Oxenhope Primary School

A Mathematics Guide for Parents

Intent

In maths we aim to provide a rich curriculum that progresses skills and knowledge. It allows pupils time to explore maths and reflect upon their learning. They can apply their knowledge to a variety of areas, taking their learning forward with them into the wider world. Our aim is to create fluent mathematicians that are resilient and creative in their approach to maths. Pupils will be able to persevere whilst completing more and more sophisticated maths problems.

In line with the National Curriculum and current best practice, the children are taught to become fluent in the fundamentals of mathematics (including calculation strategies); reason mathematically using mathematical language and apply their knowledge and understanding to problem solving tasks.

Implementation

At Oxenhope we have a bespoke, spiral curriculum, meaning we revisit and build upon core concepts several times throughout the year, enabling a deeper and broader understanding of mathematical themes. We give the children opportunity to apply their skills when problem solving and in a variety of contexts. We use White Rose Maths to support our learning , and using Stop Problem Solving ensures reasoning and problem solving is at the heart of all we do. Pupils will begin by developing their fluency within an activity before they are immersed in problem solving and reasoning that will help them to embed learning and to think creatively when applying maths to a wide range of contexts.
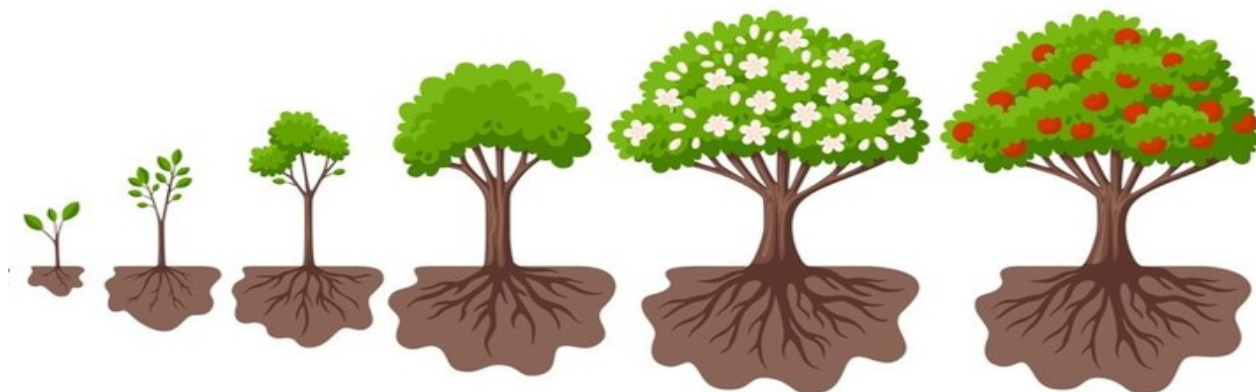
In Year 4, the children take their multiplications check and are supported in this by using TT Rockstars.

A typical math lesson at Oxenhope, begins with a maths warm up, where prior learning or quick recall activities take place. The teacher will then assess what the child knows, through questioning and activities, and will then pitch the lesson at their own level, ensuring each child is challenged and supported regardless of their starting point.

Feel free to check our calculations policy on the school website.

Maths Roots

Deepening and Broadening

Once a term, the children are expected to be able to answer their year group questions in 2 minutes. If they get them all correct, they will be expected to answer them in 1.5 minutes, and then 1 minute. The children are expected to improve their mental maths and be able to get the correct answers in a shorter amount of time.

End of Reception – Seeds You've planted the seed	
Say the numbers 1 to 20 accurately Say 1 more than any number between 0-20 Say one less than any number between 0-20 Know by heart number bonds to 3, 4 and 5	

End of Year 1 - Sprouts The seed is starting to sprout and produce green shoots		
One more or less than any number between 1 -100 Count in twos Count in tens Know by heart number bonds to ten	Count in fives Recall doubles of all numbers to at least ten Know by heart number bonds to twenty	

End of Year 2 - Seedling The tree is getting taller and developing more leaves		
Know by heart all number bonds to 6, 7, 8 and 9 Order any 2 numbers between 0 and 100 using <> Know by heart doubles of all numbers to twenty Know by heart all multiplication facts for 2 to 2 x 12 Know by heart all multiplication facts for 5 to 5 x 12 Know by heart all multiplication facts for 10 to 10 x 12 Add or subtract any single digit numbers	Know by heart all bonds of multiples of 10 to 100 Know by heart halves of all numbers to twenty Know by heart all division facts for 2 up to 24 Know by heart all division facts for 5 up to 60 Know by heart all division facts for 10 up to 120 Add or subtract any numbers up to 20.	

