How Calculations are Taught at Purbrook Infant School

Parent Workshops

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Do it your way

Use the paper and pencils provided to work out the answers to these questions

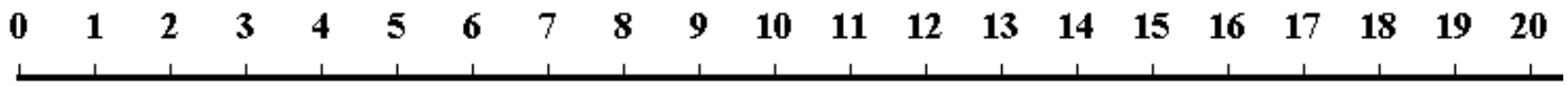
- 139 + 188 = 327
- 132 – 84 = 48
- 14 x 7 = 98
- 49 ÷ 7 = 7

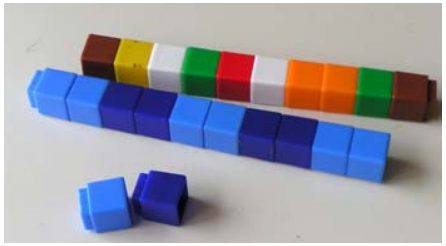
What do we teach in Key Stage 1?

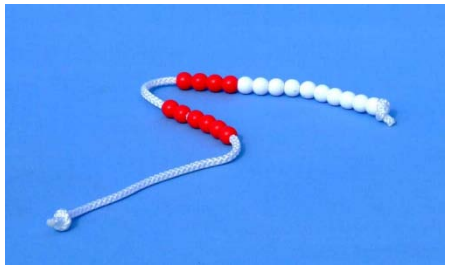
- Number bonds from 10 and 20 (ie 7+3=10, 18+2= 20)
- Addition (Mental Strategies, Structured Number Line, Empty Number Line)
- Subtraction (Mental Strategies, Structured Number Line, Empty Number Line)
- Basic multiplication (Arrays & Repeated Addition)
- Basic division (Grouping, Sharing and Repeated Subtraction)
- Fractions (½ , ¼, 1/3)
- 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

Resources

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





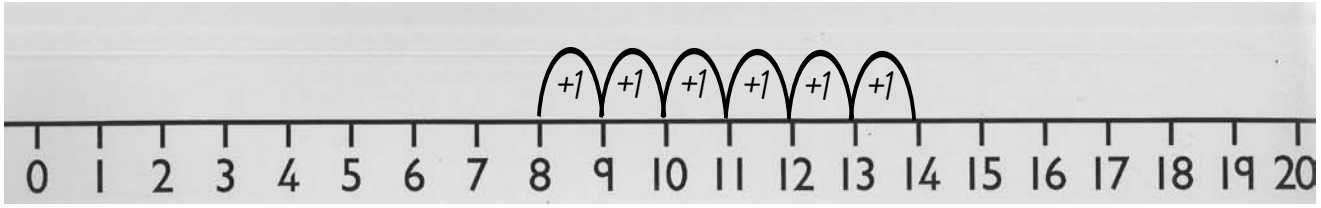


Addition & Subtraction – Calculation Methods

- Children are not taught to add / subtract numbers using the column method until Key Stage 2.
- We teach children mental strategies and give them a variety of different resources which they can use to support these mental strategies (Numicon, bead strings etc)
- In Year 2 we expect the children to be confident in using a “Structured Number Line” so they can move on to an “Empty Number Line” or “Unstructured Number Line”.

