

KS1 MATHS - NUMBER

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Aims for today

- To have a greater understanding of some of the scary maths language.
- To have a range of activities you can do at home to support your child with their mathematical development
- To improve your confidence in the methods schools use when teaching the four calculations: addition, subtraction, multiplication and subtraction.

Warm up maths activity

Times tables race!

Split into teams.

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	CLEAR
81	82	83	84	85	86	87	88	89	90	PRINT
91	92	93	94	95	96	97	98	99	100	MAIN

What do children in Year One need to know?

Number – number and place value

Statutory requirements

Pupils should be taught to:

- count to and across 100, forwards and backwards, beginning with 0 or 1, or from any given number
- count, read and write numbers to 100 in numerals; count in multiples of twos, fives and tens
- given a number, identify one more and one less
- identify and represent numbers using objects and pictorial representations including the number line, and use the language of: equal to, more than, less than (fewer), most, least
- read and write numbers from 1 to 20 in numerals and words.

Number – fractions

Statutory requirements

Pupils should be taught to:

- recognise, find and name a half as one of two equal parts of an object, shape or quantity
- recognise, find and name a quarter as one of four equal parts of an object, shape or quantity.

Number – addition and subtraction

Statutory requirements

Pupils should be taught to:

- read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \square - 9$.

Number – multiplication and division

Statutory requirements

Pupils should be taught to:

- solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.

What do children in Year Two need to know?

Number – number and place value

Statutory requirements

Pupils should be taught to:

- 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.

Number – multiplication and division

Statutory requirements

Pupils should be taught to:

- 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.

Number – addition and subtraction

Statutory requirements

Pupils should be taught to:

- solve problems with addition and subtraction:
 - 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
 - adding 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.

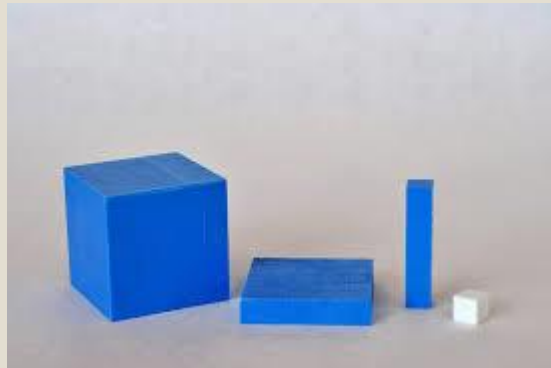
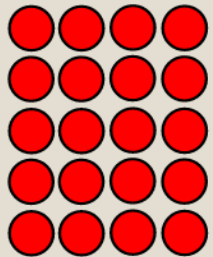
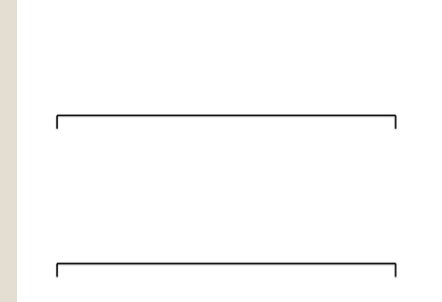
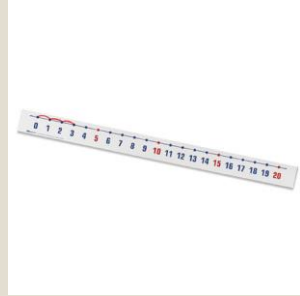
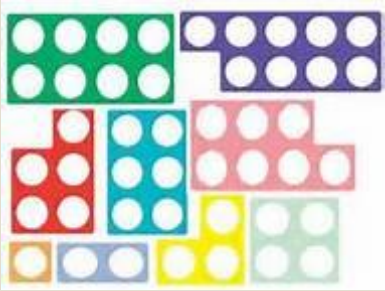
Number – fractions

Statutory requirements

Pupils should be taught to:

- recognise, find, name and write fractions $\frac{1}{3}$, $\frac{1}{4}$, $\frac{2}{4}$ and $\frac{3}{4}$ of a length, shape, set of objects or quantity
- write simple fractions for example, $\frac{1}{2}$ of 6 = 3 and recognise the equivalence of $\frac{2}{4}$ and $\frac{1}{2}$.

