



# Mount Pleasant Primary School

## Mathematics Expectations and Guidance

*“Everyone can, everything turns into mathematics.”*

The aims outlined below will form the expectations and guidance for the teaching of Maths this forthcoming year.

### Our intent for our Mathematics Curriculum:

- Children to be fluent mathematicians – understanding the relative size of numbers at all levels and able to move fluently between operations and representations.
- All children will be secure in the key age-related content (as outlined in our Trust mathematics assessment procedures) – ensuring they are able to build their learning progressively from year to year. All children can succeed.
- We intend for all children to reach the expected standards at Key Stages 1 and 2, and exceed them where they can.
- Children to be ‘brave mathematicians’ – knowing that there is often more than one way to solve a problem and that having a try, playing with numbers and gaining a sense of an ‘appropriate answer’ are key qualities of a mathematician.
- We aim for children to develop a real love for mathematics and understand that it underpins all subjects and opportunities in life – rather than see mathematics as a ‘memory test’.

### The implementation of this intent is based on:

- The daily maths lesson (Monday – Thursday) will follow the long and medium-term plans set (‘White Rose Mastery’ approach) with key understanding of place value, number operations and related problem solving, reasoning and justification taking priority.
- From Year 1, in addition to a daily mathematics lesson, children experience a daily short mental fluency lesson – based on number facts, relationships and calculations. This session also includes daily retrieval practice of taught concepts to strengthen the neural pathways of prior learning and aid retention of learning (yesterday, last week, last term, last year).
- From EYFS to Y6 there is a Friday focus on arithmetic as we want our pupils to be fluent in arithmetic strategies which will enable them to tackle reasoning and problem-solving exercises more efficiently.
- Children are taught conceptually through problem-solving contexts, which are initially linked to real-life situations and real objects that they can manipulate. Pupils start by being able to understand and relate to the questions in a ‘concrete’ method. As the pupil progresses in their understanding, the context is then represented in a ‘pictorial’ state (actual pictures of the objects at first, then later moving onto more abstract representations like bar models). The final stage, ‘abstract’ refers to the more formal methods of calculations like column multiplication or the division method.

## Teaching

Maths should be planned for and taught every day, with teaching and learning structured around small steps of learning to give all pupils the chance to succeed. There should be at least three pieces of work in books each week. Through the 'White Rose Mastery' approach all children will be challenged and have time to develop a deep understanding of a mathematical concept before moving onto new content. All children will have a deep and thorough understanding of number facts such as number bonds and times tables which should allow them to focus on tackling new concepts effectively. Challenge is something which is key to all children being successful in mathematics and this is central to our vision. Children are challenged in a variety of ways such as in fluency, reasoning or problem-solving tasks and are exposed to a wide variety of manipulatives and representations based on the same concept. We believe that children should find five different ways of solving a problem rather than solving the same type of problem in one way.

## Planning

When planning, we use White Rose yearly overviews and medium schemes of learning which we link to our Trust 25 key objectives. We may study an area of maths for a number of weeks e.g., Place value – 3 weeks. Each year groups weekly plan will include:

- Focus for the main Maths parts of the lesson (drawn from White Rose)
- Identification of the *Everyone Can* sheet to practice that day
- Counting element, which is a two-minute (maximum) chance for children to count in sequences, such as tables or linked to main lesson.
- Memory Jogger
- Main focus learning outcome which can be broken down in smaller steps (Learning Objectives) to achieve it.
- Outline of the *NumberSense* or *NumberKnowledge* skills to be taught each day that week.
- A weekly arithmetic test on a Friday followed by a thirty-minute session to practice taught concepts, identify misconceptions and fill in any gaps in learning.
- Ready to progress - Using the '*Read to Progress document*' highlights progress criteria for that year group links to pupils' prior knowledge and understanding of the given mathematical focus.
- SMSC Links

Planning should be uploaded on the staff area weekly.

**NOTE:** Do not be scared to spend longer on an objective in order for children to master it. This will allow you to give opportunity for children to become Greater Depth whilst getting the majority of children to a mastery level.

