MATHS WORKSHOP

Year 5 Parents

The aims of the National Curriculum for Mathematics

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.*

Fluency

- Recall number facts and concepts without thinking (rapid recall – knowing from memory).
- Accuracy.
- Understanding.
- Efficiency (using an appropriate strategy)
- Make connections between different mathematical areas.

Reasoning

- It is about using what you already know to help you deduce, reason or predict what will happen and the best way to go about facing a problem, with this knowledge in mind. It can be as simple as 'I know 5 + 5 is 10, I have to work out 6 + 5. 6 is one more than 5, so my answer will be larger than 5 + 5 by 1.'
- How would you solve 35 + 29?
- How would you solve £3.99 + £2.76?

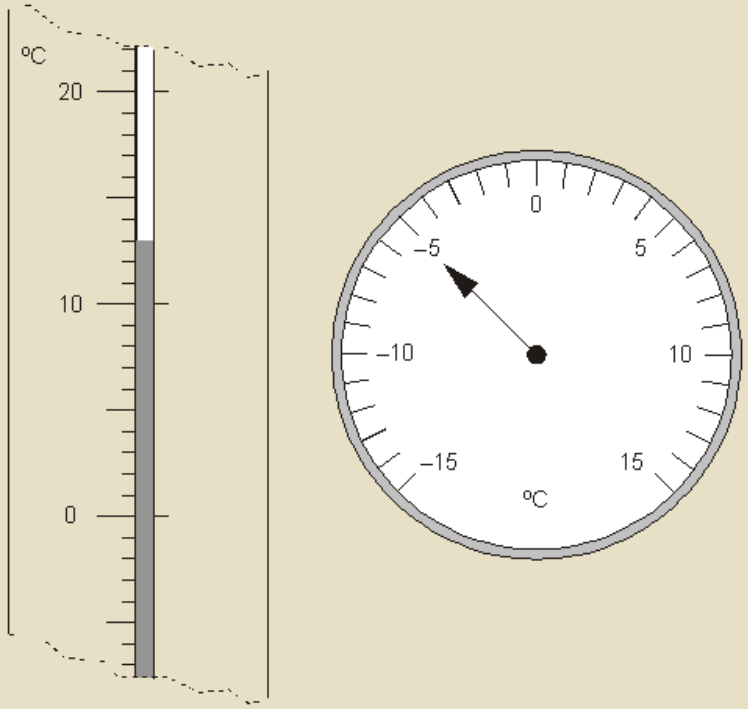
Problem Solving

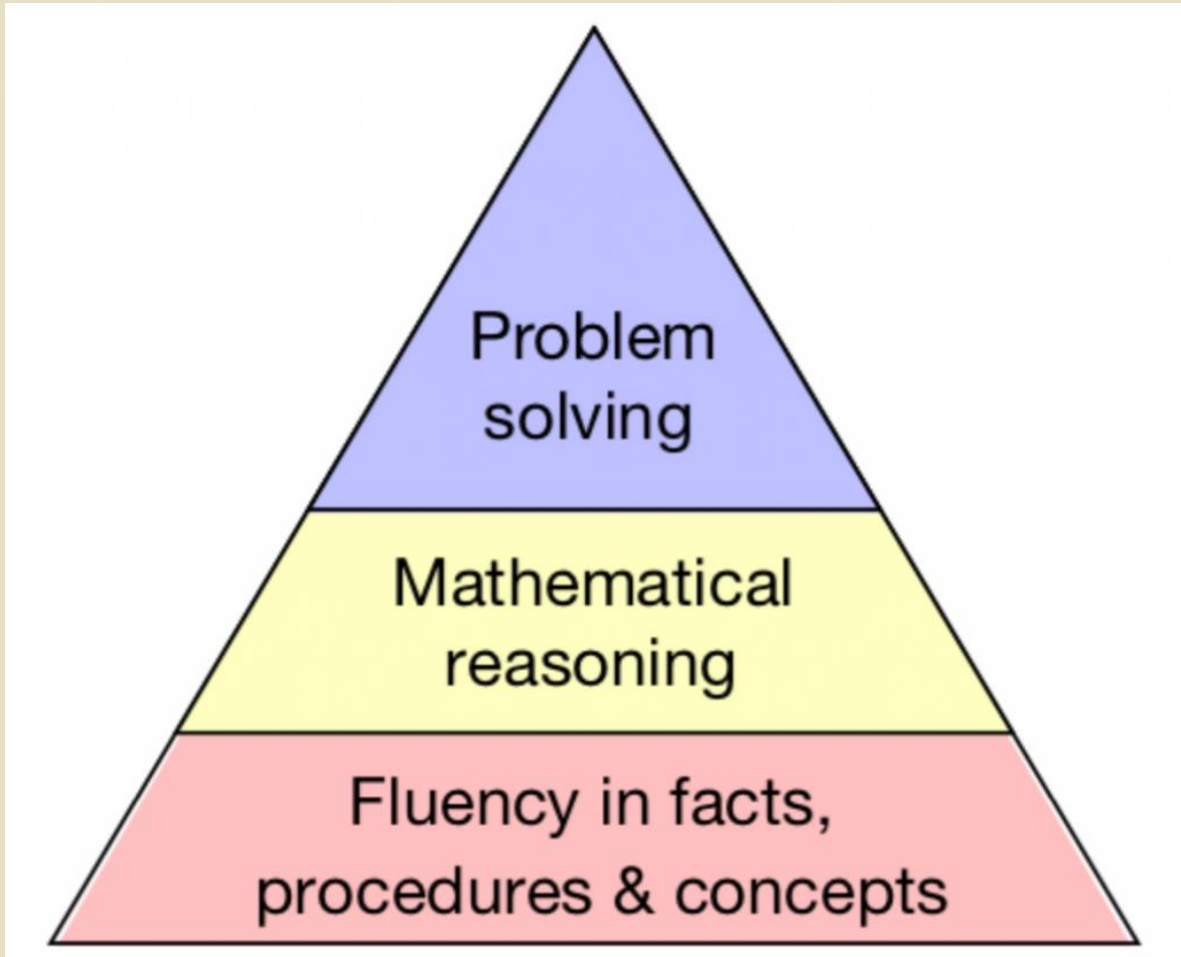
- *The ability to apply the concepts and skills that they have learned to solve an unfamiliar problems, including being able to break the problem down into smaller steps and persevering in seeking solutions.*

