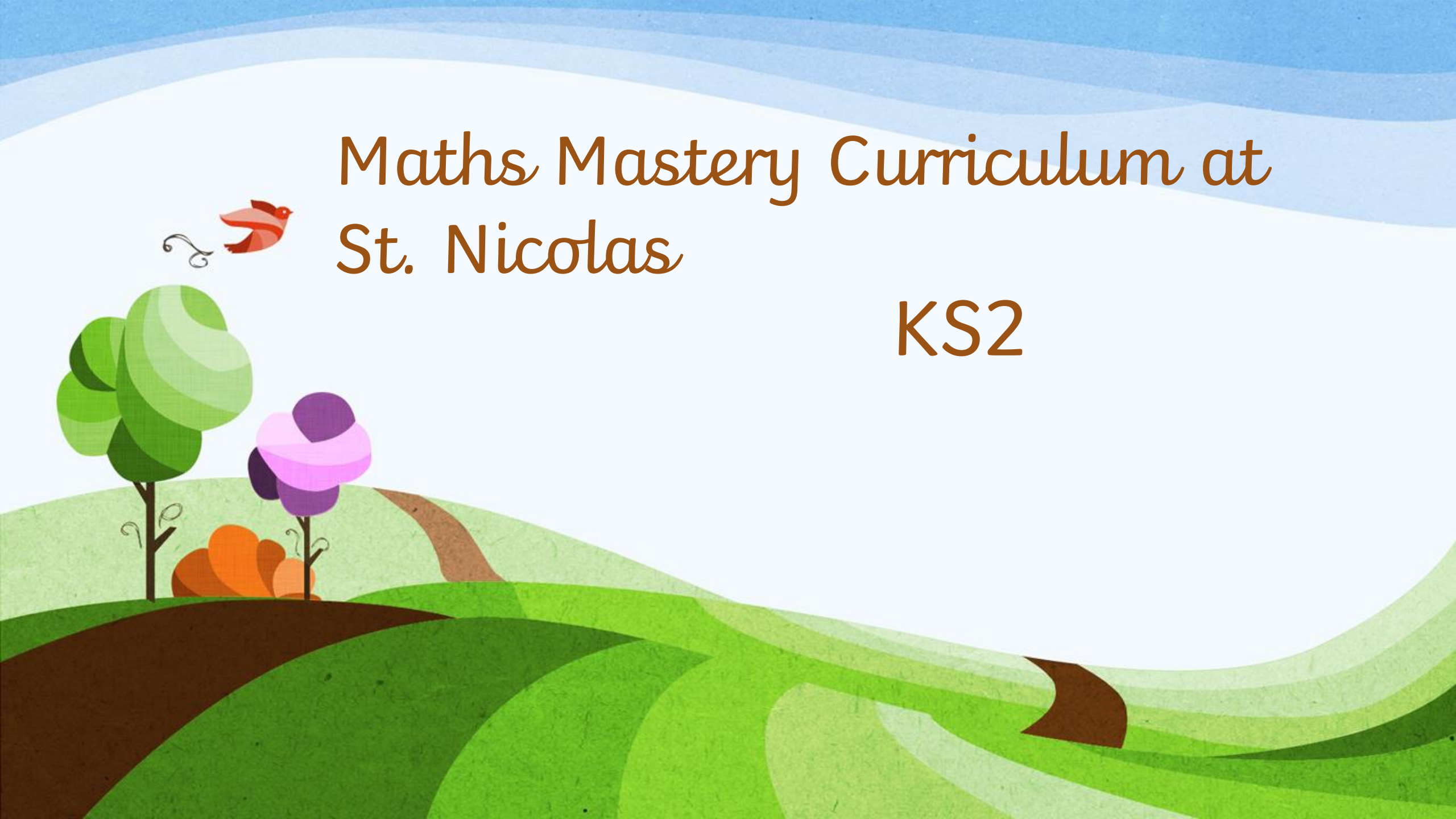
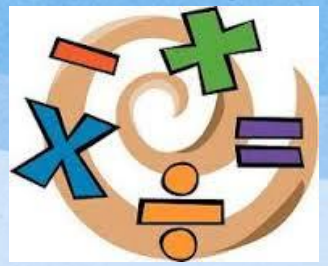
# Maths Mastery Curriculum at St. Nicolas

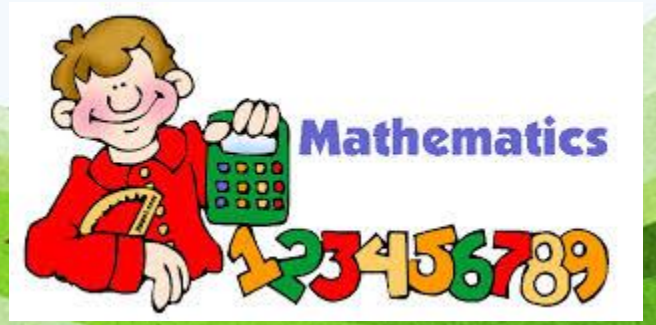
KS2





**Thinking** is at the heart of Mathematics and therefore should be at the heart of Mathematical teaching and learning.

At St Nicolas we believe that **all** children can do Maths (and do it well) if they are given the chance to do it.



# Aims of the session

- Share some of the things about the ways your child is learning in school
- Improve your confidence in helping your child with maths
- Share with you some home learning resources and activities

# Why engage you in your child's learning?

Research evidence suggests that when parents are engaged in their children's learning, outcomes for children can be improved.

The research also highlights the fact that parents feel they need more support to understand the current curriculum content and how they can support their child with their learning at home.

Desforges, C. and Abouchaar, A. (2003); Goodall, J. and Vorhaus, J. (2011); The Education Endowment Foundation (2019); Sarjeant, S. (2021)

As a parent maybe you think:

*Everything has changed since I was at school and I am not confident in the new methods.*

# *Pupil – Catford High School*

"My dad thinks that the way **he** does maths is easier and better than **my** way but he doesn't understand my way and his way confuses me."

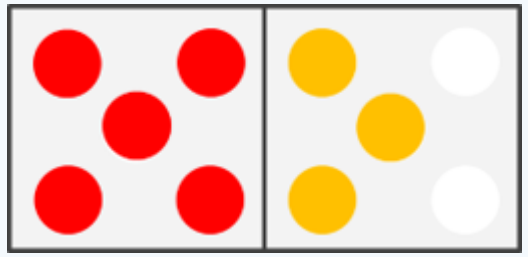
# How do we encourage thinking?

