TELFORD INFANT SCHOOL
LOVING LEARNING

Every child to be an inquisitive, resilient and successful learner who is eager for their next challenge.

Maths in Year 2

Aims of this presentation

- To provide an insight into our mastery approach to mathematics and how it works in school.

- To give ideas for supporting maths at home and keeping it fun.

What does it mean to master something?

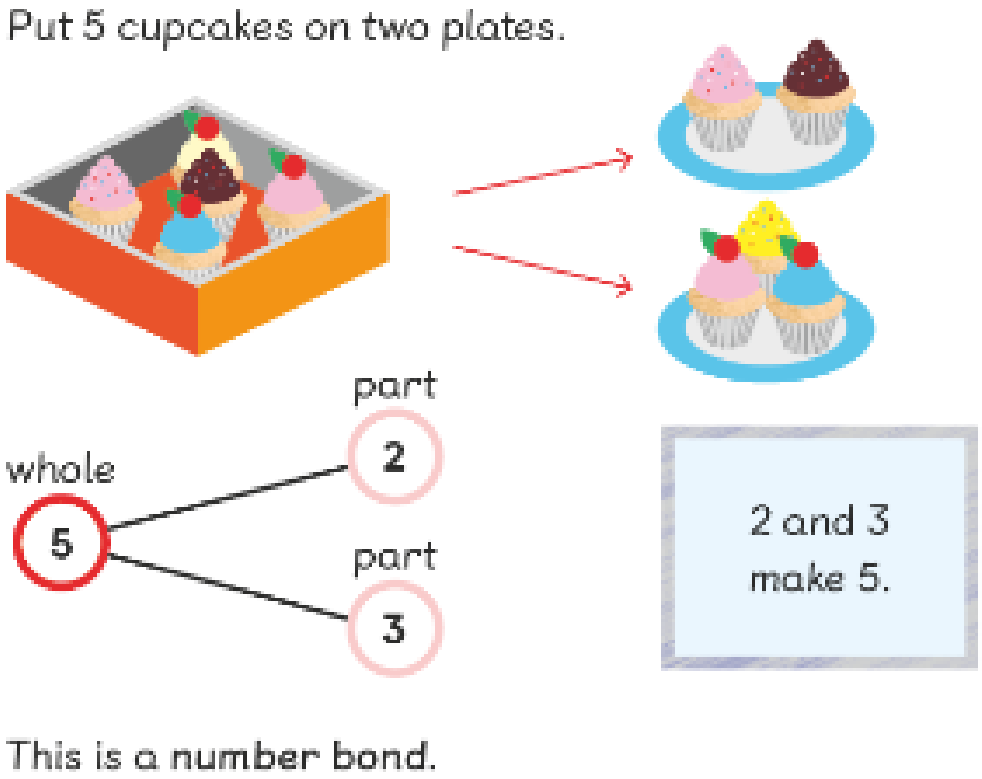
- I know how to do it.
- It becomes automatic and I don’t need to think about it (like riding a bike).
- I’m really good at doing it.
- I can show someone else how to do it.

Mastering maths also means…

- It is achievable for all
- Learning is deep and sustainable
- This builds a firm foundation for new learning
- Children can reason about a concept and make connections
- Children are fluent – with concepts and different methods

