Maths Information Session

Thursday, 17th October, 2024

3:30- 4:30pm

Aims:

Find out how Maths is taught at Bishop Loveday School and gain an understanding of maths mastery.

Gain an understanding of the White Rose Maths Mastery Curriculum and we use this teaching resource at BLS.

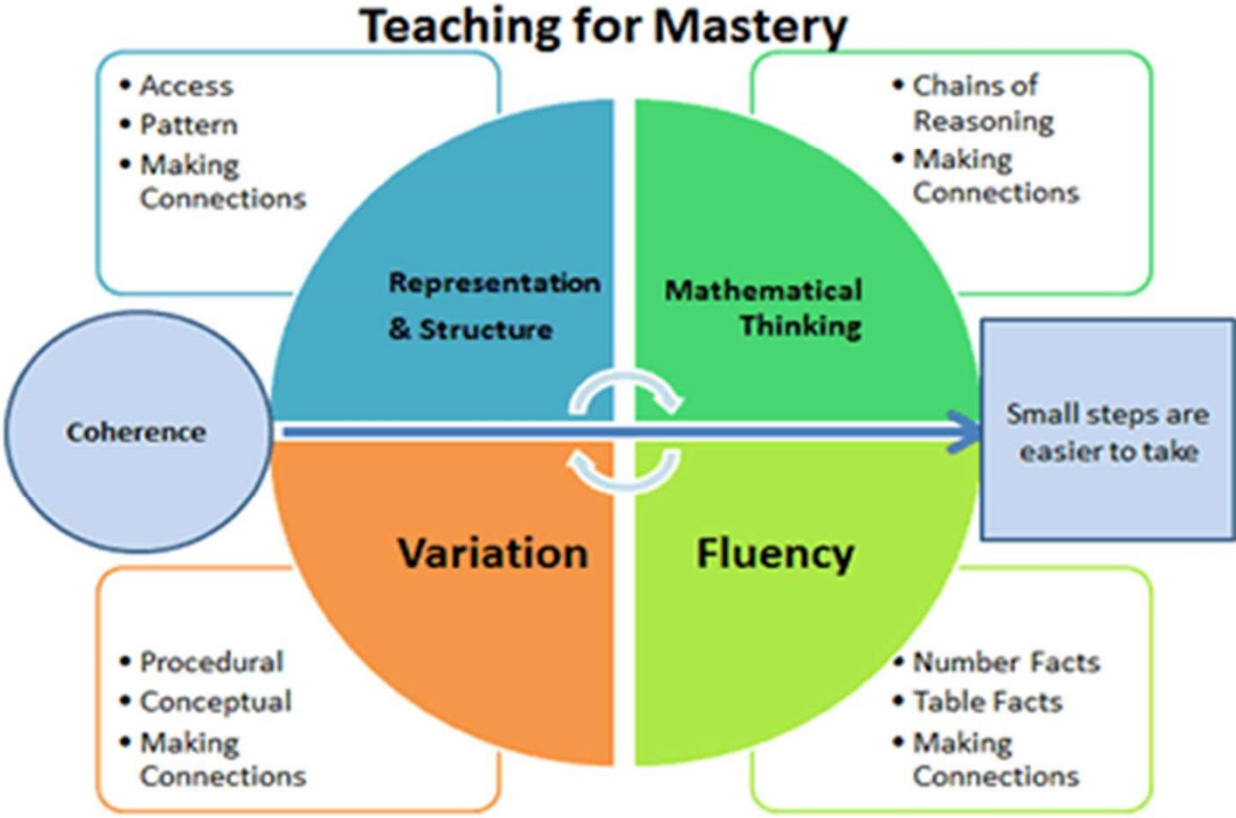
Explore the Maths curriculum of your child/children's year group (s)

Find out how you can support your child with Maths at home and develop them into a confident Mathematician.

Mathematics - inset

At Bishop Loveday, we follow a mastery approach to maths. This is based on the 'Five Big Ideas':

- Representation and structure,
- Mathematical thinking,
- Fluency,
- Variation
- Coherence.



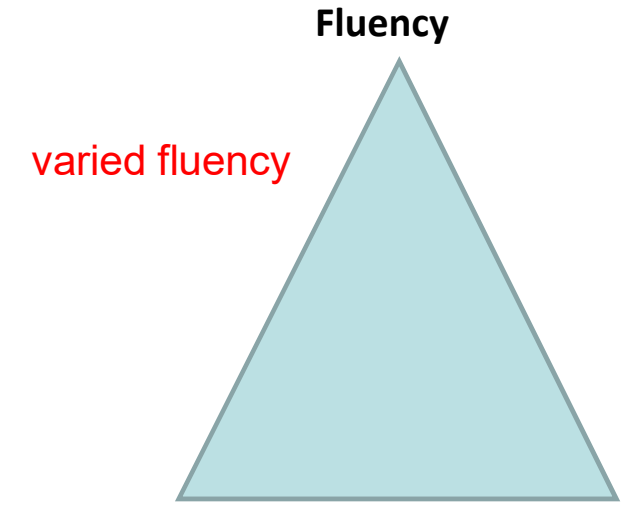
What is Maths Mastery?

Aims

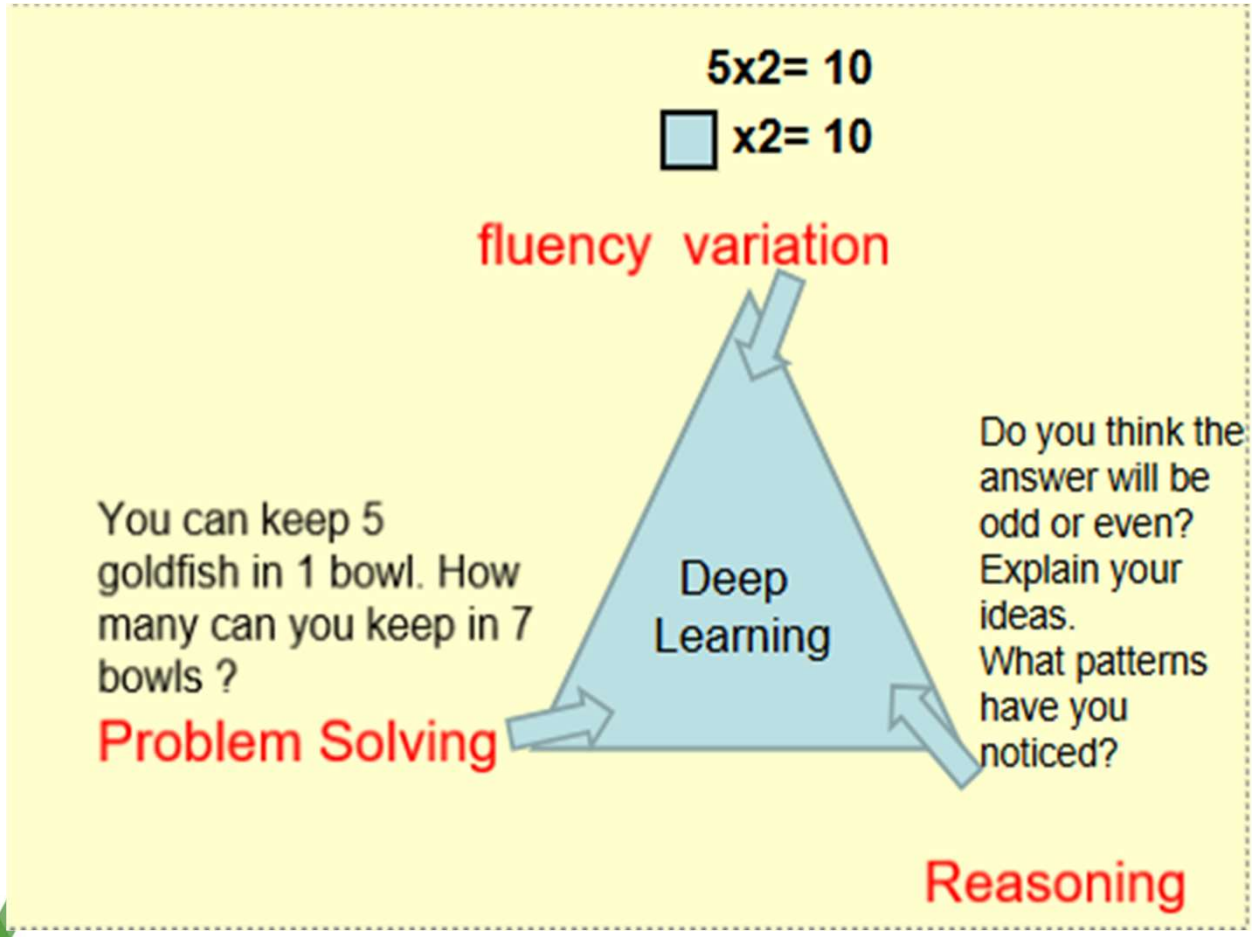
The national curriculum for mathematics aims to ensure that all pupils:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.