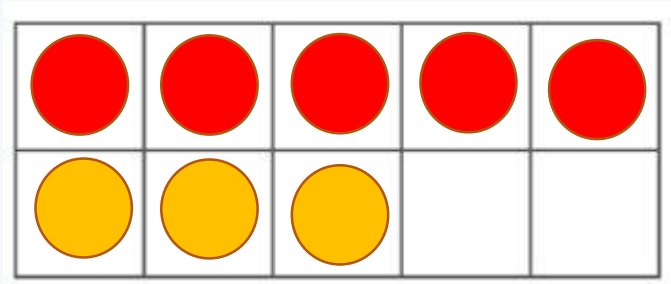
We build on EYFS and KS1 learning by encouragin g children to know about numbers.


| + | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 0 + 0 | 0 + 1 | 0 + 2 | 0 + 3 | 0 + 4 | 0 + 5 | 0 + 6 | 0 + 7 | 0 + 8 | 0 + 9 | 0 + 10 |
| 1 | 1 + 0 | 1 + 1 | 1 + 2 | 1 + 3 | 1 + 4 | 1 + 5 | 1 + 6 | 1 + 7 | 1 + 8 | 1 + 9 | 1 + 10 |
| 2 | 2 + 0 | 2 + 1 | 2 + 2 | 2 + 3 | 2 + 4 | 2 + 5 | 2 + 6 | 2 + 7 | 2 + 8 | 2 + 9 | 2 + 10 |
| 3 | 3 + 0 | 3 + 1 | 3 + 2 | 3 + 3 | 3 + 4 | 3 + 5 | 3 + 6 | 3 + 7 | 3 + 8 | 3 + 9 | 3 + 10 |
| 4 | 4 + 0 | 4 + 1 | 4 + 2 | 4 + 3 | 4 + 4 | 4 + 5 | 4 + 6 | 4 + 7 | 4 + 8 | 4 + 9 | 4 + 10 |
| 5 | 5 + 0 | 5 + 1 | 5 + 2 | 5 + 3 | 5 + 4 | 5 + 5 | 5 + 6 | 5 + 7 | 5 + 8 | 5 + 9 | 5 + 10 |
| 6 | 6 + 0 | 6 + 1 | 6 + 2 | 6 + 3 | 6 + 4 | 6 + 5 | 6 + 6 | 6 + 7 | 6 + 8 | 6 + 9 | 6 + 10 |
| 7 | 7 + 0 | 7 + 1 | 7 + 2 | 7 + 3 | 7 + 4 | 7 + 5 | 7 + 6 | 7 + 7 | 7 + 8 | 7 + 9 | 7 + 10 |
| 8 | 8 + 0 | 8 + 1 | 8 + 2 | 8 + 3 | 8 + 4 | 8 + 5 | 8 + 6 | 8 + 7 | 8 + 8 | 8 + 9 | 8 + 10 |
| 9 | 9 + 0 | 9 + 1 | 9 + 2 | 9 + 3 | 9 + 4 | 9 + 5 | 9 + 6 | 9 + 7 | 9 + 8 | 9 + 9 | 9 + 10 |
| 10 | 10 + 0 | 10 + 1 | 10 + 2 | 10 + 3 | 10 + 4 | 10 + 5 | 10 + 6 | 10 + 7 | 10 + 8 | 10 + 9 | 10 + 10 |

# We build on EYFS and KS1 learning by encouraging children to know about numbers

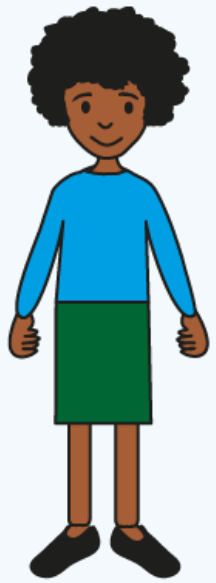
I know that 8 is made of 5 and 3 so I will also know…





# How does knowing how numbers are 'made' help children?

I know that 8 is made of 5 and 3 so I will also know...



$5 + 3 = 8$

$50 + 30 = 80$

$500 + 300 = 800$

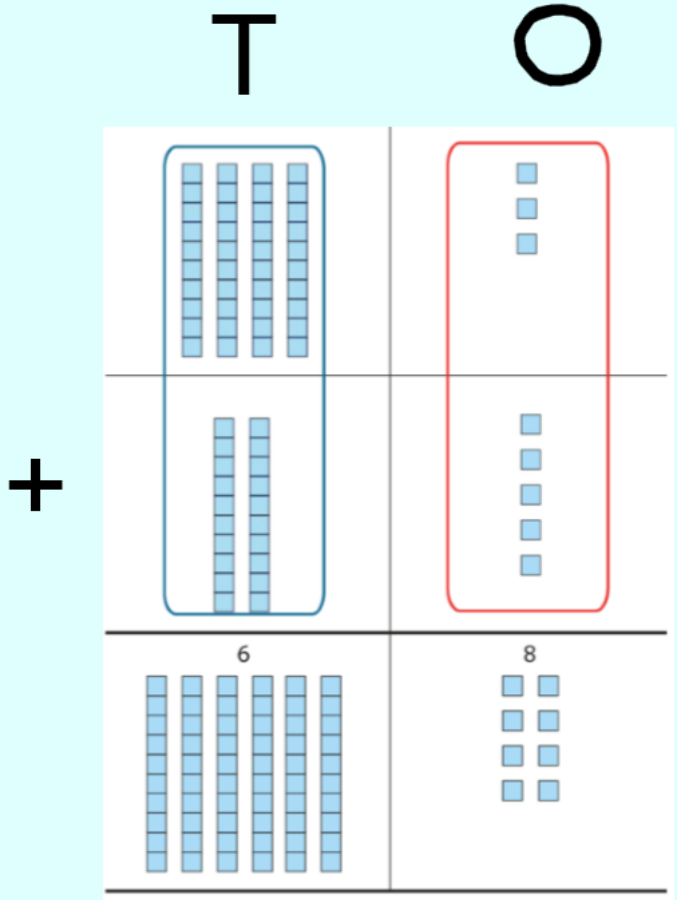
$8 - 3 = 5$

$80 - 30 = 50$

$0.5 + 0.3 = 0.8$

$0.8 - 0.3 = 0.5$

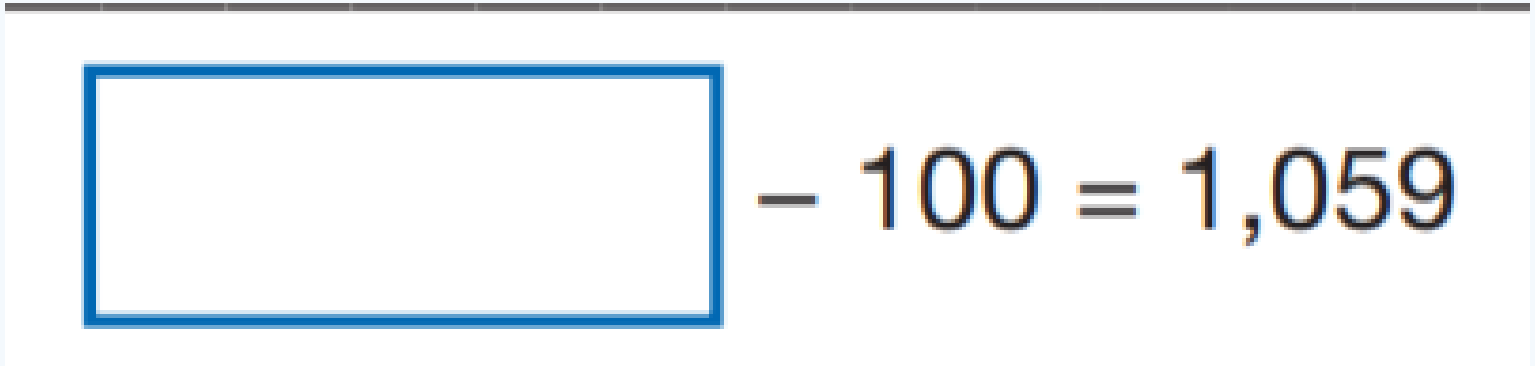
# How does knowing how numbers are 'made' help children?