Here are two thermometers. They show two

different temperatures.

What is the difference between the two temperatures?



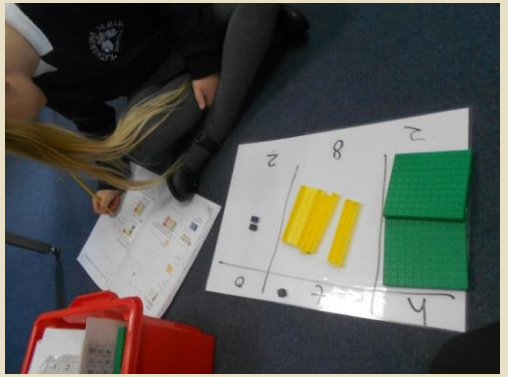

Problem solving
Mathematical reasoning
Fluency in facts, procedures & concepts

Mathematics Mastery

At Katherine Semar, we teach for mastery. We aim to ensure all pupils master the curriculum at the appropriate stage of their learning.

Mastery of the curriculum requires that all pupils:

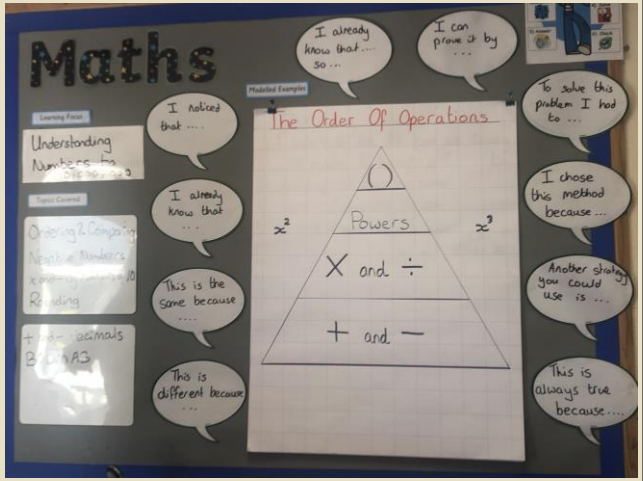
- *can use their knowledge of the concept to solve unfamiliar problems and undertake complex reasoning;*
- *use mathematical concepts, facts and procedures appropriately, flexibly and fluently;*
- *recall key number facts with speed and accuracy and use them to calculate and work out unknown facts;*
- *have sufficient depth of knowledge and understanding to reason and explain mathematical concepts and procedures and use them to solve a variety of problems.*



We provide opportunities to support pupils to develop a long-term, deep understanding of mathematics by securing each topic securely before moving on and building upon it. This is through slower but deeper learning through small steps.

