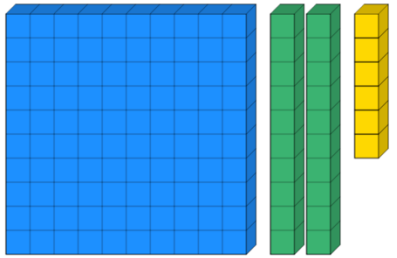
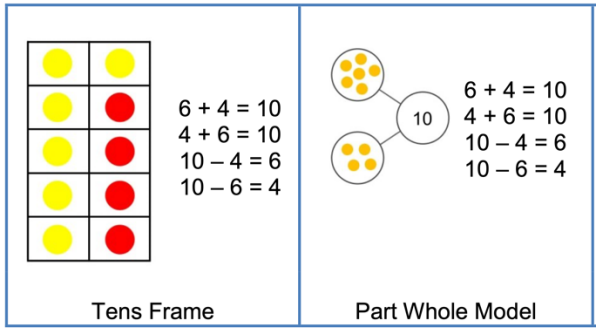


COOKHAM RISE PRIMARY SCHOOL

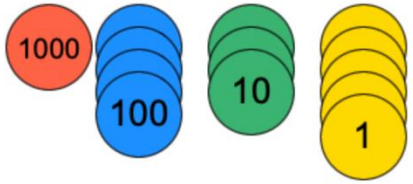
S·H·I·N·E



"They didn't do it like that when I was at school."

Find out more about the mastery approach to maths and how to support your child's learning

Workshop 1: Number, addition and subtraction
7 – 8pm Thursday 1st February 2024
Year 6 Classroom

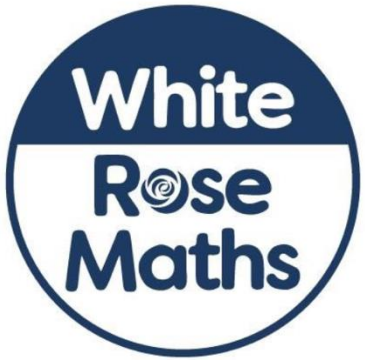


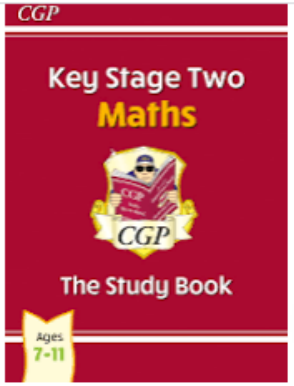
Welcome

- Introduction to Maths Mastery and maths at Cookham Rise
- Supporting your child at home
- Formal methods for addition and subtraction
- Resources – time to play!
- Questions

Maths at Cookham Rise

- **Complete Maths**
- NCTEM
- White Rose Maths
- CGP workbooks
- Times Table Rock Stars





What is Maths Mastery?

The Maths Mastery approach originated in Asia, in high performing schools in cities including Shanghai and Singapore. In the UK, hundreds of schools have adopted this approach, and organisations including Ofsted, the DfE, and the NCETM are supporting Maths Mastery.

• Mathematics teaching for mastery assumes everyone can learn and enjoy mathematics.

