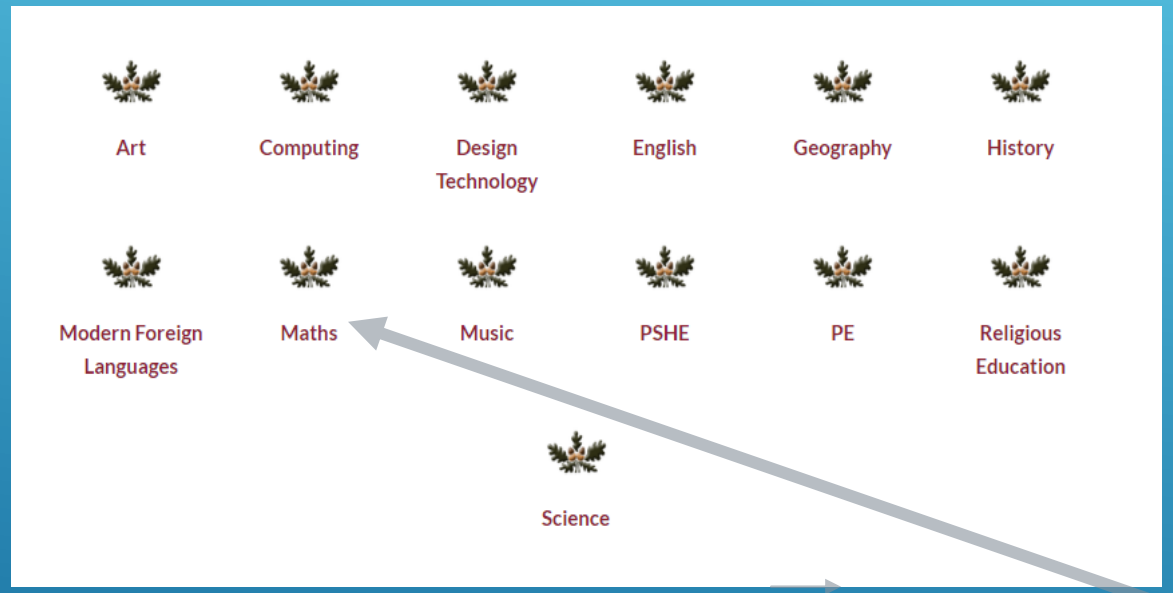
MATHS CALCULATION WORKSHOP

Wednesday 4th October

AIMS

- Understand the progression of addition and subtraction through the years 1 -6.
  Understand mental methods that children can use.

SCHOOL WEBSITE



Curriculum page on website.

