Meadows Maths

Year 3 Knowledge Organiser

Count in multiples

In Year 3 you need to count in multiples of 4, 8, 50 and 100.

Multiples of 4	Multiples of 8	Multiples of 50	Multiples of 100
0	0	0	0
4	8	50	100
8	16	100	200
12	24	150	300
16	32	200	400
20	40	250	500
24	48	300	600
28	56	350	700
32	64	400	800
36	72	450	900
40	80	500	1000

hundreds	tens	ones
3	5	2

- To find 10 more or 10 less, it is the 'tens digit' that changes

10 more than 352 becomes 362

10 less than 352 becomes 342

hundreds	tens	ones
3	5	2

- To find 100 more or 100 less, it is the 'hundreds' digit that changes

100 more than 352 becomes 452

100 less than 352 becomes 252

Recognise place value

hundreds	tens	ones
3	5	2

352 means 300 + 50 + 2

Numbers in words and figures

Hundred	Ten	ones
1	4	7
One hundred	forty	seven
One hundred and forty-seven		

Hundred	Ten	ones
4	0	9
Four hundred		nine
Four hundred and nine		

Add 3 digit numbers mentally

Partitioning

236 + 319

200 + 30 + 6 + 300 + 10 + 9
= 500 + 40 + 15
= 555

Subtract 3 digit numbers mentally

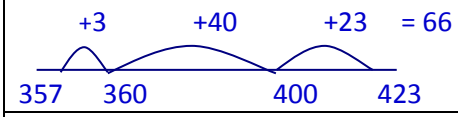
363 - 126

Partitioning

363 – 100 – 20 – 6
=263 – 20 – 6
=243-6
=237

Maths Frog

423 – 357 = 66



Compare and order numbers

- Write numbers lining up the digits

Hundred	Ten	Ones
1	4	7
6	3	2
1	7	6
1	6	2

- Begin at the hundreds and compare

632 is the biggest

Hundred	Ten	Ones
1	4	7
~~6~~	~~3~~	~~2~~
1	7	6
1	6	2

- Move to the tens and compare

Order is: 632, 176, 162, 147

Written method for subraction

Written method for subtraction

- **Line up the digits in the correct columns**

e.g. 327 - 119

$$\begin{array}{r} 3\ {}^{1}\!\not{2}\ {}^{1}7 \\ 1\ 1\ 9\ - \\ \hline 2\ 0\ 8 \end{array}$$

Written method for addition

- **Line up the digits in the correct columns**

e.g. 132 + 239

$$\begin{array}{r} 1\ 3\ 2 \\ 2\ 3\ 9\ + \\ \hline 3\ 7\ 1 \\ {\scriptstyle 1} \end{array}$$

Estimate answers to calculations

- Round off each number
- Then do the calculation
- Check using the inverse

Example: Estimate 83 – 28

80 – 30 = 50
Inverse: 50 + 30 = 80 ✔

Multiply using written methods

- **A 2-digit number by a single digit**

Grid Method

×	20	3
4	80	12

= 92

Column Multiplication

$$\begin{array}{r} 3\ 8 \\ \times\ 3 \\ \hline 1\ 1\ 4 \\ {\scriptstyle 2} \end{array}$$

Partitioning Method

38 x 3
= 30 x3 + 8 x 3
= 90 + 24
= 114

Multiply & divide

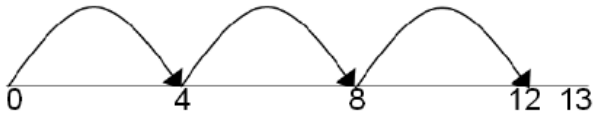
- Look for connections between two sums
- Remember the fact family for x/÷

Example: 6 x 4 = 24 (x10) So **60** x 4 = 240
So 240 ÷ 4 = 60

Example: 9 x 8 = 72 (x2) So 18 x 8 = 144
So 144 ÷ 8 = 18

Divison on a number line

Jump forward in equal jumps on a number line then see how many more you need to jump to find a remainder.



