

## **Mathematics Policy**

### **September 2022**

#### **Our Aims and Expectations:**

Mathematics at St Botolph's inspires the growth mindset and belief necessary for mastery through inter-connected fluency and conceptual understanding, using the exploration of mathematical thinking and language and communication, essential to everyday life. Children are provided with enriching mathematical experiences which foster enjoyment and curiosity, as well as build strong foundations in mathematical understanding and the acknowledgement of the importance of mathematics in society. High expectations of pupils ensure that they are appropriately challenged throughout the entirety of their school journey.

We celebrate and promote mathematics outside of the daily mathematics lesson, ensuring that positive attitudes towards mathematics are achieved through regular engaging sessions. We use these opportunities for additional explicit teaching or rehearsal and recall, using a wide range of strategies. Effort, mind-set and subsequent achievements are rewarded through a whole-school weekly achievement worship, as well as classroom reward systems.

During Phase One, pupils develop their knowledge and understanding of mathematics through practical activity, exploration and discovery both inside and outside of the classroom. They will begin to grasp mathematical language and develop a range of mental calculation skills and use these confidently.

In Phases Two and Three, pupils continue to work practically, using manipulatives to prove their mathematical understanding, with problems being posed in all different ways to ensure mastery. In addition, they move from counting reliably to calculating fluently in all four operations. They will tackle work using a balance of informal, mental methods and formal, written methods, developing an understanding of which is the most efficient and why. They will also extend their knowledge of mathematical language and use this with confidence to explain their own thinking and knowledge of concepts.

In addition, to achieve both the necessary consistency and support for our pupils at home, all of what we do is shared with parents/carers through regular curriculum workshops throughout the year. Therefore, in order to achieve all of this the Mathematics Subject Leaders attend relevant training to acquire support networks, new ideas and new initiatives, so that they are able to effectively support the teaching and learning of mathematics for individual pupils, classes and staff members, as well as the school in entirety, through coaching, staff meetings/development days and aforementioned workshops.

## **Our Mathematics Curriculum:**

### **1. National Curriculum**

We follow the 2014 National Curriculum, ensuring coverage, consistency and efficiency in the children's learning of:

- Fluency (using known facts to make connections with increasing speed, accuracy and efficiency);
- Problem Solving (using and applying fluency and logic skills to break down complex problems, understand them and find solutions); and
- Reasoning (using mathematical language to clearly explain their thinking such as patterns, hypotheses and enquiries).

We use these focuses to teach the different areas of the curriculum:

- Number and place value;
- Calculation;
- Fractions, decimals and percentages;
- Measures;
- Statistics;
- Geometry;
- Algebra; and
- Ratio and Proportion.

### **2. Mathematics Lessons (and Mathematics Mastery (MM))**

We have been using the Mathematics Mastery Programme (since academic year 2016-2017) to ensure the development of mathematical thinking, understanding and language, with our first MM year group leaving (academic year 2021-2022) evidencing its impact.

Our use of Mathematics Mastery empowers our staff to take professional ownership, adapting each lesson to meet the needs of and ensure success for all pupils: pupils either access their own age-related content through the use of scaffolding (support) and/or constraints (challenge) or a similar content that is appropriate to their individual need/level of development. Therefore, our use of Mathematics Mastery is inclusive for all.

A personalised pace is used in each classroom, with mathematics lessons ensuring that time is provided to consolidate before establishing and acquiring new mathematical material, as well as developing or deepening conceptual understanding. Knowledge is embedded across the year, not just in single units:

- Daily interventions ensure that misconceptions are addressed instantaneously and gaps are minimised for those who need additional support or clarification before new learning is covered: same day interventions take place in Phase One (and above where appropriate) and focus grouping (before the new lesson) in Phases Two-Three; and
- Weekly Maths Meetings ensure a small selection of routines (including visuals, singing and active participation) are regularly rehearsed for fluency, consolidation and

confidence. These further language opportunities, cover many different topics quickly, include teacher questioning and have the whole class participating throughout. A minimum of two sessions per week: 10-15 minute sessions in Phase One; and 15-20 minute sessions in Phases Two-Three.

Children therefore develop resilience and stamina working both collaboratively and independently, on enquiries and discussions.