THE CPA APPROACH

Concrete

Using physical objects to solve maths problems

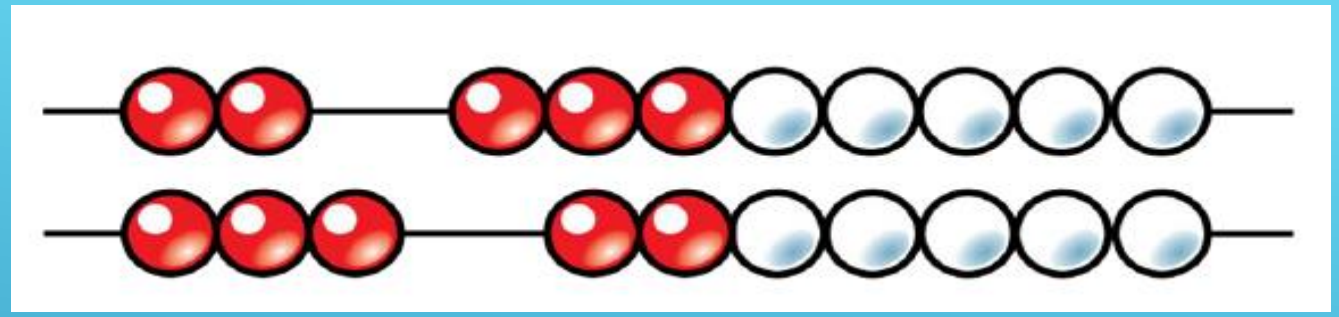
Pictorial

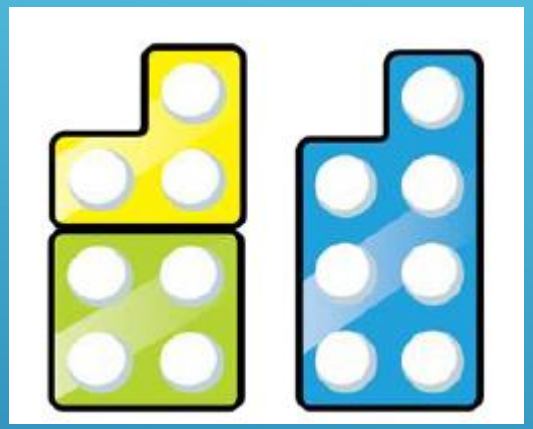
Drawing or using ready-made representations of physical objects.

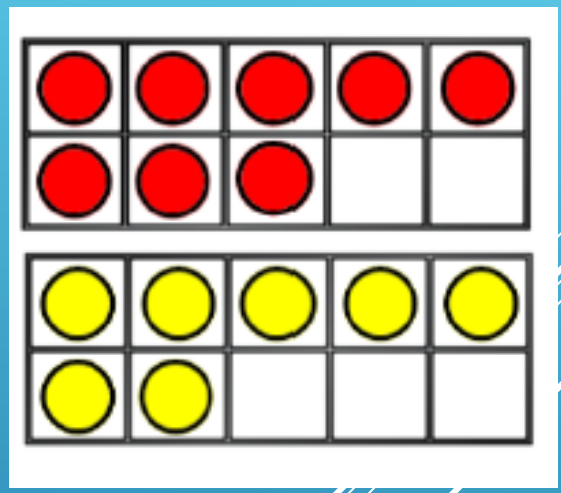
Abstract

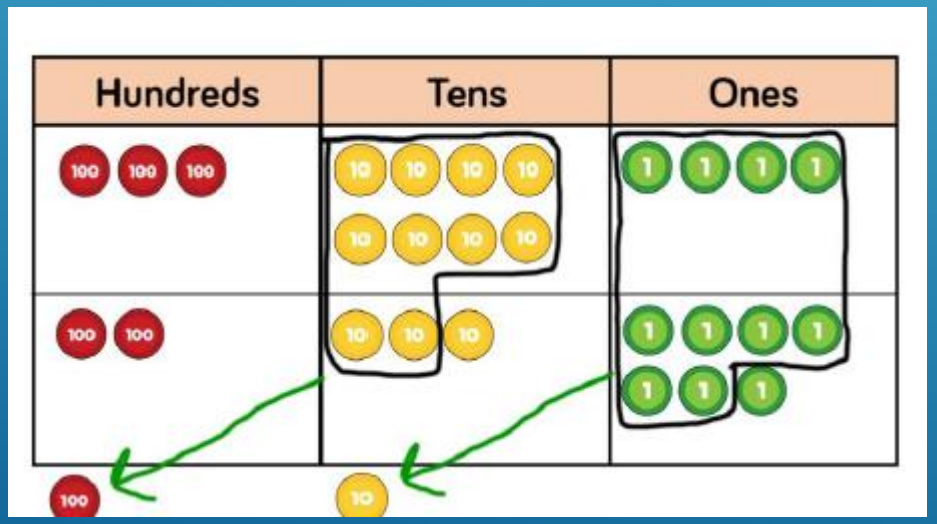
Using numbers or symbols.