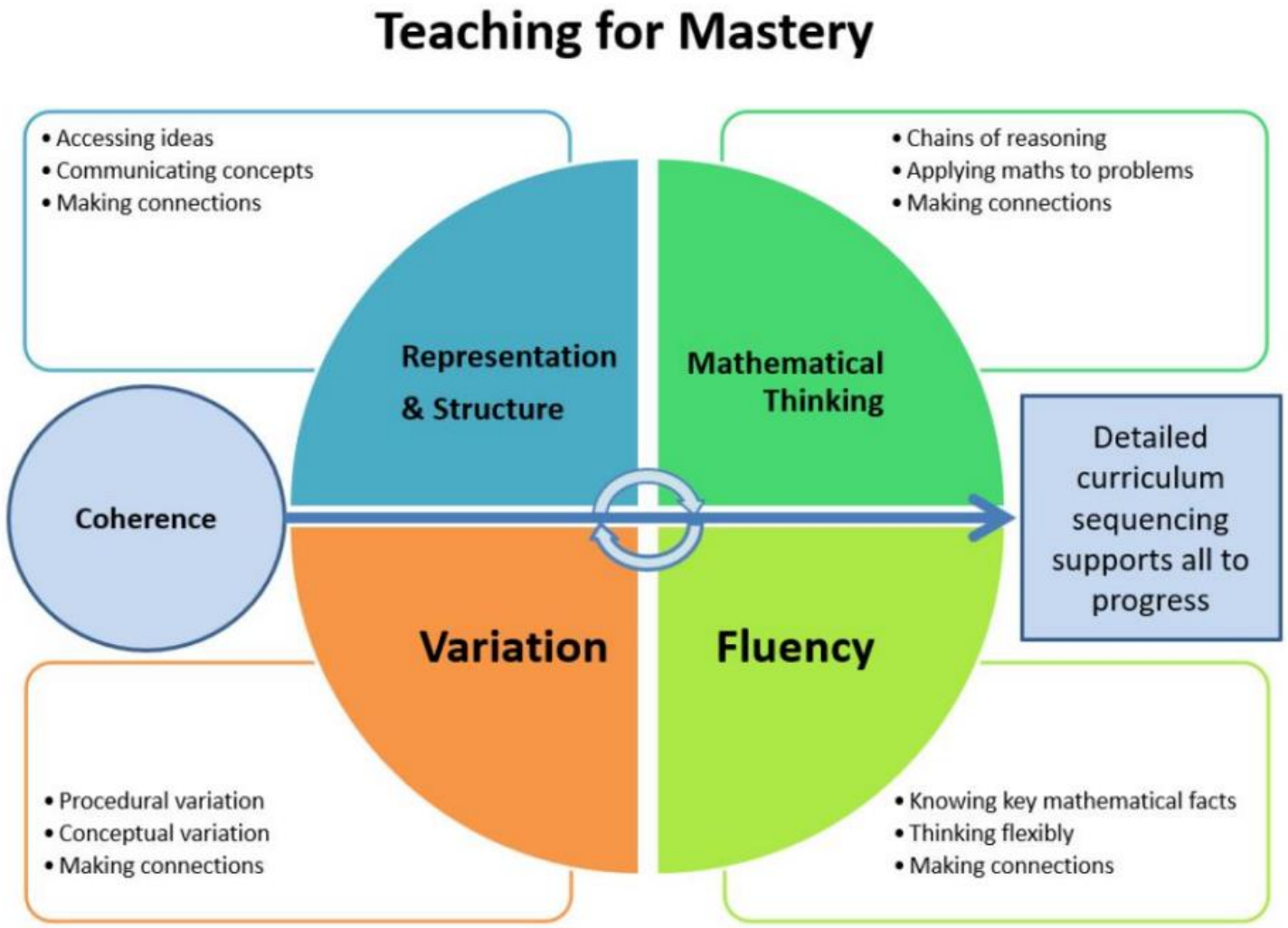
• Mathematical learning behaviours are developed such that pupils focus and engage fully as learners who reason and seek to make connections.

• In a typical lesson, the teacher leads back and forth interaction, including questioning, short tasks, explanation, demonstration, and discussion, enabling pupils to think, reason and apply their knowledge to solve problems.

• Use of precise mathematical language enables all pupils to communicate their reasoning and thinking effectively.

•Key number facts are learnt to automaticity, and other key mathematical facts are learned deeply and practised regularly, to avoid cognitive overload in working memory and enable pupils to focus on new learning.

5 big ideas


Teaching for Mastery
• Accessing ideas
• Communicating concepts
• Making connections
• Chains of reasoning
• Applying maths to problems
• Making connections
Representation & Structure
Mathematical Thinking
Coherence
Detailed curriculum sequencing supports all to progress
Variation
Fluency
• Procedural variation
• Conceptual variation
• Making connections
• Knowing key mathematical facts
• Thinking flexibly
• Making connections

MASTERY MATHS

CAN YOU MAKE IT?

CAN YOU DRAW IT?

CAN YOU EXPLAIN IT?

HOW COULD YOU DO IT DIFFERENTLY?

WHY DID YOU CHOOSE THAT METHOD?

CAN YOU MAKE IT EASIER?

CAN YOU MAKE IT HARDER?

HOW MANY DIFFERENT WAYS COULD YOU SOLVE IT?

HOW DO YOU KNOW IF IT'S RIGHT?

CAN YOU SPOT AN ERROR?

HOW EFFICIENT IS THE METHOD USED?

CAN YOU CREATE YOUR OWN PROBLEM USING THE SAME STYLE?

