

Maths

Regis Manor Primary School



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Intent

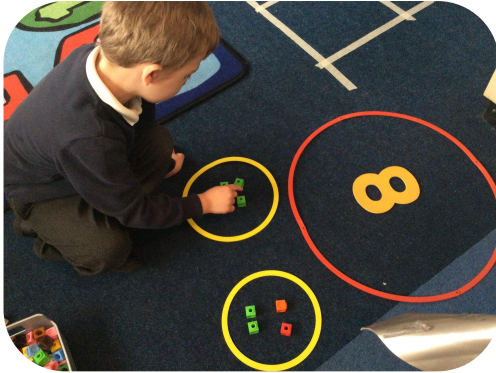
By the end of KS2, pupils at Regis Manor:

- are 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
- solve problems by applying their mathematics to a variety of routine and nonroutine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

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Maths in our Early Years



Maths in the Early Years is taught following schemes of work from White Rose alongside the Numberblocks series. We take this at a pace that is bespoke to each cohort and ensure we are taking the time to truly embed mathematical skills.

Mathematical opportunities are offered throughout the provision both within designated maths areas and within many other activities. Children are encouraged to independently show how they can problem solve, think critically and delve deeper in to the composition of number.

Children are exposed to a wide range of mathematical resources both in specific maths session but also within everyday scenarios such as weighing and measuring.



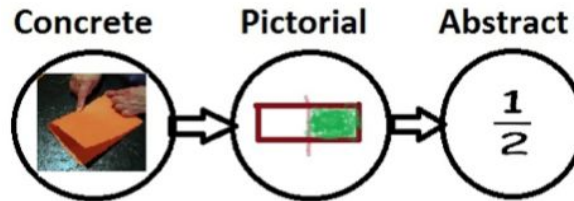
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How Is Maths Taught In KS1 and KS2?

At Regis Manor we teach maths following a carefully planned sequence of learning. Conceptually new ideas are introduced through an approach that begins with concrete apparatus, working to pictorial and abstract representations of maths.

We follow a maths mastery based scheme of work using resources from White Rose to provide the structure of lessons through small progressive steps and a source of high-quality resources.

We know that the maths mastery approach develops children's mathematical skills, understanding, and confidence which are then applied across many different contexts. We provide a breadth of specifically planned scenarios and expose the children to a wide variety of models and representations.



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Maths Mastery and Concrete Pictorial Abstract Approach

In Key Stage One and Two, Maths lessons are planned in clear blocks, as suggested by White Rose. Within each block, lessons are planned using a sequence of small steps, which address the end of year expectations set out in the National Curriculum. This 'small-step' approach, gives our children the opportunity to explore Maths concepts in depth; we give our children the time to develop a conceptual understanding of their learning through exposure to different representations.

Teachers adapt the suggested White Rose blocks and lessons to suit the needs of every pupil, class and cohort.

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Maths Mastery and Concrete Pictorial Abstract Approach

When planning a sequence of lessons, teachers at Regis Manor use a range of concrete resources to support their children's active understanding. Our children manipulate practical resources such as place value counters, numicon, base 10, as they explore the concept they are being taught. Alongside these concrete representations, children are then exposed to models and images shown pictorially and visually. Using representations such as the bar model or the part-whole model alongside practical resources, helps our children to transition their understanding from the concrete to the pictorial. The final representation our children are presented with when learning new concepts, is the abstract, symbolic calculation. Again, this is done alongside concrete resources and pictorial models, so that our children can see how the three representations are linked, resulting in a stronger understanding of the concept. With this enhanced understanding, our children are then able to apply their knowledge of particular concepts to different contexts. Through problem solving, investigations and regular opportunities to reason and justify their Maths, our children can demonstrate a greater depth of understanding.

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Curriculum Overview

The next three slides detail the order in which maths topics are taught throughout the school.

Click [here](#) for the Mathematics Programme of Study.

