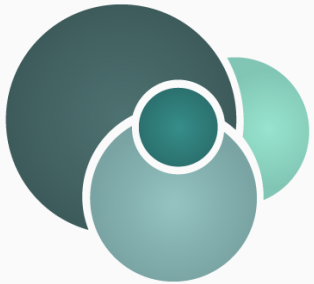
Maths at LHPSN

October 2023

What we are aiming to cover today:

1. What do we mean by ‘mastery?’
2. What maths lessons look like here at Lickey Hills.
3. Pupil voice
4. Times Table Check
5. How can you help at home?

What do we mean by Mastery?



NCETM

NATIONAL CENTRE FOR EXCELLENCE IN THE TEACHING OF MATHEMATICS

MATHS HUBS

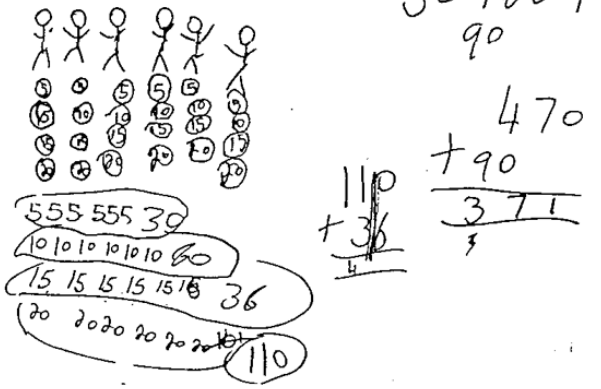
GLOW

What do we mean by Mastery?

1256 apples are divided among 6 shopkeepers
How many apples will every shopkeeper get?
How many apples will be left?

MathsHUBS

Working:



Answer:...

Is there evidence of conceptual understanding?

Is there procedural fluency and efficiency?

What do we mean by Mastery?

Sally knows all her tables up to 12 x 12

When asked what is 12 x 13 she looks blank.

Does she have fluency and understanding?

What do we mean by Mastery?

Mastery

Involves the development of three forms of knowledge:

Factual – I know that
Procedural – I know how
Conceptual – I know why

What do we mean by Mastery?

Whole Class Teaching

Provides a clear and coherent journey through the mathematics

Provides detail

Provides scaffolding for all to achieve

Provides the small steps

Provides the opportunity to question and think more deeply

How do we teach Maths at Lickey Hills?

Our Vision:

At LHPSN we believe that mathematics is a creative and highly inter-connected discipline. Maths is essential to everyday life, critical to science, technology and engineering, and necessary for financial literacy and most forms of employment. A high-quality mathematics education therefore provides a foundation for understanding the world, the ability to reason mathematically, an appreciation of the beauty and power of mathematics, and a sense of enjoyment and curiosity about the subject.

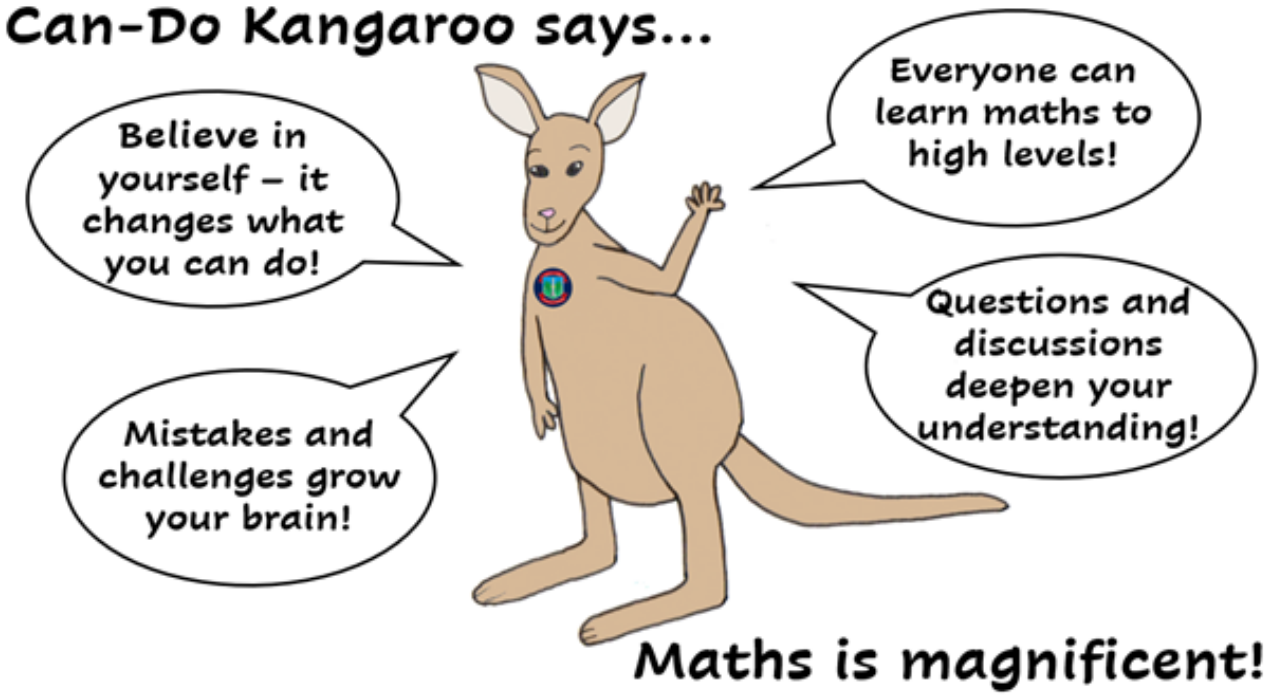
How do we teach Maths at Lickey Hills?

Our Vision:

Our vision at Lickey Hills Primary School and Nursery is for all children to become fluent mathematicians, with a deep and secure understanding of concepts, enabling them to reason and solve problems in a range of contexts.

How do we teach Maths at Lickey Hills?

Our Vision: We believe that all children can succeed in mathematics and our growth mindset approach is embodied in our Can-Do Kangaroo Maths Mascot.



Our journey starts in EYFS...

New Statutory Framework for September 2021: Nursery:

•Fast recognition of up to 3 objects, without having to count them individually (‘subitising’).

•Recite numbers past 5.

•Know that the last number reached when counting a small set of objects tells you how many there are in total (‘cardinal principle’).

•Compare quantities using language: ‘more than’, ‘fewer than’.

•Show ‘finger numbers’ up to 5.

•Link numerals and amounts: for example, showing the right number of objects to match the numeral, up to 5.

•Experiment with their own symbols and marks as well as numerals.

Our journey starts in EYFS...

New Statutory Framework for September 2021: Reception

ELG: Number

Children at the expected level of development will:

- Have a deep understanding of number to 10, including the composition of each number;
- Subitise (recognise quantities without counting) up to 5;
- Automatically recall (without reference to rhymes, counting or other aids) number bonds up to 5 (including subtraction facts) and some number bonds to 10, including double facts.

Our journey starts in EYFS...