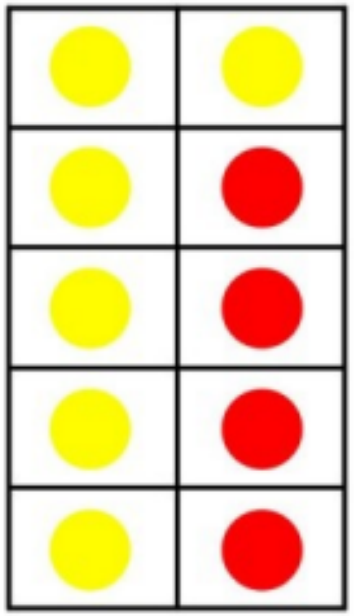
CAN YOU TEACH SOMEONE ELSE?

CAN YOU WRITE INSTRUCTIONS FOR SOMEONE TO FOLLOW?

WHAT NEW MATHS LANGUAGE HAVE YOU LEARNT? CAN YOU EXPLAIN IT?

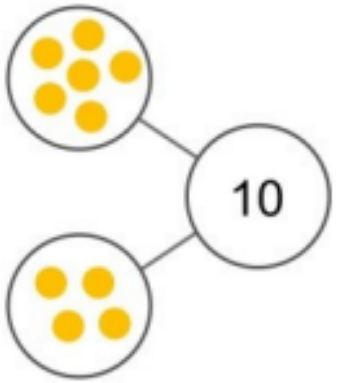
EXPLAIN WHAT WAS DIFFICULT ABOUT THE PROBLEM? HOW DID YOU OVERCOME IT?

Representation and structure



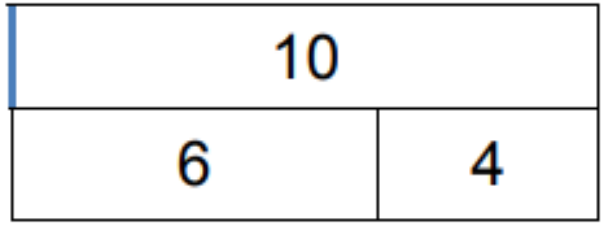
6 + 4 = 10
4 + 6 = 10
10 – 4 = 6
10 – 6 = 4

