This booklet has been produced for bilingual pupils whose first language is Thai. It may be used as a reference book or in bilingual support.

Contents

1. *Signs and Symbols*

Addition

+

add
plus
and
total of
increase by
sum of
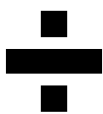altogether

Subtraction

-

subtract
minus
take away
decrease by
reduce by
take away from
difference between

Multiplication

X

multiply
times
by
product of
groups of
lots of

Division

÷

divide by
into
over
out of
share
each
part of
portion of

=
equals
is
is the same as
makes
has the same value as

~ =
is approximately
about
roughly
close to
nearly
around
almost the same as

>
is more than
is greater than
is bigger than

<
is less than
is smaller than
is not as big as

| Symbol	Meaning
$\geq$	Bigger than or equal to
$\leq$	Smaller than or equal to
%	Per cent Out of one hundred
:	Ratio To
↻	Clockwise
↺	Anticlockwise Counter clockwise
$\sqrt{}$	Root
∞	Infinity

2. *Area*

Area means how much space a flat (two dimensional) shape takes up. We measure area in squares e.g.

Square centimetres (cm²)

1	2	3	4
5	6	7	8

Area   = length x width

= 4 cm x 2 cm

=   8 cm²

A cube has six faces. The surface area of a cube may be drawn like this:-
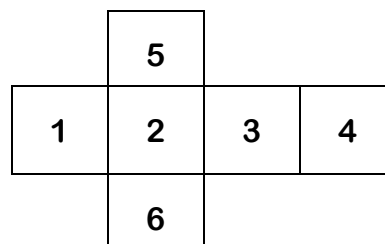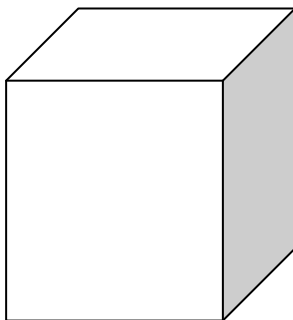
3. _Volume_

Volume means how much space a solid (3 dimensional) shape takes up. We measure volume in cubes e.g.
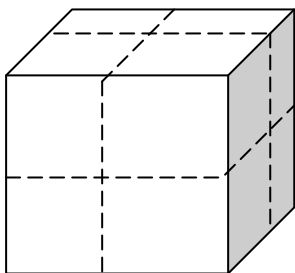
Cubic centimetre (cm_3)

Volume = length x width x height
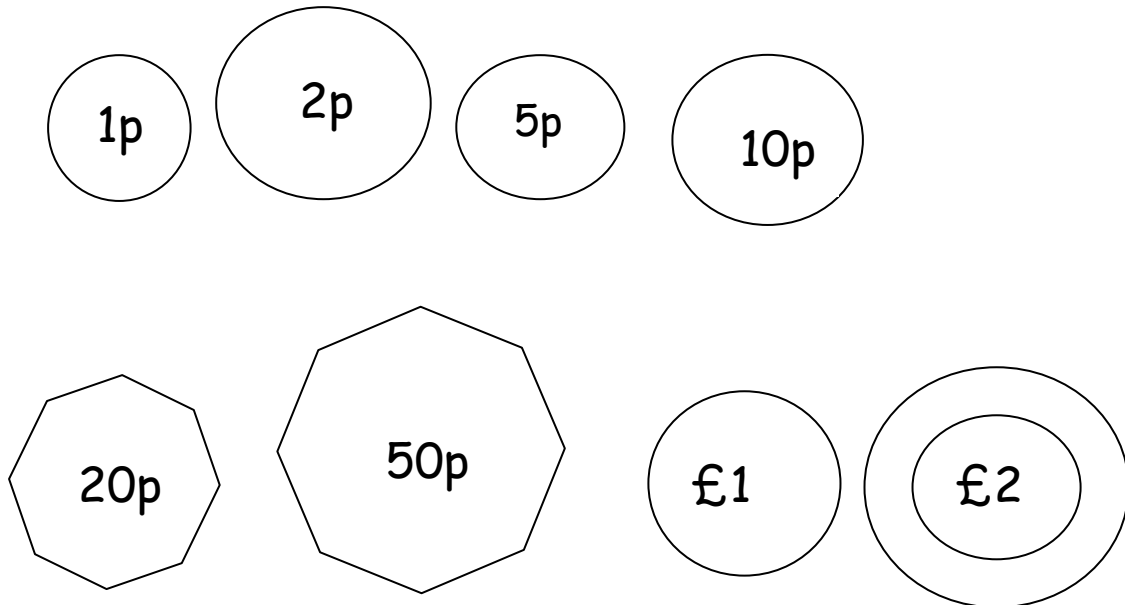
$V = 4 \times 1 \times 2$

