# UNITED SCHOOLS TRUST

## Kingsteignton School

**Maths Policy**

**Article 13 (freedom of expression) every child must be free to express their thoughts and opinions and to access all kinds of information, as long as it is within the law.**
**Article 17 (access to information from the media) every child has the right to reliable information from a variety of sources.**
**Article 28 (right to education) every child has the right to a good quality education and must be encouraged to go to school.**
**Article 29 (goals of education) Education must develop every child's personality, talents and abilities to the full.**

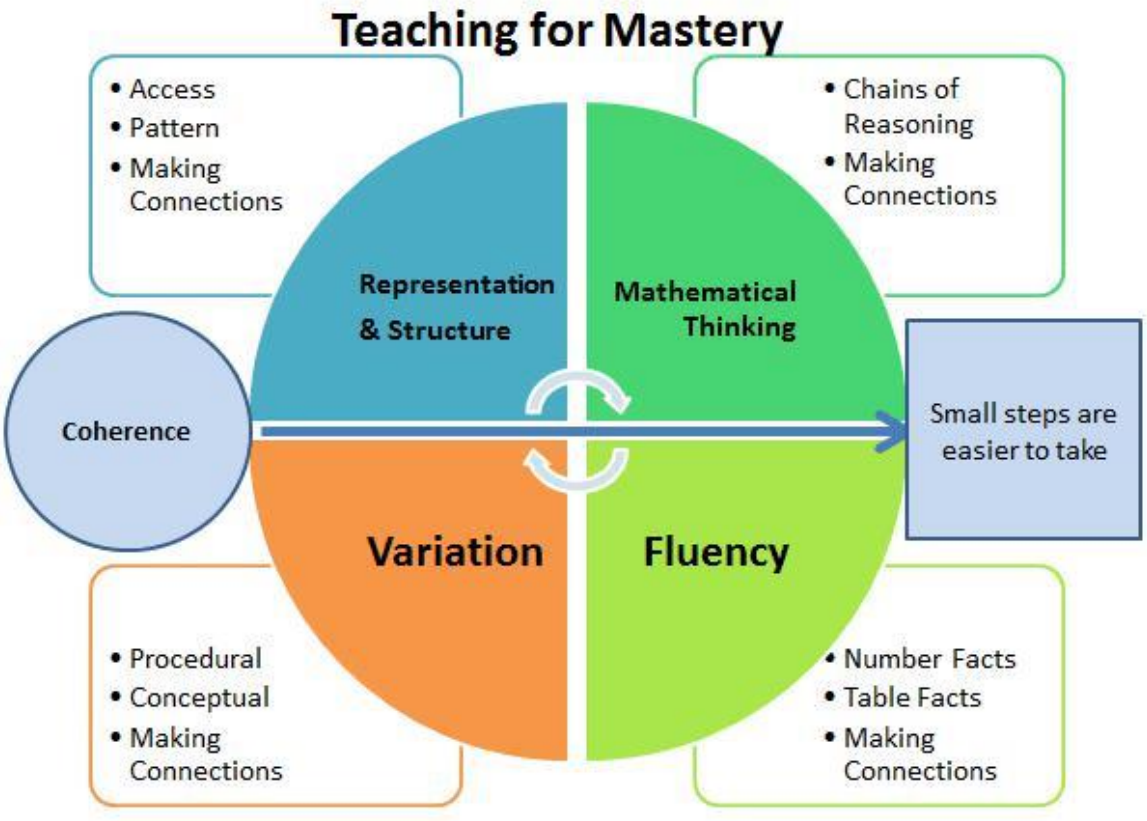
This policy is written in line with the New National Curriculum 2014.

**Intention**

Mathematics is vital; it is our key to making sense of the world around us. We strive to provide a mathematically stimulating environment where children are able to calculate, reason and solve problems both in number and in their everyday lives. We aim to build a mathematical learning culture where children are resilient and take risks in their learning.

- We believe that mathematics provides a means of communication which is powerful, concise and unambiguous

- We use a teaching for mastery approach. Maths teaching for mastery supports the idea that everyone can do maths. All pupils are encouraged by the belief that by working hard at maths they can succeed.




During their time at this school, children will be encouraged to see mathematics as both a written and spoken language. Teachers will support and guide children through the following important stages:

- Developing fluency, reasoning and problem solving through the use of concrete, pictorial and abstract.

**Principles of a Maths Mastery Approach**

**To establish:**

**Representation and Structure**

Representations used in lessons expose the mathematical structure being taught, the aim being that students can do the maths without recourse to the representation.