## Presentation

Teachers should have high expectations and maintain a good standard of book as well as allowing the children to take ownership of their presentation and work. Reception, Year 1 and Year 2 use 1cm squared books, whereas Year 3 to Year 6 use 0.7cm books. Year 3 may start on 1cm books then transition to 0.7cm books. If children have a special educational need they can use the book which is most appropriate to their need.

In the front of our maths book we have the year group 25 Key Objectives (working within, mastery or greater depth) that child is studying. In the back of our maths book is the weekly arithmetic and mental maths record tracker. All work should have short date and Learning Objective (LO) underlined. Children should write one digit per box. You do not need to have coloured boxes in your book everyday as some days you may just want to practise calculations but fluency tasks must have a blue border and reasoning/problem solving must have a purple border.

Each class is to have a maths display to promote the enjoyment of maths as well as presenting children's work.

## Assessment

When you have finished teaching an objective, you can use the Trust mini assessment test to assess the child. Then using the assessment and previous work, please date the column that you think the child has achieved. You only need to date it once, at the end of the unit. When moderating we will look at the date and look back from the date at the front of the book. Please use the exemplification to show you the style and standard of questions. There are questions which show a mastery and greater depth standard and there should be a range of question styles and representations to show a depth of knowledge. The lesson (or part of it, including the memory jogger session) following must be used to debrief pupils on the assessment and teach the skills needed. Pupils to be reassessed (or partially) soon after using similar questions.

Each week you should record your children's arithmetic test scores as well as allowing the children to record their own results. Teachers must update weekly scores onto their year groups' record sheet, available on the staff area.

At the end of each term the White Rose arithmetic and reasoning papers should be completed and results recorded to inform your teacher assessments and further planning.

## Multiplication Tables

The quick recall of multiplication and division facts (x tables) is an essential skill for children. The ability to instantly recall these facts enables children to answer relative questions with ease. Therefore, it is important that we approach the teaching and testing of times tables in a similar and progressive format from Y1 to Y6. However, we embed counting in steps from EYFS, to enable our children to be times-table ready!

End of Year expectations:

- YR count in 1s, begin to count in 2s, 10s, 5s
- Y1 count in 1s, 2s, 5s and 10s

- Y2 count in 3s, x1, x2, x5 and x10
- Y3 x3, x4, x8 and x11
- Y4 x6, x7, x9, x12
- Y5 All x and  $\div$  facts (up to 12x12)
- Y6 All x and  $\div$  facts (up to 12x12) and the times table challenge e.g  $3 \times 4 = 2 \times 6$

We have decided to follow an '**everyone can times**' approach building up the times tables in a methodical and progressive format, ensuring that facts are retained and revised along the journey.

Multiplication facts and associated skills (doubling, halving and number bonds) are practised Monday to Thursday through 'everyone can' sheets. The children have 10 minutes to complete the practice sheet where all multiplication number sentences are presented up to 12 x 12. There are three levels to complete. Each level incorporates a harder challenge based on multiplication facts. We aim for children to progress through the levels throughout the year:

L1 – Autumn term

L2- Spring Term

L3 – Summer Term

Order: x1, x2, x10, x5, x4, x8, x11, x3, x6, x9, x7, x12

In addition to this, to start each maths lesson, pupils will engage in a brief piece of counting, which will often link to the multiplication tables learnt in that year group.

On a Friday children will complete a multiplication table test using the DfE Check timings for the table they are up to. If they pass the test, they move onto the next table and receive a certificate. Homework sent on a Friday will include a task for that multiplication table and a sheet of the tables to practise. In Year 1 and 2, this will be based around number bonds (in the Summer term Y2 will switch to multiplication tables).

Children will access 'Times Table Rock Stars' (TTRS) which is a carefully sequenced programme of daily times tables practice both in school and at home. This allows and engages children to take part in a fun and competitive way. There are games within this where pupils can practice all tables but the school Maths lead will also set a table based on the pupil's progress through the tables.

## **Cultural Capital – Maths in today's world**

At the start of each unit of work, teachers select a famous / important mathematician linked to that unit, that impacted the way we know maths today or uses their mathematic knowledge in their everyday work to achieve brilliantness. All year groups will be expected to create a session based on the given mathematician to promote or question his or her work.

This is to promote the love of maths and show children maths in the real world. We aim for children to develop a real positive attitude towards maths which is key in succeeding in this subject. It also allows children to see how maths can be used across all subjects and that it can be the core root in all future professions and career aspirations.