$$\begin{array}{r} 4\ 3 \\ +\ 2\ 5 \\ \hline 6\ 8 \end{array}$$

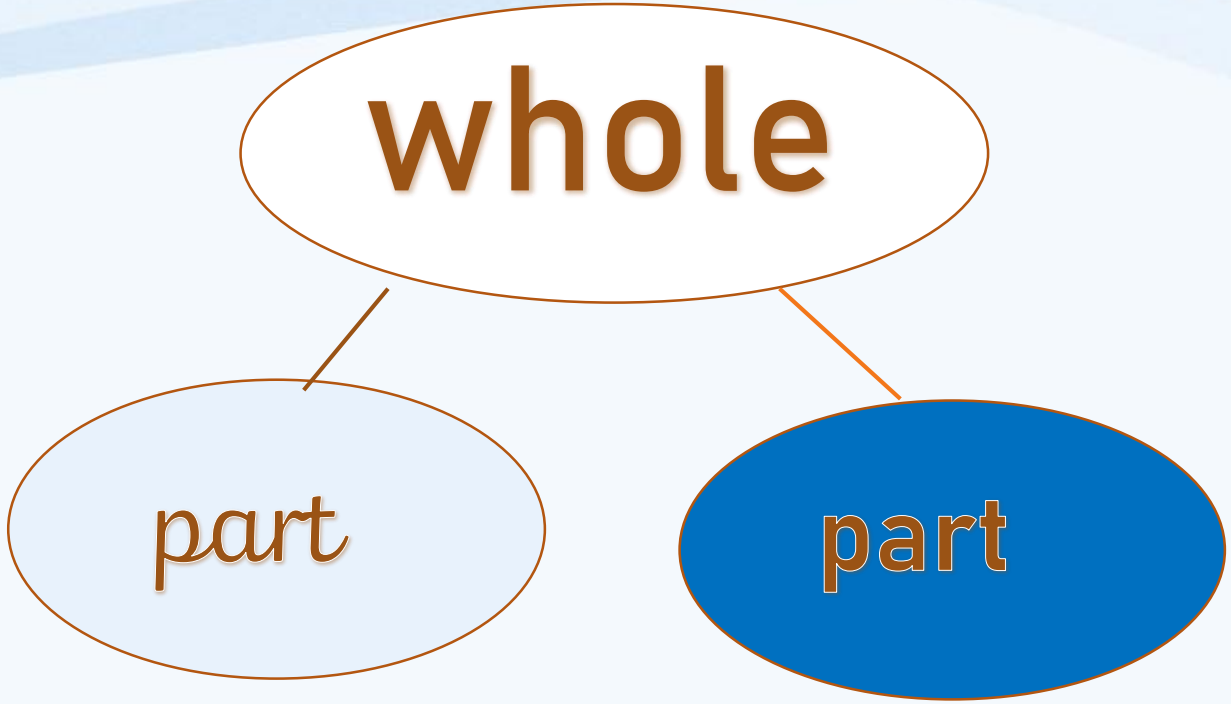
*We add the ones.3 ones plus 5 ones is equal to 8 ones.*
*We add the tens. 4 tens plus 2 tens is equal to 6 tens.*

# How would you approach this with your child?



# Bar model & Part whole model

$\square - 100 = 1{,}059$

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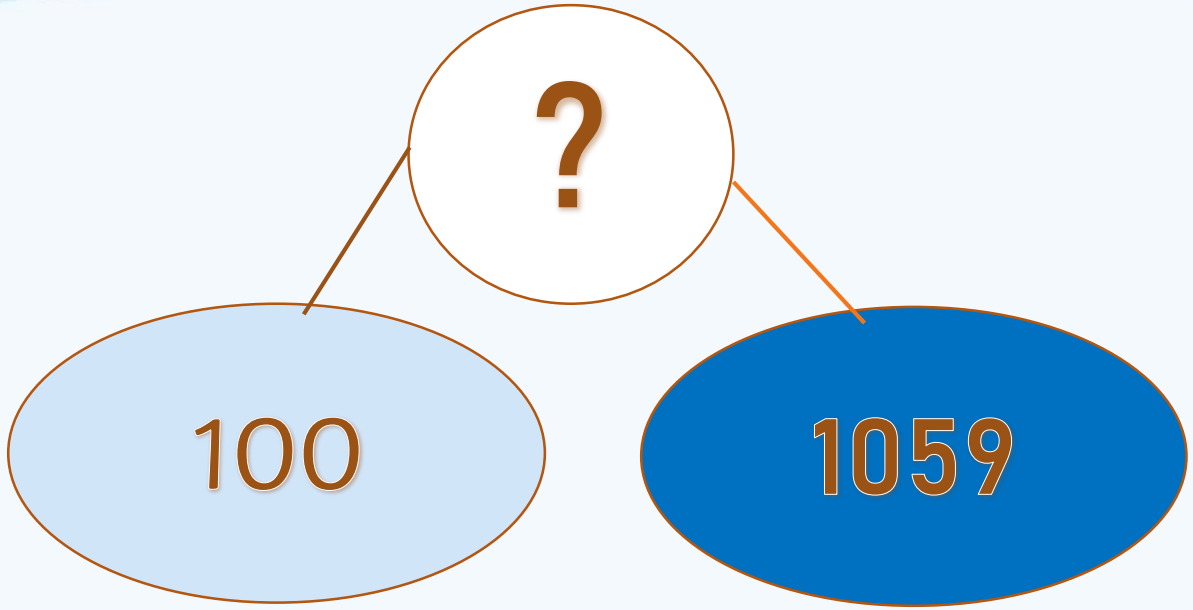
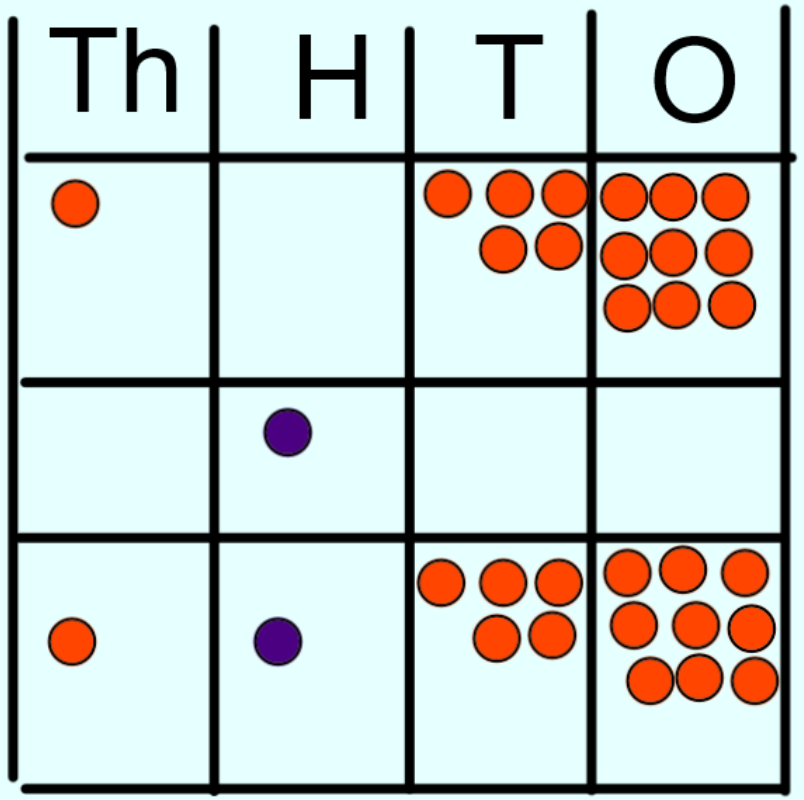



