



## Mathematics

### Intent

#### **Vision Statement:**

*We recognise that the Curriculum reaches far wider than the learning that happens in formal lessons in each classroom. It includes everything that a child experiences in their time at our school and develops the very person they are becoming, with their talents, their needs and their aspirations for the future. Each experience provides a learning opportunity to develop and prepare our children for life in modern Britain as global citizens through the lens of Catholic life.*

*At St Gregory's, we are inclusive and recognise that everyone has their own unique God-given talents. Our curriculum is progressive and builds on prior knowledge, understanding and skills so that we develop our whole school community academically, spiritually, emotionally, morally and socially. This enables our children to develop cultural capital and become righteous citizens who give to society. We provide creative and engaging opportunities that inspire and motivate our children to become lifelong learners and have aspirations to be the very best they can be.*

We believe that mathematics is an important foundation stone to learning that embraces every part of life. At Saint Gregory's we want all pupils at our school to experience the beauty and power of mathematics and develop a sense of curiosity and enthusiasm for the subject. In maths, we strive for all of our children to see themselves as mathematicians and foster positive 'can do' attitudes. We want our children to be confident to 'have a go' and talk about their maths; noticing patterns, relationships and making connections.

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. To be a mathematician, children need to apply their mathematical skills and knowledge across the curriculum, making connections both within maths and across other subjects too.

In line with the National Curriculum (2014) we aim for all pupils:

- To become fluent in the fundamentals of mathematics so that they develop conceptual understanding and the ability to recall and apply knowledge efficiently, flexibly and accurately with pace.
- To reason mathematically by following a line of enquiry, drawing out relationships and generalisations and developing an argument, justification or proof using mathematical language.
- To solve problems by applying their knowledge to a variety of problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.
- To become self-motivated in seeking challenges and have a resilient approach to working.
- To believe that maths is something we can all do and gain enjoyment of maths through a growing self confidence in their own abilities.



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- To move fluently between the distinct domains in the programmes of study from the National Curriculum (e.g. Geometry, Number and Place Value) and make rich connections across.
- To apply their mathematical knowledge to other subjects, using the skills taught.
- To see the applicability of maths in everyday life.

More information about the National Curriculum for Mathematics in England can be found here:

<https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study/national-curriculum-in-england-mathematics-programmes-of-study>

### **Implementation**

#### **Statement of Implementation:**

The National Curriculum is the part of the St Gregory's curriculum that maps out the knowledge and skills that we want our children to learn and experience in each subject. The wider curriculum includes a number of vehicles to develop the whole child and includes:

- **Inclusion using teaching for mastery** – Our mastery approach ensures that all children are exposed to the same curriculum content by breaking sessions down into small steps and focusing on teaching for a deep and secure understanding, providing support and intervention where needed. This enables all children, including those with SEND, from disadvantaged backgrounds and from multi-lingual backgrounds to achieve their true potential through careful support and challenge.
- **Oracy, vocabulary and reading for pleasure** – We provide a language-rich environment with a sharp focus on Oracy and the development of rich vocabulary which includes technical vocabulary relevant to the progression of each child's learning. Talk is central to learning and as such, Oracy activities are woven through all activities and experiences to give children plenty of opportunity to develop and practise their speaking and listening skills. In each session, children are given opportunities to apply and embed their learning through the use of precise mathematical vocabulary and reasoning opportunities (Agree/Disagree, Always/Sometimes/Never).
- **Catholic Social Teaching** – are the principles to living life through the lens of a Catholic. They are principles that support children to make links from their learning through to the world in which they live and helps them to be givers rather than takers in our society. Examples of this is maths may be working out how to share the world's resources, raise money for charity or celebrating the patterns of different cultures
- **Metacognition and self-regulated learning (including growth mind-set and restorative practice)**
  - Children are supported to manage emotions, develop a positive sense of self, set themselves aspirational goals and have confidence in their own ability. This is supported by the use of our St Gregory's learning profile and growth mind-set approach giving our children a better awareness of how they learn, the emotions linked to this and the transferable learning skills needed to be the very best they can be and reach their potential.
  - Teachers support pupils to plan, monitor, and evaluate their learning. Developing the children's **metacognitive** knowledge of how they learn and their knowledge of themselves



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as a learner and strategies that help them – these things support them in becoming independent learners.

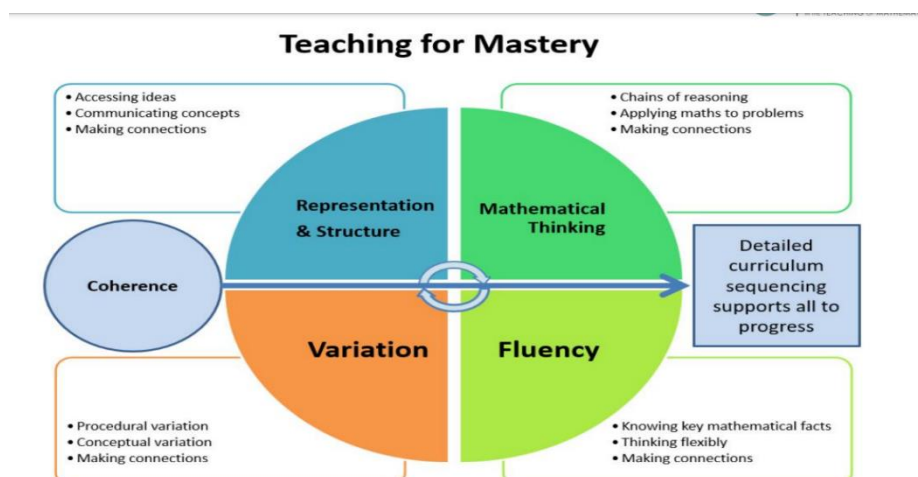
- **Restorative practice** helps our children to develop stronger relationships, and become problem solvers within these relationships, setting firm foundation for learning, so that they are more resilient to overcome adversity within their lives.
- **Self-regulated learners** are aware of their strengths and weaknesses, and can motivate themselves to engage in, and improve, their learning.
- **Retrieval opportunities** – enable our learners to embed knowledge by transferring it from their working memory to their long-term memory. We make deliberate connections between current and prior learning and recall learning regularly by providing opportunities such as quizzes, oracy activities and engaging in challenging discussions.
- **Extracurricular opportunities** – provide a wide range of additional experiences for the children to inspire them within their learning and add a wider context for them. This also enables us to seek out and develop the talents in every child. Children have opportunities to be involved in maths challenges, workshops such as explore learning, HSBC maths money sessions, be part of our school 99 Club and engage in maths charity events. We also run maths parent workshops and deliver a maths newsletter to parents.