## **Careers – A Future in Maths**

Also, at the start of each unit of work, classes will explore the careers available that would incorporate that aspect of maths, for example in statistics work teachers and pupils could discuss how the use of charts is a vital part of being a sports coach.

This is to again promote the love of maths and show children maths in the real world and to underline its importance to their futures.

## **Outdoor Learning**

We expect teachers to take maths outdoors wherever possible (at least once a half term). This outside learning isn't just about making the subject fun and real. It also helps children master the very basic of the subject – accessing concrete materials outside the classroom.

## **Mathematics Homework Expectations**

The main focus of our maths homework is for the children to practise and refine their arithmetic skills (mental fluency). In Year 1 children are set homework in relation to number bonds within 10 and counting in steps of and 2. From Year 2 to Year 6 children are set homework in relation to the times table they are learning. Teachers may also set consolidation activities for homework.

## **Online Learning Offer**

From September 2020 Mount Pleasant will have in place a bespoke online learning platform offer to all pupils. This will allow children to access online learning from home. Teachers will be responsible for developing their year group maths offer. White Rose have produced a range of work booklets for parents and children which will be uploaded onto our platform to help consolidate children's learning at end of each teaching block.

## **The Maths Environment – See Classroom Checklist**

A consistent maths environment is vital to ensure that in every classroom, our children have access to what they need. As such, we have developed a consistent classroom checklist to ensure that each classroom has the relevant number lines, number squares and vocabulary to hand. These expectations are a minimum and teachers are of course free to design their classroom environments as they see fit for their children.

## **Transition / Gaps in Learning**

At the end of each academic year, teachers pass on precise information to the next teacher about gaps in learning based on our Trust 25 Objectives Document (which itself is drawn from the National Curriculum). From this information, teachers will know what objectives have been mastered by the class, which objectives need revisiting before accessing new content and specific pupils who need intervention before accessing new content.

## Maths and Pupils with SEND

As much as possible, all pupils, including those with SEND, will access the main year group teaching in line with the mastery approach to learning. We are constantly refining our use of small steps of learning to ensure all pupils can access this learning. There are however instances where pupils with specific needs cannot access the main year group teaching and they then have their own curriculum. This is based around the key skills they need to master based the year group objectives where assessment indicates they are working. This may involve PIVAT assessment if further small steps are required. Depending on the needs of the child, this bespoke curriculum is either accessed in their year group's classroom or in withdrawn teaching areas with specialist provision from dedicated adults.

## Maths in EYFS

We have a carefully planned curriculum that ensures progression from Little Learners into Nursery, then into Reception. Progression in skills documents allow our Little Learners provision to see the age-related build of skills to ensure solid mathematical foundations are in place ready for Nursery.

Our Nursery teachers follow a long-term plan which is carefully sequenced based on research from *Mastering the Curriculum* and NCETM. This has an emphasis on subitizing so that pupils fully understand the composition of numbers ready for Reception.

In Reception, we follow the White Rose curriculum to ensure a well-sequenced journey and a sound understanding of numbers to 10. There continues to be a focus on subitising and composition of numbers. Additionally, we use the Trust Ready document to ensure that elements of maths not included in the statutory framework, but required for a broad mathematical knowledge are taught. This ensures that our children leave reception with firm mathematical foundations and enables them to have a smooth transition to maths in KS1 and KS2.

EYFS classes have planned teacher input carpet times and focused activities where pupils' knowledge is shown through their contributions to discussions and practical demonstrations. Additionally, Nursery and Reception classes have maths areas as part of the classroom provision which enables them to explore concepts in their play. Across the provision, maths is used in real life situations, for example, when tidying up the blocks, or scoring in a sports game outdoors. Our interactions with the children are constant and allow us to teach exactly to their needs. This also enables us to go to them in provision and teach using their interests.

We use our *Trust Ready Documents* to assess pupils in EYFS to ensure they are ready to progress smoothly into the next phase of their learning.