Mathematics Vision and Values

- *At Katherine Semar Schools, we believe that every child can do Mathematics.*
- *These skills will engender a sense of enjoyment and curiosity about the world in which we live.*
- *Our Mathematics curriculum is delivered to support children to master mathematics which through opportunities to explore and deepen their understanding using fluency, variation, representation and structure, and mathematical thinking which is underpinned by coherence.*
- *Our children are encouraged to reason and problem solve in every lesson. Teachers and children use full sentences and STEM sentences throughout their lessons to verbalise their learning and understanding.*
- *I know that ____ x ____ = _____ therefore ____ x____ = _____*
- *We highlight the importance of mathematics in everyday life, surrounding us in all that we do.*
- *The children are engaged and interested by mathematics in real-life contexts, making links across the curriculum, providing them with skills to prepare them for life as they grow.*



Year 5 Division Learning Objectives

* Multiply and divide numbers mentally, drawing upon known facts
divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context.
* Multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000.
* Solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes.
* Solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign
Guidance (non-statutory).
* Pupils practise and extend their use of the formal written methods of short multiplication and short division. They apply all the multiplication tables and related division facts frequently, commit them to memory and use them confidently to make larger calculations.

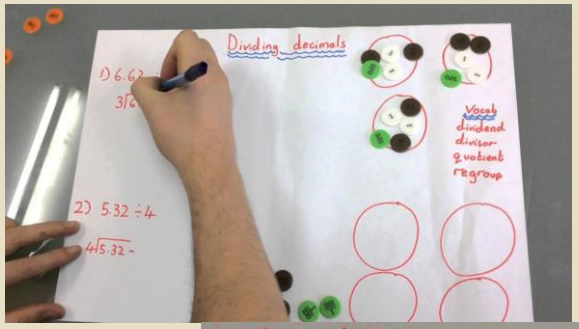
Calculation Policies

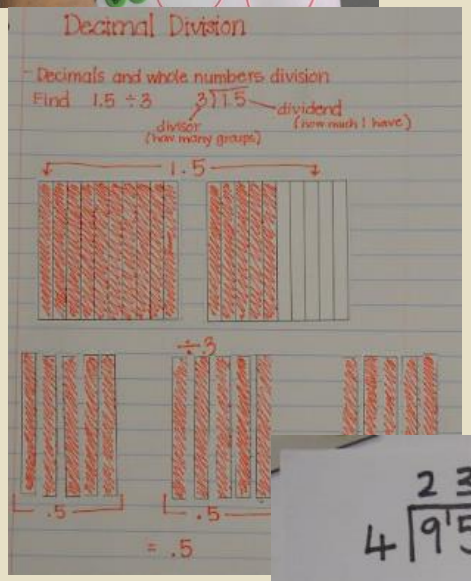
Our calculation policies have been created to reflect the methods we use to teach for Maths Mastery. We follow a CPA approach:

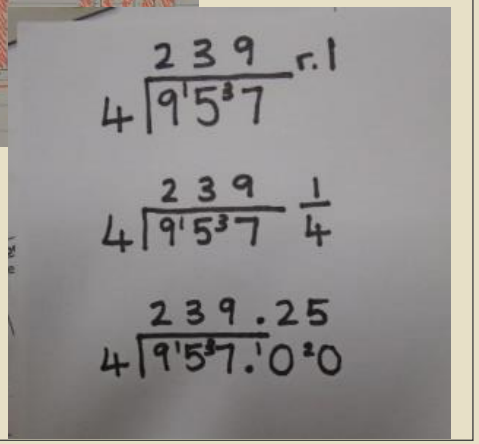
***Concrete** – the children establish their understanding of mathematics through carefully chosen concrete materials which they can use to help them to 'see' the maths as they progress through the curriculum. These materials are available at all stages of learning from EYFS right through to Year 6.*

***Pictorial** – Children are encouraged to begin to illustrate maths using images that represent the mathematics. This can be used at any stage of their learning and helps to secure and deepen understanding of the processes which underpin the mathematical concepts.*

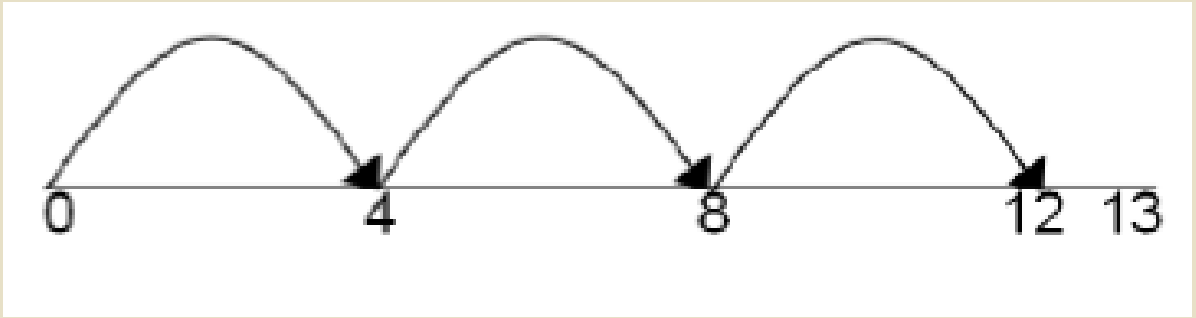
***Abstract** – once children are secure with the use of concrete and pictorial approaches to their calculation, reasoning and problem solving, they move on to the abstract form of calculation. They are still able to use supporting materials or images if they want to but at this point they are able to show that their depth of fluency and understanding is more secure and they are able to work effectively with standard written methods.*