Key concepts

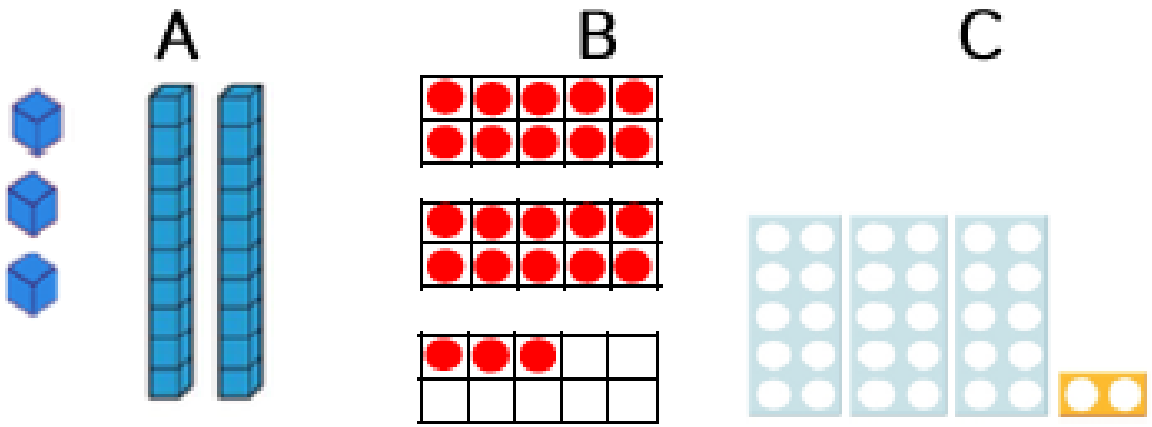
- Structure of numbers



Key concepts

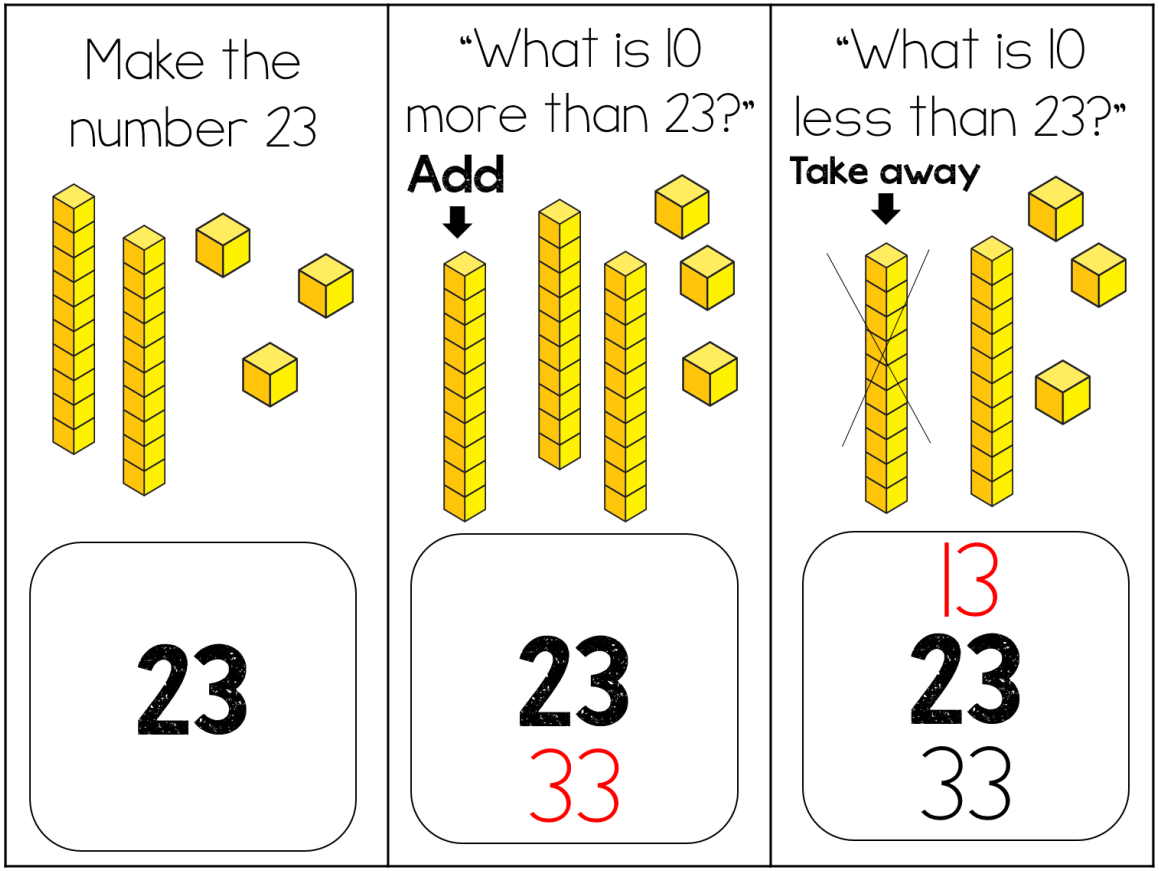
- Place value

One of these images **does not** show 23.
Can you explain the mistake?