| 100 | 1059 |
| --- | --- |
| ? | |

# How would you approach this with your child?

$$\square - 100 = 1{,}059$$

| | Th | H | T | O |
|---|---|---|---|---|
| | 1 | 0 | 5 | 9 |
| + | | 1 | 0 | 0 |
| | 1 | 1 | 5 | 9 |



# How would you approach this with your child?

$$4{,}912 - 824 =$$

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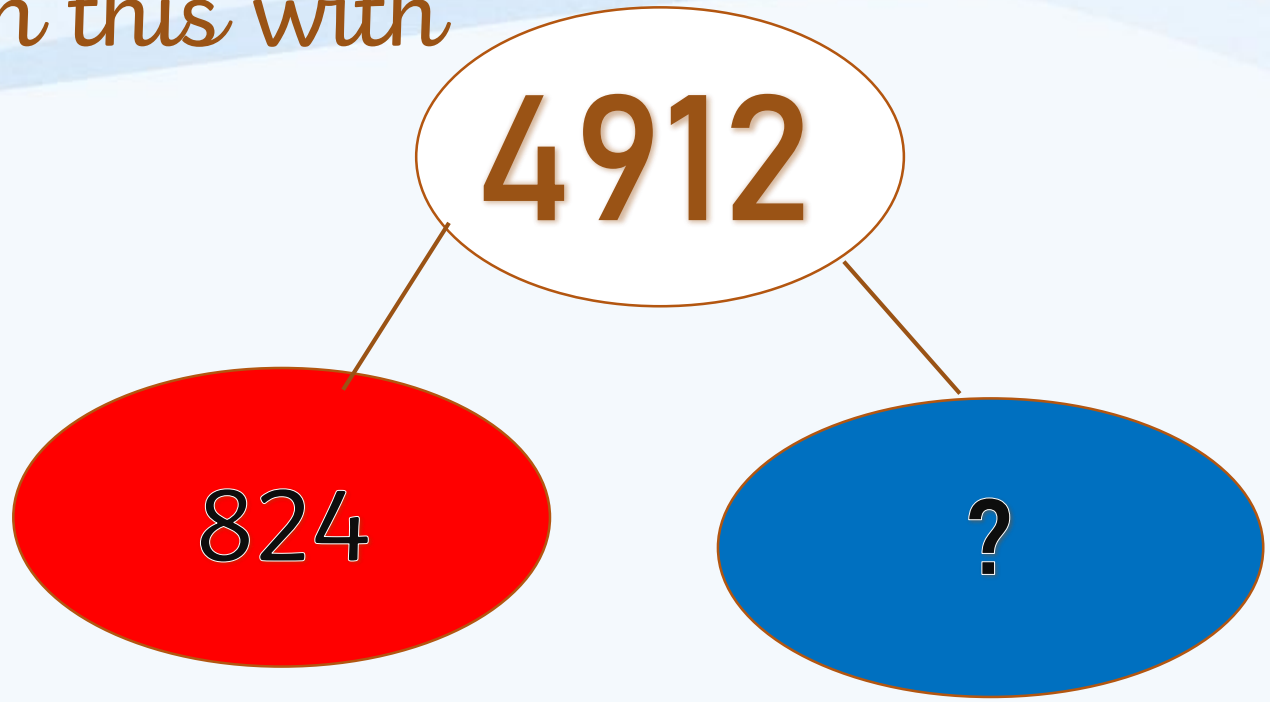
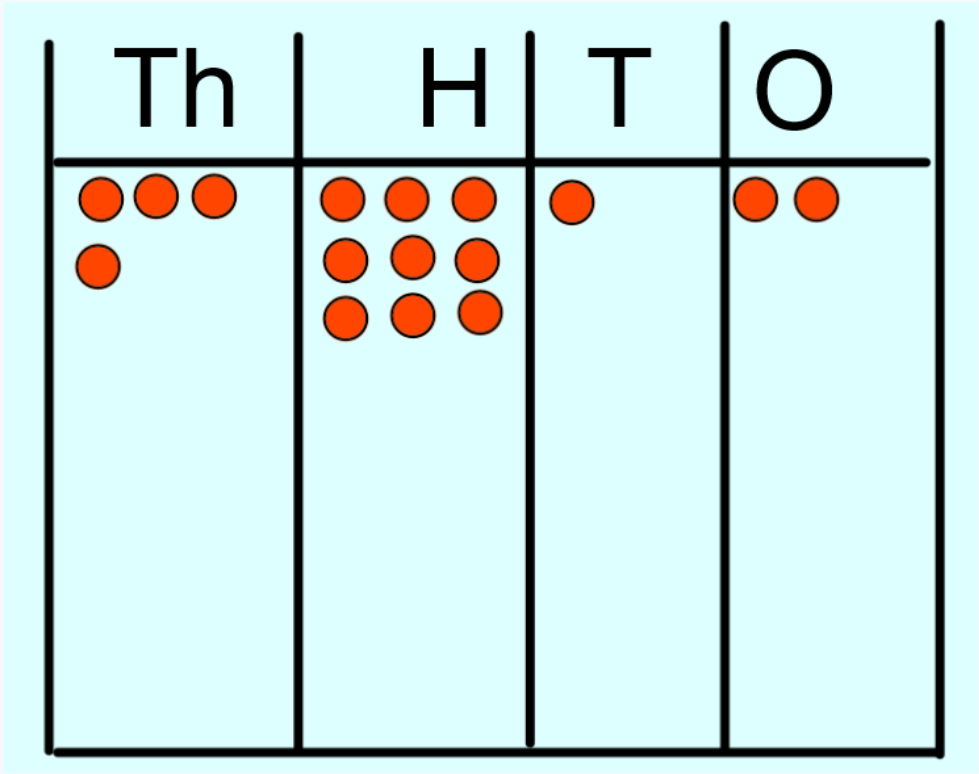



| 824 | ? |
| --- | --- |
| 4912 | |

# How would you approach this with your child?

4,912 – 824 =

| | Th | H | T | O |
|---|---|---|---|---|
| | 4 | 9 | 1 | 2 |
| - | | 8 | 2 | 4 |
| | | | | |