**Mathematical Thinking**

If taught ideas are to be understood deeply, they must not merely be passively received but must be worked on by the pupil: thought about, reasoned with and discussed with others.

**Fluency**

Quick and efficient recall of facts and procedures and the flexibility to move between different contexts and representations of mathematics.

**Variation**

This is twofold. It is firstly about how the teacher represents the concept being taught, often in more than one way, to draw attention to critical aspects, and to develop deep and holistic understanding. It is also about the sequencing of the episodes, activities and exercises used within a lesson and follow up practice, paying attention to what is kept the same and what changes, to connect the mathematics and draw attention to mathematical.

**Maths in the Early Years**

Teachers in the EYFS ensure the children learn through a mixture of adult led activities and child-initiated activities both inside and outside of the classroom. Mathematics is taught through an integrated approach. This is supported by the Birth to 5 Matters non statutory guidance as well as White Rose Medium term plans for EYFS Maths and the NCTM Mastering Number resources.

The EYFS Framework in relation to mathematics aims for our pupils to achieve the following Early Learning Goals:

ELG: Number

- develop a deep understanding of number to 10, including the composition of each number.
- Subitise up to 5.
- Automatically recall number bonds up to 5 and some number bonds up to 10, including double facts.

ELG: Numerical Patterns

- Verbally count beyond 20, recognising the pattern of the counting system.
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity.
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

In addition, the curriculum includes rich opportunities for children to develop their spatial reasoning skills across all areas of mathematics including shape, space and measures.

**Implementation**

**Aims**

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.

Mathematics is an interconnected subject in which pupils need to be able to move fluently between representations of mathematical ideas. The programmes of study 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. They should also apply their mathematical knowledge to science and other subjects.

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

**School Curriculum** T

The programmes of study for mathematics are set out year-by-year for key stages 1 and 2. Schools are, however, only required to teach the relevant programme of study by the end of the key stage. Within each key stage, schools therefore have the flexibility to introduce content earlier or later than set out in the programme of study. In addition, schools can introduce key stage content during an earlier key stage, if appropriate. All schools are also required to set out their school curriculum for mathematics on a year-by-year basis and make this information available online.

**Calculation Policy**

This policy looks at both mental and written procedures. It is important that children do not abandon jottings and mental methods once pencil and paper procedures are introduced. Therefore, children will always be encouraged to look at a calculation/problem and then decide which is the best method to choose; concrete, pictorial or abstract. Children are not expected to work through every stage at a set time; it is about working at the right level and using the methods appropriate for each child. This policy is for guidance purposes only as our job is to find the most efficient method that the individual child can use with understanding. This may well mean that children do not experience all the methods illustrated and focus on one or two.

Schools have a choice in the way that they teach calculations. The children will always be exposed to the concrete, pictorial and abstract way of working to solve a problem. However, they may progress more

quickly through these stages to abstract once they are fluent in their concrete and pictorial understanding.

**Times Tables**

Teaching of times tables is important. Children must have a conceptual understanding in order to apply the knowledge to problems. Teachers will teach children times tables through a range of fun, interactive activities to build confidence and understanding.

Alongside this, we use Times Tables Rock Stars in order to further improve speed of tables recall and use in school. Each pupil has their own individual login and is able to practise both in school and at home. Pupils will be expected to use this as part of homework tasks throughout the year. Class teachers can set specific tables goals for them using this programme if it is required.

**Testing of Tables**

- Children may be tested on specific key tables in lessons but this is done in a supportive, non-threatening, environment BUT most importantly they need to be taught how to learn and use their times tables.

**Differentiation**

- The children should be working in mixed ability groupings.

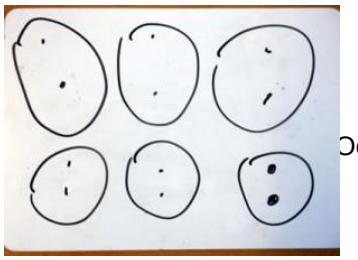
- Tasks can be differentiated through the use of concrete, pictorial and abstract representations. Lesson planning

**Concrete representation**

The children are first introduced to an idea or a skill by acting it out with real objects. In division, for example, this might be done by separating apples into groups of red ones and green ones or by sharing 12 biscuits amongst 6 children. This is a 'hands on' approach using real objects and it is the basis for conceptual understanding. Concrete apparatus such as numicon, double sided counters, base 10 apparatus and place value counters are used widely across school.