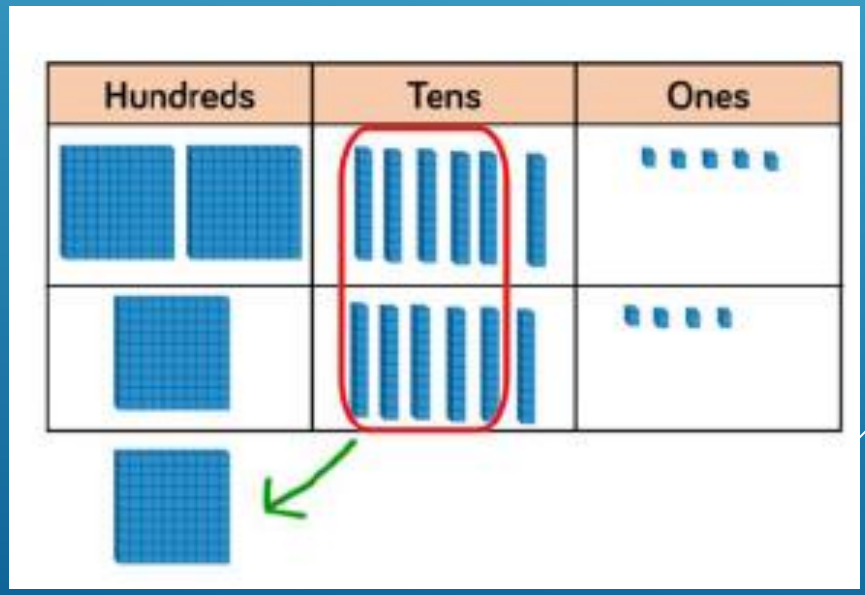
CONCRETE



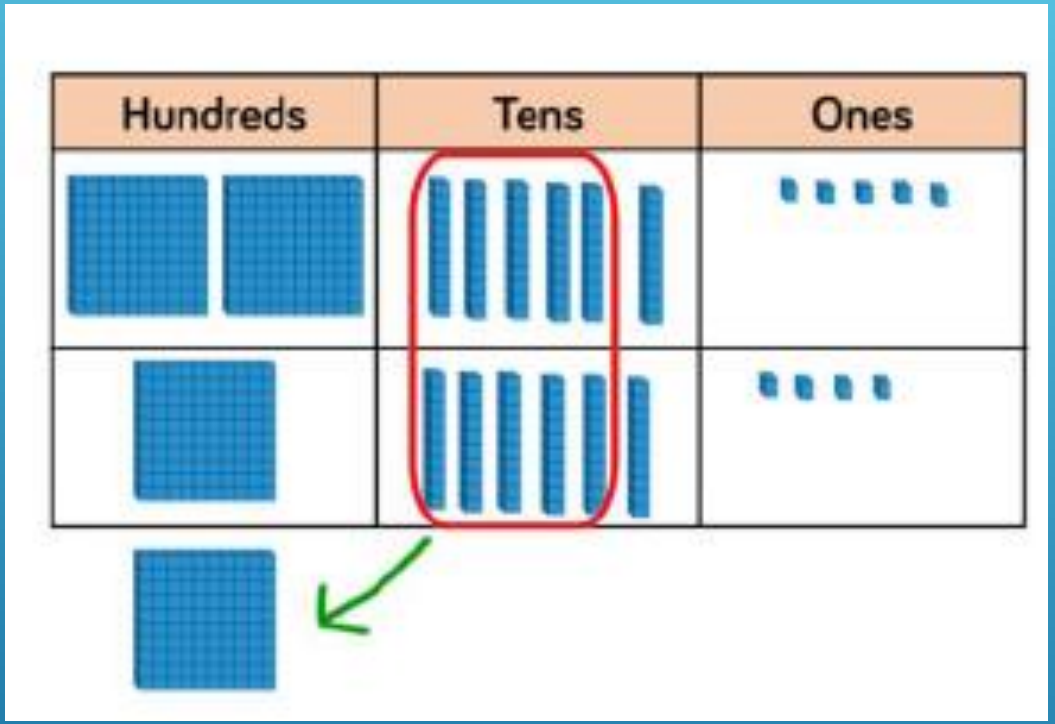




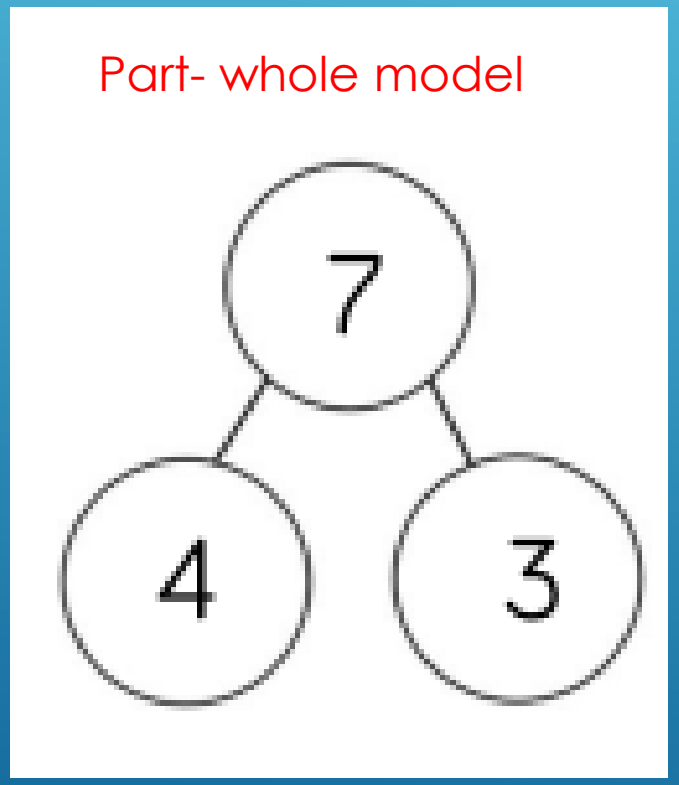