End of Year 3 – Saplings		
The tree is getting stronger and developing branches		
Know by heart all sums and differences of multiples of 10 up to 100 Know by heart all multiplication facts for 3 to 3 x 12 Know by heart all division facts for 3 up to 36 Know by heart all multiplication facts for 4 to 4 x 12 Know by heart all division facts for 4 up to 48	Know by heart all multiplication facts for 8 to 8 x 12 Know by heart all division facts for 8 up to 96 Add or subtract any single unit number to any 3 digit HTU number Add or subtract any multiple of 10 to any 3 digit HTU number Add or subtract any multiple of 100 to any 3 digit HTU number	

End of Year 4 – Mature		
The tree is established with many leaves		
Know by heart all multiplication facts for 6 to 6 x 12 Know by heart all division facts for 6 up to 72 Know by heart all multiplication facts for 9 to 9 x 12 Know by heart all division facts for 9 up to 108 Know by heart all multiplication facts for 7 to 7 x 12 Know by heart all division facts for 7 up to 84	Know by heart all multiplication facts for 11 to 11 x 12 Know by heart all division facts for 11 up to 132 Y4 Know by heart all multiplication facts for 12 to 12 x 12 Know by heart all division facts for 12 up to 144 Round a number to the nearest 10, 100, 1000 Know number bonds to 100	

End of Year 5 – Blossom		
The tree is flowering and thriving		
Double any 2 digit number Halve any 2 digit number Know the factors of all times table answers up to 12 x 12 Multiply or divide a number by 10, 100, 1000 including decimals	Know by heart the squares of numbers between 1 and 12 and squares of multiples of 10. Know number bonds to 100 for numbers with one decimal place Recall prime numbers up to 30 Multiply pairs of multiples of 10 and 100 eg. 30 x 70	

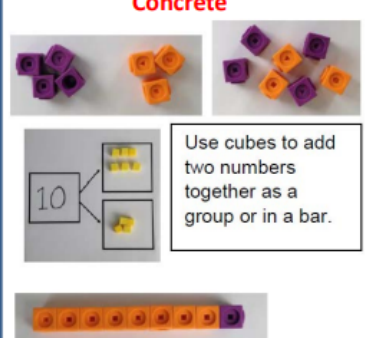| End of Year 6 – Flourish		
The tree is bearing fruit		
Double any number with up to 1 decimal place Half any number with up to 1 decimal place Find a unit fraction of a number Identify equivalence between fractions	Find non-unit fractions of a number Find a percentage of a number Convert between decimals fractions and percentages Convert improper fractions to mixed number	

We approach new mathematical concepts in the following way:

Concrete - providing children with objects and resources to manipulate in order to demonstrate their mathematical thinking.

Pictorial - providing opportunities for children to represent their mathematical thinking through diagrams, images, drawings or models.

Abstract – providing opportunities for children to become more familiar with formal mathematical representations including signs, symbols and digits.

Addition: Combining two parts to make a whole.

Concrete

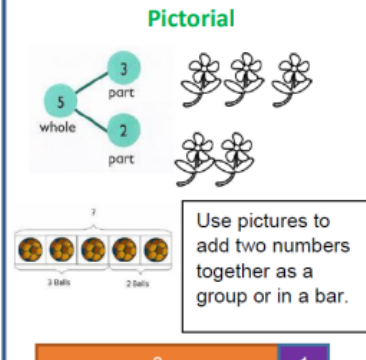Use cubes to add two numbers together as a group or in a bar.

Pictorial

5 whole
3 part
2 part

7

3 Balls   2 Balls

Use pictures to add two numbers together as a group or in a bar.
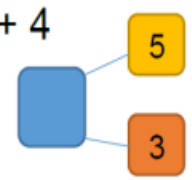
8   1

Abstract

$4 + 3 = 7$

$10 = 6 + 4$

5

3

Use the part-part whole diagram as shown above to move into the abstract.
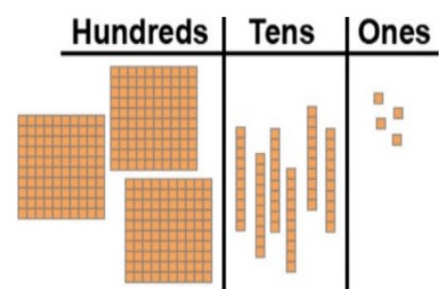
Impact

Pupils will leave Oxenhope prepared for the next stage in their lives with:

-Quick recall of facts and procedures

-The flexibility and fluidity to move between different contexts and representations of mathematics

-The ability to recognise relationships and make connections in mathematics

-Confidence and belief that they can achieve

-The knowledge that maths underpins most of our daily lives

-Skills and concepts that have been mastered.

A mathematical concept or skill has been leant when a child can show it in multiple ways, using the mathematical language to explain their ideas, and can independently apply concepts to new problems in unfamiliar situations.

These will be assessed through assessment, tracking, pupil progress meetings, performance management, moderation, and standardisation.

