Year 6

Number and place value

Digit
Expanded form
Place holder
Place value
Compare
Order
Ascending
Descending
Less than

More than
Approximately
Estimating
Nearest
Multiple
Rounding
Positive
Negative
Interval
Calculate
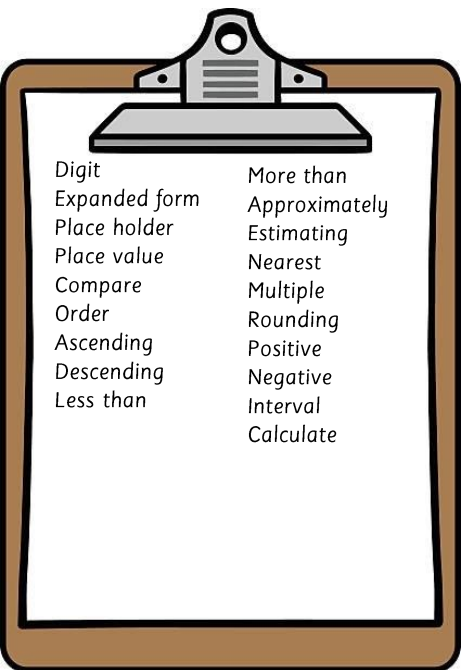
Read, write, order and compare numbers up to 10,000,000 and determine the value of each digit

8,000,000 + 200,000 + 10,000 + 7,000 + 500 + 40 + 3

Eight million, two hundred and seventeen thousand, five hundred and forty-three

Ascending
Order from **smallest** to **largest**

Descending
Order from **largest** to **smallest**

>	<	=
more than	less than	equal to

More than: 3,456,543 > 3,000,000 + 400,000 + 50,000 + 6,000 + 200 + 40 + 3
Less than: 2,468,593 < 2,000,000 + 100,000 + 60,000 + 8,000 + 500 + 90 + 3
Equal to: 4,532,596 = 4,000,000 + 500,000 + 30,000 + 2,000 + 500 + 90 + 6

Use negative numbers in context, and calculate intervals across zero

You'll most often use negative numbers when looking at temperature. Temperatures below zero will go into negative numbers.
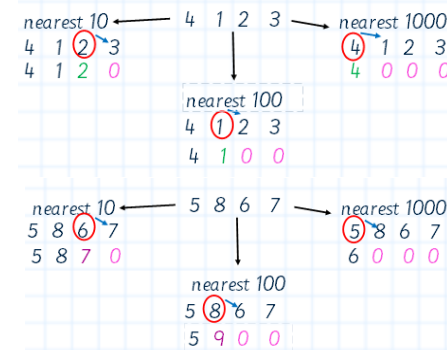
What is the difference between 4 and -5?
The difference between -5 and 0 is 5, and the difference between 0 and 4 is 4. In total, the difference is 9.
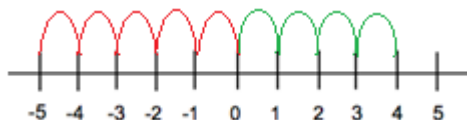
Round any whole number to a required degree of accuracy

Tips and tricks
Find your number and circle it.
Look next door.
Less than four, just ignore.
More than 4, add one more (to the circled number)
Replace the rest with zeroes

Rounding is a way of saying approximately how big a number is.
E.g. If 5,698,596 people live in a country, we might round to the nearest hundred thousand and say that approximately 5,700,000 people live in the country.

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Year 6

Addition, subtraction

Multiplication and division

Sum
Product
Difference
Quotient
Divisor
Dividend
Operation
Equation
Equal to
Digit
Inverse
Symbol

Multiply
Lots of
Column
Place value
Digit
Remainder
Decimal
Multiples
Factor
Prime
Divisible

$$\begin{array}{r} \times\ 3\ 2 \\ \hline 4\ 5 \\ \hline 1\ 6_1\ 0 \\ 1\ 2\ 8\ 0 \\ \hline 1\ 4\ 4\ 0 \\ \hline \end{array}$$

Long multiplication lets us multi-digit number together. This calculation is the same as doing 32 x 5 = 160 and 32 x 40 = 1280, then adding them together to make 1440.

The green zero is a placeholder which shows that in the second half of the calculation, we are multiplying by 40, not 4.

Divide numbers up to 4 digits by a two-digit number

divisor

24 ÷ 4 = 6 ← quotient   4 ⟌ 2 4   6

dividend

1 4 7 2 ÷ 2 3 =

$$2\ 3\ \overline{)1\ 4\ 7\ 2}$$
1 1 5 0 (x 50)   23 x 50 = 1150
0 3 2 2
2 3 0 (x 10)   23 x 10 = 230
0 9 2
9 2 (x 4)   23 x 4 = 92
0 0

Using the chunking method, we take away 'chunks' of multiples of the dividend.

Then add up how many 'chunks' you have subtracted.
50 + 10 + 5 = 64

1472÷23=64

When dividing, interpret remainders according to context

When doing short division, we will sometimes need to interpret the remainders in different ways.