Tens Frame



6 + 4 = 10
4 + 6 = 10
10 – 4 = 6
10 – 6 = 4

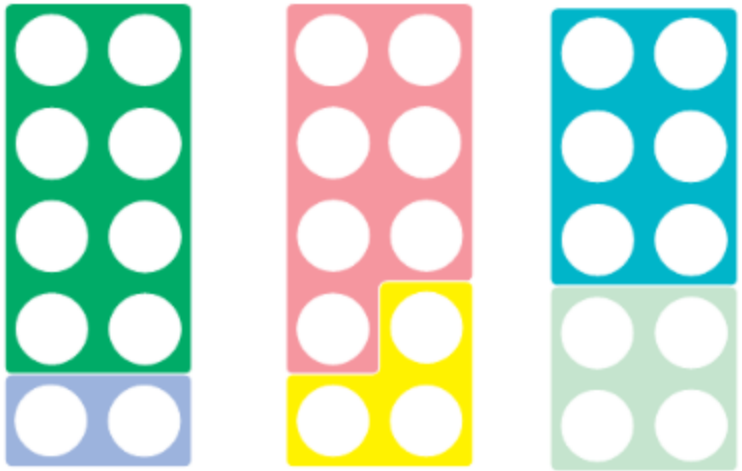
Part Whole Model

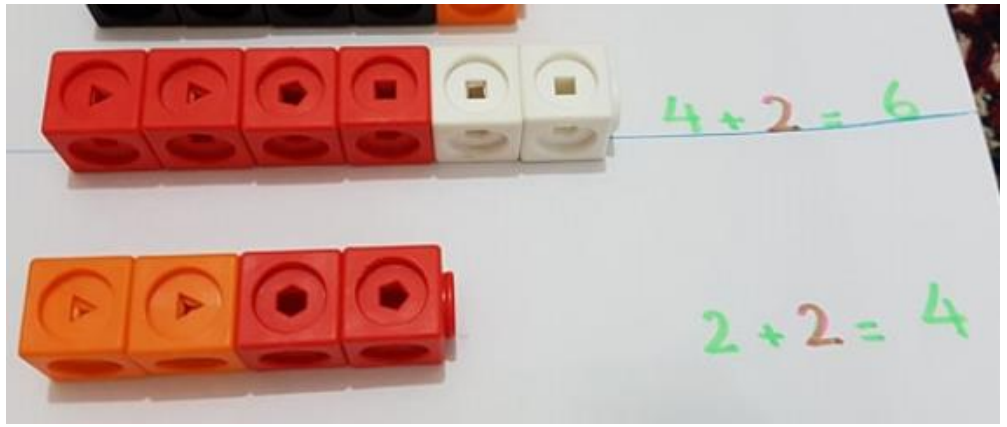


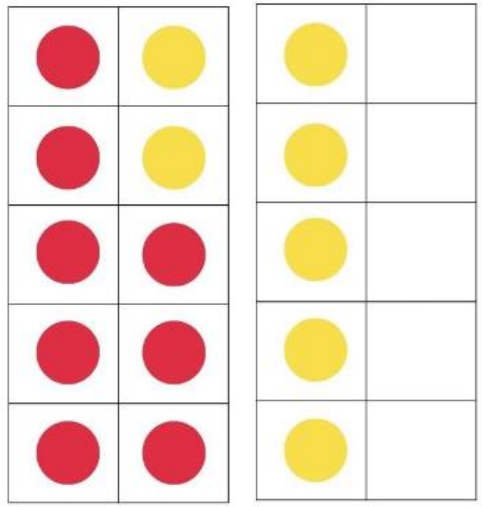
6 + 4 = 10
4 + 6 = 10
10 – 4 = 6
10 – 6 = 4

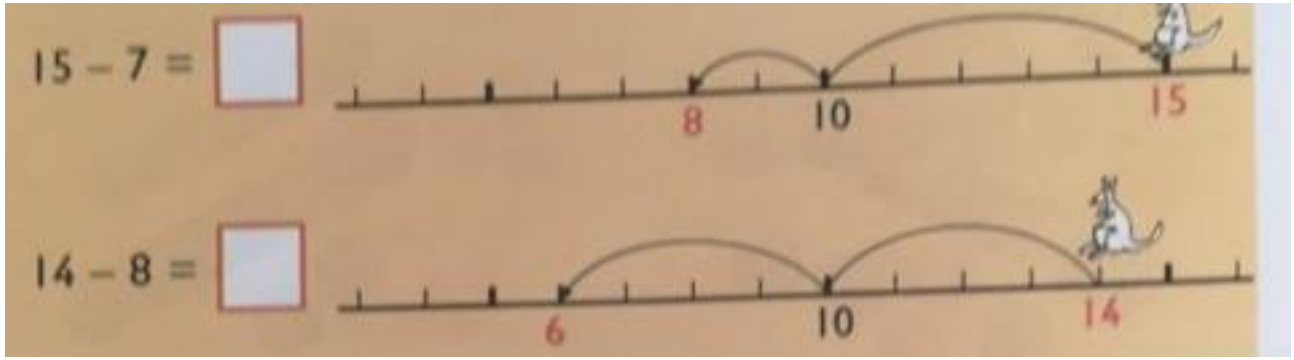
Bar Model

Representation and structure







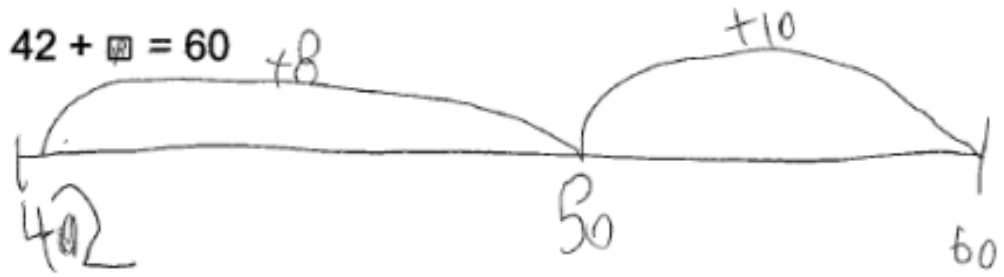


By the end of KS1

• Add and subtract any 2 two-digit numbers using an efficient strategy, explaining their method verbally, in pictures or using apparatus.

• Recall all number bonds to and within 10 and use these to reason with and calculate bonds to and within 20, recognising other associated additive relationships
(e.g. If 7 + 3 = 10, then 17 + 3 = 20; if 7 – 3 = 4, then 17 – 3 = 14)

"42 add 8 would equal 50, then add the 10 would equal 60, so it is 18."