These aspects are expanded further in our [teaching and learning policy](#).

### Maths at St Gregory's:

The St Gregory's mathematics curriculum is taught discretely. We follow the 'Can Do' Maths scheme which ensures consistency and progression of skills. The maths curriculum has been structured and sequenced in order to engage pupils in purposeful learning by building on prior knowledge and helping to connect knowledge, understanding and skills year-on-year both within maths and across other subjects too.

Mathematics is taught with the priorities of the curriculum for mathematics at the forefront: fluency, reasoning and problem solving. These three focuses will be evident throughout our planning and teaching. Our curriculum for maths is designed to enable children to gain a secure and deep understanding in mathematics. The principles of teaching for mastery are at the forefront of our curriculum design and delivery so that pupils have the best chance to master maths and be ready to move on to the next stage in their learning. These principles underpin how we teach maths at St Gregory's.





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Our maths curriculum starts from the moment the children enter our school in EYFS. We understand that the foundations for becoming a mathematician are laid in the Early Years Foundation Stage and what they learn in EYFS impacts on them being ready for the next stage in their education.

The EYFS Framework, states: “Developing a strong grounding in number is essential so that all children develop the necessary building blocks to excel mathematically. Children should be able to count confidently, develop a deep understanding of the numbers to 10, the relationships between them and the patterns within those numbers. By providing frequent and varied opportunities to build and apply this understanding - such as using manipulatives, including small pebbles and tens frames for organising counting - children will develop a secure base of knowledge and vocabulary from which mastery of mathematics is built.... It is important that children develop positive attitudes and interests in mathematics, look for patterns and relationships, spot connections, ‘have a go’, talk to adults and peers about what they notice and not be afraid to make mistakes.”

Our Early Years provision caters for all children and is in line with the above framework. It is the start of a child’s mathematical journey at St Gregory’s and is the foundation to them achieving later success. At Saint Gregory’s we are committed to providing enabling environments, through which children can gain access to the wonderful world of maths! We know that enjoyable experiences become memorable ones, so learning through play and songs and rhymes, in nurturing groups and stimulating environments are powerful components of a child’s maths journey in a Reception class at Saint Gregory’s.



The starting point that we strive for every child to have upon entry to Y1 in order that they can start working towards the aims of the National Curriculum are:

- To be able to count confidently.
- To understand and know about the composition of numbers to 10.
- To develop spatial reasoning skills.
- To identify patterns and talk about what they notice.

Once children enter Y1, they work progressively towards the aims of the National Curriculum following Can Do Maths.

More information about EYFS maths can be found on our school website. <https://www.st-gregorygreat.gloucs.sch.uk/eyfs-maths/>



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Our maths curriculum is designed to give time to teach curriculum content and additional time outside of the maths lesson for practice and retrieval – these sessions are called Number Sense.

|                                                                                                                           |                                 |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------|
| Mathematics Lesson – Teaching of a key learning point (manageable step)<br>5 sessions a week lasting between 40-60minutes |                                 |
| 'Learning together as a whole class'                                                                                      | 'Support and challenge for all' |

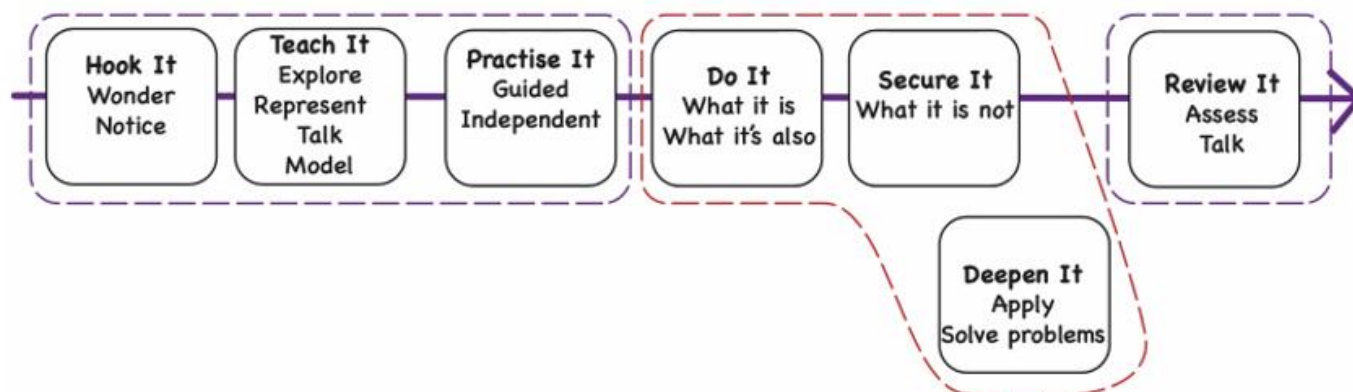
|                                                                                                                            |
|----------------------------------------------------------------------------------------------------------------------------|
| Number Sense Session – Deliberate Practice / retrieval of prior learning<br>5 sessions a week lasting between 10-20minutes |
|----------------------------------------------------------------------------------------------------------------------------|

Y1 and Y2 follow the 'Mastering Number' programme as their number sense session. This programme was developed by the National Centre for Excellence in the Teaching of Mathematics in 2021 and aims to develop solid number sense, including fluency and flexibility with number facts which will have a lasting impact on future learning for all children. They also engage in Deliberate Practice session where Arithmetic/Intervention/Fluency of key facts are covered.