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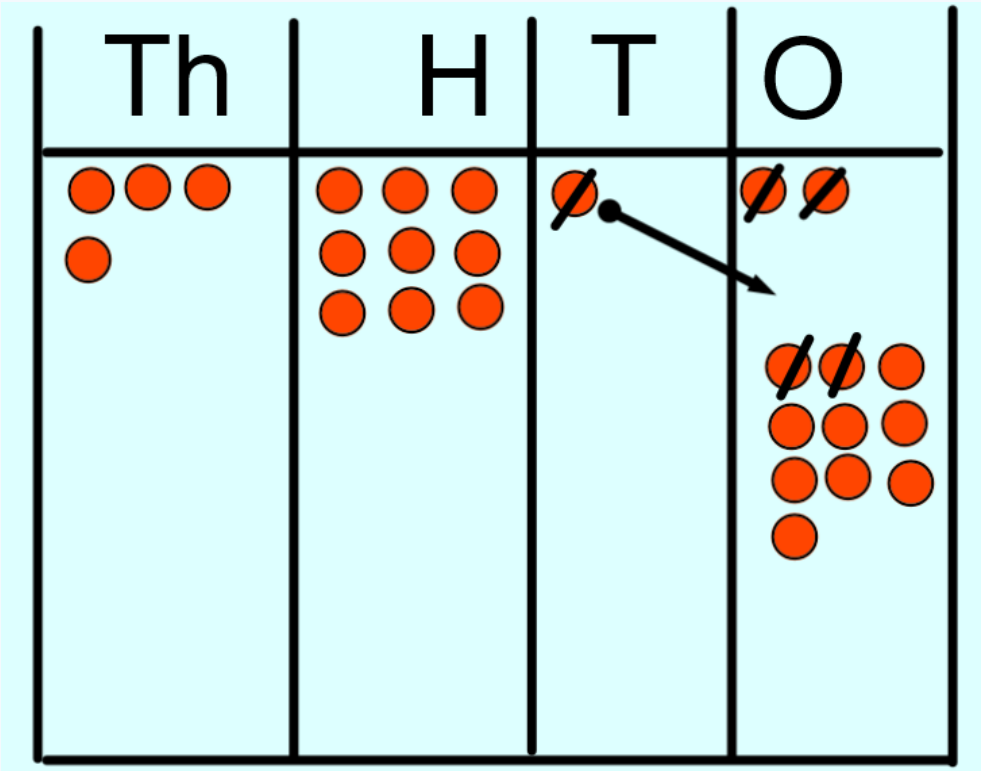
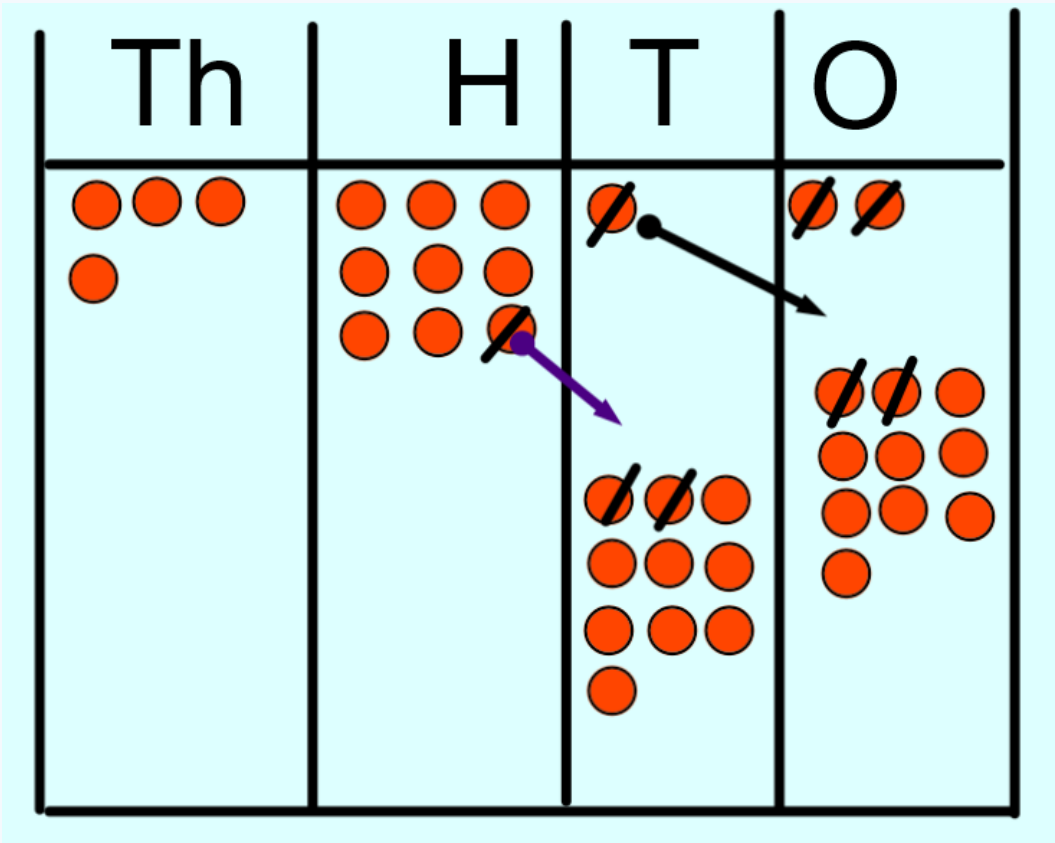