4+6=10
6+4=10
10−4=6
10−6=4
4+16=20
6+14=20
20−6=14
20−4=16

72 – 38 = 34
72−30=42
42−8=34

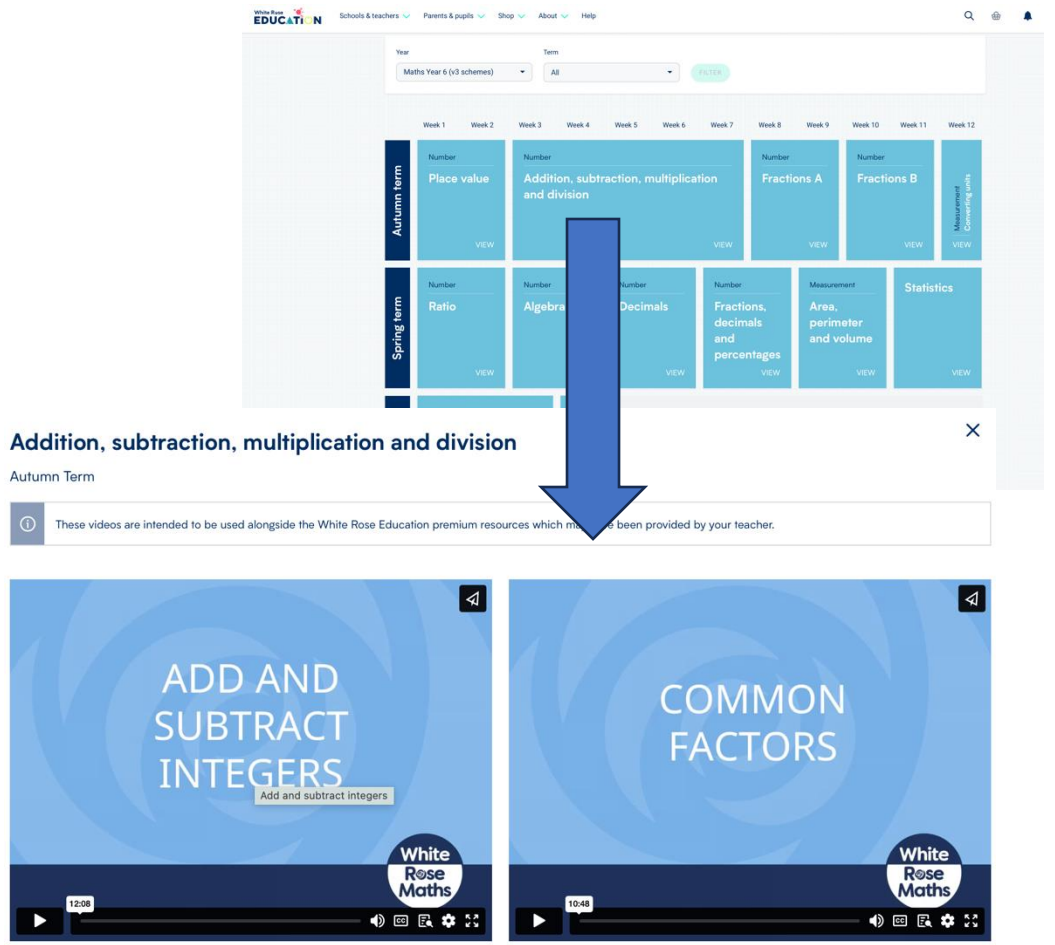
"I know 72 take away 30 is 42. 42 take away 8 equals 34."

Supporting children

- https://www.youtube.com/watch?v=8FRAa2_O-ko

It wasn’t like this when I was at school!

- Ask your child to explain the method
- Explain there’s often more than one way
- Look for information in the class letter; ask the teacher for more information
- Talk positively about maths and how you use it in real life
- Avoid saying “I was never any good at maths”
- Watch the videos on the “White Rose maths” website



Get involved in maths talk

Cooking

- Measure ingredients and set the timer together
- Talk about doubling and halving quantities
- Talk about fractions in cooking
- Talk about proportions when making squash
- Divide pizzas and cakes into fractions

Maths in the media

- Look at TV timetables and calculate time differences
- Find percentages in special offers on adverts
- Think about probably in weather forecasts
- How about sport? Calculate goal difference, points to avoid relegation and maybe even play darts!

Encourage your child to tell the time!

Out and about

- Ask your child to give you directions
- Look for patterns and symmetry in buildings
- How many people live in your town?
- Calculate distances and convert between miles and kilometres

Decorating and Gardening

- Work out areas for painting, carpets and digging
- Discuss perimeter for fencing

Shopping

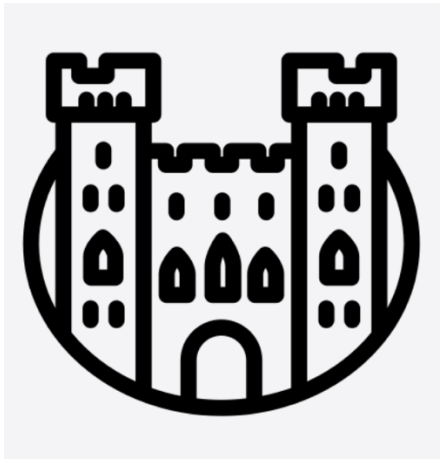
- Work out the budget and change from your shopping
- Involve children in planning your holiday

By the end of Year 6 – from a thousandth to 10 million

Remember - the decimal point never moves!

Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones	Tenths	Hundredths	Thousandths

What 10 times more and less actually means



Distance from Cookham to Windsor

15,000m

Mountain

1500m

Skyscraper

150m

Whale

15m

Year 6 child

1.5m

Rat

0.15m

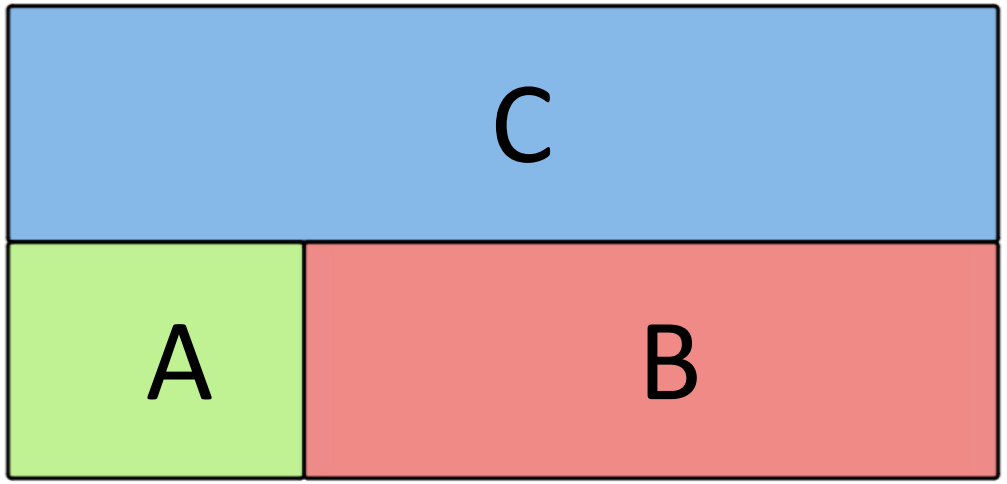
Bee

0.015m

Wool

0.0015m

Recognising the relationship between addition and subtraction



A + B = C

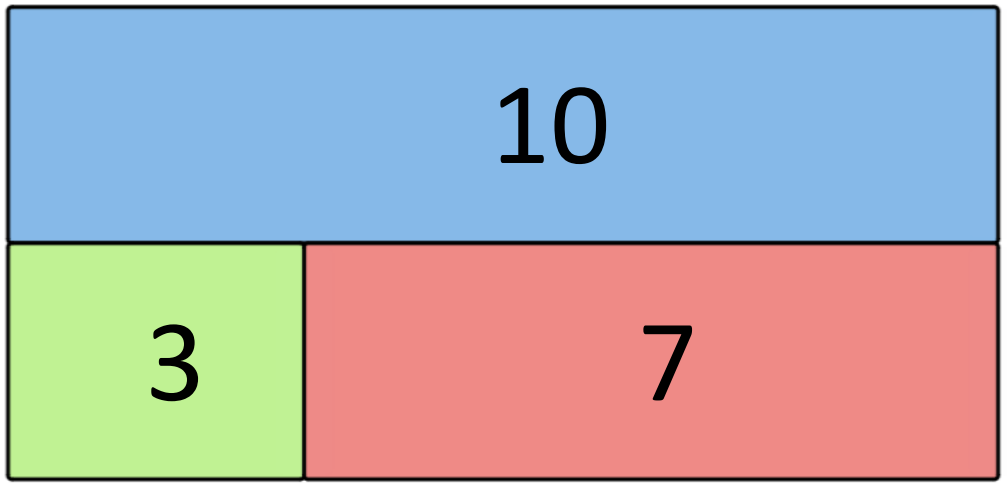
B + A = C

C - A = B

C - B = A

Recognising the relationship between addition and subtraction

Using the inverse operation



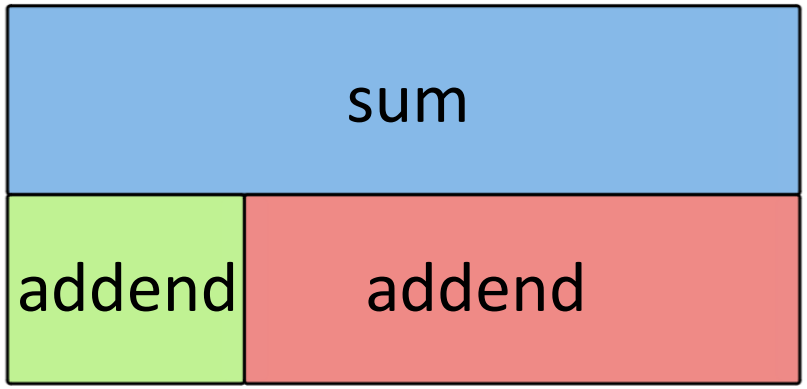
3 + 7 = 10

7 + 3 = 10

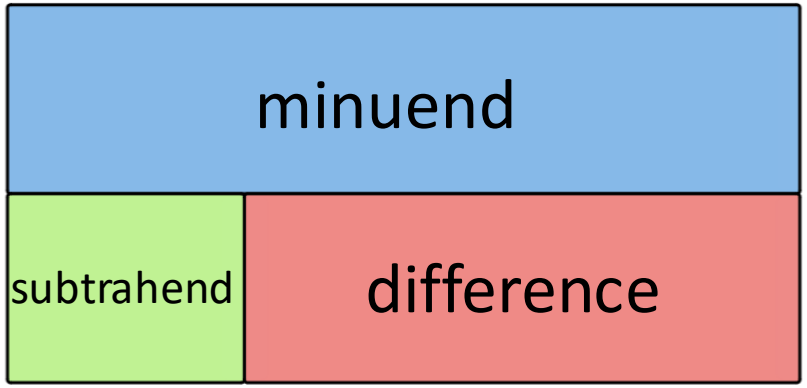
