Year 4 Maths Curriculum

Home Learning Toolkit for 8 & 9 Year Olds

What the Year 4 Maths curriculum says:

The principal focus of mathematics teaching in lower key stage 2 (Year 3 and Year 4) is to ensure that pupils become increasingly fluent with whole numbers and the four operations, including number facts and the concept of place value.

This should ensure that pupils develop efficient written and mental methods and perform calculations accurately with increasingly large whole numbers.

At this stage, pupils should develop their ability to solve a range of number problems, including with simple fractions and decimal place value. Teaching should also ensure that pupils draw with increasing accuracy and develop mathematical reasoning so they can analyse shapes and their properties, and confidently describe the relationships between them. It should ensure that they can use measuring instruments with accuracy and make connections between measure and number.

Times tables are also a big focus and by the end of year 4, pupils should have memorised their multiplication tables up to and including the 12 multiplication table and show precision and fluency in their work.

Pupils should read and spell mathematical vocabulary correctly and confidently, using their growing word reading knowledge and their knowledge of spelling.

Topics From the Year 4 Maths Programme of study

The year 4 maths curriculum covers 7 main topics or strands that stay broadly the same throughout pupils years learning maths at school. As they move towards Year 5 and Year 6 they will also start to learn about decimals and percentages, but fractions never leaves them!

- Number & place value
- Addition & subtraction
- Multiplication & division
- Fractions
- Measurement
- Geometry
- Statistics

The change in maths for 8-year-olds moving from Year 3 to Year 4

With Year 3 and the gradual transition into Key Stage 2 maths that comes with it now complete, your child may find that maths is probably becoming more of a challenge.
You may start to notice frustration with some of the harder topics (even if your child has been a maths whizz so far).

But don't panic! This is a common occurrence amongst 8-year-old children, especially when it comes to maths.

One of the most important things you can do as a parent at this point in your child's mathematical development is to keep their enthusiasm going, especially in the face of any mind boggling maths problems that may be making an appearance.

Number and Place Value in Year 4 Maths

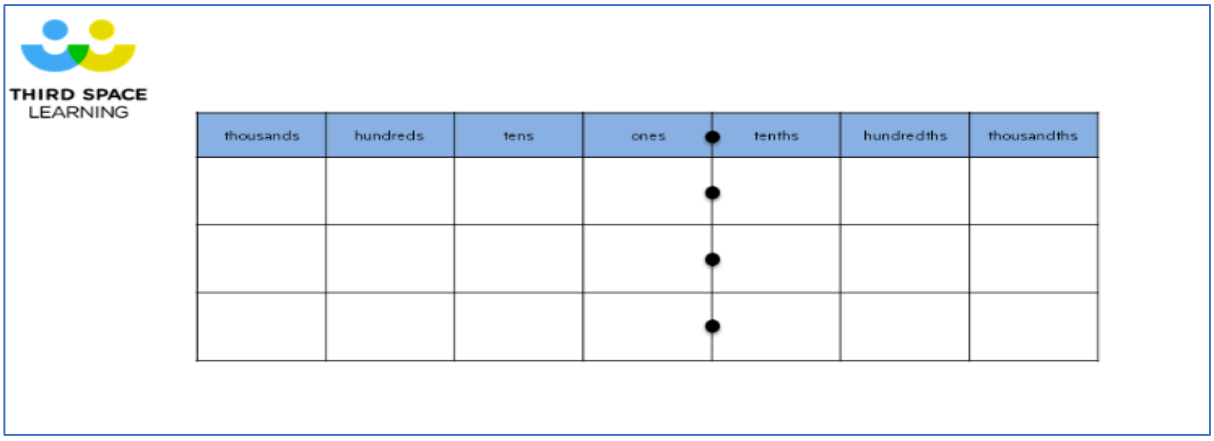
The national curriculum says that children will learn to:

- count in multiples of 6, 7, 9, 25 and 1000
- find 1000 more or less than a given number
- count backwards through zero to include negative numbers
- recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones)
- order and compare numbers beyond 1000
- identify, represent and estimate numbers using different representations
- round any number to the nearest 10, 100 or 1000
- solve number and practical problems that involve all of the above and with increasingly large positive numbers
- read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.