Formal Written Calculations and Strategies



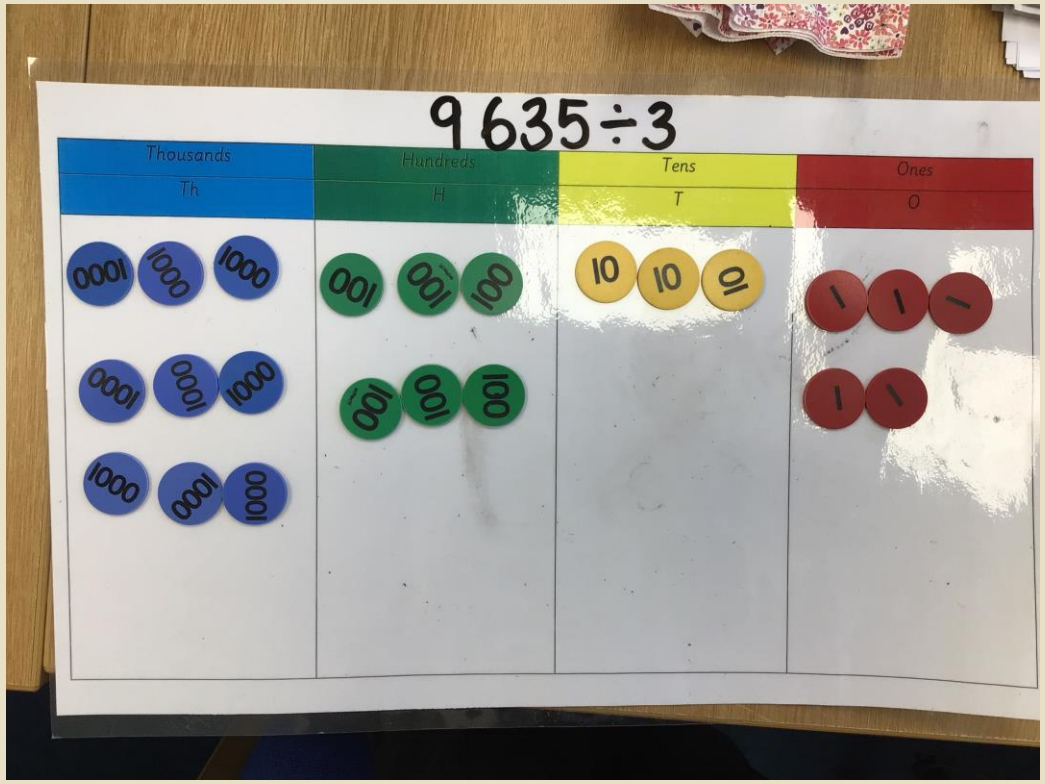
Sharing and Grouping and using a number line

Children will continue to explore division as sharing and grouping, and to represent calculations on a number line as appropriate.