New Statutory Framework for September 2021: Reception

ELG: Numerical Patterns

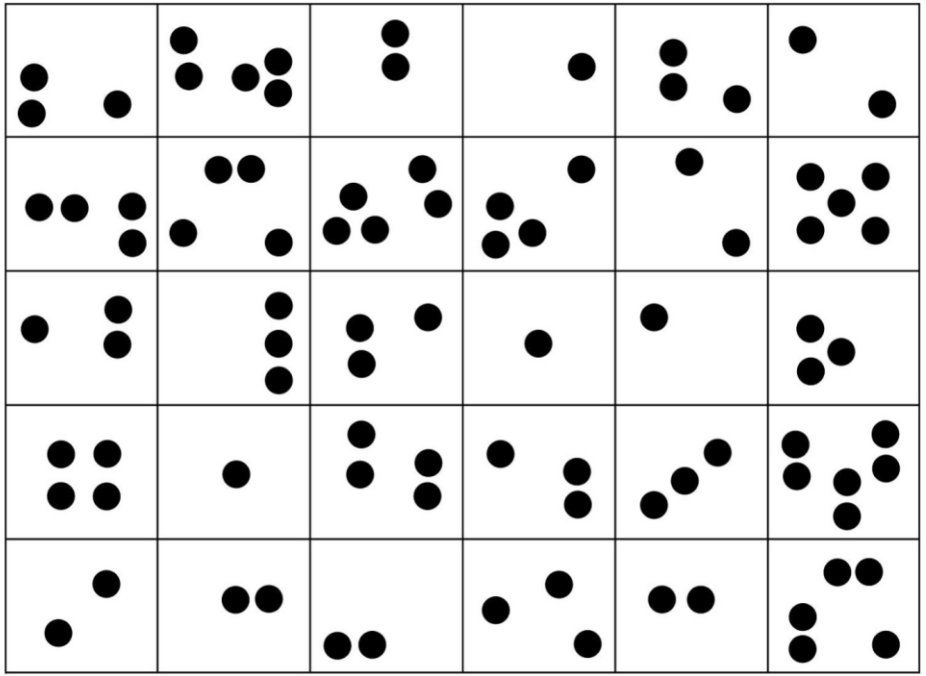
Children at the expected level of development will:

- Verbally count beyond 20, recognising the pattern of the counting system;
- Compare quantities up to 10 in different contexts, recognising when one quantity is greater than, less than or the same as the other quantity;
- Explore and represent patterns within numbers up to 10, including evens and odds, double facts and how quantities can be distributed equally.

Our journey starts in EYFS...

Subitising:

Amount not count!



We are working within 10?!?

Cardinality, Ordinality and Composition:

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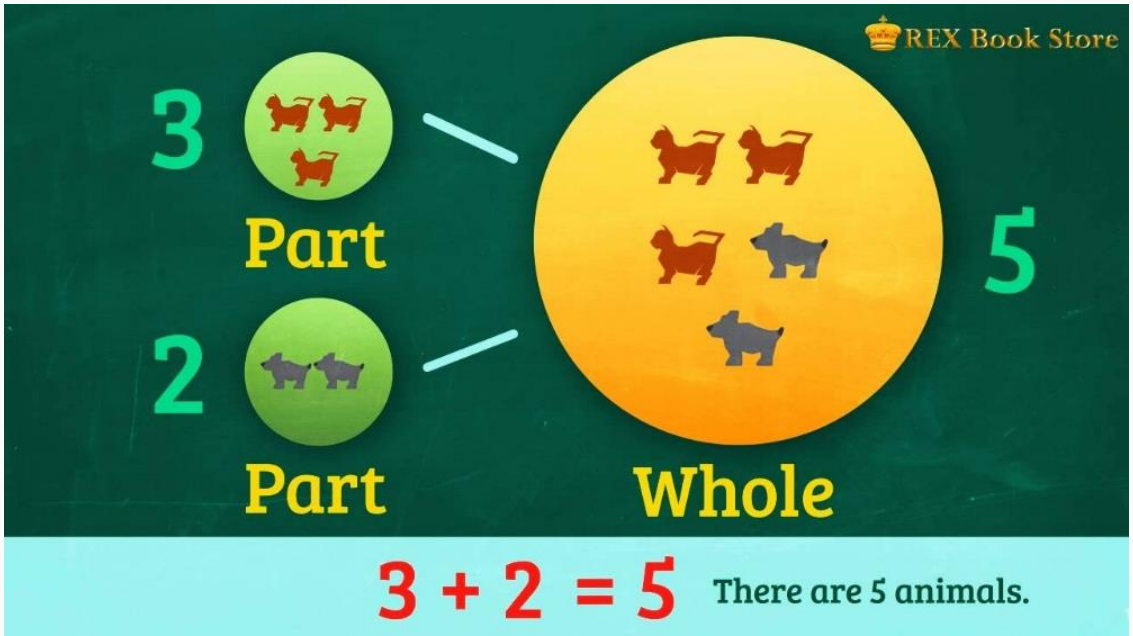
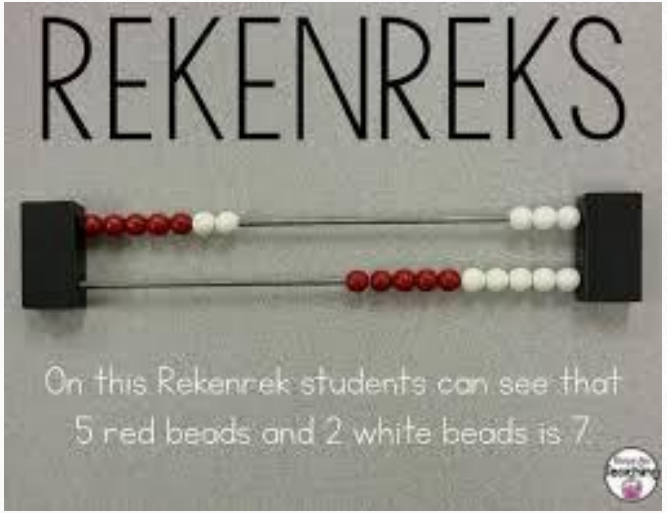
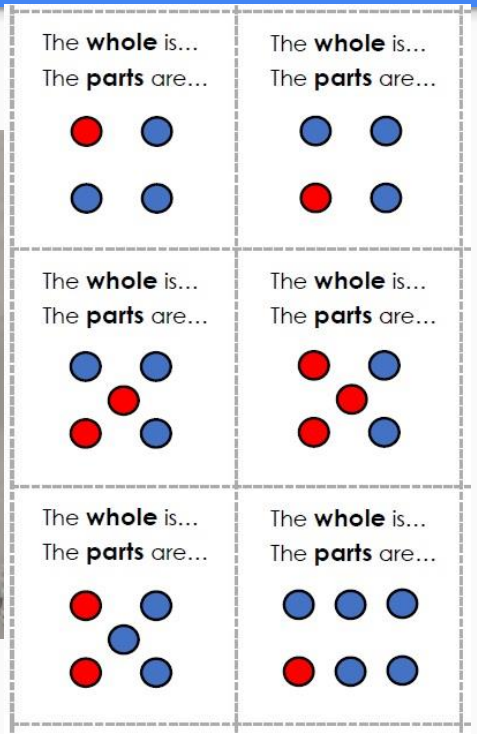


