Year 4 Maths at Gayhurst:
A Guide for Parents and Carers.

End of year objectives:

- **Count in steps of 6, 7 8 or 9 from any number, forward and backward.**

Count whenever you can, from taking stairs, to the number of black cars on the road, to leaves in the park. Additionally, ask your child to count on from different numbers without concrete things. Focus on counting across the 10s, 100s and 1000s. e.g. 69 to 70, 199 to 200, 3,999 to 4,000. Other times, start on any number and count in different multiples. Remember, to count **backwards** too, this may be trickier! Counting in multiples from any number should enable to children to quickly add on or subtract, and then see a pattern to follow. e.g. in 6s from 45: 45, 51, 57, 63, 69, 75, 81, 87 etc

- **Count up from 0 in steps of 25, 50, 100 and 1000. Find 100 or 1000 more or less than a given number.**

The ability to do this shows good place value knowledge and helps with the four operations when it comes to larger numbers. Play 'Give me 100 more than…' and write down a number of your choice. Vary this to 'Give me 25 less than…' If your child needs to draw Dienes or something to help at first, this is ok, but discourage column method for this.

- **Round any number to the nearest 1000, 100 or 10**
- **Compare and order numbers to 10,000**

When rounding, we teach children to find the multiples of what we are rounding to that come before and after the number. e.g. if rounding 1345 to the nearest 10, they have to be able to find 1340 and 1350, identify the mid-point between the two and then round up to 1350. Money gives a really useful and relevant context for rounding. When paying for items, ask your child to round it to a value "The total is £2.75, what is that to the nearest pound?" Writing a list of different numbers and asking your child to order them from the smallest to greatest value is also good. Using numbers with the same digits in different places. e.g. order the numbers 9,699; 6,996; 969; 699.

- **Count backwards in ones through zero to include negative numbers**

Telling the temperature is a good way to become familiar with negative numbers. Drawing a number line can also help to visualise them.

- **Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition where appropriate**

Try to ensure that children are adding/subtracting mentally wherever possible and then using columnar addition and subtraction to check. Watch out for columns being aligned and common mis-conceptions. e.g., children do not have a concrete understanding of 475 – 237 if they attempt to do 7 ones take away 5 ones instead of 'stopping and swapping'. They can draw the dienes to show a pictorial understanding alongside their column method if needed.

- **Estimate and use the inverse to check answers to a calculation**
- **Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.**

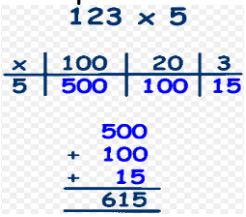
Problem solving is a huge part of maths as the children move up the school. They should be able to interpret and apply the strategies they have used to help with the four calculations to a range of problems. Checking their work with the use of the inverse is really useful. For word problems, try to give a real life context. "Last week I drove 16 miles a day for 5 days. The following week I drove twice as far. How many miles did I drive in total over the two weeks?"

- **Recall multiplication and division facts for multiplication tables up to 12 x 12.**
- **Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1, multiplying together three numbers.**

Multiplication tables and division facts are essential for a huge part of future maths learning and success. We have a subscription to Times Tables Rockstars which is great for this https://ttrockstars.com/home
Aside from the site, you can race your child, firing multiplication and division sentences at one another. Timestables grids are easy for children to set out on any bit of scrap paper, and they can be timed and try to reach a personal best in completing them. When they are first learning a timestables, the will need lots of practice counting in multiples of that number first, and then will need to be challenged to commit it to memory.

- **Multiply three- digit numbers by one-digit numbers using formal written layout. Starting with the grid method, expanded method before formal written.**

Support your child to split the three digit number in into hundreds, tens and ones. They can then use the grid method to times the hundreds tens and then the ones by the one digit multiplier.



- **Solve problems involving multiplying and dividing, including dividing with a remainder and word problems.**

Lots of practical experience of dividing with a remainder can really help to understand the concept. Things like "I have 7 biscuits to share between you and your brother. How many do you get each? How many are left over?" Then they will move on to dividing numbers outside of those that come up in their tables to 12 x 12, by using short division (you may know this as the 'bus stop method'.)

Fractions:

- **Recognise and show common equivalent fractions**
- **Count up and down in hundredths and tenths and understand these as dividing by one hundred and tenths as by ten**

- **Solve problems with increasingly harder fractions of quantities, including non-unit fractions e.g. numerator larger than 1 such as $\frac{3}{4}$ of 42**
- **Add and subtract fractions with the same denominator**
- **Recognise and write decimal equivalents to: 1/4, $\frac{1}{2}$, $\frac{3}{4}$ and for any number of tenths or hundredths**
- **find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths**
- **Round decimals with one decimal place to the nearest whole number**
- **Solve simple measure problems involving fractions and decimals to two decimal places**

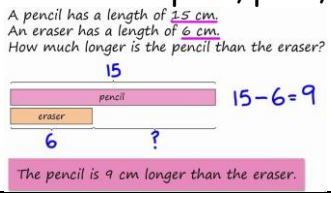
Children can find fractions challenging, and lots of practical experience really helps. They can be supported to know that the bottom number (denominator) is what they divide the amount/shape/ length by and they can do this by dividing by that amount using their inverse of multiplication knowledge. The top number (numerator) shows how many of those parts they need.
Suggest things like "Find 2/6 of these grapes" by dividing them by 6. Ask how many grapes they get when they do 1/6 + 3/6 of them. Have 20 smarties. What would 2/10 of these be? Can they think of an equivalent fraction for this – such as 1/5.