### Typical Lesson Design:

Opportunities for children to develop fluency, reason and solve problems are embedded throughout our lessons. Manipulatives are also a key part of our lessons and we recognise how important they are in helping children understand the structure of mathematics and therefore essential in supporting understanding. We know concrete, pictorial and abstract representations all play a vital role in securing understanding and we move between the different representations in our lessons.

- 1) Hook It: Wonder, notice, connections.
- 2) Teach It: Live modelling of the new learning with explicit use of potential misunderstandings.
- 3) Practise It: All children practise together and notice something about the structure of the mathematics.
- 4) Do It: Up to 5 examples – exploring standard and non-standard form, what it is / is not.
- 5) Secure It: Exploring misconceptions, mistakes, active arguments (Go deep)
- 6) Deepen It: Apply understanding to solve new problems (Go deeper)
- 7) Review It: Lesson Recap: key vocabulary and assess / reflect on learning.

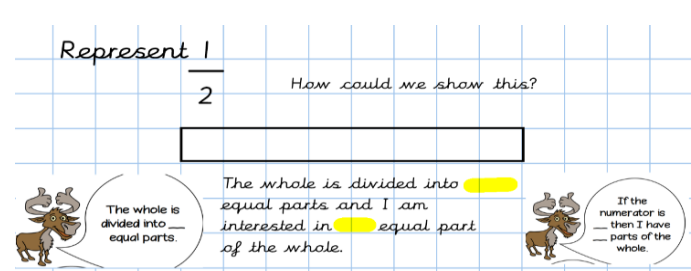
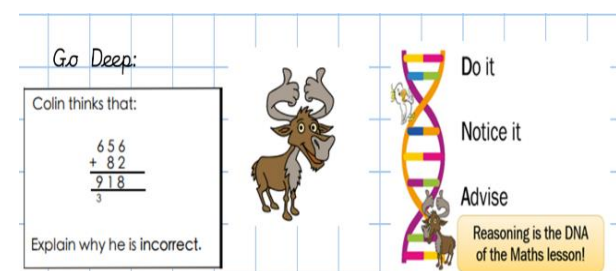
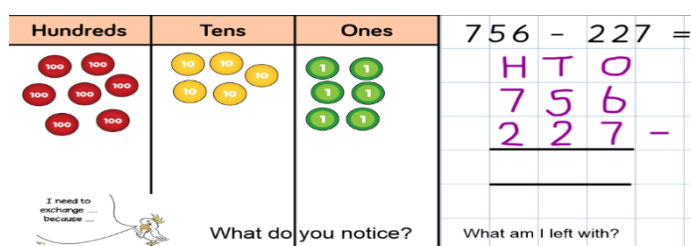
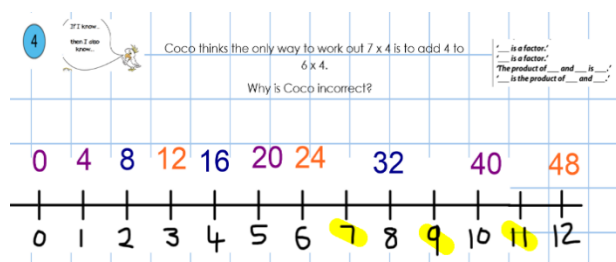




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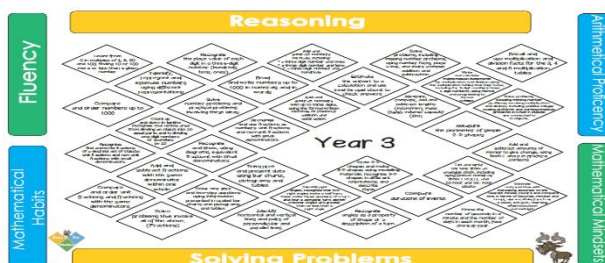


Notebook slides are used to support the teaching of most maths lessons:



## Maths curriculum coverage

Coverage is based on the National Curriculum 2014 Programmes of study with objectives allocated across phases and year groups, to ensure a progression of knowledge, skills and understanding. Here is an example showing the coverage in Year 3:



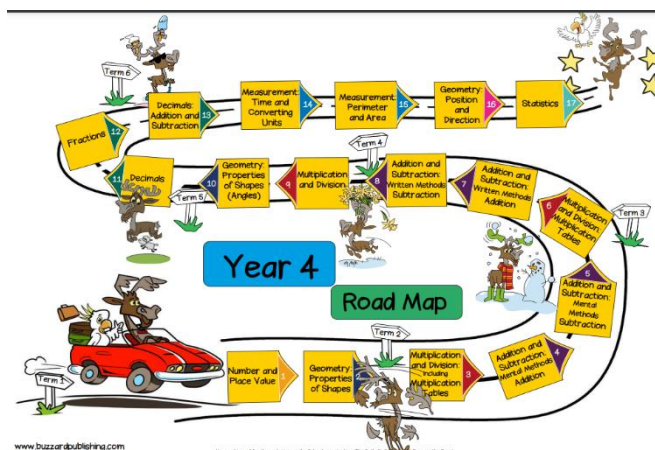
## Maths Skills Progression

The Skills Progression documents show the skills, knowledge and content taught in each year group, considering age appropriate development and ensures progression is enabled through careful and informed planning. This documents allows teachers to see what has been taught before aiding links and connections to be made between learning.