Remainders

6 2 5 ÷ 4 =

1 5 6
4 ⟌ 6 2₂ 2₂ 5

1) Starting from the left, see how many times the divisor will go into each digit of the dividend

1 5 6 r 1
4 ⟌ 6 2₂ 2₂ 5

2) When you reach the last digit, if there is a remainder, add a 'r' and the number that is left over.

With remainders, sometimes you'll need to go one step further depending on the question.

Eggs go into boxes of 4. If we have 625 eggs, **how many boxes can we fill?** 156
Eggs go into boxes of 4. If we have 625 eggs, **how many boxes will we need to hold all the eggs?** 157

Decimal Remainders

6 2 5 ÷ 4 =

1 5 6
4 ⟌ 6 2₂ 2₂ 5

1) Starting from the left, see how many times the divisor will go into each digit of the dividend

1 5 6 .
4 ⟌ 6 2₂ 2₂ 5. 0

2) When you reach the last digit, add a decimal point to the dividend and a decimal point to the quotient.

1 5 6 . 2 5
4 ⟌ 6 2₂ 2₂ 5. 0₁ 0₂

3) Continue the division, adding more zeroes to the dividend if needed.

This will usually be used for measure and money.

Year 6

Addition, subtraction
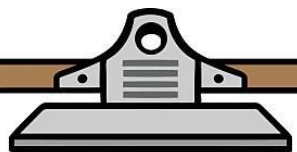
Multiplication and division

Sum
Product
Difference
Quotient
Divisor
Dividend
Operation
Equation
Equal to
Digit
Inverse
Symbol

Multiply
Lots of
Column
Place value
Digit
Remainder
Decimal
Multiples
Factor
Prime
Divisible

Identify common factors, common multiples and prime numbers

A multiple is a number which can be divided by another number without a remainder.

Multiples of 3: 3, 6, 9, (12) 18, 21, (24)

Multiples of 4: 4, 8, (12) 16, 20, (24) 28, 32

1 2 and 2 4 appear in both sets so are common multiples of 3 and 4.

Factors are whole number that can multiply by other whole numbers to make the product.

4 8   3 6
(1) x 4   8   (1) x 3 6
(2) x 2   4   (2) x 1 8
(3) x 1   6   (3) x (1 2)
(4) x (1 2)   (4) x   9
(6) x 8   (6) x   6

Common factors appear in both lists. The common factor of 2 4 and   3 6

1, 2, 3, 4, 6, 12

A prime number is a whole number greater than 1 with no divisors except 1 and itself.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Top tips:
2 is the only even prime number.
There are no prime numbers that end in 5, except for 5.
The digits can't add up to 3, except 3.

Use the order of operations to carry out calculations

B rackets

O rder (square/ cubes)

D ivision   **M** ultiplication

A ddition   **S** ubtraction

$3^3 - 3 \times (3 + 2)$

$3^3 - 3 \times 5$ 1) Complete any calculations in brackets.

$2 \, 7 - 3 \times 5$ 2) Complete any square or cube number calculations

$2 \, 7 - 1 \, 5$ 3) Complete any multiplication or division (going from left to right)

$2 \, 7 - 1 \, 5 = 1 \, 2$ 4) Complete any addition or subtraction (going from left to right)

Solve multi-step problems in context and use estimation to check calculations

1) One drink costs £1.67 and I buy 4.
2) If I pay with a £20 note, how much change will I get?

1) Read the question and break it down into parts.

2) Work out the calculation   £20- (4 x £1.67)

3) Solve each part.   £1.67 x 4 = £6.68
                           £20—£6.68 =£13.32

```
    1 . 6 7
  x       4          ¹ ⁹ ⁹
  _____       2 0 . 0 0
    6 . 6 8    -    6 . 6 8
    2   2        _____
                  1 3 . 3 2
```

4) Check your answer fits the question.
£1.67 + £1.67 + £1.67 + £1.67 + **£13.32** = £20

3 0,1 2 7 + 2 , 9 5 3
3 0,0 0 0 + 3 , 0 0 0 = 3 3 , 0 0 0
3 0,1 2 7 + 2 , 9 5 3 = 3 3 , 0 8 0 ✓

Year 6 Fractions

Including decimals and percentages

Vocabulary list:
- Fraction
- Decimal
- Percentage
- Simplify
- Numerator
- Denominator
- Vinculum
- Equivalent
- Express
- Denomination
- Simplest form
- Original form
- Ascending
- Descending
- Mixed number
- Improper fraction

Use common factors and multiples to simplify fractions and express fractions in the same denomination

Simplifying fractions

1) Find a number that both the numerator and the denominator can be divided by.

2) Divide both the numerator and denominator by that number.

$$\frac{9}{15} \xrightarrow{\div 3} \frac{3}{5}$$
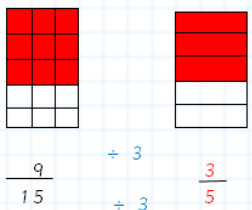
Expressing fractions in the same denomination

$$\frac{2}{3} \qquad \frac{3}{4}$$

1) Find a number that is a common multiple of both denomi-   nators.

$$\overline{12} \qquad \overline{12}$$

2) Multiply both fractions by the relevant multiple to reach the new denominator

$$\frac{2}{3} \begin{array}{l} \times 4 \\ \times 4 \end{array} \qquad \frac{3}{4} \begin{array}{l} \times 3 \\ \times 3 \end{array}$$

$$\frac{8}{12} \qquad \frac{9}{12}$$

Both 3 and 4 are factors of 12, so 12 is a common multiple of 3 and 4.