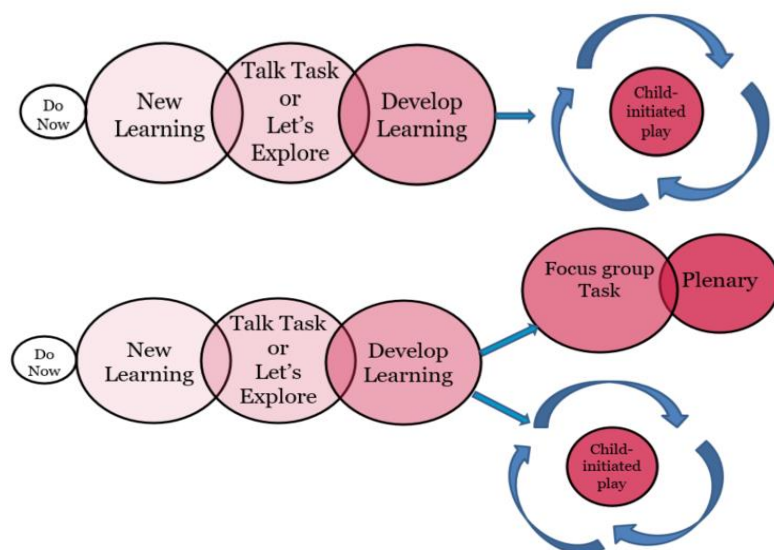
Through the use of the Six Part Lesson (feedback/do now/challenge, new learning, talk task, develop learning, independent task and review/reflection), the children develop a deeper conceptual understanding of mathematics that is more meaningful. These parts act as building blocks towards mastery, each lesson progressing through the dimensions of depth with opportunities for both guided and independent practice. This is supported through both the acquisition of language and the use of resourcing.

We support mathematical communication, ensuring that the children are equipped with the language required to explain, justify and prove, through meaningful opportunities to practise complex language with adequate time and the expectation of full sentences. Through questioning, using 'because' instead of 'why', we value all contributions including giving value to mistakes through supportive group discussion. Using the concrete, pictorial, abstract progression, we use manipulatives for meaningful experiences that enable pupils to make connections and move fluently between multiple representations of mathematical ideas. In addition, we encourage pupils to further challenge their mathematical thinking through the opportunities to investigate and make generalisations with the use of next steps for depth.

Lesson time is highly valued with smooth, purposeful transitions which ensure both the flow of each lesson and that every second counts. These are used throughout the lesson for moving around the room between the six parts, with the expectation that everyone is ready to learn when the transition has finished. They include:

- Chanting (i.e. times tables/counting in multiples, reciting number bonds etc);
- Mathematical songs/YouTube videos; and/or
- Mathematical rules.

Mathematics Mastery in EYFS:



Mathematics Mastery in KS1 and KS2:

**1. Feedback/Do now/Challenge (10 minutes)**

Either:

- feedback (including purple pen time to edit/improve previous lesson)
- quick independent task recapping prior learning (confidence building)
- challenge (digging deeper on prior learning)
- focus group (guided/supported tackling of misconceptions, revisiting learning not secure etc)

*Please see Feedback and Marking Policy.*

**2. New learning (10 minutes)**

Teacher led – language, mathematical rules and concepts explained/modelled.

**3. Talk task (10 minutes)**

Child led (paired or group work) - using and applying new learning (including the new vocabulary) collaboratively.

*Will have a 'challenge' (where relevant).*

**4. Develop learning (10 minutes)**

Teacher led – digging deeper (building upon new learning), using talk task, tackling misconceptions and modelling independent task.

**5. Independent learning (20 minutes)**

Child led independent work to achieve the LO - pair support/discussion permitted (preferably in chilli challenge groups). A focus group will always be offered to the children by an adult, but guided and supportive encouragement of independence will be developed too.

*Differentiated AND differentiated depth challenges.*

**6. Review/reflection (5 minutes)**

Whole class discussion on 'what went well' and 'what challenges were faced' (including how they overcame them). A self-reflection is completed (*please see Feedback and Marking Policy*).

### **3. Times Tables Lessons**

In line with the National Curriculum and statutory testing, years two through to six timetable a weekly lesson and test, to ensure that by year four all pupils are equipped with multiplication and matching division facts for all times tables up to 12 x 12.