Key concepts

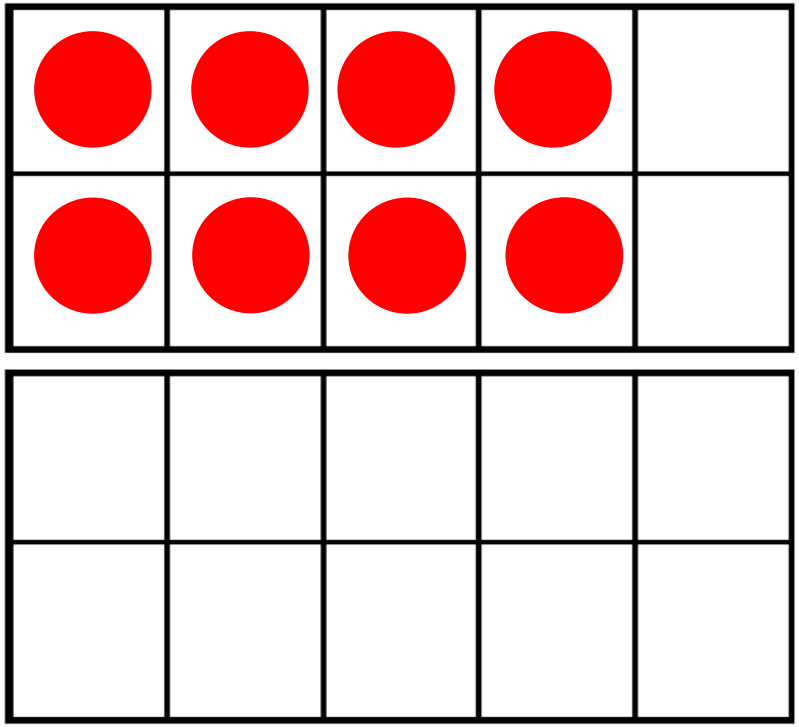
- Place value

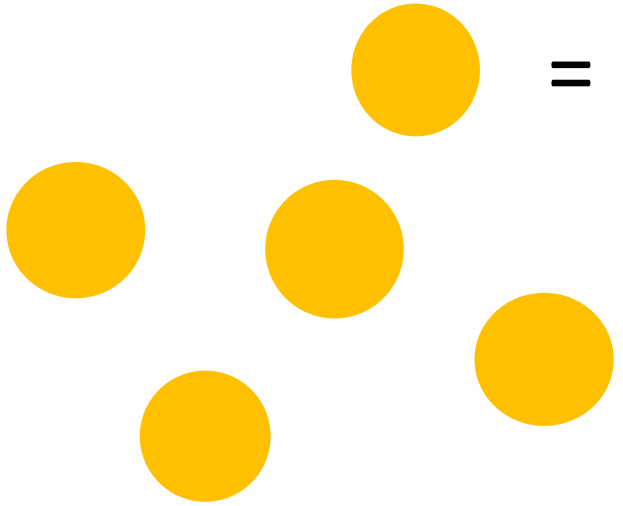


Key concepts

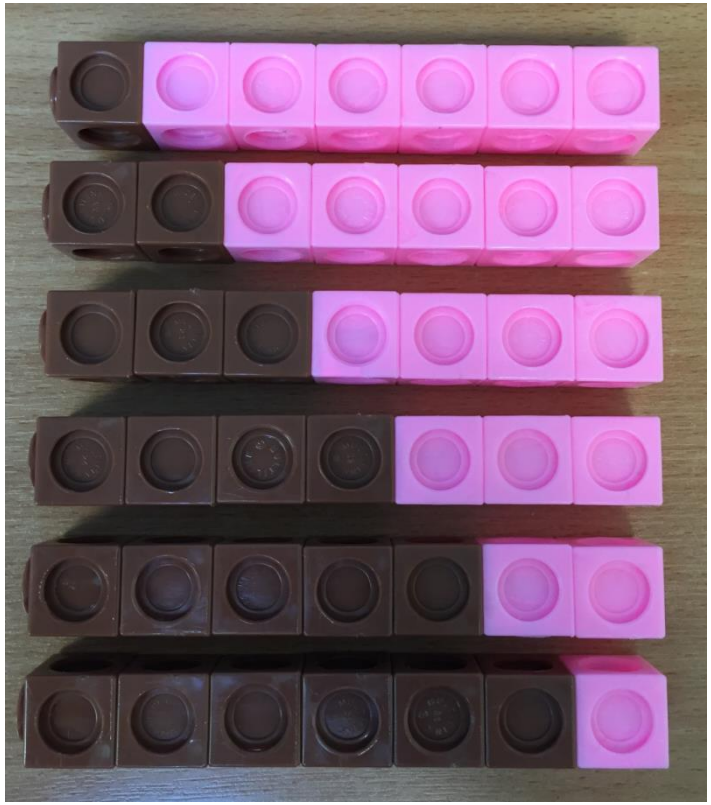
- Number structure and place value

8 + 5 = 8 + 2 + 3 = 13



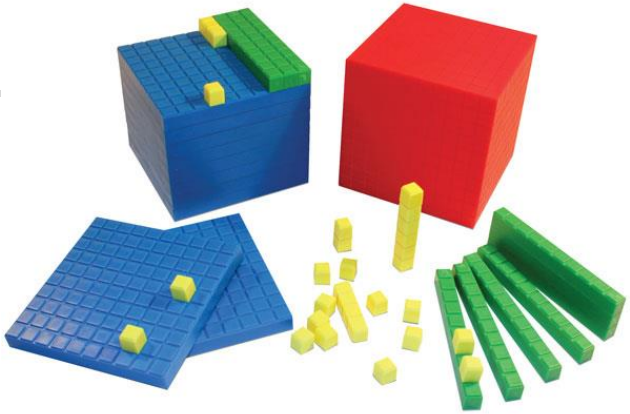


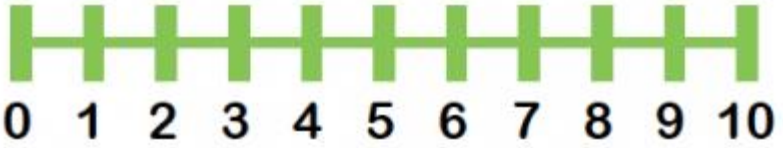
Representations



Representations

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