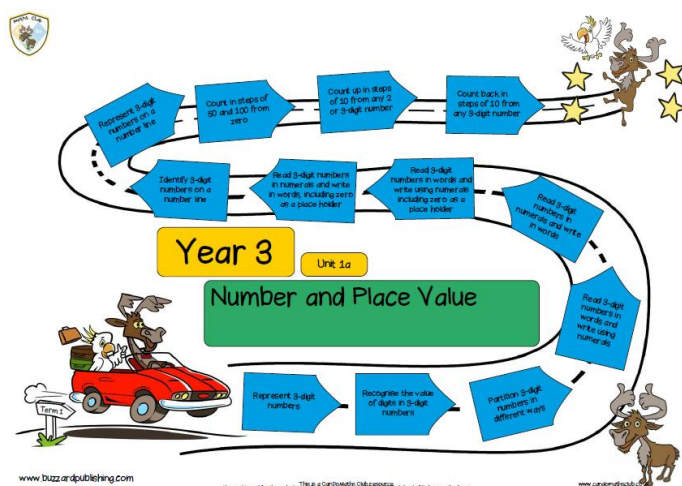
## Planning

Coverage for the whole year is found in the Yearly Road Map documents, which specify the teaching sequence of each unit, ensuring new content is built on prior learning. These act as our long term plans and show coverage of the mathematics units across the school.



A termly overview for each year group is also provided detailing which units and manageable steps will be taught so teachers can clearly see progression of skills and understanding.

The learning in each unit, based on National Curriculum objectives, is broken down into small manageable steps which based on research give children the greatest chance of acquiring the necessary skills and understanding. Within each unit, there is a planning matrix detailing small steps (learning objectives) for each lesson along with a fluency, reasoning and problem-solving task. Teachers use this to support planning which ensures the national curriculum aims are running throughout lessons.



Year 3 Unit 1 Number and Place Value

| Curriculum Progression                                 |                                                                                                                                                                                                   |                                                                                                                                   |                                                                                                                                                                     |
|--------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Manageable Steps                                       |                                                                                                                                                                                                   |                                                                                                                                   |                                                                                                                                                                     |
| What it is                                             | What it is also                                                                                                                                                                                   | What it is not                                                                                                                    | What problems can I solve?                                                                                                                                          |
| Represent 3-digit numbers                              | Using place value resources to represent the following numbers:<br>234<br>342<br>423<br>570<br>705                                                                                                | Colin thinks that he has represented 243:<br> | Investigate how many different 3-digit numbers you can represent with five pieces of Base Ten equipment.<br>How many more numbers can you make with one more piece? |
| Recognise the value of digits in 3-digit numbers       | Find the value of the underlined digits:<br>3 <u>6</u> 5<br>3 <u>4</u> 2<br>4 <u>2</u> 3<br>5 <u>7</u> 0<br>7 <u>0</u> 5                                                                          | Colin thinks that the five in 543 is worth hundreds.                                                                              | Make as many different 3-digit numbers as you can using the digits 2 and 5.<br>Circle the numbers that have 5 hundreds.                                             |
| Partition 3-digit numbers in different ways            | Fill in the missing numbers.<br>654 = 600 + <u>  </u> + 4<br>437 = <u>  </u> + 30 + 7<br>842 = <u>  </u> + 40 + <u>  </u><br>427 = 400 + 10 + <u>  </u><br>573 = 400 + <u>  </u> + 13             | Colin thinks 376 can only be partitioned as 300 + 70 + 6                                                                          | Always/Sometimes/Never True<br>There are at least 10 ways to partition a 3-digit number.                                                                            |
| Read 3-digit numbers in words and write using numerals | Write the following numbers using numerals:<br>Four hundred and sixty-one<br>Eight hundred and ninety-two<br>Six hundred and seventy-four<br>One hundred and seventeen<br>Nine hundred and twelve | Colin thinks he has written two hundred and thirty-six.<br>200306                                                                 | Use the number words to fill in the gaps in as many ways as you can<br>Four Seven Three<br>..... hundred and ..... ty .....<br>Write the numbers using numerals.    |

|              |                                                                                                                                                                                                                                                                      |  |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| Fast Check   | <h2 style="text-align: center;">Maths on Track: Deliberate Practice</h2> <p style="text-align: center;">Resources for Monday, Tuesday and Friday included in All Access Pass and Use It or Lose It</p>                                                               |  |
|              |                                                                                                                                                                                                                                                                      |  |
| Medium Check | <p>Ready to Progress Paper 1</p> <p>Ready to Progress Paper 2</p> <p>Deliberate Practice: Past and Present</p> <p>Deliberate Practice: Past and Present/KPI Workout</p> <p>CanDo21 8x9</p>                                                                           |  |
|              | <p>5.3 Compare and order decimal numbers</p> <p>5.3 Compare and order decimal numbers</p> <p>Deliberate Practice: Past and Present</p> <p>Deliberate Practice: Past and Present/Retrieval</p> <p>CanDo21 8x9</p>                                                     |  |
| Slow Check   | <p>5.7 Add numbers with more than 4 digit using efficient methods</p> <p>5.7 Add numbers with more than 4 digit using efficient methods</p> <p>Deliberate Practice: Past and Present</p> <p>Deliberate Practice: Past and Present/KPI Workout</p> <p>CanDo21 9x9</p> |  |
|              |                                                                                                                                                                                                                                                                      |  |

