Supporting your child learn Maths -

A guide for Reception and KS1 parents

Top tips for parents/carers:

Tip 1

Be positive about Maths. Try not to say things like "I can't do maths" or "I hated maths at school" – your child may start to think like that themselves.

Tip 2

Point out the maths in everyday life. Include your child in activities involving numbers and measuring, such as shopping, cooking and travelling.

Tip 3

Praise your child for effort rather than for being "clever". This shows them that by working hard they can always improve.

Marvellous Mistakes As part of our ethos we use the term "a marvellous mistake" to ensure that children are not worried about making mistakes or taking risks and to realise that making a mistake is how we learn and move on. Any mistakes are happily shared and unpicked by children and staff as we all recognise that this strengthens everyone's conceptual understanding.

At High Down we use a **'Teaching for Mastery'** approach. **What do we mean by 'mastery?'**

- We want all our children to acquire a **deep, long term, secure and adaptable understanding** of the subject
- At any one point in a child's journey through school, they have achieved 'mastery' if they have a **solid enough** understanding of the maths that has been taught so that they can **move on** to more advanced material
- Maths isn't a subject that anyone can 'master' in its entirety – we are all always learning

Fluency

We aim for all our children to become fluent in the fundamentals of mathematics.

- Essential number facts such as number bonds and times tables are practised regularly to enable children to become fluent.
- Knowing number facts enables the mind to think more deeply about mathematical concepts
- Not necessarily speed but automaticity to recall facts

Mastering Number

In Reception, Year 1 and Year 2 classes we use the Mastering Number resources to support children to develop good number sense. During these daily sessions we often use **Numberblocks** (as seen on CBeebies).

We also use **Rekenreks** (a counting frame) to encourage children to **subitise**, visualise number relationships and strengthen counting proficiency.

Key Mathematical Vocabulary

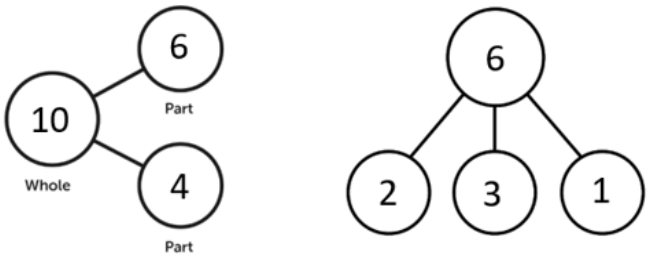
Subitising is when you are able to look at a small group of objects and realise how many there are without counting. A perfect example of subitising is dice; when you roll a dice and you see five dots on top, you instantly recognize it as representing a quantity of five. We say "**We use our eyes to subitise".**

Less or fewer? Fewer should be used for countable objects and concepts eg "Sam has 3 sweets and Ben has 5 sweets. Who has fewer?" **Less** should be used for something that is not countable eg "3 is less than 5".

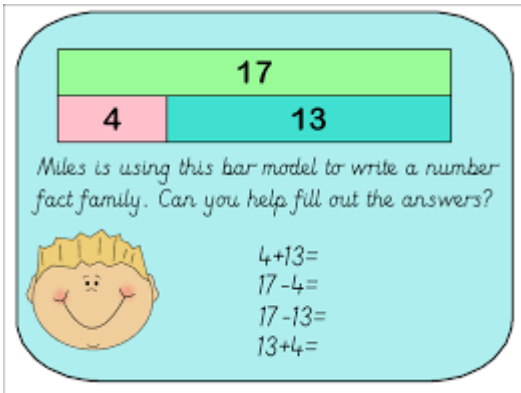
If we compare mashed potato you might say "I have less mash than you", but if we compare chips you might say "I have fewer chips than you". If we compare 2 glasses of water, we would say one glass has less than the other; however if we were comparing 2 pots of pencils, we would say one pot has fewer pencils than the other as these can be counted. **"Less work requires fewer people"**