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	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 1	Unit 1: Numbers to 10 Unit 2: Part-whole within 10 Unit 3: Addition and subtraction within 10 (1)	Unit 4: Addition and subtraction within 10 (2) Unit 5: 2D and 3D shapes Unit 6: Numbers to 20	Unit 7: Addition within 20 Unit 8: Subtraction within 20 Unit 9: Numbers to 50	Unit 10: Introducing Length and Height Unit 11: Introducing weight and volume	Unit 12: Multiplication Unit 13: Division Unit 14: Halves and Quarters	Unit 15: Position and Direction Unit 16: Numbers to 100 Unit 17: Time Unit 18: Money
Year 2	Unit 1: Numbers to 100 Unit 2: Addition and subtraction (1)	Unit 3: Addition and subtraction (2) Unit 4: Money Unit 5: Multiplication and division (1)	Unit 6: Multiplication and division (2) Unit 7: Statistics Unit 8: Length and height	Unit 9: Properties of shapes Unit 10: Fractions	Unit 11: Position and direction Unit 12: Problem-solving and efficient methods	Unit 13: Time Unit 14: Weight, volume and temperature

	Term 1	Term 2	Term 3	Term 4	Term 5	Term 6
Year 3	Unit 1: Place value within 1,000 Unit 2: Addition and subtraction (1)	Unit 3: Addition and subtraction (2) Unit 4: Multiplication and division (1)	Unit 5: Multiplication and division (2) Unit 6: Money Unit 7: Statistics	Unit 8: Length Unit 9: Fractions (1)	Unit 10: Fractions (2) Unit 11: Time	Unit 12: Angles and properties of shapes Unit 13: Mass Unit 14: Capacity
Year 4	Unit 1: Place value - 4-digit numbers (1) Unit 2: Place value - 4-digit numbers (2) Unit 3: Addition and subtraction	Unit 4: Measure - perimeter Unit 5: Multiplication and division (1)	Unit 6: Multiplication and division (2) Unit 7: Measure - area Unit 8: Fractions (1)	Unit 9: Fractions (2) Unit 10: Decimals (1)	Unit 11: Decimals 2 Unit 12: Money Unit 13: Time	Unit 14: Statistics Unit 15: Geometry - angles and 2d shapes Unit 16: Geometry - position and direction

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	Term 1	Term 2	Term 3	Term 4	Term 5	
Year 5	Unit 1: Place Value within 100,000 Unit 2: Place Value within 1,000,000 Unit 3: Addition and subtraction	Unit 4: Graphs and tables Unit 5: Multiplication and division (1) Unit 6: Measure - area and perimeter	Unit 7: Multiplication and division Unit 8: Fractions (1) Unit 9: Fractions (2)	Unit 10: Fraction (3) Unit 11: Decimals and percentages	Unit 12: Decimals Unit 13: Geometry - properties of shapes (1) Unit 14: Geometry - properties of shapes (2)	Unit 15: Geometry - position and direction Unit 16: Measure - converting units Unit 17: Measure - volume and capacity
Year 6	Arithmetic Skills Unit 1: Place Value within 10,000,000 Unit 2: Four operations (1) Unit 3: Four Operations (2)	Unit 4: Fractions (1) Unit 5: Fractions (2) Unit 6: Geometry - position and direction	Unit 7: Decimals Unit 8: Percentages Unit 9: Algebra	Unit 10: Measure – imperial and metric measures Unit 11: Measure – perimeter, area and volume Unit 12: Ratio and proportion	Unit 14: Problem-solving and efficient methods Revision of core content	Unit 13: Geometry Properties of shapes Unit 15: Statistics

Inclusion in Maths

We use a wide range of inclusive and adaptive strategies in addition to our core inclusive maths teaching, including but not limited to:

- Use of resources (e.g. concrete apparatus) and representations for longer period than other pupils.
- Pre-teaching to give SEND learners a head start.
- Use of sentence frames (including STEM sentences visible throughout the lesson).
- Drawing word problems - so the learner has an image to refer to.
- Clearly laid out worksheets that are not overwhelming with too many questions.
- Adapted resources e.g. plain paper, enlarged square paper, reader pens.
- Have clearly laid out worked examples for learners to refer to when working independently.
- Additional fluency practice outside of Maths lessons.
- During retrieval practice, if needed, SEND learners have concrete resources or visual support.
- Extra time
- Use of a Reader or Scribe
- Set Maths questions that are linked to learners' interests or use real life examples e.g. cooking, sport, gaming, money.
- Employ errorless learning strategies - start independent tasks with questions that you know the learner has mastered

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Structure of a Maths Lesson

Quadrant

Anchor Task

Think Together

Intelligent Practice

Anchor Task

10 Minutes

Number/Calculation strategies

4 questions including a variety of operations (not just one) Links where possible

5 mins Mini Assessment

The 'learning objective' is shared with the class.

Anchor Problem Shared -

Key vocabulary and the sentence stem or generalisation is, also shared.

3 minutes - have a go!