Know the 3, 4 and 8 times tables

3 times table

1 x 3 = 3
2 x 3 = 6
3 x 3 = 9
4 x 3 = 12
5 x 3 = 15
6 x 3 = 18
7 x 3 = 21
8 x 3 = 24
9 x 3 = 27
10 x 3 = 30
11 x 3 = 33
12 x 3 = 36
Timestables.co.uk

4 times table

1 x 4 = 4
2 x 4 = 8
3 x 4 = 12
4 x 4 = 16
5 x 4 = 20
6 x 4 = 24
7 x 4 = 28
8 x 4 = 32
9 x 4 = 36
10 x 4 = 40
11 x 4 = 44
12 x 4 = 48
Timestables.co.uk

8 times table

1 x 8 = 8
2 x 8 = 16
3 x 8 = 24
4 x 8 = 32
5 x 8 = 40
6 x 8 = 48
7 x 8 = 56
8 x 8 = 64
9 x 8 = 72
10 x 8 = 80
11 x 8 = 88
12 x 8 = 96
Timestables.co.uk

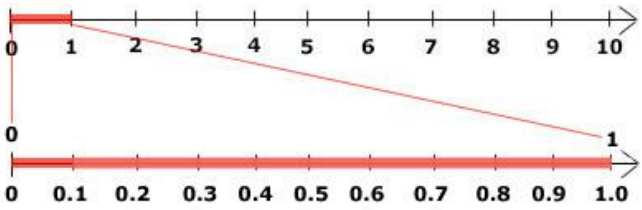
Tenths

tens	units	•	tenths
8	2	•	6

- This represents 6 tenths = $\frac{6}{10}$

Counting in tenths (continued)

- A whole one divided into 10 equal parts
- 1 ÷ 10 = 1 tenth or $\frac{1}{10}$ Or 0.1



To find a tenth of an object or quantity you divide by 10

Example: $\frac{1}{10}$ of 20 = 20 ÷ 10 = 2

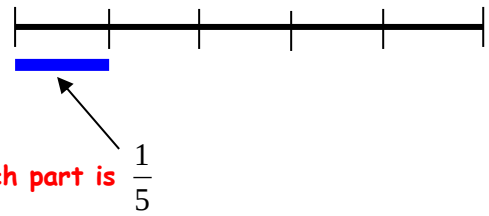
Write a fraction of a number of object

$\frac{2}{5}$ are blue and $\frac{3}{5}$ are red

Fraction of line or objects

To find $\frac{1}{5}$ of a line

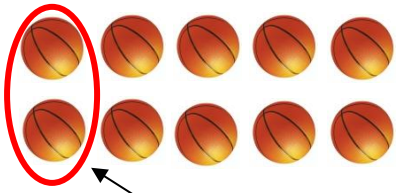
Divide the line into 5 equal parts



Each part is $\frac{1}{5}$

To find $\frac{1}{5}$ of a set of objects

Divide objects into 5 equal parts



Each part is $\frac{1}{5}$

Use fractions as numbers

To find $\frac{1}{5}$ of 20 we do 20 ÷ 5 = 4

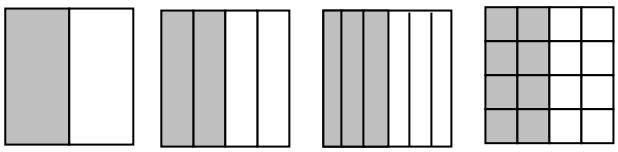
To find $\frac{2}{5}$ of 20 we do 4 x 2 = 8

To find $\frac{3}{5}$ of 20 we do 4 x 3 = 12

Equivalent fractions

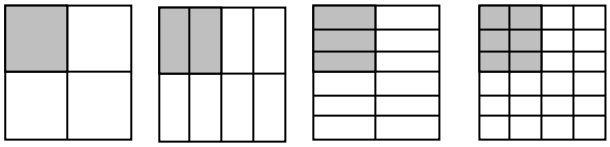
The same fraction can be expressed in different ways

