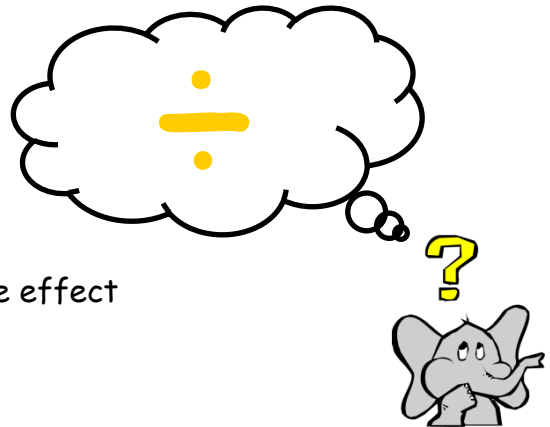


Progression in Teaching Division

Mental Skills

- Recognise the size and position of numbers
- Count back in different steps 2s, 5s, 10s
- Halve numbers to 20
- Recognise division as repeated subtraction
- Quick recall of division facts
- Use known facts to derive associated facts
- Divide by 10, 100, 1000 and understanding the effect
- Divide by multiples of 10



Models and Images

- Counting apparatus
- Arrays
- 100 squares
- Numicon
- Number tracks
- Numbered number lines
- Marked but unnumbered lines
- Empty number lines.
- Multiplication squares
- Models and Images charts
- ITPs - Multiplication mainders

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

Vocabulary

- Lots of
- Groups of
- Share
- Group
- Divide
- Division
- Divided by
- Remainder
- Factor
- Quotient
- Divisible

group groups of

 lots of divide

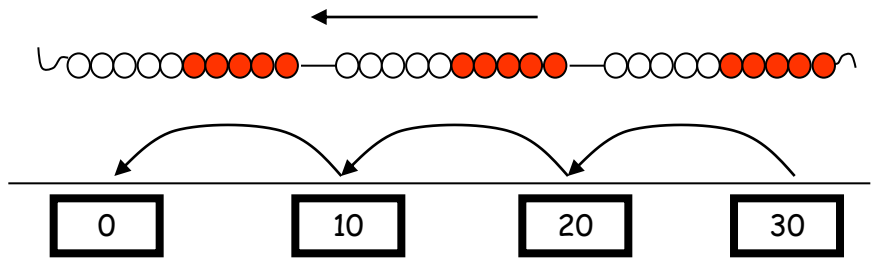
divided by quotient

division factor

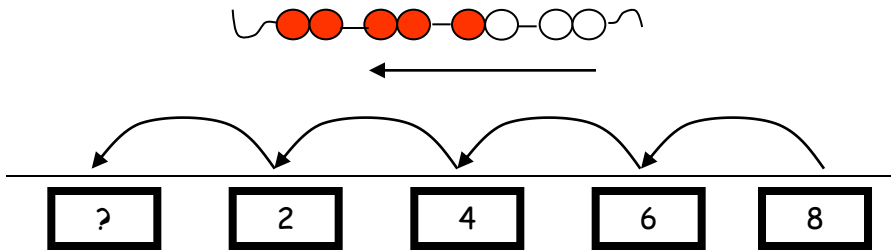
 remainder divisible

half halve share

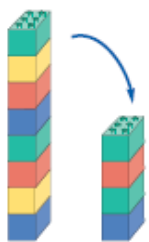
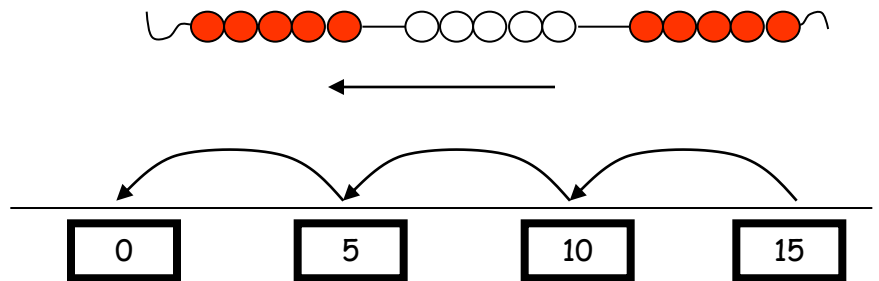
Count back in tens



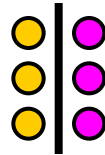
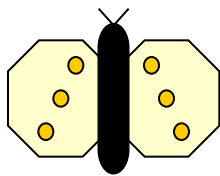
Count back in twos



Count back in fives



half of 8 is 4
 $8 \div 2 = 4$



Half of 6 is 3

$\frac{1}{2}$ of 6 = 3

Know halves

Use known multiplication facts to work out corresponding division facts

If $2 \times 10 = 20$

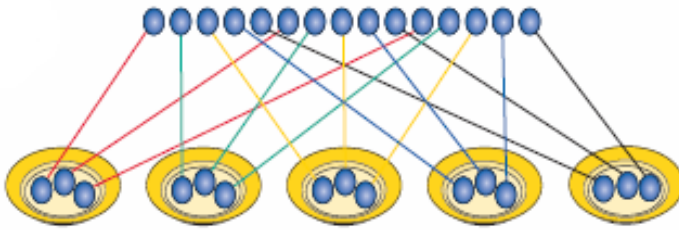
then

$20 \div 10 = 2$

$20 \div 2 = 10$

$$15 \div 5 = 3$$

15 shared between 5



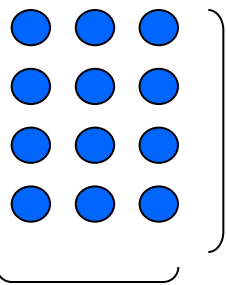
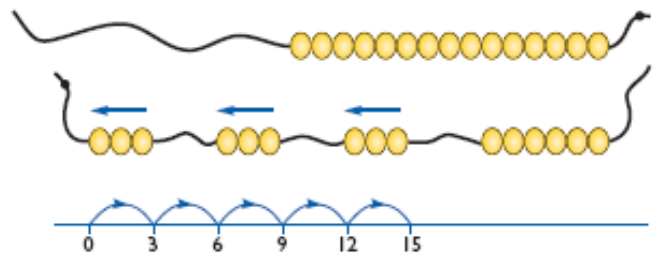
Understand division as sharing