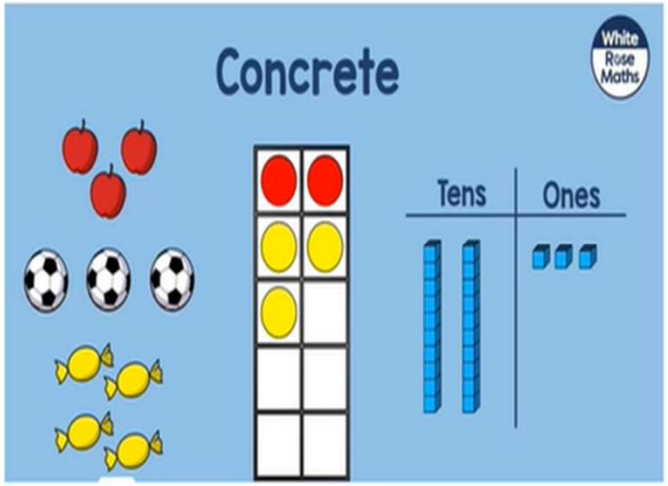
The 3 foundations of the Maths Curriculum

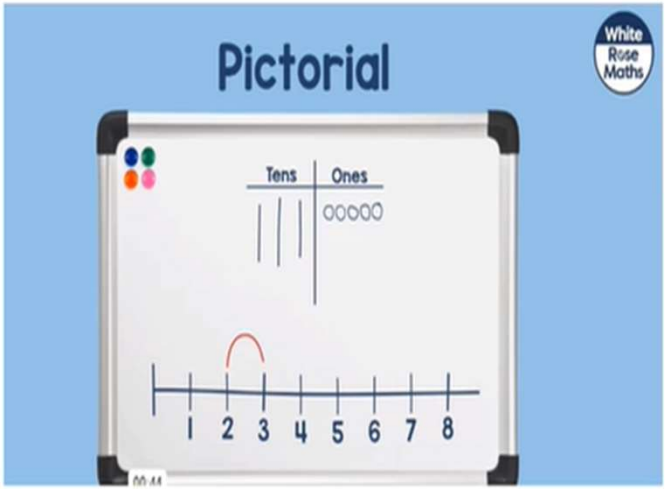


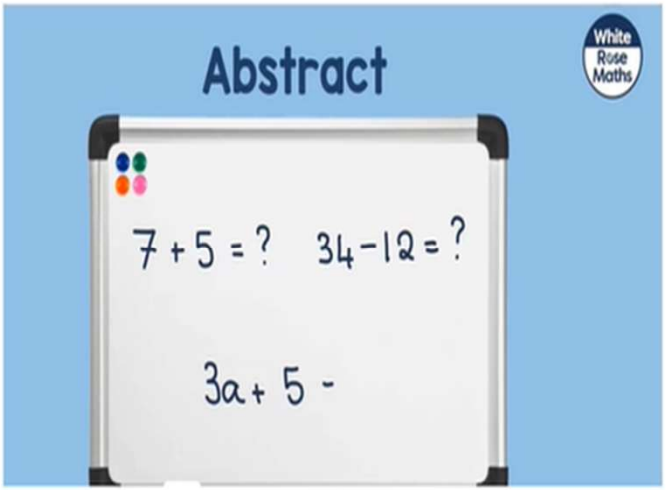
The National Curriculum Programmes of Study for each year group is on our website in the Maths section.



Manipulatives	**concrete experience**
Pictorial	**visual representation**
Abstract	**Written Maths numerals/calculations**