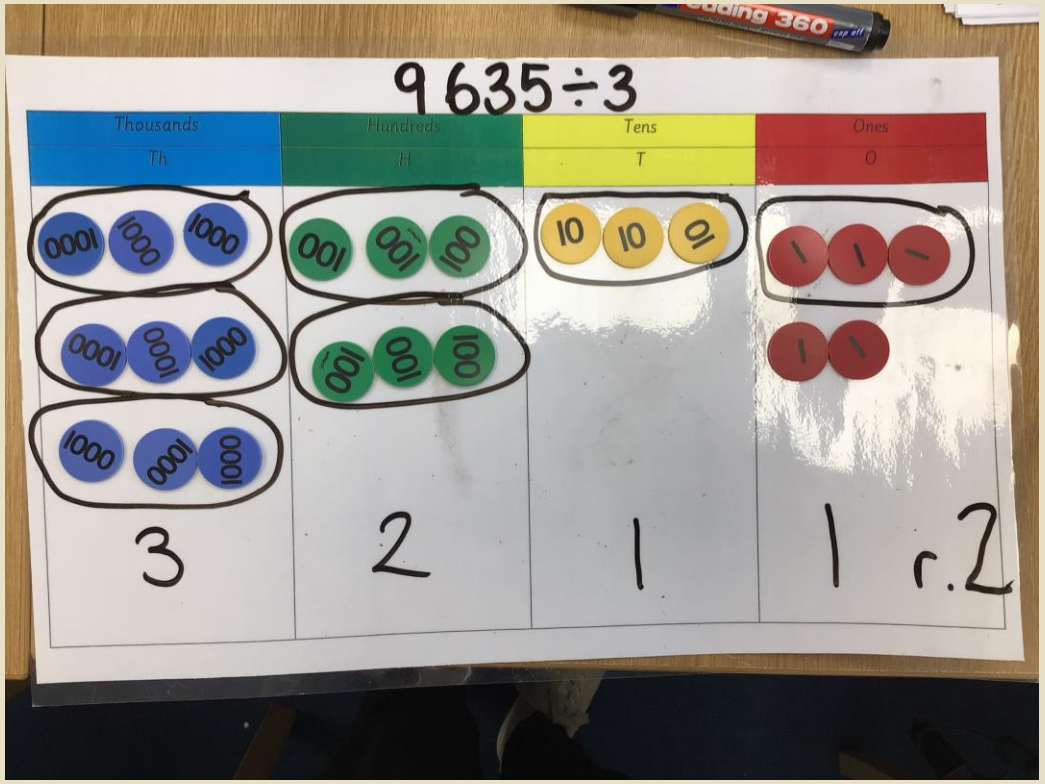
Children will begin to express remainders as decimals and fractions.

Formal Written Calculations and Strategies

Formal written method short division *continued as in Year 4, leading to the efficient use of a formal method. The language of grouping to be used. Children begin to practically develop their understanding of how express the remainder as a decimal or a fraction. Ensure practical understanding allows children to work through this (e.g. what could I do with this remaining 1? How could I share this between 6 as well?)*