$V = 8$ cms$_3$

2 cm

4 cm

1 cm
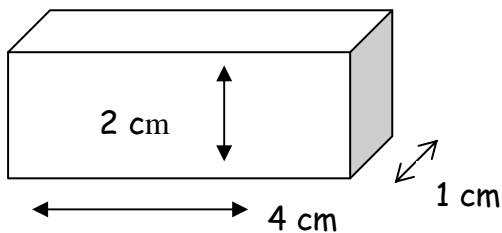
This cube is made of eight centimetre cubes. Its volume is 8cm$_3$

4. <u>Money</u>

These are the coins used in Britain:-

1p   2p   5p   10p

20p   50p   £1   £2

One pound (£1) is 100 pence.

These are the notes in use:-

£5   £10   £20   £50

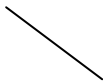We usually write prices like this:-
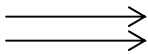
£2.99   £3.25

5. Lines
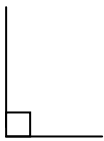
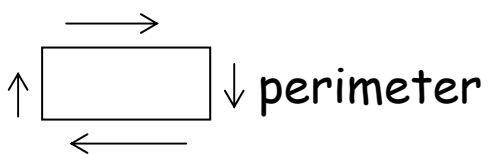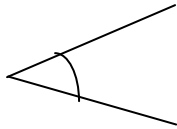Straight line

Curved line

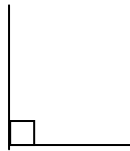Horizontal line

Vertical line

Diagonal line
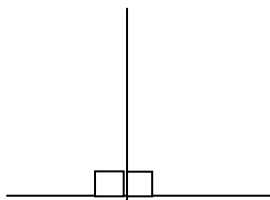
Parallel lines

Perpendicular lines
(right angle)

perimeter

6. *Angles*
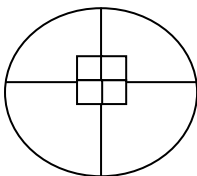
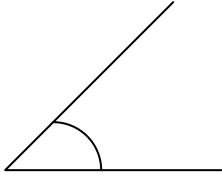These two lines meet at an angle. An angle is measured in degrees (°)
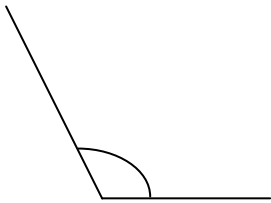
This is a right-angle.
It is 90°.

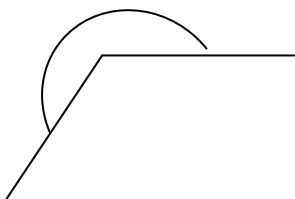A straight line is made of two right angles.
It is 180°

A circle is made of four right angles.
It has 360°

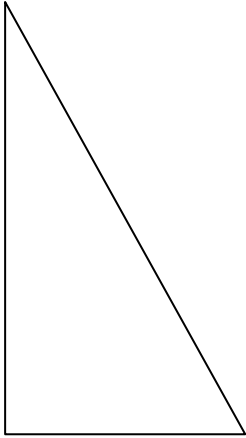An angle that measures less than 90° is called an acute angle

An angle which measures more than 90° is called an obtuse angle.

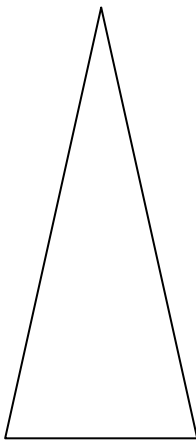An angle that measures more than 180° is called a reflex angle.