# How would you approach this with your child?

4,912 – 824 =

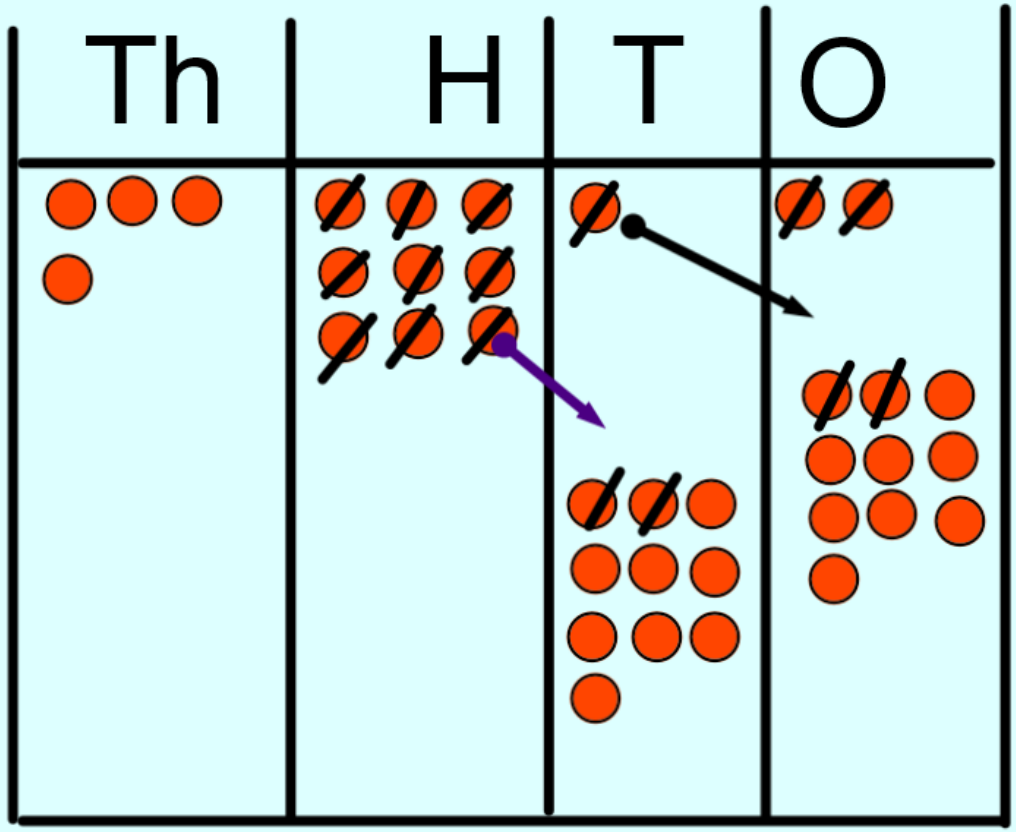
| | Th | H | T | O |
|---|---|---|---|---|
| | 4 | 8 9 | 10 1 | 1 2 |
| - | | 8 | 2 | 4 |
| | | | | 8 |



# How would you approach this with your child?

4,912 – 824 =

| Th | H | T | O |
|---|---|---|---|
| 4 | 8 9 | 10 1 | 1 2 |
| - | 8 | 2 | 4 |
| 4 | 0 | 8 | 8 |



How would you approach this with your child?

$$\frac{3}{4} + \frac{1}{2}$$

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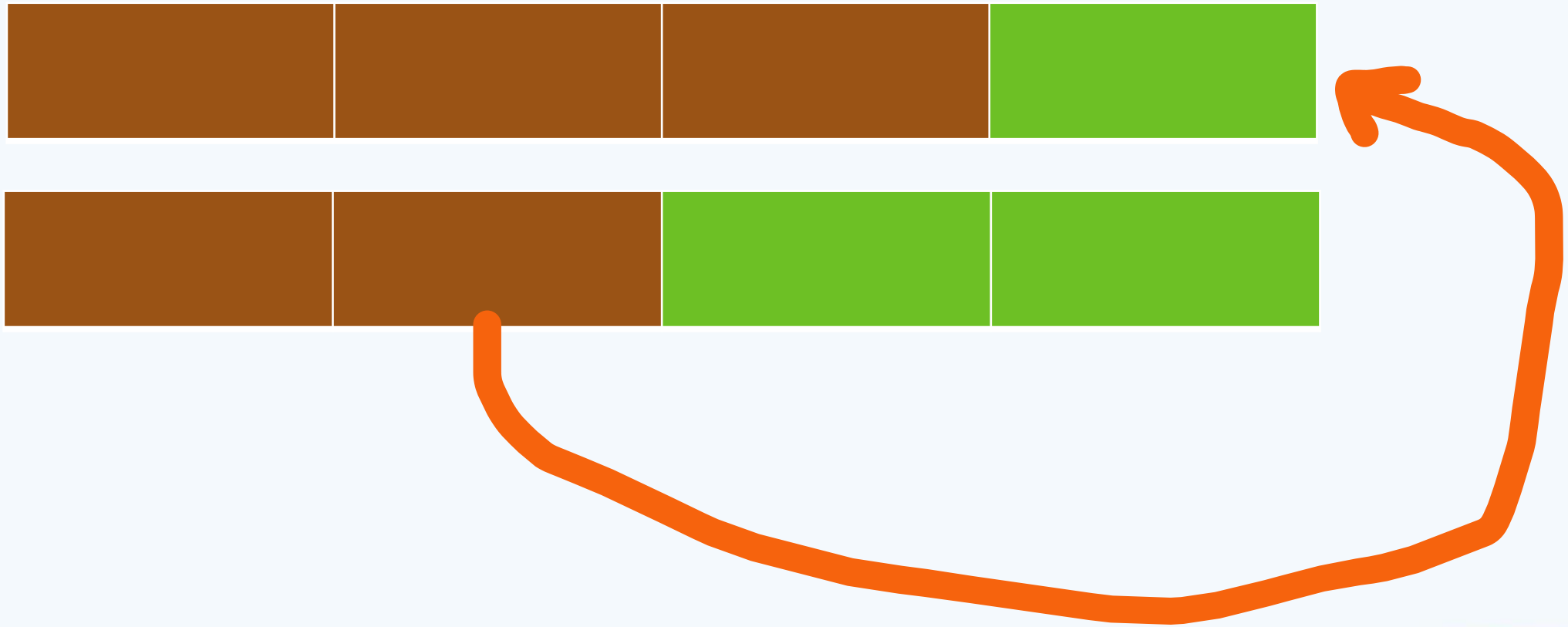

How would you approach this with your child?