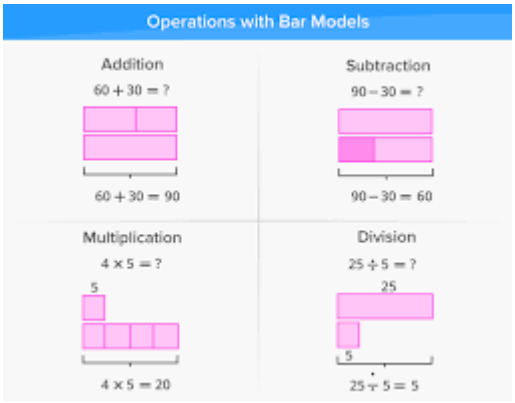
Number bonds and fact families Number bonds are the pairs of numbers that are added to make another number eg number bonds of 10. Teaching number bonds helps children build a strong sense of the relationships between different numbers. Encouraging children to memorise number bonds (eg to 10) can help solve addition and subtraction calulations quickly and confidently. A fact family is a collection of related addition and subtraction facts, or multiplication and division facts, made from the same numbers eg 7 + 8 = 15, 8 + 7 = 15, 15 – 8 = 7, 15 – 7 = 8

Part part whole models A part-whole model (sometimes called part-part-whole model), is a simple pictorial representation of a problem that helps learners see the relationships between numbers.



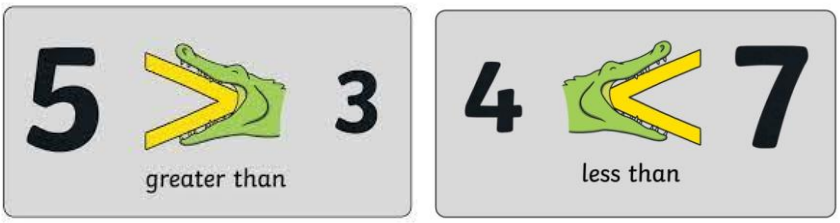
Bar Models Another representation that your child might mention is the bar model.A bar model is a pictorial representation of a problem or concept where bars or boxes are used to represent the known and unknown quantities. Bar models are most often used to solve number problems with the four operations – addition and subtraction, multiplication and division.



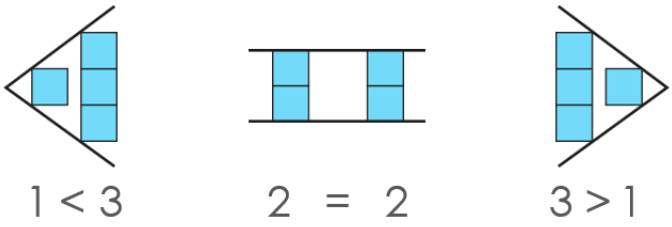


Finding the difference As a subtraction strategy we may ask the children to find the difference between 2 numbers. They might say 7 is made of straight lines and the 8 is made of curvy lines! It is important that children learn that when we say: "What is the difference between 1 and 6?" we mean: "How many numbers do you count up from 1 to get to 6?" Or "What is 6 subtract 1?"

Greater than and less than symbols The symbol used to represent **greater than** is "**>**" and **less than** is "**<**". If one value is larger than the other value, we use greater than. Similarly, if we want to represent one value that is less than the other value, we use less than. For example, 5 is greater than 3. Sometimes we use a crocodile's mouth to demonstrate:



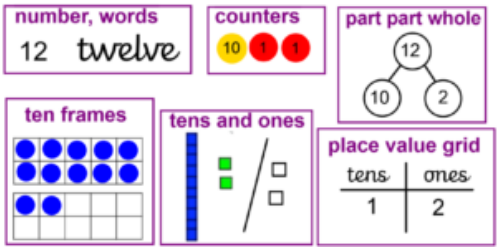
We also use representations like these to help children to understand these symbols:



Teaching Place Value – Tens and Ones

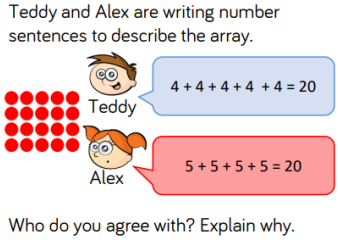
Place value is the value of each digit in a number. For example, the 5 in 51 represents 5 **tens**, or 50; however, the 5 in 25 represents 5 **ones**.*(Sometimes ones are called "units", but we say ones as the name "ones" is more in line with the names of the other place value columns e.g. hundreds, tens, etc. "Ones" is the terminology used in the national curriculum. The term "units" can be confusing as it is also used when discussing units of measurement e.g. cm, kg, ml.)* It is important that children understand that whilst a digit can be the same, its value depends on where it is in the number. We use lots of different representations and resources to demonstrate and teach place value.

