

## Durations of Time 'Learn by Heart' Facts (PART I)

- 60 seconds in one minute
- 60 minutes in one hour
- 30 minutes =  $\frac{1}{2}$  an hour
- 15 minutes =  $\frac{1}{4}$  of an hour
- 45 minutes =  $\frac{3}{4}$  of an hour
- 24 hours in one day
- 7 days in one week
- 14 days in a fortnight
- 365 days in one year
- 1 decade = 10 years, 1 century = 100 years and 1 millennium = 1000 years.
- A leap year happens every four years: February has 29 days in a leap year.

30 days hath September,  
 April, June and November,  
 All the rest have 31,  
 Except February alone,  
 Which only has but 28 days clear,  
 And 29 in a leap year.

### Units of Time

#### Minute

1 minute = 60 seconds



#### Hour

1 hour = 60 minutes



#### Day

1 day = 24 hours



#### Week

1 week = 7 days



#### Fortnight

1 fortnight = 2 weeks



#### Month

January = 31 days  
 February = 28 days (29 in a leap year)  
 March = 31 days  
 April = 30 days  
 May = 31 days  
 June = 30 days  
 July = 31 days  
 August = 31 days  
 September = 30 days  
 October = 31 days  
 November = 30 days  
 December = 31 days



#### Year

1 year =  
 12 months =  
 52 weeks =  
 365 days



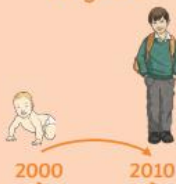
#### Leap Year

1 leap year =  
 366 days



#### Decade

1 decade =  
 10 years



#### Century

1 century =  
 100 years



#### Millennium

1 millennium =  
 1000 years




# Time 'Learn by Heart' Facts (PART 2)

## 24 HOUR CLOCK

1 am = 01:00  
 2 am = 02:00  
 3 am = 03:00  
 4 am = 04:00  
 5 am = 05:00  
 6 am = 06:00  
 7 am = 07:00  
 8 am = 08:00  
 9 am = 09:00  
 10 am = 10:00  
 11 am = 11:00  
 12 noon/midday = 12:00

1 pm = 13:00  
 2 pm = 14:00  
 3 pm = 15:00  
 4 pm = 16:00  
 5 pm = 17:00  
 6 pm = 18:00  
 7 pm = 19:00  
 8 pm = 20:00  
 9 pm = 21:00  
 10 pm = 22:00  
 11 pm = 23:00  
 12 midnight = 00:00

### 24-Hour Time

	01:00	1 a.m.	1 o'clock			13:00	1 p.m.	1 o'clock	
	02:00	2 a.m.	2 o'clock			14:00	2 p.m.	2 o'clock	
	03:00	3 a.m.	3 o'clock			15:00	3 p.m.	3 o'clock	
	04:00	4 a.m.	4 o'clock			16:00	4 p.m.	4 o'clock	
	05:00	5 a.m.	5 o'clock			17:00	5 p.m.	5 o'clock	
	06:00	6 a.m.	6 o'clock			18:00	6 p.m.	6 o'clock	
	07:00	7 a.m.	7 o'clock			19:00	7 p.m.	7 o'clock	
	08:00	8 a.m.	8 o'clock			20:00	8 p.m.	8 o'clock	
	09:00	9 a.m.	9 o'clock			21:00	9 p.m.	9 o'clock	
	10:00	10 a.m.	10 o'clock			22:00	10 p.m.	10 o'clock	
	11:00	11 a.m.	11 o'clock			23:00	11 p.m.	11 o'clock	
	12:00	12 p.m.	12 o'clock			00:00	12 a.m.	12 o'clock	

## Angles 'Learn by Heart' Facts

Children in Year Five need to know what an angle is and be able to identify and name the different angle types. They should also be able to measure and draw angles using a protractor.

### Identifying Angles

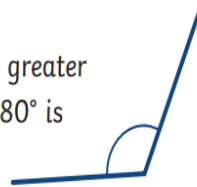
#### Acute Angles

Any angle that measures less than  $90^\circ$  is called an **acute** angle.