|                                                    |                                                     |                             |                                                                                                       |
|----------------------------------------------------|-----------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------|
| $-2 + 5 = \square$                                 | $\square = 452 + 100$                               | 600 seconds<br>= ? minutes  | Round 2,534,900<br>to the nearest<br>million                                                          |
| List all the prime<br>numbers between<br>10 and 20 | Convert<br>300 minutes<br>to hours                  | Sketch a reflex<br>angle    | $4256 \times 3 = \square$                                                                             |
| 42 days = ? weeks                                  | Area of a square<br>with side 6cm                   | Write 4,004,400<br>in words | Area?<br> 3cm<br>5cm |
| Draw an angle<br>of $135^\circ$                    | Use $<$ , $=$ or $>$<br>$4,560,300 \circ 3,987,800$ | $756 \div 6 = \square$      | How many hours<br>in 5 days?                                                                          |
| 1 point                                            | 2 points                                            | 3 points                    | 4 points                                                                                              |

# Round numbers to the nearest 10, 100, 1000, 10000 5.4

Match the numbers with the correct rounding:

|                                        |         |
|----------------------------------------|---------|
| 123 456<br>Rounded to the nearest 10   | 123 400 |
| 123 445                                |         |
| 123 456<br>Rounded to the nearest 100  | 123 460 |
| 123 546                                | 123 000 |
| 123 456<br>Rounded to the nearest 1000 | 123 500 |
|                                        | 123 450 |

Convince yourself that 23 954 rounded to the nearest 1000 is 24 000

Convince Buzz that 23 954 rounded to the nearest 100 is 24 000

What's missing? Create your own matching pairs problem involving rounding.

Find the matching pairs:

Rounded to the nearest whole number

|      |
|------|
| 77.1 |
| 18.4 |
|      |
| 55.6 |
| 72.7 |
| 77.6 |
| 19.8 |
| 54.5 |
| 72.4 |
| 22.5 |

|    |
|----|
| 18 |
| 55 |
| 23 |
| 73 |
|    |
| 56 |
| 72 |
| 19 |
| 78 |
| 20 |

What's missing?

Create your own matching pairs problem.

**Or write it**

bar 60



groups



number line

0 60

**affix**



$10 \times 6 = \square + \square + \square + \square + \square + \square$



$10 \times 6 = 10 \times \square + 10 \times \square$



$10 \times 6 = 10 \times \square + 10 \times \square$



$10 \times 6 = 10 \times \square + 10 \times \square$



**Derive it**



If I know  $10 \times 6 = 60$  then I also know...

|                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $\square \times \square = 60$<br>$60 \div \square = \square$<br>$60 = \square \times \square$<br>$\square + \square = \square$<br>$\square = \square$ | <p>— multiplied by <math>\square</math> is <math>\square</math></p> <p>— groups of <math>\square</math> is <math>\square</math></p> <p>— is ten times bigger than <math>\square</math></p> <p>— shared equally between 10 is <math>\square</math> each</p> <p>— put into groups of 10 is <math>\square</math> groups of 10</p> <p>— is ten times smaller than <math>\square</math></p> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Prove it**

10 lettuce are planted in ten equal rows. How many lettuce are there in each row?

Each flower has ten petals. How many petals are there on 6 flowers in total?

There are 6 eggs in each box. How many eggs are there in ten boxes altogether?

A hat has 60 stripes. There are ten stripes of each different colour. How many different colours are there?



$10 \div 6 = 6$   
True or false?

What are the numbers?

| 100s                                                                                | 10s                                                                                 | 1s                                                                                  |                      |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------|
|  |  |  | <input type="text"/> |
|  |  |  | <input type="text"/> |
|  |  |  | <input type="text"/> |
|  |                                                                                     |  | <input type="text"/> |
|  |  |                                                                                     | <input type="text"/> |
|  |                                                                                     |  | <input type="text"/> |

|     |  |
|-----|--|
| 431 |  |
| 628 |  |
| 709 |  |
| 350 |  |
| 604 |  |
| 251 |  |
| 317 |  |
| 562 |  |

### Challenge It 4

T 3. What if you count back?

Key Performance Indicators (KPIs) are the essential learning that all children need to have a secure understanding of, in order to successfully progress to the next stage of learning and meet at least expected standards by the end of Key Stages 1 and 2. There are 24 KPIs identified in each year group representing all strands of mathematics but with an emphasis on Place Value, Number Facts, Calculation, Fractions, Decimals and Percentages. They are linked to the Department for Education Ready to Progress criteria and further include other important topics such as time, negative numbers, operating with fractions and operating with decimals and percentages. An overview of the KPIs in each year group in each term is used by staff to prioritise planning, inform teaching and support assessments.

|        | Year 1                                                                                                                                                                                       | Year 2                                                                                                                                                                                                      | Year 3                                                                                                                                                                                                      | Year 4                                                                                                                                                                                                      | Year 5                                                                                                                                                                                                      | Year 6                                                                                                                                                                                                      |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Term 1 | 1. Counting to 100<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 2-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 3-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 4-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 5-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 6-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics |
| Term 2 | 1. Counting to 100<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 2-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 3-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 4-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 5-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 6-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics |
| Term 3 | 1. Counting to 100<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 2-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 3-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 4-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 5-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 6-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics |
| Term 4 | 1. Counting to 100<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 2-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 3-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 4-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 5-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 6-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics |
| Term 5 | 1. Counting to 100<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 2-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 3-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 4-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 5-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 6-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics |
| Term 6 | 1. Counting to 100<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 2-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 3-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 4-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 5-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics | 1. Read and write 6-digit numbers<br>2. Addition and subtraction<br>3. Place value<br>4. Multiplication and division<br>5. Fractions, decimals and percentages<br>6. Geometry and measures<br>7. Statistics |

