

Maths in Year 4



Studlands Rise First School
First Steps on the Learning Journey



How to Help at Home

Working mathematically

By the end of year 4, children will apply their understanding of maths to solve a wide variety of problems with more than one step and be expected to prove their thinking through pictures, jottings and conversations. They will continue to make connections between different areas of maths and ask their own questions, working in an organised way to find solutions which help them identify common patterns or any errors more easily.

Number

Counting and understanding numbers

Children will be very familiar with numbers that have up to 4 digits and will be able to order and compare by showing them in different ways such as on a tape measure or using hands-on resources. Using their understanding of place value (how the value of each digit changes depending on its position in the number), children will be able to partition (break and make) numbers in different ways e.g. $2345 = 2000$ and 300 and 40 and 5 but could also represent this as 1000 and 1000 and 200 and 100 and 40 and 5 or 2000 and 200 and 145 . They will work with numbers securely up to $10,000$ and may begin to count beyond in $1s$, $10s$, $100s$ and $1000s$. They will use this to help them find 10 , 100 or 1000 more or less than any given number. They will multiply and divide whole numbers by 10 and 100 and understand that this changes the value of each digit rather than 'just adding a 0'. They will develop their understanding to decimal hundredths, comparing and ordering these using contexts such as money. Children will also learn about the pattern to find any Roman numeral to 100 .

Children will develop their expertise when counting forwards and backwards from 0 to include multiples of 6 , 7 , 9 and 25 ; decimals with up to 2 places and fractions. They will be able to fluently count in tenths, hundredths and simple fractions. They will develop their understanding of negative numbers through counting backwards through 0 . Children will be able to recognise and describe number patterns and relationships including multiples (e.g. 3 , 6 , 9 , 12 are multiples of 3) and factor pairs (e.g. 1 and 12 , 2 and 6 , 3 and 4 are all factor pairs for 12) for known times tables.

Calculating

Children will develop various strategies for solving $+$, $-$, \times , \div calculations mentally, using jottings when appropriate and for checking that their answers are sensible. Children will be encouraged to share their methods with others to help them see which work best, are quickest and most accurate. Over the course of the year, children will become fluent in all multiplication and division facts up to 12×12 and apply these facts to other problems e.g. $232 \times 7 = (200 \times 7) + (30 \times 7) + (2 \times 7)$. Children will use the $=$ sign to demonstrate equal value e.g. $3 \times 8 = 48 \div 2$ and solve missing number problems e.g. $3 \times ? = 48 \div 2$. They will explore patterns and rules for the times tables they learn and use pictures and objects to support their understanding.

Children will be required to solve problems accurately using the column addition and subtraction methods for numbers with up to 4-digits and explain how the methods work. They will use apparatus to secure their understanding of these. This will include addition and subtraction calculations with different numbers of digits (such as $1286 + 357$); and numbers containing $0s$ (such as $8009 - 3231$). They will use formal written methods of short multiplication and short division for two and three digit numbers by a single digit. Children who become very adept at these types of calculations will be stretched through problems such as those containing missing numbers so that they know when, if and why they need to use the methods.

• Fractions including decimals

Children will develop their understanding of fractions by comparing to, or finding a part of, the whole. Through hands-on resources, pictures or jottings, such as a number line, children will add and subtract two fractions with the same denominator (e.g. $\frac{2}{3} + \frac{2}{3}$). Children will solve problems involving fractions such as 'find $\frac{3}{4}$ of 20 litres' using their knowledge of multiplication and division and through practical equipment. Children secure their understanding that fractions and decimals are different ways of expressing numbers and proportions.

Measurement

Children secure their understanding of place value and decimals to record measurements accurately. They use their understanding of multiplying and dividing by 10, 100 and 1000 to convert between different units of measure of length (km, m, cm, mm), weight (kg, g) and money (£ and p). Children will link their understanding of area to multiplication and describe how to find the perimeter of a rectangle quickly. Children will read and write the time accurately using analogue and digital clocks, including clocks with Roman numerals. They will convert between units of time (hours, minutes and seconds). Children estimate, compare, calculate and solve a variety of problems involving all units of measurement.