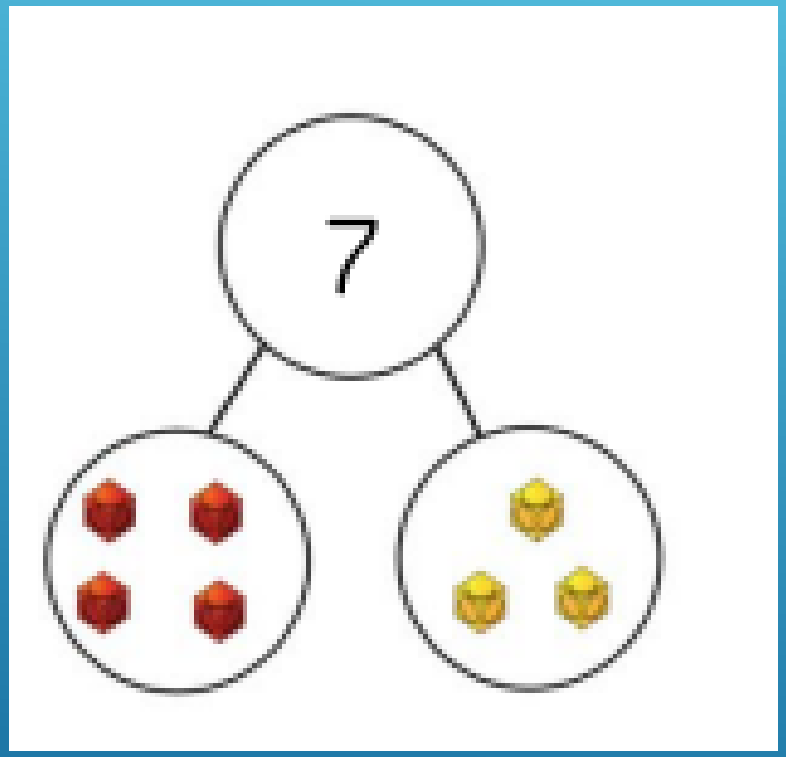


CONCRETE → PICTORIAL



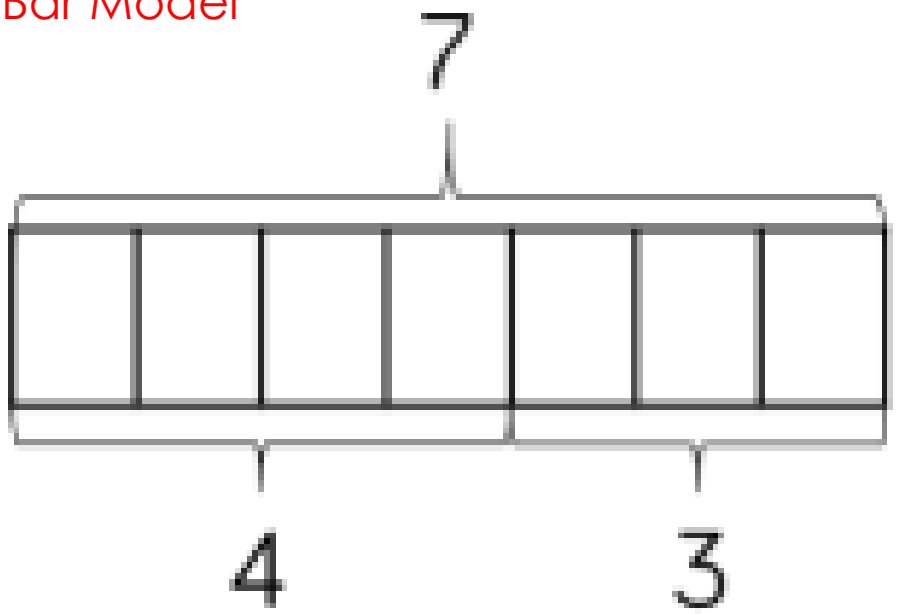
