for the teacher's weekly planning – these ensure that each child is able to make progress from their individual starting points. Pupils who displayed a good level of understanding on pre-assessments are ready to progress and will be given opportunity to deepen their knowledge and understanding within the journey.
- **Flashback 4:** Teachers use Flashback 4 resources at the start of every mathematics lesson to revisit, consolidate and revise content and vocabulary. Teachers use this opportunity to ensure pupils develop a rich understanding of mathematical vocabulary and connections between mathematical content to support deeper knowledge and understanding for pupils to 'know more, remember more.'
- **Mastering Number:** Pupils in EYFS – Y2 follow the (NCETM) Mastering Number Programme 4 days of the week to deepen and secure number sense to support children for the demands of the curriculum as they progress through the school. Targeted pupils in Y3 access this programme as their Flashback 4 if required to ensure that if not grasped these key skills continue to be developed in lower KS2.
- **Fluid Groupings:** Pupils work in fluid groupings in mathematics lessons depending on analysis of their pre-assessment, this enables staff (teachers and support staff) to target specific learning needs. Further support within the lessons may be achieved using some

of the following techniques: concrete resources (manipulatives), pictorial representations, differentiated scaffolds or adult/peer support.

- **Progression in Calculations:** Teachers follow the schools' calculation policy from Y1-Y6 for the four main operations (+ - x ÷) to ensure that there is clear progression in these fluency skills. Throughout the Primary years the children get opportunity to build on these concepts from concrete, pictorial to abstract in readiness for the transition to Secondary Education.
- **Resources:** We are continually striving to improve our maths curriculum in order to best suit the needs of our children. We do not follow a set scheme; instead we utilise quality resources available including White Rose Maths, Classroom Secrets, PiXL Primary, NCETM resources, NRICH, I See Reasoning, I See Problem Solving, Target Your Maths, & Education City.
- **Number Bonds:** Teachers in EYFS and Y1 support the pupils with these key facts for early number which will impact on their mathematical journey as they get older. Children have regular opportunities to learn, embed and later recall these early number facts in a variety of ways from concrete, pictorial -progressing to abstract ways. When secure with facts to 10 and then 20 the pupils are awarded with relevant number bonds certificates for recognition of their success. This forms the basis for mathematics home/school partnership in Y1.
- **Times Tables:** To support pupils at DSJ with times tables recall the school has a 'Times Tables Policy' in which the pupils work towards times tables badge awards from Y2 through to Y6. Children in these year groups have daily practise of these facts through a 5-minute 'Activate Times Tables' session (after assembly) agreed by all staff. Times tables are also taught regularly as starters in daily maths lessons using the 'counting stick' approach adopted by the school. This forms the basis for mathematics home/school partnership in Y2 – Y4, although it also continues into Y5&6. Times tables are also taught in teaching units giving the all-important opportunities to use concrete resources and pictorial representations to deepen understanding.
- **Arithmetic:** Pupils across the school build on their arithmetic skills in the maths units as part of the fluency elements that are being taught. In addition to this, pupils in upper KS2 complete regular arithmetic practise (in short, timed sessions) in order to develop their pace and fluency at key number skills. Pupils in Y4 begin this additional practise in Term 4, this is in readiness for their progression into upper KS2 and they also will have had opportunity to develop the formal abstract calculations required for completing arithmetic at pace due to the stage that they have reached in the mathematics KS2 curriculum.
- **Home/School Parent Partnership:** Maths has a key focus on yearly home/school parent partnership sheets which enables parents to support pupils at home with key aspects of maths learning that as a school we deem to be most beneficial for the pupils. Pupils in KS2 also have maths learning logs, these are used at the discretion of individual teachers to consolidate/practise elements of mathematics at home. The homework tool is also used on Education City to support with home learning and tasks can be set by teachers for pupils to access at home. Teachers in UKS2 ensure pupils have more regular homework in addition to the laminated sheets in readiness for the next phase of their education. Maths workshops for parents are also used, alongside resources on the school website to support this partnership for maths learning.

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EYFS Mathematics

In Reception, mathematics is taught throughout the curriculum in a practical and exciting way. The children are encouraged to explore Number, Numerical Patterns and Shape, Space & Measure in their independent choosing time, with a maths specified learning zone in the classroom. This ensures that their curriculum takes account of the Development Matters for 3-4 year olds as well as the Development Matters for Reception before moving onto the new ELGs for Number and Numerical Patterns in the EYFS curriculum. The EYFS team plan teacher-led sessions progressing through the relevant ages and stages before working towards the ELGs. Observations are recorded on 'Tapestry' as a developing learning journey for individual pupils and as pupils progress through the year they also complete maths focussed work in books, in readiness for the transition to NC learning.

Impact

The impact and measure of our curriculum is to ensure that pupils not only achieve age-related expectation for fluency, reasoning and problem-solving but also, the skills which equip them to progress within the mathematics curriculum beyond KS2 and in their everyday lives. 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. At DSJ we strive to address these preconceptions by ensuring that all children experience challenge and success in mathematics and are praised for their **individual** progress.

Monitoring Impact:

Formative Assessment

Throughout each lesson formative assessment takes place and feedback is given to the children in a variety of ways, these include: verbal conversations, marking, consolidation tasks and affirming stampers. Teachers then use this assessment to inform planning to ensure that they are providing a mathematics curriculum that will allow each child to progress. Regular and ongoing assessment informs teaching, as well as targeted intervention, to support and enable the success of each child.

Low stake quizzes and fluent recall

We use a range of low stakes testing throughout the teaching cycle to assess attainment and progress. From Year 2 to Year 6, children complete regular tests in Arithmetic and Times Tables.

Targeted interventions

At DSJ we believe that all children can achieve in maths, and focus on whole class teaching. Where prerequisites are not secure, targeted interventions are carried out. As a school, we invest in targeted therapies and interventions to secure and develop knowledge and teach gaps using PiXL Primary. Following forensic diagnostics, teachers and Learning Support Assistants access suitable therapies for whole class and small group teaching to ensure that all children reach their full potential.

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Summative Assessment

Each term pupils' complete summative assessments to enable them to demonstrate their knowledge and understanding of mathematics topics covered but also familiarise themselves with assessment procedures. Y1 – Y6 use the PiXL Primary Assessment calendar; for Y2 and Y6 this includes exposure to end of key stage SAT papers when applicable to support/prepare pupils in these year groups.

The results from both formative and summative is used to determine children's progress and attainment. Teachers input data into PiXL Primary using the 'Language of Assessment' criteria 3 times a year. Data analysed then forms the basis for questions/discussions which take place in termly pupil progress to support progress for all groups of pupils.

Teaching & Learning

The teaching of mathematics is monitored by leaders through coaching sessions, targeted learning walks, book scrutiny and pupil-voice interviews.