Knowing your times tables is very important for this!

Compare and order fractions

$$\frac{2}{3} \begin{array}{l} \times 4 \\ \times 4 \end{array} \qquad \frac{3}{4} \begin{array}{l} \times 3 \\ \times 3 \end{array}$$

$$\frac{8}{12} < \frac{9}{12}$$

> **More than**
< **Less than**
= **Equal to**

⬆ ascending   ⬇ descending

Put these fractions in ascending order:

$$\frac{3}{4} \qquad \frac{4}{5} \qquad \frac{9}{10} \qquad \frac{14}{20}$$

$$\frac{3}{4} \begin{array}{l}\times 5 \\ \times 5\end{array} \quad \frac{4}{5} \begin{array}{l}\times 4 \\ \times 4\end{array} \quad \frac{9}{10} \begin{array}{l}\times 2 \\ \times 2\end{array} \quad \frac{14}{20} \begin{array}{l}\times 1 \\ \times 1\end{array}$$

$$\frac{15}{20} \qquad \frac{16}{20} \qquad \frac{18}{20} \qquad \frac{14}{20}$$

First, express the fractions in the same denomination.

Then order them.

Then re-write them in their original form

$$\frac{14}{20} > \frac{3}{4} > \frac{4}{5} > \frac{9}{10}$$

Add and subtract fractions

$$\frac{1}{3} + \frac{1}{6}$$

$\frac{1}{3}$ is equal to $\frac{2}{6}$

$$\frac{2}{6} + \frac{1}{6}$$

$$\frac{2}{6} + \frac{1}{6} = \frac{3}{6}$$

$\frac{3}{6}$ can be simplified to $\frac{1}{2}$

Adding mixed numbers

$$1\frac{3}{4} + 1\frac{3}{8}$$

1) Add the two whole numbers together.

$$1 + 1 = 2$$

2) Convert both fractions to have the same denominator.

$$\frac{3}{4} \overset{\times 2}{} + \frac{3}{8}$$

3) Add the numerators together.

$$\frac{6}{8} + \frac{3}{8} = \frac{9}{8}$$

4) Change any improper fractions back to mixed numbers.

$$\frac{9}{8} = 1\frac{1}{8}$$

5) Add together your two answers.

$$2 + 1\frac{1}{8} = 3\frac{1}{8}$$

6) Simplify the answer if you can.

Subtracting mixed numbers

$$2\frac{3}{4} - 1\frac{1}{8}$$

1) Change any mixed numbers to improper fractions.

$$\frac{11}{4} - \frac{9}{8}$$

2) Convert both fractions to have the same denominator.

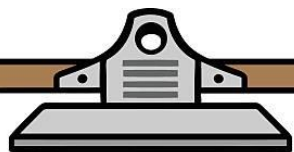$$\frac{11}{4} \overset{\times 2}{} - \frac{9}{8}$$

3) Subtract the second numerator from the first.

$$\frac{22}{8} - \frac{9}{8} = \frac{13}{8}$$

4) Change any improper fractions back to mixed numbers.

$$\frac{13}{8} = 1\frac{5}{8}$$

5) Simplify the answer if you can.

Year 6 Fractions

Including decimals and percentages

Fraction
Decimal
Percentage
Simplify
Numerator
Denominator
Vinculum
Equivalent
Express
Denomination

Simplest form
Original form
Ascending
Descending
Mixed number
Improper fraction

Multiply pairs of fractions

$$\frac{3}{4} \times \frac{2}{3}$$

1) Multiply the numerators

2) Multiply the denominators

$$\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$$

3) Simplify the answer if you can.

$$\frac{6}{12} = \frac{1}{2}$$

Multiplying two mixed numbers- a challenge!

$$2\frac{3}{4} \times 2\frac{2}{3}$$

1) Change any mixed numbers to improper fractions. $\frac{11}{4} \times \frac{8}{3}$

2) Multiply the numerators
3) Multiply the denominators $\frac{11}{4} \times \frac{8}{3} = \frac{88}{12}$

4) Change any improper fractions back to mixed numbers. $\frac{88}{12} = 7\frac{4}{12}$

5) Simplify the answer if you can. $7\frac{4}{12} = 7\frac{1}{3}$

Divide proper fractions by whole numbers

$$\frac{1}{2} \div 2$$

$$\div 2 \rightarrow = $$

1) Multiply the denominator by the whole number and write the answer as the new denominator.

$$\frac{1}{2} \div 2$$

$$= \frac{1}{}$$

2) Simplify the answer if you can.

