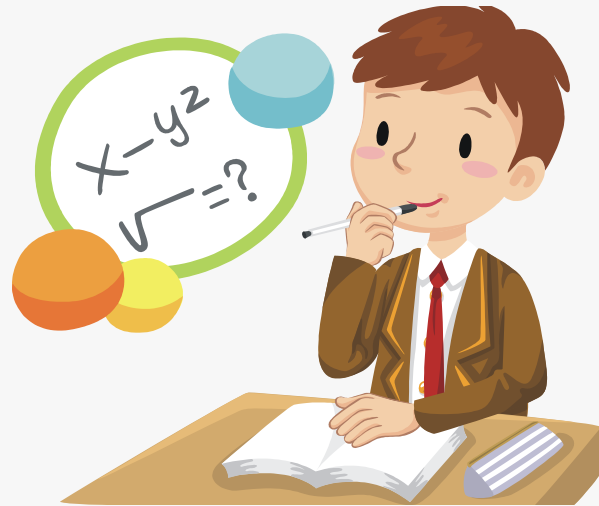
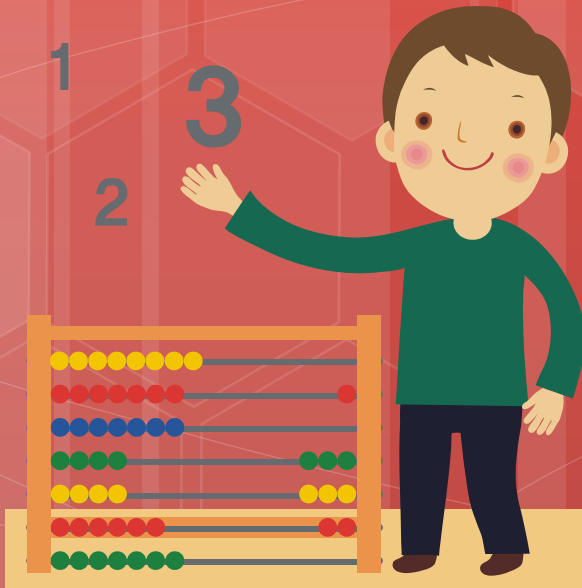




Maths in Pre-Prep



What we teach in Pre-Prep

Number bonds from 10 and 20 (ie $7+3=10$, $18+2=20$)

Basic multiplication (2,5,10)

Basic division (2,5,10)

Fractions ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$)

Addition and subtraction to 100

Place value (units, tens and hundreds)

Time (o'clock, half past, quarter to, quarter past)

Measurement (weight, length, capacity)

Money (everyday money- calculating change)

Problem solving

Handling data (graphing, tables, sorting data)

Shape and space

Vocabulary

Addition

together
more than
plus
add
total
and

Subtraction

difference
between
subtract
fewer
minus
take from
less than
take away

Multiplication

groups of
lots of
times table
times
multiplied by
multiply

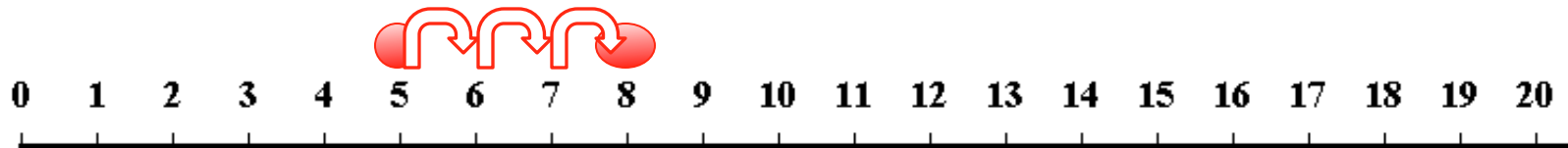
Division

share
share equally
divide
divided by
groups

Using a Number Line

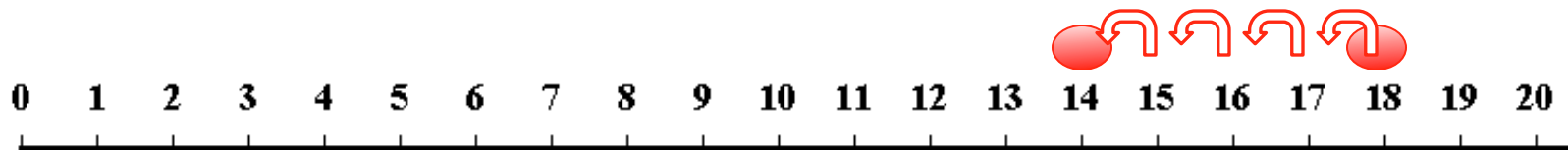
Adding $5 + 3 = 8$

Step 1 start on the biggest number and count on in jumps.



