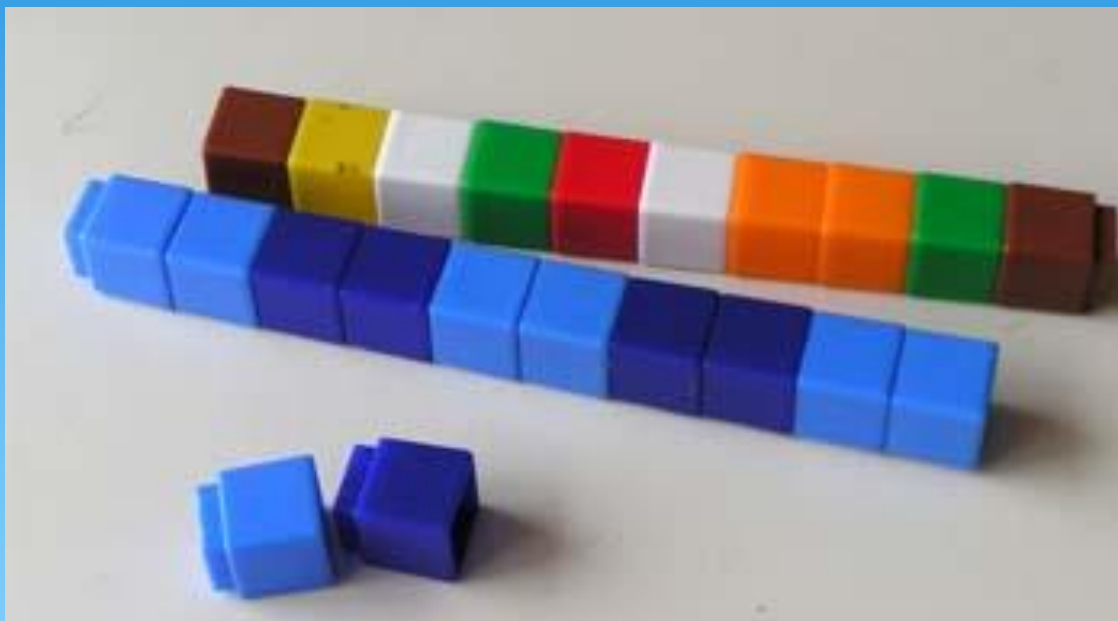


Maths At St. Leonard's



Parents Information Evening

2021

Aims

- ❖ To show you what is expected at the end of each year group.
- ❖ To discuss a range of mental and written calculation methods that your child will be taught while they progress through St. Leonard's
- ❖ To show you some possible activities and resources that you may be able to make/use to support your child/children at home.



