



# Mayville Primary School

## A Parent Guide to Mathematics in Year 1



*Working together in the pursuit of excellence for all*

Mathematics teaches children how to make sense of the world around them through developing their ability to use numbers, calculate, reason and solve problems. It helps children understand relationships and patterns, in both numbers and space in their everyday lives.

## Intent

The 2014 National Curriculum for mathematics aims to ensure that all children:

- become fluent in the fundamentals of mathematics;
- are able to reason mathematically;
- can solve problems by applying their mathematical knowledge.

At Mayville Primary School, these aims are embedded within maths lessons and the corresponding skills are developed over time. We want all children to enjoy mathematics and to experience success in the subject. We are committed to developing children's curiosity about the subject as well as an appreciation of the beauty and power of mathematics.

## Implementation

The content and principles underpinning the 2014 National Curriculum and the maths curriculum at Mayville reflect those found in high-performing education systems internationally, particularly those of east and south-east Asian countries such as Singapore, Shanghai and South Korea.

- Teachers reinforce an expectation that all children are capable of achieving high standards in mathematics.
- All lessons contain: fluency, reasoning and problem-solving activities.
- All activities, within a lesson, are differentiated at 3 levels: 'developing', 'expected' and 'greater depth'.
- Differentiation is also achieved by emphasising deep knowledge and through individual support and intervention.
- When suitable, teachers will use the CPA sequence of modelling (concrete > pictorial > abstract) to nurture a conceptual understanding of mathematics.
- When suitable, teachers will encourage pupils to use the Singapore bar-method to tackle problem-solving questions.
- To ensure whole-school consistency and progression, the school uses the White Rose Maths schemes of learning. These schemes of work are fully aligned with the National Curriculum and have an emphasis on fluency, problem-solving and reasoning. Mathematical topics are taught in blocks to enable the achievement of 'mastery' through depth.
- The White Rose Maths schemes of learning are complemented with fully aligned resources from [classroomsecrets.co.uk](http://classroomsecrets.co.uk); CGP and Twinkl.
- Teaching is underpinned by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge.
- Teachers will use precise questioning in class to test conceptual and procedural knowledge and will assess pupils regularly to identify those requiring intervention, so that all children keep up.

- Pupils will receive high quality feedback that will extend/consolidate their knowledge or clarify misconceptions. When giving feedback, teachers will draw a distinction between a 'response question' and a 'next-step question' (please refer to the section of marking and feedback).
- Pupils in Yr 6 will be taught the laws of mathematics so that they have a clear understanding of why and how operations are carried out. These laws of include: the commutative law, associative law, distributive law and the laws of identity. Learning these laws and their applications will empower pupils to achieve higher in mathematics.

### **In what sequence will my child learn mathematics?**

Our school follows the White Rose Maths scheme of learning which can be found here: <https://whiterosemaths.com/resources/primary-resources/primary-sols/>

## Mathematics in Year 1

As your child begins their compulsory schooling in Year 1, we will naturally work to build on the learning that took place in the Reception year. Here are some of the main things that your child is going to be taught during their time in year 1

### Number and Place Value

Place value is central to mathematics. Recognising that the digit '5' in the number 54 has a different value from the number 5 or the '5' in 504 is an important step in mathematical understanding.

- Count, both forwards and backwards, from any number, including past 100
- Read and write numbers up to 100 as digits
- Count in 2s, 5s and 10s
- Find 'one more' or 'one less' than a number
- Use mathematical language such as 'more', 'less', 'most', 'least' and 'equal'

### Calculations

- Use the +, − and = symbols to write and understand simple number calculations
- Add and subtract one- and two-digit numbers, up to 20
- Solve missing number problems, such as  $10 - ? = 6$
- Begin to use simple multiplication by organising and counting objects

### Fractions

- Understand  $\frac{1}{4}$  and  $\frac{1}{2}$  to explain parts of an object or number of objects

### Measurements

- Use practical apparatus to explore different lengths, weights and volumes
- Use language such as 'heavier', 'shorter' and 'empty' to compare things they have measured
- Recognise the different coins and notes of British currency
- Use language of time, such as 'yesterday', 'before', days of the week and months of the year
- Tell the time to the hour and half-hour, including drawing clock faces

### Shape

- Recognise and name some common 2-d shapes, such as squares, rectangles and triangles
- Recognise and name some common 3-d shapes, such as cubes, cuboids and spheres
- Describe movements, including quarter turns



## Key Principles

## Mathematical thinking

Pupils deepen their understanding by giving an examples, by sorting or comparing, or by looking for patterns and rules in the representations they are exploring problems with.