## Breakdown of lesson

| Procedures for N-6 in Maths Books                                    | Expectations   |
|--|--|
| Who completes <i>everyone can</i> practice sheets and when?          | Y2-Y6 every day from Monday to Thursday<br>Y1 as above from January  |
| When are number relationships and mental arithmetic skills taught?   | Y1-Y2 every day Monday – Thursday using <i>NumberSense</i> for ten minutes<br>Y3-6 every day Monday – Thursday using our in-house <i>NumberKnowledge</i> program for ten minutes |
| How do maths lessons start?  | Y1-Y6 start each maths lesson with a memory jogger including counting.   |
| When is the White Rose curriculum delivered for main maths teaching? | All year groups Monday – Thursday  |
| When are multiplication tables taught?                               | One skill per week on a Friday in Y2-5 prior to the multiplication table test<br>Counting as above<br>Number bonds in KS1  |
| When is written arithmetic taught?                                   | Friday for thirty minutes prior to arithmetic test   |

## Presentation of work/tasks

| Procedures for N-6 in Maths Books                        | Expectations  |
|--|---|
| How are basic practice tasks indicated?                  | Answers written in books or on unboxed sheet  |
| How are varied fluency tasks indicated?                  | Blue box  |
| How are reasoning and problem-solving tasks indicated?   | Purple box  |
| How is a greater depth task indicated?                   | Red box   |
| Where are trust assessments completed?                   | On the next page as usual in front of maths books   |
| How is success on trust mini-assessments shown?          | Working towards, mastery or greater depth highlighted green   |
| How do children complete trust mini-assessments?         | Complete in books underneath sheet. If a table is to be completed for example that could be on the sheet. |
| Where is number sense / number knowledge work completed? | On whiteboards.   |
| Where is counting completed?                             | Verbally.   |
| Where are multiplication table tests completed?          | Small test books.   |
| Where are arithmetic teaching questions completed?       | On whiteboards.   |
| Where are arithmetic tests completed?                    | Weekly test books similar to SAT booklets.  |

## Marking and Feedback

| Procedures for N-6 in Maths Books   | Expectations   |
|---|--|
| Do the children use pencil or pen?  | KS1 and KS2 to use pencil for number work.<br>KS2 can use pen to write words if have licence.  |
| Do the children write the date?   | Indicated from Reception.  |
| Where is the date located?  | Top left of page.  |
| Is it a short or long date?   | Short date.  |
| Is it underlined?   | KS2 underline with a ruler (pencil).   |
| Is the learning objective identified?   | The title should refer to the learning objective for that lesson. LO: To use...  |
| Is it underlined?   | KS2 underline (stick in the LO for those children who struggle to write this independently). Please make sure it is straight.  |
| How do children know if they have achieved an objective?                          | Learning Objective dated in front of books to whether they are working within, Mastery or Greater Depth.   |
| Do you leave a line before the work is started?                                   | Yes.   |
| How do children correct a mistake?  | One straight line (with a ruler through the mistake).  |
| Are rubbers used?   | At teachers' discretion.   |
| How is verbal feedback represented?   | VF (add extra detail to this, if necessary, at teacher discretion).  |
| How do other adults acknowledge their support?                                    | TA in a circle with comments if necessary.   |
| How do the children know that they have been successful in the lesson?            | Highlight the title in green.  |
| What happens if it is not green and children have not been successful?            | If an element of understanding is shown – but not enough for green – it is highlighted yellow and intervention should be carried out before next lesson. This intervention needs to be clearly labelled. |
| How is intervention shown?  | Intervention written with date and initials of person carrying out the intervention.   |
| How is a correct answer identified?   | A tick by the work in green ball point pen.  |
| How are mistakes identified?  | Dot by the work or numbers highlighted (don't use too many dots if all work is incorrect, give feedback instead).  |
| What colour do you use for marking?   | Green ballpoint or orange dot for correction.  |
| What colour do you use for supply marking?  | Green, with their initials.  |
| What should feedback and suggested improvements look like?                        | Feedback to be linked to success criteria/learning objective. Fix it marking needs to be in place.   |
| How are completed corrections acknowledged by the teacher?                        | Green tick next to orange dot.   |
| When should children be given time to complete corrections and make improvements? | Improvement time could be given as they enter the lesson for five minutes.   |
| How does marking link to planning?  | Marking should feed into the planning for the next lesson.<br>The next steps in learning should be the next lesson.  |