Mastering Number Programme

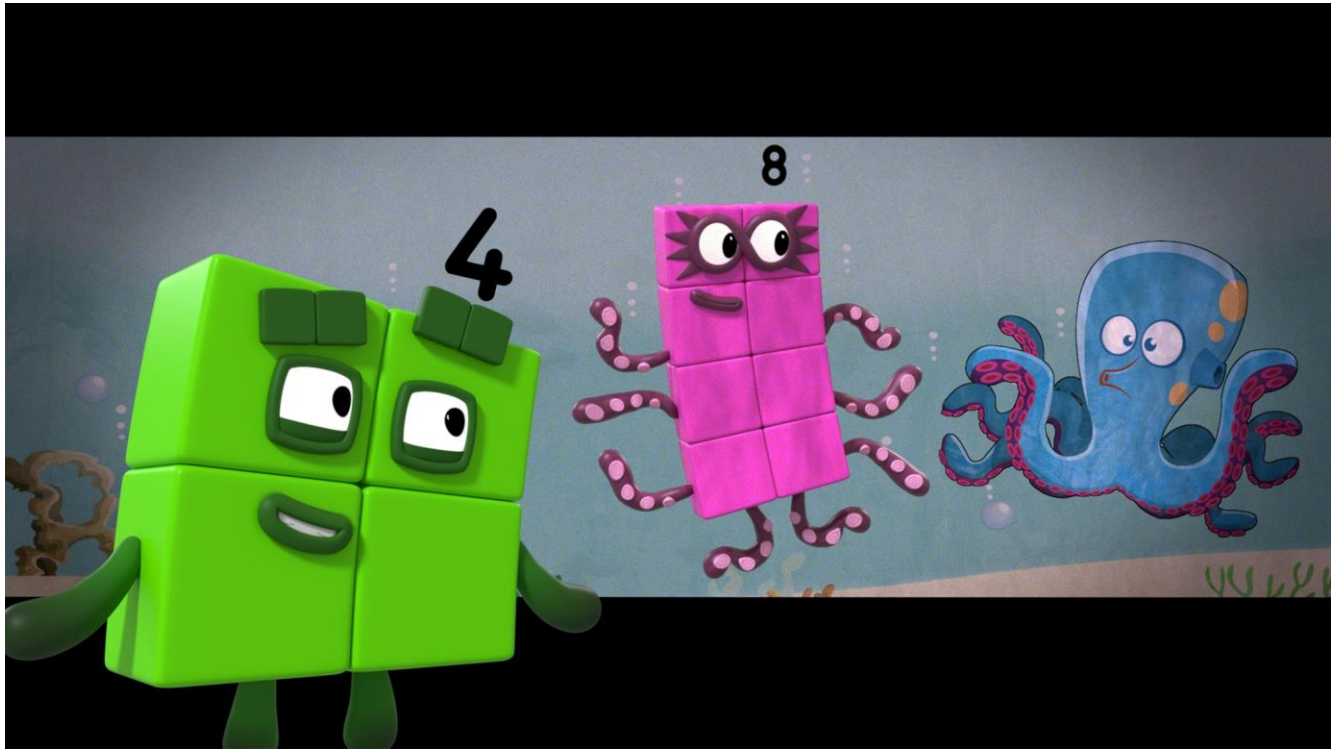
This project aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2. The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number.



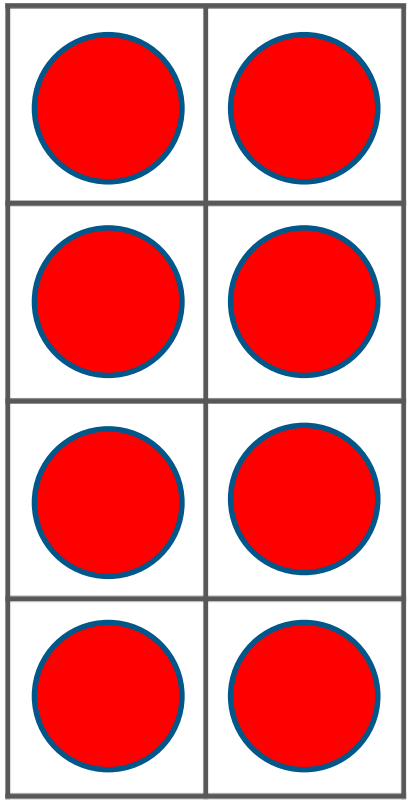


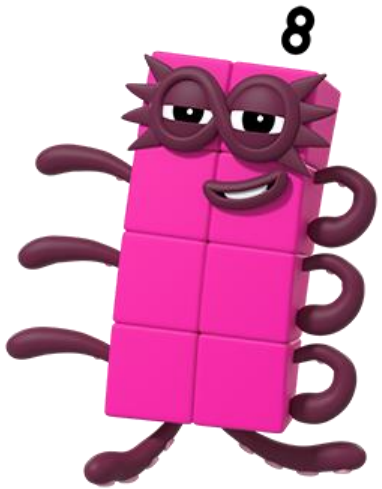
Numberblocks

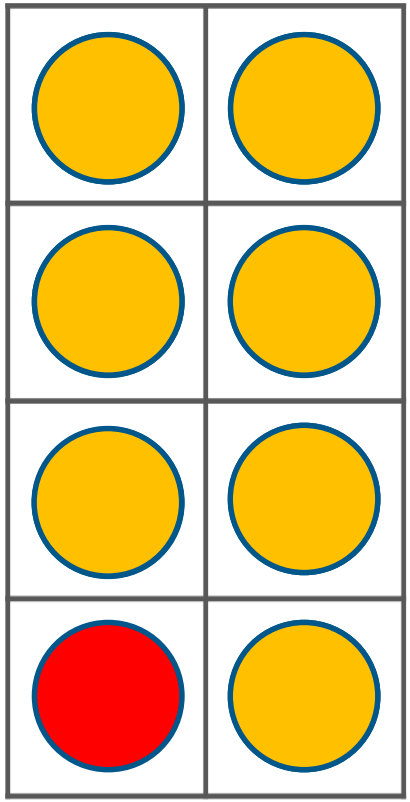
Series 2, Episode 3: Eight



Use the 8-grid to find all the way that 8 can be made.