ALL THESE ARE $\frac{1}{2}$



$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{8}{16}$

ALL THESE ARE $\frac{1}{4}$



$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{6}{24}$

Add & subtract fractions

- To add and subtract fractions

When the denominators are the same

$\frac{5}{7} + \frac{1}{7} = \frac{6}{7}$

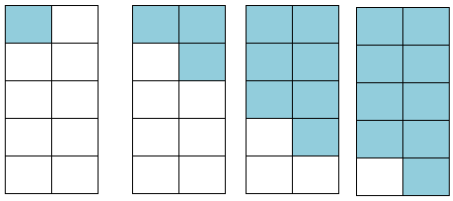
Do not add the denominators

$\frac{5}{7} - \frac{1}{7} = \frac{4}{7}$

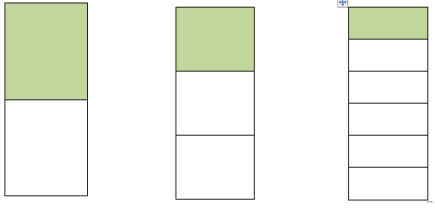
Do not subtract the denominators

Compare fractions

$\frac{1}{10}$ $\frac{3}{10}$ $\frac{7}{10}$ $\frac{9}{10}$



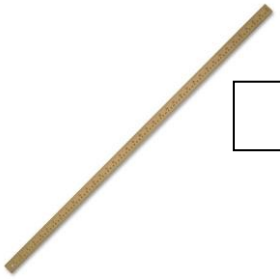
The bigger the denominator, the smaller the fraction



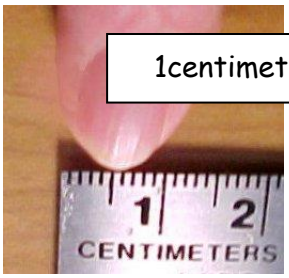
Add & subtract measures

- **The units must be the same**

Length – Example



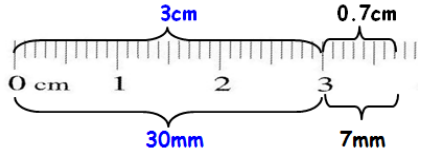
1metre = 100centimetres



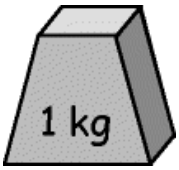
1centimetre = 10millimetres

3cm + 7mm = 30mm + 7mm

= 37mm or 3cm 7mm



Mass – Example



= 1000g

3kg – 450g

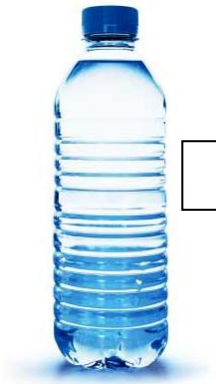
= 3000g – 450g

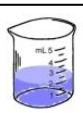
= 2550g

or 2kg 550g

Add & subtract measures (continued)

Volume – Example





1litre = 1000millilitres

800ml + 720ml

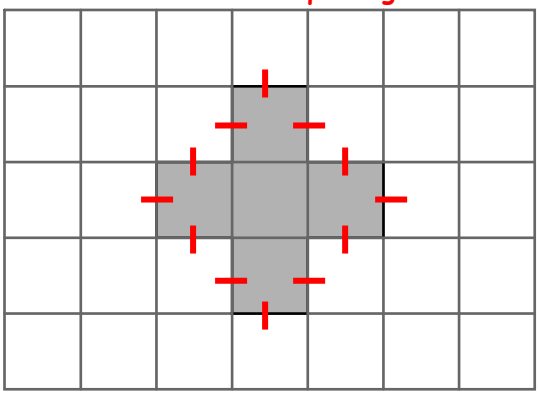
= 1520ml

= 1 litre and 520ml

20 Perimeter

PERIMETER is the distance round the outside of a shape

- **On a centimetre square grid – count round**



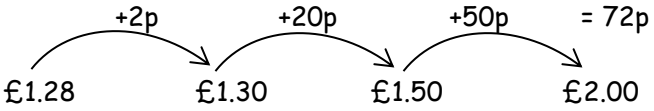
Perimeter of this shape = 12cm

- **Measurements given - add up all round**

Perimeter of this shape = 6 + 4 + 6 + 4 = 20cm

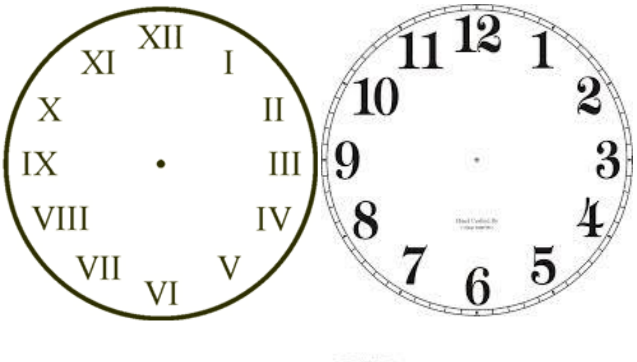
Calculating Change

To find change use the counting up method.

