

# 2021-2022 Maths Review





The focus of number teaching in Year 6 has been on the following areas: place value, addition, subtraction, multiplication, division, decimals, fractions, percentages, ratio and algebra. Your child has been taught to extend their understanding of the number system and place value to include larger integers (up to 10,000,000). In Year 6, we have been developing the connections that pupils make between multiplication and division with fractions, decimals, percentages and ratio. They have been taught to develop their ability to solve a wider range of problems, including increasingly complex properties of numbers, arithmetic and problems demanding efficient written and mental methods of calculation. Pupils have been introduced to the language of algebra and have started to look at simple algebraic equations. By the end of Year 6, we have aimed for children to be fluent in written methods for all four operations, including long multiplication / division and in working with fractions, decimals and percentages.



Children's understanding of the other areas of maths (measurement, geometry, position and direction) has been consolidated and extended throughout Year 6. Children have specifically been taught how to use formula to find the area of compound shapes, triangles and parallelograms. In Year 6, we have focused on developing children's reasoning skills, helping to develop their critical thinking and to understand Maths in a more meaningful way. The concept of reasoning helps children to have a deeper understanding of the subject.

# **Year Five**



Some of the Maths units we have covered this year are: place value of numbers up to 6 digits, decimal calculations, long multiplication, division with remainders, ordering and comparing fractions and finding equivalents, number patterns with negative numbers, multiplying by powers of 10, multiple, factor and prime number investigations. Throughout Y5, we have practised arithmetic skills daily to promote quick recall and confidence in general number skills. In lessons, we use a range of diagrams and pictorial representations to help visualise and understand mathematical concepts, often using software on our iPads. Children are encouraged to make useful notes and try things out by themselves before asking for help. Rounding and estimating the size of answers, using inverse calculations and redoing calculations is crucial in helping to spot mistakes. Reasoning tasks are a significant part of our Y5 lessons as they deepen the children's mathematical thinking. Children should produce detailed explanations that include mathematical language and number facts to prove their thinking if they are to achieve the highest standards.



Our Y5 curriculum has also extended skills in geometry, measurement, time and statistics. Part of this entailed a focus on angles, shape and measure that required a very critical and highly-specific attention to detail. We have developed our knowledge of fractions to improve our understanding of key concepts including equivalent fractions, adding and subtracting fractions, and converting between fractions, decimals and percentages. We have looked at a range of graphs and timetables. Children have worked through various challenges and word problems, where these areas of Maths have provided the context.



# **Year Four**



In Year 4, children have learnt how to recognise the place value of each digit in a 4 or 5 digit number and are continuing to order and compare numbers beyond 1000, using mathematical vocabulary and symbols. They have identified, represented and estimated numbers using different representations and have begun to round numbers to the nearest 1000. Children have focused on counting from 0 in multiples of 6, 7, 9, 25 and 100, counting backwards through zero to include negative numbers and finding 1000 more or less than a given number. Year 4 have also started to read Roman Numerals up to 1000 and have learnt to add and subtract 4 or 5 digit numbers, including adding and subtracting decimal numbers. Furthermore, the children have been taught to use formal written methods to multiply and divide two and three digit numbers by one digit numbers. Your child has also had the opportunity to use all their number and place value skills to solve a range of problems and reasoning style questions. Throughout the year, we have had a big push on developing fluency within all of the times tables. .



Fractions- Children have built on their understanding of fractions and developed their skills in areas such as equivalent fractions, addition and subtraction of fractions and calculating fractions of amounts. Measurement - We have looked at estimating, converting and calculating, using units of measurement (millimetres, centimetres. metres and kilometres) and working out area and perimeter of different shapes. Money – the children have been taught how to convert pounds into pence, ordering money and adding different amounts of money together. Time - most recently, we have started to look at telling the time and have worked on time problems.



# Year Three



There have been many new changes to the maths curriculum this year and the children's resilience to these has been exceptional. All of the children are keen, enthusiastic and always willing to share their answers. They have been asked to explain thinking during the oral and mental aspects of our daily arithmetic sessions. We have covered the following key mathematical concepts: place value in whole numbers, finding 10 or 100 more or less than a given number and learnt how to multiply and divide a number by 10 and 100. Their mental calculations have got much quicker and, as a result, they have grasped our range of pencil and paper methods well. This includes column addition and subtraction with three-digit numbers; short multiplication with two-digit numbers and bus stop division. In each lesson, the children are given varied fluency challenges with increasing difficulty levels to allow them the opportunity to apply the newly taught concept. Alongside these, problem solving and reasoning challenges are also posed to further deepen the children's understanding.



