Maths - Year 6

Pattern and Algebra 1: Multiples, factors and primes

Key Vocabulary

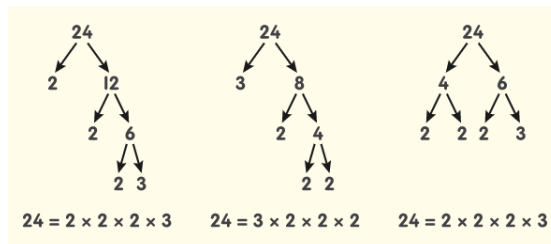|	
Multiple	The product of two whole numbers larger than one, e.g. 15 is a multiple of 3 and of 5.
Common Multiple	A number that is a multiple of two or more other numbers, e.g. 24 is a common multiple of 2, 3 and 6.
Lowest common multiple (LCM)	The lowest number that is a multiple of two or more other numbers, e.g. the LCM of 3, 4 and 6 is 12.
Factor pair	Two numbers that multiply together to make another number, e.g. 2 and 3 are a factor pair of 6.
Common factor	A whole number that divides into two or more other numbers exactly, e.g. 3 is a common factor of 6, 9 and 12.
Highest common factor (HCF)	The highest number that will divide into two or more other numbers exactly, e.g. 12 is the HCF of 24 and 36.
Prime number	A whole number with exactly two different factors, which are 1 and itself, e.g. the only factors of 3 are 1 and 3.
Composite number	Any positive whole number that is not a prime number.
Prime factor	The smallest parts a composite number can be divided into, e.g. the prime factors of 12 are 2, 2 and 3.

Mathematical Skills

- Explain what a multiple and a factor of a number are, giving examples.
- Explain what a common multiple and a common factor of two or more numbers are, giving examples.
- Can draw a factor tree and write a multiplication calculation to show the prime factors of a number.
- Work systematically to find common multiples and common factors of two or more numbers.
- Use prime factorisation to identify the lowest common multiple (LCM) and highest common factor (HCF) of two or more numbers.
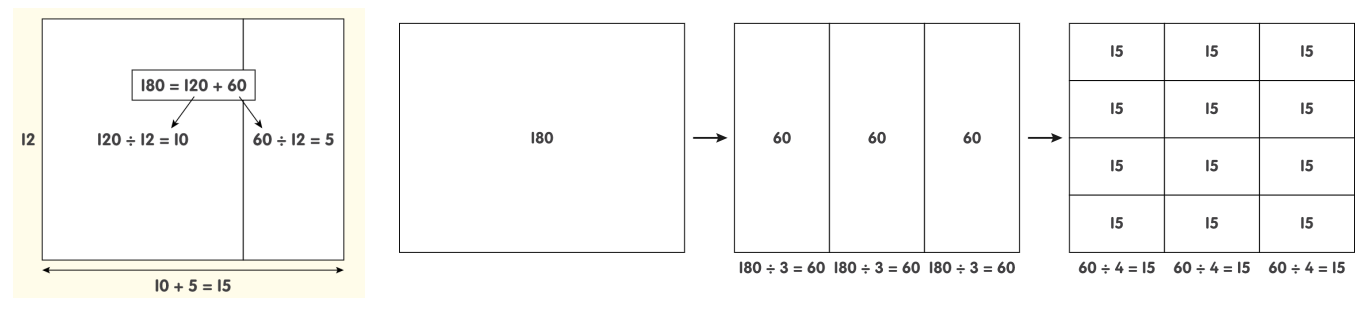
Mathematical Methods

- Exploring multiples and factors in number chains e.g. in this number chain, the numbers are alternatively a multiple or factor of the previous number.

$$6 \rightarrow 12 \rightarrow 3 \rightarrow 30 \rightarrow 10 \rightarrow 70 \rightarrow 7 \rightarrow \dots$$
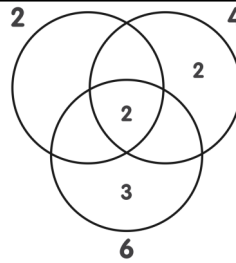
- Exploring prime factors using factor trees.

$24 = 2 \times 2 \times 2 \times 3$ $24 = 3 \times 2 \times 2 \times 2$ $24 = 2 \times 2 \times 2 \times 3$

- Using factorisation to help with multiplying and dividing e.g. 180 ÷ 12.

$180 = 120 + 60$

$120 \div 12 = 10$ $60 \div 12 = 5$

$10 + 5 = 15$

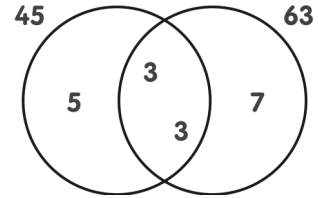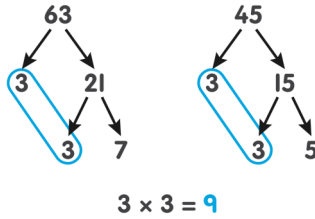$180 \div 3 = 60$ $180 \div 3 = 60$ $180 \div 3 = 60$ $60 \div 4 = 15$ $60 \div 4 = 15$ $60 \div 4 = 15$

- Solving problems by finding the lowest common multiple.

- Finding common factors, including the highest common factor.

Factor	45	63
(45 = 1 × 45) 45	✓	✗
(45 = 3 × 15) 15	✓	✗
(45 = 5 × 9) 9	✓	✓

3 × 3 = 9

Can you..?

- Can you write a prime factor sentence for these numbers?

324

437

618

- Can you find the lowest common multiple of each group of numbers?

4, 7, 12

10, 14, 25

12, 15, 28