#### Obtuse Angles

Any angle that measures greater than  $90^\circ$  and less than  $180^\circ$  is called an **obtuse** angle.

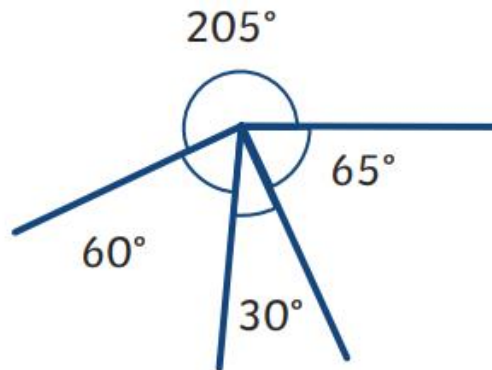


#### Reflex Angles

Any angle that measures greater than  $180^\circ$  is called a **reflex** angle.

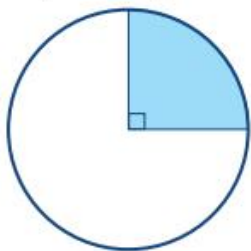


Angles on a straight line always total  $180^\circ$ .

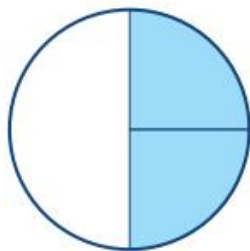


Angles around a point always total  $360^\circ$ .

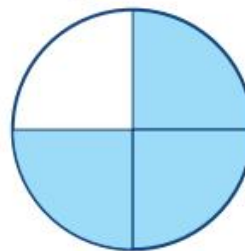
Multiples of  $90^\circ$  can be used as descriptions of a turn.



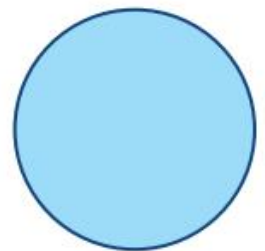
$\frac{1}{4}$  turn -  $90^\circ$



$\frac{1}{2}$  turn -  $180^\circ$



$\frac{3}{4}$  turn -  $270^\circ$

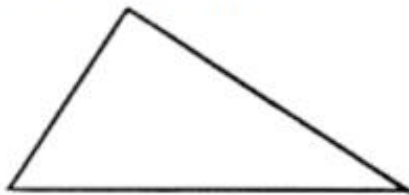


1 turn -  $360^\circ$

## Angles in a Triangle 'Learn by Heart' Facts

Children in Year 5 need to know the names of the three triangles below and their properties (side lengths and angle size).

- The angles in a triangle add-up to  $180^\circ$
- The angles on a straight line add-up to  $180^\circ$
- The angles round a point add-up to  $360^\circ$
- The angles in a quadrilateral add-up to  $360^\circ$
- A **scalene triangle** has 3 sides of different length and 3 angles of different size

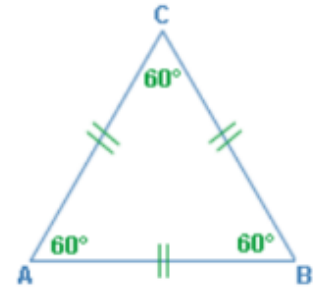


- An **isosceles triangle** has 2 equal length sides and 2 equal size angles



- An **equilateral triangle** has all sides and angles equal:

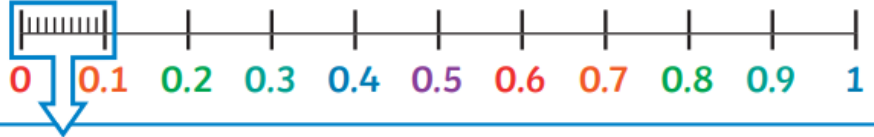
each angle in an equilateral triangle is  $60^\circ$