- **Year Group Expectations**

**Phase One:**

- Chanting number sequences (i.e. counting in ones, twos etc).

**Year Two:**

Full weekly times tables lesson and test to start after the teaching of multiplication and division unit in mathematics lessons.

- Two, five and ten times tables.
- Explicit teaching link between five and ten times tables.
- Stretch to three times table later in the year.
- Starting with informal testing (i.e. whiteboards), then printed tests.
- Introduce timer to the test (when confidence has been built) for speed, preferably by term three with the focus on each pupil improving the time it takes each week.

**Year Three:**

Full weekly times tables lesson and test from first term.

- Starting with twos, fives and tens from year two. Moving on to threes and fours (with two, five and ten continually recapped).
- Introduce six and eight times tables when ready (by term two preferably) – make the link between the four and eight times table explicit, as with the five and ten times table.
- Once all times tables have been covered continue to cover in a sequence that makes sense, i.e twos, fours, eights, threes, fives, tens (because of patterns and relationships).
- Starting with informal testing (i.e. whiteboards) and printed tests, moving to formal, written equations (when confidence has been built).
- Introduce timer to the test (when confidence has been built) for speed, preferably by term two with the focus on each pupil improving the time it takes each week.
- Challenge: introduce the next level of place value for those who are confident (i.e. x2, x20) with the teacher working with these children during the times table lesson as a focus group. These children can be tested on either times table for the test (i.e. x2 or x20).

**Year Four:**

Full weekly times tables lesson and test from first term.

- Starting with recap (twos, threes, fours, fives, sixes, eights, tens) and then continuing to introduce sevens, nines, elevens, twelves.
- Make the links between times tables (i.e. the three and six times tables, six and twelve times tables etc) explicitly clear.

- Starting with printed tests, moving on to formal, written equations throughout terms one and two (dependent on pupil).
- Introduce timer to the test (when confidence has been build) for speed, preferably early in term one with the focus on each pupil improving the time it takes each week.
- Challenge: introduce the next level of place value for those who are confident (i.e. x2, x20, x200) with the teacher working with these children during the times table lesson as a focus group. These children can be tested on either times table for the test (i.e. x2, x20, x200).

#### **Year Five:**

Full weekly times tables lesson and test from first term.

- Keep going through all times tables (from the beginning), making links and quick efficient methods explicitly clear to remind, emphasise and/or support fluency and accuracy. Drop any times tables along the way which are secure, i.e. x10 etc.
- Starting with printed tests, moving on to formal, written equations throughout term one (dependent on pupil).
- Introduce timer to the test (when confidence has been built) for speed, preferably early in term one with the focus on each pupil improving the time it takes each week.
- Challenge: introduce the next level of place value for those who are confident (i.e. x0.2, x2, x20, x200) with the teacher working with these children during the times table lesson as a focus group. These children can be tested on either times table for the test (i.e. x0.2, x2, x20, x200).
- Challenge: When both multiplication and division fact knowledge is secure up to 12 x 12, surprise the children each time with the times table being tested, with the expectation that they know all multiplication and division facts up to 12 x 12.

#### **Year Six:**

Full weekly times tables lesson and test from first term.

- Go through all times tables (from the beginning) once through at the start of the year, making links and quick efficient methods explicitly clear to remind, emphasise and/or support fluency and accuracy.
- If the weekly record shows accuracy and fluency in simpler times tables, focus weekly sessions on the more challenging times tables: x6, x7, x8, x9, x12.
- Starting with printed tests, moving on to formal, written equations throughout term one (dependent on pupil).
- Introduce timer to the test (when confidence has been built) for speed, preferably early in term one with the focus on each pupil improving the time it takes each week.
- Challenge: introduce the next level of place value for those who are confident (i.e. x0.2, x2, x20, x200) with the teacher working with these children during the times table lesson as a focus group. These children can be tested on either times table for the test (i.e. x0.2, x2, x20, x200).
- Challenge: When both multiplication and division fact knowledge is secure up to 12 x 12, surprise the children each time with the times table being tested, with the expectation that they know all multiplication and division facts up to 12 x 12.