# Mount Pleasant Maths Offer



## Maths Lesson

|                       | Duration  | Activity   | Autumn Term   | Spring Term   | Summer Term   | Assessment   |
|-----------------------|---|--|---|---|---|--|
| Counting              | <ul style="list-style-type: none"> <li>Monday – Thursday</li> <li>2 minutes</li> </ul>  | <p>Teach counting facts using:</p> <ul style="list-style-type: none"> <li>Blank wheels</li> <li>Counting sticks</li> <li>Counting rounds</li> <li>Forwards/backwards</li> </ul>  | <ul style="list-style-type: none"> <li>Multiplication facts</li> <li>Division facts</li> <li>Powers of 10</li> <li>Negative numbers</li> </ul>  | <ul style="list-style-type: none"> <li>Multiplication facts</li> <li>Division facts</li> <li>FDP</li> </ul>   | <ul style="list-style-type: none"> <li>Multiplication facts</li> <li>Division facts</li> <li>Measures</li> </ul>  | <ul style="list-style-type: none"> <li>Observations</li> <li>Evident in other areas</li> </ul>   |
| Prior Learning        | <ul style="list-style-type: none"> <li>Monday – Thursday</li> <li>8 minutes</li> </ul>  | <p>Memory Jogger:</p> <ul style="list-style-type: none"> <li>yesterday</li> <li>last week</li> <li>last year</li> <li>different domain</li> </ul>  | <p>Memory Jogger:</p> <ul style="list-style-type: none"> <li>yesterday</li> <li>last week</li> <li>last year</li> <li>different domain</li> </ul>   |   |   | <ul style="list-style-type: none"> <li>Observations</li> <li>Evident in other areas</li> </ul>   |
| Maths Lesson          | <ul style="list-style-type: none"> <li>Monday – Thursday</li> <li>50 minutes</li> </ul>   | <ul style="list-style-type: none"> <li>Teaching through me, us, you approach</li> <li>Use of small steps for all</li> </ul>  | <ul style="list-style-type: none"> <li>Follow White Rose LTP/MTP</li> <li>Basic skills</li> <li>Varied fluency</li> <li>Reasoning</li> <li>Problem solving</li> <li>Greater depth</li> </ul>      |   |   | <ul style="list-style-type: none"> <li>End of block summative mini-assessments with follow-up session</li> <li>End of term formative tests</li> </ul>                      |
| Everyone Can          | <ul style="list-style-type: none"> <li>Monday to Thursday 10 minutes completion</li> <li>5 minutes answers</li> <li>Y1 twice per week after Christmas and daily after Easter</li> </ul>                                   | Independently complete sheet and provide answers   | <ul style="list-style-type: none"> <li>Number Bonds</li> <li>Addition/Sub Facts Double</li> <li>Half</li> <li>Multiplication Tables</li> <li>Division Tables</li> </ul>                           | <ul style="list-style-type: none"> <li>Multiplication Tables</li> <li>Division Tables</li> <li>Number Bonds</li> <li>Addition/Sub Facts Double</li> <li>Half</li> <li>Place Value</li> <li>FDP</li> </ul> | <ul style="list-style-type: none"> <li>Multiplication Tables</li> <li>Division Tables</li> <li>Number Bonds</li> <li>Addition/Sub Facts Double</li> <li>Half</li> <li>Place Value</li> <li>Measures</li> <li>Shape</li> </ul> | <ul style="list-style-type: none"> <li>Thursday score recorded</li> <li>Maths Lead to monitor scores and completion</li> </ul>   |
| Number Knowledge      | 10 minutes daily on an afternoon  | <ul style="list-style-type: none"> <li>Mental fluency</li> <li>Mental calculation methods</li> </ul>   | <ul style="list-style-type: none"> <li>Based on Number Knowledge (MTP in Y3-6 and NumberSense program in KS1)</li> <li>Link to main where appropriate</li> <li>Start- alone if need be</li> </ul> |   |   | <ul style="list-style-type: none"> <li>Random sample every 3 weeks by Maths Lead with method grid</li> <li>Record Sheets</li> <li>Observations</li> </ul>                  |
| Arithmetic            | 1 hour every Friday split between test and practice   | <ul style="list-style-type: none"> <li>Me – Us – You model of direct teaching</li> <li>Independent work in books followed by test</li> <li>Focus taken from previous test</li> </ul>   | <p>Tests develop as more of the curriculum is covered so initial test is based on previous year groups with more of current year group added as main maths progresses.</p>                        |   |   | <ul style="list-style-type: none"> <li>Weekly Tests</li> <li>Termly White Rose Test</li> <li>Maths Lead to monitor scores and completion</li> <li>book-scouties</li> </ul> |
| Multiplication Tables | <ul style="list-style-type: none"> <li>Two 15 minute iPad TT83 slots per week in Y3/4</li> <li>Once in Y2</li> <li>5 minutes counting per day (Monday to Thursday)</li> <li>Ten minute test on Friday Homework</li> </ul> | <ul style="list-style-type: none"> <li>Teach multiplication table using blank tables wheels in Number Knowledge.</li> <li>Rehearse and practise multiplication tables in counting aspect of maths using counting stick or other resources</li> <li>Years 2, 3 and 4 to have a 15 minute slot twice per week on iPads to use TT83 with Maths Lead setting tables based on times table tractor from teacher.</li> <li>They will also be practised using everyone can sheets each morning.</li> <li>Maths homework to be multiplication table based every week with sheets/activities uploaded by Maths Lead and given out by teachers on Friday for test following Friday</li> <li>Every class does a times table test every week using PowerPoint with MTC timings. Twenty questions and if a pupil passes they get a certificate from teacher (can be electronic) with star performer per class getting one in Times Table assembly.</li> <li>When pupils have completed all tables they move onto mixed tables, which progress to decimals further up school so always a next step.</li> <li>Maths Assembly per week with teams quiz per class/colours and certificates.</li> <li>Year will do likewise for number bonds</li> </ul> |   |   |   | <ul style="list-style-type: none"> <li>Weekly Tests</li> <li>Tractor</li> <li>Half-Termly sound check on TT83</li> <li>Y4 MTC</li> </ul>                                   |