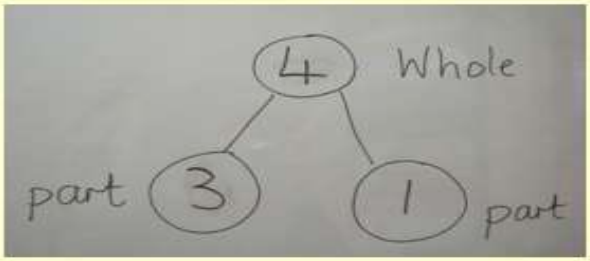






Concrete

Pictorial



Abstract

3 + 1 = 4

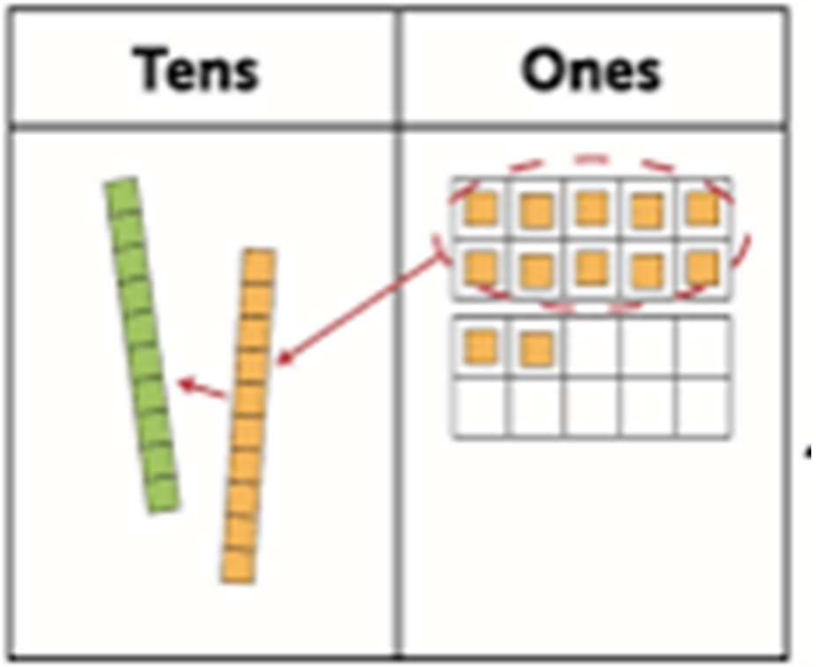
CONCRETE

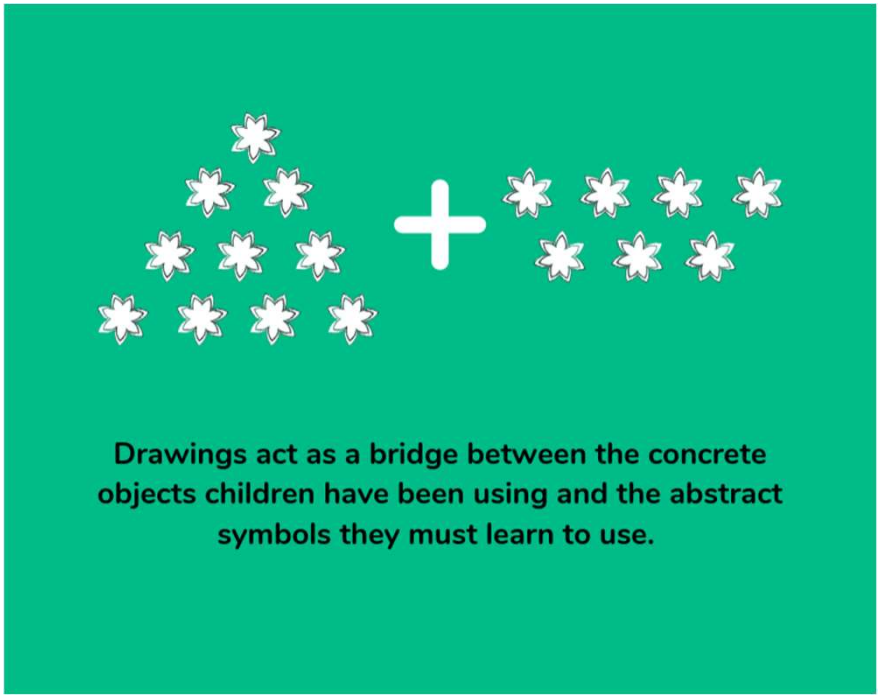
Children might begin by handling real objects...

...then using physical representations of them.

Pictorial

- Once confident using concrete resources, progress to pictorial representations - no longer supported by physical resources but still benefit from the visual support that these pictorial representations provide.





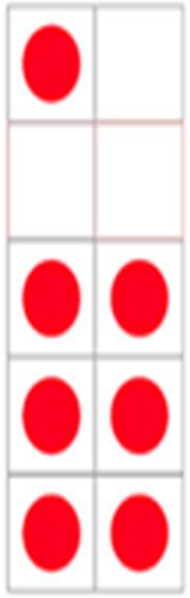
Abstract

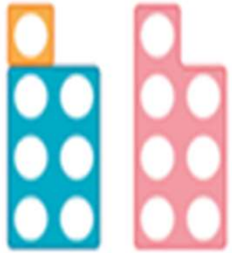
- Once children have a secure understanding of the concept, they are able to move on to the abstract stage.
- Use of mathematical symbols and numbers to model problems.
- The previous 2 stages can still be accessed to support this stage of learning.

Concrete

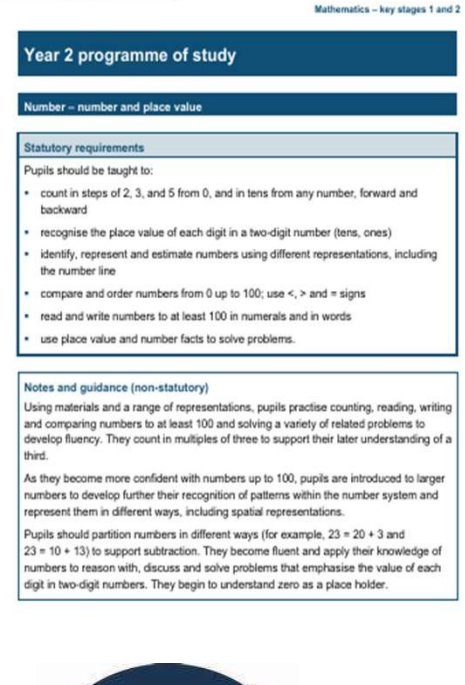
Pictorial

Abstract





6 + 1 = 7



Mathematics – key stages 1 and 2

Year 2 programme of study

Number – number and place value

Statutory requirements

Pupils should be taught to:

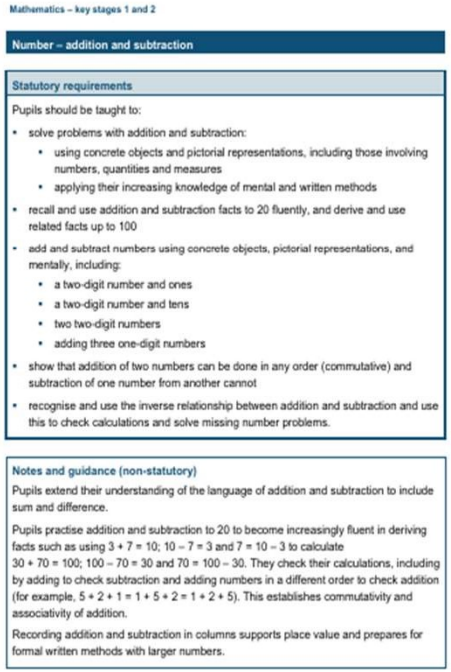
- count in steps of 2, 3, and 5 from 0, and in tens from any number, forward and backward
- recognise the place value of each digit in a two-digit number (tens, ones)
- identify, represent and estimate numbers using different representations, including the number line
- compare and order numbers from 0 up to 100; use <, > and = signs
- read and write numbers to at least 100 in numerals and in words
- use place value and number facts to solve problems.

Notes and guidance (non-statutory)

Using materials and a range of representations, pupils practise counting, reading, writing and comparing numbers to at least 100 and solving a variety of related problems to develop fluency. They count in multiples of three to support their later understanding of a third.

As they become more confident with numbers up to 100, pupils are introduced to larger numbers to develop further their recognition of patterns within the number system and represent them in different ways, including spatial representations.

Pupils should partition numbers in different ways (for example, 23 = 20 + 3 and 23 = 10 + 13) to support subtraction. They become fluent and apply their knowledge of numbers to reason with, discuss and solve problems that emphasise the value of each digit in two-digit numbers. They begin to understand zero as a place holder.