PICTORIAL

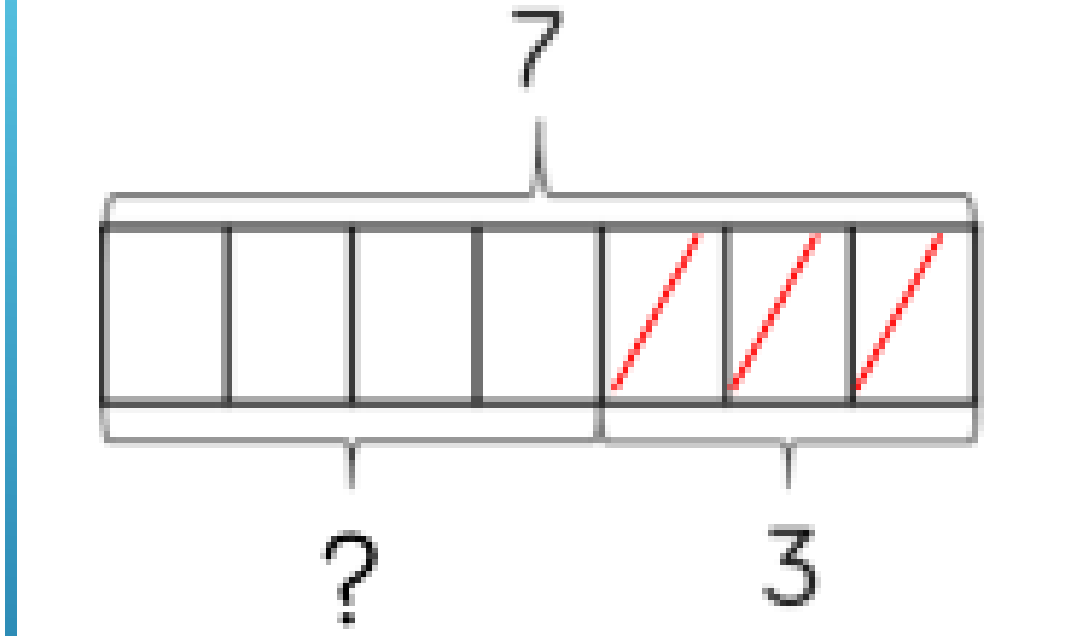




PICTORIAL

Bar Model





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