Helping At Home With Year 4 Number and Place Value

Understanding the concept of place value underpins all maths learning really in primary and is something we recommend you help your child to be rock solid in.
What this means is knowing what the value of each digit in a number is and that by moving a digit one place to the left its value becomes 10 times larger. The same clearly applies by moving a digit to the right.

Make sure when you're practising place value with your child you always have a place value chart to hand as in the image below. It looks simple but it just helps to bring children back to the facts rather than panicking!



One of the best resources for this is this free downloadable place value grid which takes no time at all to make and then you can physically manipulate the numbers to show their place value.

For a bit more fun, you could also try these place value games or take a look at this list of our favourite KS2 maths games.

Year 4 Number and Place Value Activity

Don't be afraid to push past the millions either.

They are too tough to use in sums, but many children reach the end of primary school with very little knowledge of what happens after the millions and billions.

Why not try looking up the biggest numbers you can find and counting how many zeroes they have?

Taking away the mystery from what lies beyond the millions makes three- and four-digit numbers look easy in comparison.

Besides, who doesn't want to know what a googolplex is? Maths for your 8 or 9 year old can be interesting for you as well!

Addition and Subtraction in Year 4 Maths

The national curriculum says that children will learn to:

- add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate
- estimate and use inverse operations to check answers to a calculation
- solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.

Helping at Home With Year 4 Addition and Subtraction

At this age, your child will notice that numbers seem to just get bigger and bigger so you need to make sure they are comfortable in dealing with them.

Involving them in major purchasing decisions is a great way to get started. While you'll always have the final say, showing your child that big numbers have a use in everyday life will help to make maths more concrete and in turn, easier to grasp.

Just make sure they add up everything on your shopping list – be it real or imaginary.

Year 4 Addition and Subtraction Activity

Questions you can ask to stimulate further Year 4 maths addition include:

- How much would it cost to buy all the things on their list?
- How could they make the money?
- How many hours would it take to earn the total?

This is a fun but effective approach to switch your child onto the real-life applications of maths (as well as some of the problem-solving skills that entrepreneurs need).

You might end up becoming the silent partner in your child's new dog-walking business, but hey, it'll be worth it for the incredible progress in maths!

Multiplication and Division in Year 4 Maths

The national curriculum says that children will learn to:

- recall multiplication facts and division facts for multiplication tables up to 12 × 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
- recognise and use factor pairs and commutativity in mental calculations
- multiply two-digit and three-digit numbers by a one-digit number using formal written layout
- solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.

Helping at Home with Year 4 Multiplication and Division

You would be forgiven for thinking that teachers in lower KS2 seem to have an obsession with times tables. Year 3 and Year 4 have always been the 'times tables years' but the introduction of the new multiplication tables check has focused the minds of all teachers and school leaders as suddenly there is a degree of accountability on children's knowledge (even if it's not reported outside the school).

We've put together a parents FAQ on the times tables check here if it's useful.

The truth is, that helping your child to learn times tables is never a waste of time. By the end of Year 4, if your child has a secure knowledge of all 12 times tables they will be much better equipped to learn all the cognitively more challenging multiplication and division skills of upper Key Stage 2 not to mention fractions, ratio and proportion.

If you're looking for ideas on how to start, I recommend you take a look at this article on how to use a times tables grid, our guide to the long division method, and this fab selection of times tables games which give lots of practice opportunities.

To gauge where they are right now and what their gaps are, there are 5 times tables tests for Year 4 in this free times tables preview pack of our Ultimate Times Tables Resource Pack.

Fractions in Year 4 Maths

The national curriculum says that children will learn to:

- recognise and show, using diagrams, families of common equivalent fractions
- count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.
- solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number
- add and subtract fractions with the same denominator
- recognise and write decimal equivalents of any number of tenths or hundredths
- recognise and write decimal equivalents to 4 1 , 2 1 , 4 3
- 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
- compare numbers with the same number of decimal places up to two decimal places
- solve simple measure and money problems involving fractions and decimals to two decimal places.