The Teacher Next Door

17 September at 03:00 · 🌐



Haha! I still remember this from my childhood! You too? ➡

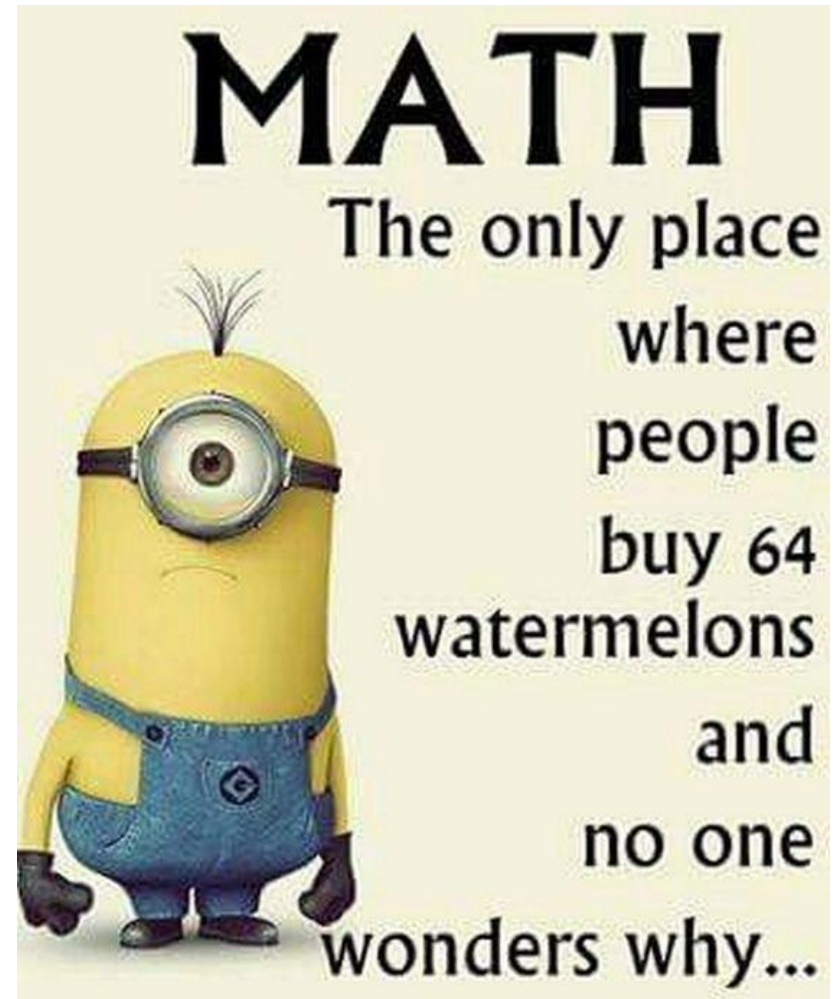


Sapphire Lally

@SapphireLally



I'm writing my PhD thesis in theoretical physics and every time I have to decide between using $>$ and $<$ I think to myself "the crocodile wants to eat the bigger number"



Mathematical thinking is important for all members of a modern society as a habit of mind for its use in the workplace, business and finance, and for personal decision making!

Dfe statutory programmes of study for mathematics - the importance of mathematics.

'I was never very good at maths so my child won't be'

'His dad/mum is the maths person'

'It's boring'

It doesn't make sense'

'I can't understand it'

'When do you need to do this in real life?'

FEAR!

Areas of Maths

Number and Place Value

Addition and Subtraction

Multiplication and Division

Fractions

Measure

Geometry

Position and Direction

Statistics

Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward. ❑ Recognise the place value of each digit in a two-digit number (tens, ones). ❑ Identify, represent and estimate numbers using different representations, including the number line. ❑ Compare and order numbers from 0 up to 100; use $<$, $>$ and $=$ signs. ❑ Read and write numbers to at least 100 in numerals and in words. ❑ Use place value and number facts to solve problems. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Solve problems with addition and subtraction: <ul style="list-style-type: none"> ❑ using concrete objects and pictorial representations, including those involving numbers, quantities and measures applying their increasing knowledge of mental and written methods. ❑ Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100. ❑ Add and subtract numbers using concrete objects, pictorial representations, and mentally, including: a two-digit number and ones, a two-digit number and tens, two two-digit numbers. ❑ Add three one-digit numbers. ❑ Show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot. ❑ Recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers. ❑ Calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs. ❑ Show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot. ❑ Solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Recognise, find, name and write fractions $1/2$, $1/3$, $1/4$, $2/4$, $3/4$ of a length, shape, set of objects or quantity. ❑ Write simple fractions for example, $1/2$ of $6 = 3$ and recognise the equivalence of $2/4$ and $1/2$.

Year 2 Geometry and Measures

Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm); mass (kg/g); temperature ($^{\circ}$C); capacity (litres/ml) to the nearest appropriate unit, using rulers, scales, thermometers and measuring vessels. ❑ Compare and order lengths, mass, volume/capacity and record the results using $>$, $<$ and $=$. ❑ Recognise and use symbols for pounds (£) and pence (p); combine amounts to make a particular value ❑ Find different combinations of coins that equal the same amounts of money. ❑ Solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change. ❑ Compare and sequence intervals of time. ❑ Tell and write the time to five minutes, including quarter past/to the hour and draw the hands on a clock face to show these times. ❑ Know the number of minutes in an hour and the 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line. ❑ Identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces. ❑ Identify 2-D shapes on the surface of 3-D shapes, (for example, a circle on a cylinder and a triangle on a pyramid). ❑ Compare and sort common 2-D and 3-D shapes and everyday objects. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Order and arrange combinations of mathematical objects in patterns and sequences. ❑ Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise). 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Interpret and construct simple pictograms, tally charts, block diagrams and simple tables. ❑ Ask and answer simple questions by counting the number of objects in each category and sorting the categories by quantity. ❑ Ask and answer questions about totalling and comparing categorical data.

Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number. ❑ Recognise the place value of each digit in a three-digit number (hundreds, tens, ones). ❑ Compare and order numbers up to 1000. ❑ Identify, represent and estimate numbers using different representations. ❑ Read and write numbers up to 1000 in numerals and in words. ❑ Solve number problems and practical problems involving these ideas. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Add and subtract numbers mentally, including: a three-digit number and ones, a three-digit number and tens, a three-digit number and hundreds. ❑ Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction. ❑ Estimate the answer to a calculation and use inverse operations to check answers. ❑ Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables. ❑ Write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods. ❑ Solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10. ❑ Recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators. ❑ Recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators. ❑ Recognise and show, using diagrams, equivalent fractions with small denominator. ❑ Add and subtract fractions with the same denominator within one whole [for example, $5/7 + 1/7 = 6/7$]. ❑ Compare and order unit fractions, and fractions with the same denominators. ❑ Solve problems that involve all of the above.

Year 3 Geometry and Measures

Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml). ❑ Measure the perimeter of simple 2-D shapes. ❑ Add and subtract amounts of money to give change, using both £ and p in practical contexts. ❑ Tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks. ❑ Estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o'clock, a.m./p.m., morning, afternoon, noon and midnight. ❑ Know the number of seconds in a minute and the number of days in each month, year and leap year. ❑ Compare durations of events [for example to calculate the time taken by particular events or tasks]. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them. ❑ Recognise angles as a property of shape or a description of a turn. ❑ Identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle. ❑ Identify horizontal and vertical lines and pairs of perpendicular and parallel lines. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Use mathematical vocabulary to describe position, direction and movement, including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and anticlockwise). 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Interpret and present data using bar charts, pictograms and tables solve one-step and two-step questions [for example, 'How many more?' and 'How many fewer?']. ❑ Use information presented in scaled bar charts and pictograms and tables.

Number and Place Value	Addition and Subtraction	Multiplication and Division	Fractions
<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Count in multiples of 6, 7, 9, 25 and 1000 find 1000 more or less than a given number. ❑ <u>Count backwards through zero to include negative numbers.</u> ❑ 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ Recall multiplication and division facts for multiplication tables up to 12×12. ❑ <u>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.</u> ❑ 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ 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 $1/4$, $1/2$, $3/4$. ❑ 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.

Year 4 Geometry and Measures

Measures	Geometry – Properties of Shapes	Geometry – Position and Movement	Statistics
<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ 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. 	<p>Sufficient evidence shows the ability to:</p> <ul style="list-style-type: none"> ❑ 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.