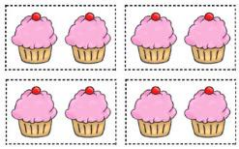
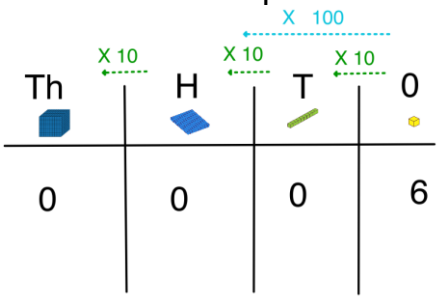
Measurement:

- **Convert between different units of measure [for example, kilometre to metre; hour to minute]**
- **Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres**
- **Find the area of rectilinear shapes by counting squares**
- **Estimate, compare and calculate different measures, including money in pounds and pence**
- **Read, write and convert time between analogue and digital 12 and 24 hour clocks**
- **Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.**
- **Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes**
- **Identify acute and obtuse angles and compare and order angles up to two right angles by size**
- **Identify lines of symmetry in 2-D shapes presented in different orientations**
- **Complete a simple symmetric figure with respect to a specific line of symmetry**.

For time telling, using both analogue and digital clocks regularly at home and about is key, as well as calendars and discussing birthdays, special events and time to them in months/weeks etc. Lots of the terminology around shape is easy to forget once we're adults and out of the school system, so don't be put off but instead give your child the opportunity to explain to you things like "What type of shape is that? Does it have any parallel lines? Does it have any obtuse angles?" (Google is a great help here!)

Glossary of key terms:

Array	A pictorial representation of a multiplication sentence, set out in rows and columns:  2 x 4 4 +4 4 x 2 2 + 2 + 2 + 2
Aggregation	The adding together of two or more quantities. You might say "How many are there altogether/in total?"
Augmentation	Where one quantity is increased by another. "Hannah had 16 sweets, then she was given 4 more".
Bar models	Pictorial representation of a number sentence or word problem, allowing a visual representation to help select the correct operation needed. It shows a part, part, whole relationship. 
Commutative law	Maths that can be calculated in any order and gives the same answer. E.g. 3 x 5 = 5 x 3.
Concrete Pictorial Abstract	Concrete: things children can touch and manipulate, often used to represent numbers. Pictorial: things children can draw or pictures they can use to help with number. Abstract: using numbers/symbols to represent the calculation.
Denominator	The bottom part of the fraction shows how many equal parts to split into. $\frac{3}{5}$ ← numerator ← denominator
Dienes	Concrete apparatus to show place value, and to help with addition and subtraction.
Dividend	The quantity that you want to divide. In 15 ÷ 5, 15 is the dividend.
Divisor	What you divide a number by. In 15 ÷ 5, 5 is the divisor.
Equivalent fractions	Fractions that look different but show exactly the same amount. $\frac{1}{2} = \frac{2}{4}$
Expanded notation	Numbers written as a sum of their 1's, 10's, 100's, 1000's. 1532 = 1000 + 500 + 30 + 2

Fact families	Like a number bond, but with the subtraction facts too. Using the same numbers as part of that 'family'. One fact family for 6: 1 + 5 = 6 6 – 5 = 1 5 + 1 = 6 6 – 1 = 5
Inverse	The opposite operation. It can be used to check if you are right, or complete a missing number problem. E.g.: 4 + 5 = 9 helps with 9 – 4 =__ 8 x 7 = 56 helps with 56 ÷ 7
Multiplicand Multiplier	The number to be multiplied. E.g. 2 x 4 , the multiplicand is 2:  The multiplier is what you times it by. E.g. 2 x 4, the multiplier is 4.
Product	The result of multiplying. The product of 2 and 4 is 8.
Place value	The value of each digit depends on its position in a number. The 6 in 645 represents six hundred, whereas it represents 6 ones in 776.
Place value mat	A3 sheet showing columns to represent the value of each digit in a number. Often used with cubes, straws Dienes or place value counters. 
Number bonds	Pairs of numbers that add together to make another number, with the expectation that we learn these by heart from instant recall. E.g. number bonds to 5: 1 + 4 3 + 2 2 + 3 4 + 1 0 + 5 5 + 0
Numerator	The top part of the fraction shows how many of the parts we have. $\frac{3}{5}$ ← numerator ← denominator

Partition	To break a number down into smaller numbers. Often we partition into tens and ones.
Quotient	The answer when dividing,. E.g.: in 12 ÷ 3 = 4, 4 is the quotient.
Regrouping	This may have been referred to as borrowing or grouping previously. For example, when we take a number of tens and move them into the ones so we can subtract for column method. E.g. for 57 – 39.
Repeated addition	The same number added a number of times. 3 x 4 = 4 + 4 + 4
Sum	Only to be used when referring to adding numbers. 28 – 13 = is referred to as a **calculation/number sentence.**