Maths - Year 3

Calculating 15: Exploring ratio and scaling problems and introducing the short written method for multiplying and dividing

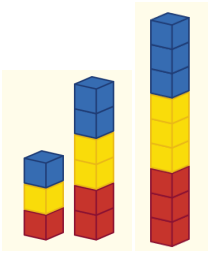
Key Vocabulary	
Partitioning	Splitting a number in different ways e.g. 27 = 2 tens and 7 ones.
Scaling up	The amount by which something is increased.
Shared by	Sharing/dividing an amount into equal parts.
Short method of multiplying/ dividing	Written method for multiplying/dividing in which numbers are written in columns according to their value.
Carry/ redistribute	Transferring a digit from one place value column to another.

Mathematical Skills

- Explain that multiplying a number by 2 is the same as doubling it, and it will make it twice as big.
- Use the language 'multiplied by' when describing by how much they are enlarging a model.
- Read multiplication sentences e.g. 5 x 3 = 15
- Make up 'multiplied by' stories and illustrate these.
-Explain that dividing a number by 2 will result in making it half the size.
- Explain that multiplying by 0 will always result in 0 and that multiplying by 1 will leave it unchanged.
- Generalize about multiplying and dividing by 10.
- Explain the short methods of multiplying and dividing.

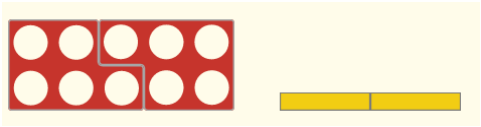
Mathematical Methods

- Explore 'How many times taller?' and 'How many times smaller?'



- Explore the language of 'multiplied by' using apparatus,

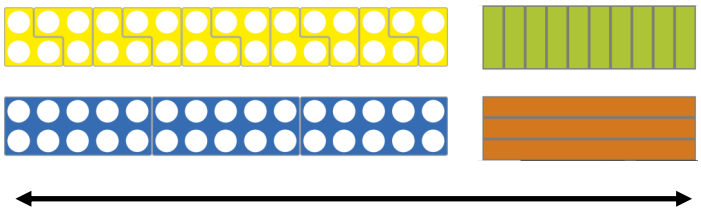
e.g. multiplied by 2.



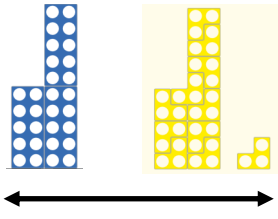
- Explore how many times longer to support understanding of multiplication.

Patterns	1	×2	×3	×4	×5	×10
	3	6	9	12	15	30

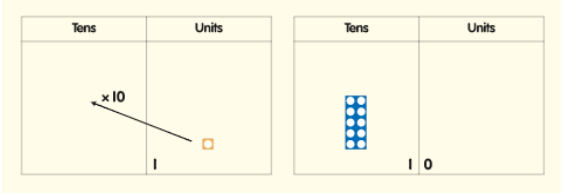
- Understanding multiplying and dividing by 10 using apparatus and place value grids.



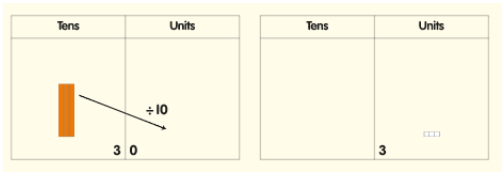
3 x 10 = 30



30 ÷10 = 3

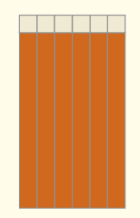


1 x 10 = 10



30 ÷10 = 3

- Introducing the short method for multiplying.



$$\begin{array}{r} 11 \\ \times \quad 6 \\ \hline 66 \end{array}$$

With redistribution →

$$\begin{array}{r} 14 \\ \times \quad 5 \\ \hline 70 \\ \hline 2 \end{array}$$

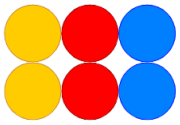
- Introducing the short method for dividing.

$$\begin{array}{r} \times 15 \\ \hline 3 \,\big|\, 4\,{}^{1}5 \end{array}$$

Can you..?

- Can you multiply this cube pattern by 2, then by 3?

- Can you draw a cube pattern for 4 x 2?



- Can you draw the pattern that is half the size of this and write the dividing sentence?
- Copy and complete: **a)** 6 x 10 = ☐ **b)** ☐ x 10 = 30 **c)** 50 ÷ 10 = ☐ **d)** ☐ ÷ 10 = 7
- Use the short written method to answer a) 15 x 6 = b) 132 ÷ 6 =