Mathematics – key stages 1 and 2

Number – addition and subtraction

Statutory requirements

Pupils should be taught to:

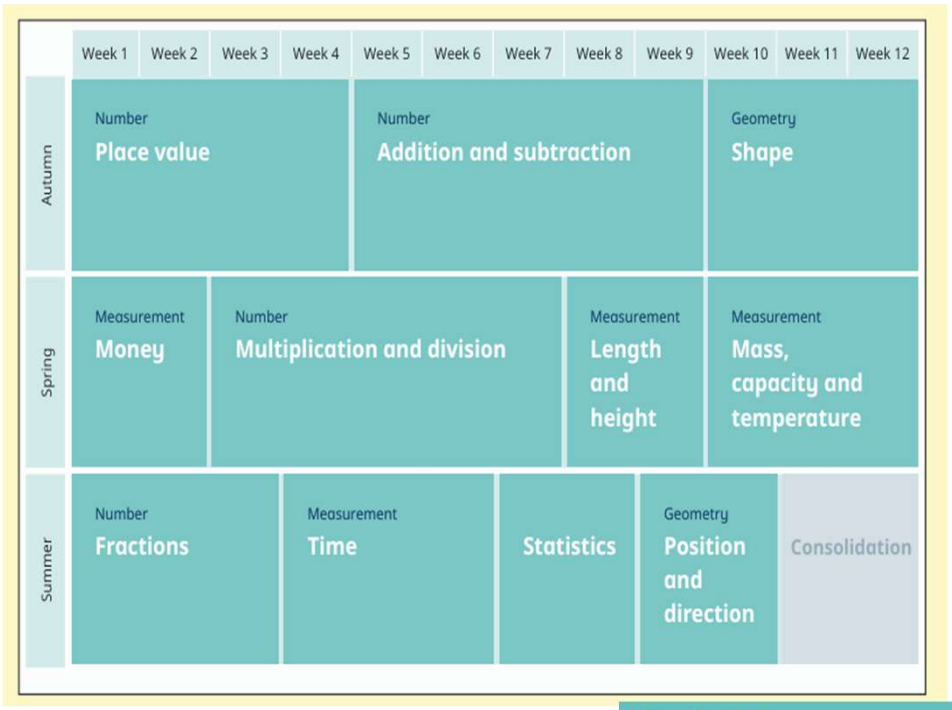
- solve problems with addition and subtraction:
  - using concrete objects and pictorial representations, including those involving numbers, quantities and measures
  - applying their increasing knowledge of mental and written methods
- recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
- 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
- show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
- recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number problems.

Notes and guidance (non-statutory)

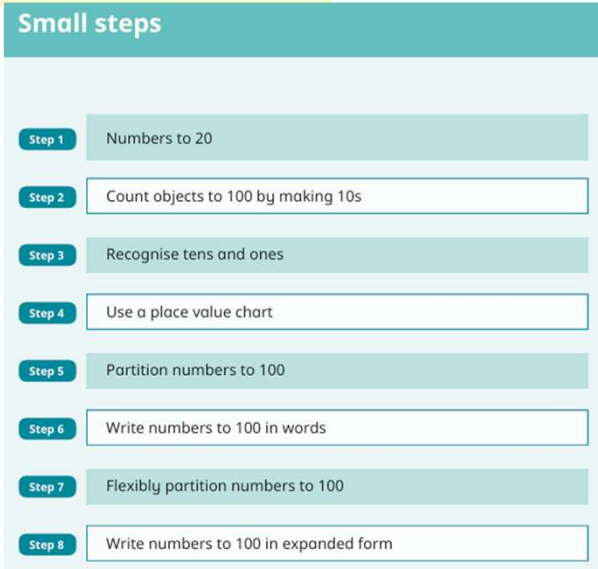
Pupils extend their understanding of the language of addition and subtraction to include sum and difference.

Pupils practise addition and subtraction to 20 to become increasingly fluent in deriving facts such as using 3 + 7 = 10; 10 – 7 = 3 and 7 = 10 – 3 to calculate 30 + 70 = 100; 100 – 70 = 30 and 70 = 100 – 30. They check their calculations, including by adding to check subtraction and adding numbers in a different order to check addition (for example, 5 + 2 + 1 = 1 + 5 + 2 = 1 + 2 + 5). This establishes commutativity and associativity of addition.

Recording addition and subtraction in columns supports place value and prepares for formal written methods with larger numbers.



	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number **Place value**				Number **Addition and subtraction**					Geometry **Shape**		
Spring	Measurement **Money**				Number **Multiplication and division**			Measurement **Length and height**		Measurement **Mass, capacity and temperature**		
Summer	Number **Fractions**				Measurement **Time**		**Statistics**	Geometry **Position and direction**		Consolidation		



Small steps

Step 1	Numbers to 20
Step 2	Count objects to 100 by making 10s
Step 3	Recognise tens and ones
Step 4	Use a place value chart
Step 5	Partition numbers to 100
Step 6	Write numbers to 100 in words
Step 7	Flexibly partition numbers to 100
Step 8	Write numbers to 100 in expanded form

The National Curriculum sets out the programme of study for each year group.

This is then organised into blocks of sequenced learning that make up the year.

Each block has between 8-16 small steps which form the lesson. They are very flexible one step could last several lessons or there may be two in a lesson if rapid progress is evident.

Y1

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number **Place value** (within 10) VIEW (Free trial)					Number **Addition and subtraction** (within 10) VIEW					Geometry **Shape** VIEW	Consolidation
Spring term	Number **Place value** (within 20) VIEW			Number **Addition and subtraction** (within 20) VIEW		Number **Place value** (within 50) VIEW			Measurement **Length and height** VIEW		Measurement **Mass and volume** VIEW	
Summer term	Number **Multiplication and division**			Number **Fractions**	Geometry **Position and di...**	Number **Place value** (within 100)			Measurement **Money**		Measurement **Time**	Consolidation

Year 1 | Autumn term | Block 1 – Place value

Please ask your child's teacher to find out which small step is the cur-

Small steps

Step 1	Sort objects
Step 2	Count objects
Step 3	Count objects from a larger group
Step 4	Represent objects
Step 5	Recognise numbers as words
Step 6	Count on from any number
Step 7	1 more
Step 8	Count backwards within 10
Step 9	1 less
Step 10	Compare groups by matching
Step 11	Fewer, more, same
Step 12	Less than, greater than, equal to
Step 13	Compare numbers
Step 14	Order objects and numbers
Step 15	The number line

Examples of small steps from the first 2 blocks of Year 1

Small steps

Step 1	Introduce parts and wholes
Step 2	Part-whole model
Step 3	Write number sentences
Step 4	Fact families – addition facts
Step 5	Number bonds within 10
Step 6	Systematic number bonds within 10
Step 7	Number bonds to 10
Step 8	Addition – add together
Step 9	Addition – add more
Step 10	Addition problems
Step 11	Find a part
Step 12	Subtraction – find a part
Step 13	Fact families – the eight facts
Step 14	Subtraction – take away/cross out (How many left?)
Step 15	Subtraction – take away (How many left?)
Step 16	Subtraction on a number line
Step 17	Add or subtract 1 or 2