Addition – Structured Number Line

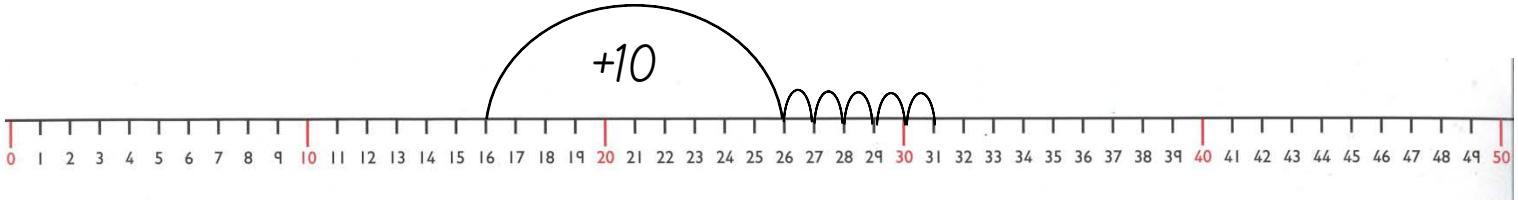
6 + 8 = 14



- Children are taught to start with the biggest number
- Count on (add) in units
- The final number will be the answer

Addition – Structured Number Line

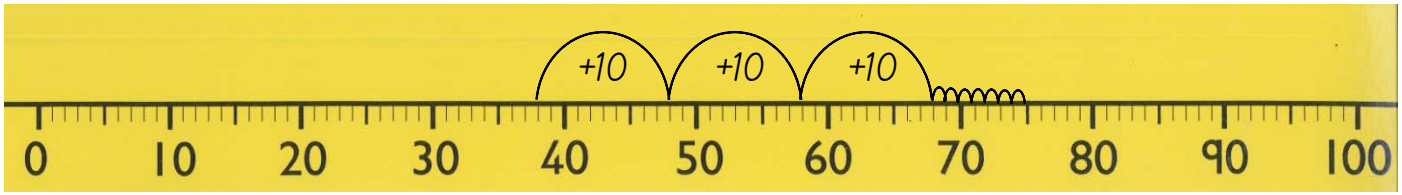
16 + 15 = 31

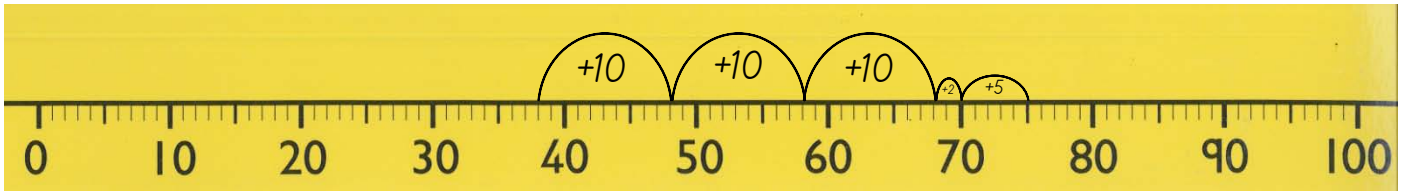


- Children are taught to start with the biggest number
- Count on (add) in tens and then inunits
- The final number will be the answer