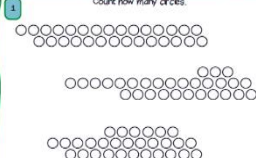


## CanDoMaths Key Performance Indicators

|    | Year 2 KPIs                                                                                           |  |  |
|----|-------------------------------------------------------------------------------------------------------|--|--|
| 1  | Read and write 2-digit numbers                                                                        |  |  |
| 2  | Compare and order numbers up to 100                                                                   |  |  |
| 3  | Recall and use addition facts to 10                                                                   |  |  |
| 4  | Find 10 more or less than a 2-digit number                                                            |  |  |
| 5  | Add two 2-digit numbers                                                                               |  |  |
| 6  | Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces |  |  |
| 7  | Know that addition is commutative and subtraction is not                                              |  |  |
| 8  | Subtract two 2-digit numbers                                                                          |  |  |
| 9  | Recall and use subtraction facts to 10                                                                |  |  |
| 10 | Understand how multiplication can be represented                                                      |  |  |
| 11 | Know that multiplication is commutative and division is not                                           |  |  |
| 12 | Understand how division can be represented                                                            |  |  |
| 13 | Describe turns using right angles                                                                     |  |  |
| 14 | Know and use multiplication facts for 2, 5 and 10 multiplication tables                               |  |  |
| 15 | Know and use division facts for 2, 5 and 10 multiplication tables                                     |  |  |
| 16 | Read scales in divisions of 1, 2, 5 and 10                                                            |  |  |
| 17 | Use standard units to measure length, mass and height                                                 |  |  |
| 18 | Recognise and find one third                                                                          |  |  |
| 19 | Recognise and find three quarters                                                                     |  |  |
| 20 | Tell the time to quarter to/past and 5 minute intervals                                               |  |  |
| 21 | Calculate change                                                                                      |  |  |
| 22 | Combine coins to make amounts                                                                         |  |  |
| 23 | Construct and interpret pictograms using 2s, 5s and 10s                                               |  |  |
| 24 | Recall factor-factor-product relationships for 2, 5 and 10 multiplication tables                      |  |  |

Remember It tests are provided for every term in each year group. Based on the termly plans and manageable steps, these tests identify areas of weakness as a whole class against the three aims of the National Curriculum and gaps for individual children in their knowledge and understanding. The analysis feeds into interventions and planning of future lessons including number sense sessions. It also allows teachers to identify which KPIs are not yet secure so these can be prioritised.

1. Count how many circles.



2. Say the number that comes after.

24      22

29

3. Write these as numbers.

fifteen

thirteen

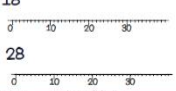
twenty

4. Where would the numbers be on the number line?

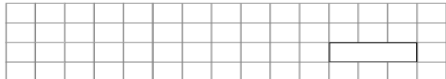
23

18

28

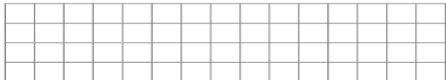


1. Find 10 more than 162



1 Mark

2.  $739 = 700 + \square + 9$



1 Mark

3. Join dots to draw a horizontal line.



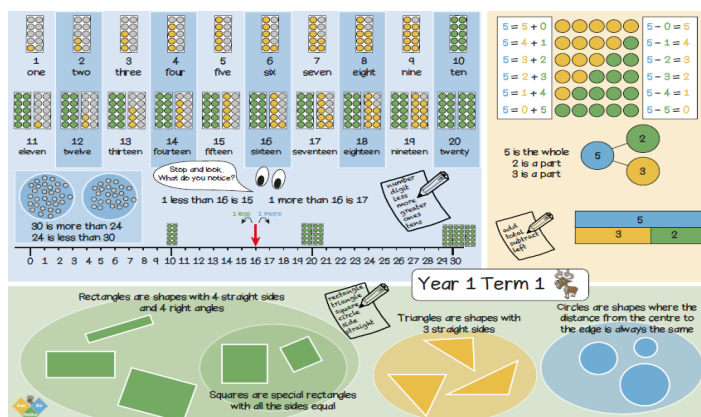
1 Mark



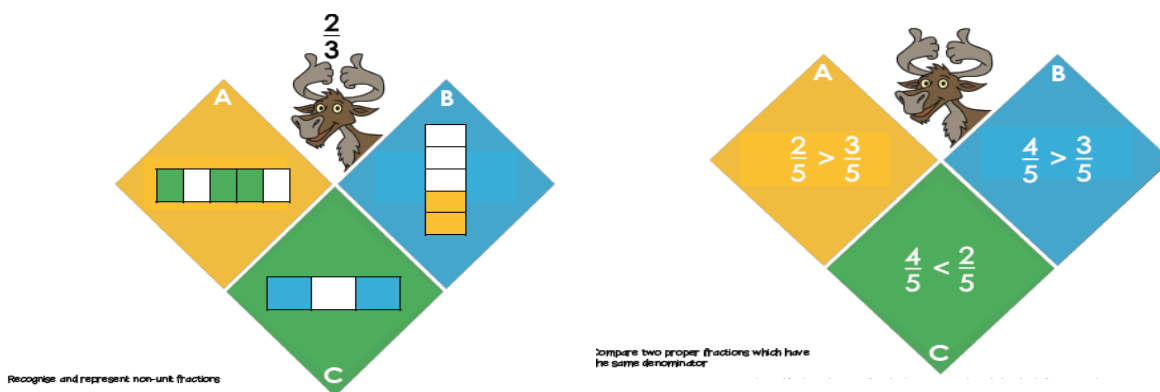
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Knowledge organisers capture the key learning for each term for each year group. They provide clear, structured support in highlighting the key learning, manipulatives and vocabulary. Knowledge organisers are displayed and referred to in class on working walls. They are also shared on our website for children and parents to use at home.