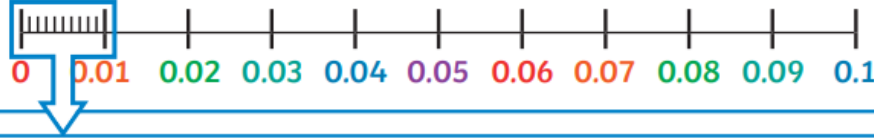
# Fraction and Decimal Equivalence 'Learn by Heart' Facts

## Tenths, Hundredths and Thousandths

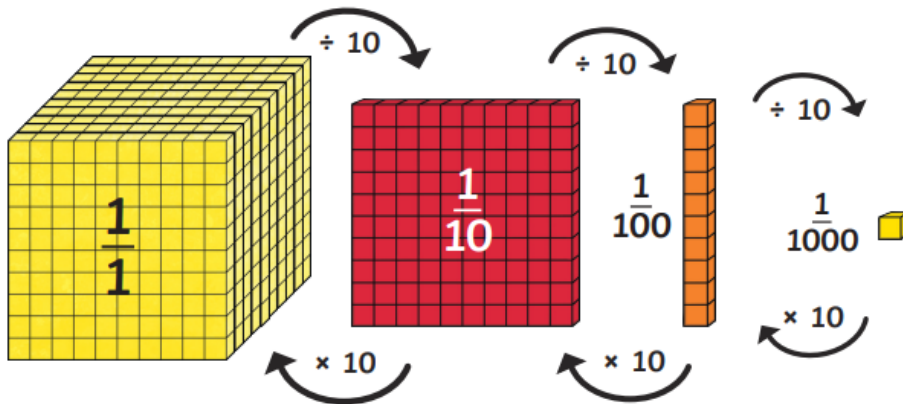
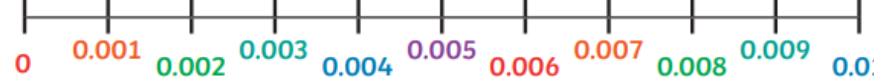
$\frac{0}{10}$   $\frac{1}{10}$   $\frac{2}{10}$   $\frac{3}{10}$   $\frac{4}{10}$   $\frac{5}{10}$   $\frac{6}{10}$   $\frac{7}{10}$   $\frac{8}{10}$   $\frac{9}{10}$   $\frac{10}{10}$



$\frac{0}{100}$   $\frac{1}{100}$   $\frac{2}{100}$   $\frac{3}{100}$   $\frac{4}{100}$   $\frac{5}{100}$   $\frac{6}{100}$   $\frac{7}{100}$   $\frac{8}{100}$   $\frac{9}{100}$   $\frac{10}{100}$



$\frac{0}{1000}$   $\frac{1}{1000}$   $\frac{2}{1000}$   $\frac{3}{1000}$   $\frac{4}{1000}$   $\frac{5}{1000}$   $\frac{6}{1000}$   $\frac{7}{1000}$   $\frac{8}{1000}$   $\frac{9}{1000}$   $\frac{10}{1000}$



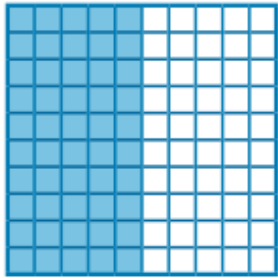
Children in Year 5, need to learn about the equivalence between fractions and decimals, involving tenths, hundredths and thousandths.

Use the image to the left, to support you to learn the facts!

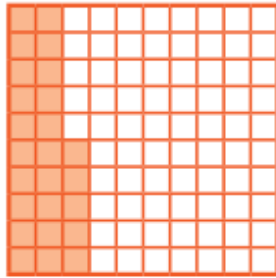
# Percentage, Fraction and Decimal Equivalence 'Learn by Heart' Facts

Children in Year 5, need to learn about the equivalence between percentages, fractions and decimals. Use the image to the below, to support you to learn the facts! Remember: per cent = per 100.