Addition – Structured Number Line

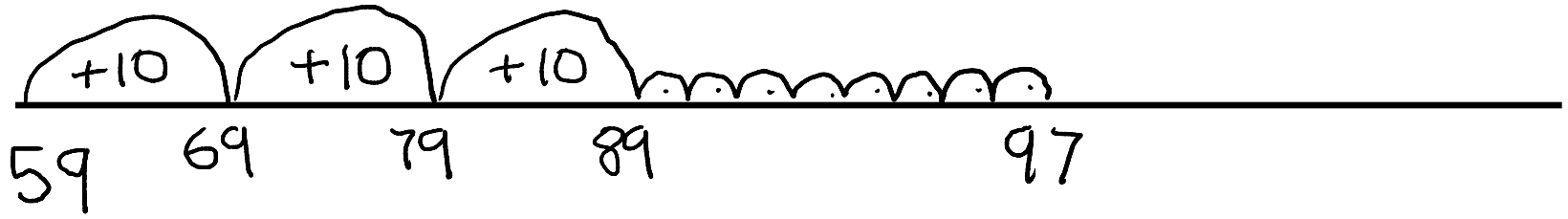
38 + 37 = 75



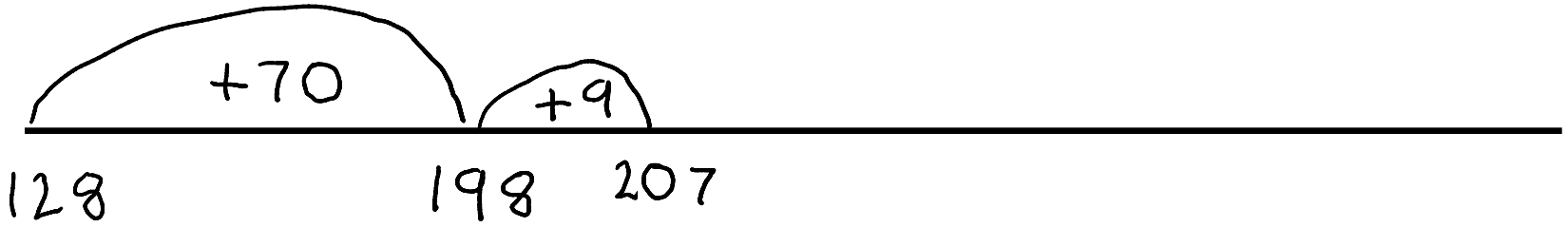


Addition – Empty Number Line

38 + 59 = 97

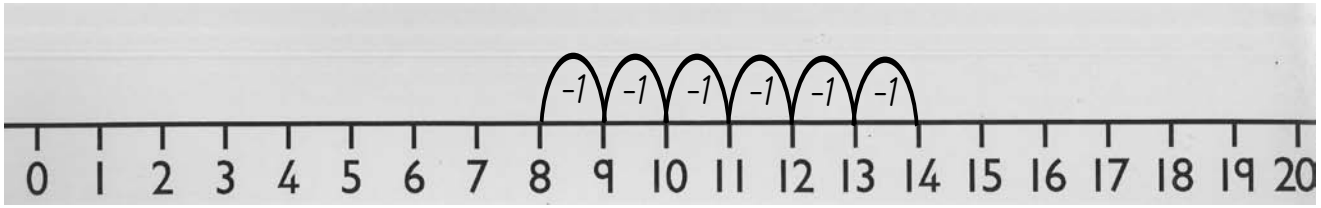


128 + 79 = 207



Subtraction – Structured Number Line

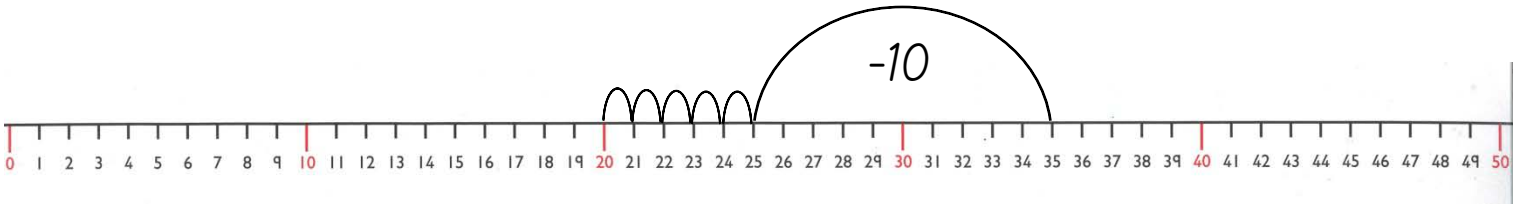
14 - 6 = 8



- Children are taught to start with first number
- Jump back in units
- The final number will be the answer