Eg

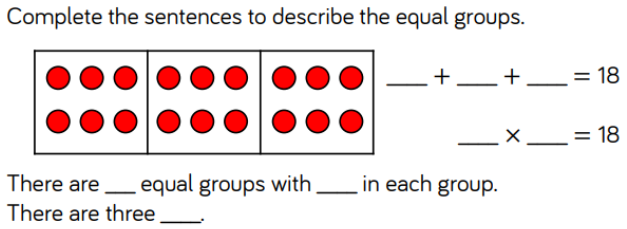


Teaching Multiplication and Division

We introduce the concepts of multiplication and division in Year 1 and then build on this introduction in Year 2. When teaching **multiplication**, we focus initially on counting in 2s, 5s and 10s. Then we look at making and adding equal groups, moving on to making arrays and making doubles.



In Year 2 multiplication sentences using the x symbol are introduced and children are taught to link repeated addition and multiplication together, using stem sentences to support their understanding. They are also taught to interpret mathematical stories and create their own involving multiplication. The use of concrete resources and pictorial representations is still vital for understanding. In Year 2 we focus on the 2, 5 and 10 times tables.



When teaching **division**, in Year 1 children start with a given total and make groups of an equal amount. They record their understanding in sentences, not through formal division at this stage. They also explore sharing as a model of division. They use 1:1 correspondence to share concrete objects into equal groups. In year 2 this is developed using concrete manipulatives in different contexts, moving on to pictorial representations. Children are introduced to the '÷' symbol and begin to see the link between division, multiplication and repeated addition.

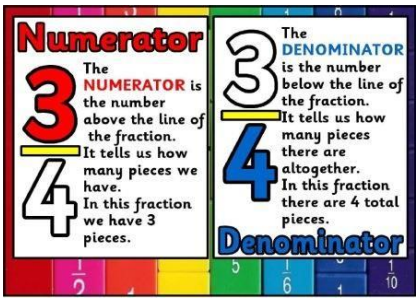
Teaching Fractions

In Year 1, children explore finding a half and a quarter for the first time using shapes and sets of objects. They will use the vocabulary **'half', "quarter" and 'whole'**. Children will not at this stage use the fractional notation of ½ or ¼.

There are ____ marbles.

Half of ____ is ____

It is important that they know that a half means 'one of two equal parts' and a quarter means 'one of four equal parts'. Then they use their understanding of finding half or quarter of an object or shape and apply this to finding half or quarter of a small quantity. It is important that children find the total amount and can then show how this number can be shared equally into two or four. The use of concrete manipulatives such as counters can help children to find a half or a quarter. Children will develop their understanding of equal parts and non-equal parts and relate this to a shape or object being split up into two or four equal parts. They also begin to describe capacity using the terminology 'a half/quarter full'. In Year 2 children will be introduced to the notation ½ and ¼. They will also be introduced to the language of **numerator**, **denominator** and what these represent.



Thirds are also introduced.

Rosie is organising her teddy bears.
She donates $\frac{1}{3}$ of them to charity.
How many bears does she have left?

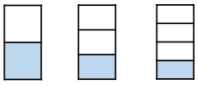
Children understand the concept of a unit fraction by recognising it as one equal part of a whole. They link this to their understanding of recognising and finding thirds, quarters and halves.

$\frac{1}{3}$ of 9 = ☐ $\frac{1}{3}$ of 15 = ☐

$\frac{1}{3}$ of 12 = ☐ $\frac{1}{3}$ of 18 = ☐

Children also need to understand that the denominator represents the number of parts that a shape or quantity is split into. Children are introduced to the non-unit fractions 2/3 and ¾ for the first time. Children see that the numerator and denominator are the same when the fraction is equivalent to one whole. Children explore the equivalence of two quarters and one half of the same whole and understand that they are the same.

What fraction is shaded in each diagram?



What do you notice? Complete the sentence.

The _____ the denominator the _____ the fraction.