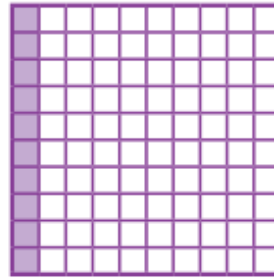
## Percentage and Decimal Equivalents



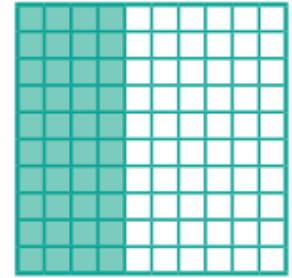
$$50\% = \frac{50}{100} = \frac{1}{2} = 0.5$$



$$25\% = \frac{25}{100} = \frac{1}{4} = 0.25$$



$$10\% = \frac{10}{100} = \frac{1}{10} = 0.1$$

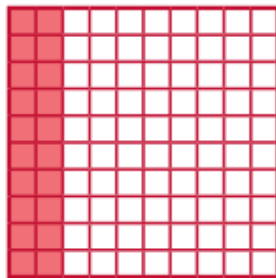


$$40\% = \frac{40}{100} = \frac{2}{5} = 0.4$$

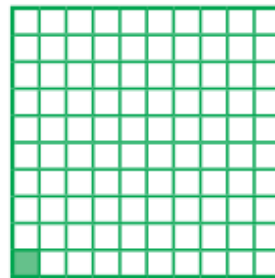
### Crossing the Whole

$$0.82 + 0.63 = 1.45$$

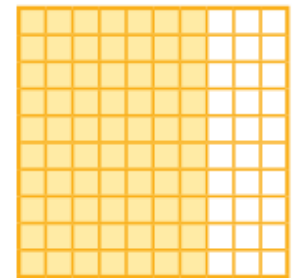
$$2.531 - 0.6 = 1.931$$



$$20\% = \frac{20}{100} = \frac{1}{5} = 0.2$$



$$1\% = \frac{1}{100} = 0.01$$



$$70\% = \frac{70}{100} = \frac{7}{10} = 0.7$$



## Prime Numbers 'Learn by Heart' Facts

A prime number has exactly 1 factor pair.

The pair is always 1 and the number itself.

1 is not a prime number, as it only has one factor:  $1 \times 1 = 1$

2 is the only even prime number.

You should be able to list the prime numbers to 100:

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

Prime Numbers									
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

## Square Numbers 'Learn by Heart' Facts

A square number is a number multiplied by itself.  
These are the first 12 square numbers: please try to memorise them.



$$2^2 = 4$$

$$2 \times 2 = 4$$

$$1^2 = 1 \times 1 = 1$$

$$2^2 = 2 \times 2 = 4$$

$$3^2 = 3 \times 3 = 9$$

$$4^2 = 4 \times 4 = 16$$

$$5^2 = 5 \times 5 = 25$$

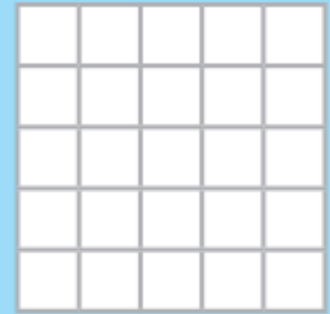
$$6^2 = 6 \times 6 = 36$$

$$7^2 = 7 \times 7 = 49$$

$$8^2 = 8 \times 8 = 64$$

$$9^2 = 9 \times 9 = 81$$

$$10^2 = 10 \times 10 = 100$$



$$5^2 = 25$$

$$5 \times 5 = 25$$

## Cube Numbers 'Learn by Heart' Facts

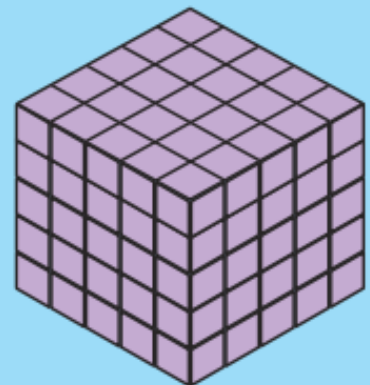
A cubed number is the result of multiplying a number by itself three times. For example,  $3 \times 3 \times 3 = 27$ . 27 is a cubed number!