Subtracting $18 - 4 =$

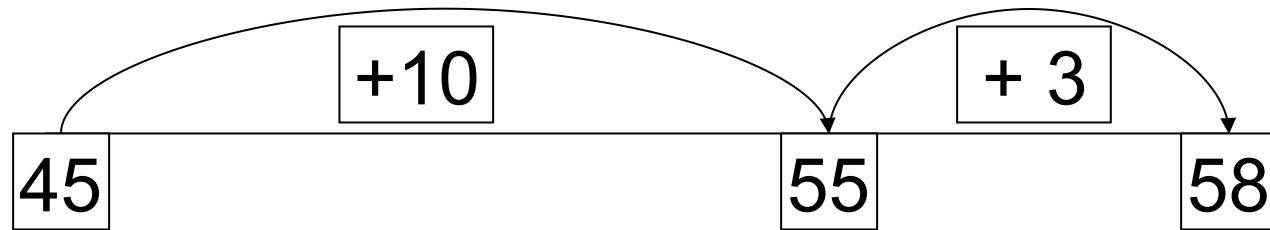
Step 1: start on the biggest number and count back in jumps.



Using a blank number line

A blank number line is simply a line which children use to put the numbers they are working with on.

eg. $45 + 13 =$



Number bonds

Learning number bonds is an important strategy for children to have. As they build on number problems involving increasing values they can draw from this knowledge.

What do you have to add to these numbers to make 10?

$$4 + ? = 10$$

$$? + 8 = 10$$

$$3 + ? = 10$$

Using this knowledge children can readily solve more complicated problems.

23 children have arrived at the party already. How many more are due to come if there are 30 altogether?

Addition and Subtraction a with number square

- $54 + 12 = 66$
- Step 1 :Partition the number (one 10, two units) 10 & 2
- Step 2: add on the 10 (down 1)
- Step 3 add on the units (right 2)

- Adding 10 go down 1
- Subtracting 10 up 1
- Adding 1 go right 1
- Subtracting 1 go left 1
- Adding 9 go down 1 and left 1
- Subtracting 9 go up 1 and right 1

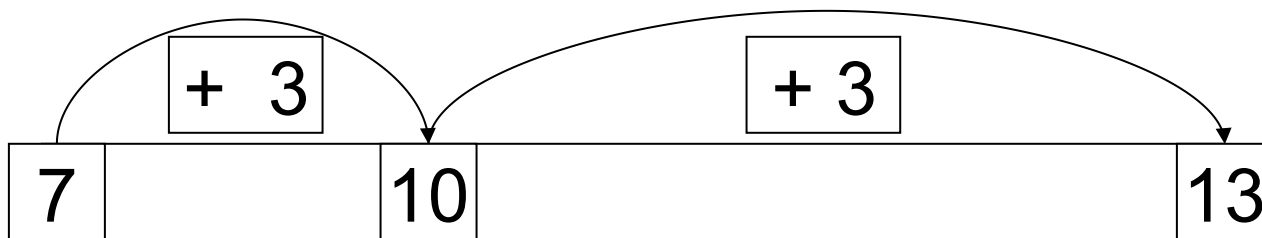
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Bridging through 10

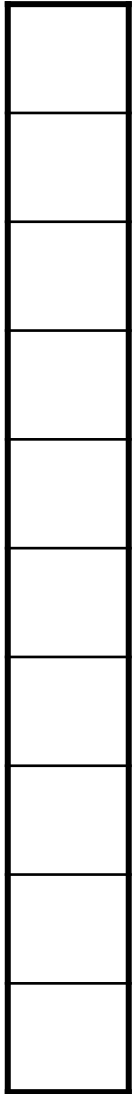
Bridging through ten, relies on a secure knowledge of number bonds to 10.

So $7 + 6$ becomes 7 add 3 (number bonds to 10) the 3 has been used from the 6.

You then need to add on the remaining 3, giving 13.



Place Value



In our decimal number system, the value of a digit depends on its place, or position, in the number.

To help understand this we can break a number into its hundreds, tens and units.

Here we have 11 shown as $10 + 1$

Tens and Units in calculations

It is vital that children understand the value of each digit for column addition.