Subtraction – Structured Number Line

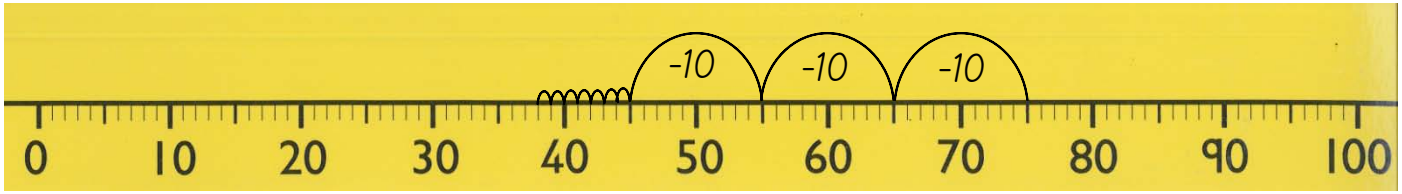
35 - 15 = 20

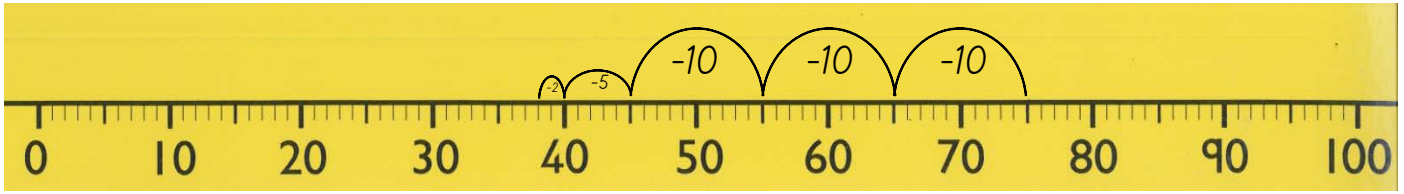


- Children are taught to start with the first number
- **Count back** in tens and then units
- The final number will be the answer

Subtraction – Structured Number Line

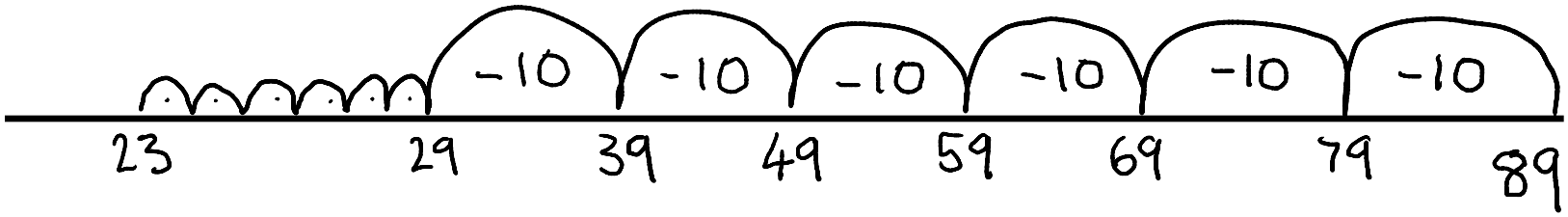
75 - 37 = 38





Subtraction – Empty Number Line

89 – 66 = 23



228 - 149 = 79

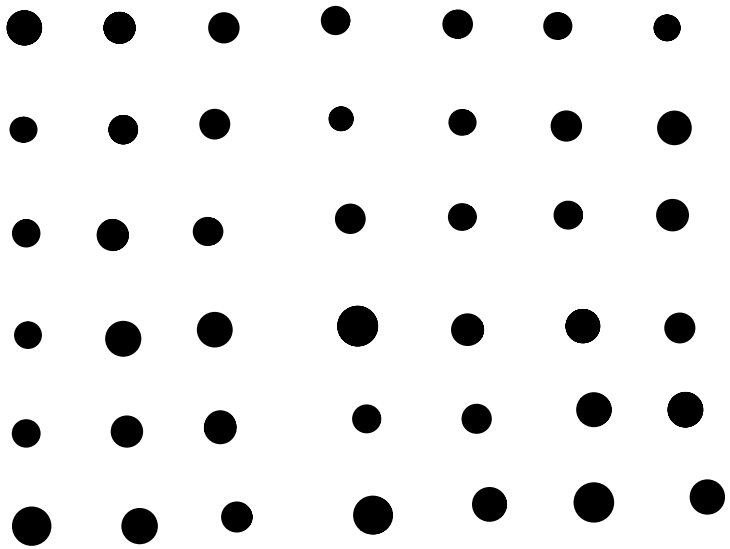
Multiplication – Calculation Methods

- In Year 1 children will be introduced to the concept of multiplication through repeated addition using structured apparatus.
- In Year 2 we teach children to answer multiplication questions either using their knowledge of the times tables or by drawing an array.
- Once they are confident in using these methods they may go on to using repeated addition on the “structured” and/or “empty number line”.