Geometry

Children will extend their knowledge of shape to include more unusual quadrilaterals (four-sided shapes) and triangles. They will use increasingly more specific vocabulary such as parallelogram, rhombus and trapezium; scalene and isosceles. They refine their understanding of symmetry and solve problems where the shape is not displayed in its usual way (e.g. it might be on its side). Children find and name different angles and use this information to decide if a shape is regular or irregular. Children describe position and movement on a grid as co-ordinates and will plot points to draw 2-D shapes.

Statistics

Children will complete, read and interpret information on bar charts; they will solve problems that involve finding information in charts, tables and graphs; including time graphs.

Fun Activities to do at Home

Counting and Understanding Number

- Support your child to learn their 6, 7 and 9 times tables. See if you can make up some fun rhymes to support this.
- Roll a dice 4 times to create a 4-digit number. Can your child tell you the value of each digit in the number? What number would be 10 times larger/smaller? How does this change the place value of each of the digits? What would 10/100/1000 more/less than this number be? How do they know?
- Weather reports, especially in winter, are a good place to see negative numbers. Look at the temperature over a series of days. Can your child put the temperatures into order from the coldest to the warmest? How did they decide which order to put the temperatures in?
- Roll 2 dice to make a 2-digit number. Can your child tell you all the factors (pairs of numbers that can be multiplied to make the given total) of that number? Can they identify prime numbers (which only have 1 and themselves as factors)?

Calculating

- Roll a dice 6 times and make a note of the digits. Get your child to do the same. Combining these digits in any way to make 2-digit, 3-digit or 4 digit numbers and using any of the 4 operations, who can make the largest number. The person who makes the largest number wins a point, first to 10 points wins the game, e.g. with the digits 1, 3, 4, 4, 5, 6 you could make $643 \times 541 = 347\,863$. Discuss strategies that your child is using to solve the problems.
- Roll a dice 3 times to create a 3-digit number. Roll again to give a 1-digit number. Ask your child to multiply the 3-digit number by the 1-digit number. Discuss the methods they use with them. Turn this into a game – who can solve the problem quickest, you or your child? The quickest person wins a point, first to 10 points wins the game.

Fractions including decimals

- Look through newspapers and magazines for different examples of using fractions, decimals and percentages. Cut these out. Can your child make these into a number line, writing equivalent fractions/decimals/percentages to support them, e.g.

0.1	0.25	0.5	0.75	1
$\frac{1}{10}$, 10/100	$\frac{1}{4}$, 4/10, 25/100	$\frac{1}{2}$, 5/10, 50/100	$\frac{3}{4}$, 75/100	100/100
10%	25%	50%	75%	100%
- Roll a dice 4 times to make 2 fractions, eg $\frac{1}{4}$ and $\frac{3}{5}$. Can your child make them into equivalent fractions with the same denominator? ($\frac{5}{20}$ and $\frac{12}{20}$) Can they then add the fractions together? ($\frac{17}{20}$)

Measurement

- Ask your child to convert a recipe written in grams to writing it in kilograms.
- Ask your child to convert distances written in metres to centimetres.
- Using their multiplication and measurement skills, ask your child to find the area of each room in your house. Which room is the largest/smallest? What is the difference in area between the largest and smallest room?

Geometry

- Identify shapes around the house and when you are out and about. Encourage your child to be specific about the shape, eg instead of just identifying that it is a triangle, they should tell you what sort of triangle it is – equilateral (all sides same length and all angles 60°), scalene (all sides different lengths, all angles different sizes) or isosceles (2 sides same length and 2 angles equal).

Statistics

- Graphs of rainfall and temperature over time are useful for your child to interpret. The Met Office website www.metoffice.gov.uk has a number of graphs that are useful for this- you just need to type into the search box that you are looking for average UK rainfall/sunshine, etc and you will be directed to the right page. You can then ask your child questions about the graph such as what month had the most/least rain? What was the pattern of rainfall over time? What was the difference in rainfall between ... and ...?