Understand division as grouping

How many 3s in 15?



$$15 \div 3 = 5$$



12 divided into groups of 3 gives 4 groups

$$12 \div 3 = 4$$

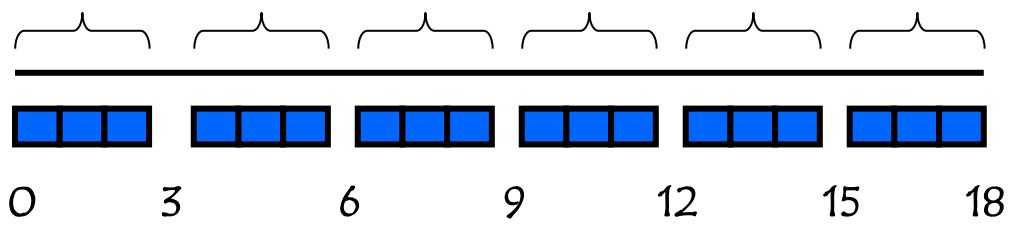
Reinforce division as grouping through the use of arrays

12 divided into groups of 4 gives 3 groups

$$12 \div 4 = 3$$

Represent 'groups' for division on a number line using apparatus alongside the line

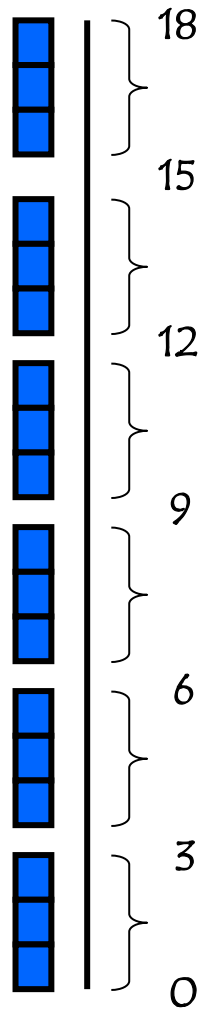
18 divided into groups of 3
 $18 \div 3 = 6$



$18 \div 3 = 6$



$18 \div 6 = 3$



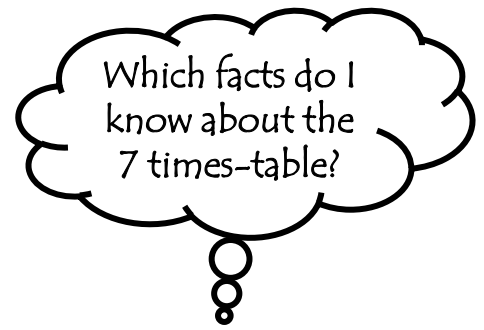
- -3
- -3
- -3
- -3
- -3
- -3
- -3

$18 \div 3 = 6$

$$\begin{array}{r}
 18 \\
 - 3 \ (1 \times 3) \\
 \hline
 15 \\
 - 3 \ (1 \times 3) \\
 \hline
 12 \\
 - 3 \ (1 \times 3) \\
 \hline
 9 \\
 - 3 \ (1 \times 3) \\
 \hline
 6 \\
 - 3 \ (1 \times 3) \\
 \hline
 3 \\
 - 3 \ (1 \times 3) \\
 \hline
 0
 \end{array}$$

Understand division as repeated subtraction using a vertical line and apparatus to make the links

Children need to see that as the numbers get larger, chunking is more efficient than repeated subtraction. Multiples of the divisor (large chunks) are taken away. Multiplication facts are needed to see the size of the 'chunk'.



$$100 \div 7 = \underline{14} \text{ r } 2$$

$$\begin{array}{r} 100 \\ - 70 \quad (\underline{10} \times 7) \\ \hline 30 \\ - 28 \quad (\underline{4} \times 7) \\ \hline 2 \end{array}$$

$$518 \div 7 = \underline{74}$$

$$\begin{array}{r} 518 \\ - 350 \quad (\underline{50} \times 7) \\ \hline 168 \\ - 140 \quad (\underline{20} \times 7) \\ \hline 28 \\ - 28 \quad (\underline{4} \times 7) \\ \hline 0 \end{array}$$

Fact Box

$$1 \times 7 = 7$$

$$2 \times 7 = 14$$

$$5 \times 7 = 35$$

$$10 \times 7 = 70$$

$$20 \times 7 = 140$$

$$50 \times 7 = 350$$

$$100 \times 7 = 700$$

Short division of single digit numbers.

$$207 \div 9 = 23$$

$$\begin{array}{r} 23 \\ 9 \overline{) 207} \\ \underline{18} \\ 20 \\ \underline{18} \\ 20 \\ \underline{18} \\ 27 \\ \underline{27} \\ 0 \end{array}$$

$$560 \div 24$$

$$\begin{array}{r} 23 \text{ r } 8 \\ 24 \overline{) 560} \\ \underline{480} \\ 80 \\ \underline{72} \\ 80 \\ \underline{72} \\ 8 \end{array}$$

Long division of two digit numbers.