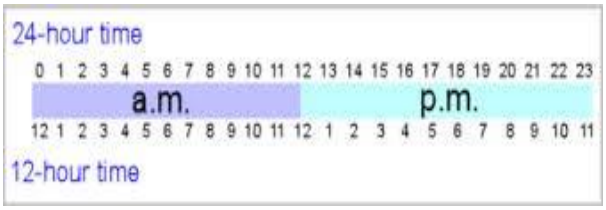


Analogue clock

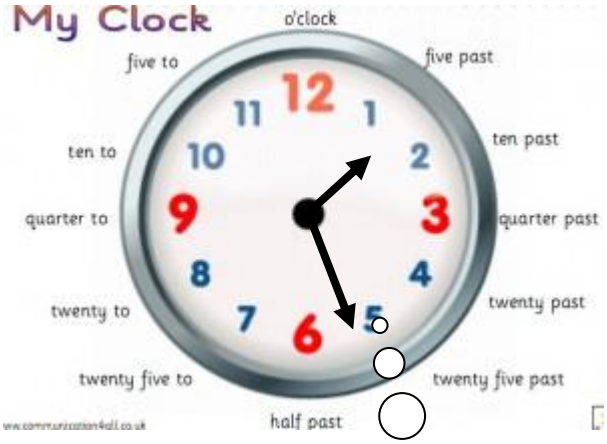
Roman



12- and 24-hour clock



Reading the time



5 minutes between each number- so this time is 1:27 or we say 27 minutes past 1

Months of the year

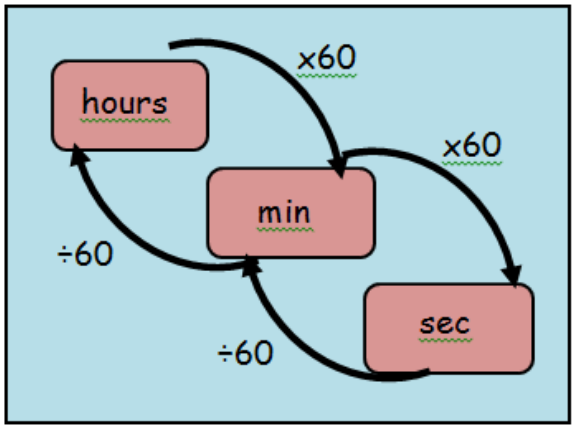
- A rhyme to remember the days in each month

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

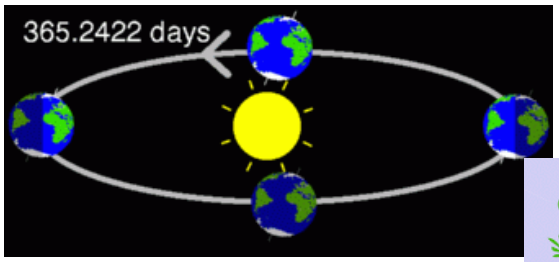
Times of the day in 12-hour clock

Morning	Afternoon
12.00 midnight	12.00 noon
1.00 am	1.00 pm
2.00 am	2.00 pm
3.00 am	3.00 pm
4.00 am	4.00 pm
5.00 am	5.00 pm
6.00 am	6.00 pm
7.00 am	7.00 pm
8.00 am	8.00 pm
9.00 am	9.00 pm
10.00 am	10.00 pm
11.00 am	11.00 pm
12.00 noon	12.00 midnight