$$\frac{5}{7} + \frac{3}{21}$$

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$\frac{5}{7}$

$\frac{3}{21}$

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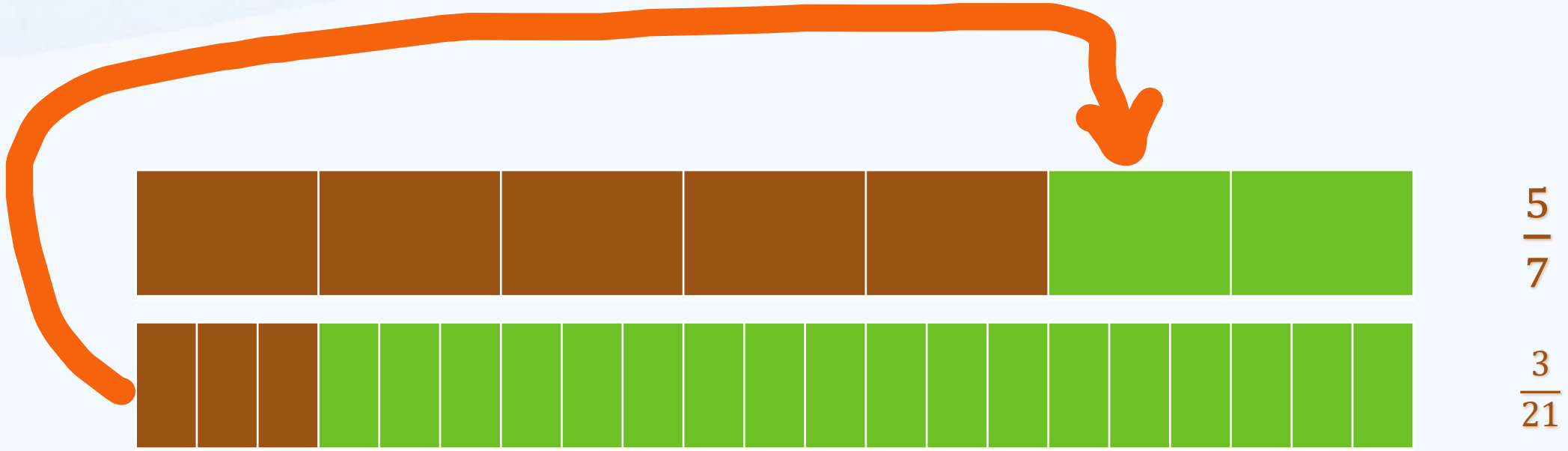
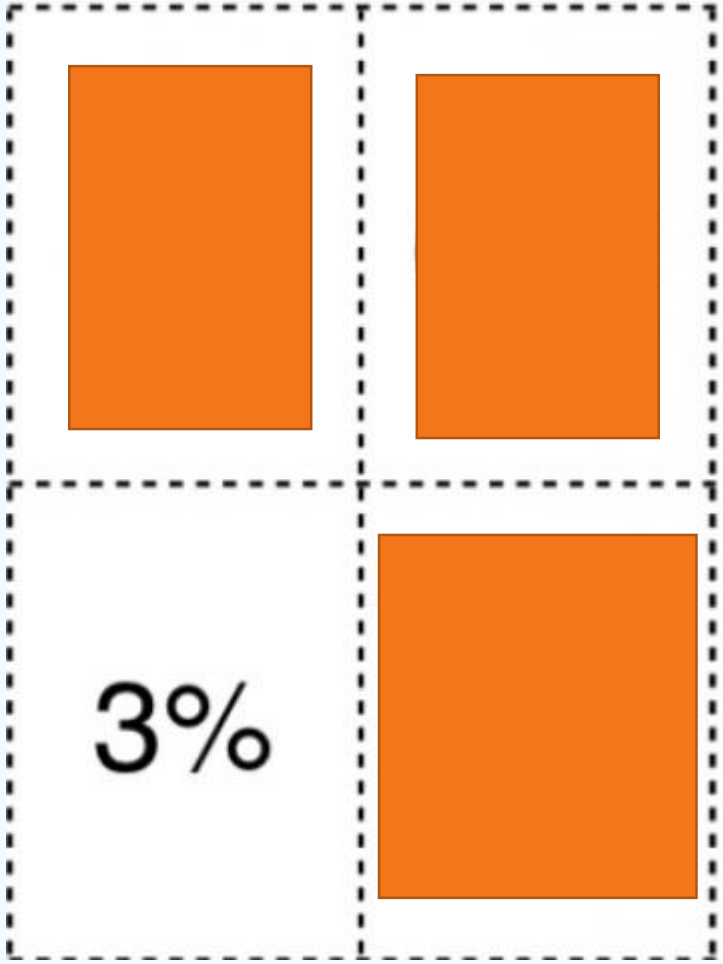


$\frac{5}{7}$

$\frac{3}{21}$

# What are the links?

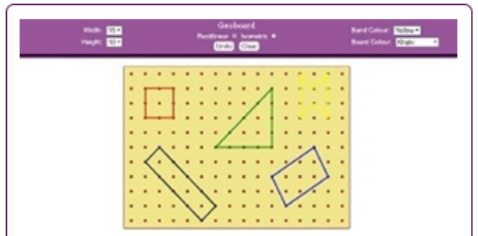
How would we write 3% as a fraction?



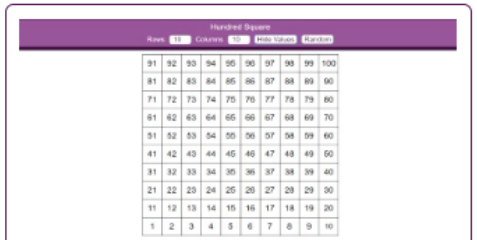

How would we write 3% as a decimal?

How would we represent 3% on the hundred square?

