Year 6 Knowledge Organiser

Interpreting Data

Information can be show in tables, charts or graphs.

Interpreting data simply means understanding or working out what is being shown by a table, graph or chart and being able to answer questions about that information.

Line Graph

Line graphs are used to show changes to a measurement over time.

Data shown in a line graph is continuous.
Sets of points are joined together to make the line.

A line graph to show the length of shadows over time
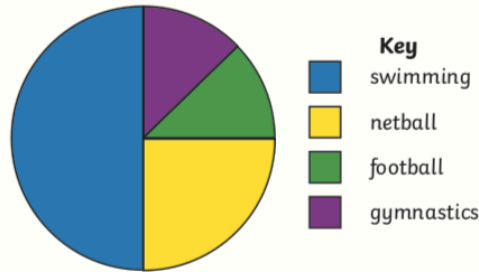

April
May
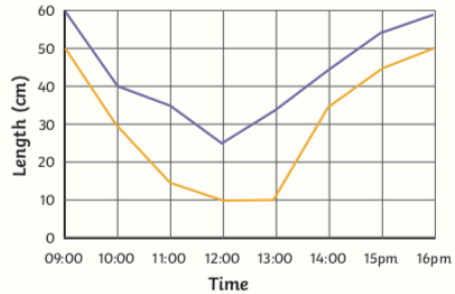
Pie Charts

Pie charts represent discrete data.

A circle is divided into segments, where each segment represents a data category. The size of each segment matches its proportion of the total amount.

A pie chart to show children's favourite sports

Key
- swimming
- netball
- football
- gymnastics

24 children were asked in total.

Swimming = $\frac{1}{2}$ so $\frac{1}{2}$ of 24 = 12 children

Netball = $\frac{1}{4}$ so $\frac{1}{4}$ of 24 = 6 children
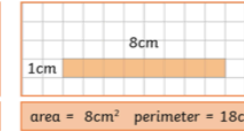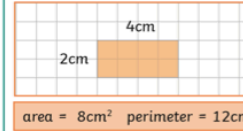
Football = $\frac{1}{8}$ so $\frac{1}{8}$ of 24 = 3 children

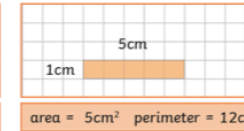Gymnastics = $\frac{1}{8}$ so $\frac{1}{8}$ of 24 = 3 children

Perimeter, Area and Volume
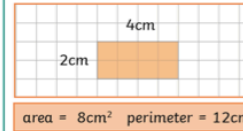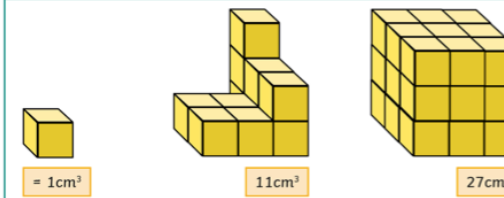
Perimeter and Area

Shapes with the same area can have different perimeters.

4cm, 2cm	8cm, 1cm
area = 8cm² perimeter = 12cm	area = 8cm² perimeter = 18cm

Shapes with the same perimeter can have different areas.

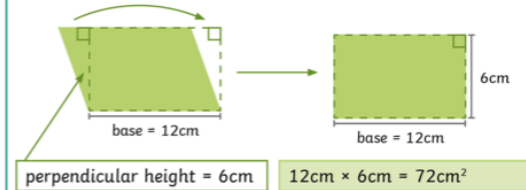|	
4cm, 2cm	5cm, 1cm
area = 8cm² perimeter = 12cm	area = 5cm² perimeter = 12cm

Area of a Parallelogram

base × perpendicular height = area of a parallelogram

A parallelogram can be transformed into a rectangle.

base = 12cm
base = 12cm
6cm

perpendicular height = 6cm

12cm × 6cm = 72cm²

Volume - Counting Cubes

= 1cm³ | 11cm³ | 27cm³

Volume of Cuboids

length × width × height = volume of a cuboid

length 6cm
width 4cm
height 3cm
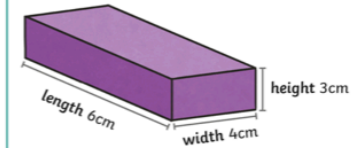
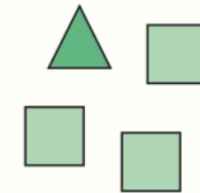Multiply dimensions in **any** order:
3cm × 6cm × 4cm
volume = 72cm³

Ratio and Fractions

For every 1 rugby ball, there are 2 footballs.

Ratio of rugby balls to footballs: 1:2

$\frac{1}{3}$ of the balls are rugby balls.

For every 1 triangle, there are 3 squares.

Ratio of triangles to squares: 1:3

$\frac{1}{4}$ of the shapes are triangles.

Dividing Fractions by Whole Numbers

$$\frac{2}{5} \div 2 = \frac{1}{5}$$

Multiplication and division are the inverse of one another so:

÷ 2 is the same as × $\frac{1}{2}$

$$\frac{2}{5} \times \frac{1}{2} = \frac{2}{10}$$

Multiplying Proper Fractions

Multiplying Fractions by Fractions

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

Multiplying Fractions by Whole Numbers

$\frac{2}{5} \times 3$

$3 = \frac{3}{1}$

$$\frac{2}{5} \times \frac{3}{1} = \frac{6}{5} = 1\frac{1}{5}$$
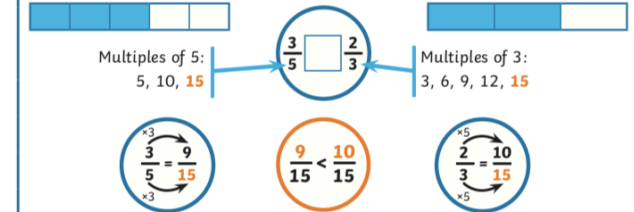
Simplify Fractions

$\frac{9}{12}$

Factors of 9:
1, **3**, 9

Factors of 12:
1, 2, **3**, 4, 6, 12

$$\frac{9}{12} = \frac{3}{4}$$

Compare and Order Fractions

Use the Common Denominator

Multiples of 5:
5, 10, **15**

Multiples of 3:
3, 6, 9, 12, **15**

$\frac{3}{5}$ $\frac{2}{3}$

$$\frac{3}{5} = \frac{9}{15}$$

$$\frac{9}{15} < \frac{10}{15}$$

$$\frac{2}{3} = \frac{10}{15}$$

Use the Common Numerator

Multiples of 5:
5, **10**, 15

Multiples of 10:
10, 20

$\frac{5}{8}$ $\frac{10}{13}$

$$\frac{5}{8} = \frac{10}{16}$$

$$\frac{10}{16} < \frac{10}{13}$$

$$\frac{10}{13} = \frac{10}{13}$$