Time – hours minutes, seconds



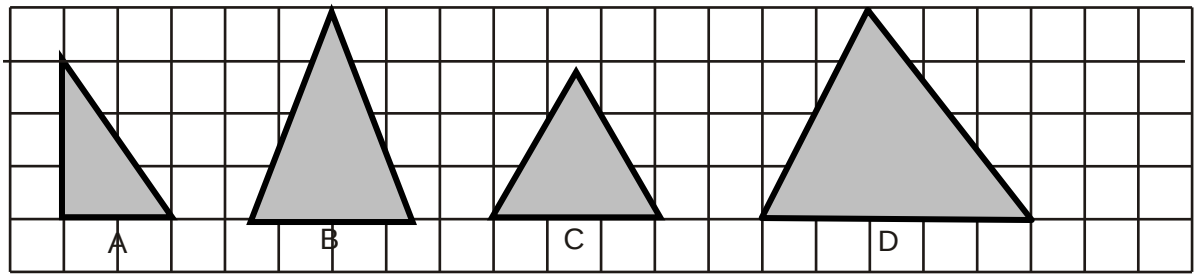
Days in a year



365 days in a year
366 days in a leap year

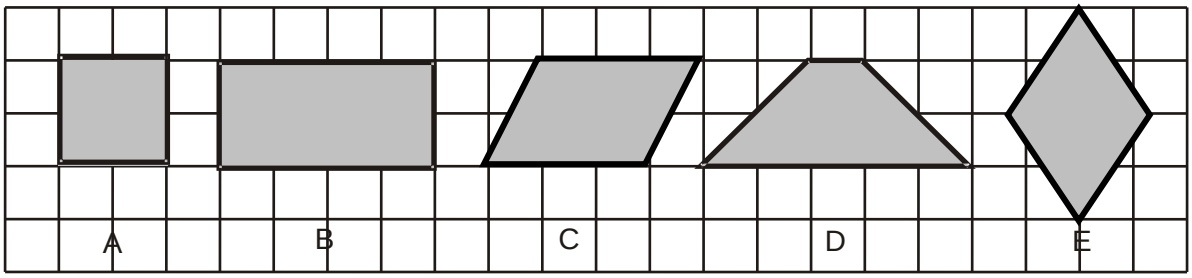
2D Shapes

- **With 3 sides (Triangles)**



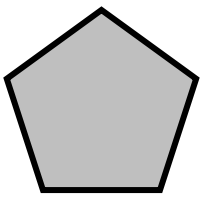
right-angled isosceles equilateral scalene

- **With 4 sides (Quadrilaterals)**

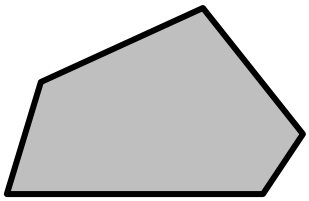


square rectangle parallelogram trapezium rhombus

- **With 5 sides (Pentagons)**

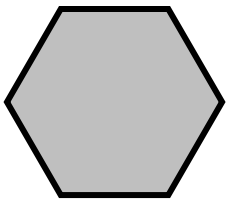


regular

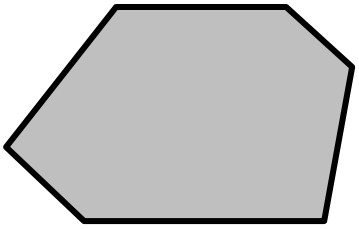


irregular

With 6 sides (Hexagons)

