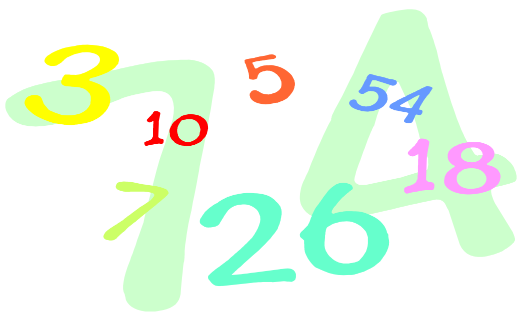
Helping your child with Numeracy



Number and Calculations

The work your child is doing in Numeracy at school may look very different to the kind of 'sums' you remember. This is because children are encouraged to develop a greater understanding of number to enable them to do calculations mentally, where possible, using informal jottings to support their thinking.

Discussing the efficiency and suitability of different strategies is an important part of Numeracy lessons.

When faced with a calculation problem, encourage your child to ask....

- Can I do this in my head?
- Can I use anything to help me?
- Could I do this in my head using drawing or jottings to help me?
- Do I know a method I have learned at school?

Also help your child to estimate and check the answer. Encourage them to ask...

- Is the answer sensible?

Numbers and Counting

Most children learn to count to 10 because it is like learning a rhyme.

12345678910

At school children are taught to understand the value each numeral by….

- Matching objects to the numeral
- Ordering the numbers on a washing line
- Hiding a number – which one is missing?
- Writing the numbers.

Children are encouraged to show numbers using their fingers, counting at first but later by knowing that 6 is


all the fingers on one hand and one more.

Children learn to count at first to 10 (forwards and backwards) and then to 20.
They find the 'teen' numbers tricky especially 13 and 15 and often reverse the digits.
Next the begin to read and write 2 digit numbers and a 100 square can support the children's understanding of the numbers place in the number system.

Place Value

Children love to read numbers to 100 (2digit numbers). We use unifix cubes to count out a number of cubes and then make towers of 10 to make them easier to count.

This teaches children to understand that the first digit shows the number of 10s and the second digit the number of 1s.

Then the children use tens and units (rods and cubes) to make 2 digit numbers to develop an understanding of the size of the number and the value of each digit.

We also use place value cards or arrow cards to make and partition numbers into tens and units and later 3 digit numbers into hundreds, tens and units.

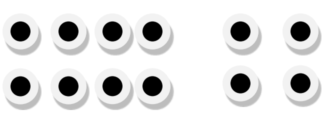
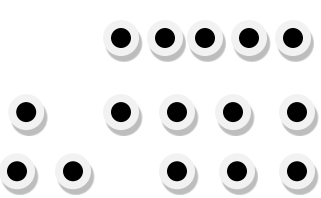
Children use a one hundred square to support their counting especially when crossing the tens barrier.

… 28 29 30 31 32 ….

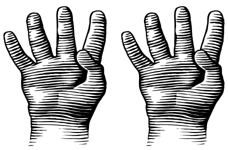
We teach children to understand how the numbers are arranged in one hundred square, so that they can use this to support their calculation work.

ADDITION

Children are taught to understand addition as combining two sets and counting on.

3 + 2 = At a party I eat 3 cakes and my friend eats 2 cakes. How many cakes did we eat altogether?  3 2	Children count objects onto the numeral cards, combine them and find the total.
8 + 4 = 8 people are on the bus. 4 more people get on at the next stop. How many people are on the bus now? 	Children could use dots to represent the objects (quicker than drawing a picture). Children are then encouraged to put the largest number in their head and use their fingers to count on (8 in your head and count on 4).
<u>Pairs of numbers that make 5.</u>  0 + 5 1 + 4 2 + 3 <u>Pairs of numbers that make 10</u> 0 + 10 10 + 0 1 + 9 9 + 1 2 + 8 8 + 2 3 + 7 7 + 3 4 + 6 6 + 4 5 + 5	Learning number facts will help children to develop their ability to solve calculations mentally.

Doubles of numbers to 5 and then 10.
Use fingers – double 4 – fingers on each hand.



makes 8.

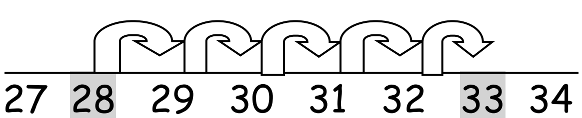
Playing games such as darts or skittles where their score is double the number they hit or knock down.