Resources



Some of the words your children might be saying

- Array – a way of showing multiplication and division using dots/pictures in lines to show calculations.
- Partition – pull a number apart to find out the value of each digit in a number.
- Place value – The value of each digit in a number. Hundreds, tens, units/ones
- Number bonds – number pairs that are used frequently
- Inverse – **Inverse** operations are opposite operations that undo each other. Addition and subtraction are **inverse** operations. Multiplication and division are **inverse** operations.
- Bridging – working with number bonds to 10 to make calculations easier.
- Repeated addition – $2+2+2+2$
- Commutivity – a calculation that can be done any way round

Place value

- On your whiteboard, write down a 2 digit number.
- Compare it to your partner...
- Who has the greater number?
- Why?
- How do you know? PROVE IT

Using place value to partition

Can you partition these numbers?



$$40 + 5 = 45$$

84

56

21

78

62

91

39

Challenge: 345

Challenge: 478

Challenge: 3691

Dice game

Hundreds	Tens	Ones/Units

Addition

Year One

Jumps on a numbered number line.
Remembering addition is the number getting bigger so going right.

Have a go at these using this method:

$$15 + 8 =$$

$$9 + 2 =$$

Year Two

Jumps on a blank number line.
Have a go at these using a blank number line:

$$9 + 7 =$$

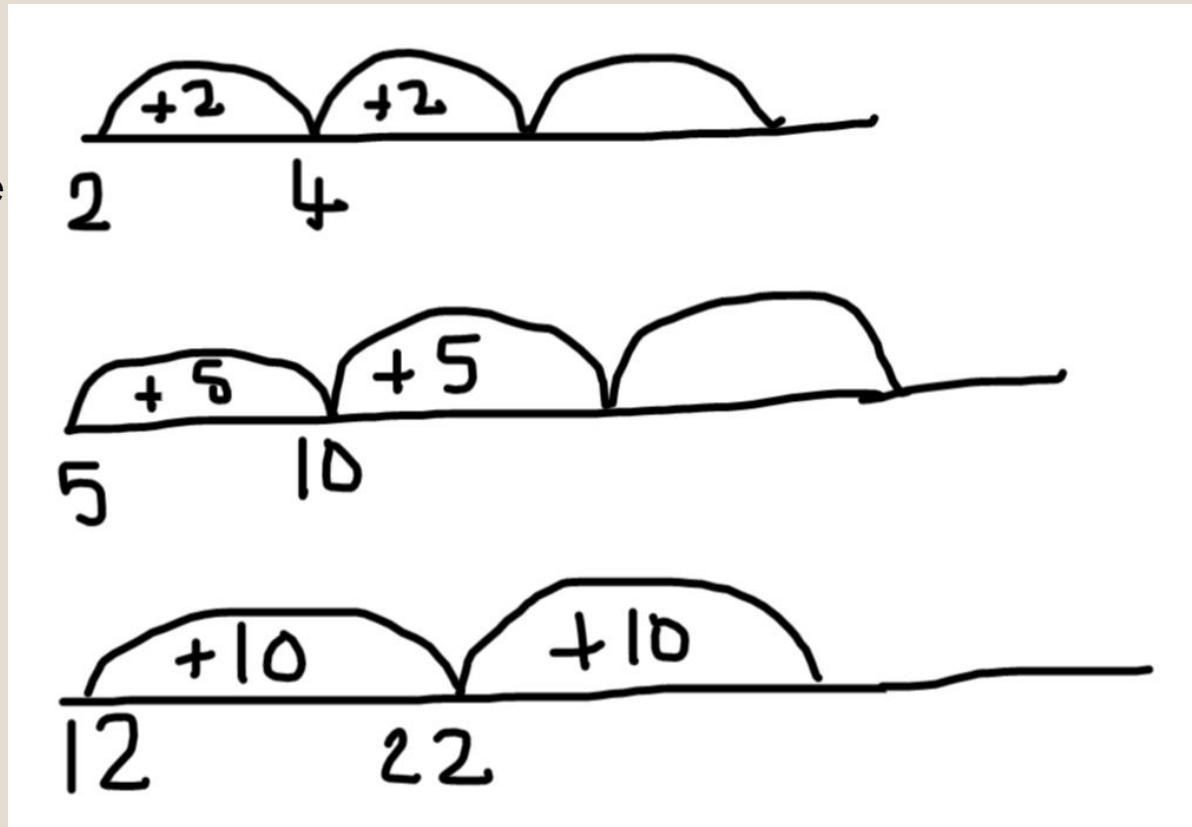
$$28 + 6$$

$$35 + 10 =$$

How could knowing your number bonds to ten help you with these methods?