$1^3$	$1 \times 1 \times 1 =$	1
$2^3$	$2 \times 2 \times 2 =$	8
$3^3$	$3 \times 3 \times 3 =$	27
$4^3$	$4 \times 4 \times 4 =$	64
$5^3$	$5 \times 5 \times 5 =$	125
$6^3$	$6 \times 6 \times 6 =$	216
$7^3$	$7 \times 7 \times 7 =$	343
$8^3$	$8 \times 8 \times 8 =$	512
$9^3$	$9 \times 9 \times 9 =$	729
$10^3$	$10 \times 10 \times 10 =$	1000
$11^3$	$11 \times 11 \times 11 =$	1331
$12^3$	$12 \times 12 \times 12 =$	1728



$$2^3 = 8$$

$$2 \times 2 \times 2 = 8$$



$$5^3 = 125$$

$$5 \times 5 \times 5 = 125$$



## Measure Conversion 'Learn by Heart' Facts

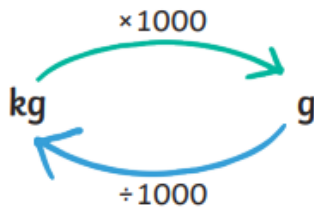
In Year 5, children need to understand the units of measure used for mass, capacity, and length. They also need to understand how to convert between the different units of measure.

(kg = kilogram)  
(g = grams)

(km = kilometre)  
(m = metre)  
(cm = centimetre)  
(mm = millimetre)

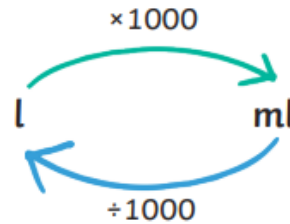
(l = litre)  
(ml = millilitre)  
(cl = centilitre)

### Converting Mass



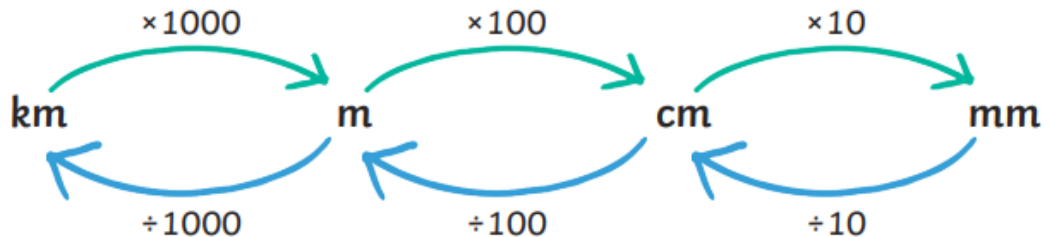
$1000\text{g} = 1\text{kg}$   
 $\frac{1}{10}\text{kg} = 0.1\text{kg} = 100\text{g}$   
 $\frac{1}{4}\text{kg} = 0.25\text{kg} = 250\text{g}$   
 $\frac{1}{2}\text{kg} = 0.5\text{kg} = 500\text{g}$   
 $\frac{3}{4}\text{kg} = 0.75\text{kg} = 750\text{g}$

### Converting Capacity



$1000\text{ml} = 1\text{ litre}$   
 $\frac{1}{10}\text{l} = 0.1\text{l} = 100\text{ml}$   
 $\frac{1}{4}\text{l} = 0.25\text{l} = 250\text{ml}$   
 $\frac{1}{2}\text{l} = 0.5\text{l} = 500\text{ml}$   
 $\frac{3}{4}\text{l} = 0.75\text{l} = 750\text{ml}$   
 $\frac{1}{100}\text{l} = 0.01\text{l} = 10\text{ml}$