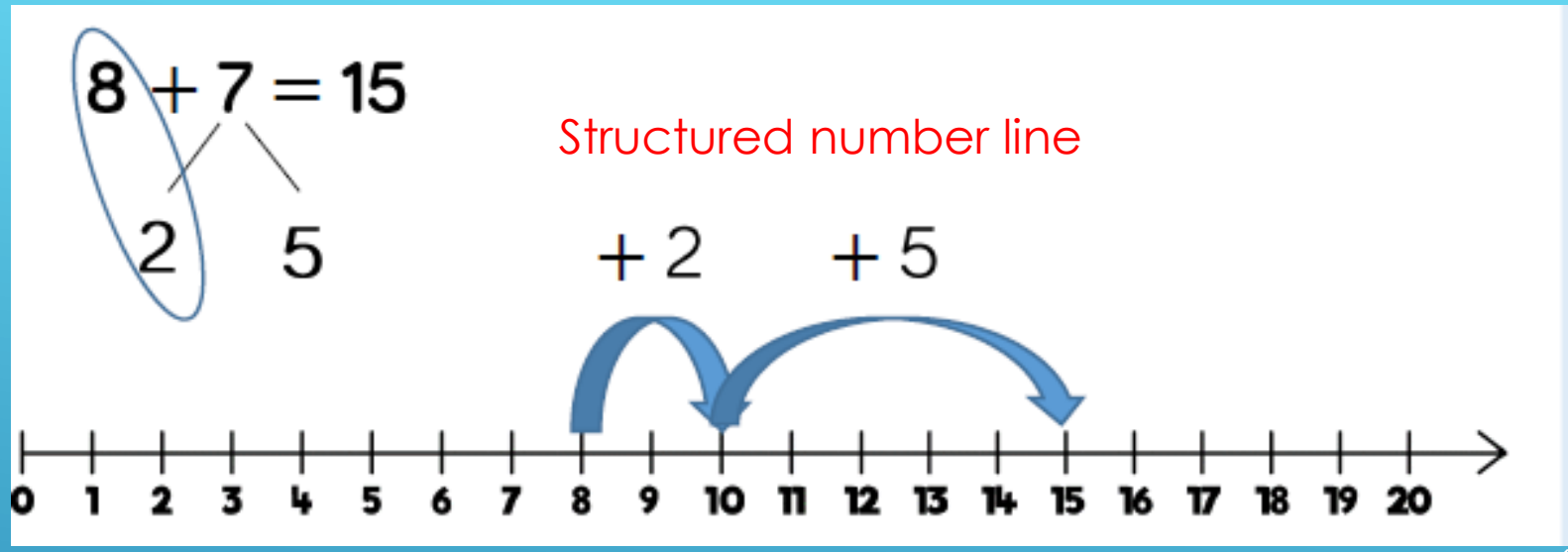
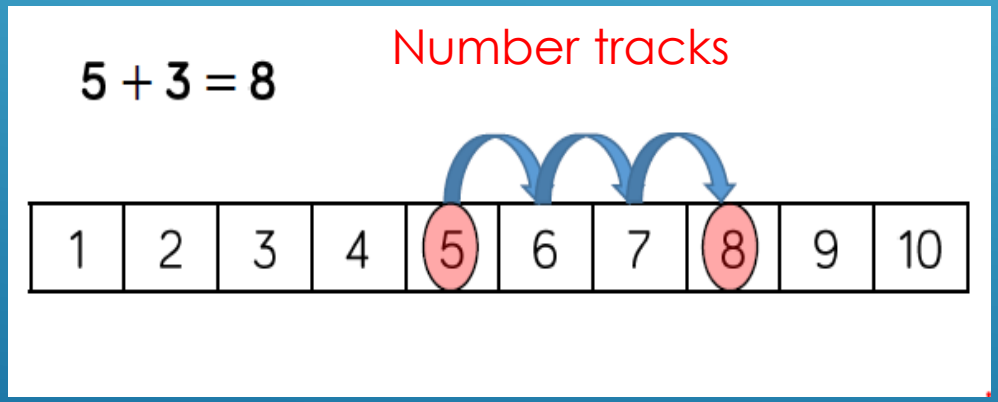
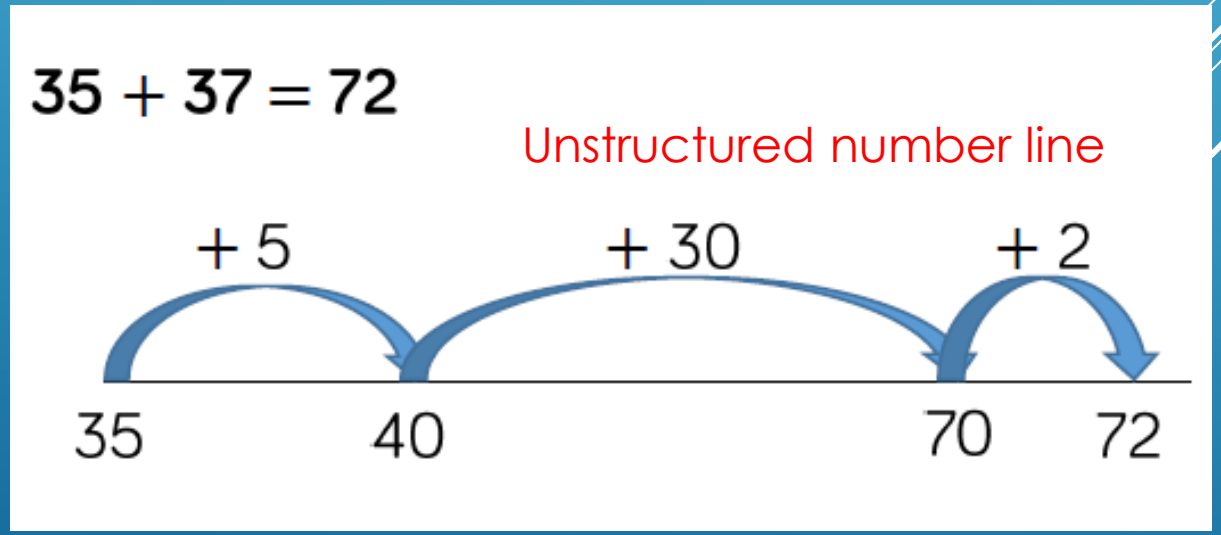