How children learn to use a blank 'home made' number line.

In Year Two SATs children are not allowed any resources so must be taught how to draw calculations.



Subtraction

Year One

Jumps on a labelled number line.

Remembering the number gets smaller so going left on the number line.

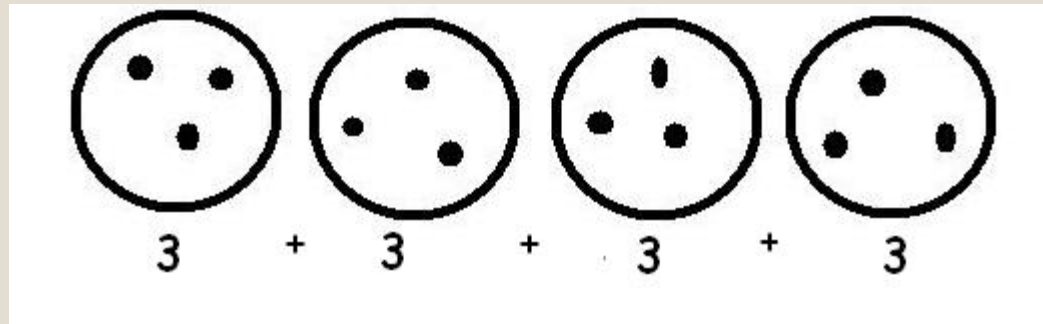
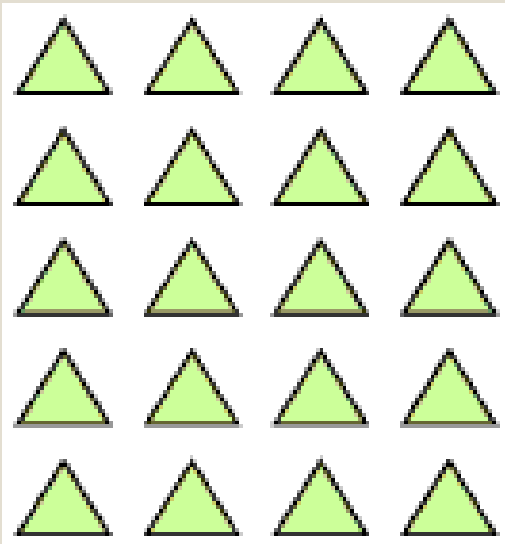
Year Two

Jumps on a blank number line. Children need to be able to break calculations down to jumps that make sense and they can manage.

For example $21 - 9$ becomes $21 - 10 = 11$ add the 1 back on.

Multiplication – example of arrays and repeated addition

- What calculations do these show?



Multiplication

- Year 1 – Jumps on a number line
- Year 2 – repeated addition and arrays

Volunteer please!

Please fetch me a



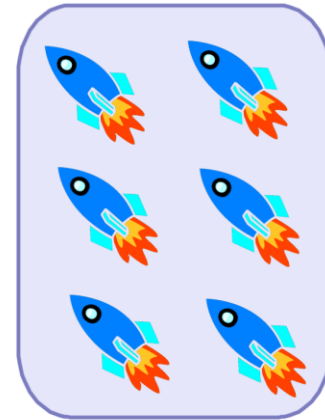
and another



How do we write that?

$$2 + 2 + 2 + 2 =$$

How would we write this as a multiplication number sentence?