Quizzes are provided in every unit for each year group to allow children to practise and consolidate learning. It allows children to revisit learning and embed it to long term memory. Teachers use these low stakes quizzes at different points to help children retrieve and remember what they have learnt. They also inform teachers planning and next steps. Here are question examples of the Y3 Fractions quiz:



Quizzes also give further opportunities for knowledge to be embedded and greater depth to be shown as children can explain which answers are correct or incorrect and why. Cleverly, answers within the quizzes address common mistakes and misconceptions made by children (for example, children may think 'B' shows two thirds as two parts are yellow and three parts are white). Opportunities for key vocabulary and generalised statements can be recalled within quizzes so children are given further opportunities to reason. It also allows them to solve a problem and challenge by finding the correct answer.

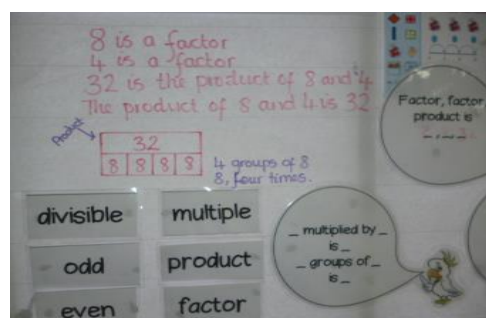


## Maths Progression of Vocabulary

Using the correct vocabulary in mathematics and being consistent across the school is crucial. A document to support the progression of mathematical vocabulary in the national curriculum for teachers can be found on the NCETM website - <https://www.ncetm.org.uk/media/hpihrj3s/national-curriculum-glossary.pdf>. Vocabulary is paramount in supporting the children's ability to articulate their understanding. It is, therefore, a key consideration in Maths planning. We have essential vocabulary that we use when teaching each unit, which is shared with the children through discussions, on notebook slides and on working walls. Teachers use and model the essential vocabulary to help support children's mathematical thinking and secure understanding.

### Essential Vocabulary to use during the unit

hundreds  
tens  
exchange  
ones  
digit  
column  
zero, one, two, three... to twenty  
zero, ten, twenty... one hundred  
position  
decrease  
increase  
tenths  
decimal point



|          |         |
|----------|---------|
| ones     | tens    |
| hundreds | regroup |
| sum      |         |

We also develop children's use of language through stem sentences and generalised statements which enable children to discuss mathematical ideas and support their understanding of mathematical structure. We believe reasoning is the DNA of mathematics and we ensure that reasoning opportunities are threaded throughout our lessons. Children are encouraged to use precise vocabulary, including stem sentences and generalised statements to support their verbal and recorded responses.

| Generalised sentence                                                                                               | Stem Sentence                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 tens equal 1 hundred                                                                                            | 10 _ equal 1 _<br>A _ in the _ column is worth _ _<br>_ equals _ hundreds, _ tens and _ ones<br>_ is _ hundreds, _ tens and _ ones<br>_ hundreds, _ tens and _ ones is _ hundred and _                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| If there are no ones there is a zero in the ones column<br>If there is a zero in the ones column there are no ones | If there are no _ then there is a zero in the _ column<br>If there is a zero in the _ column there are no _<br>If the number is between _ hundred and _ hundred the hundreds digit is _<br>If the hundreds digit is _ then the number is between _ hundred and _ hundred<br>When counting up in 50s the ones digit... the tens digit... the hundreds digit...<br>When counting up in 10s the ones digit... the tens digit... the hundreds digit...<br>When counting back in 10s the ones digit... the tens digit... the hundreds digit...<br>When counting up in 100s the ones digit... the tens digit... the hundreds digit... |



Do it

Notice it

Advise

Reasoning is the DNA of the Maths lesson!



## **Support for additional needs in Maths**

We have an ambitious and inclusive maths curriculum where all children learn, think and work on the same concept. We have high expectations for all pupils and do not put a ceiling on what they can achieve. We recognise that some pupils may require additional support in particular lessons or tasks and will adapt our teaching where necessary. All children are given quality-first teaching and the teacher and TP use a 'helicopter' role to identify children who require additional support or challenge. Support is reactive and adapted to the needs of each pupil. Teachers are flexible in their approach to planning support and intervention and recognise that specific SENDs does not necessarily mean support is required across the whole of the curriculum. We understand that children can show weaknesses and strengths in different areas of mathematics so we ensure that our tasks are accessible for all, yet still provide high challenge.

Typical support in place within mathematics includes:

- deliberate talk partner choices and flexible seating arrangements
- targeted questioning or reframing questions to provide additional support or challenge
- modelling and support with oracy including precise vocabulary and stem sentences
- pre-teaching of key vocabulary and concepts
- use of manipulatives, pictorial representations and resources such as number formation mats.
- Intervening within the lesson for pupils or small groups
- Effective and flexible use of teaching partners
- same day intervention so gaps are identified and addressed immediately

Maths intervention such as precision teaching, times tables and same day intervention are in place for children who need support. Where children are withdrawn for maths interventions, we endeavour for them to be removed from different areas of the curriculum each time so they continue to receive their broad and balanced curriculum.