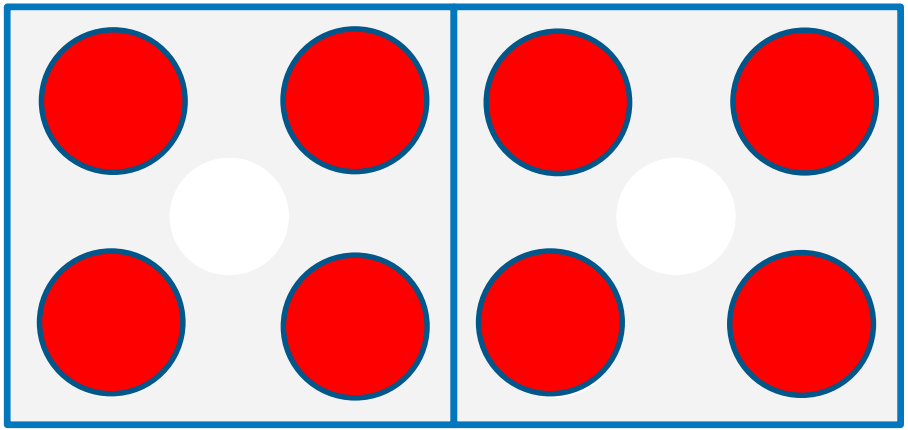


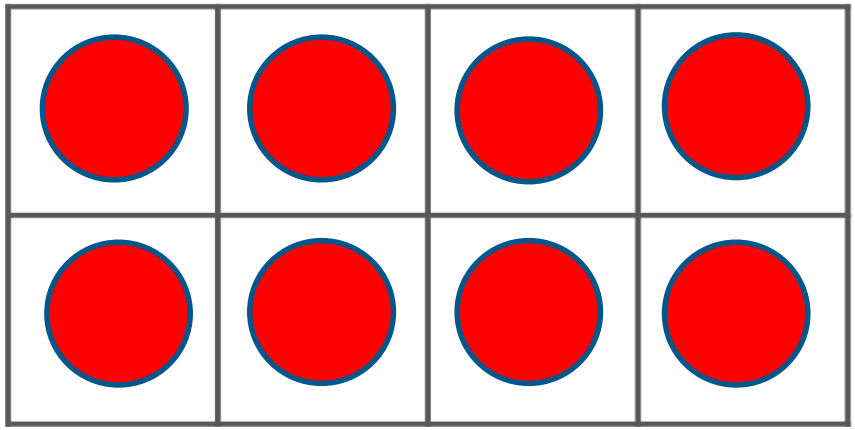




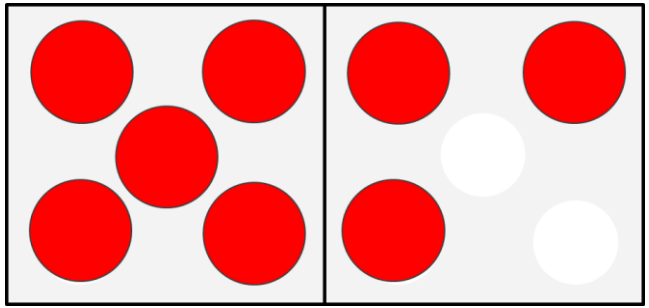
8 is made of _____ and _____ ;
_____ and _____ make 8.

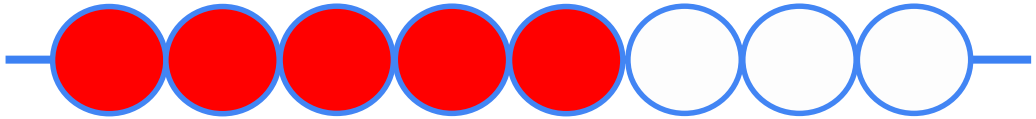
What could the dice-frame look like with 8 counters on it?



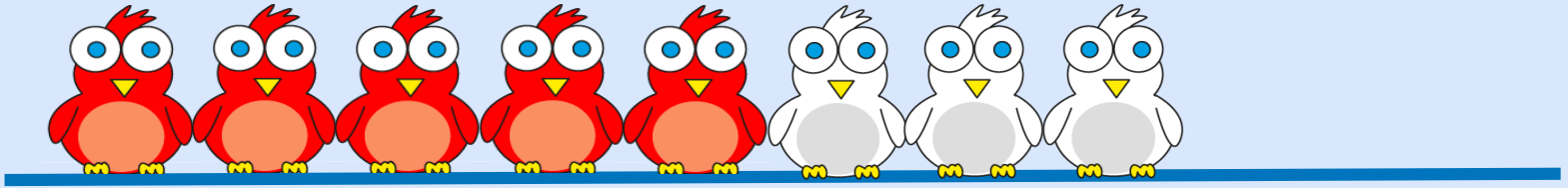


What's the same? What's different?



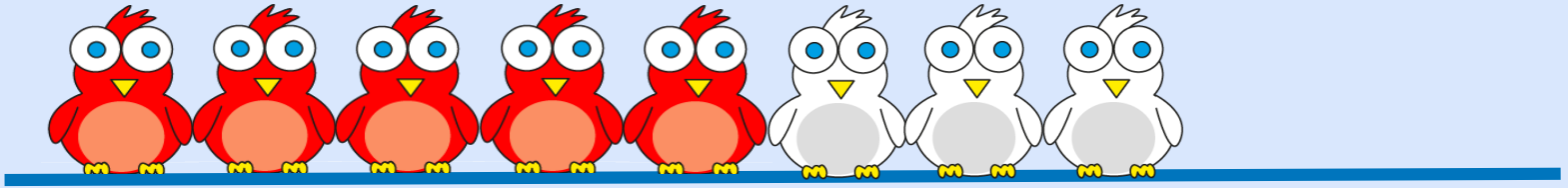


How many more to make 8 on 1 row?



_____ needs _____ to make 8.

How many more to make 8 on 1 row?



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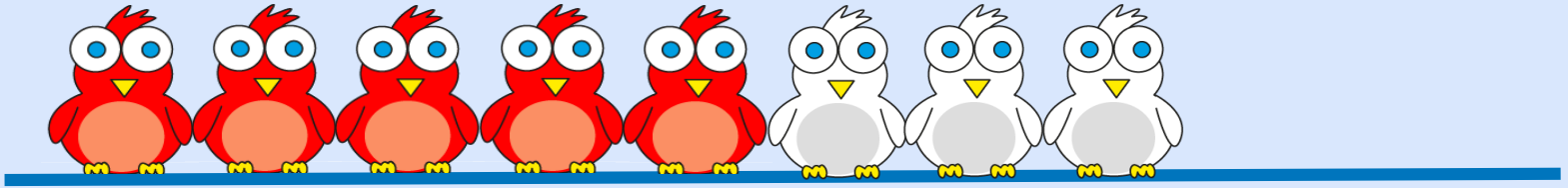

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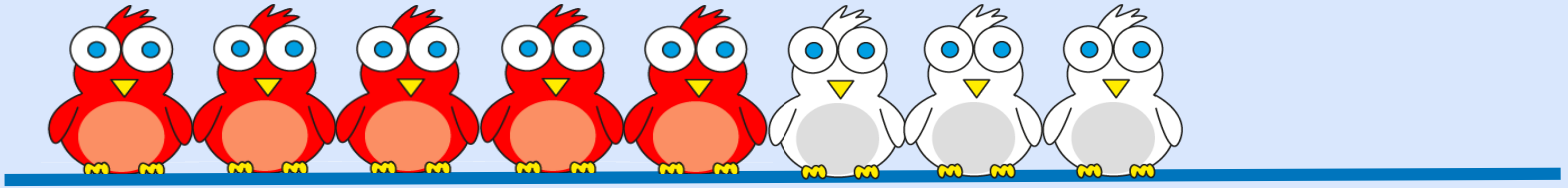

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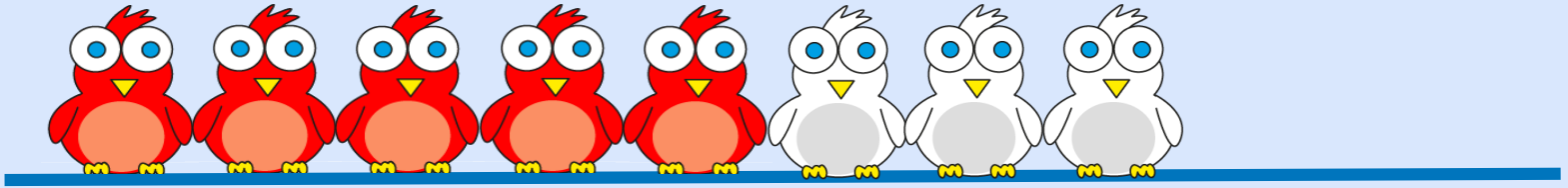