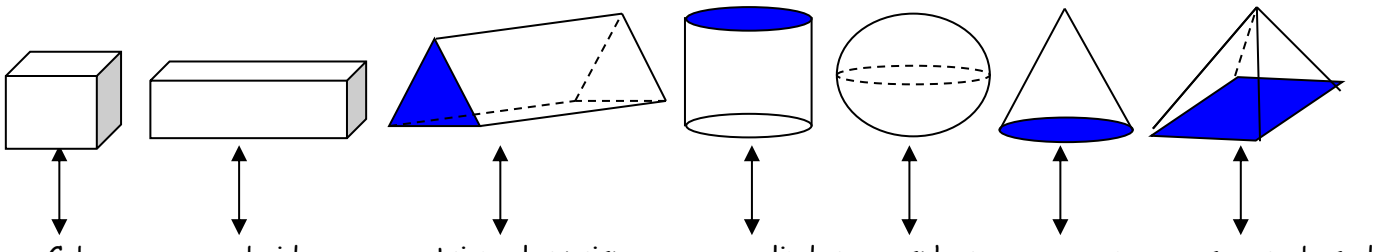


regular

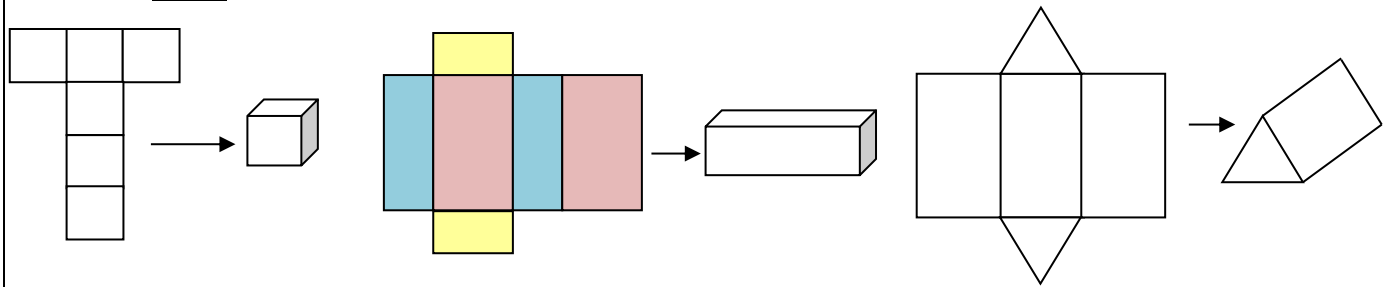


irregular

3/25 – 3D Shapes

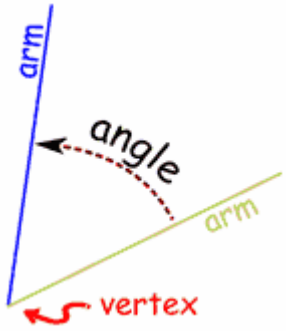


- **Nets**



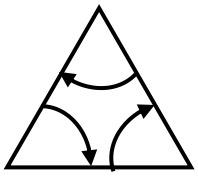
Angle

- **An angle is an amount of turn**

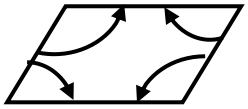


- **Angles in shapes**

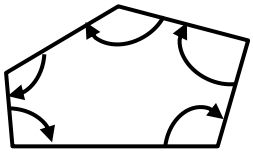
Triangle - 3 angles



Quadrilateral - 4 angles

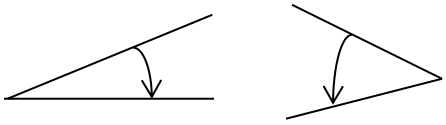


Pentagon – 5 angles

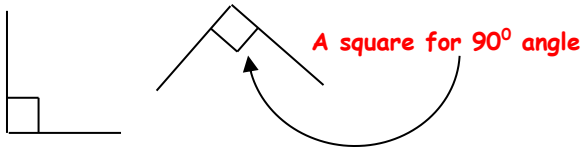


- **Names of angles**

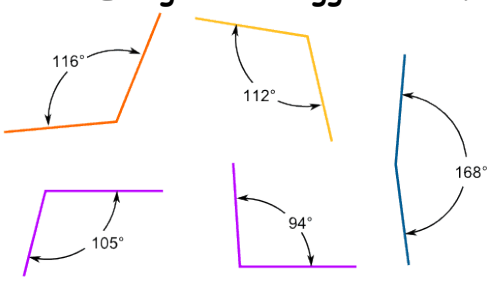
ACUTE angles are less than 90^0



RIGHT angles are exactly 90^0

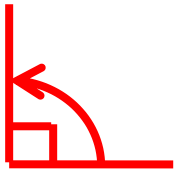


OBTUSE angles are bigger than 90^0

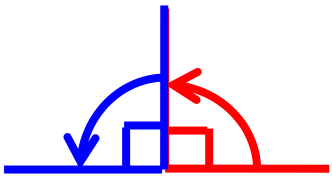


27 Right angles

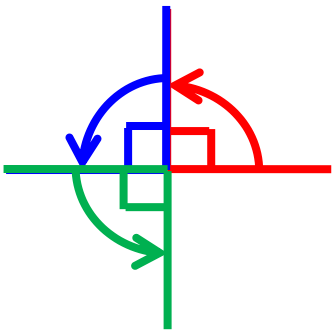
ONE right angle measures exactly 90^0



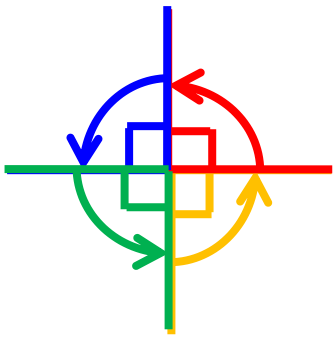
TWO right angles measure exactly 180^0
This is called a half-turn