Calculate decimal equivalents for fractions and know FDP equivalence

Fractions to decimals:

1) Divide the numerator by the denominator.

$$\frac{3}{4}$$

$$4 \overline{| 3 . \underset{3}{0} \underset{2}{0}} = 0.75$$

$$\frac{5}{8}$$

Decimal– divide the numerator by the denominator. 0.625

Percentage– multiply by 10 and add the percent symbol. 62.5%

Fraction	Decimal	Percentage
$\frac{1}{8}$	0.125	12.5%
$\frac{2}{8}$	0.25	25%
$\frac{3}{8}$	0.375	37.5%
$\frac{4}{8}$	0.5	50%
$\frac{5}{8}$	0.625	62.5%
$\frac{6}{8}$	0.75	75%
$\frac{7}{8}$	0.875	87.5%
$\frac{8}{8}$	1	100%

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Year 6 Fractions

Including decimals and percentages

Glossary:
- Fraction
- Decimal
- Percentage
- Simplify
- Numerator
- Denominator
- Vinculum
- Equivalent
- Express
- Denomination
- Simplest form
- Original form
- Ascending
- Descending
- Mixed number
- Improper fraction

Round decimal numbers

nearest hundredth (2dp)

nearest whole

4 . 1 2 3 → 4 . 1 ②3
④1 2 3   4 . 1 2
4

nearest tenth (1dp)
4 . ① 2 3
4 . 1

nearest hundredth (2dp)

nearest whole

5 . 8 6 7 → 5 . 8 ⑥7
⑤8 6 7   5 . 8 7
6

nearest tenth (1dp)
5 . ⑧6 7
5 . 9
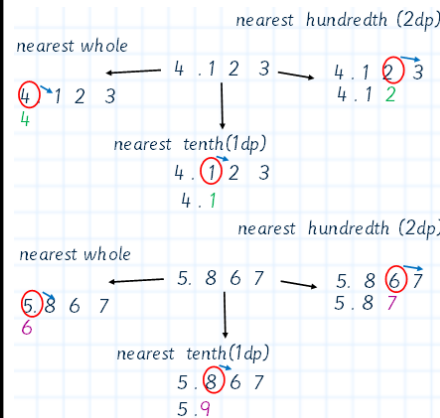
Remember:
Find your number and circle it.
Look next door.
Less than four, just ignore.
More than 4, add one more (to the circled number)
Replace the rest with zeroes

Multiply and divide numbers by 10, 100 and 1000

4 . 5 x 1 0
Th H T O . t h th
  4 . 5
4 5

Makes the number 10 times bigger.
Move each digit one place to the left.

4 5 7 ÷ 1 0
Th H T O . t h th
4 5 7
4 5 . 7

Makes the number 10 times smaller.
Move each digit one place to the right.

4 . 5 x 1 0 0
Th H T O . t h th
    4 . 5
4 5 0

Makes the number 100 times bigger.
Move each digit two places to the left.

4 5 7 ÷ 1 0 0
Th H T O . t h th
4 5 7
4 . 5 7

Makes the number 100 times smaller.
Move each digit two places to the right.

4 . 5 x 1 0 0 0
Th H T O . t h th
     4 . 5
4 5 0 0

Makes the number 1000 times bigger.
Move each digit three places to the left.

4 5 7 ÷ 1 0 0 0
Th H T O . t h th
4 5 7
0 . 4 5 7

Makes the number 1000 times smaller.
Move each digit three places to the right.

Identify the value of each digit in numbers given to three decimal places

O . t h th
Ones | Tenths | Hundredths | Thousandths
3 . 4 7 6

3 + 0.4 + 0.07 + 0.006

Three point four seven six

Multiply decimal numbers by whole numbers

8 . 5 3 x 6

```
    8 5 3
  x     6
  ------
        8
      1
```

1) Multiply the top ones digit by the multiplier. Carry the extra digit if needed.

```
    8 5 3
  x     6
  ------
      1 8
    3 1
```

2) Multiply the top tens digit by the multiplier. Add any carried digits. Carry the extra digit if needed.

```
    8 5 3
  x     6
  ------
  5 1 1 8
    3 1
```

3) Multiply the top hundreds digit by the multiplier. Add any carried digits.

8 5 3 x 6 = 5 1 1 8

8 . 5 3 x 6 = 5 1 . 1 8

To make the calculation easier, treat 8.53 as 853.

Don't forget to include the decimal point in the answer!

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Year 6 Ratio and proportion
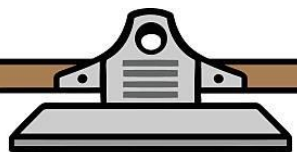
Ratio   **Proportion**
Sharing
Equal
Unequal
Whole
Scale
Scale factor
Relationship
Link
Side
Length

Use scale factor with shapes

4cm

9cm

12cm

?
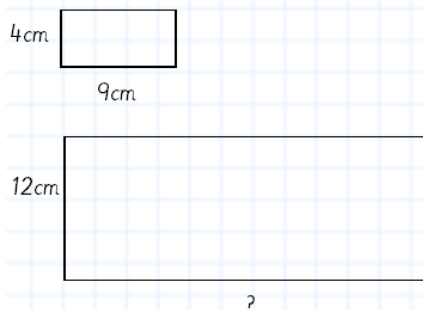
1) Find the corresponding known lengths on each shape (in this case, the vertical sides)

2) Find the scale factor by working out the relationships between the two lengths.
4cm -> 12cm= multiply by 3   scale factor is 3

3) Use this scale factor to work out the unknown line, using the corresponding known line.
9cm x 3 = 27cm.