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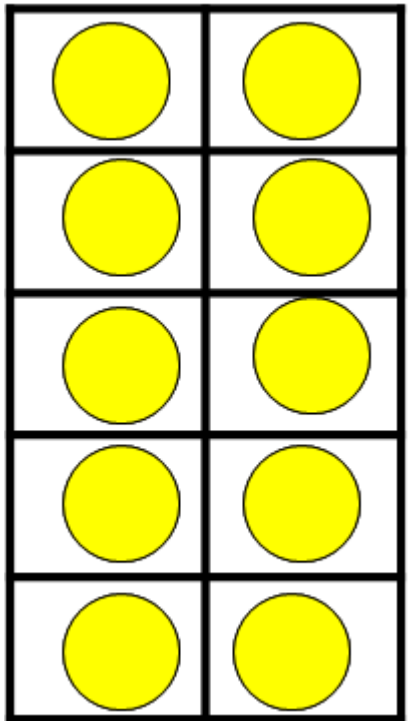
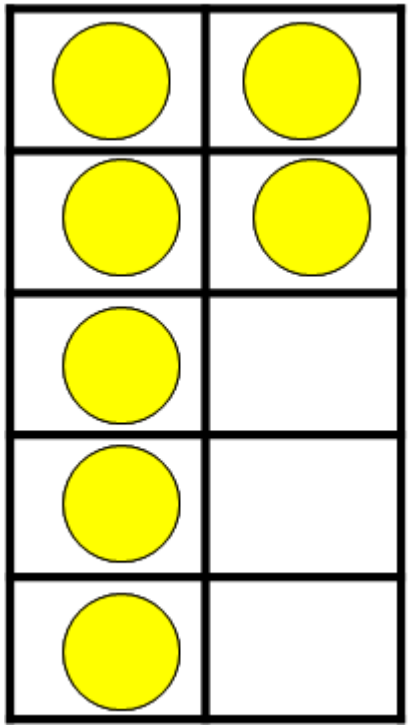


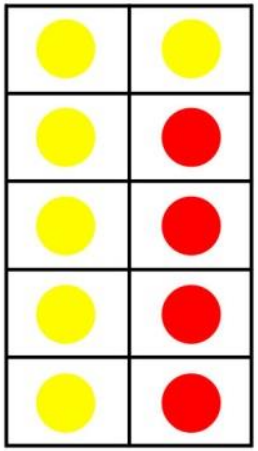
Ten frame



6 + 1= 7
5 + 2 = 7
4 + 3 = 7
3 + 4 = 7
2 + 5 = 7
1 + 6 = 7
0 + 7 = 7

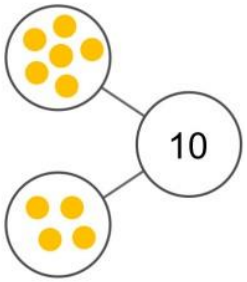
Seeing pattern and structure is important in a mastery curriculum

Representations