Y2

Autumn term

Number

Place value

Free trial

VIEW

Number

Addition and subtraction

VIEW

Geometry

Shape

VIEW

Spring term

Measurement

Money

VIEW

Number

Multiplication and division

VIEW

Measurement

Length and height

VIEW

Measurement

Mass, capacity and temperature

VIEW

Summer term

Number

Fractions

Measurement

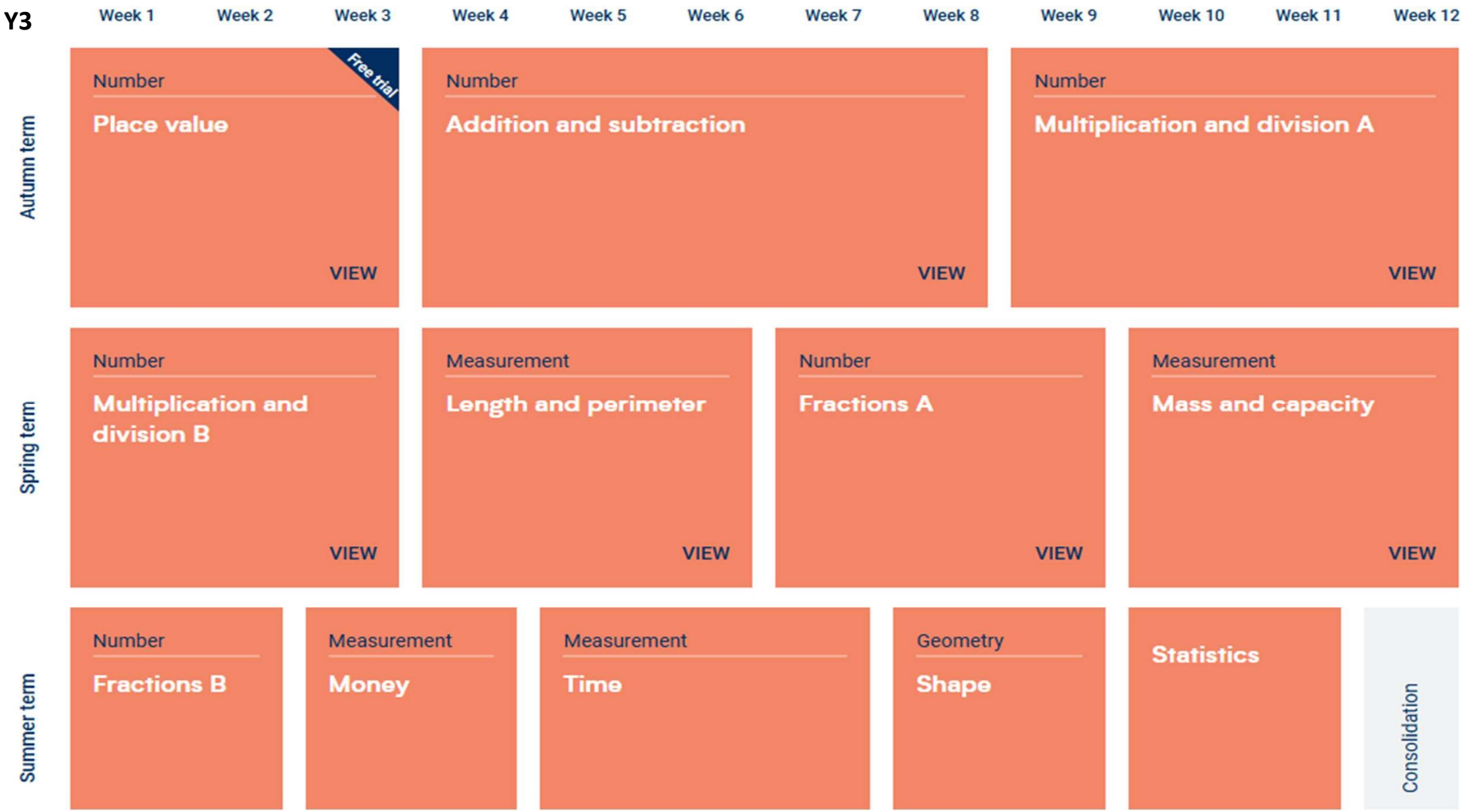
Time

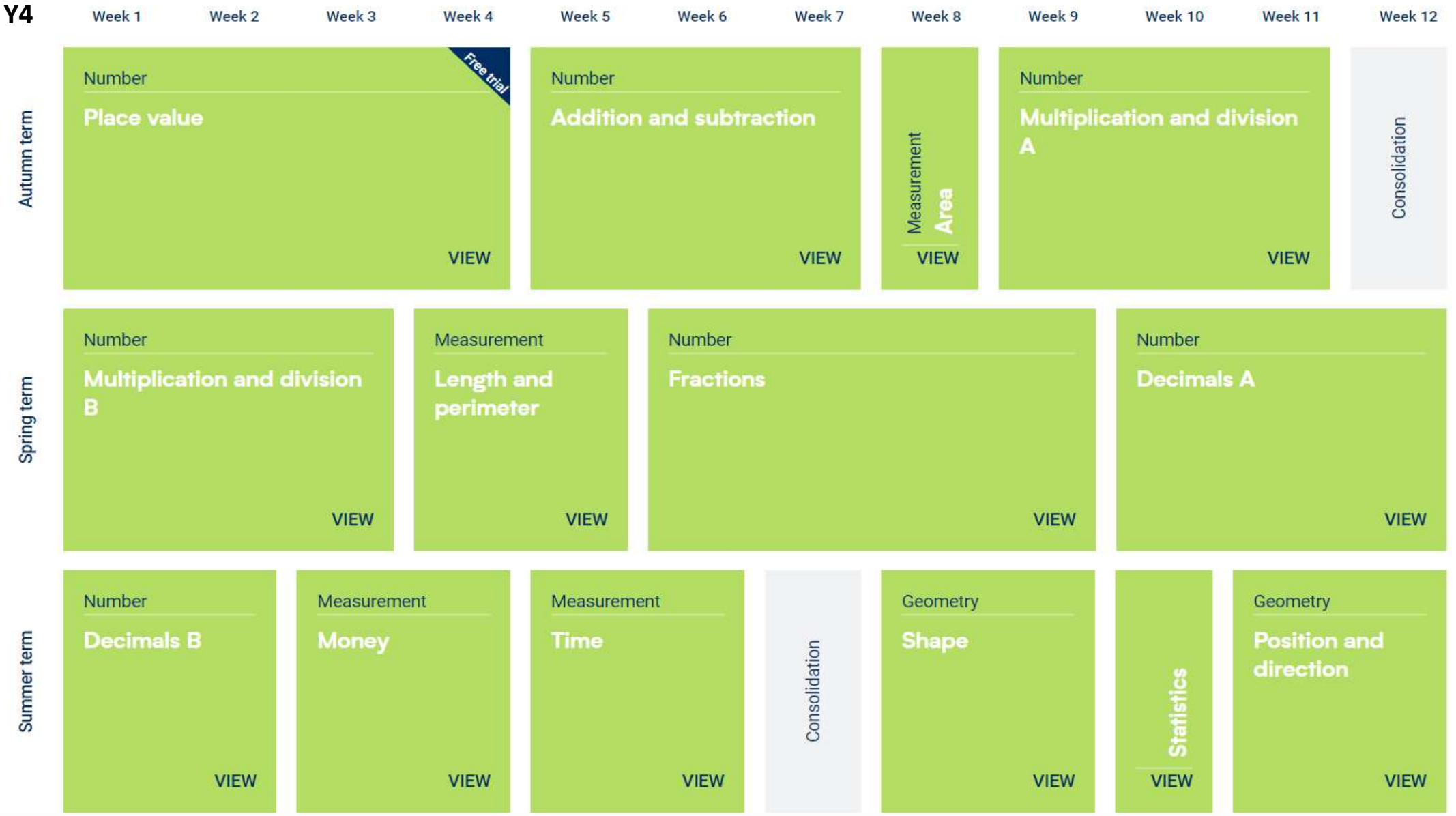
Statistics

Geometry

Position and direction

Consolidation


Y3
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
Free trial
VIEW
Number
Addition and subtraction
VIEW
Number
Multiplication and division A
VIEW
Spring term
Number
Multiplication and division B
VIEW
Measurement
Length and perimeter
VIEW
Number
Fractions A
VIEW
Measurement
Mass and capacity
VIEW
Summer term
Number
Fractions B
Measurement
Money
Measurement
Time
Geometry
Shape
Statistics
Consolidation


Y4
Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Autumn term
Number
Place value
Free trial
VIEW
Number
Addition and subtraction
VIEW
Measurement
Area
VIEW
Number
Multiplication and division A
VIEW
Consolidation
Spring term
Number
Multiplication and division B
VIEW
Measurement
Length and perimeter
VIEW
Number
Fractions
VIEW
Number
Decimals A
VIEW
Summer term
Number
Decimals B
VIEW
Measurement
Money
VIEW
Measurement
Time
VIEW
Consolidation
Geometry
Shape
VIEW
Statistics
VIEW
Geometry
Position and direction
VIEW

Y5

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn term	Number **Place value** VIEW Free trial			Number **Addition and subtraction** VIEW		Number **Multiplication and division A** VIEW			Number **Fractions A** VIEW			
Spring term	Number **Multiplication and division B** VIEW			Number **Fractions B** VIEW		Number **Decimals and percentages** VIEW			Measurement **Perimeter and area** VIEW		Statistics VIEW	