To enlarge a shape by a scale factor, multiply each measurement by that scale factor. E.g. to enlarge by a scale factor of 4, multiply each measurement by 4.

Solve problems using calculation of percentages

Remember that 'per cent' means 'out of 100'

Easy ones to remember:
50% = divide by 2
25% = divide by 4
75% = divide by 4, then multiply by 3
10% = divide by 10
5% = divide by 10, then divide by 2
1% = divide by 100

For all other multiples of 10%, divide by 10 to find 10%, then multiply by the first digit.

30% = divide by 10, then multiply by 3
40% = divide by 10, then multiply by 4
70%= divide by 10, then multiply by 7

For all other percentages, divide by 100 to find 1%, then multiply by the percentage.

35% = divide by 100, then multiply by 35
48% = divide by 100, then multiply by 48
79%= divide by 100, then multiply by 79

Use scale factor with amounts

Complete the recipe for 8 people.
1) Work out the relationship between 2 and 8 (x 4)
2) Using your scale factor, convert each value (x 4)

6 eggs   (x 4)   24 eggs
100g flour   →   400g flour
50g butter   200g butter
80 ml milk   320 ml milk

For measurements where there is not a clear scale factor, first find the amount for one serving.

2 people	1 person	5 people
6 eggs	6 ÷ 2 = 3 eggs	3 x 5 = 15 eggs
100g flour	100 ÷ 2 = 50g	50 x 5 = 250g
50g butter	50÷ 2 = 25g	25 x 5 = 125g
80ml milk	80 ÷ 2 = 40ml	40 x 5 = 200ml

Find the amount for one serving(÷ 2)

Multiply by the amount of servings there are (x 5)

Year 6 Ratio and proportion

Ratio
Sharing
Equal
Unequal
Whole
Scale
Scale factor
Relationship
Link
Side
Length

Proportion

Simplifying ratio

1) Work out how many of each item there are.

2) Write out as a ratio.

red	:	blue	:	green
2	:	4	:	6

3) Work out if there is a number that you can divide each of the shares by, and if so divide them.

red	:	blue	:	green	
2	:	4	:	6	÷ 2
1	:	2	:	3	

Using ratio when one part is known

A prize is shared in a ratio of 3 : 4 between Jamie and Dan. If Jamie gets £21, how much will Dan get?

Jamie : Dan
3 : 4
2 1 : 2 8

1) Work out how to get from the share you know to the value. In this case, multiply by 7.

2) Do the same with the other shares.

Jamie will get £21 and Dan will get £28.

Using ratio to find the size of the parts when the total is known

A prize of £200 is shared in a ratio of 3:2 between Diane and Dave. How much should they get each?

Diane : Dave
3 : 2 = 5

1) Add together the total shares (3 + 2 = 5)

2) Work out how to get from the total shares to the overall amount.

Diane : Dave
3 : 2 = 5 x40
= £200

3) Multiply each of the shares by that amount.

Diane : Dave
3 : 2 = 5 x40
£120 : £80 = £200

Year 6 Algebra
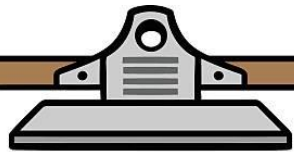
Expression
Equation
Formula
Formulae
Represent
Symbol
Unknown
Variable
Combinations
Enumerate

Use simple formulae

$5x + 4 = 39$

$5x = 35$

$x = 7$

1) Subtract the whole number from both sides (- 4)

2) Divide both sides by the 'x' number (divide by 5)

Find pairs of numbers that satisfy an equation

$2a + b = 10$

$(2 \times 1) + 8 = 10$

$(2 \times 2) + 6 = 10$

$(2 \times 3) + 4 = 10$

$(2 \times 4) + 2 = 10$

1) Work systematically to find sets of numbers that make the total

Generate linear number sequences

Finding the rule:

3   7   1 1   1 5   1 9

+4   +4   +4   +4
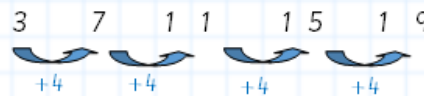
1) Find the difference between each number in the sequence. This is your 'n'

$4 \quad n$

2) Work out how to get from your 'n' to the first number in the sequence. In this case, -1

$4 \quad n - 1$

3) Check your rule.

$4 \times 1 - 1 = 3$

$4 \times 2 - 1 = 7$

$4 \times 3 - 1 = 1 1$

$4 \times 4 - 1 = 1 5$

$4 \times 5 - 1 = 1 9$

✓

Describe linear number sequences

Calculating the sequence.

Rule: $5 n - 4$

1) Multiply the 'n' number by the each term in the term in the sequence.