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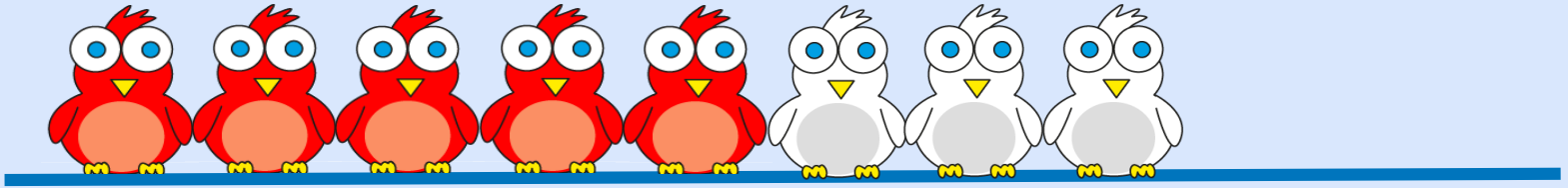

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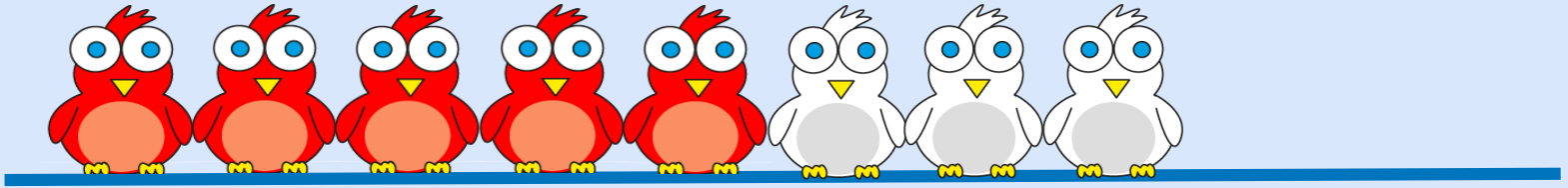

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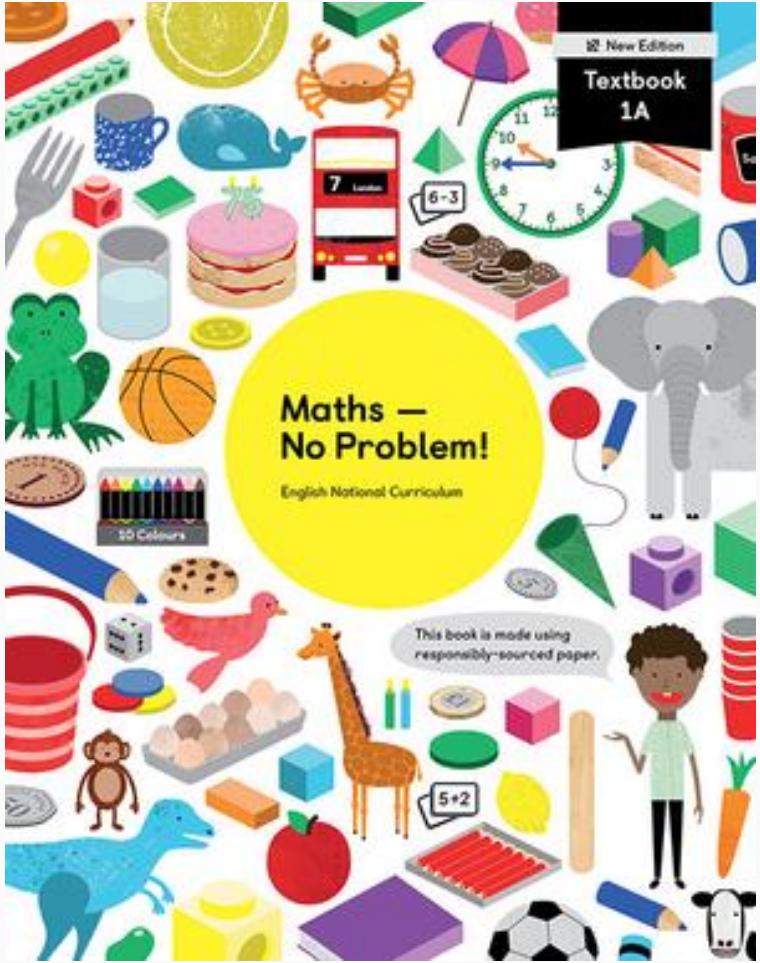


MATHS
NO PROBLEM!

Pupils master topics before moving on.

The three parts to a lesson are:

1. Anchor task — the entire class spends a long time on one question guided by the teacher
2. Guided practice — practise new ideas in groups guided by the teacher
3. Independent practice — practise on your own

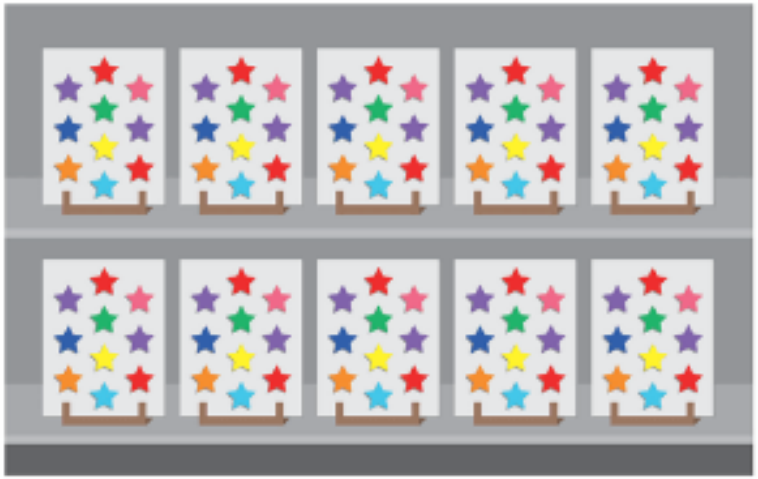
MATHS NO PROBLEM!

Counting to 100

Lesson 1

Explore

A sheet has 10 stickers on it.
How many stickers are on the shop's shelves?



Master

1

1 ten — 10

2 tens — 20

3 tens — 30

4 tens — 40

5 tens — 50

6 tens — 60

7 tens — 70

8 tens — 80

9 tens — 90

10 tens — 100

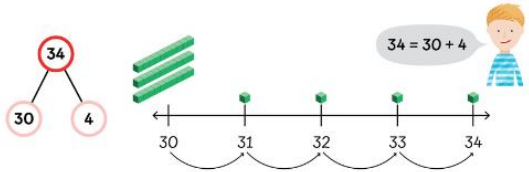
There are 100 stickers on the shop's shelves.