Summer term	Geometry **Shape** VIEW			Geometry **Position and direction** VIEW		Number **Decimals** VIEW			Number **Negative num...** VIEW	Measurement **Converting units** VIEW		Measurement **Volume** VIEW


Week 1
Week 2
Week 3
Week 4
Week 5
Week 6
Week 7
Week 8
Week 9
Week 10
Week 11
Week 12
Y6
Autumn term
Spring term
Summer term
Free trial
Number
Place value
VIEW
Number
Addition, subtraction, multiplication and division
VIEW
Number
Fractions A
VIEW
Number
Fractions B
VIEW
Measurement
Converting units
VIEW
Number
Ratio
VIEW
Number
Algebra
VIEW
Number
Decimals
VIEW
Number
Fractions, decimals and percentages
VIEW
Measurement
Area, perimeter and volume
VIEW
Statistics
VIEW
Geometry
Shape
VIEW
Geometry
Position and di...
VIEW
Themed projects, consolidation and problem solving
VIEW

Components of a lesson

- Skip- counting

Let's count in 4s starting at 0 and finishing at 96!

Now let's count in 0.8s

Let's look at a fact family...

7x 8= 56 What other facts can you derive from this tables calculation?

Skip Counting in 8s

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

Year 3 Place Value block

Flashback 4

Year 3 | Week 1 | Day 1

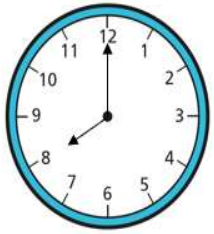
White Rose MATHS

3×2

1) How many tens are there in 67?

2) How many minutes are there in 1 hour?

3) Write the time shown on the clock.



4) Add 12 and 27 together.

Children use the daily flashback to retrieve previous learning from the previous years and previous blocks. Teachers also adapt the questions to support areas that need more focus.

Year 6 Multiplication & Division block

Flashback 4

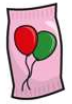
Year 6 | Week 7 | Day 3

White Rose MATHS

III

1) Mentally calculate 48,000 ÷ 6

2) Balloons are sold in packs of 15
450 balloons are sold.
How many packs of balloons were sold?



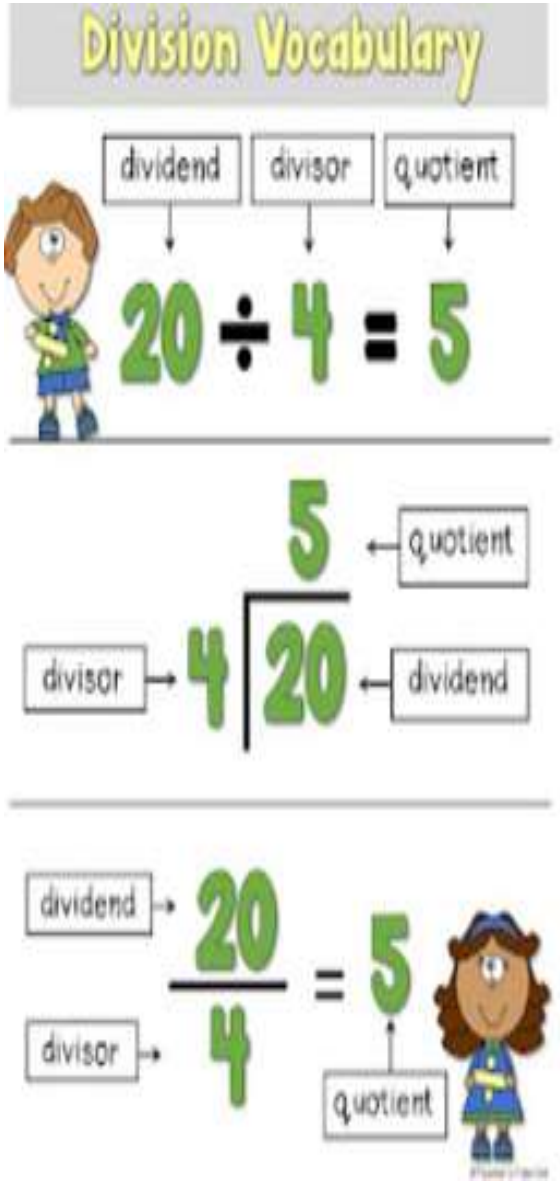
3) $12^3 =$ ☐

4) 1 kg is approximately equal to 2.2 lbs.
4 kg is approximately equal to ☐ lbs.

