

Identify multiples and factors and common factors of two numbers
Factors of 20 1 and 20
 2 and 10
 4 and 5
Multiples of 20 20 40 60 80 ...
Common factors of 10 and 20 are
 1 2 5 and 10
 Establish whether numbers are prime – factors of 1 and number itself 1, 2, 3, 5, 7, 11, 13, 17, 19...

Continue to recall facts and associate facts up to 12 x 12
 $38+4=42$
 $48+4=52$
 7 groups of 8 multiply 12 by 9
 the product of 80 and 40
 0.6 multiplied by 4
 560 divided by 7
 74500 ÷ 5, what is the quotient?
 3.2 divided by 4
Recognise and use square numbers and cube numbers
 $8^2 - 8 \times 8$ $4^3 - 4 \times 4 \times 4$

Multiplication and division can be represented in different ways...
 These structures show the methods that are used for multiplication and division calculations

x	30	5
20	600	100
6	180	30

$600 + 100 = 700$
 $180 + 30 = 210$
 $700 + 210 = 910$

35
 $\times 26$
 30 (5x6)
 180(30x6)
 100(5x20)
 600(30x20)
 910

35
 $\times 26$
 210 (35 x 6)
 700 (35 x 20)
 910

Check division by using the inverse

127
 $\times 6$
 42
 120
 600
 762

$762 \div 6$ – partition the large number into multiples of 6

$600 \div 6 = 100$ $120 \div 6 = 20$ $42 \div 6 = 7$
 = 127

Also division with remainders
 $336 \text{ r } 1$
 $4 \mid 1^1 3^1 4^2 5$
 = $366 \frac{1}{4}$ or 366.25

Real Life Problems
 Last year my age was a square number. Next year it will be a cube number. How old am I?
 How long will it be until my age is both a square and cube number?

Year 5
Multiplication and Division
 (including fractions)

Always, sometimes, never
 A square number has an even number of factors.

Continue to understand the inverse relationship between x and ÷
 $6 \times 0.7 = 4.2$ $4.2 = 0.7 \times 6$ $4.2 \div 0.7 = 6$
 $0.7 = 4.2 \div 6$ $6 = 4.2 \div 0.7$
 Know that X is *distributive* - 37×6 is the same as (30×6) plus (7×6)
 Know that X is *commutative* - $37 \times 6 = 6 \times 37$
 Know that X is *associative* - $18 \times 4 \times 10$ can be combined in any order

Calculating with measures
 40 cupcakes cost £3.60, how much do 20 cupcakes cost? How much do 80 cupcakes cost? How much do 10 cupcakes cost?
 Apples weigh about 160g each. How many apples would you expect to get in a 2kg bag? Explain your reasoning
 Mo Farah runs 135 miles a week. How far does he run each year?
 Bryan is 2.68m tall. He is 89cm taller than his sister. How tall is his sister?
 A 5p coin has a thickness of 1.6mm. Jake makes a tower of 5p coins worth 90p. What is the height of the coins in cm?

Vocabulary
 multiple, multiply, product, factor, prime number
 prime factor, composite number, square number
 cube number
 divide, divisible by, divided into, quotient, divisor
 remainder, power of, inverse

Fractions
 Change between improper fractions and mixed numbers using knowledge of x and ÷
 $3 \frac{2}{5} = \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{2}{5} = \frac{17}{5}$ $\frac{17}{6} = 6 + 6 + 5 = 2 \frac{5}{6}$
 A pizza has 8 slices. At a party, 2 full pizzas and 3 slices are left over. Write this as an improper fraction

Linking fractions and decimals
 $\frac{16}{100} = 0.16$ it can be simplified to $\frac{4}{25}$ ($16 \div 4$)
 $\frac{25}{100} = 0.25$ it can be simplified to $\frac{1}{4}$ (\div by 25)
 Write two hundred and fifty one thousandths as a fraction and a decimal

Scaling – linking x and ÷
 Katie uses ten tomatoes for every 200ml of sauce. How many tomatoes are needed for 1 litre of sauce?
 tomatoes $\frac{10}{200}$
 ml of sauce 200 400 600