## Outside Maths Lesson



# Mount Pleasant Maths EYFS Offer



|                        | Planning   | Teaching   | Follow-up Work  | Assessment   |
|------------------------|--|--|---|--|
| <b>Little Learners</b> | <ul style="list-style-type: none"> <li>Based on Development Matters and Birth to Five Months Matter</li> </ul>   | <ul style="list-style-type: none"> <li>Carpet time teacher input each day for ten minutes.</li> </ul>  | <ul style="list-style-type: none"> <li>Opportunities to demonstrate learning provided in the wider provision.</li> </ul>  | <ul style="list-style-type: none"> <li>Observations in taught session</li> <li>Evident in other areas of provision</li> <li>Based on MP Progression Documents</li> </ul>       |
| <b>Nursery</b>         | <ul style="list-style-type: none"> <li>Based on Mastering the Curriculum Nursery long-term plan</li> <li>Non-statutory 'over and above' taught from Trust Ready Reception</li> </ul> | <ul style="list-style-type: none"> <li>Carpet time teacher input each day for ten minutes.</li> </ul>  | <ul style="list-style-type: none"> <li>Pupils to complete discrete follow up work in small groups.</li> <li>Opportunities to demonstrate learning provided in the wider provision.</li> </ul>                     | <ul style="list-style-type: none"> <li>Observations in taught session</li> <li>Evident in other areas of provision</li> <li>Based on Trust Ready Nursery Document</li> </ul>   |
| <b>Reception</b>       | <ul style="list-style-type: none"> <li>Based on White Rose Reception long-term plan</li> <li>Non-statutory 'over and above' taught from Trust Ready Reception</li> </ul>             | <ul style="list-style-type: none"> <li>Carpet time teacher input each day for ten minutes.</li> <li>Ten minutes additional teaching each day from Number Sense EYFS</li> </ul> | <ul style="list-style-type: none"> <li>Pupils to complete discrete follow up work in small groups.</li> <li>Opportunities to further enhance and demonstrate learning provided in the wider provision.</li> </ul> | <ul style="list-style-type: none"> <li>Observations in taught session</li> <li>Evident in other areas of provision</li> <li>Based on Trust Ready Reception Document</li> </ul> |