Addition

1. Draw a picture.

☆☆☆ ☆☆☆

3 + 3 =

2. Friends of Ten.
Look for friends of ten in each calculation.

0 + 10 = 10	10 + 0 = 10	5 + 5 = 10
1 + 9 = 10	9 + 1 = 10	
2 + 8 = 10	8 + 2 = 10	
3 + 7 = 10	7 + 3 = 10	
4 + 6 = 10	6 + 4 = 10	

3. Commutative Law.

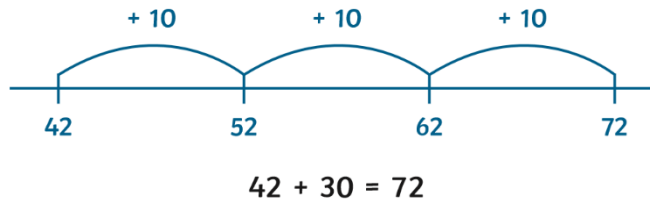2 + 5 = 7   5 + 2 = 7

4. Number line

3 + 9
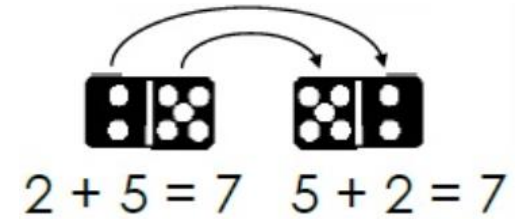
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14
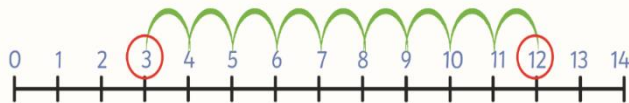
Draw a number line. Start at 3 and hop 9 hops to find the answer.

5. Empty number line – you can partition numbers.

+ 10   + 10   + 10

42   52   62   72

42 + 30 = 72

6. Using a hundred square.
Remember to count in tens first.

100 Square

31	32	33	34
41	42	43	44
51	52	53	54
61	62	63	64
71	72	73	74
81	82	83	84
91	92	93	94

7. Partitioning.

5	0	+	2	0	=	7	0
	2	+		7	=		9
5	2	+	2	7	=	7	9

8. Expanded Columns.

Write the numbers underneath each other lining up the tens and ones.

54
+ 68

Add the ones. 12

Add the tens. +110

Combine your ones and tens. Line up any hundreds. 122

9. Column Methods.

- Write the numbers underneath each other, make sure you line up the the numbers in the correct columns.
- Calculate from the units column and carry any tens etc.

1
65
+ 72
137

1 1
296
+ 46
342

1 1
276
+459
735

Subtraction

1. Draw a picture and cross off.	2. Inverse number bonds.	3. Using a hundred square.
✷✗✷✗☆☆☆☆ 7 - 2 = 5	Look for inverse number bonds in each calculation. 10 – 0 = 10 10 – 5 = 5 10 – 1 = 9 10 – 6 = 4 10 – 2 = 8 10 – 7 = 3 10 – 3 = 7 10 – 8 = 2 10 – 4 = 6 10 – 9 = 1 10 – 10 = 0	*Remember to count in tens first.* How to use a hundred square...

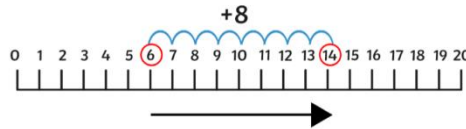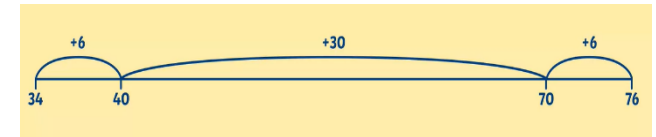| 4. Number line – Counting back	5. Number line – Counting on	6. Empty number line
14 - 6 = -6	14 - 6 = Start at the lower number and count on to the higher number. The number of steps you make to the higher number is the answer! +8	You can make jumps using multiples of ten. 76 – 34 = ? +6 +30 +6 34 40 70 76 6 + 30 + 6 = 42 76 – 34 = 42
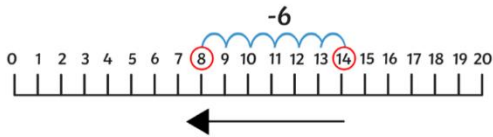
7. Partitioning.	8. Concrete materials	9. Column Methods.
27 - 13 27 - 10 = 17 17 - 3 = 14	Use cubes, small toys/cars, dried pasta etc. 6-2=4	• Write the numbers underneath each other making sure you line up the the numbers in the correct columns. • Calculate from the units column and borrow any tens etc. $^6\!\!\not{7}^1\!5$ - 48 ___ 27 ✔