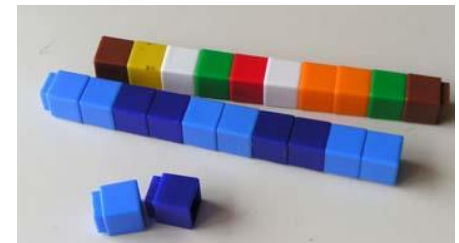
Key Skills - Place Value



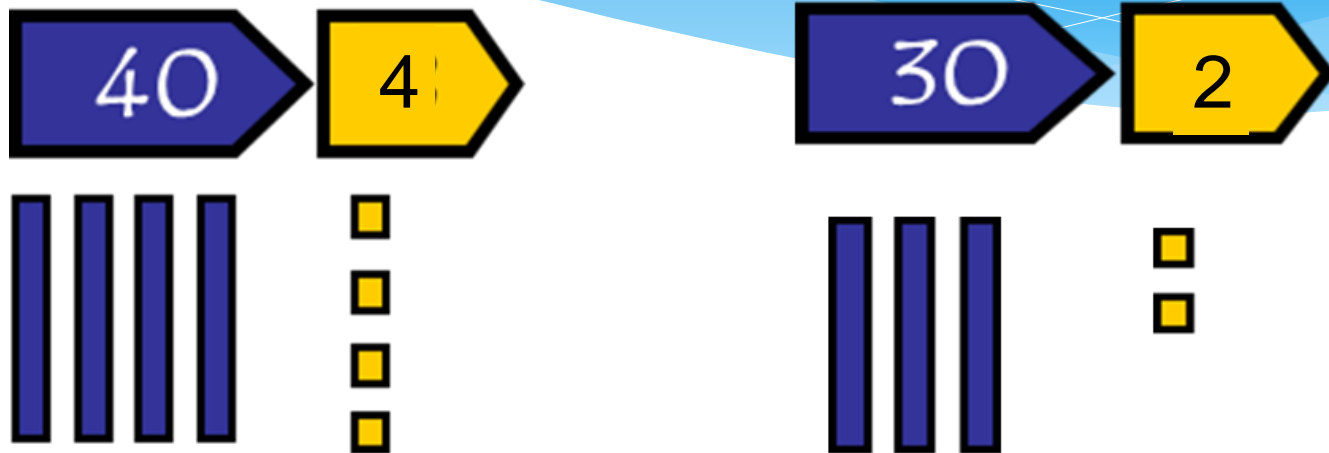
We use place value cards in combination with unifix cubes and 100 squares to recognize values of numbers.

i.e. make the number 853

- Step 1: separate the number into its value
8 hundreds, 5 tens and 5 ones
- Step 2: make that number with either cubes or a value card.



Partitioning



$$44 + 32 =$$

$$4 + 2 = 6$$

$$40 + 30 = 70$$

$$70 + 6 = 76$$

KS1 SATS

The KS1 SATS Maths Test is split into two papers.

Paper 1 is Arithmetic which has 25 marks allocated and will be taken over roughly 25 minutes

All questions revolve around the level of four operations skills children are expected to have acquired during the KS1 course.

Paper 2 is Reasoning which has 35 marks allocated to it and will take around 35 minutes.

KS1 SATs

1 $8 + 6 =$

9 $56 -$ $= 51$

19 $55 + 17 =$

2 $12 - 7 =$

10 $10 + 40 + 20 =$

20 $40 \div 10 =$






1 mark

1 mark

KS1 SATs

8 Match each coin to the correct box.

One has been done for you.

Less than 	More than 
	

11 There are **20** balloons.
7 balloons fly away.



How many balloons are left?

12 Tick the **two** sentences that are correct.

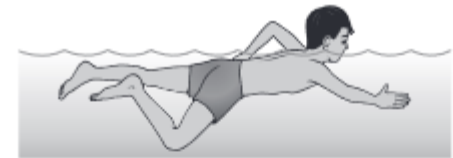
A square has sides of equal length.

Tick **two**.

A square has curved sides.

A square has lines of symmetry.

A square has five sides.



One length of a swimming pool is **10** metres.

Abdul swims the length of the pool **4** times.

Abdul works out how many metres he swims altogether.

Circle the **two** calculations that Abdul can use.

$$10 + 4$$

$$4 \times 10$$

$$10 + 10 + 10 + 10$$

$$4 + 4 + 4 + 4$$

Multiplication at St.Leonard's

Multiplication

Lots of times

Groups of Repeated addition

Multiply

Multiplied by

Array

Curriculum - Year 2









- recall and use multiplication and division facts for the **2, 5** and **10** multiplication tables, including recognising odd and even numbers
- calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (\times), division (\div) and equals ($=$) signs
- show that multiplication of 2 numbers can be done in any order (commutative) and division of 1 number by another cannot
- solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts

Curriculum - Year 3

- recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables
- write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental and progressing to formal written methods
- solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects

Curriculum - Year 4

- recall multiplication 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 3 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 1 digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects

1	2	3	4	5
$1 \times 1 = 1$	$2 \times 2 = 4$	$3 \times 3 = 9$	$4 \times 4 = 16$	$5 \times 5 = 25$
$1 \times 2 = 2$	$2 \times 3 = 6$	$3 \times 4 = 12$	$4 \times 5 = 20$	$5 \times 6 = 30$
$1 \times 3 = 3$	$2 \times 4 = 8$	$3 \times 5 = 15$	$4 \times 6 = 24$	$5 \times 7 = 35$
$1 \times 4 = 4$	$2 \times 5 = 10$	$3 \times 6 = 18$	$4 \times 7 = 28$	$5 \times 8 = 40$
$1 \times 5 = 5$	$2 \times 6 = 12$	$3 \times 7 = 21$	$4 \times 8 = 32$	$5 \times 9 = 45$
$1 \times 6 = 6$	$2 \times 7 = 14$	$3 \times 8 = 24$	$4 \times 9 = 36$	
$1 \times 7 = 7$	$2 \times 8 = 16$	$3 \times 9 = 27$		
$1 \times 8 = 8$	$2 \times 9 = 18$			
$1 \times 9 = 9$				
6	7	8	9	
$6 \times 6 = 36$	$7 \times 7 = 49$	$8 \times 8 = 64$	$9 \times 9 = 81$	
$6 \times 7 = 42$	$7 \times 8 = 56$	$8 \times 9 = 72$		
$6 \times 8 = 48$	$7 \times 9 = 63$			
$6 \times 9 = 54$				
				

How we used to learn times tables

$$3 \times 4 = 12$$

Remember it!