2) Add or subtract the number which comes after 'n'

1st term: $5 \times 1 - 4 = 1$
2nd term: $5 \times 2 - 4 = 6$
3rd term: $5 \times 3 - 4 = 1 1$
4th term: $5 \times 4 - 4 = 1 6$
5th term: $5 \times 5 - 4 = 2 1$

20th term: $5 \times 2 0 - 4 = 9 6$
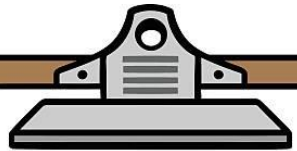
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Year 6
Measurement

Millimetre
Centimetre
Metre
Kilometre
Millilitre
Litre
Gram
Kilogram
Unit
Measure
Metric
Imperial

Scale
Conversion
Interval
Area
Perimeter
Volume

Calculate the area of triangles

$(b \times h) \div 2$

7cm

10cm
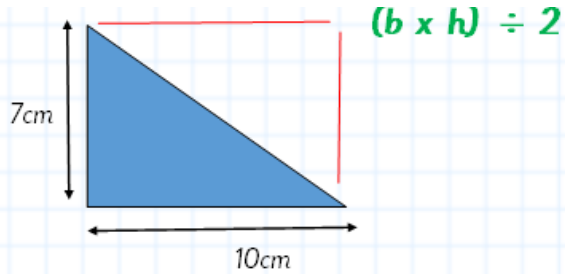
The area of a triangle will always be half the area of a rectangle.

1) Find the area of the rectangle by multiplying the based by the height. $9 \times 6 = 54$

2) Divide the answer by 2
$54 \div 2 = 27$ cm²

4cm

3cm

$5 \times 3 = 15$
$15 \div 2 = 7.5$ cm²

3cm

4cm

$4 \times 3 = 12$
$12 \div 2 = 6$ cm²

4cm

4cm

$4 \times 4 = 16$
$16 \div 2 = 8$cm²
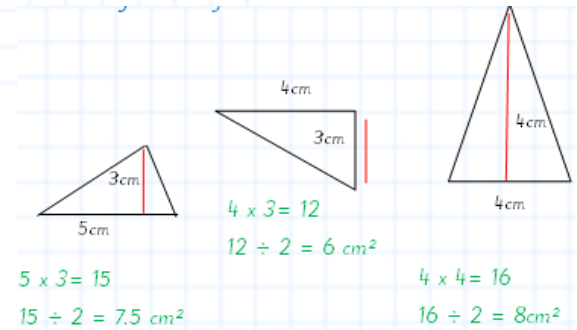
Convert between miles and kilometres

Facts to remember:
1 mile = 1.6km
5 miles= 8km

To convert miles to km:

5 miles= 8km
40 miles= 72km

1) Divide by 5 (45÷ 5 =9)
2) Multiply by 8 (9 x 8= 72)

To convert km to miles:
5 miles= 8km
30 miles= 48km

1) Divide by 8 (48 ÷ 8=6)
2) Multiply by 5
(6 x 5 = 30)

Convert units of measure

length

÷ 10   ÷ 100   ÷ 1000

10mm = 1cm   100cm = 1m   1000m = 1km

x 10   x 100   x 1000

mass

÷ 1000

1000g = 1kg

x 1000

capacity

÷ 1000

1000ml = 1l

x 1000

Year 6 Measurement
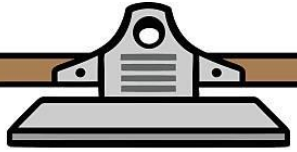
Millimetre
Centimetre
Metre
Kilometre
Millilitre
Litre
Gram
Kilogram
Unit
Measure
Metric
Imperial

Scale
Conversion
Interval
Area
Perimeter
Volume

Calculate the volume of cube and cuboids

2cm
3cm
5cm
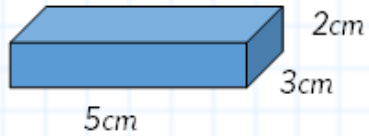
1) Multiply the length by the width to find the area of one face. 5 x 3 = 15

2) Multiply the answer by the height.
15 x 2 = 30 cm³

Calculate the area of parallelograms

Finding the area of a parallelogram is the same as finding the area of a rectangle.

b x h

7cm

10cm
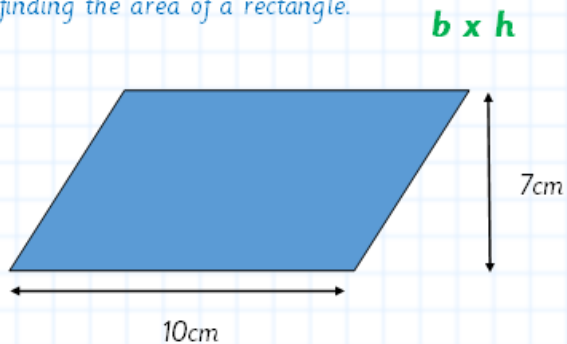
1) Multiply the base by the height. 10 x 7 = 70cm²