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

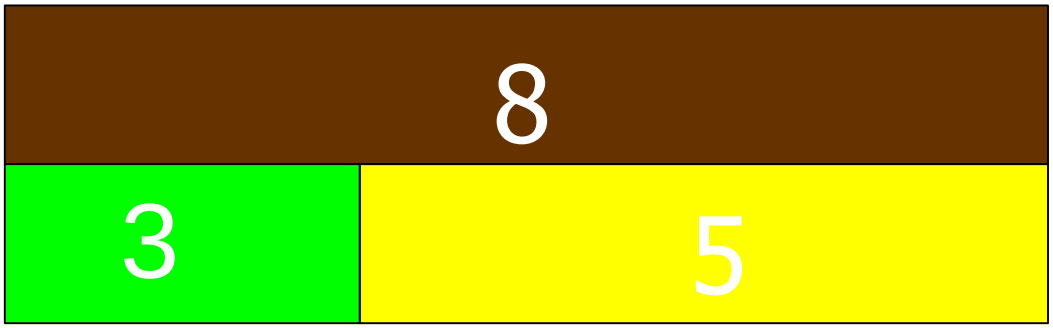
Part Whole Model

10	
6	4

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

Bar Model

Representations



□ + □ = □

□ + □ = □

□ - □ = □

□ - □ = □

Identification of relationships and making connections supports deep and sustainable learning and paves the way for later learning.

