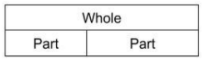
Maths - Year 4

Pattern and Algebra 2: Exploring inverse relationships

Key Vocabulary

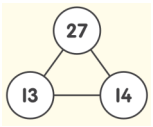
Part/whole	The relationship between a whole and its component parts. 
Inverse	The reverse or the opposite.
Number trio 	A set of three numbers that are related together either by adding and subtracting, or by multiplying and dividing.
Adjusting	Making a small change to a calculation, making it easier to solve.
Commutative	When adding or multiplying 2 numbers, the answer will be the same no matter which order the numbers are in.
Array	A rectangular arrangement of objects or numbers in rows and columns.

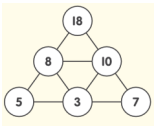
Mathematical Skills

- Use the inverse relationship between adding and subtracting to derive families of facts from number trios.
- Extend number trios by deriving other related numbers.
- Use knowledge of inverse facts to complete adding grids.
- Use the inverse relationship between doubling and halving to derive facts from number trios.
- Record multiplicative relationships as number trios.
- Illustrate the inverse relationship between multiplying and dividing using an array.
- Use the inverse relationship between multiplying and dividing to derive families of facts from number trios.
- Use inverse facts to find solutions to problems when we know the result but not the starting number or amount.
- Work out a hidden number by following clues that involve inverse relationships.
- Illustrate part-whole relationships as number trios and number sentences.

Mathematical Methods

- Exploring inverse e.g. 13 + 14 = 27; 27 - 13 = 14; 27 - 14 = 13.





- Finding inverse facts.

+	14	11
23	?	?
12	?	?

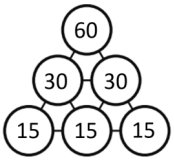
+	14	11
23	37	34
12	26	33

+		
	23	27
	13	17

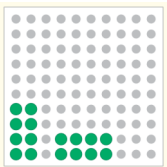
+	4	8
19	23	27
9	13	17

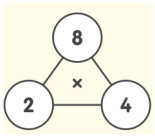
+	5	9
18	23	27
8	13	17

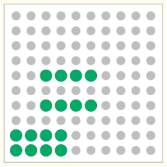
- Exploring the inverse relationship between doubling and halving.

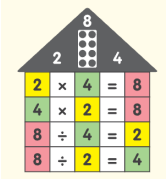


- Exploring the inverse relationship between multiplying and dividing.





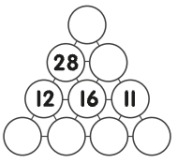




- Working backwards to solve problems e.g. If Tariq spends £3.50 at the shop and gets £6.50 change, how much money did he start with? ☐ - £3.50 = £6.50 £6.50 + £3.50 = ☐

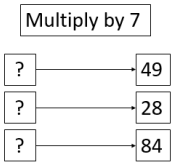
Can you..?

- Complete the trio.



- Make a family of facts for 7 x 8 = 56

- Fill in the missing numbers.



Ravi bought a book for £8.99 and received £11.01 change. Work out what amount of money he gave to the shop owner.