How we teach times tables now

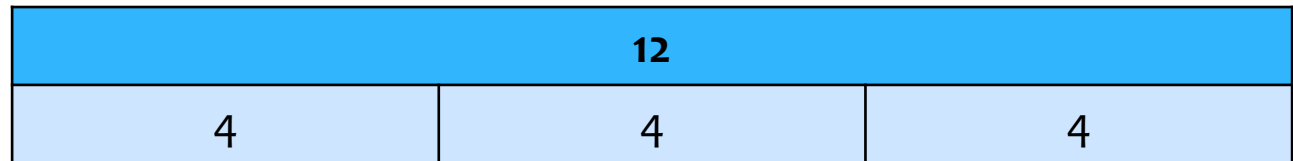
Array



Singing

Rolling Numbers

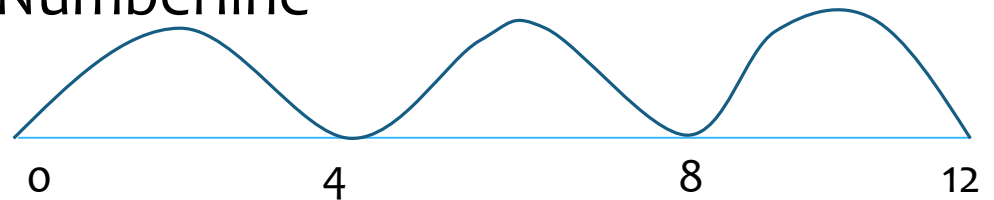
Bar Model



Repeated addition

$$4 + 4 + 4 = 12$$

Numberline



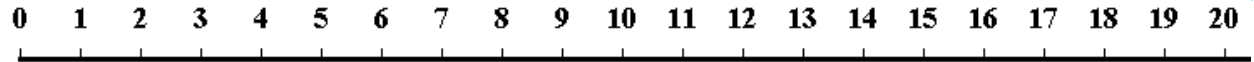
Grid Method

$$28 \times 7 =$$

x	20	8	
7	140	56	196

Resources

- Number line



- Number square

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

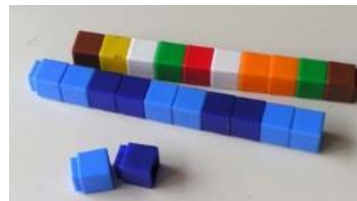
- Counters

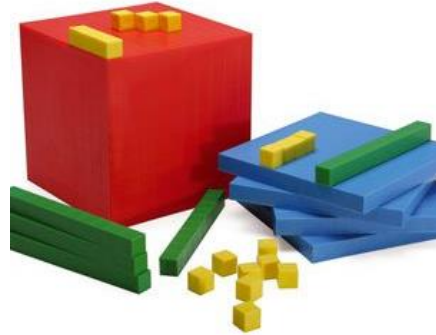


- Place value cards



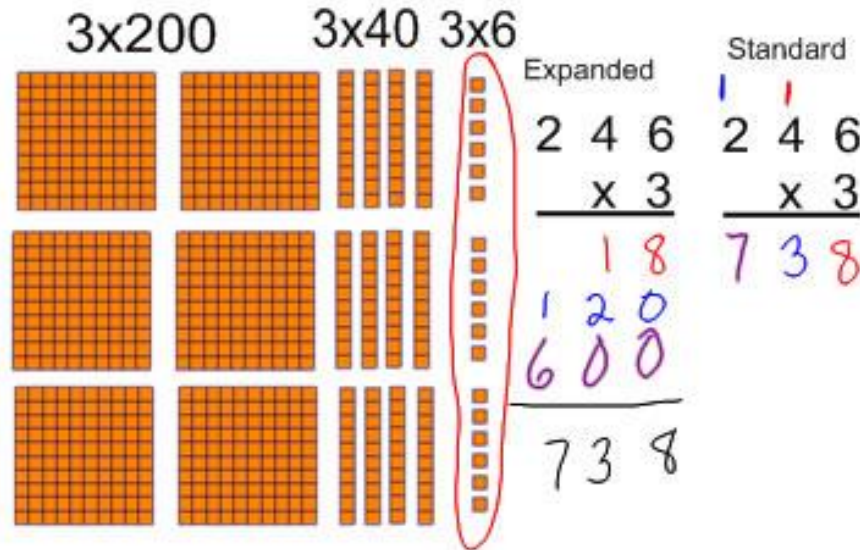
- Unifix sticks





CONCRETE

PICTORIAL



ABSTRACT

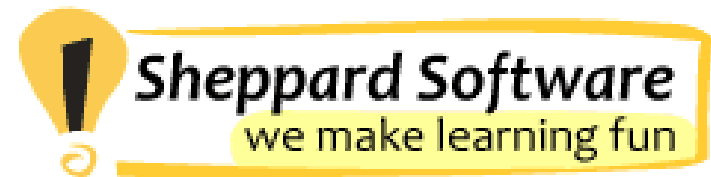


Rolling Numbers



How Can You Help at Home?

The best thing that parents and carers can do for children is to have a positive attitude towards maths.



Other Ideas

- Practice times tables
- Handling amounts of money when shopping, working out total costs, working out change, checking receipts. Working out prices of sale items, e.g. 20% off. Managing pocket money and saving for things.
- Talking about time, e.g. How long is it until lunch time? The journey takes $2\frac{1}{2}$ hours, when will we arrive? We need to be there at 2.00 pm, when do we need to leave home? Many children will still need practice with reading clock times, particularly minutes past and minutes to the hour.
- Cooking, measure out ingredients, double or halve recipes, divide sweets for the toppings.
- Play games involving numbers and/or logic, such as card games, dominoes, darts, draughts, chess etc.;

At Home



Multiplication Square

x	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

How to Learn Times Tables with twinkl: A Guide for Parents

What does my child need to know?

- Year 2: x2, x5, x10
- Year 3: x2, x3, x4, x5, x8, x10
- Year 4: all times tables up to 12 x 12

Resource ideas

- Print out and laminate the [times table mats](#), alternatively print out and display the [large times tables poster](#) to aid solving times tables questions (both up to 12 x 12). (Tip - Create a handy travel size times table kit by cutting up the individual times tables from the mat, punching a hole through the corner of each then attaching together with a treasury tag).
- There are various versions of the [multiplication square](#) to help children solve multiplication calculations. This square also helps children to see number patterns within the various different times tables.