The children have been asked to interpret and present data using bar charts and tables. Progression this year has taught the children that data can be represented in various scales.

Their knowledge of money is developing with increasing accuracy as they begin to convert pounds and pence to aid their addition and subtraction of money.

In geometry, they draw and recognise 2D shapes and 3D shapes and also begin to recognise different angles.

Pupils enjoy hands on lessons where they measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (I/mI).

In the Summer term, pupils learnt to tell and write the time from an analogue clock, including 12-hour and 24-hour clocks with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight.



Year Two



The Year Two Maths curriculum has enabled the children to be confident in their knowledge of place value, counting and reading and writing numbers to 100. They have confidently been able to transfer this number knowledge when learning the basic skills of the four operations: addition, subtraction, multiplication and division. We have also taught the children the formal methods of column addition and column subtraction when solving addition and subtraction problems. The children have also been learning their x2, x5 and x10 tables and the inverse division facts. In the Summer Term, we have had a big push on their times tables with a rapid recall to enable them to achieve their Bronze Times Tables award from Mr Hillier. They thoroughly enjoyed using 'Times Tables Rock Stars' to practice their tables and division facts and many of them also relished the friendly competitive nature of the battle of the band challenges. The children have learnt to solve number problems first with concrete apparatus, then in pictorial representations and finally in abstract formats. To support the children's number knowledge, we have modelled and scaffolded a range of equipment such as cubes, dienes and place value counters. We have also covered problem solving and reasoning questions throughout every lesson this year allowing the children to apply their mathematical understanding to real life scenarios. We have encouraged them to firstly understand the problem they have been presented with and then decide which operation and method they are going to use to solve it. Sometimes they are asked to explain their reasoning when answering a question. We encourage the children to share their mathematical thinking and working out with a partner ready to share with the rest of the class. The children are then encouraged to agree with or challenge answers they are presented with



We have also covered the following topics during our Mathematics lessons this year: money, statistics, shapes, measures, position and direction and time. In our money topic, we looked at recognising coins and notes and knowing their values in pounds and pence. The children were able to apply this knowledge to confidently add and subtract using money and solve real life practical problems. For shape, the children learnt the properties of 2D and 3D shapes and knowing that sides and corners relate to 2D shapes and faces, edges and vertices relate to 3D shapes. During our position and direction lessons the children confidently used the vocabulary of forwards, backwards, right, left, full, half and quarter turns. Our statistics unit enabled the children to understand how data can be shown in charts using tally marks, pictures or bars, and how this can help us to understand the data better. The children were able to analyse the data and draw conclusions. The children became confident with reading the time to o'clock, half past, guarter past, guarter to and fiveminute intervals. In the Summer term, the children have had the opportunity to explore a range of mathematical resources on the new KS1 iPads, bringing their learning into the digital age and getting them ready for Year 3.





As mathematicians, children have been developing a greater understanding of numbers within 100 counting forwards and backwards. Pupils have become confident with using concrete objects and pictorial representations as well as using Number Lines, 100 Squares, Numicon, Base-Ten and Tens Frames to solve problems. Children have learnt to use their place value knowledge to solve operations including addition, subtraction, halving and doubling and explain their method through reasoning. Multiplication in Year 1 takes the form of counting in 2s, 5s and 10s. Pupils have learnt their number bonds to 10 through rhymes and games and are beginning to relate these to working out number bonds to 20 and beyond. We have also introduced the children to fractions, looking at halves and quarters. Everyday children complete their arithmetic, of which they practise 4 questions in 4 minutes and then peer mark. Children are learning to become independent learners, that can source their own tools to solve problems, complete investigations and explain their findings both orally and recorded.



Children can name, sort and describe the properties of all 2D and 3D shapes using them to continue and create their own repeating patterns. Vocabulary has been a major focus when studying length, height and weight. Pupils have used non-standard units (cubes, hands, paper clips) to measure, as well as being introduced to measuring in centimetres using rulers. In the summer term we have learnt position and direction, money and time. The children have enjoyed using our continuous provision areas to explore their learning of these areas through role play shops and restaurants, as well as using our outside space to practice using their positional language. Solving problems and extending our reasoning skills has been paramount throughout the year.