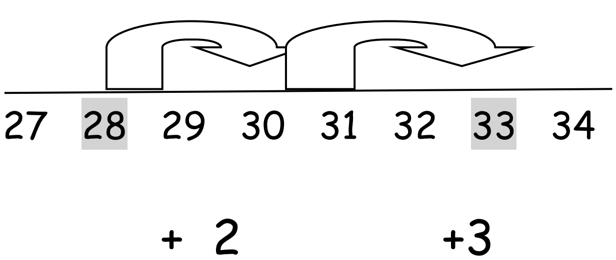
Learning the doubles of numbers helps children to have a bank of number sentences they know and then begin to use these to solve other number sentences such as
6 + 5
They know that 5 + 5 is 10 so
6 + 5 is 1 more so it is 11.

Adding a single digit to a two-digit number.
28 + 5 =
Put 28 in your head and count on 5.

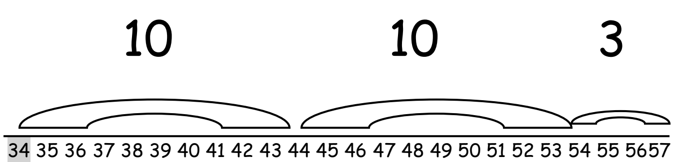
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Children begin to add larger numbers using the strategies they have learned already.
Using a 100 square will support their counting with larger numbers. The tricky part is crossing the 10's number (29, 30, 31, 32, 33)





Children are also taught to use a number line to help them to record the steps they have taken in a calculation (start on 28 and jump on 5).
Children can be encouraged to use the number facts they know to then jump on 2 to make 30 and then 3 more.

34 + 23 = 30 + 20 = 50 4 + 3 = 7 So 50 + 7 = 57	Partitioning each number into its tens and 1's will help children to understand that they can then collect the tens together and the ones. The children are encouraged to follow the steps: • Partition the numbers into tens and ones • Collect the tens • Collect the ones • Put the tens and ones back together.
Start on 34 Add the 20 (10 + 10) Then add 3  	Using a number line is another way to record the steps in their calculation.
37 + 26= 30 + 20 = 50 7 + 6 = 13 50 + 13(10 + 3)=60 +3=63	The children then learn to use these methods to add numbers crossing the tens barrier and to add 2 three-digit numbers.

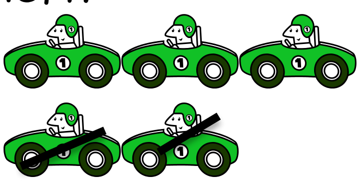
Vocabulary for addition.
Learning the different words used for addition will help children to know which calculation they need to use to solve a problem.
add total more altogether plus

SUBTRACTION

Children are taught to understand subtraction as taking away (counting back) and finding the difference (counting up).

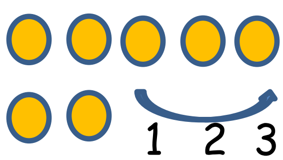
5 – 2 = □

I have 5 cars in the car park. If 2 cars leave, how many cars are left?



Take away

A teddy bear costs £5 and a doll costs £2. How much more does the bear cost?



Find the difference.

Using objects or drawing a picture helps children to visualise the problem.

43 – 6 =

Count back 6 from 43

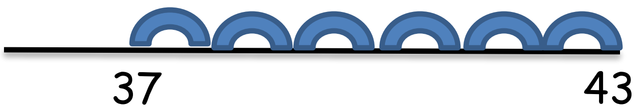
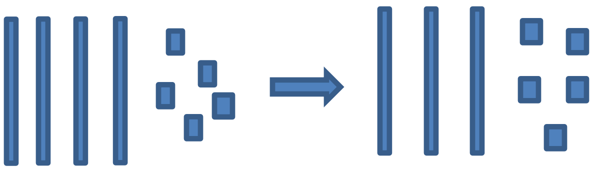
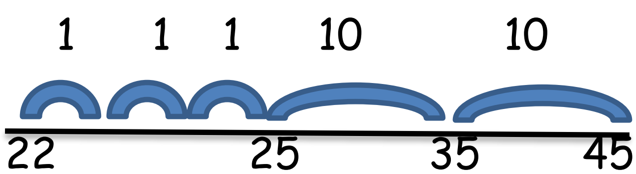
42, 41, 40, 39, 38, 37

So 43 – 6 = 37

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

Learning to count backwards will help children to take away a number from a two digit numbers especially when it crosses the tens barrier.

A one hundred square can be used to support your child when counting back.