7. Triangles

A triangle is a shape with 3 straight sides. It also has 3 angles.
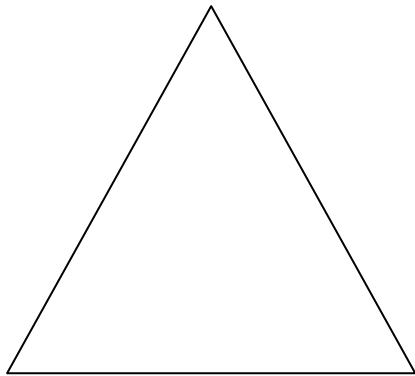
The points of a triangle are called the vertices.

There are different types of triangles :-

Isosceles

Two sides are the same length. The two angles at the base are equal
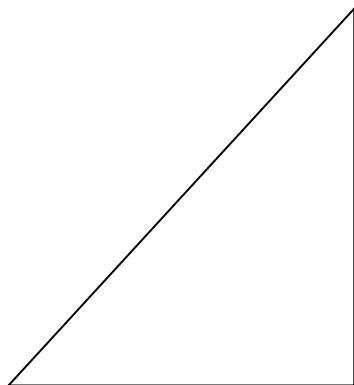
Equilateral

All three angles are equal.

All three sides are the same length.
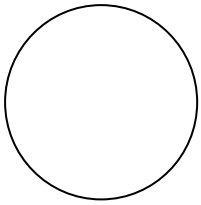
Right-angle

One of the angles measures 90°.

The longest side is called the hypotenuse

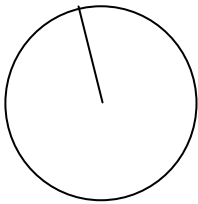The angles of a triangle always add up to 180°.
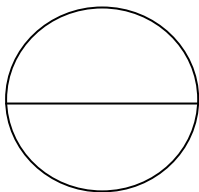
8. *Circles*

The perimeter of a circle is called the circumference.
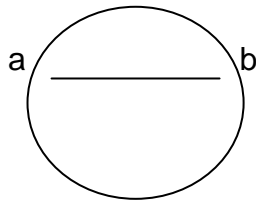
Half of a circle is called a semi-circle.

Any line from the centre of a circle to the circumference is called the radius.

A straight line from one side of a circle to the other side through the centre is the diameter.
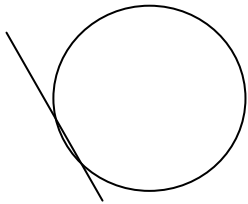
The diameter is twice the length of the radius.

Part of the circumference is an arc. The straight line ab is a chord. The shaded area is a segment
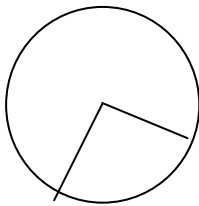
An area of a circle enclosed by two radii and an arc I a sector

A line which touches the circumference at only one point is a tangent
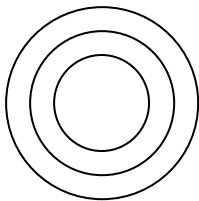
Circles which have the same centre are called concentric circles