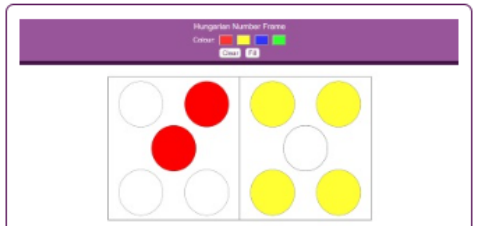
# Maths Bot



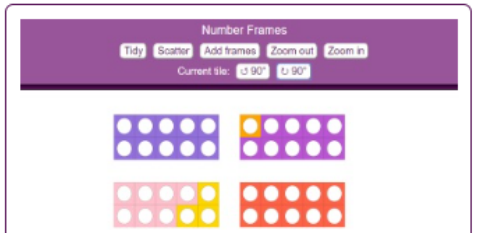
Geoboard



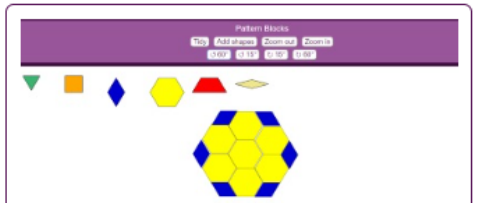
Hundred Square



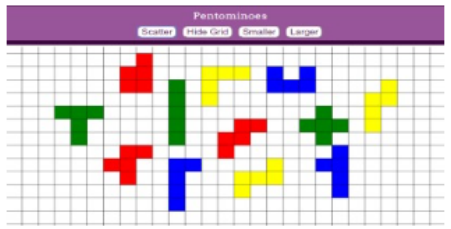
Hungarian Frame



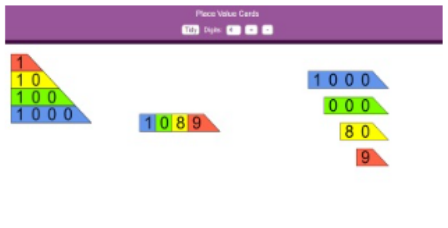
Number Frames



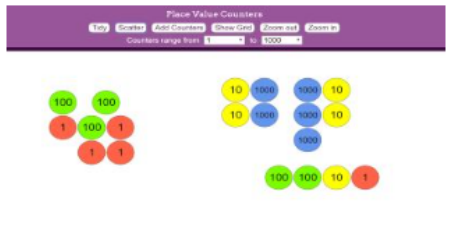
Pattern Blocks



Pentominoes



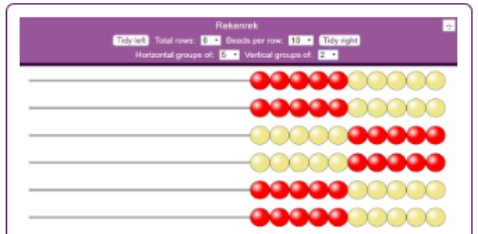
Place Value Cards



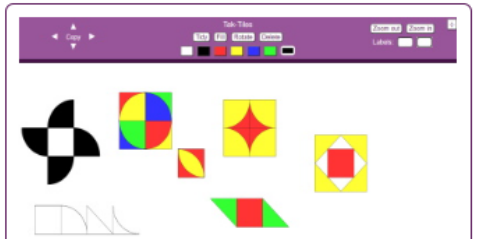
Place Value Counters

Place Value Dice

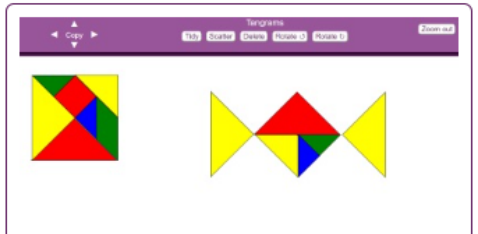
Prime Factor Tiles



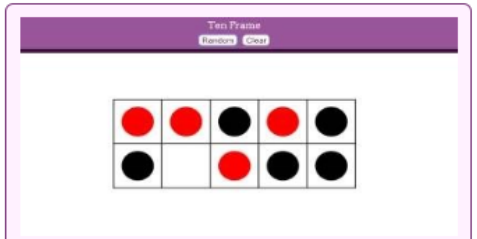
Rekenrek



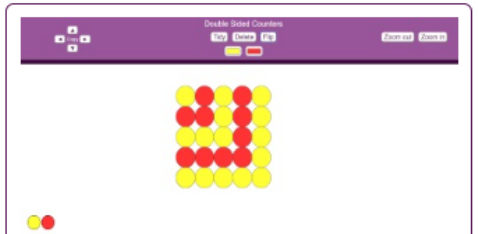
Tak-Tiles



Tangrams



Ten Frame



Two-Colour Counters

# Calculation Policy

https://st-nicolas-coe-va-primary-school.secure-primarysite.net/maths/

| KEY STAGE 1 | | |
|---|---|---|
| Children develop the core ideas that underpin all calculation. They begin by connecting calculation with counting on and counting back, but they should learn that understanding wholes and parts will enable them to calculate efficiently and accurately, and with greater flexibility. They learn how to use an understanding of 10s and 1s to develop their calculation strategies, especially in addition and subtraction. | | |
| **Key language:** whole, part, ones, ten, tens, number bond, add, addition, plus, total, altogether, subtract, subtraction, find the difference, take away, minus, less, more, group, share, equal, equals, is equal to, groups, equal groups, times, multiply, multiplied by, divide, share, shared equally, times-table | | |
| **Addition and subtraction:** Children first learn to connect addition and subtraction with counting, but they soon develop two very important skills: an understanding of parts and wholes, and an understanding of unitising 10s, to develop efficient and effective calculation strategies based on known number bonds and an increasing awareness of place value. Addition and subtraction are taught in a way that is interlinked to highlight the link between the two operations.<br>A key idea is that children will select methods and approaches based on their number sense. For example, in Year 1, when faced with 15 − 3 and 15 − 13, they will adapt their ways of approaching the calculation appropriately. The teaching should always emphasise the importance of mathematical thinking to ensure accuracy and flexibility of approach, and the importance of using known number facts to harness their recall of bonds within 20 to support both addition and subtraction methods.<br>In Year 2, they will start to see calculations presented in a column format, although this is not expected to be formalised until KS2. We show the column method in Year 2 as an option; teachers may not wish to include it until Year 3. | **Multiplication and division:** Children develop an awareness of equal groups and link this with counting in equal steps, starting with 2s, 5s and 10s. In Year 2, they learn to connect the language of equal groups with the mathematical symbols for multiplication and division.<br>They learn how multiplication and division can be related to repeated addition and repeated subtraction to find the answer to the calculation.<br>In this key stage, it is vital that children explore and experience a variety of strong images and manipulative representations of equal groups, including concrete experiences as well as abstract calculations.<br>Children begin to recall some key multiplication facts, including doubles, and an understanding of the 2, 5 and 10 times-tables and how they are related to counting. | **Fractions:** In Year 1, children encounter halves and quarters, and link this with their understanding of sharing. They experience key spatial representations of these fractions, and learn to recognise examples and non-examples, based on their awareness of equal parts of a whole.<br>In Year 2, they develop an awareness of unit fractions and experience non-unit fractions, and they learn to write them and read them in the common format of numerator and denominator. |

# School Website Videos

https://st-nicolas-coe-va-primary-school.secure-primarysite.net/curriculum-support-

## Addition & Subtraction

Home >> School Life >> Curriculum Support For Parents >> Addition & Subtraction

- Year 1: The Part Whole Model
- Year 1: Addition and Subtraction Within 10
- Year 2: Addition and Subtraction Within 100
- Year 2 :Addition and Subtraction
- Year 3: Developing Addition and Subtraction Skills
- Year 3: Formal Methods and Checking Strategies
- Year 4: Developing Strategies in Addition and Subtraction
- Year 5: Adding and Subtracting Numbers to 1,000,000
- Year 6: Problem Solving (Addition and Subtraction)

## Multiplication & Division

Home >> School Life >> Curriculum Support For Parents >> Multiplication & Division

- Year 1: Introducing Multiplication
- Year 1: Introducing Division
- Year 2: Making Equal Groups and Using Arrays
- Year 3: Multiplication and Division
- Year 4: Building Multiplication and Division Understanding
- Year 4: Developing Strategies for Multiplication and Division
- Year 5: Developing Understanding of Multiples and Factors and Investigating Numbers
- Year 6: Developing Calculation Skills and The Order of Operations

# Numbots & TTRockstars

https://stmichaelscofe.co.uk-primary-school.secure-primarysite.net/home-learning/


# Things to do…

Talking about numbers and shapes that you see in the environment

How much does Harry Kane earn in a week?

Cooking

If this recipe is for 4 people, but we only need to make it for 2 people, how much flour do we need?

Time

If it's 5.15pm now and the dinner needs 20 minutes in the oven, what time shall we get it out?

Games: Any card games- Play '21'/'Pontoon' with a deck of cards.

# Any Questions?

# Thank you!