- **Lesson Overview**

Each lesson is to include the explicit teaching of one times table at a time, covering: strategies (including links with other times tables), sequence, patterns, known facts and inverse. Each lesson will be 30 minutes long and will allow the children 15 minutes (throughout the entirety of the lesson) of exploration, rehearsal and recall. Celebration and praise within the lesson is essential and a celebration display is encouraged to keep a record of which pupils shone each week (with a view of celebrating as many pupils as possible over time). After each lesson, the class teacher uses Times Tables Rockstars to set the new times table for practice at home, in preparation for assessment the following week.

The image shows handwritten notes on a three-column grid, detailing multiplication strategies, sequence patterns, and known facts for the 6x table.

**Column 1: strategies**

- $3 \times 1 \times 6 = 3 \times 6 =$
- $3 \times 2 \times 3 = 3 \times 6 =$
- $3 \times 3 \times 2 = 3 \times 6 =$
- $3 \times 4 + 3 \times 2 = 3 \times 6 =$
- $3 \times 5 + 3 \times 1 = 3 \times 6 =$
- $3 \times 7 = 3 \times 3 + 3 \times 1 = 3 \times 6 =$

Looking at the different ways (including other times tables) to calculate an equation.  
 Teacher = 5 mins (pupil input)  
 Children = 5 mins

**Column 2: sequence & patterns**

0, 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78

ones = 6, 2, 8, 4, 0  
 all even  
 all in 3x table (skip an answer between for 6x)  
 0, 6, 2, 8 endings have two answers with same tens  
 go beyond to show the number system continues

Looking at the sequence within a times table and looking for patterns.  
 Teacher = 5 mins (pupil input)

**Column 3: known facts**

$10 \times 6 - 1 \times 6$   
 known fact 60  
 Using facts/tables they know!

OR  
 $9 \times 5 + 9 \times 1$   
 known fact 45  
 Teacher = 5 mins (pupil input)

inverse/commutativity  $4 \times 6$

$6 \times 4 = 4 \times 6$   
 $6 \times 2 =$  +  $6 \times 2 =$   
 answer (double, double)  
 quicker, easier = more efficient  
 $30 \div 6 = 5$  (5x6)  
 so  $4 \times 6 = 24$

Using commutativity to work out using a more securely known times table.  
 OR inverse

Independent games, tasks, challenges = 10 mins (30 min lesson)

- **Ideas for Task/Challenge:**

1. **Timed in Sequence Challenge**

- 30 second timer set;
- Children to recall/record their times table in sequence always starting with 0 (as some still do not know that 0 times anything is 0) as far they can in 30 seconds;
- Challenge: Children to choose a level of challenge, i.e. x0.2, x2, x20, x200);
- Teacher to choose one child of each challenge to recite their answers, all children to check their answers, as they will be the same (possibly with a different place value) and supportively identify errors;
- Children to record the highest value multiple they reached in an accurate sequence and wipe off the rest of the answers to attempt to beat their first score;
- Repeat the 30 second timed challenge and the reciting of each challenge to check answers.

2. Out of Sequence Quick Fire Multiplication

- Children to section off a part of their whiteboard for a tally;
- Teacher to call out multiplication questions which will relate to all challenges, i.e. two times your number, multiply your number by five, what is the product of your number and 7. *Not all 13 questions have to be tested (0x to 12x) but a random selection of at least five – the numbers chosen must differ each week;*
- Teacher to circulate and indicate if the children can have a tally mark or whether they need to check their answer (giving them an opportunity to identify and correct mistakes before moving on).

3. Out of Sequence Quick Fire Division (explicit link of inverse being addressed)

- Similar to the Quick Fire Multiplication, teacher to call out questions for the children to answer on their whiteboards at speed, recording a tally as they go, i.e. If doing the two times table and wanting to test  $12 \div 2$ : “If I started with  $12/120/1.2$  and divided it by your number ( $2/20/0.2$ ), what would I be left with?”;  
*If there is more than one level of place value challenge being used, make it explicitly clear that there will be more than one starting point and for the children to listen carefully;*
- Teacher to circulate (as above) and not all inverse questions need to be asked every week but alternate the numbers given (as above).

• Additional Ideas:

1. Challenge pupils (when showing they’re entirely secure with both multiplication and division facts for all times tables expected for their year group) by letting them become the teacher during both Sequence Challenges, checking the other whiteboards in the classroom for accuracy;
2. Join in with the Times Table Challenges, letting the children choose a challenge for you to work on;
3. Hit the Button, Fizz Buzz, Bingo, Loop Cards, Board Games, Times Table Race, Activity Booklet/Pack, Multiplication Wheels, Missing Numbers, Multiplication Triangles, Multiplication Grid Patterns, Colour By Number etc.