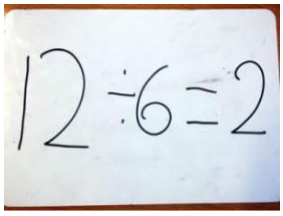
**Pictorial representation**

This is used when a child has sufficiently understood the hands-on experiences performed and can now relate them to representations, such as a diagram or picture of the problem. In the case of division this could be the action of circling objects.



**Abstract representation**

The symbolic stage – a student is now capable of representing problems by using mathematical notation, for example: 12 ÷ 6 = 2. This is clearly the more confusing and mysterious of the three and without the 'hands on' and pictorial steps can be tricky for children to understand.




• We plan to succeed but we do not plan for the sake of it – plans should be seen as working documents that change according to the needs of the children.

• White Rose planning is followed and adapted as necessary. Key features that must be included on all plans
• What are we learning?
• How will we get there?

**Homework**

Homework is set in line with the school's Homework Policy. Please see the homework policy for timings.

• Homework will be differentiated to meet the individual needs of the child

• Homework will be a mixture of recap on prior learning as well as directly linking to class work

• Homework is set weekly. In most year groups it will be 2 days for mental/times table/number bonds work and 3 days following up on in class learning. The teacher will allow a few days for children to complete tasks in case of clashes with after school clubs

• Feedback will be provided for each piece of homework set.

• Reference to the calculation policy on the school website should be made (if needed).

**Classroom Equipment**

• This will vary from year group to year group as this has to be age appropriate

• All resources MUST be easily accessible to all children so that they can make the important decisions regarding which equipment to use

• Equipment is regularly used by teachers to model its' application.

**Central Resources**

• Metre sticks • Trundle wheels • Balancing scales • Weighing scales • Digital scales • Measuring jugs/containers • Geoboards • Dice • Clocks • 3D shapes • Fraction walls • Coins • Tape measures

**Digital Resources**

**White Rose Maths**

This is the scheme we use for our planning. Resources can be found on the website to support learning.

**Times Table Rock Stars**

A resource used to support the teaching of times tables from Year 2 to Year 6.

**Numbots**

A resource used to support the teaching of number bonds and number recognition from Early Years to Year 2.

**Impact**

**Assesssment**

Teachers make assessments of pupils daily through:

- regular marking of work
- analysing errors and picking up on misconceptions
- asking questions and listening to answers
- facilitating and listening to discussions
- making observations

These ongoing assessments inform future planning and teaching. Lessons are adapted readily and short term is planning evaluated in light of these assessments.

• By the end of each key stage, pupils are expected to know, apply and understand the matters, skills and processes specified in the relevant programme of study. (See National Curriculum) End of unit assessments

• At Kingsteignton School, we use White Rose assessments.

• For Year 2 to Year 6, these occur at the end of each term and are used to inform teacher assessments and should test 'new learning' in a new context. Past SATS papers will also be used to assess progress towards the end of year objectives.

• In Year 1 the children are slowly introduced to these tests throughout the year and all children will have completed such assessment by the end of the summer term of Year 1.

• The Principal and class teachers work together to analyse all assessments completed to identify gaps in learning and provision and to ensure this is in place for the next half term of planning. This information is passed on to the maths subject leader.

**Statutory Assessments**

• EYFS Baseline assessments

• KS1 National Curriculum Tests and teacher Assessments (Year 2)

• Multiplication Tables Check (Year 4)

• KS2 National Curriculum Tests (Year 6)

**Data**

All teachers are responsible for keeping accurate records of attainment and progress made in line with the school policy on recording data. See assessment policy.

**Marking**

Work should be marked in line with the school policy for marking. Live, in the lesson, verbal feedback is to be encouraged so that children are being supported and moved on during the lesson rather than retrospective marking which has less impact.

**Display**

We aim to inspire and challenge the children, supporting their learning through a working wall combined with celebrating achievement.

• All classrooms must have a display area for maths and a working wall

l • Working walls should be referred to during the lesson and reflect current learning
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**Monitoring of Standards**

Monitoring of maths across the whole school is completed by the maths Subject Leader and Principal. Class teachers have the responsibility of monitoring their year group each term and reporting to the Principal and Subject Leader.

• Lesson observations
• Book scrutiny
• Pupil voice meetings
• Audit of marking across year groups
• Termly data tracking.

Links to other policies:

- Calculation policy
- Assessment policy
- Display policy
- Inclusion policy
- Homework policy •

Marking and feedback polic