# EYFS



Mathematics is a key area of the Early Years foundation stage and is used to develop children's confidence and ability with number. We encourage the children to become independent learners and to use their mathematical knowledge and problem solving skills in real life situations, we enable this in our provision and the activities we set.

The focus of number teaching in Reception are the numbers 1-20: counting that amount accurately, recognising the numeral and ordering them to 5,10 and 20. We consider the different ways we can represent the numbers 1-20 through objects, pictures, ten frames, Numicon and on a number line.

We also develop key mathematical skills such as subitising, knowing how many there are without needing to count, for example, recognising numbers on a dice. We begin to partition amounts into two parts and then add the two sets together to find the new total using objects and by holding a number and counting on. We also learn to subtract an amount from a larger group to work out how many are left. With the focus on Mathematical skills comes our developed mathematical language, in Reception we begin to compare amounts using the language 'more', 'less', 'double' and 'half'.



Mathematics in Early Years is also used to encourage children's understanding of shapes, space and measure. We do this in Reception by discussing patterns and creating our own, sequencing and ordering familiar events in relation to time and our day, week or year and,We also develop key mathematical skills such as subitising, knowing how many there are without needing to count for example recognising numbers on a dice. by solving problems related to money.

When exploring shapes, we first consider the characteristics of everyday objects and begin to describe them using mathematical language, thinking specifically about the size, weight, posisition, capacity and length of the object. The children are then able to apply this knowledge when independently identifying and describing 2D and 3D shapes.

# 2020- 2021 reminder

## WWW

- Data consistently high in EXS+ and GDS
- Lots of evidence of reasoning going on within the challenges at 3 levels
- Arithmetic taking place daily

#### EBI

- More evidence of follow up/pre-teach needed
- Corrections to be tackled more often
- To ensure that the lower than average children get access to Challenge 1 and Reasoning 1.

## OUTCOMES of 2020-2021 EBI's.

EB1 ONE: This has certainly improved. Staff meetings have been delivered about effective feedback and the use of Pre teach and Follow- up. Evidence gathered via book looks by the maths team and by the Trust as part of the partnership review. Effective use of TA's has also been covered within our training/ staff meetings. This is something that will remain a focus. These staff meetings covered effective feedback in all subjects- not just maths.

EBI TWO: Along with Pre-teach and Follow-up, the role of tackling corrections and misconceptions was highlighted within these staff meetings. It is now also a requirement of our Teaching and Learning Expectations document (known previously as our Non-Negotiables document). Book looks have identified that this has improved. It is an ongoing process and a feature of effective feedback.

EBI THREE: Book looks have highlighted that this aspect is getting better. More and more children are now accessing the Challenge 1 and Reasoning stage 1 within lessons. Our class maths ethos expects most/ if not all children to be encouraged to undertake Challenge and Reasoning One, at the very least. A YOU CAN DO IT message is regularly given as is the message that it is OK to get things wrong. Two very important messages.

# 2021-2022

## www

- Maths is still higher than national average and remains high throughout the school, at both EXS and GDS. In EYFS, the % at age related expectations is 80% for number and 82% for numerical patterns.
- Maths 6/7 part structure now firmly embedded from years 1 6.
- Maths at EYFS is very comprehensive and builds the foundations for the following years.
- Maths multiplication check very positive indeed.

## EBI

- Maths at Year 6 could push towards the 80% (and above) EXS+ range and the 30%+ range at GDS. This will be back inline with the previous year.
- Replacing IXL with something more up to date. It needs refreshing.
- More emphasis on the role of high quality feedback and a slightly more consistent approach to book layouts (Phil Herd will be drafted in to have a look at this).
- Now that Nursery is established, we will ensure planning builds the foundations in readiness for Reception. Upon
  considering the good progress by last year's Reception cohort, we will adapt the Nursery planning to support children
  in building the mathematical foundations needed- ensuring the good progress continues.

Outcome of EBI's for 2021-2022 will be reviewed in Summer 2023.

## ACTION PLAN for 2022-2023

- Initial meeting with Maths team (September)
- Review of subject in more detail using subject leader considerations

- Liaising with Rachel Meli and Phil Herd in order to tackle some of the EBIs above
- Follow Subject Leader Responsibilities for Autumn, Spring and Summer which includes monitoring, pupil questions/ interviews, website aspects, analysis of data, learning walks, book looks, standards meetings etc. All staff have a copy of these Subject Leader Responsibilities.