Paving the way for later learning

10	
6	4

6 + 4 = 10

4 + 6 = 10

10 – 6 = 4

10 – 4 = 6

62	
34	28

34 + 28 = 62

28 + 34 = 62

62 – 34 = 28

62 – 28 = 34

6.2	
3.4	2.8

3.4 + 2.8 = 6.2

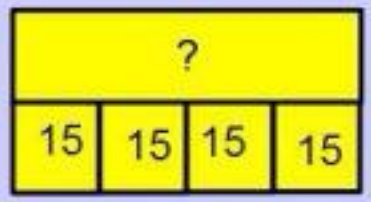
2.8 + 3.4 = 6.2

6.2 – 3.4 = 2.8

6.2 – 2.8 = 3.4

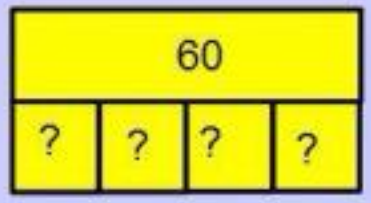
A versatile way of representing problems

Whole unknown...



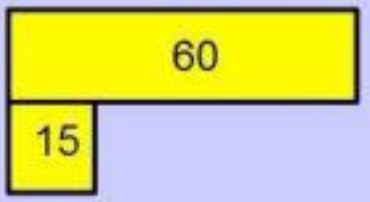
4 children go to the cinema. They each pay £15. How much do they spend altogether?

Size of groups unknown...



4 children go to the cinema. They each pay £60 altogether. How much do they spend each?

Number of groups unknown...



Tickets to the cinema are £15. Some children buy tickets that cost £60. How many children bought tickets?

Teaching for mastery

- High expectations for every child.
- Fewer topics covered in greater depth.
- Number sense and place value come first.
- Problem solving is central.
- Challenge is provided through deep and rich problems, rather than accelerating on to new content or higher numbers.

How we challenge

All children will be able to…

Put a circle around the larger number.

1) 50 48 2) 77 81 3) 78 87

Some children will explore the concept in greater depth…

Write all the 2-digit numbers greater than 40 using these digits.

2 4 6 6

How do you know you have them all? Prove it.

How we challenge

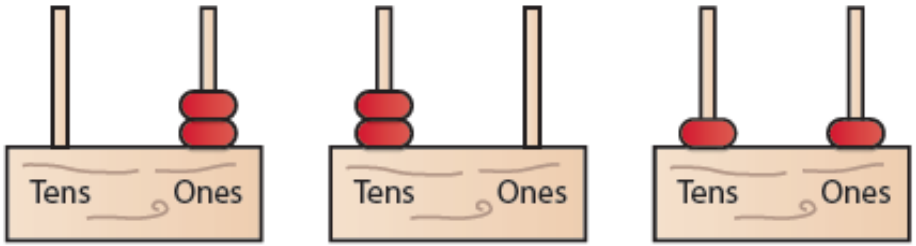
All children will be able to…

Write the missing numbers in the boxes.

1) In the number 47, there are ☐ groups of 10 and ☐ ones.
2) The number that is ten groups of 10 is ☐.
3) The number 75 shows ☐ in the tens place, and ☐ in the ones place.

Some children will explore the concept in greater depth…

If you put 2 beads onto a tens/ones abacus you can make the numbers 2, 20 and 11.



Do the same with 3 beads. How many different numbers can you make?

How we challenge

All children will be able to…

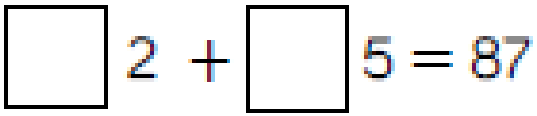
Katie has 12 marbles.

Jim has 13 marbles more than Katie.

How many marbles does Jim have?

Some children will explore the concept in greater depth…

What digits could go in the boxes?



Questioning

- _____ thinks that, _____. Do you agree? Explain your answer.
- Is it always true, sometimes true or never true that_____?
- Can you spot the mistake? Explain why they are wrong.
- What is the same and what is different?

Children answer in full sentences and use stem sentences to develop their understanding.