Finding a missing value with volume

? Total: 36cm³
3cm
6cm
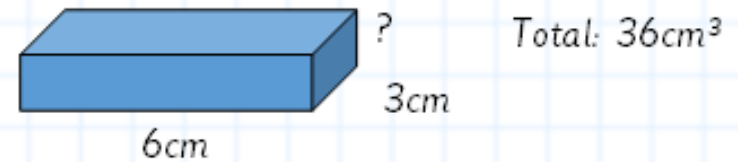
1) Divide the volume by one of the values.
36 ÷ 6 = 6

2) Divide the answer by the other value.
6 ÷ 3 = 2

3) Check by multiplying
6 x 3 x 2 = 36cm³

@SarahFarrellKS2

Year 6 Geometry
Properties of shape

Polygon
Two-dimensional
Three-dimensional
Parallel
Perpendicular
Regular
Irregular
Acute
Obtuse
Right

Angle
Reflex
Sides
Faces
Vertex/vertices
Symmetry
Edges
Apex
Net
Point
Straight line

Recognise angles where they meet at a point, on a straight line, or are vertically opposite and find missing angles

x
30°
20°
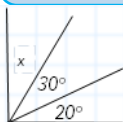
1) Add the known values.
20° + 30° = 50°

2) Subtract from 90°.
90° - 50° = 40°

3) Check that the values add to 90°.

80°
30° x
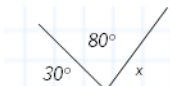
1) Add the known values.
30° + 80° = 110°

2) Subtract from 180°.
180° - 110° = 70°

3) Check that the values add to 180°

80° 120°
50°
x
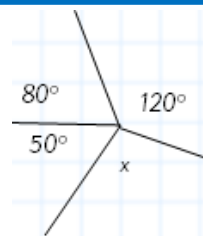
1) Add the known values.
120° + 80° +50° = 250°

2) Subtract from 360°.
360° - 250° = 110°

3) Check that the values add to 360°.
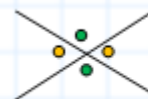
Opposite angles are equal

Illustrate and name parts of circles

Hint: the diameter is twice the radius.

circumference
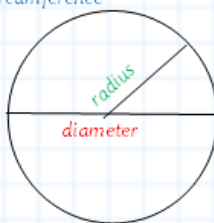
radius

diameter

Circumference: Distance around the edge of the circle.

Diameter: Length of a line through the middle from one edge to the other.

Radius: Distance from the middle of the circle to the outer edge.

Finding unknown angles in triangles

x
30°   15°
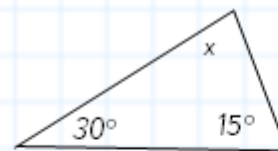
Angles in a triangle add to 180°

1) Add the two known values.
30° + 15° = 45°

2) Subtract from 180°
180° - 45° = 135°

3) Check by adding the values together to make sure they reach 180°

Year 6
Geometry
Properties of shape

Word list:
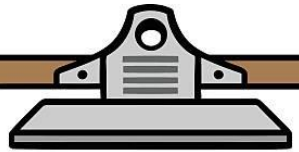
Polygon	Angle
Two-dimensional	Reflex
Three-dimensional	Sides
Parallel	Faces
Perpendicular	Vertex/vertices
Regular	Symmetry
Irregular	Edges
Acute	Apex
Obtuse	Net
Right	Point
	Straight line

Recognise nets of 3D shapes
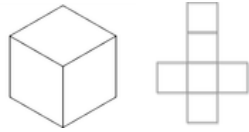
Cube

Cuboid
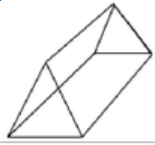
Triangular prism

Cylinder
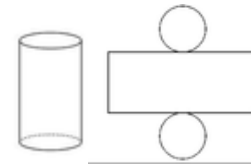
Square-based pyramid
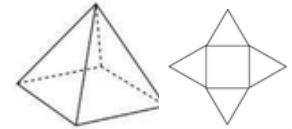
> A net shows which 2D shapes can be folded and joined to make a 3D shape.

Finding unknown angles in quadrilaterals
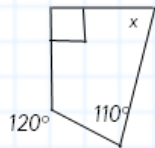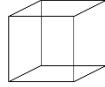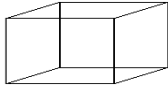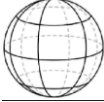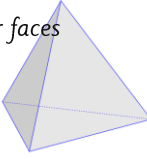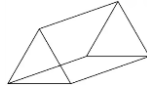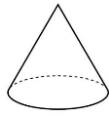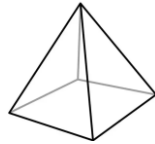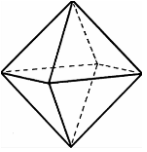
Angles in a quadrilateral add to 360°

$120°$ $110°$ x

1) Add the three known values.
   $120° + 110° + 90 = 320°$

2) Subtract from $360°$
   $360° - 320° = 40°$

3) Check by adding the values together to make sure they reach $360°$

Compare and classify 3D shapes

Cube	Cuboid	Sphere
6 square faces 12 edges 8 vertices	6 faces 12 edges 8 vertices	1 curved surface 0 edges 0 vertices
Tetrahedron 4 triangular faces 6 edges 4 vertices	**Triangular prism** 5 faces 9 edges 6 vertices	**Cylinder** 2 circular faces 1 curved surface 2 curved edges 0 vertices
Cone 1 circular face 1 curved surface 1 curved edge 1 apex	**Square-based pyramid** 5 faces 8 edges 5 vertices	**Octahedron** 8 faces 12 edges 6 vertices