Helping at Home With Year 4 Fractions

Dreaded fractions! If there's one word that seems to send primary school students (and parents) running for the hills, it's *fractions*.

But you will be pleased to hear that they don't have to be scary. They simply look a little different to the kind of maths that your child has learned so far in their school career.

Get the fractions vocabulary right first

First and foremost, it's a good idea to revise key vocabulary on this topic, as once that is secured it's one obstacle that is then out of the way, and you will be able to move onto the more challenging stuff!
Here are some key pieces of fraction terminology to get you started:

Numerator	The number at the top of a fraction
Denominator	The number at the bottom of the fraction
Proper fraction	A fraction that is smaller than 1 (like 1/2)
Improper fraction	A fraction that is bigger than 1 (like 3/2)
Mixed number	A number that has a whole number and a fraction (like 1 1/2)

This vocabulary should make it much easier for your child to access fractions.

At this age, the Year 4 maths curriculum requirements focus on ordering fractions, which is simple once you know your way around a basic fraction.

Year 4 Fractions Activity

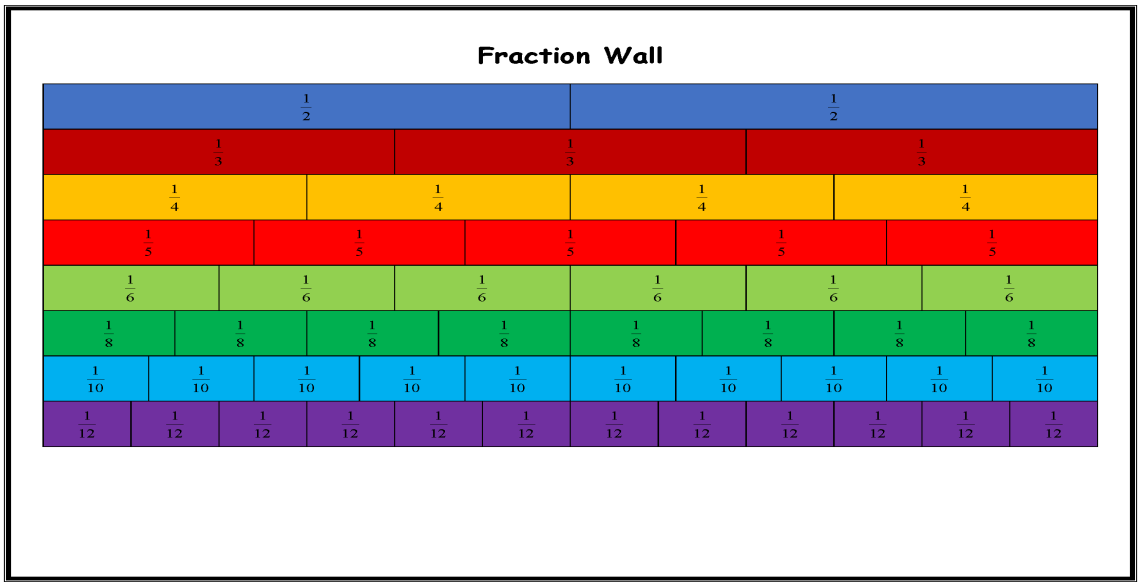
Here's an easy activity to make sure your child's relationship with fractions gets off on the right foot:

- **Step 1**: Grab a length of string and hang it up somewhere around your home to form a washing line.
- **Step 2**: On pieces of paper or card, write down a series of fractions beginning at 1/10 and ending at 10/10
- **Step 3**: Ask your child to peg them on the washing line in order. If they get stuck , you can remind them that it really is as simple as looking at the numerator when the denominator is the same.

Visualising each of the fractions in order will help your child to remember how to do this in the future, even when a washing line isn't available!

Year 4 Fractions Challenges

Active learning, even when it only involves a small amount of physical activity is one of the best ways to make sure your child enjoys the maths they are doing.
An active way to help them get to grips with equivalent fractions is by creating and exploring a fraction wall!