Main Teaching

- Lots of opportunity to rehearse strategies and methods using manipulatives and visual images (lots of which appear in the knowledge organisers in your parent booklets)

- Explore vocabulary and the language of Maths. Children have plenty of chance to Practise fluency, which then leads into trickier problem solving and reasoning questions requiring longer answers

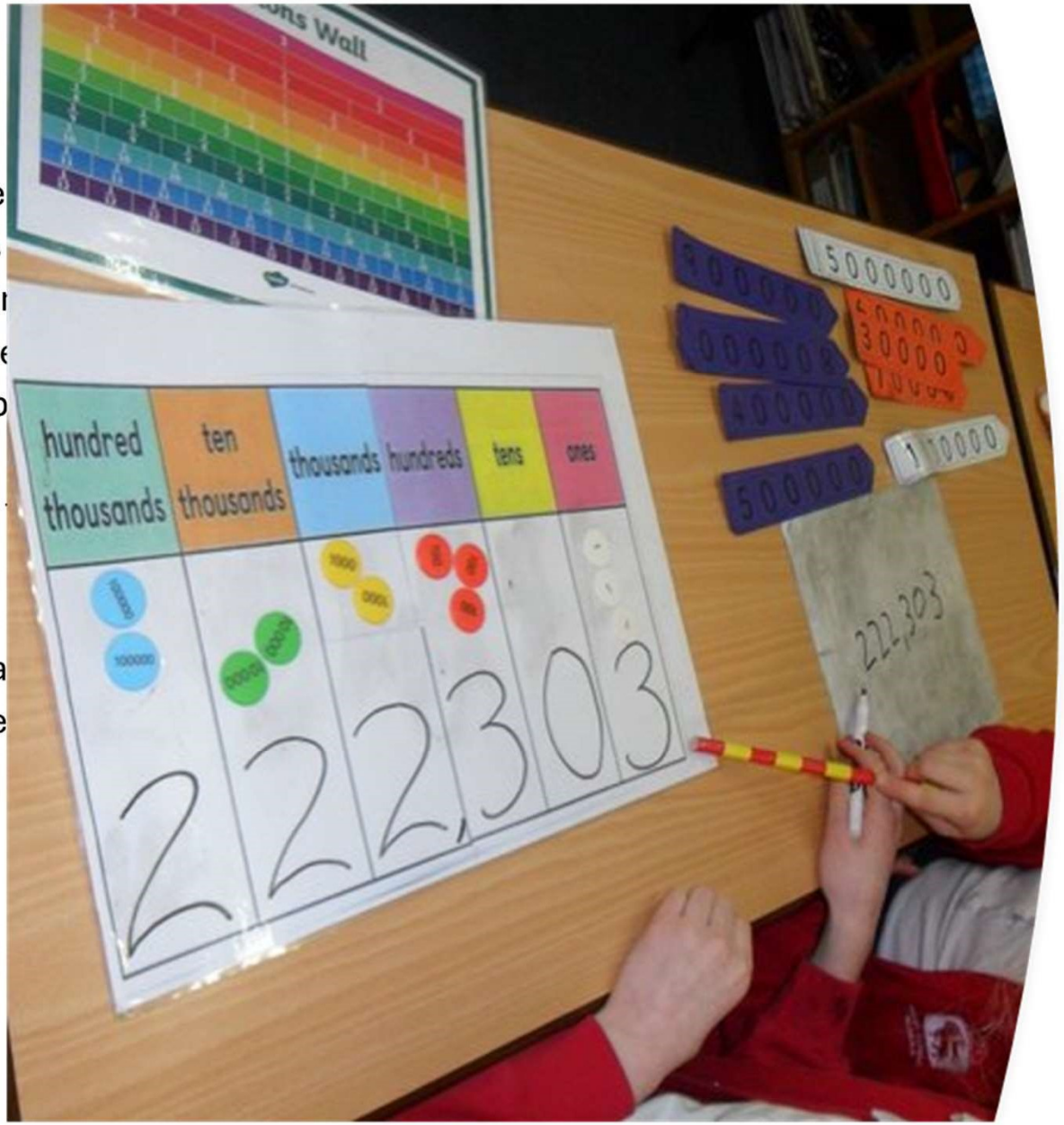


Vocabulary check-now try this!
On your wipeboards,

Write the quotient of 50 and 10

What is the divisor if the dividend is 100 and the divisor is 50?

What could the dividend be if the divisor is 5 and the quotient is 10?