Conceptual understanding

Mathematical  
problem  
solving

Language and communication

## Language and communication

Pupils deepen their understanding by explaining, creating problems, justifying and proving using mathematical language. This acts as a scaffold for their thinking deepening their understanding further.

## Addition & subtraction in Year 1

**Joining two groups together and recounting/ taking away\* the ones**



  
 $\boxed{6} - \boxed{2} = 4$

### Joining two groups together and counting on/back\*

## Part – part – whole

## Make 10

$3 + 9 =$

13 - 7 = 6

3 4

-4 -3

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

## Column method

1. Add the tens

2. Regroup (above the tens)

3. Add the tens

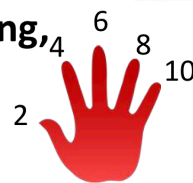
	tens	ones
2	4	
1	7	
<hr/>		

Not required to record column method for subtraction.

\* Reception numbers up to 20

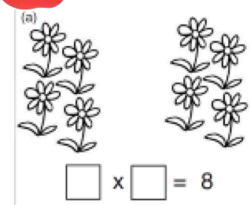
# Multiplication & division in Year 1

\* Reception – Solving problems, including doubling, halving and sharing.



Skip counting in multiples of 2, 5, 10 from zero

Making/sharing equal groups and counting the total  
(Division symbol is not taught; taught practically)



Solve multiplications using repeated addition

$3 + 3 + 3$

How many apples are there altogether?

$3 + 3 + 3 = 9$

There are 10 sweets. Ring groups of 2.

There are \_\_\_\_\_ groups of 2.

Draw an equal number of apples for each basket.

There are five apples in each basket.