Don't worry, creating a fractions wall doesn't mean you'll need to do some interior design. It just consists of a colourful diagram which is an easy way to understand how different fractions can have the same value.
It's a simple but effective visual representation – helpful when it comes to breaking down maths for 8-year-olds!

Step 1: Start out by looking at the fraction wall together and seeing how many quarters fit into one half.
Step 2: Challenge your child a little more by moving on to see how many eighths fit into one quarter, then one half.
Step 3: Once your child is feeling more confident, you could cover up parts of the fraction wall and ask them to use the surrounding fractions to work out what's covered up.
Read more: Fractions for Kids and Parents: Everything you ever wanted to know
Measurement in Year 4 Maths

The national curriculum says that children will learn to:

- 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 Mathematics – key stages 1 and 2 28 Statutory requirements
- 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.

Helping at Home with Year 4 Measurement

One simple thing you can do at home is to see how much your child understands about measurements and units of measurement.

To do this, investigate the length, height, weight or capacity of items that you find around the house as appropriate.

Start by checking they know what unit to be using for this kind of measurement. Then they can estimate what they think the capacity or length is going to be.

When dealing with volume the easiest way find out the answer is to fill the item with water from a measuring jug.

Accuracy in measurement can take time to develop, so encourage your child to get it right first time, and if not, to check again until they do. Developing accuracy and the ability to evaluate your won work is a maths skill that becomes increasingly valuable in primary school maths as the word problems get harder too.

Year 4 Measurement Activity

First give your child some practice measuring and calculating the volume of cuboid shapes (*length x width x height*).
Next look up the dimensions of the local swimming pool and work out how much water is needed to fill it.

Or better still – design your own!

Geometry in Year 4 Maths: Properties of Shapes & Position and Direction

The national curriculum says that children will learn to:

- 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.
- describe positions on a 2-D grid as coordinates in the first quadrant
- describe movements between positions as translations of a given unit to the left/right and up/down
- plot specified points and draw sides to complete a given polygon.

Helping at Home With Year 4 Geometry

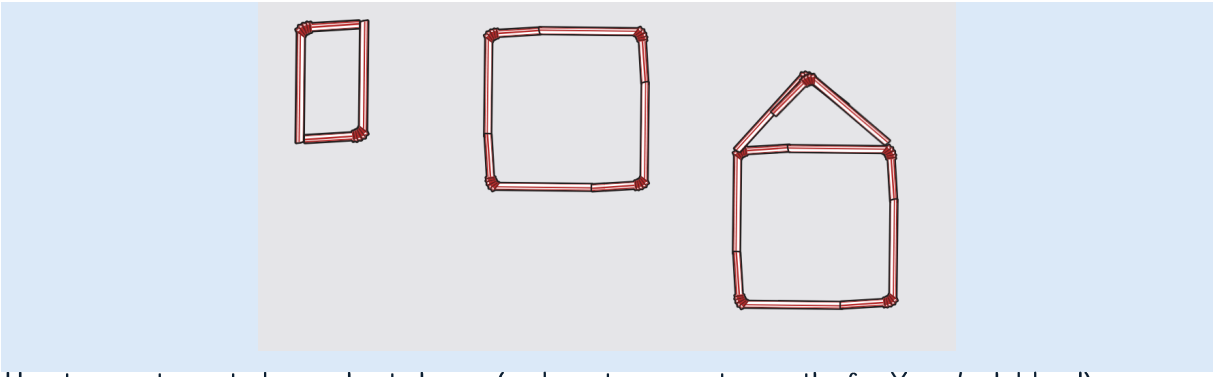
Believe it or not, shapes can present a very exciting opportunity for your child to explore a whole new world of engineering and design..

If you have a child that loves to build, by channelling this in the right way you can introduce both 2D and 3D shapes to them and you'll be amazed at how quickly they become engaged with maths!

Year 4 Geometry activity

If you have a box of single-use plastic straws in the house, why not get more out of them by using them for a fun maths construction task for your child?

With something as simple as a box of straws you can create a task that will not only engage your child, but help them to learn more about the properties of shapes.



How to use straws to learn about shapes (and master geometric maths for Year 4 children!)