Multiplication

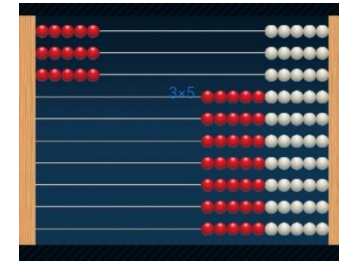| 1. Repeated Addition using images or concrete materials.	2. Repeated addition shown in groups using dots.	3. Using arrays such as a Rekenrek frame.
2 x 3 = ☆☆☆ ☆☆☆ 3 + 3 =	4 x 2 = (..) (..) (..) (..) 2 + 2 + 2 + 2 =	3 x 5 =
4. Using a hundred square to record each jump in the table.	5. Smile Multiplication.	6. Column Method multiplication 2d x 1d.
5 x 4 = 	80 x 2 = 80 x 2 = 160 Step 1 – Do the multiplication. Step 2 – count the number of zeros in the question. Step 3 – Put the zeros on the end of the answer.	T O 1 5 X 3 4 5 1 Step 1 – 3x5=15, carry the 1 underneath the tens column, write the 5 in the ones column. Step 2 – 3x1 = 3 Step 3 – Add the 3 to the 1 which was carried to make 4.
7. Partitioning numbers to multiply.	8. Extending partitioning.	9. Column method multiplication 2d x 2d.
15 x 3 = 10 x 3 = 30 5 x 3 = 15+ 45	235 x 3 = 200 x 3 = 600 30 x 3 = 90 5 x 3 = 15+ 705 1	H T O 25 X16 150 3 250 + 400 1 Step 1 – 6X5=30, carry 3 underneath the tens column, write the 0 in the ones column. Step 2 – 6x2 =12, add the 3 carried to make 15. Step 3 – Place 0 in the ones column as a placeholder as you move to the tens column. Step 4 – 1x5=5, write in the tens column Step 5 – 1x2, write in the hundreds column Step 6 – Add together the answers (150+250 = 400).
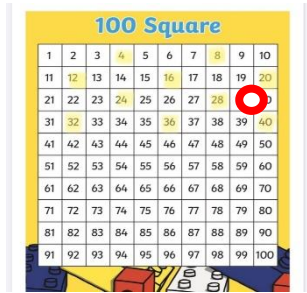
Division

1. Sharing using images or concrete materials.

$6 \div 3 =$

There are 6 sweets in total and 3 groups.

After sharing them out we can see there are **2** in each group.

$6 \div 3 = \mathbf{2}$

2. Grouping using dots
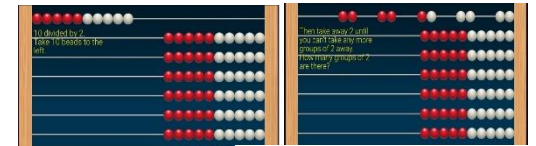
$16 \div 4 =$

There are 4 cakes in each box. How many boxes can you fill with 16 cakes?

There are **4** cakes in each box.

3. Using repeated subtraction on a Rekenrek
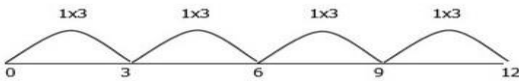
$10 \div 2 =$

Move 10 beads to the left

Take 2 away until you can't take anymore groups of 2 away. How many groups of 2 are there?

$10 - \mathbf{2} = 8 \quad 8 - \mathbf{2} = 6 \quad 6 - \mathbf{2} = 4 \quad 4 - \mathbf{2} = 2 \quad 2 - \mathbf{2} = 0$
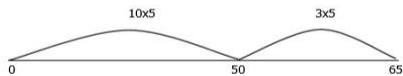
There are **5** groups of 2

4. Using a number line.

$12 \div 3 = 4$ (4 lots of 3)

$20 \div 6 = 3r2$ (3 lots of 6 with 2 left over)

$65 \div 5 = 13$ (13 lots of 5)

5. Chunking

We are working out how many groups of a number will fit into another number by making chunks, using multiples we know.

35 groups of 5 have been subtracted

Therefore $175 \div 5 = 35$

6. Division by partitioning

$3 \overline{)654}$

$600 + 54$

$600 + 30 + 24$

$(3 \times 200) + (3 \times 10) + (3 \times 8)$

$200 + 10 + 8 = 218$

$3 \overline{)600 + 30 + 24}$

Answer = 218
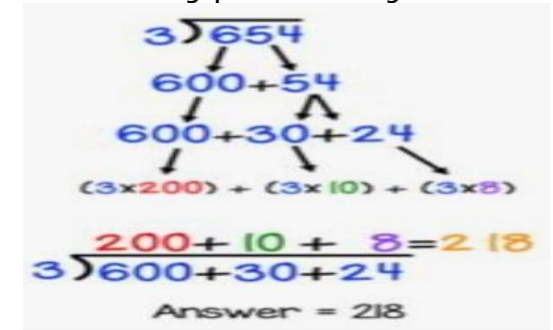
7. Column Method division of numbers by 1d numbers

$48 \div 4 \qquad 52 \div 4$

8. Extend column method division by using numbers with remainders or larger numbers.

$63 \div 4 \qquad 153 \div 6$

9. Column method division of numbers by 2d

$15 \overline{)3640}$

1. 15 into 3 doesn't go, so look at the next digit
   15 goes into 36 two times so put a 2 above the 6
   $15 \times 2 = 30$
2. Take that 30 away from the 36 to get your remainder
   $36 - 30 = 6$
3. Next bring the 4 down to make 64. 15 goes into 64 four times, so put a 4 above the 4.
   $15 \times 4 = 60$
4. Take 60 from the 64 to get your remainder.
   $64 - 60 = 4$
5. Carry the 0 down to make 40. 15 goes into 40 two times so put a 2 above the 0.
   $15 \times 2 = 30$
6. Take 30 from 40 to get your remainder.
   $40 - 30 = 10$

Answer = **242 r 10**

10. Extend to larger numbers and division by two digit numbers and decimals

$432 \div 15$

Answer = 28 r 12
$\left(= 28\frac{12}{15} = 28\frac{4}{5} \right)$

Answer = 28.8