TRICKS, TECHNIQUES...	MAKING CONNECTIONS...	
<p><b><u>Five times table</u></b></p> <ul style="list-style-type: none"> <li>• Cut in half, then times 10 Example: <math>5 \times 6</math>: Cut 6 in half to get 3, then times 10 for <b>30</b></li> <li>• Or times 10 then cut in half Example: <math>5 \times 9</math>: 9 times 10 is 90, then cut in half for <b>45</b></li> <li>• Also the last digit goes 5, 0, 5, 0, - like this: <b>5, 10, 15, 20...</b></li> </ul>	<p><b>If I know...</b> <b><math>7 \times 5 = 35</math></b></p> <p><b>Then...</b> <b><math>7 \times 50 = 350</math> and</b> <b><math>70 \times 5 = 350</math></b></p> <p><b>And...</b> <b><math>70 \times 50 = 3500</math></b></p>	<p><b>If I know...</b> <b><math>9 \times 5 = 45</math></b></p> <p><b>Then...</b> <b><math>0.9 \times 5 = 4.5</math></b> <b><math>9 \times 0.5 = 4.5</math></b></p> <p><b>And...</b> <b><math>0.9 \times 0.5 = 0.45</math></b></p>



<p><b>Six times table</b></p> <ul style="list-style-type: none"> <li>Multiply by 5 and add your number on once more</li> <li>When you multiply 6 by an even number, they both end in the same digit. Examples: <math>6 \times 2 = 12</math>, <math>6 \times 4 = 24</math>, <math>6 \times 6 = 36</math>, etc</li> </ul>	<p><math>700 \times 5 = 3500</math>  <math>7 \times 500 = 3500</math>  <math>700 \times 50 = 35000</math></p> <hr/> <p><b>If I know...</b>  <math>35 \div 5 = 7</math></p>	<p><math>0.09 \times 5 = 0.45</math>  <math>0.09 \times 0.5 = 0.045</math></p> <hr/> <p><b>If I know...</b>  <math>55 \div 5 = 11</math>  <math>55 \div 11 = 5</math></p>
<p><b>Eight times table</b></p> <ul style="list-style-type: none"> <li>Double, double, double! Example: <math>8 \times 6</math>: double 6 is 12, double 12 is 24, double 24 is <b>48</b></li> <li>Multiply by ten, multiply by two and take the second number away from the first number.</li> </ul>	<p><b>Then...</b>  <math>350 \div 5 = 70</math> and  <math>350 \div 7 = 50</math></p>	<p><b>Then...</b>  <math>5.5 \div 5 = 1.1</math>  <math>5.5 \div 1.1 = 5</math></p>
<p><b>Eleven times table</b></p> <ul style="list-style-type: none"> <li>for <math>11 \times 10</math> to <math>11 \times 18</math>: write the sum of the digits between the digits Example: <math>11 \times 15 = 1(1+5)5 = 165</math> Note: this works for any two-digit number, but when the sum of the digits is more than 9, we need to "<u>exchange</u>". Example: <math>11 \times 75 = 7(7+5)5 = 7(12)5 = 825</math>.</li> </ul>	<p><b>And</b>  <math>350 \div 50 = 7</math> and  <math>350 \div 70 = 5</math></p>	<p><b>And...</b>  <math>5.5 \div 0.5 = 11</math>  <math>5.5 \div 11 = 0.5</math></p>
<p><b>Twelve times table</b></p> <ul style="list-style-type: none"> <li>is <math>10 \times</math> plus <math>2 \times</math> Example: <math>12 \times 4 = 40 + 8 = 48</math></li> <li>Double <math>6x</math></li> </ul>		<p><math>55 \div 1.1 = 50</math>  <math>55 \div 0.5 = 110</math></p>

- Weekly Test**

The children are expected to use what they have learnt during the times table lesson to practise this times table for homework in preparation for a test the following week. This test can replace a 'do now' or be timetabled for another time and a record of test scores is to be kept for each test to monitor progress; each test is out of 26, as there are 13 multiplication and division questions (including 0). Again, as with the times table lesson, children can be celebrated through classroom display to ensure that their efforts and successes are acknowledged, i.e. a list of children's names who achieved full marks that week or improved upon their last score.