10 - 3 = 7

10 - 7 = 3

Mathematical language

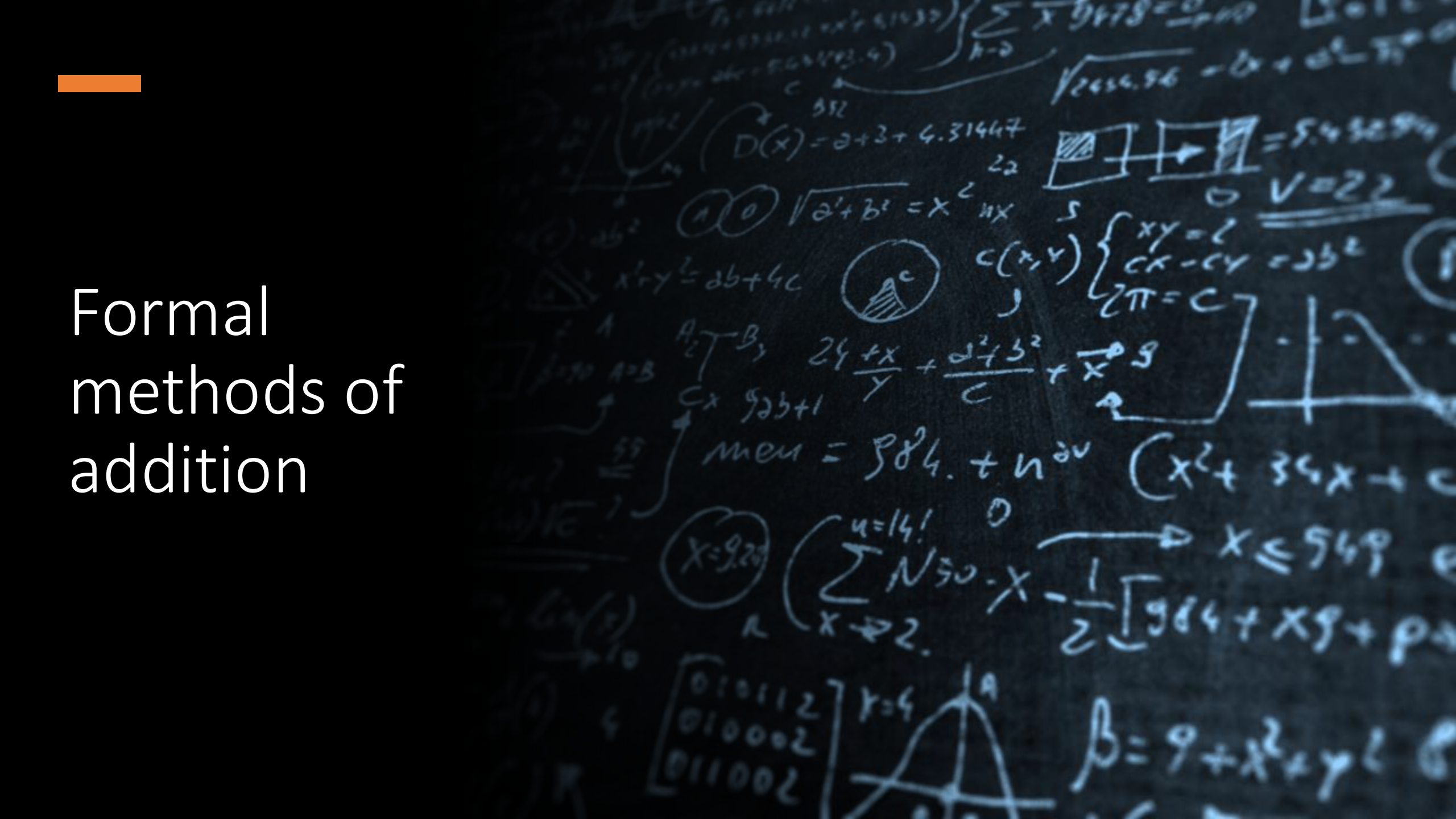


addend + addend = sum



minuend – subtrahend = difference

Formal methods of addition



Addition

$total$ $altogether$

$addition$ sum $more\ than$

$plus$ $increase$

Mental methods

Near doubles and halves

Times table knowledge

Number Bonds

Rounding

No exchange

Addition

$$4837 + 3406 =$$

$$\begin{array}{r} 4\ 8\ 3\ 7 \\ +\ 3\ 4\ 0\ 6 \\ \hline \\ \hline \end{array}$$

Formal methods of subtraction

Subtraction – not just taking away

$difference$ $minus$

$less\ than$ $fewer$ $how\ many\ left?$

$decrease$ $reduce$

Subtraction

$$8703 - 3958 =$$