Step 1: Locate a box of plastic straws from the back of the cupboard, and some sticky tack to help with the building process.

Step 2: Give this 'equipment' to your child, and tell them that they need to make a certain shape. You can begin with simpler 2D shapes such as squares and circles and then move onto more complicated 3D shapes like cubes once they have grasped the concept.

Step 3: Add a timer into the equation to further incentivise focus from your child. If they know that they only have two minutes to create a cube, they will definitely give it their full attention!

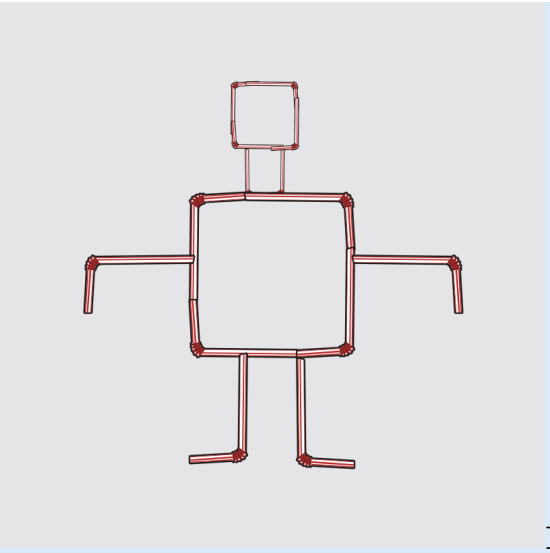
Year 4 2D Shapes and 3D Shapes Challenge

If you find that you have a young architect on your hands, raise the bar in the creative stakes and challenge your child to create something that requires different 2D & 3D shapes to be combined.
This is a fantastic opportunity for you to bring your child's interests into the maths you are doing with them at home, without them even realising it.

We never said maths for 8-year-olds couldn't be fun!

Ideas of things you could ask your child to make include:

- A robot – which child wouldn't want a straw robot sitting proudly in their bedroom?
- A football pitch
- A dog/cat (albeit one that may look a little stiff)
- A house
- A self-portrait!



It looks a little like a robot right?!

No matter what they decide to make, the key here is to talk about the shapes as you use them, rather than just drilling your child on the names and properties.

An open discussion will lead to more questions which you can then talk through with your child – a crucial exercise when it comes to maths for 8-year-olds – and as we know here at Third Space Learning, one-to-one is always the best way to learn!

Statistics in Year 4 Maths

The national curriculum says that children will learn to:

- interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.
- solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.

Helping at home with Year 4 Statistics

Data analysis might seem like a lofty prospect to an 8-year-old, but this is a great time to introduce your child to the various ways data can be presented.

Many school projects focus on collecting data in class rather than reading it, so at home you can support your child's learning by getting into what the graphs actually mean.

How to get your child engaged with data collection

Concrete examples of what the data represents make graphs much clearer, so dig into issues that your child really cares about.

Year 4 Statistics Activities: Bar charts, line graphs and pictograms

Does your little one love dolphins? Research how many there are in each ocean and plot them on a bar chart.

Are they scientists at heart? Grow a plant and plot its height on a line graph.

Got a football fanatic in the family? Work out how many goals were scored last season by each team in the Premier League and create a pictogram using team colours.

Year 4 Maths Vocabulary

Finally don't forget that even something as simple as revising key maths vocabulary can help your child to understand what will be coming up throughout the school year.

Here's a list of some of the essential maths terminology your child should know by the end of year four.

- Tenths and hundredths
- Decimal places
- Round to nearest thousand
- Negative integers
- Roman numerals (I to C)
- Inverse
- Derive
- Convert
- Coordinates, translation, quadrant, x-axis, y-axis
- Perimeter and area
- Right angle, acute and obtuse angles
- Equivalent decimals and fractions
- Continuous data
- Line graph

By practising what these words mean, even if it is just for five minutes per day, your child's life will be much easier than if they were to try to cram in all of the words last minute.
Working together to tackle tenths, rummage through rounding and exploring equivalent fractions means that the definition of each word will be much more likely to stick in your child's long-term memory, and this will stand them in good stead come the rest of the year.