One method of adding is to partition the numbers into parts, add the parts and then recombine to find the total.

$$45 + 13 =$$

Partition the numbers into tens and ones:

$$40 + 5 + 10 + 3$$

Add the tens together:

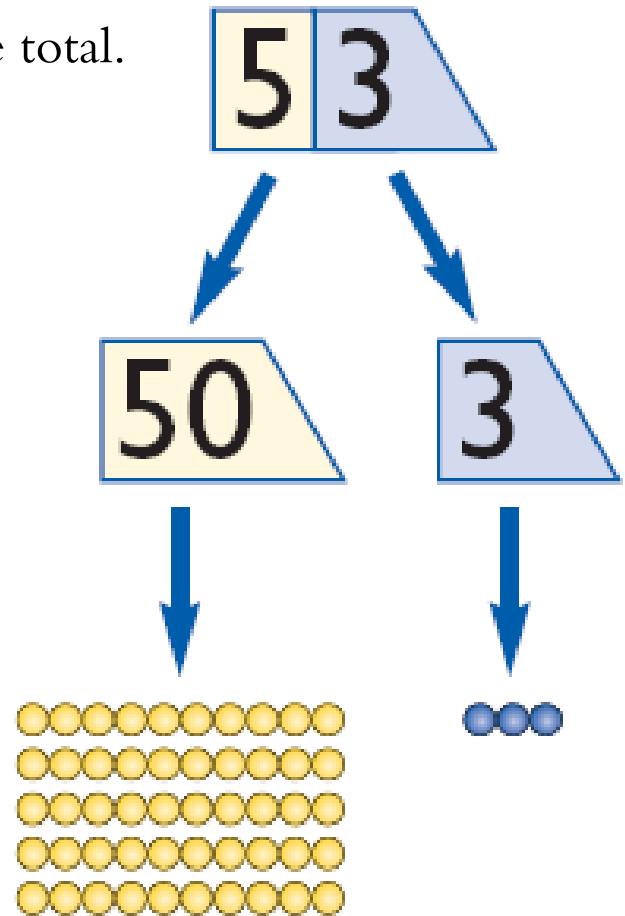
$$40 + 10 = 50$$

Add the ones together:

$$5 + 3 = 8$$

Recombine the numbers to give the total:

$$50 + 8 = 58$$



Addition (no carrying)

<u>I</u>	<u>U</u>
1	3
	4
1	7

<u>I</u>	<u>U</u>
2	4
1	4
3	8

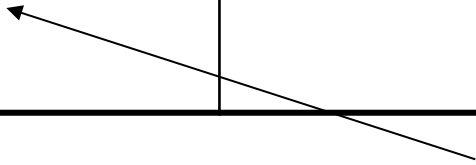
Addition (with carrying)

1	3
	7
2	0
1	

2	4
1	9
4	3
1	

because

$$7 + 3 = 10$$



Using a number grid for patterns and multiplication

Use the grid for identifying patterns and counting in steps of 2, 5 and 10 as a precursor to multiplication.

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

Multiplication

First recognise that multiplication is repeated addition

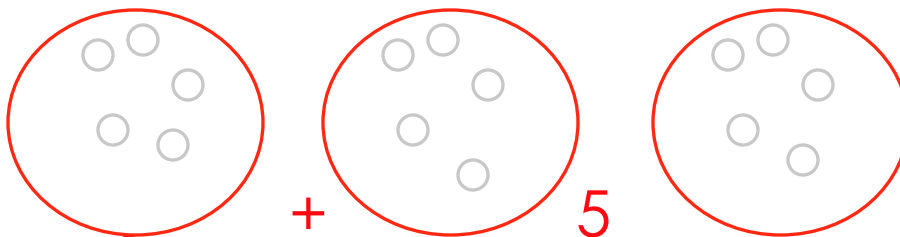
No of lots how many per group total

$$3 \quad \times \quad 5 \quad = \quad 15$$

Is the same as 2 lots of 5 or $5 + 5 + 5 = 15$

Use pictorial cues to represent a x sum.

Encourage them to write the sum:

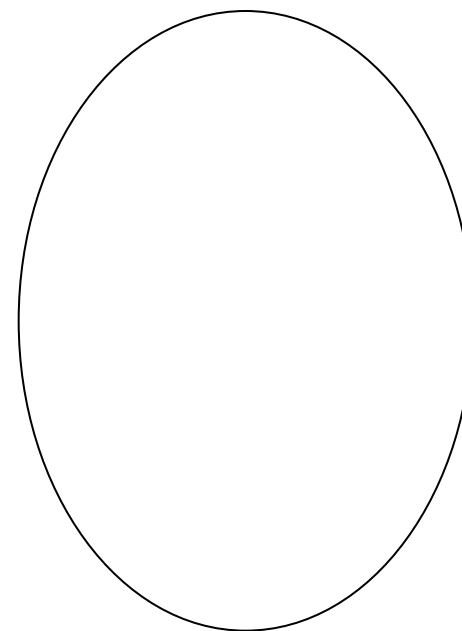
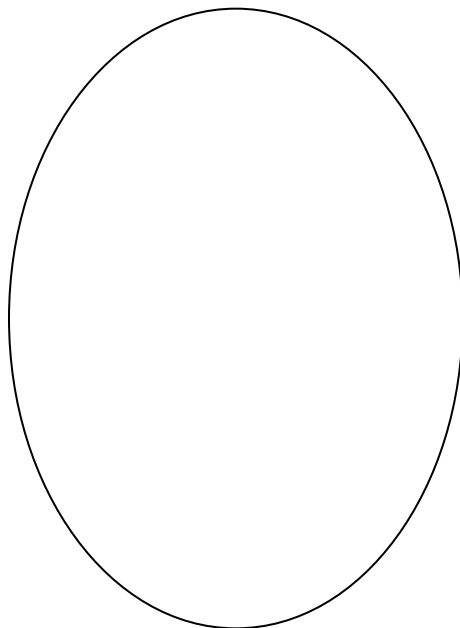
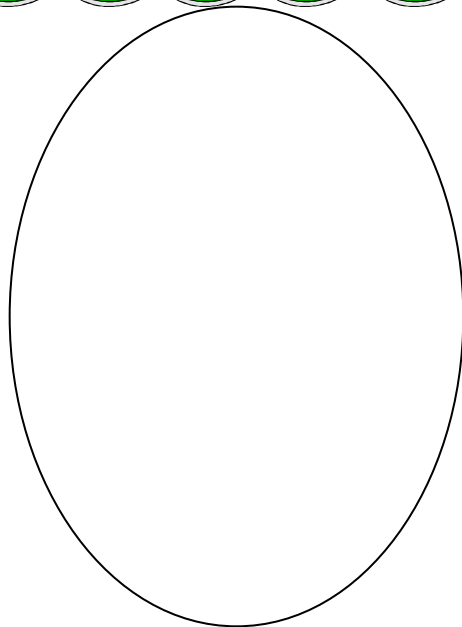


$5 + 5 + 5 = 15$

Division

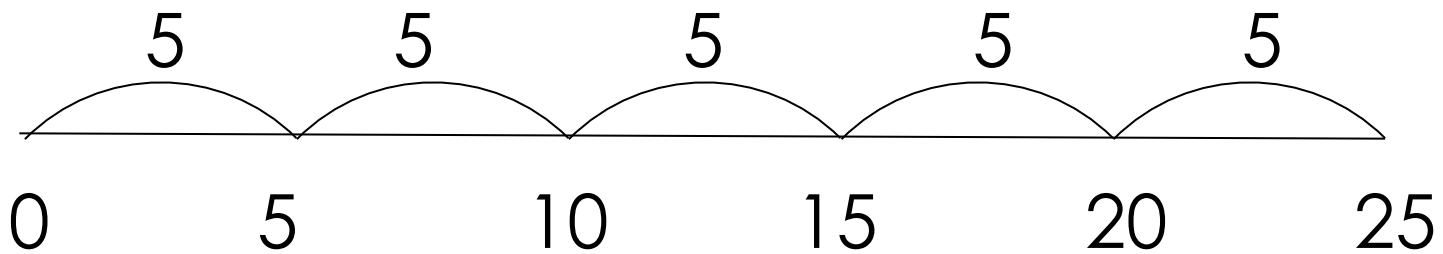
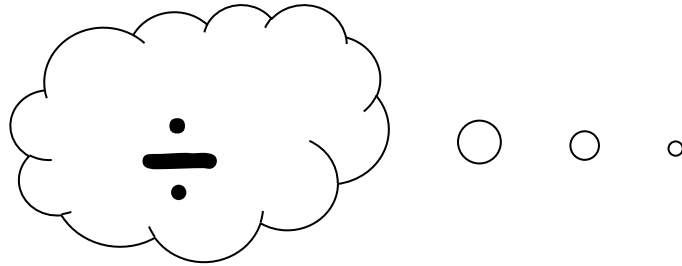
Sharing into groups equally

$$12 \div 3 = ?$$



How many groups of 5 are there in 25?

$$25 \div 5 = 5$$



Top tips for problem solving

Keep the sessions at home short.

Keep the numbers simple at first to develop understanding.

Practice problems with money and time in *real-life* situations.

Use the correct mathematical vocabulary.

Use role-play, drawings and objects to 'act out' the problems.

If units of measurement (e.g. kg) are included write the units all the way through your working out of the problem.

Breaking a problem down into a series of steps.

Using a diagram to show the problem if possible.

Picking out the relevant information.



Make maths practical by using real materials.

Children love games to engage their learning. Try some of these site links.