Children requiring a number of interventions join a group called a 'high needs' group. These children are sometimes taught in a smaller group to enable them to have the required support and the content delivered in the most effective way for their needs.

## **Planning to challenge in Maths**

As a school, we have developed a working descriptor for Greater Depth learning which is used across the curriculum. Through teaching for a secure and deep understanding, all children have opportunities to show a greater depth of thinking. A child who is learning at Greater Depth can consistently:

- Apply their learning to different contexts, identifying relationships within the subject and between other areas of the curriculum.
- Work independently, showing resilience.
- Apply their skills and knowledge consistently and fluently.
- Explain and reason using accurate vocabulary.
- Show curiosity and take responsibility for deepening their own learning by asking questions.
- Teach others what they have learnt in a sensitive and thoughtful way to enable them to learn too.

We recognise that a child will often show a particular gift or talent in specific subjects rather than across the whole curriculum. In maths we are specifically looking for children who do this within the knowledge,



## *The Catholic School of Saint Gregory The Great*



skills and understanding in maths. We also recognise that children may show strengths in particular areas of maths e.g. number, or in a particular aim of the national curriculum for example problem solving. Since the maths curriculum is designed in manageable steps, we expect all pupils to meet the lesson objective to a greater or lesser extent (some will require support to do this), with some children showing a deeper level of understanding.

### **How are staff skilled to teach in Maths?**

Staff have many opportunities for maths CPD throughout the year. Whole staff training takes account of training in curriculum drivers such as metacognition, retrieval, growth mindset, vocabulary building, oracy, reading, teaching for mastery and how to support and challenge.

Maths staff meeting time has been allocated and this is a chance for the subject leader to share their passion with others and to inspire and train the staff team in maths. This extends to our wider teaching team where workshops are frequently run with our teaching partners and support staff to bring them up to date with initiatives and best classroom practice. Both subject leaders for maths are involved in National Centre for the Excellent Teaching of Mathematics workgroups and one of the maths subject leads is a previous GLOW Maths Mastery Specialist, NCETM Maths accredited CPD provider and GlosEd maths leader for the local authority. Gloucestershire Primary Network meetings for maths are held three times a year which allows the maths subject leads to keep up to date with developments, network and continue their professional development.

Many teachers across the school have received training as part of a GLOW maths workgroup and continue to do so, our classroom TP's are also involved in GLOW subject knowledge maths workgroups. Maths support is offered regularly and in response to staff needs. All new staff are given maths CPD to ensure they are equipped to teach maths at our school and understand our vision. It is delivered in groups or 1:1 and subject leadership time is given for this to take place.

Our Maths Curriculum is also heavily resourced through Can Do Maths and they provide regular CPD. For example, maths lead meets every term, weekly Question and Answer sessions and subject expertise videos for each unit taught. These videos provide teachers with key vocabulary and teaching methods, outlining how the teaching builds on what was learnt the year before. This again ensures consistency and progression across the school and enables teacher to develop their skills and understanding of the curriculum.

## **Impact**

### **Statement of Intended Impact and Monitoring of this:**

As a school, we continuously reflect on the impact that our maths curriculum has on our whole school community, in helping our children to know more and remember more as well as preparing them to be the best they can be as righteous global citizens.



## *The Catholic School of Saint Gregory The Great*



To assess how a child's journey to becoming a mathematician is progressing, we use a range of assessment methods to ensure the intended curriculum and the way it is implemented at St Gregory's is having an impact on their journey.

Our vision for maths is that each and every child sees themselves as a mathematician and that they acquire the skills, knowledge and understanding to be successful.

To reflect on the impact that the maths curriculum is having on each child, we use both qualitative and quantitative means including:

- Teachers' evaluations of children's knowledge, understanding and learning characteristics through a range of informal and formal means. This informs the further implementation of the curriculum. Maths, as a core subject, is formally assessed three times a year against objectives from the National Curriculum. A judgement is made as to whether a child is working below, at, or above age related expectations and this is input into our in house tracker system insight. These judgements are moderated and are supported by a range of evidence of evidence such as observations, work in books and low stakes testing. Subject leaders are available to support with this and cross phase moderation takes place upon request of the subject leader when analysis has been undertaken and if the need requires it. This is detailed further in our [assessment, recording, reporting and tracking \(ARRT\) policy](#).
- Data which in its widest sense forms the strategic direction of each subject. This is detailed in our [subject leader guidance](#) booklet. It helps us to identify areas of strength and areas for development within our subject curriculum and wider curriculum so that CPD can be put in place, support can be structured and gaps can be identified. This also allows us to identify whether there are particular groups of pupils who have similar strengths or areas for development so that whole school practice can be altered in response to emerging trends and ensure that our curriculum offer continually meets the needs of our pupils.
- The extent to which children sees themselves as a mathematician and are able to talk about the skills and knowledge they have that would help them in that role both now and in the future. We aim for them to be able to make links with their learning both within the maths curriculum and across the wider curriculum.
- Children showing evidence that they are self-regulated learners who can talk about their strengths and weaknesses, and can motivate themselves to engage, and improve, their learning by using tools such as the learning pit, self and peer assessments, metacognition strategies. All of these help them to apply their learning both now and in their future lives to satisfy the ambitions that they have for themselves.

Subject leader time is allocated to facilitate this monitoring of impact to take place throughout the year. The school leadership team receive headlines and triangulate this with their own monitoring. Members of the governing board attend Key Area Team meetings to understand the implementation and impact of each subject within their KAT and annual formal monitoring by the Curriculum Committee takes place through a report and consequent pupil conferencing to triangulate the information they have received. This allows for the testing of impact and support and challenge about maths at many levels.