Concrete



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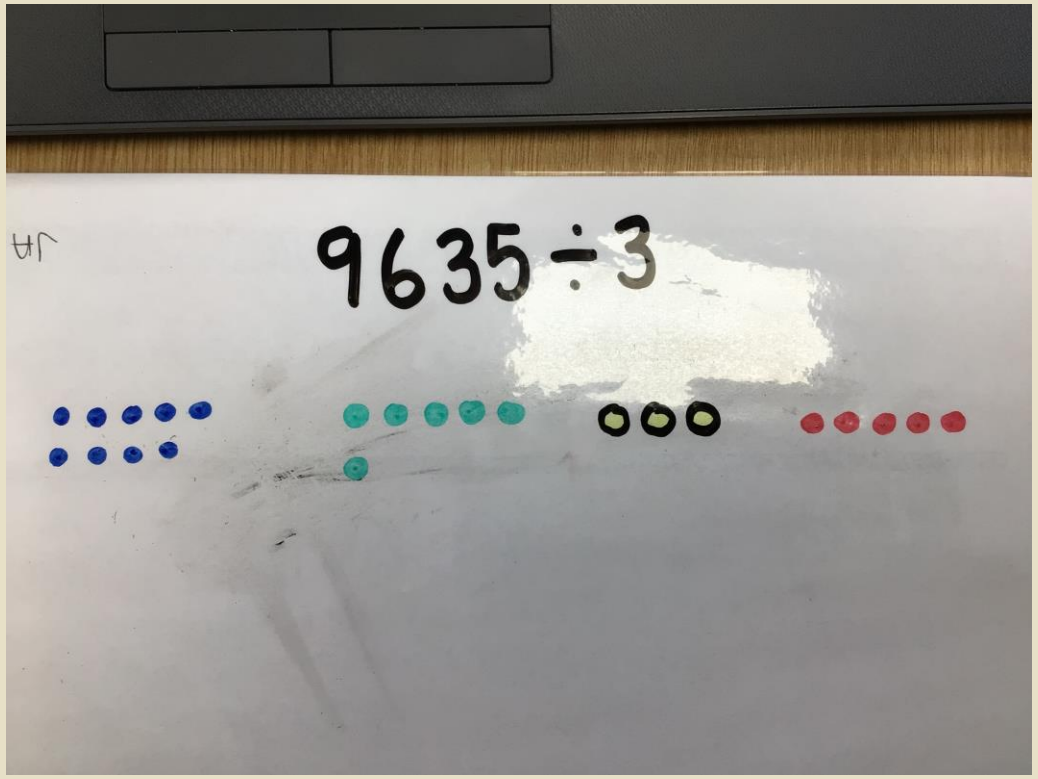
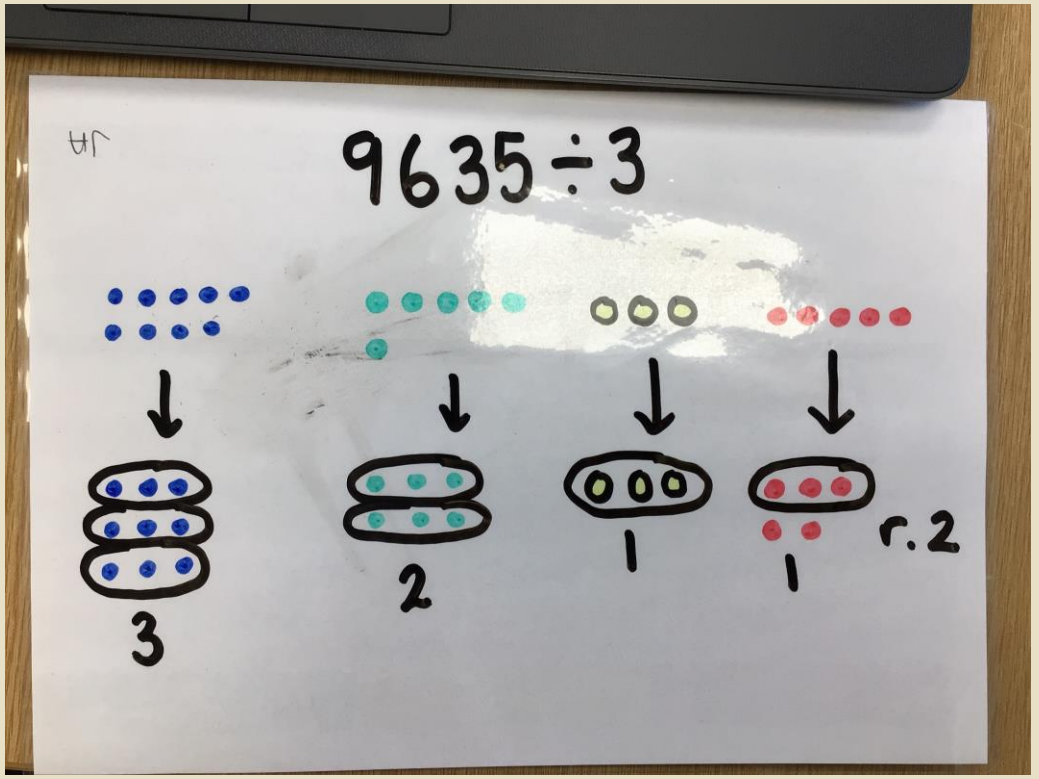