2 Show 34 using .

thirty-four stickers

34 = 3 tens + 4 ones

3



4

10 ones = 1 ten

10 tens = 1 hundred

1 hundred	100								
1 ten	10	20	30	40	50	60	70	80	90
1 one	1	2	3	4	5	6	7	8	9

Activity Time

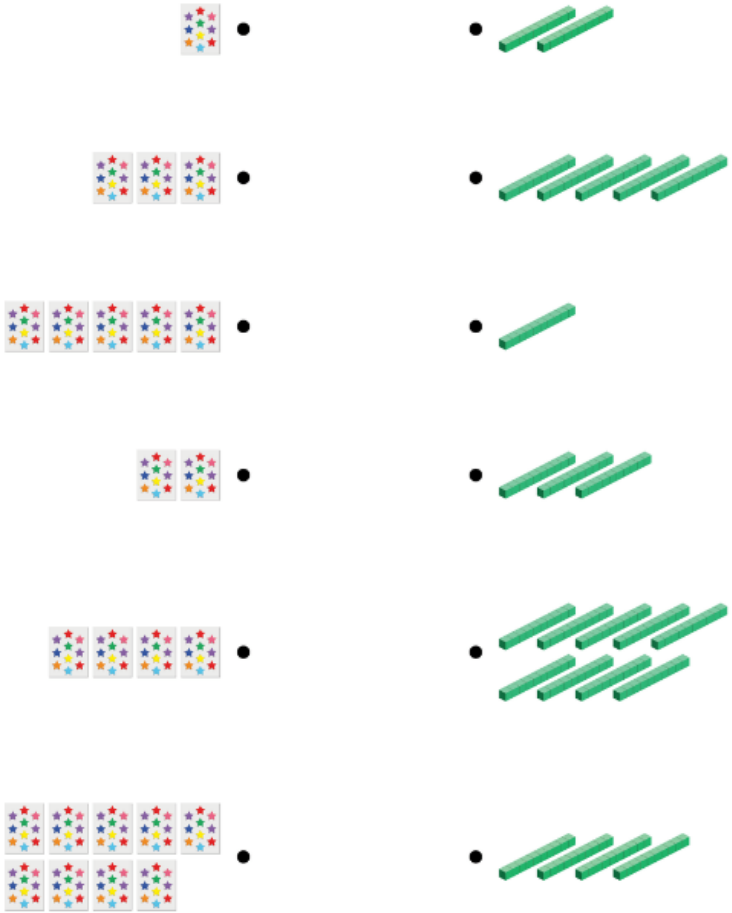
Partner work

You will need: 0–9 cards, , .

1. Shuffle the cards and place them face down in a pile.
2. Take 2 cards.
3. Make a 2-digit number.
4. Make the number using .
5. Write the number on a .
6. Ask your partner to check that the numbers are correct.
7. Repeat the activity, taking turns.

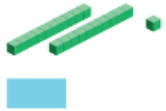
Guided Practice

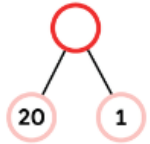
1 Match.



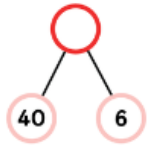
2 Write the number.
Complete the number bond.

(a)





(b)



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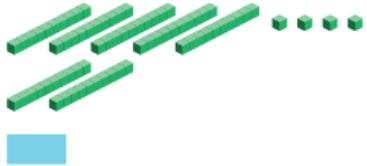

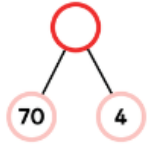

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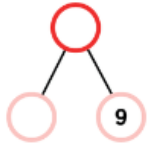
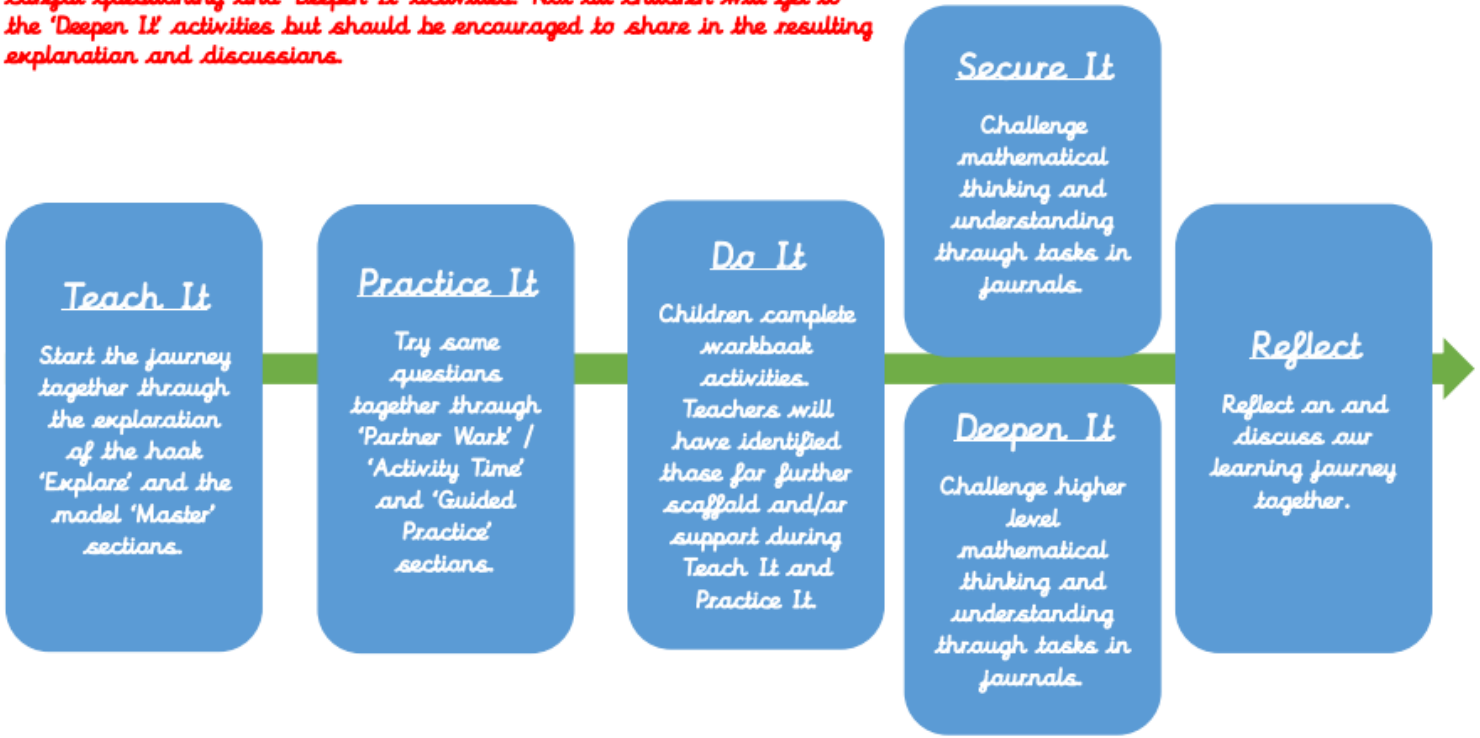


Complete Worksheet **1**: pages **1–2**

Maths Lesson Structure at LHPSN

Children may work at different paces through the sections. Some may need further use of supporting representations, some may be identified as needing further adult support, some may benefit from further challenge through careful questioning and 'Deepen It' activities. Not all children will get to the 'Deepen It' activities but should be encouraged to share in the resulting explanation and discussions.

