

Confidence with Ratio - *Relationships Illustrated!*

This relationship in Maths can be described as:

- 6 cm is 4 cm longer than 2 cm (*difference*)
- 2 cm is one third of 6 cm (*fractional*)
- The relationship of 2cm to 6cm is $\frac{1}{3}$ (*proportional*)
- 6 cm is three times as long as 2 cm (*ratio*)

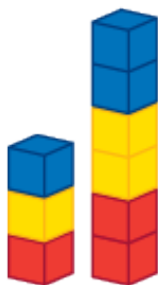
It's better understood with structured apparatus:



Ratio describes the relationship in size, order, number, occurrence, or quantity of two different things. Children need explicit instruction *and* illustrations to help them understand the concept *and* how to solve problems.



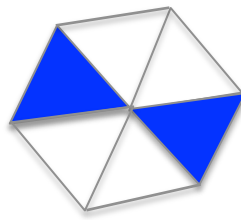
What is the ratio of blue to pink? 2:7. What is the ratio of pink to blue? 7:2
What is the ratio of red to black? 2:7. What is the ratio of black to red? 7:2



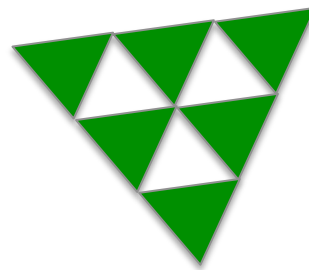
1:2



1:3



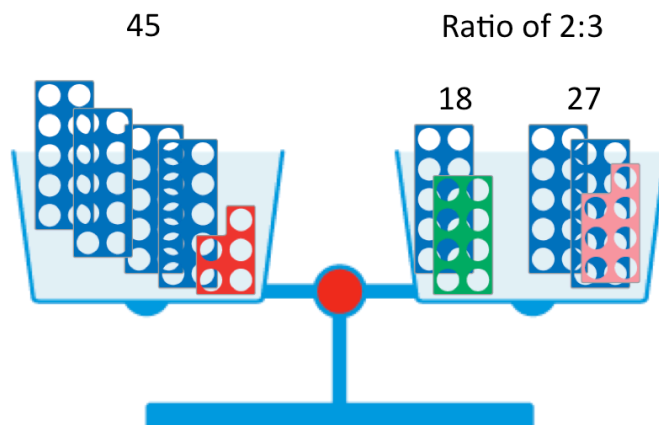
2:6 simplified to 1:3



6:9 simplified to 2:3

Solve this problem: The sum of two numbers is 45. The numbers are in the ratio of 2:3. *Can you work out what the numbers are?*

- Add the ratios 2 + 3 to find the 'total', which is equal to 45. The sum is 5.
- To find out how many parts, divide 45 by 5. There are 9 parts.
- Multiply the parts by 2 and then by 3 to find the missing numbers.
 $2 \times 9 = 18$, $3 \times 9 = 27$. To check, add them together. $18 + 27 = 45$.
- The missing numbers are 18 and 27.



Inquiry approaches help children understand the 'why'. Real world context helps students be excited about maths: scaling a recipe, combining juice and water, making scale drawings, parking charges, converting metres to kilometres, mixing paint, cooking a roast for dinner based on the weight of meat.



These activities enable children to 'own' their learning and success.

This is at the heart of the Numicon Approach. Enjoy ratio!