Pictorial



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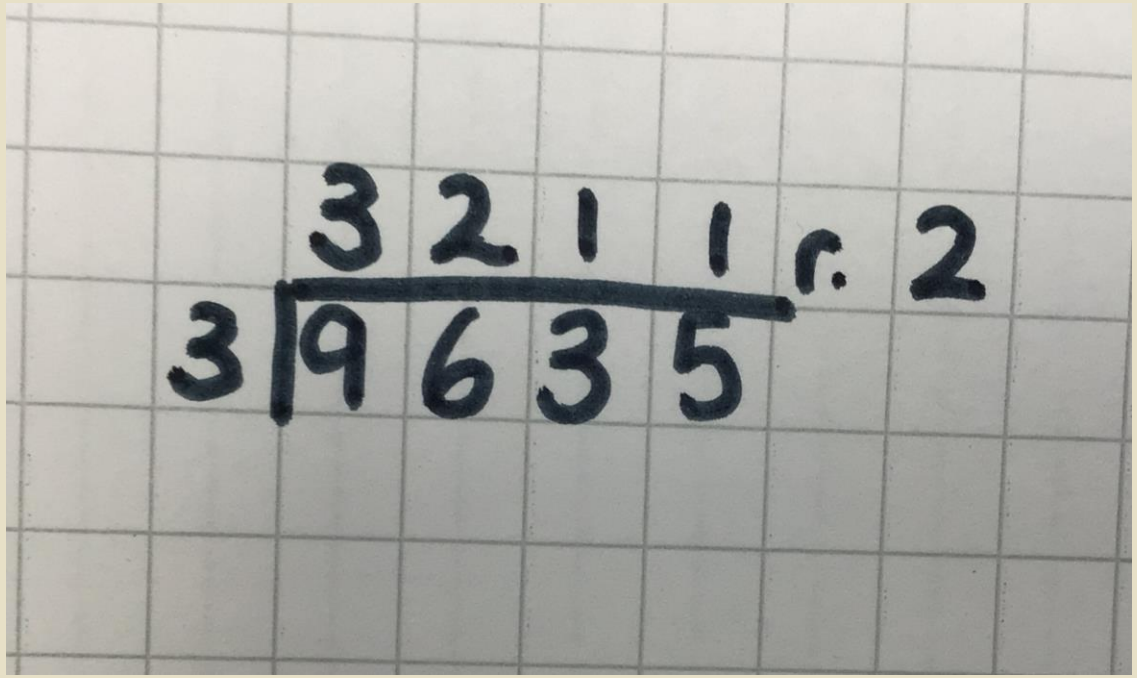
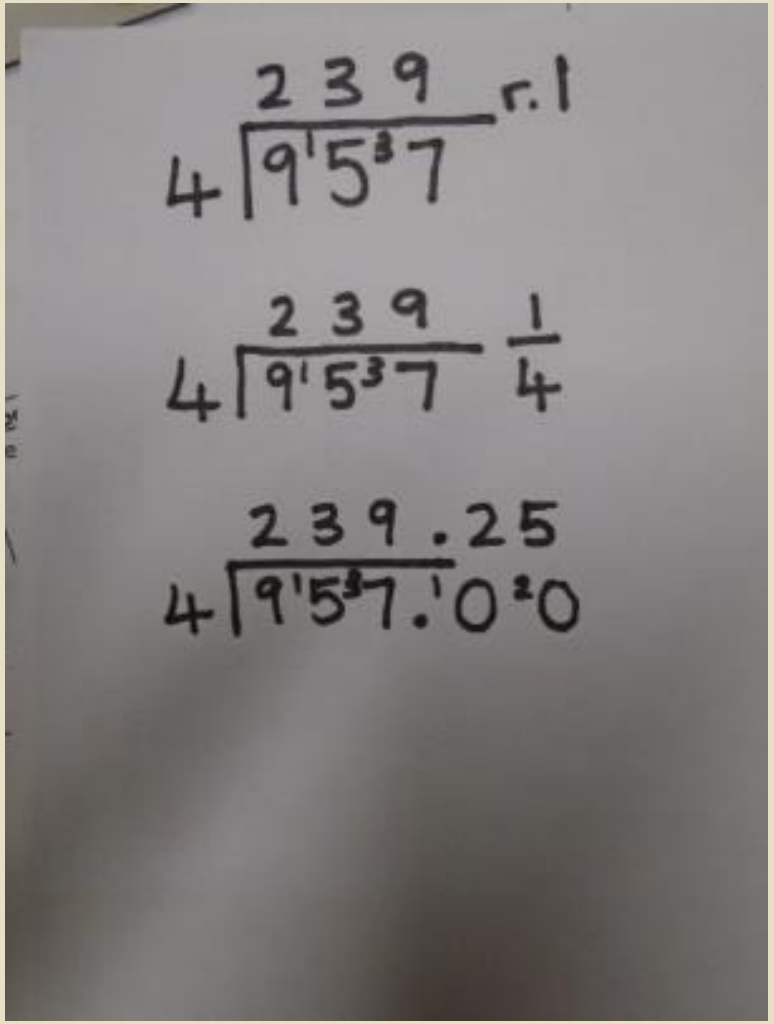
Abstract



Formal Written Calculations and Strategies

Remainders will then be explored as decimal and/or fractional representation.

Abstract



Formal Written Calculations and Strategies

Short Division

Use place value counters to work out 8,407 ÷ 4

Th	H	T	O

	4	8	4	0	7	

8,407 ÷ 4 = ☐ remainder ☐

Concrete

Formal Written Calculations and Strategies

Short Division

Circle the groups of 3 to help complete the sentences and calculation.

The first step has been done for you.

Th	H	T	O
1,000 1,000 1,000	100 100 100 100 100 100 100	10 10 10	1 1 1 1 1 1

		1				
	3	3	9	3	8	

There is [1] group of 3 thousands.