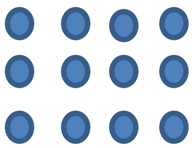
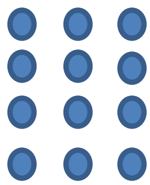
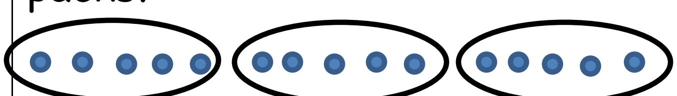
<table>
<tr><td>43 – 6 = 37

</td><td>Children begin to use an empty or blank number line to count back on. This is a good way to record the steps they have taken to subtract two numbers.</td></tr>
<tr><td>45 – 10 = 35
</td><td>They learn to take 10 away from a two-digit number using tens and units.</td></tr>
<tr><td>45 – 23 = 22

</td><td>Children can use the empty number line to take away 2 two-digit numbers by partitioning the number they are taking away (take away tens first and then the units).
45 – 23 is 45 – 20 – 3.</td></tr>
</table>

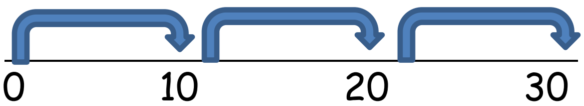
Vocabulary for subtraction.
Learning the different words used for subtraction will help children to know which calculation they need to use to solve a problem.
take away difference less minus

MULTIPLICATION

Children are taught to understand multiplication by drawing arrays and as repeated addition.

Children first begin to count in 2's, 5's and 10's which helps with multiplication later. They learn doubles of numbers to double 10.

4 X 3 = 12   4 lots of 3 3 lots of 4	Drawing an array gives the children a visual image of the answer. It also helps to develop the understanding that 4 X 3 is the same as 3 X 4
Each child has 2 shoes. How many shoes do 4 children have? 4 X 2 (4 lots of 2)  2 + 2 + 2 + 2	Using objects or drawings will help children to understand multiplication as repeated addition.
3 X 5 = If there are 5 cakes in a pack, how many cakes are there in 3 packs? 	Groups can be drawn to help understanding. This shows 3 lots of 5.

3 10 If 3 cats have 10 kittens each, how many kittens are there altogether?  	Children count on in equal jumps along a blank number line, showing the number they land on each time. This shows 3 jumps of 10.
16 x 5 = 80 10 x 5 - 50 6 x 5 - 30	When numbers get bigger we partition the 16 into tens and units (10 and 6). Then we do 10 x 5, then 6 x 5.

Vocabulary for multiplication.
Learning the different words used for addition will help children to know which calculation they need to use to solve a problem.
lots of times multiply double

DIVISION

Children are taught to understand division as sharing and grouping

Children first begin to count in 2's, 5's and 10's which helps with division later.

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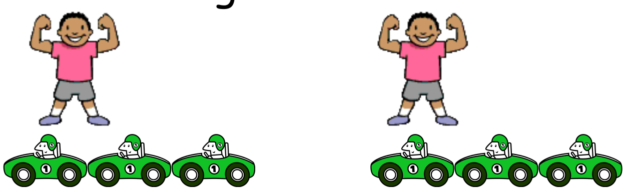
$6 \div 2 =$
6 cars are shared between 2 children. How many cars does each child get?



</td><td>

Children begin by sharing objects practically. Share 6 cars between 2 people.

Then they can move on to drawing pictures to solve the problem.

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<tr><td>

$15 \div 5 =$
15 apples are shared equally between 5 baskets. How many apples are in each basket?

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Sharing equally between 5.

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Dots, letters or marks can be shared one at a time between the groups.

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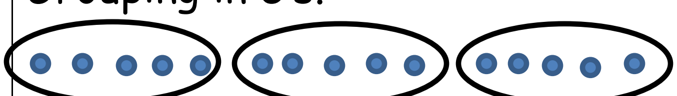
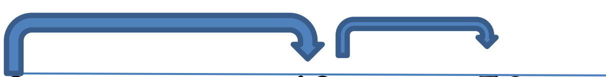
<tr><td>

$15 \div 5 =$
5 apples are packed into a basket. How many baskets can you fill with 15 apples?

Grouping in 5's.



</td><td></td></tr>
</table>

21 ÷ 3 = If 1 sweet costs 3p. How many sweets can I buy with 21p?  0 3 6 9 12 15 18 21	To work out how many 3's there are in 21, the children draw jumps of 3 along a number line. This shows you need 7 jumps of 3 to reach 21.
52 ÷ 4 = I need 4 drawing pins to put up a picture. How many pictures can I put up with 56 pins? 4 X 10 4 X 3  0 40 52 So 52 ÷ 4 = 13	It would take a long time to jump in fours to 52 so children begin to use their knowledge of times tables to jump in bigger 'chunks'. A jump of 10 lots of 4 takes you to 40. Then you need 3 lots of 4 to make 16 to reach 5. Altogether, that is 13 fours.

Vocabulary for division.
Learning the different words used for division will help children to know which calculation they need to use to solve a problem.
divide share equally half