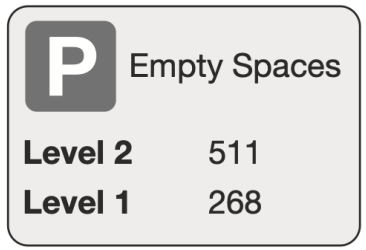
	8	7	0	3
-	3	9	5	8

Sometimes, other methods are better

1.43 - 0.78 =

Sample questions

18 This sign shows the number of **empty spaces** on each level of a car park at 10 am.



In this car park, **each** level has 800 spaces.

What is the total number of cars **parked** in the car park at 10 am?

Show your method

2 marks

Sample questions

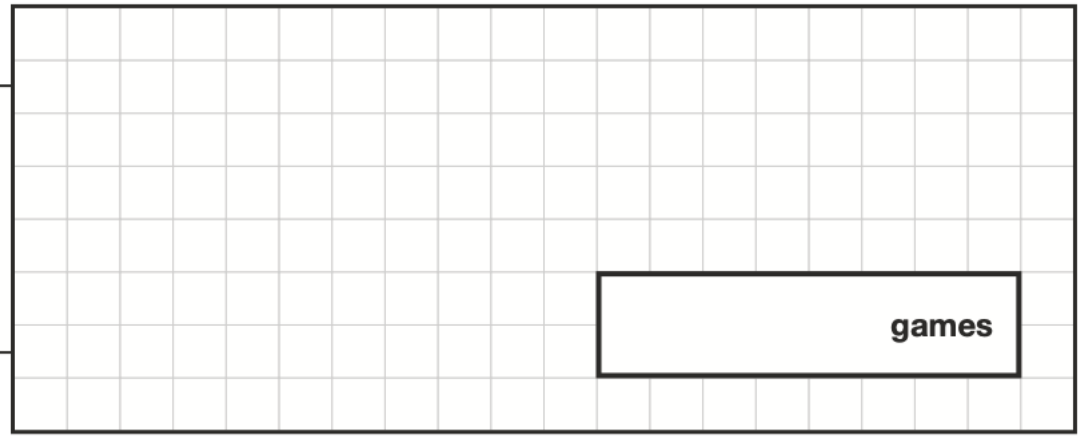
11 At the start of April, a shop had **15,000** games.

The shop sold:

- **7,918** games in April
- **4,624** games in May.

How many games did the shop have left at the end of May?

Show your method



2 marks

Any questions?