8 + 7 = 15
2
5
Structured number line
+ 2
+ 5
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20


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


35 + 37 = 72
Unstructured number line
+ 5
+ 30
+ 2
35
40
70
72

Acorns to Mighty Oaks

Grayshott Church of England Primary School Calculation Policy

Addition and Subtraction

This policy has been largely adapted from the White Rose Maths Hub Calculation Policy with further material added from Hampshire calculation guidance. It is a working document and will be revised and amended as necessary. Many variations have been included to provide teachers with a range of tools to support pupils in their grasp of number and calculation. To ensure consistency for pupils, it is important that that the mathematical language used in maths lessons reflects the vocabulary used throughout this policy.

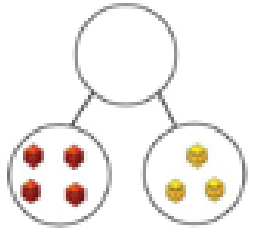
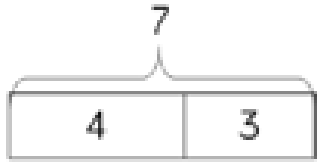
Hampshire Services
HIAS SCHOOL IMPROVEMENT

White Rose Maths

Year 1

National Curriculum Objectives:

- read, write and interpret mathematical statements involving addition (+), subtraction (−) and equals (=) signs
- represent and use number bonds and related subtraction facts within 20
- add and subtract one-digit and two-digit numbers to 20, including zero
- solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as 7 = ☐ − 9

Addition (Year 1) Objective/Skill:	Concrete	Pictorial	Abstract
Add one digit numbers within 10.	Children will use part whole model. Use cubes to add two numbers together as a group or in a bar.  	Use pictures to add two numbers together as a group or in a bar. These numbers be represented or written in a part-whole model.   	$4 + 3 = 7$ Use the part whole diagram as shown above to move into the abstract. Include missing number questions to support varied fluency: 7 = ? + 3 4 + ? = 7

Tips for using document:

- Always look at the year group before your child's current year group.

MENTAL METHODS

- We want children to be efficient and fluent mathematicians.
- We want them to choose their method!

WHAT DOES THE CURRICULUM SAY? *ADDITION AND SUBTRACTION*

Year R- Lots of opportunities to count objects of different sizes.

Year 1- add and subtract one-digit and two-digit numbers to 20, including zero

Year 2 - add and subtract numbers using concrete objects, pictorial representations, and **mentally,** including:

- a two-digit number and ones
- a two-digit number and tens
- two two-digit numbers
- adding three one-digit numbers

WHAT DOES THE CURRICULUM SAY? *ADDITION AND SUBTRACTION*

Year 3 - add and subtract numbers **mentally**, including: add and subtract numbers with up to three digits, using formal written methods of column addition and subtraction

Year 4 - Pupils continue to practise both **mental methods** and column addition and subtraction with increasingly large numbers to aid fluency (NS)

Year 5 - add and subtract numbers **mentally** with increasingly large numbers

Year 6 - They undertake **mental calculations** with increasingly large numbers and more complex calculations (NS)

YEAR 1 AND 2 (AND BEYOND!!)

Counting on and back in 1s, 2s and 10s.

Partitioning using 'near doubles'
e.g. 6 + 7 (Double 6, then add 1)

Bridging by partitioning small numbers
65 + 7 (65 + 5 + 2)

Re-ordering
2 + 5 + 8 = 8 + 2 + 5

YEAR 2 +

Rounding and adjusting

63 + 29

Round: 63 + 30 = 93

Adjust: 93 – 1= 92

THANK YOU!