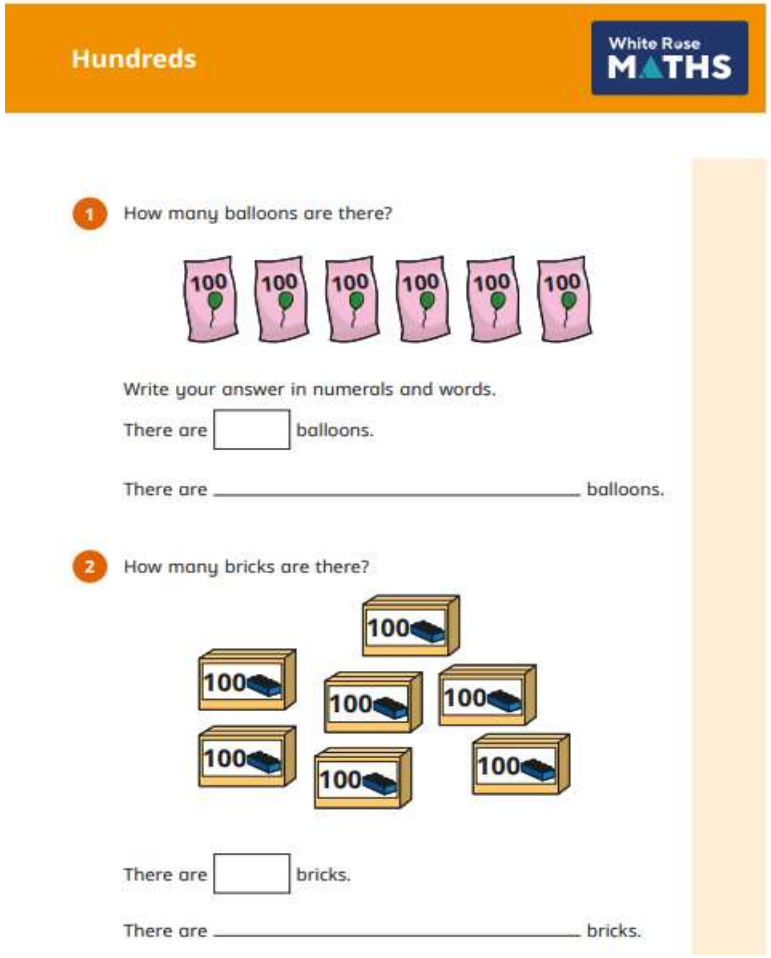
Maths-rich discussion – Oracy

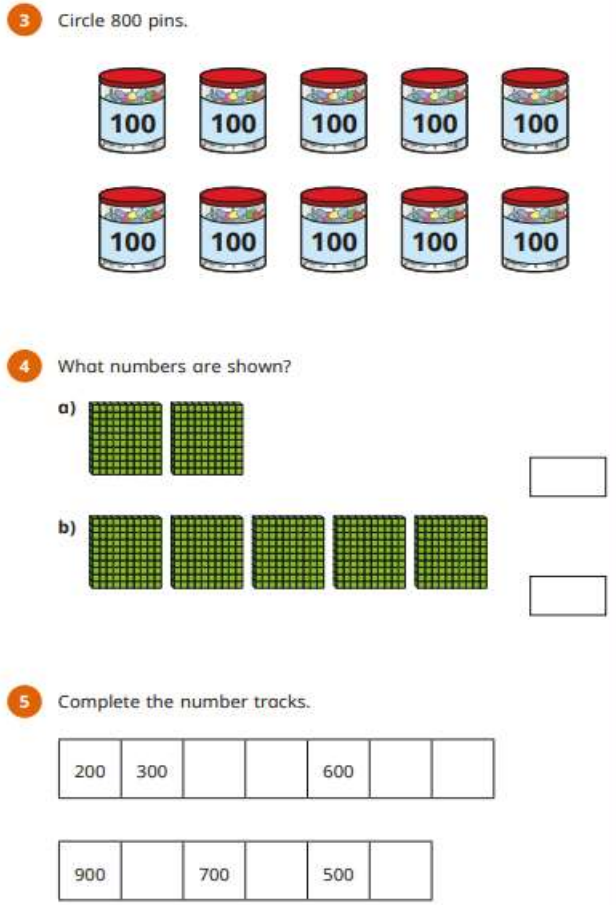
Partner Work

Think, pair, share to explore
and discuss using stem sentences

Possible sentence stems

- The value of the _____ in _____ is _____
- The column before/after the _____ column is the _____ column.





Each step consists of two fluency pages and …..

6 Rosie starts from zero and counts up in 100s.
Circle the numbers that she says.

500	50	900	70
1,000	100	99	10

7 What numbers are shown?

a)

b)

8 Complete the sentences.

a) There are 40 tens in ☐

b) There are 90 tens in ☐

c) There are ☐ tens in 700

9 Amir and Eva need 700 counters.

There are 100 counters in each bag.

a) Amir has 400 counters.

How many more bags of counters does he need?

☐

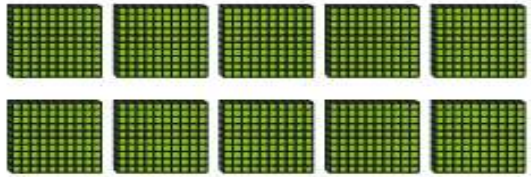
b) Eva has 3 bags of 100 counters.

The shop runs out of bags with 100 counters and only has bags with 10 counters left.

How many bags of 10 counters does she need?

☐

10 Tiny makes this number.



Is Tiny correct? _____

Write the number a different way.

_____

_____

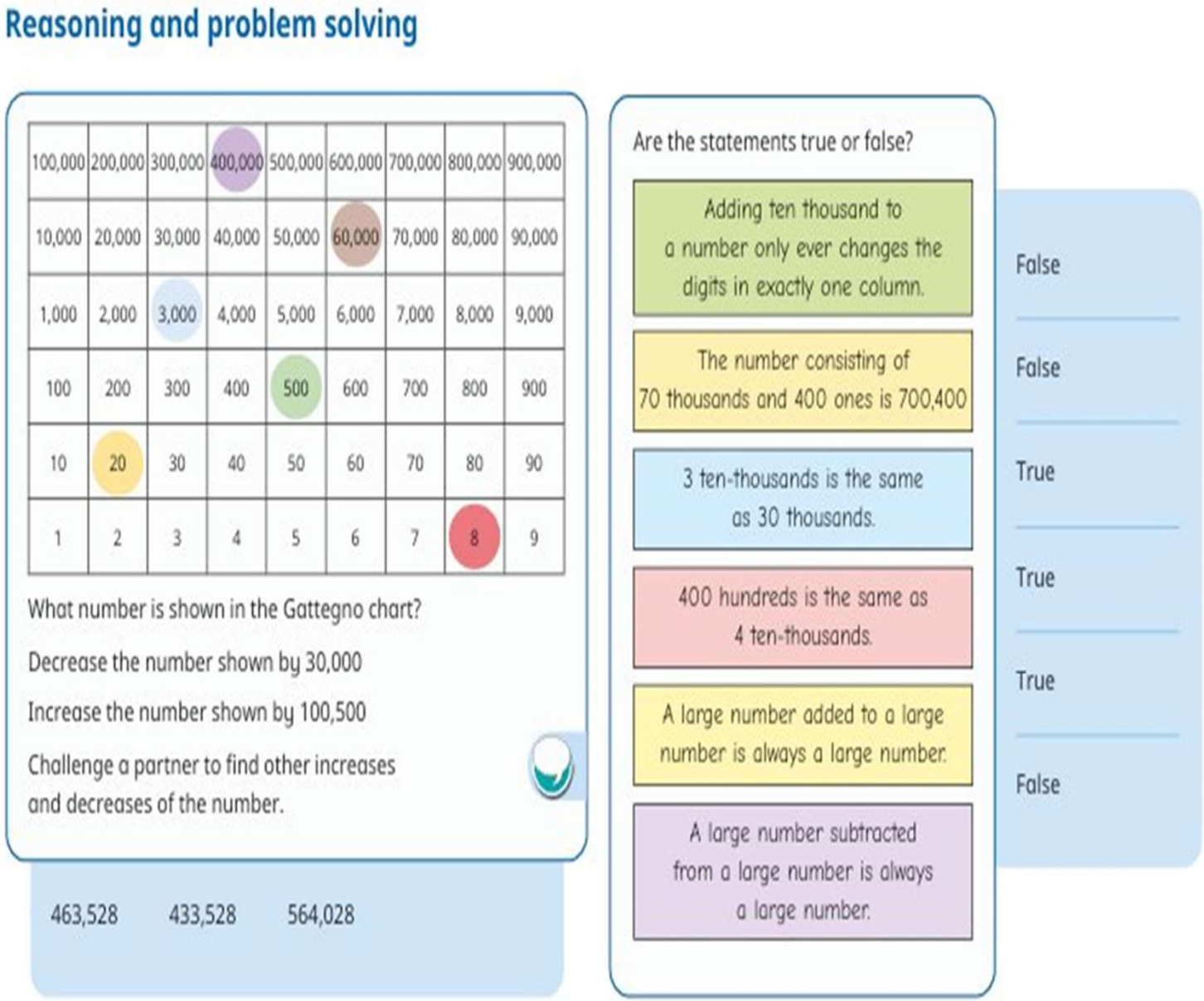
White Rose MATHS

…. two pages of problem-solving and reasoning questions which require a more considered approach.

Each lesson has extra challenges and deeper thinking activities that children enjoy working upon and they often provoke a healthy discussion as children agree and disagree with their answers.

At the end of the lesson, children self-assess their learning with a FOG ladder and teachers check work.

At the end of a block there is an assessment of the small steps which gives teachers detailed information about each small step.



How to help support your child's learning in Maths

- https://whiterosemaths.com/advice-and-guidance#start Here is a link to the White Rose parent zone

- https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study Here is a link to the National Curriculum Programmes of Study

- Super Movers - Teach (bbc.co.uk) Here is a link to times tables songs and songs linked to other key areas of learning for KS1 and 2

- Please look in the Maths section of the BLS school website. Scroll down and look in the Maths Parents information folder to look at parent support booklets for each year group, links to free workbooks and other ideas to support learning.