A timer is to be introduced to the weekly test as early as possible, but confidence and accuracy are the primary focus. The timer is to both encourage and build up speed and allow the children the opportunity to familiarise with the time pressures of assessments. If the children need longer to complete the test, the time will be given as the focus is on accuracy; however, they should aim to improve their speed/score each time. We aim to prepare the children for the conditions of the Multiplication Check (25 questions, each with a 6 second timer).

#### **4. Mental Mathematics**

- **Arithme-Trips Passports**

Arithme-Trips is an initiative made up of 12 maths 'passports', with each destination matching the large world map display in the school hall. Each destination passport contains different maths challenges which progress through the mental maths objectives from the National Curriculum for years one through to six. The children need to practise and master all of the challenges in their passport in order to consolidate, strengthen and practise their own personal targets or challenge themselves in a new area. There are additional 'challenge' passports for each year group (to encourage those whom have a love of maths and/or arithmetic, or just show keen, competitive spirit). These challenge the students through other areas of the maths curriculum.

The challenges can be completed in any order and children can ask to be 'tested' by any school adult, when they are confident. If they pass, their passport will be signed and dated in the relevant challenge box. They must then proceed to work on a different challenge and continue until the whole of the first column is signed and dated, repeating this process for the second and third columns (in order), ensuring that the children revisit their challenge multiple times, guaranteeing that they have truly learnt it. Passports are equipped with guidance and resources to aid practice at home.

When a passport is full, the pupil will be tested by Mrs Gibbens (years 1-2) or Miss Montgomery (years 3-6), who will test them on any challenge at random. If they are successful, they progress to the next destination. Each completed passport will see the children celebrated with: a new passport; a postcard certificate; their name displayed on the world map; 50 house points; and a prize.

The class teacher chooses an appropriate starting passport for each pupil. The passport system is completely personalised and inclusive, with each child tackling challenges at the level that is appropriate for them. The expectation is that all pupils will complete three passports per year: in terms one, three and five. Therefore, class teachers ensure that they monitor and keep a record of their progress.

Suggested starting points are as follows:

Those working at EXS or above are to start on the last passport from the previous year group, for retrieval purposes. Those working at WTS or on different curriculum are to start on a passport that both the pupil and teacher agree on (using individual needs/targets to assist).

- **Big Maths Beat That**

All children (starting in year one (when ready) through to six) complete regular Big Maths Beat That sheets. These booklets focus on the rapid recall of number facts (multiplication and addition): a timer is set and the children work through as many of the equations as possible. The sheet is marked as a whole class and the children record their score for that

week on the front of their booklet, with the teacher celebrating those whom have improved upon their previous score.

- **Apps**

We have invested in apps to support our mathematics curriculum and initiatives:

- Times Tables Rockstars: this app has a similar format to the statutory Multiplication Tables Check and encourages the children to answer accurately at speed to earn coins for their avatar. Children can send each other timed challenges, as well as teachers. This app is used regularly by class teachers, who set the current class times table for the children to practice at home; and
- Doodle Maths: this app adapts to match the student after an initial assessment, with it becoming easier for those who are finding the content hard and increasingly more difficult for those who demonstrate confidence with accuracy. It has assistance features that enables the pupil to have the question read to them and/or view a prompt, example or resource (acting as retrieval) before they answer. Again, their accuracy earns them stars which they can use for their avatar. Their progress (including strengths and weaknesses can be monitored by their class teacher) and extra tasks can be set to tackle areas of concern. This app is encouraged regularly for homework and a Doodle Maths trophy is awarded each week to the class with the most stars earned.