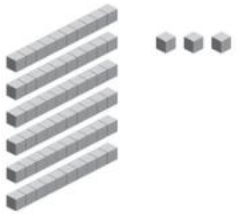


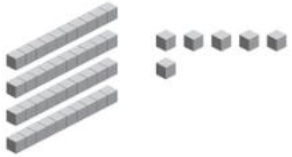
Worksheet 1

Counting to 100

1 Count the tens and ones.
Write the numbers.

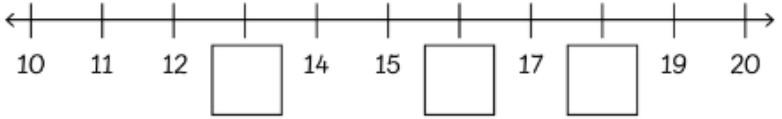
(a)  ☐

(b)  ☐

(c)  ☐

2 Complete the number lines.

(a)



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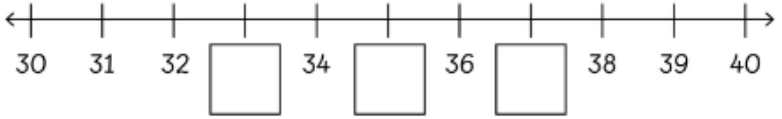

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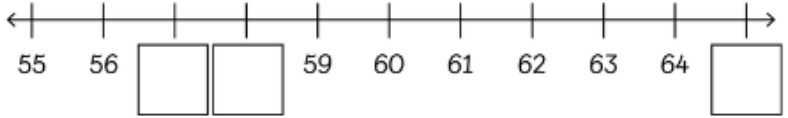


3 Fill in the missing numbers.

(a) 20, 30, ☐, 50, 60

(b) 40, ☐, ☐, 70, 80, ☐

(c) 60, 50, 40, ☐, ☐, 10

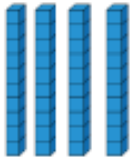
(d) 100, 90, ☐, 70, ☐, 50

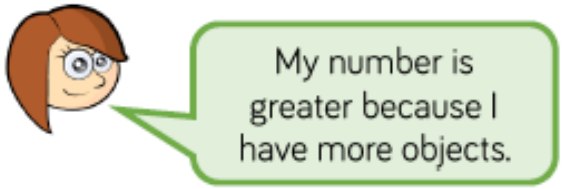
‘Deepen It’ challenges

Rosie and Amir are comparing numbers they have made.

Rosie's number

Amir's number





Is Rosie correct?

Explain your answer.

How many different numbers can go in the box?

$$13 < \square < 20$$

True or False?

One ten and twelve ones is bigger than 2 tens.

Explain how you know.

How many ways?

$$\begin{array}{r} \square 5 \\ -\,5\square \\ \hline \square 6 \end{array}$$

Fill in the missing digits.

Level 1: I can find a way

Level 2: I can find different ways

Level 3: I know how many ways there are

Missing digits

$$\begin{array}{r} 34\square \\ -\,\square\square 2 \\ \hline \square 94 \end{array}$$

Fill in the missing digits.

MATHS NO PROBLEM!

Why Journal?

Why Journal?

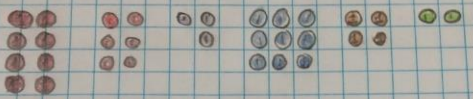
It helps pupils …

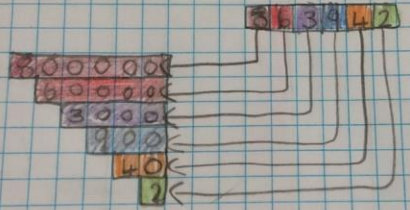
- ✓ Practice
- ✓ Record
- ✓ Reflect
- ✓ Evaluate
- ✓ Explore
- ✓ Reason
- ✓ Problem Solve
- ✓ Make decisions/choices
- ✓ Assess

Q: To demonstrate our understanding of Place value using the C-P-A approach

863942

Eight hundred and sixty three thousand nine hundred and forty two





863942 = 800,000 + 60000 + 3000 + 900 + 40 + 2

these values fro

6

Place Value

division

Self Check

I know how to...

- ☑ find multiples and common multiples.
- ☑ find factors and common factors.
- ☑ identify prime and composite numbers.
- ☑ recognise square numbers and cube numbers, and use the notation for squares (e.g. 4^2) and cubes (e.g. 2^3).
- ☑ multiply numbers up to 4 digits by a 1-digit number.
- ☑ multiply numbers up to 3 digits by a 2-digit number.
- ☑ multiply and divide mentally.
- ☑ multiply and divide numbers by 10, 100 and 1000.
- ☑ divide 3-digit and 4-digit numbers.

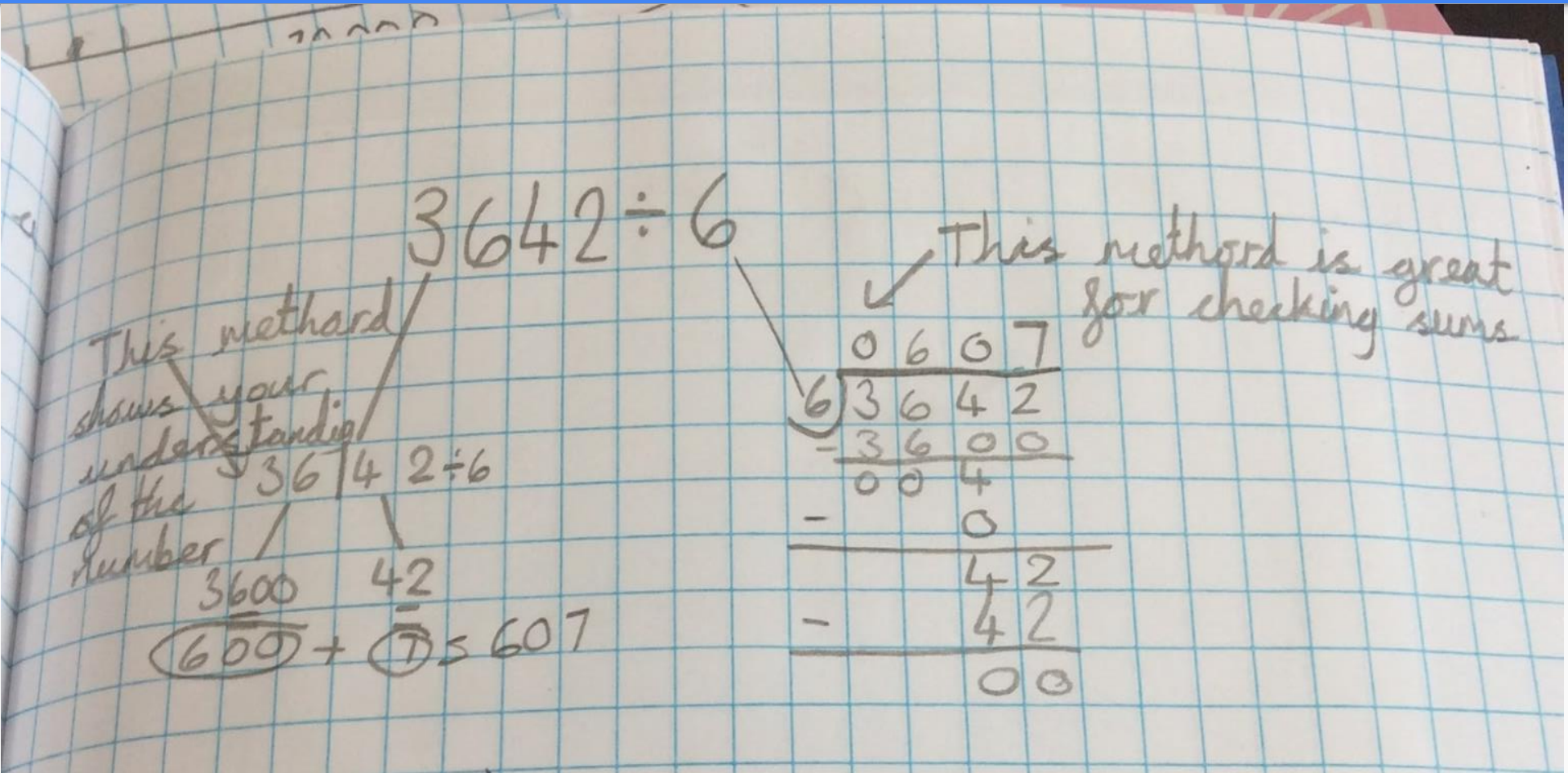
A common multiple is a number in more than 1 times table e.g. 12 is a common multiple of 4, 2, 3 and 6.