15 minutes

I do, we do, you do - "Ping Pong" maths

Teacher modelling of key concept for the day

Use of visualiser including concrete apparatus

Small steps building towards fluency

30 mins

Intelligent practice

Fluency

Building independent problem solving

Reasoning

5 mins

Class pulled together to revisit anchor task

Multiple choice is an option

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Fluency & Arithmetic

Mathematical fluency is taught and revisited regularly in every year throughout the school. We support children to develop automaticity in calculation to free up working memory for more advanced problem solving.

Daily fluency practice takes place from Y1-6 covering topics from subitising and number bonds to finding fractions and percentages of amounts. These activities are planned based on teacher assessment and the gaps this identifies.

Fluency is supported by the use of Fluency Bee, Numbots and our own scheme of teaching which all pupils have access to from EYFS-6.



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Fluency & Arithmetic Overview

Number Facts and Multiplication Tables LTP						
	T1	T2	T3	T4	T5	T6
Yr1	Number bonds to 10	Counting in 2s	Counting in 10s	Number bonds to 20	Counting in 5's	Ordering number to 50 (100 square missing numbers, one more one less etc)
2	Number bonds to 20	2 times table	5 times table	10 times table	Number bonds to 100 using multiples of 10 and 5	2, 5 and 10 times table
3	Number bonds to 10, 20 & 100 2, 5 and 10 times tables recap	3 times table	4 times table	6 times table	7 times table	3,4,6 & 7 times table
4	3,4,6 & 7 times table	8 times table	9 times table	11 & 12 times table	Review	All mixed/targeted
5	4, 6 and 8 times table mixed	7, 11, 9 times table mixed	12, 3, 8 times table mixed	7, 8, 9 times table mixed	All mixed	All mixed
6	All mixed / targeted to gaps	All mixed / targeted to gaps	All mixed / targeted to gaps	All mixed / targeted to gaps	All mixed / targeted to gaps	All mixed / targeted to gaps

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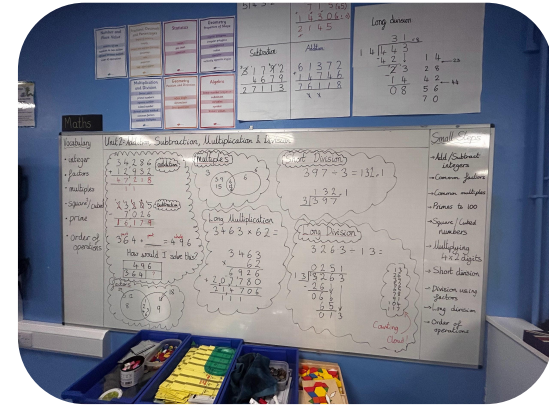


Maths Working Walls

Working walls are part of daily practice in maths across Y1-Y6. The working wall will record, visualise & assist learning. It supports and develops independent learning through helping children to see 'the bigger picture' of the unit and with the use of correct and precise mathematical language. By providing worked examples we reduce cognitive overload by providing an aide memoire.

A typical working wall contains:

- Key vocabulary for the unit/sequence of learning
- Worked examples
- Record of key mathematical facts
- Representations that are used during lessons e.g. bar models/part whole diagrams etc.
- Small steps



Times Tables

Times tables are taught progressively from EYFS to Y6.

We use a variety of strategies to teach times tables including:

- Exploring times tables using concrete resources (making arrays etc)
- Developing understanding through the use of pictorial representations
- Learning by rote
- Songs

The annual multiplication tables check takes place for year 4 around the start of June each year.

We hold an annual Times Tables Rock Stars day in January to celebrate and inspire the pupils to learn their times tables.



How do we Assess Maths?

In every lesson, teachers use a variety of formative assessment strategies to gauge the children's understanding of the key concepts being taught. Hinge questions are planned based on the underpinning knowledge of each lesson and these are used to assess pupil gaps prior to the addition of new learning. Lessons are then adapted to the needs of the pupils. Ongoing formative assessment is then used throughout the teaching input and independent practice to ensure that all pupils are able to achieve the learning objective by the end of the session.

At the end of each unit children will complete an assessment to gauge their understanding of the knowledge and skills taught. Where gaps are identified teachers plan opportunities to address these and check understanding with follow up assessments. To support long term memory and retention of knowledge frequent low-stakes assessments are used to revisit prior learning. These may be in paper form or as Learning by Questions question sets.

At the end of the year, pupils in year 1, 3, 4 and 5 complete NFER assessments and complete a gap analysis task to support the transition into the next year.

Please click [here](#) for our calculation policy.



Maths Calculation Policy

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