- **School Competitions**

Half termly and termly competitions are held to foster enthusiasm for mental mathematics (and mathematics generally), with a view of different children being given the opportunity/encouraged to challenge themselves, demonstrate their abilities and be celebrated for their efforts and achievements:

- Big Maths Beat That: this is a whole school competition that is undergone in the hall. A representative is nominated from each class (years one - six, with reception classes joining in the summer term) to compete for the title of 'champion'. Each child is given an age-related equation sheet and a 50 second timer is set on the screen. All challengers are celebrated, with a Phase One, Two and Three winner, as well as an overall winner. Staff take it in turns to take part in the competition alongside the children. Reigning champions (both staff and pupils) have the opportunity to keep their title by automatic qualification.
- Times Tables Rockstars, Battle of the Bands: classes or year groups compete against each other for a specified period of time, with each correctly answered multiplication equation contributing towards the points for each team. Each team's highest scorer and best effort is celebrated, as well as each winning team.
- Doodle Maths: classes and year groups compete against each other for a specified period of time, with each correctly answered question contributing towards the points for each team. Each team's highest scorer and best effort is celebrated, as well as each winning team.

## 5. Progression of Calculation Methods:

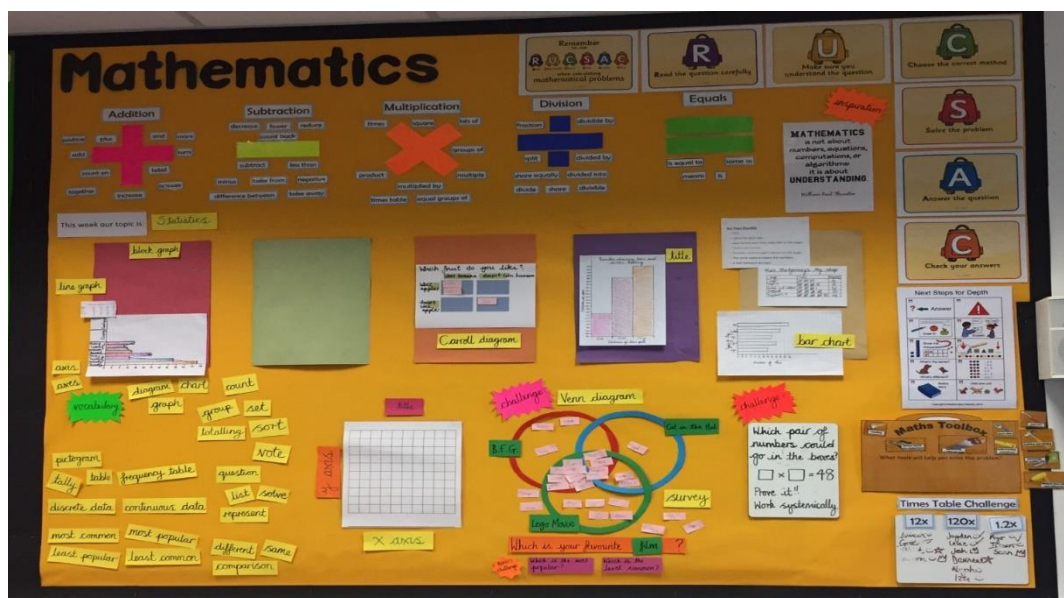
Although we use Mathematics Mastery, the progression of calculation methods is adapted to best suit and support our children, building towards efficiency and mastery. For example, we promote steady progress towards formal, written methods (using the concrete, pictorial, abstract approach). Please see Calculation Policy.

## 6. Learning Environment:

A record of our lesson progression throughout a week/unit can be found on the mathematics learning wall within each classroom. These are kept up to date as an interactive resource for both the teacher to refer to (ensuring that learning is reinforced) and the children to engage with (to support their learning).

Each learning wall will show:

1. **Topic/unit:** clearly displaying what the current topic/unit of work is being covered;
2. **Children's work:** displaying either annotations, post-its, notes or mounted work from the children;
3. **Interactive element:** encouraging the children to engage with what's on the board (i.e. a 'cold task', reinforcing learning, using and applying prior learning or a depth/challenge task);
4. **Teacher modelling:** displaying adult modelling from mathematics lessons for the children to use as a resource (i.e. calculation strategies, drawings and diagrams etc);
5. **Relevant topic resources:** displaying resources relevant to the current topic/unit of work, which both the teacher may find useful and the children may find helpful during lessons;
6. **Mathematical vocabulary** (or 'star words'): displaying all 'star words' relevant to each lesson or all vocabulary relevant for the current topic/unit of work. These should be referred to by the teacher and used by the children during lessons; and
7. **Regular change:** showing that relevant resources are being added/removed regularly to match the changing of topics/lessons. Some resources should reappear during other topics/units to show explicit links across the curriculum (i.e. resources from maths meetings may be moved across to the learning wall (and vice versa) or resources for fractions may be reused during decimals etc).