## Challenge

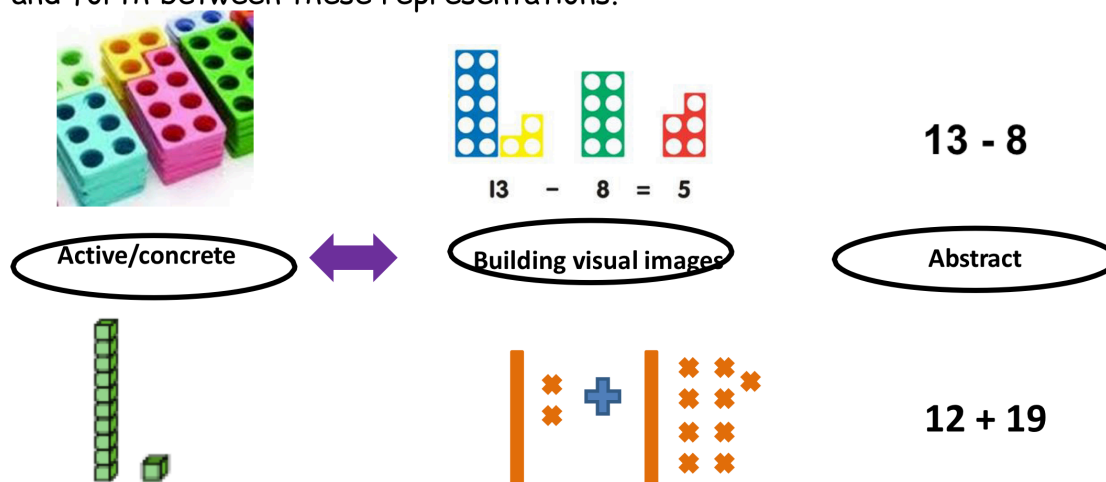
- Fractions, decimals, percentages

Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
$\frac{1}{2}$ and $\frac{1}{4}$	$\frac{1}{4}$ , $\frac{2}{4}$ , $\frac{3}{4}$ , $\frac{1}{3}$	Add and subtract fractions with the same denominator up to one whole  $\frac{1}{4} + \frac{1}{4} = \frac{1+1}{4} = \frac{2}{4}$	Add and subtract fractions with the same denominator where the answer may be an improper fraction  $\frac{4}{8} + \frac{5}{8} = \frac{9}{8}$	Add and subtract fractions where one denominator is a multiple of another  $\frac{1}{3} + \frac{1}{6} = \frac{2}{6} + \frac{1}{6} = \frac{2+1}{6} = \frac{3}{6}$	Add and subtract fractions with different denominators  Multiply simple pairs of proper fractions  Divide proper fractions by whole numbers  $\frac{1}{3} \div \frac{1}{4} = \frac{4}{3}$ $\frac{4}{12} \div \frac{3}{12} = \frac{4 \div 3}{12 \div 3} = \frac{4}{3}$
				Find 10% of a number  Find a multiple of 10% of a number  Find 5% of a number  Find 10% of £90 $90 = 100\%$ $9 = 10\%$ $18 = 20\%$	Find a multiple of 5% of a number  Find 1% of a number  Find 5% of £90 $90 = 100\%$ $9 = 10\%$ $4.5 = 5\%$

- Development of written methods e.g. long multiplication and long division.

# Concrete, Visual, Abstract

The principle of the CVA approach is that for children to have a true understanding of a mathematical concept there are three phases they need to master: concrete, pictorial and abstract. Reinforcement is achieved by going back and forth between these representations.



## Language & Reasoning

The 2014 National Curriculum is explicit in articulating the importance of children using the correct mathematical language as a central part of their learning.

The Talk Task is a crucial opportunity for children to perform tasks where recording is at a minimum with the focus instead being on the correct use of mathematical language.



**Write as many words meaning '+' symbol as possible in 15 seconds.**

Megan has made a 3-digit number with these cards.



What is the largest number you can make with these cards?  
Explain your answer.



# Problem solving

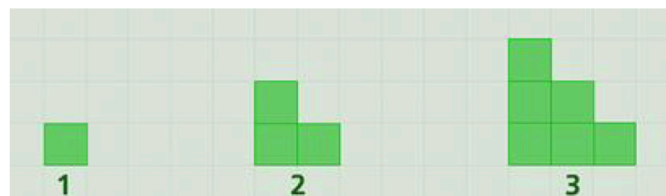


*Word problems:*

*There are 10 people on a bus. 4 people get on and 3 people get off. How many people are left on the bus?*

*Finding patterns:*

*How many squares would be shaped in the 6<sup>th</sup> shape in this sequence? How do you know?*