Year 6 Geometry
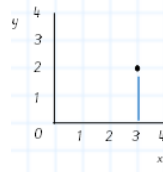## Position/direction

Coordinate
Coordinate plane
X axis
Y axis
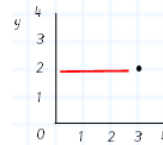Origin
Value
Quadrants
Horizontal
Vertical

Reflect

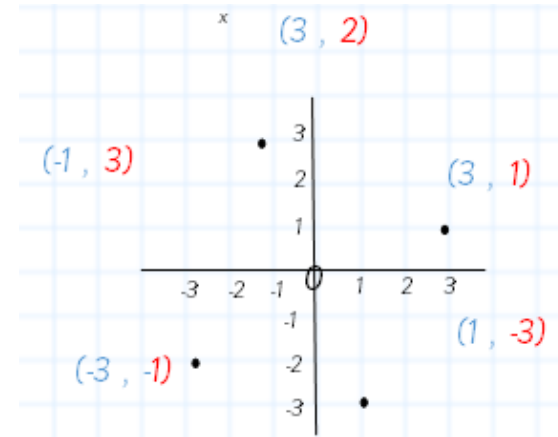**_Remember:_ Along the corridor and up the stairs**

1) Imagine a line going down to the x-axis. This is the x coordinate and the first number inside the brackets.
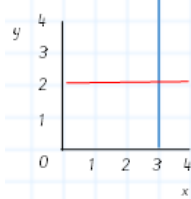
(3 ,

2) Imagine a line going across to the y-axis. This is the y coordinate and the second number inside the brackets.

(3 , 2)

(-1 , 3)

(3 , 1)

(-3 , -1)

(1 , -3)

Read and plot coordinates

Remember: Along the corridor and up the stairs

Plot the co-ordinate (3, 2)

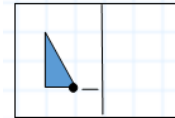1) Go along the x axis to get to the co-ordinate you .want

2) Go up or down the y axis to get to the co-ordinate you .want.

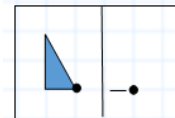3) Put a cross where the two imaginary lines meet.
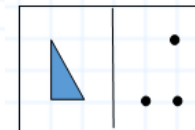
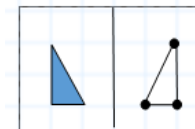## Reflect shapes

1) Choose a point

2) Count the units from the point to the mirror line

3) Count the same number out the other side and draw a dot.
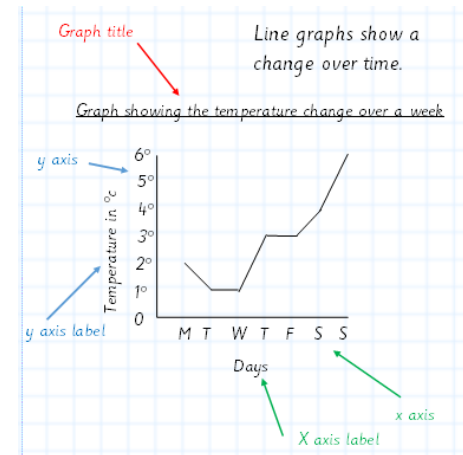
4) Repeat with the other points.

5) Join the points using a ruler

Year 6 Statistics

Data
Interval
Line
Continuous
Values
X axis
Y axis
Horizontal
Vertical
Construct
Interpret

Centre
Circle
Segment
Size
Proportion
Degrees
Mean
Average
Estimate
Total
Sum

Read and interpret line graphs

1) Read the title and the axes

2) Check what the graph is telling you

3) Look at the general trends.

Graph title

Line graphs show a change over time.

Graph showing the temperature change over a week

y axis

y axis label

Temperature in °c

6°
5°
4°
3°
2°
1°
0

M T W T F S S

Days

x axis

X axis label

Read and interpret pie charts

Pie chart showing the favourite fruits of year 5

Pie charts are a way of showing data

🟥	Strawberries	12
🟩	Apples	3
🟦	Blueberries	7
🟨	Bananas	8

Before answering any questions, make sure you understand what the chart shows.

Calculate the mean of a set of data

The mean is a way of finding the average of a set of data.
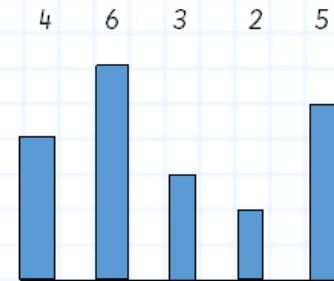
4   6   3   2   5

$4 + 6 + 3 + 2 + 5 = 20$

$20 \div 5 = 4$

1) Add the values together

2) Divide by the amount of values.