## **7. Recorded Evidence:**

We take pride in our books and they evidence of more than just progress and attainment, i.e. thinking, resilience, language acquired. The expectation of our books is set out below.

### Recording:

- A wide range of completed tasks;
- The topic and sequence is apparent across pieces of work;
- Challenge is clearly evident;
- Photographs are used to enhance recording;
- All work is finished (or enough has been completed to accurately assess);
- Clear evidence of sustained tasks; and
- Children are autonomous in their recording (or supported in doing so where necessary).

### Appropriate challenge:

- Work given to or selected by the child is of the right level (a balance of accuracy and error across all pieces of work in books);
- Work shows achievable challenge;
- Differentiation is clear across books for the same piece of work (chilli challenges labelled – 1 chilli (support accessing age-related), 2 chilli (age-related), 3 chilli (depth) (with additional use of a pre chilli where appropriate));
- Marking evidences the support given;
- Evidence of in lesson extensions (either child initiated or advised by CT);
- Evidence of extension, challenge questions generally (including beyond the lesson); and
- Questions used for clarification of understanding.

### Presentation:

- Work is carefully stuck in;
- Children take care with presentation to ensure it is of a high standard;
- One digit is placed in each square;
- Margins and underlining are done with a ruler and in line with the lines in the book (double margins in Phase Three); and
- Pupils from Years 4-6 record parts of the lesson (where appropriate): do now, talk task, independent task, challenge, focus group.

### Feedback and Pupil Response:

- All work is marked (pupil, peer or teacher);
- Marking and feedback from the teacher give clear indications of success, are constructive and move learning forward;
- Teacher feedback pinpoints where misconceptions are made and teacher modelling is shown to support;
- Next steps provide opportunities to deepen learning and reason, and show appropriate challenge;

- Children review work and respond appropriately and regularly to feedback and action tasks before moving on.
- Teacher review of pupil responses to ensure pupils are challenged, work is built upon and misconceptions/errors do not go unnoticed.

#### Peer and Self-Assessment:

- Every opportunity is taken for children to review their own work and that of others through self and/or peer reflections;
- Teacher modelling and support for high quality reflections which demonstrate the learning journey, successes, difficulties and constructive comments to learn from.
- Children understanding the effect of reviewing their work and that of others.
- Children use increasingly precise age appropriate mathematical language in peer and self-review (or own personal level vocabulary where appropriate).

#### Progress:

- Evidence of objectives being repeated/revisited where necessary.
- Progress/learning journey is evident across lessons within topics
- High expectations of progress are evident throughout the book.
- Learning opportunities lead to age objectives being achieved (or own personal level targets where appropriate) .
- Children's work and responses to feedback show understanding of mathematical vocabulary acquired.

### **8. Assessment and Marking:**

Individual pupil progress is regularly monitored through ongoing assessment for learning in class and formal summative assessments: NTS for Years 1-5 (termly); SATs practice Year 6 (half termly); Star Maths for Years 2-6 (half termly), as outlined in the Assessment Timetable, set out by the Assessment Lead.

Learning is personalised through the use of teacher assessment to allow for:

- ❖ individual needs based curriculum (following similar content/unit from a lower year group where appropriate);
- ❖ same day interventions or next day focus groups, in order to close the learning gap; and
- ❖ activities that stretch and challenge their learning, whilst remaining within their own year group curriculum.

Pupils identified as having barriers to their learning are also (where relevant) provided with support from additional school adults, arranged by the SENCo.

Pupils are provided with regular guided and detailed feedback using our Feedback and Marking Policy, which enables our pupils to acknowledge their strengths and next steps. When our children are ready to take the next step, they are supported by staff to be more autonomous through self-marking their work for instant feedback and intervention. This enables our pupils to move their learning forward immediately without the reliance on adults. In addition, our lessons provide time for self-reflection whereby the children review their learning, secure vocabulary and develop their mathematical thinking.

Termly SLT data meetings and Pupil Progress Meetings ensure that the individual achievement of all pupils is considered carefully. The analysis from relevant data input assists SLT, the Mathematics Subject Leaders and class teachers in creating action points to drive forward attainment and progress.