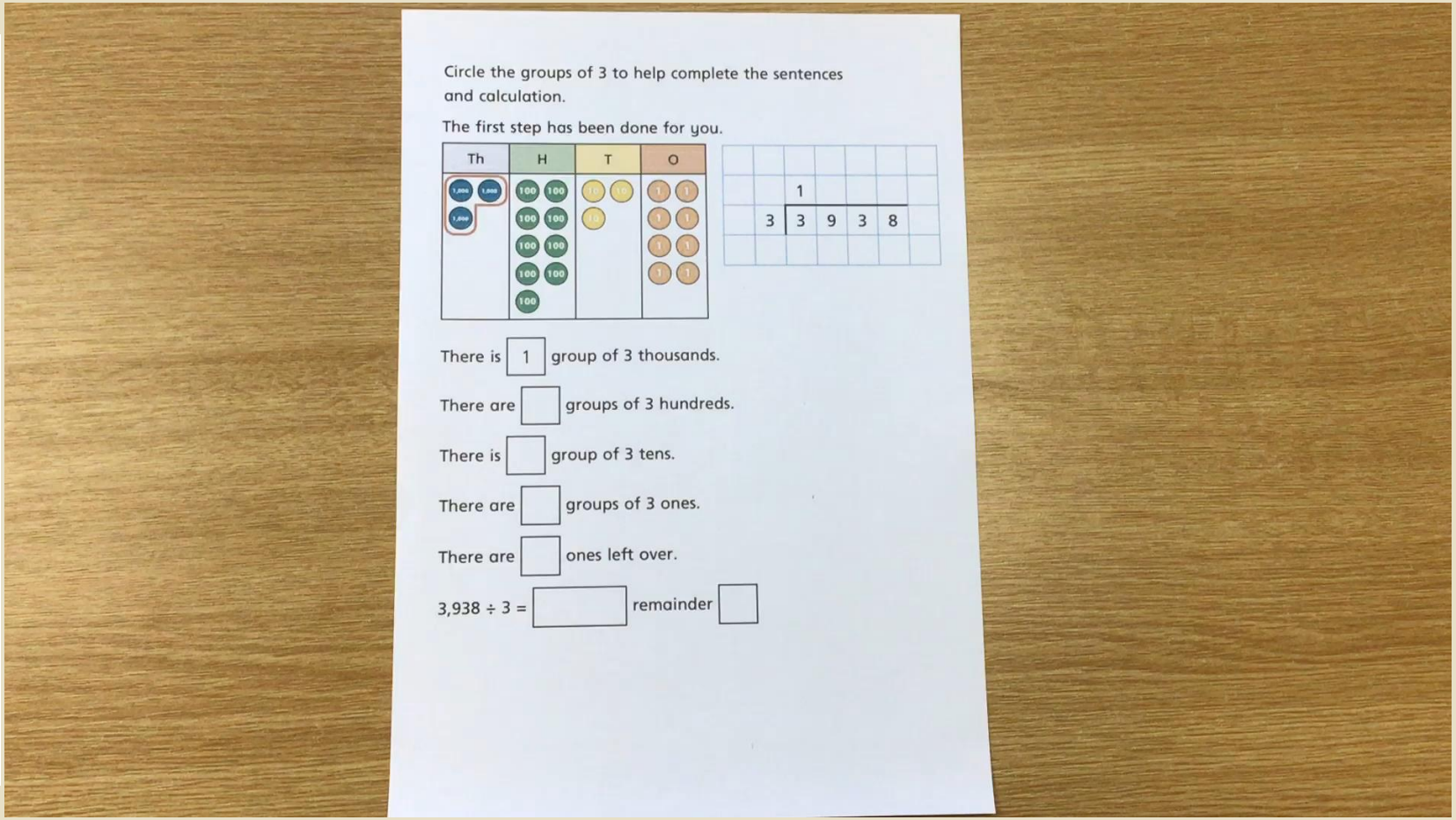
There are [ ] groups of 3 hundreds.

There is [ ] group of 3 tens.

There are [ ] groups of 3 ones.

There are [ ] ones left over.

3,938 ÷ 3 = [ ] remainder [ ]



Pictorial

Formal Written Calculations and Strategies

Short Division

	3	7	5	9	5		

Abstract

When your child arrives - Tasks to complete

Have a go at completing some of the examples below using the concrete materials.

2684 ÷ 2 =

6,115 ÷ 5 =

4,324 ÷ 2 =

Have a go at completing some of the examples below using pictorial representations

3963 ÷ 3 =

3,924 ÷ 3 =

5,626 ÷ 5 =

Have a go at completing some of the examples below using the abstract formal written method.

4848 ÷ 4 =

3,242 ÷ 4 =

9,363 ÷ 4 =

When working with your child

01

Keep the mood light and positive

02

Give your child time to process their thoughts (don't jump in too early to help)

03

If they're not performing to your expectation, remember that they may be feeling under pressure

04

Never admit your own failing with Maths!

05

Have a giggle

Any Questions?

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How to help at home

- Fluency facts are essential and often what hold children back when using the formal written method
- Multiplication and division facts
- If working through the formal written method with your children, follow the process we have looked at today/the calculation policy which can be found on our school website

Any Questions?

https://www.surveymonkey.co.uk/r/QQHVKS6