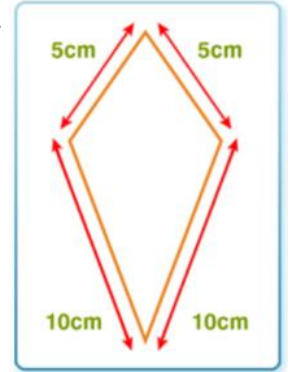
### Converting Length



$1000\text{ metres} = 1\text{ kilometre}$   
 $100\text{cm} = 1\text{m}$   
 $10\text{mm} = 1\text{cm}$   
 $\frac{1}{10}\text{km} = 0.1\text{km} = 100\text{m}$   
 $\frac{1}{4}\text{km} = 0.25\text{km} = 250\text{m}$   
 $\frac{1}{2}\text{km} = 0.5\text{km} = 500\text{m}$   
 $\frac{3}{4}\text{km} = 0.75\text{km} = 750\text{m}$

## Perimeter and Area 'Learn by Heart' Facts

- The perimeter is the distance all the way around the outside of a 2D shape.
- To work out the perimeter, add up the lengths of all the sides.
- The perimeter of this shape is  $5 + 5 + 10 + 10 = 30$  cm



Measure Perimeter	Calculate Perimeter
<p>Measure the perimeter of a rectangle:</p> <p>Measure the length (l) and width (w). Perimeter = <math>l + w + l + w</math> or <math>(l + w) \times 2</math></p>	<p>Calculate the missing sides of this rectilinear shape to find the perimeter:</p> <p>* This shape is not drawn to the dimensions specified.</p> <p>Missing side 1 + 4cm = 8cm, so missing side 1 = 4cm.</p> <p>Missing side 2 = 2cm + 7cm = 9cm</p> <p>Perimeter = sum of all sides = 2cm + 4cm + 7cm + 4cm + 9cm + 8cm = 34cm</p>
<p>Measure the perimeter of regular shapes:</p> <p>Measure the length (l) and count the number of sides (s) on the shape. Perimeter = <math>l \times s</math></p>	
<p>Measure the perimeter of irregular shapes:</p> <p>Measure the length of each side and add them together.</p>	

- The area of a 2D shape is the amount of surface it covers.
- To work out the area of a rectangle, multiply its length (the longer side) by its width (the shorter side): area = length  $\times$  width

Area of Rectangles	Area of Compound Shapes
<p>The area of a rectangle on a grid:</p> <p>Multiply the length <math>\times</math> width = <math>6 \times 3 = 18</math> squares.</p> <p>The area of a rectangle = length (l) <math>\times</math> width (w).</p>	<p>To find the area of a compound shape, divide the shape into rectangles with known dimensions:</p> <p>Area = <math>7\text{cm} \times 4\text{cm} + 5\text{cm} \times 5\text{cm}</math> = <math>28\text{cm}^2 + 25\text{cm}^2</math> = <math>53\text{cm}^2</math></p>

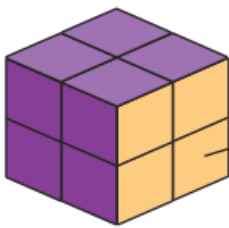
# Volume 'Learn by Heart' Facts

## Volume of Cubes and Cuboids

Volume is measured in cubed units. For example, **cm<sup>3</sup>**, **m<sup>3</sup>** and **km<sup>3</sup>**.

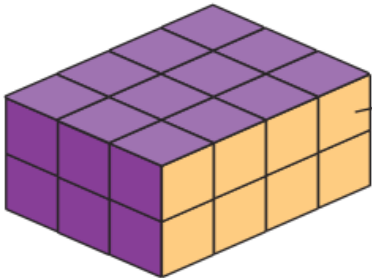
To calculate the volume of cubes and cuboids:

1. Calculate the area of the cross-section (one face).
2. Multiply the area of the cross-section (one face) by its depth.