Models & Images - Drawing an Array

6 x 7 = 42

Think of it as 6 lots of 7



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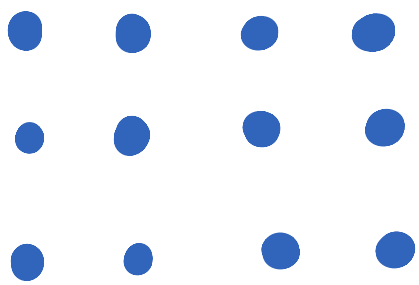
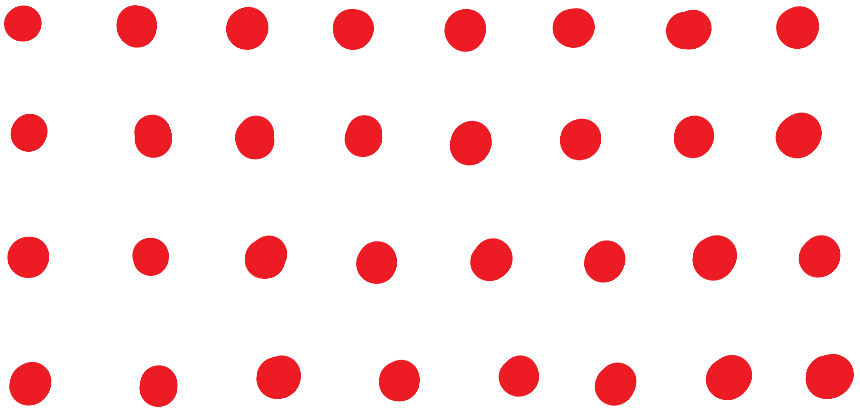
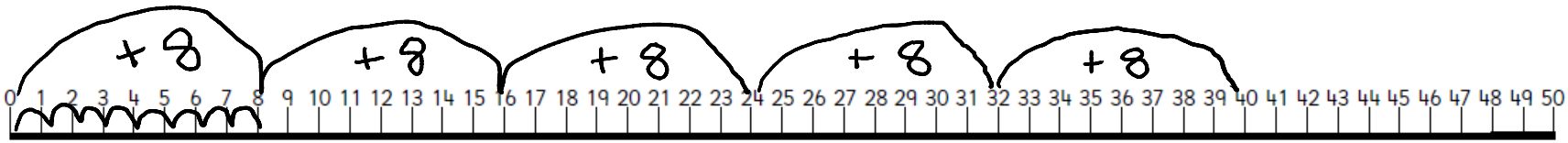
Models & Images - Drawing an Array





Multiplication – Repeated Addition

5 x 8 = 40



- Children are taught to start at zero
- Count on in groups (in this case 8)
- The final number will be the answer

Division – Calculation Methods

- Early in Key Stage 1 the children will be introduced to the concept of ‘sharing’ through practical activities
- Initially in Year 2 we teach children to answer division problems / questions using the sharing or grouping method
- Both methods will give you the same answer, but each model / image will help answer a different type of word problem
- Children then go on to answer division questions / problems using a repeated subtraction method on a structured or empty number line.

Division – When to Group / Share

Grouping Questions

You have 25 cubes.

How many towers of 5 can you make?

There are 30 pencils. Each child gets 3 pencils. How many children are there?

You buy 15 flowers. You put 3 flowers in each vase. How many vases do you use?