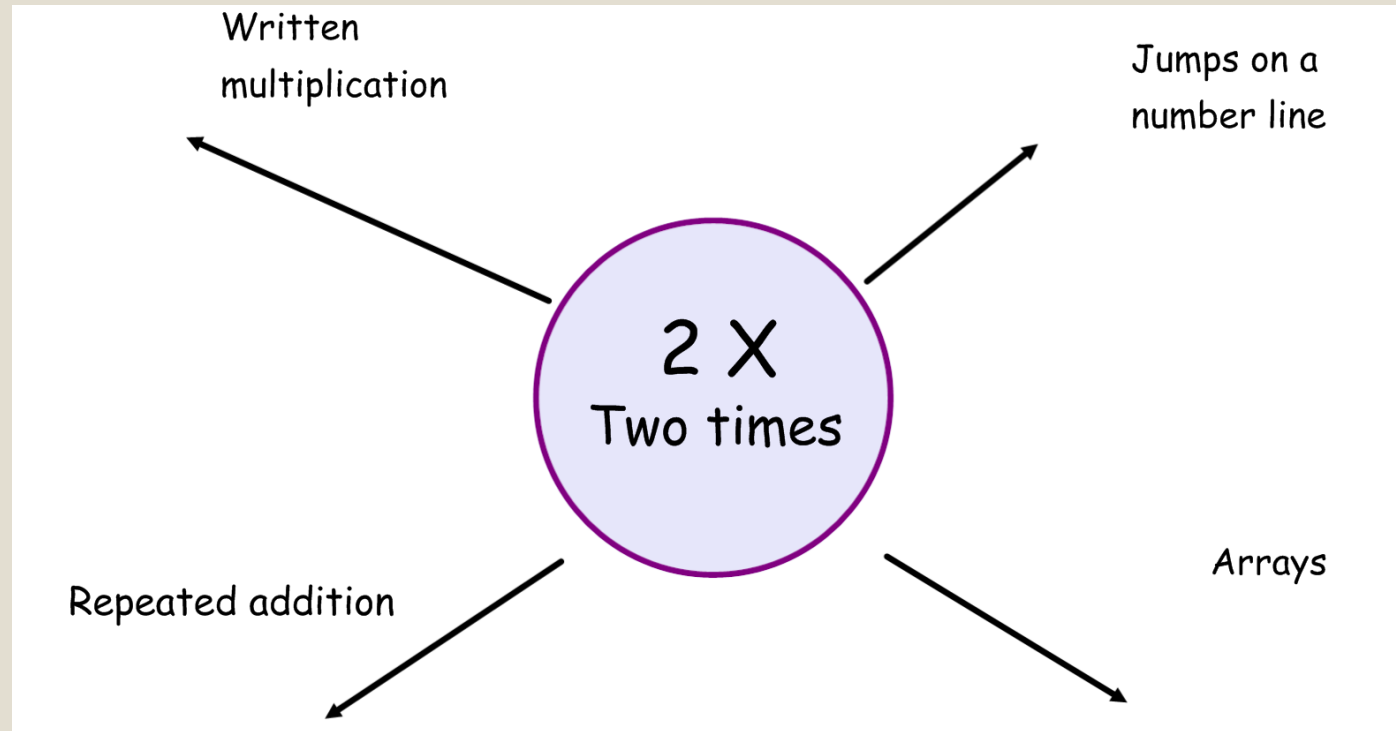


How many times does two fit into this array?


Answer:



Show what you know!



Problem solving



There are two tubes of Smarties in a pack.

Each tube contains 5 Smarties.

How many Smarties are there in total?

How would we draw this calculation to help ourselves in a SATs test?

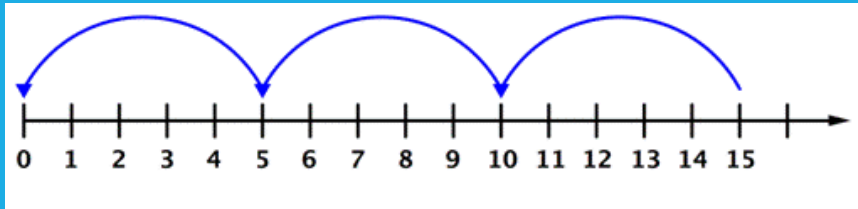
What is the important information? How do we present it?

Efficiency!

Division

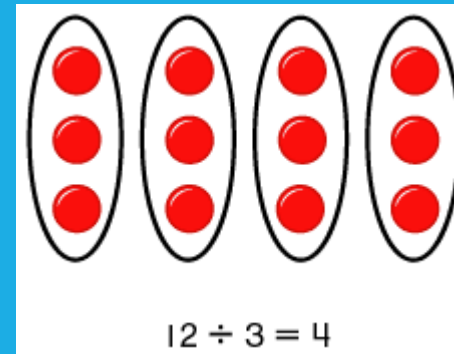
Year One

Jumping backwards in groups on a labelled number line.



Year Two

The inverse of repeated addition and using arrays to share the groups.



Times tables

Times tables: the 21 facts*

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

* 10 facts already known prior to 1, 2 and 3 times tables