$$\text{Area of cross section (face)} = 2\text{cm} \times 2\text{cm} = 4\text{cm}^2$$

$$4\text{cm}^2 \times 2\text{cm} = \text{Volume of } 8\text{cm}^3$$



$$\text{Area of cross section (face)} = 4\text{cm} \times 2\text{cm} = 8\text{cm}^2$$

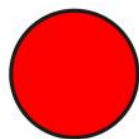
$$8\text{cm}^2 \times 3\text{cm} = \text{Volume of } 24\text{cm}^3$$



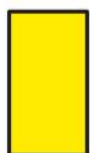
Learn this simple formula to help you to calculate the volume of various cubes and cuboids that I will test you on! You CAN do this!

## Properties of 2D Shape 'Learn by Heart' Facts

Shape	Sides	Vertices	Lines of Symmetry
Square	4	4	4
Equilateral Triangle	3	3	3
Rectangle	4	4	2
Pentagon	5	5	5
Hexagon	6	6	6
Heptagon	7	7	7
Octagon	8	8	8
Oval	1	0	2
Trapezium	4	4	1
Parallelogram	4	4	0
Rhombus	4	4	2
Kite	4	4	1



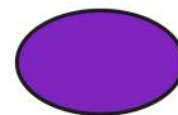
circle



rectangle



triangle



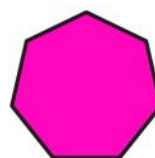
oval



octagon



square



heptagon



rhombus



pentagon








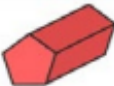



hexagon



kite

## Properties of 3D Shape 'Learn by Heart' Facts

Children in Year 5 need to know the names and the properties of the 3D shapes below:

Name	Surfaces		Edges		Vertices	Picture
	Flat	Curved	Flat	Curved		
cube	6	0	12	0	8	
cuboid	6	0	12	0	8	
square-based pyramid	5	0	8	0	5	
tetrahedron	4	0	6	0	4	
triangular prism	5	0	9	0	6	
pentagonal prism	7	0	15	0	10	
hexagonal prism	8	0	18	0	12	
octagonal prism	10	0	24	0	16	
octahedron	8	0	12	0	6	

### Roman Numeral 'Learn by Heart' Facts

In Year Five, you need to learn all the Roman numerals to 1000:

	Roman Numeral		Roman Numeral		Roman Numeral
1	I	20	XX	D	500
2	II	30	XXX	M	1000
3	III	40	XL		
4	IV	50	L		
5	V	60	LX		
6	VI	70	LXX		
7	VII	80	LXXX		
8	VIII	90	XC		
9	IX	100	C		
10	X				

### Roman Numeral 'Learn by Heart' Facts

In Year Five, you need to learn all the Roman numerals to 1000:

	Roman Numeral		Roman Numeral		Roman Numeral
1	I	20	XX	D	500
2	II	30	XXX	M	1000
3	III	40	XL		
4	IV	50	L		
5	V	60	LX		
6	VI	70	LXX		
7	VII	80	LXXX		
8	VIII	90	XC		
9	IX	100	C		
10	X				



# Multiplying & Dividing Decimals by 10, 100 and 1000

Tens	Ones	Tenths	Hundredths	Thousandths
3	8			
	3	8		
3	8			

Using place value, children need to be able to memorise the rules for what to do when multiplying and dividing decimals by 10, 100 and 1000.

Tens	Ones	Tenths	Hundredths	Thousandths
3	8			
	0	3	8	
3	8			

Use the image to the left, to support you to multiply and divide ANY decimal by 10, 100 and 1000.

Tens	Ones	Tenths	Hundredths	Thousandths
3	8			
	0	0	3	8
3	8			

## Rounding 'Learn by Heart' Facts

Children in Year 5, need to learn how to round number to the nearest 10, 100, 1000, 10, 000 and 100, 000. The image below shows how to round to the nearest 10, 1000 and 100,000. Use this to support you to round any number to the nearest 10, 100, 1000, 10,000 and 100, 000. I will ask you to round given numbers in the weekly test!