Sharing Questions

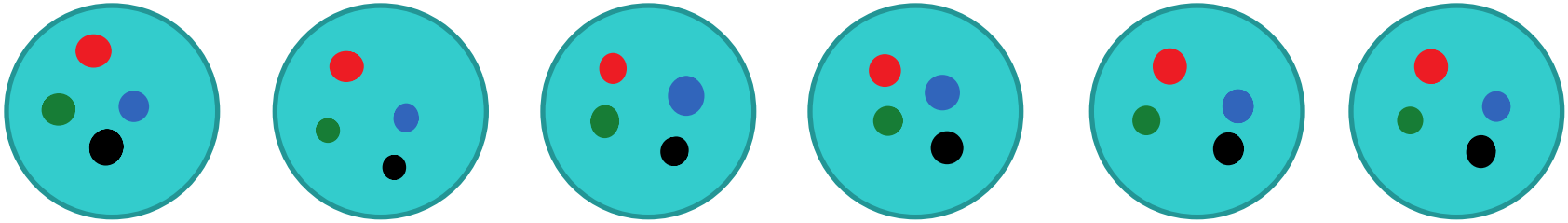
A chef shares 14 pieces of pepperoni between two pizzas. How many pieces of pepperoni does each pizza get?

Marge gives her five grandchildren £30 to share between them. How much do they get each?

Models & Images - Sharing

24 ÷ 6 = 4

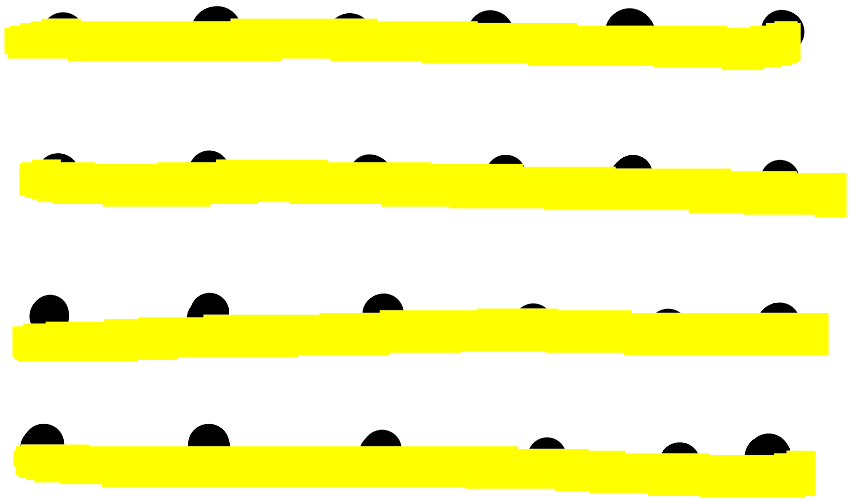
Put one in each circle until you have counted out all 24. The number in each circle is your final answer.



Models & Images - Grouping

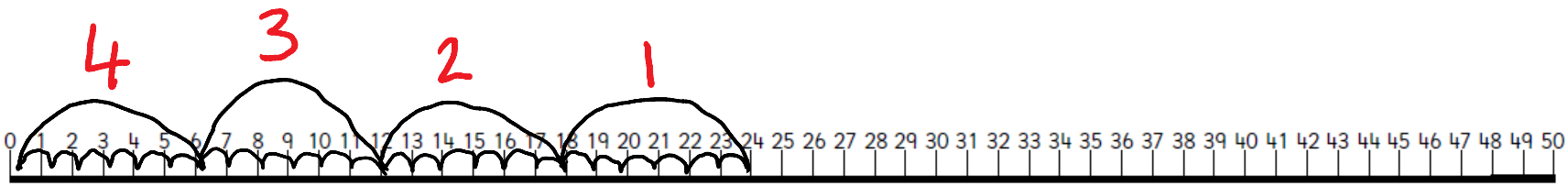
24 ÷ 6 = 4

Work out how many groups of 6 you can make from 24



Division – Repeated Subtraction

$24 \div 6 = 4$



- Children are taught to start with first number.
- Count back (subtract) in groups (6 in this case).
- The children will then have to count how many groups they have made. This will be the answer.

What will I see today?

- When you go to your group or class you will see the teacher teaching one of the calculating methods you have seen today.

What can I do to help at home?

‘The most effective support you can offer your child is your time. Highlight the mathematical situations in everyday life wherever possible e.g. counting stairs, shopping, journeys, planning TV viewing and playing games. Games do not have to be expensive – a pack of cards, a set of dominoes, some dice and a calendar provide endless opportunities to explore mathematics’.