Maths talk

- Full sentences instead of one-word answers.
- I say, you say, you say, you say, we all say.
- Sentence stems:

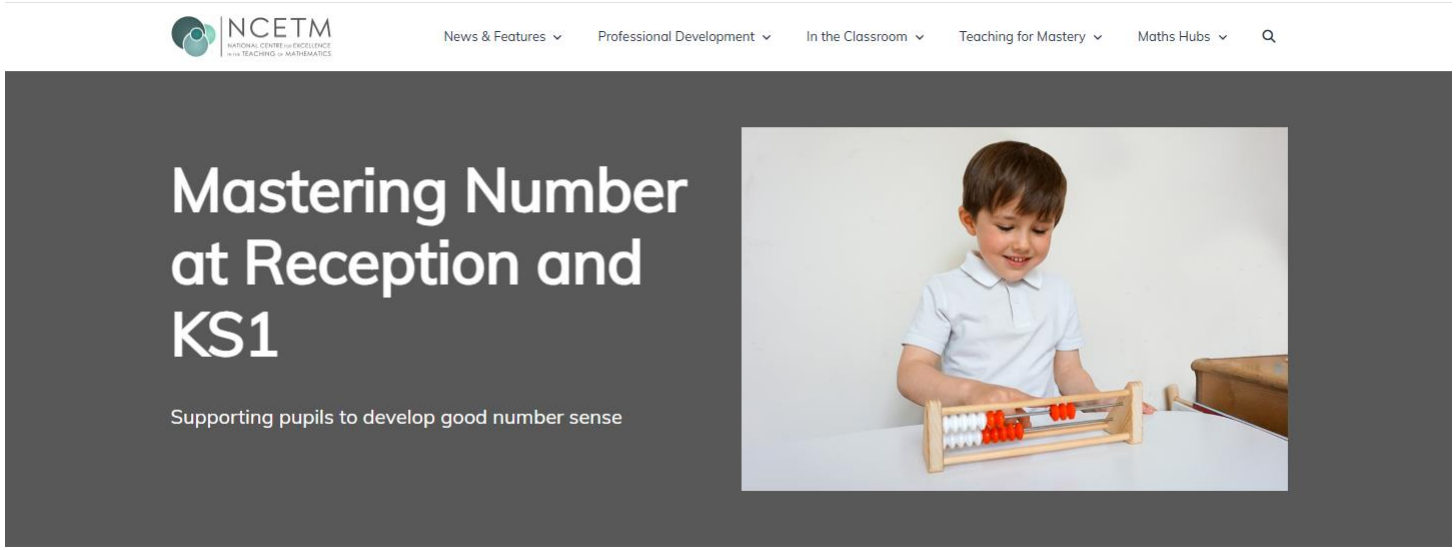
There are 12 **stars**. $\frac{1}{3}$ of the **stars** is equal to **4 stars**

Children use the same sentence stem to express other relationships. For example:

There are 12 **stars**. $\frac{1}{4}$ of the **stars** is equal to **3 stars**

There are 12 **stars**. $\frac{1}{2}$ of the **stars** is equal to **6 stars**

Mastering Number



What is it?

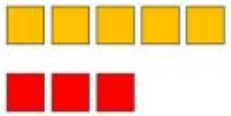
This project aims to secure firm foundations in the development of good number sense for all children from Reception through to Year 1 and Year 2.

The aim over time is that children will leave KS1 with fluency in calculation and a confidence and flexibility with number. Attention will be given to key knowledge and understanding needed in Reception classes, and progression through KS1 to support success in the future.

Aims

- Pupils will develop and demonstrate good number sense.
- Pupils develop a secure understanding of how to build firm mathematical foundations
- Children learn through intentional teaching strategies focused on developing fluency in calculation and number sense for all children
- Children use appropriate manipulatives to support the teaching of mathematical structures.

Mastering Number



NCETM

How you can support at home

- Count in steps of 2, 5, 10 and 3
- Number bonds e.g. knowing that 1+4 = 5 helps knowing 10+40=50
- Spot numbers in the environment and ask your child how many tens and ones each number has.
- Learn how to weigh and measure when you are cooking
- Tell the time to the nearest 5 minutes
- Use money, counting coins and giving change
- Education City