9. Shapes
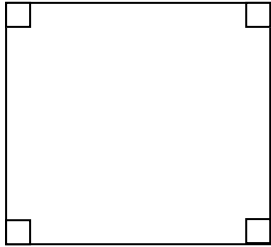
Square
It has four equal sides and four right angles
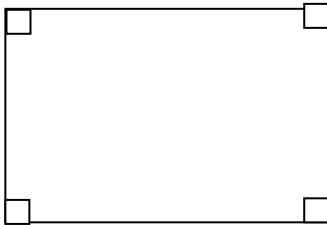
Rectangle
It has four right angles and opposite sides are equal
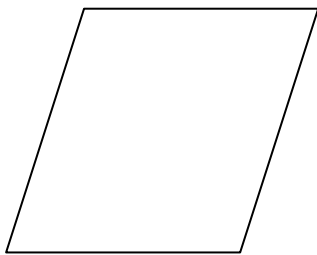
Parallelogram
Opposite sides are parallel
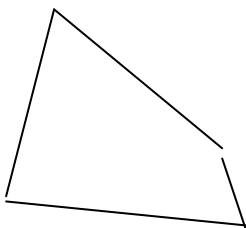
Quadrilateral
Any shape with four straight sides
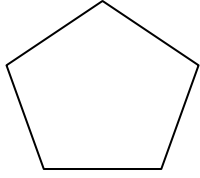
Pentagon
It has five sides and five angles
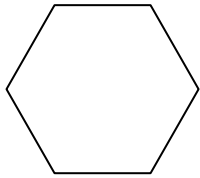
Hexagon
It has six sides and six angles
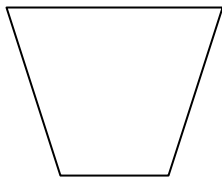
Trapezium
One set of sides is parallel
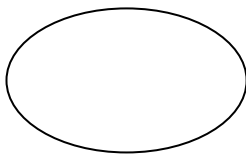
Ellipse
This is shaped like an egg

10. *Graphs*

Y
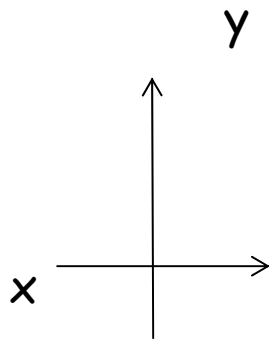
A graph has a vertical axis (y) and a horizontal axis (x).

X

There are many different types of graphs or charts:-

Y
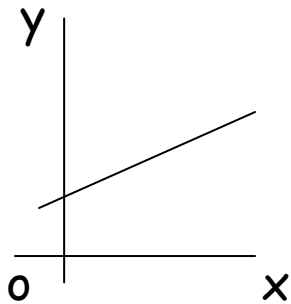
A straight-line graph

O   X

Y
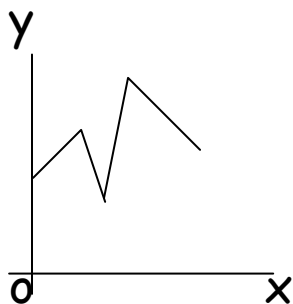
A graph plotting points

O   X
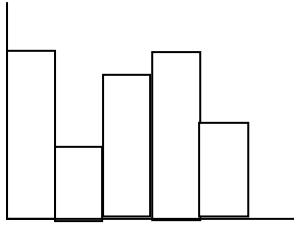
A bar chart or block graph
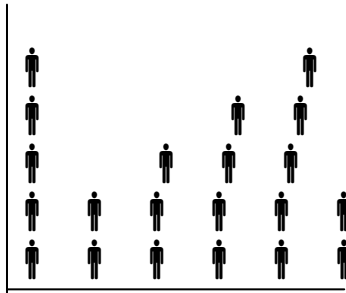
A pictogram
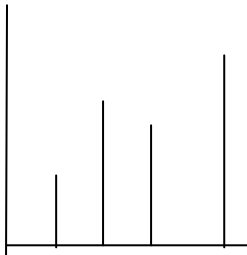
A column graph
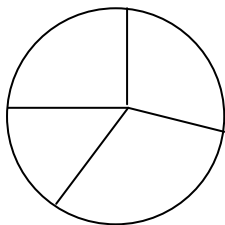
A pie-chart is a circle divided into different sectors

11. <u>Fractions</u>

A fraction is a part of a whole.
4/5 is a fraction. It may be shown like this:-
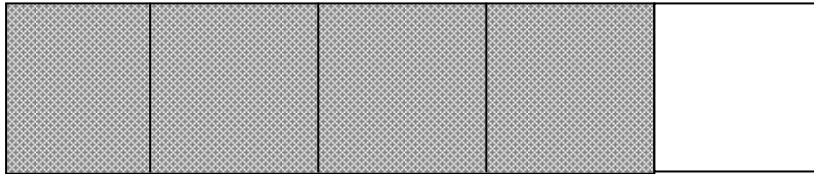
4/5   1/5

Here is another fraction: 2/3

This means two parts out of three. We say two-thirds.