A factor is a number timesed by another number e.g. common factor of 14 ~~abc~~ and 28 = 7

A prime number is a number which only goes into 1 and itself eg. 97 is a prime. A composite number is number which goes into more than ~~2 times table~~ st 1 and itself. e.g. 99

square number is a number which is made a number timesed by itself e.g. $4^2 = 16$. A cube number is a number which has been ~~tired~~ timesed itself 3 times e.g. $3^3 = 27$

Mixing new and old methods



Maths Expected Standard (EXS)

End of KS2 - LHPSN maths results (81%) have exceeded the 2023 national results (73%) by 8%

End of KS2 - LHPSN maths results (83%) have exceeded the 2022 national results (71%) by 12%

End of KS2 – LHPSN maths results (68%) were lower than 2019 national results (79%) by 11%

End of KS1 - LHPSN maths results (83%) have exceeded the 2023 national results (70%) by 13%

End of KS1 - LHPSN maths results (79%) have exceeded the 2022 national results (68%) by 11%

End of KS1 – LHPSN maths results (70%) were lower than 2019 national results (76%) by 6%

Maths Higher Standard (GDS)

End of KS2 - LHPSN maths results: 23% 2023, 43% 2022 12% 2019

End of KS1 - LHPSN maths results 26% 2023, 23% 2022 21% 2019

EYFS

End of Reception 2023 93% children achieved a good level of development for number and 85% for number patterns

End of Reception 2022 88% children achieved a good level of development for number and number patterns

Helping at home

Talk about number in everyday life – baking, shopping, money, time

Support your children with their home learning and question – how do you know, what do you notice, convince me

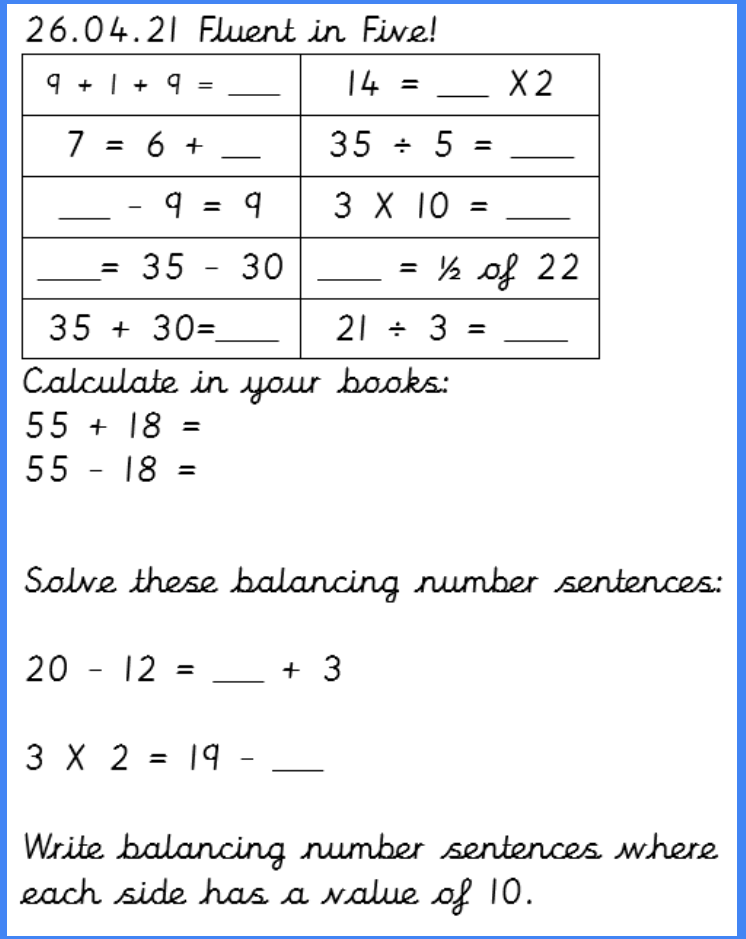
Use manipulatives to help – pasta pieces, number lines, money

Have a ‘Can-do’ attitude – mistakes help us learn; power of ‘yet’

Complete our weekly home learning in KS1, based on number fact knowledge…

… and watch this space for EYs!

Daily Arithmetic Practice and Key Instant Recall Facts (KIRFs)



26.04.21 Fluent in Five!

9 + 1 + 9 = ___	14 = ___ X2
7 = 6 + ___	35 ÷ 5 = ___
___ - 9 = 9	3 X 10 = ___
___= 35 - 30	___ = ½ of 22
35 + 30=___	21 ÷ 3 = ___

Calculate in your books:

55 + 18 =

55 - 18 =

Solve these balancing number sentences:

20 - 12 = ___ + 3

3 X 2 = 19 - ___

Write balancing number sentences where each side has a value of 10.

Daily arithmetic and KIRF practice

KIRFs

$\frac{1}{2}$ of 40 =	$\frac{3}{4}$ of 8 =
$\frac{1}{4}$ of 36 =	$\frac{1}{4}$ of 32 =
$\frac{3}{4}$ of 4 =	$\frac{1}{2}$ of 30 =
1/3 of 12 =	1/3 of 36 =
$\frac{1}{2}$ of 60 =	$\frac{1}{4}$ of 4 =
$\frac{1}{4}$ of 16 =	$\frac{1}{2}$ of 32 =
$\frac{1}{2}$ of 80 =	1/3 of 27 =
3 x 4 =	12 ÷ ____ = 6
_____ x 8 = 40	7 x 8 = _____
18 ÷ 3 = ____	12 x ____ = 48

Arithmetic

196 ÷ 3

Use <, > or =

$\frac{3}{5}$ 0.6 $\frac{9}{15}$

75% as a fraction

How many cm in 1 in?

15 x 22

Times Tables: What do we need to be able to do?

- In the table below are the National Curriculum times tables expectations for each year group. The children will be tested on their times tables regularly in school.

Expectations for times tables for each year group	
Year 1	Count in multiples of 2, 5 and 10. Recall and use all doubles to 10 and corresponding halves.
Year 2	Recall and use multiplication and division facts for the 2, 5 and 10 times tables including recognising odd and even numbers.
Year 3	Recall and use multiplication and division facts for the 3, 4 and 8 times tables.
Year 4	Recall and use multiplication and division facts for tables up to 12 x 12
Year 5	Revision of all times tables and division facts up to 12 x 12
Year 6	Revision of all times tables and division facts up to 12 x 12

The Multiplication Tables Check (MTC)

Which children will sit the multiplication check?

The times tables test has been introduced in English schools only. It is taken by children in Year 4, in the summer term (in June). 2022 saw the first statutory delivery of this screen.

How will children be tested? Children will be tested using an on-screen check, where they will have to answer multiplication questions against the clock. The test will last no longer than 5 minutes and their answers will be marked instantly.

Thank you!

We are staying for a little while if you have any questions!