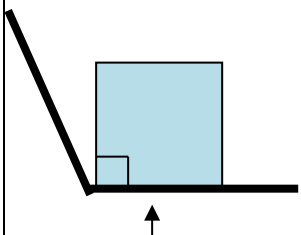
THREE right angles measure exactly 270^0
This is called three quarters of a turn



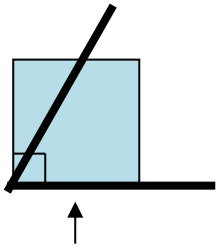
FOUR right angles measure exactly 360^0
This is called a full or complete turn



To check if an angle is bigger or smaller than a right angle, use a square corner

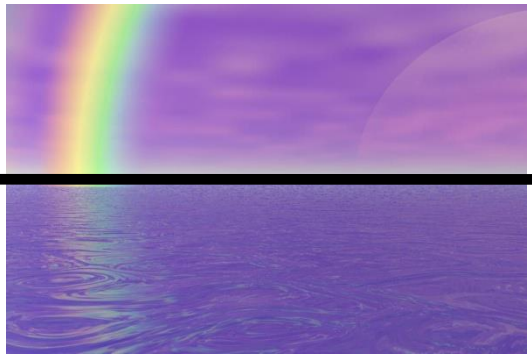


This angle is greater than a right angle



This angle is less than a right angle

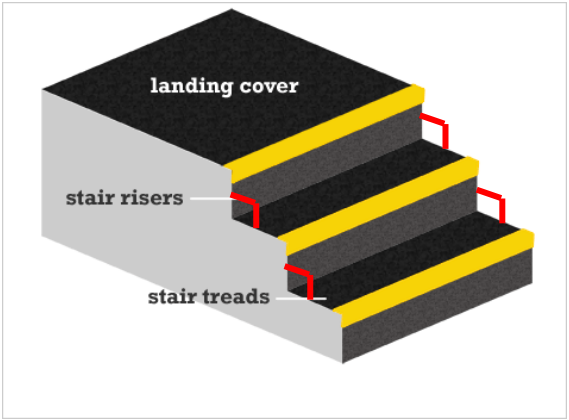
Types of Lines



The Horizon is a horizontal line

This cliff face is a vertical line

The running track is parallel lines (never meet)



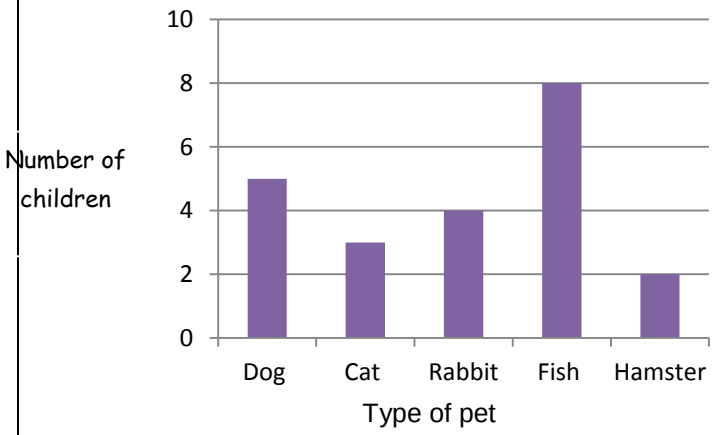
The rise & tread are perpendicular lines (meet at 90^0)

Bar charts

Frequency table to show pets owned by Year 3

Type of pet	Tally	Number of pets
Dog	𝍸	5
Cat	III	3
Rabbit	IIII	4
Fish	𝍸 III	8
Hamster	II	2

A bar graph to show pets owned by Year 3



Pictogram to show the colours in a tube of Smarties

Colour	Number of Smarties
Green	
Orange	
Blue	
Pink	
Yellow	
Red	
Purple	
Brown	
	Key = 2 smarties

Solve answers to questions

(i) How many **more** children own a rabbit than a hamster?

Answer: 4-2 = 2

(ii) What is the **difference** between the number of children who own a dog and the number of children who own a cat?

Answer: 5 – 3 = 2

(iii) How many pets are owned **altogether** by the children Year 3?

Answer: 5 + 3 + 4 + 8 + 2 = 22