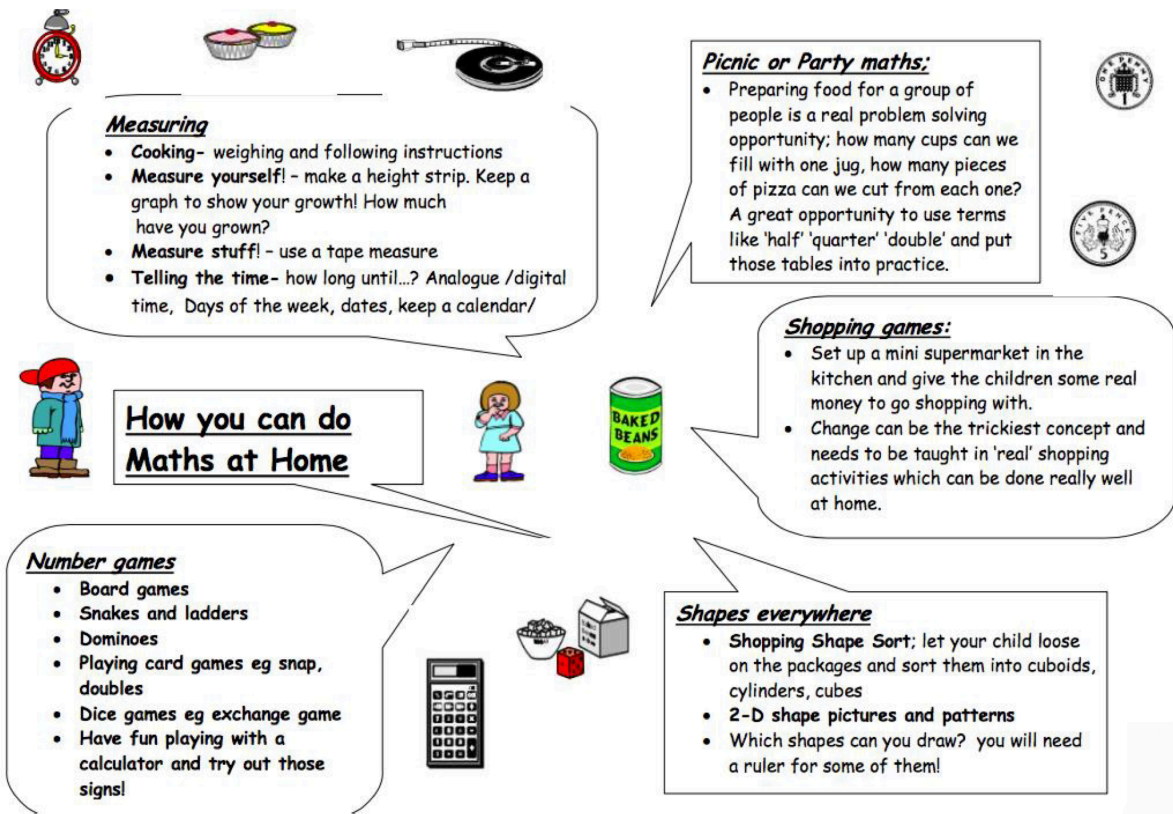


## Arithmetic

Mental arithmetic is an important life skill and regular practice is critical. Without fluency in mental maths to underpin their work in number, children will struggle with many other areas of mathematics. Children who are fluent with number will be able to use their mental arithmetic skills to find efficient strategies for completing calculations, recalling and applying number knowledge rapidly and accurately.

Year 1	Year 2	Year 3	Year 4
Number bonds within 10 and 20. Roll 2, 10 and 5 times tables	Recall the 2, 5 and 10 times tables	Recall the 2, 3, 4, 5, 8 and 10 times tables	Recall all times tables up to 12 x 12

# How you can support at home



## Props around the house

Ideas taken from **Maths for Mums and Dads** Eastaway, R. and Askew, M. (2010)

- **A prominent clock**- digital and analogue is even better. Place it somewhere where you can talk about the time each day.
- **A traditional wall calendar**-Calendars help with counting days, spotting number patterns and
- **Board games that involve dice or spinners**-helps with counting and the idea of chance
- **A pack of playing cards**- Card games can be adapted in many ways to learn about number bonds, chance, adding and subtracting
- **A calculator**- A basic calculator will help with maths homework when required, there are also many calculator games you can play, too.
- **Measuring Jug**-Your child will use them in school, but seeing them used in real life is invaluable. Also useful for discussing converting from metric to imperial
- **Dried beans, Macaroni or Smarties**- for counting and estimating
- **A tape measure and a ruler**- Let your child help when measuring up for furniture, curtains etc
- **A large bar of chocolate** (one divided into chunks)- a great motivator for fractions work
- **Fridge magnets with numbers on**- can be used for a little practice of written methods
- **Indoor/outdoor Thermometer**- especially useful in winter for teaching negative numbers when the temperature drops below freezing
- **Unusual dice**- not all dice have faces 1-6, hexagonal dice, coloured dice, dice from board games all make talking about chance a little more interesting
- **A dartboard with velcro darts**- Helps with doubling, trebling, adding and subtracting.

# Glossary

**Abstract** – Written down calculation




**Concrete** – Hands on, practical resources

**Digit** – A symbol used to make numerals 0-9

**Mathematics Mastery** - A tool to used to assist the teaching and learning from Reception to Year 4, on a rolling programme

**Partitioning** – Splitting a number into parts

**Place value** - The value of where the digit is in the number (see diagram)

Hundreds 	Tens 	Ones 

**Skip counting** - Counting forwards or backwards by a number other than 1

**Visual** – Mathematical concepts represented by pictures