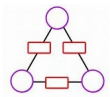
Maths - Year 5

Pattern and Algebra 2: Using inverse relationships to solve problems

Key Vocabulary

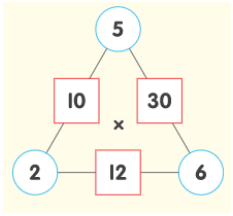
Inverse	The opposite.
Arithmagon 	A polygon with numbers at its vertices which determine the numbers written on its edges.
Factor	A whole number that divides into another number exactly.
Multiple	A product of two whole numbers.
Common factor	A whole number that divides into two or more other numbers exactly.

Mathematical Skills

- Use adding and subtracting and the inverse relationship between them flexibly and fluently to solve number puzzles and check solutions.
- Use multiplying and dividing and the inverse relationship between them flexibly and fluently to find solutions to number puzzles and check solutions.
- Recall number facts fluently and use the inverse relationship between adding and subtracting and between multiplying and dividing to complete calculations with missing numbers.
- Use recalled number facts flexibly to solve problems by working backwards.
- Identify inverse operations in number 'tricks' and explain that these will cancel each other out.

Mathematical Methods

- Exploring arithmagons e.g.

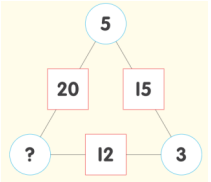


5 x 6 = 30 30 ÷ 6 = 5

2 x 6 = 12 12 ÷ 6 = 2

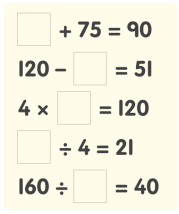
2 x 5 = 10 10 ÷ 2 = 5

- Using inverse facts to complete arithmagons e.g.

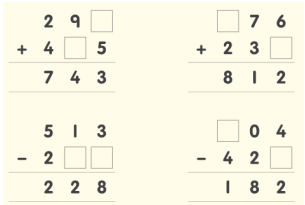


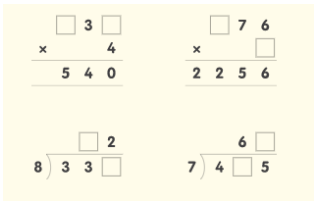
20 ÷ 5 = ?

- Completing calculations with missing numbers.



- Finding missing digits in written calculations.

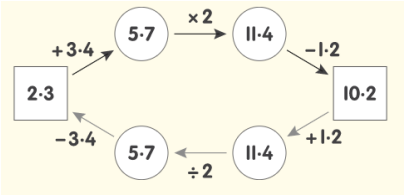




- Solving problems by working backwards e.g. At the end of the day, Nick has £2.23 in his wallet. He spent half the money he had in his wallet at the beginning of the day on his lunch and then bought a magazine for £1.50. How much money did he start with?

£2.25 + £1.50 = £3.75, £3.75 is half the money so he had (double it) £7.50

- Using number loops.

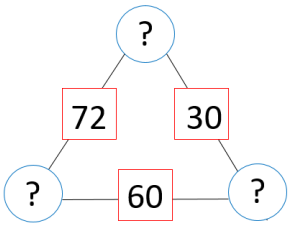


- Think of a number e.g.

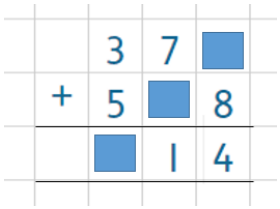
Think of a number.
Multiply it by 5.
Add 25.
Divide it by 5.
Take away the number you first thought of.
Your answer is 5.

Can you..?

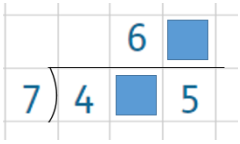
- Complete the arithmagon.



- Complete the calculation.



- Complete the calculation.



- Gemma spent half of her pocket money a ball and had £2.50 left. Work out her weekly pocket money.