Hundreds	Tens	Ones

How can you help at home?

Encourage a growth mindset – all children can achieve in mathematics! There is no such thing as a 'Maths person', (the belief that some pupils can do maths and others cannot)). By doing this at home and at school, we will foster the following beliefs in your children:

- effort creates success.
- skill and ability can be increased over time.
- mistakes should be viewed as an opportunity to learn and develop.
- resilience – don't give up easily. Help your child learn times tables and key number bonds at home - having key facts at their fingertips frees up their working memory.

By the end of Year 4 they should know all of their tables to x12. If they can learn them quicker than that – all the better! ENCOURAGE your child to practise their multiplication tables or number bonds for 3 minutes a day. Make it FUN, use timers, songs and computer games.

Useful websites and multiplication games:
www.topmarks.co.uk

www.everyschool.co.uk - Learn Your Tables

Ideas For Key Stage 1 Parents

-Sing number rhymes together

-Give your child the opportunity to count a range of interesting objects (coins, pasta, shapes, buttons etc.). Encourage them to touch and move each object as they count.

-Count things you cannot touch or see (more difficult!!). Try lights on the ceiling, window panes, jumps, claps or oranges in a bag.

-Play games that involve counting (e.g. snakes and ladders, dice games, games that involve counting objects).

-Look for numerals in the environment. You can spot the numerals at home, in the street or when out shopping.

-Make mistakes when chanting, counting or ordering numbers. Can your child spot what you have done wrong?

-Choose a number of the week e.g. Practise counting to 5 and on from 5. Count out groups of 5 objects (5 dolls, 5 bricks, 5 pens). See how many places you can spot the numeral 5.

-Halve and doubling numbers, ordering random numbers, counting in 2s, 5s and 10s.

-Learning number bonds up to ten using your fingers. Give your child a number up to ten and ask your child to give you the different ways of making it e.g. 7 could be made by adding 6 + 1 or 5 + 2 etc..

-Throw two or more dice. Ask your child to find the total of the numbers (+) and the difference between (-). Can they do this in their heads?

-Use a set of playing cards. Turn over two (progressing to three or more) cards and ask your child to add or subtract them. If they answer correctly, they keep the cards. How many cards can they collect in two minutes?

-Play 'ping pong' to practise number bonds with your child. You say a number. They reply with how much more is needed to make 5, 10 and 20. Encourage your child to answer questions quickly, without counting or using their fingers.

-Plan an outing during the holidays. Ask your child to think about what time you will need to set off and how much money you will need to take.

Ideas for Key Stage 2 parents

Addition **Subtraction** **Money**	Work out the amount of weekly pocket money received in relation to the amount that needs to be saved to buy a particular item; work out the amount of change that will be given prior to paying for shopping. Use a takeaway menu for 2-step problems. (E.g. If we buy two chicken tikka masalas at £6.95 each and a pilau rice at £3.50, then how much change will we get from £20?)
Division and Multiplication	Explain how household bills are calculated (e.g. use a Council Tax bill to show how the annual amount is divided into monthly instalments). When shopping, work out the total cost of individually priced items (e.g. If we buy 7 bananas at 28p each, then how much will we pay altogether?)
Time	Use different types of clock to tell the time (analogue, digital and the 24-hour clock). Ask questions based around time (e.g. If we need to get to school by 8:30 and it takes us 40 minutes to get there, then what is the latest time we can set off? The football match kicks off at 7:45. If it's a 90-minute match with 15 minutes for half time, then what time should the match finish?) Familiarise children with days of the week, months of the year, number of days in a month, and year. Use a calendar to plan events (e.g. If your birthday is on 4th August and we need to book a party venue a fortnight before, when is the latest date we can book?) Use rail timetables to work out journey times using the 24 hour clock. (E.g. If we need to get to Leeds by 17:15 and it is a 25 minute journey then what is the latest train we can take from Keighley?)
Measurement Estimation	Weigh out fruit and vegetables and look at the amounts of liquids in bottles to become familiar with different units of measurement (e.g. grams, kilograms, millilitres and litres), convert between different units e.g. how many cartons containing 250 millilitres of orange juice are needed to provide 3 litres of orange juice? How many kilograms do 2 bags of 750 grams of flour weigh? Estimate the weight of a bag of fruit or vegetables prior to weighing them. Let your child help with the cooking at home. Help them to measure ingredients accurately using weighing scales or measuring jugs. Talk about what each division on the scale stands for. Practise measuring the lengths or heights of objects (interchange the use of cm and metres). Help your child to use different rulers and tape measures accurately. Encourage the children to estimate before measuring.
Percentages	When out shopping, look at the items and prices that have percentage reductions on them. What will be their discounted price if there is a 20% reduction? How much money has been taken off the original price? If an item costs £160 and it has been discounted by 20%, what was its original price?