The number at the top is called the <u>Numerator.</u>

The number at the bottom is called the

<u>Denominator.</u>

This is a mixed number $3\frac{1}{2}$

It is made of a whole number and a fraction. It may be written as an Improper Fraction:-

$$3\frac{1}{2} \quad = \quad 7/2$$

(mixed number)   (improper fraction)

Equivalent (equal) Fractions

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

12. Decimals

Parts of a whole number can also be written as decimals:

1/10   is the same as 0.1

¼   is the same as 0.25

4 1/5   is the same as 4.2

Percentages

1% is one in every 100

1% is 1p in every pound

1% is 1/100

1% is 0.01

Conversion Table

	Fraction	Decimal	Percentage
Half	$\frac{1}{2}$	0.5	50%
Quarter	$\frac{1}{4}$	0.25	25%
Three-Quarters	$\frac{3}{4}$	0.75	75%
One tenth	1/10	0.1	10%
One fifth	1/5	0.2	20%
One third	1/3	0.33	33.33%
Two thirds	2/3	0.66	66.66%
One eigth	1/8	0.125	12.5%

13. Distance

Metric System

mm – millimetre
cm – centimetre
m – metre
km – kilometre

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

Imperial System

abbreviations
in - inch
ft - foot
yd - yard
mile - mile

12 ins = 1ft   3ft = 1yd   1760 yds = 1mile

Conversions

$2\frac{1}{2}$ cm = 1 in   .9m = 1 yd   1km = $\frac{5}{8}$ mile

14. Capacity

Metric System

ml – millilitre
cc – cubic centimetre
l./li – litre

1cc = 1ml   1l = 1000 ml

_____

Imperial System

fl.oz – fluid ounce
pt. – pint
gal. – gallon

20 fl oz. = 1 pt   8 pts = 1 gal

_____

Conversions

1 litre = $1\frac{3}{4}$ pints   1 gal = $4\frac{1}{2}$ litres

15. *Weight*

Metric System

mg. – milligram

g. – gram

kg. – kilogram (kilo)

1000 mg = 1 g   1000 g = 1kg

1000 kg = 1 tonne

Imperial System

oz. – ounce

lb. – pound

st. – stone

16 oz = 1lb   14lb = 1 st

Conversions

1 oz = 28 g   1 kg = 2 1/5 lb

16. Time

Units of Time

sec – second   wk – week

min – minute   yr – year

hr – hour   p.a. – per annum

60 sec = 1 min   60 mins = 1hr

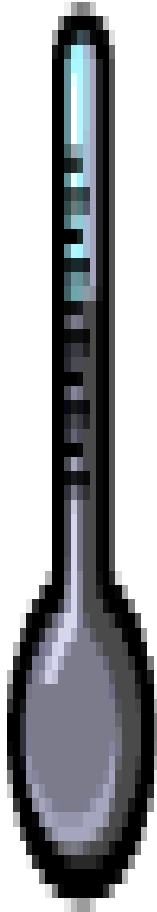24 hrs = 1 day   7 days = 1 wk

52 wks = 1 yr   12 months = 1 yr

Calendar Months

30 days has September,

April, June and November.

All the rest have 31,

Except February all alone

Which has 28 days clear

And 29 each leap year.

17. <u>Temperature</u>

- 100° boiling point

- 37° body temperature

- 0° freezing point
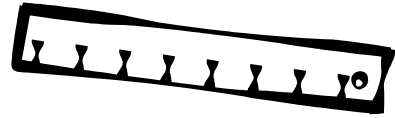
Temperature is usually measured in °C

(degrees Celsius).

Sometimes °F (Fahrenheit) is used

      0°C   = 32°F

      100°C = 212°F
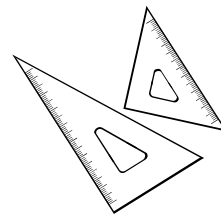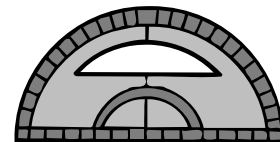
18. Instruments

Ruler

Set square

Protractor

compass