St Martin de Porres Primary School

Mathematics Information Booklet

Year 1 to Year 6 (2017)

St. Alban Catholic Schools' Partnership

THE CONTENT OF THIS BOOKLET IS BASED ON THE CURRENT NATIONAL CURRICULUM FOR MATHEMATICS.

PROGRESSION IN MATHEMATICS

Teaching for Mastery

Characteristics of the Mastery approach:

- Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics.
- The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support, scaffolding and intervention.
- Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge.
- Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem.
- Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up.

The intention of these approaches is to provide all children with full access to the curriculum, enabling them to achieve confidence and competence – 'mastery' – in mathematics, rather than many failing to develop the maths skills they need for the future.

The mastery tasks offered to pupils have been developed in conjunction with the White Rose Maths Hub to provide a curriculum plan that will support 'Teaching for Mastery'.
There is a termly plan for each year group from Year 1 to Year 6. Each term is split into twelve weeks. A significant amount of time is devoted to developing key number concepts each year. This ensures pupils build their fluency as number sense will affect their success in other areas of mathematics. Pupils who are successful with number are much more confident mathematicians. Fluency, reasoning and problem solving ideas are used for each topic.

Contents **page**

Counting and understanding number

Read and write numbers

How to say the number 23 786 439

It is normally written with spaces to separate the digits in to threes, but may be written with commas 23,786,439

2 3 twenty three	*say million*	786 seven hundred and eighty six	*Say thousands*	439 four hundred and thirty nine

How to say decimal numbers 13.507

The digits after the point are said as ‘five zero seven’ never as ‘five hundred and seven’.

Always use ‘zero’, not the letter o.

13 thirteen	*Say point*	.	507 five zero seven

270.39

270 two hundred and seventy	*Say point*	.	39 three nine

How to say negative numbers

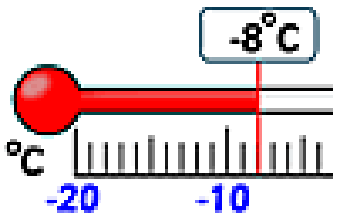
-4 negative four

-3.8 negative three point eight

-193 negative one hundred and ninety three

This thermometer shows negative eight degrees.

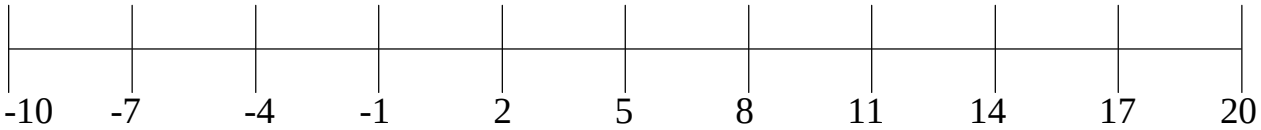
When people talk about temperature they often say ‘minus 8 degrees’



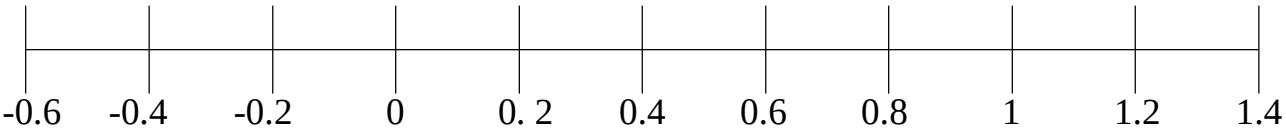
Ordering Number

Numbers go in order, with smaller numbers on the left. Numbers may go up in any step. These number lines show numbers going up in different steps.

Steps of 3



Steps of 0.2



Place Value Chart

thousands	hundreds	tens	units	tenths	hundredths	thousandths
5000	500	50	5	0.5	0.05	0.005
4000	400	40	4	0.4	0.04	0.004
3000	300	30	3	0.3	0.03	0.003
2000	200	20	2	0.2	0.02	0.002
1000	100	10	1	0.1	0.01	0.001

The digit 3 means a different amount depending where it is in a number.

In 213 the 3 is worth 3 (units)

In 134 the 3 is worth 30 (tens)

In 325 the 3 is worth 300 (hundreds)

In 24.3 the 3 is worth 0.3 or 3/10 (tenths)

In 17.43 the 3 is worth 0.03 or 3/100 (hundredths)

Greater than and less than

Greater than > Less than <

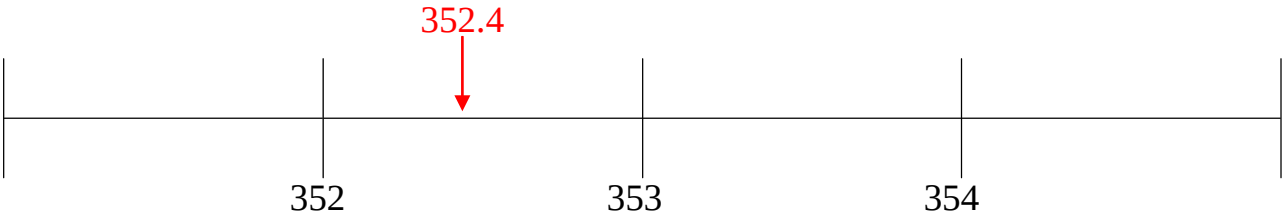
The big end goes by the biggest number and the small end by the smallest number

87 > 85.5

Rounding numbers to the nearest……

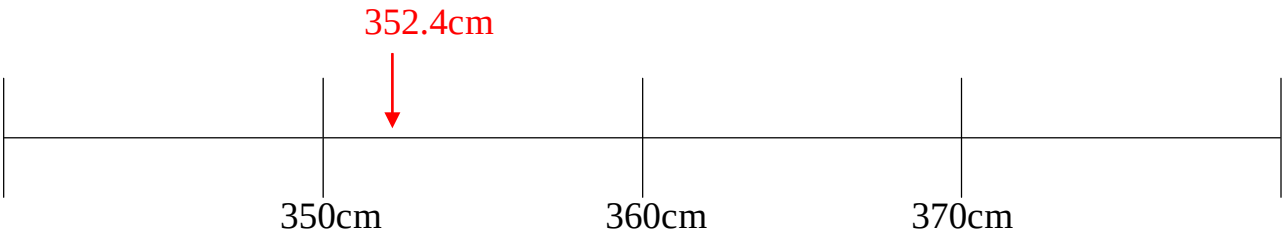
Round 352.4 to the nearest whole number

Put 352.4 on a number line marked in 1s



Round 352.4cm to the nearest 10cm

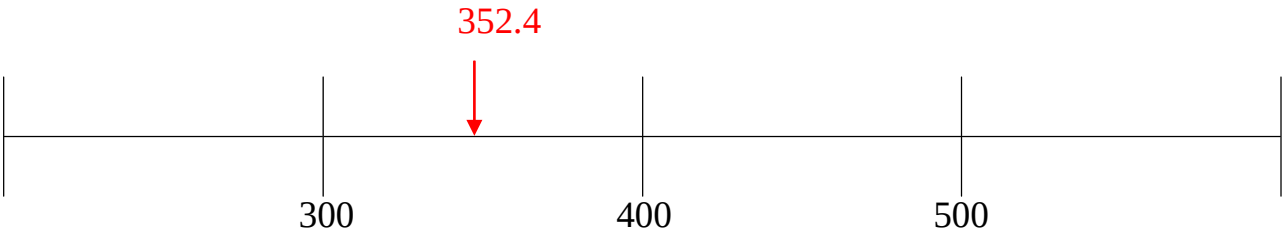
Put 352.4 on a number line marked in 10s



It is only just past 350, so it is closest to 350

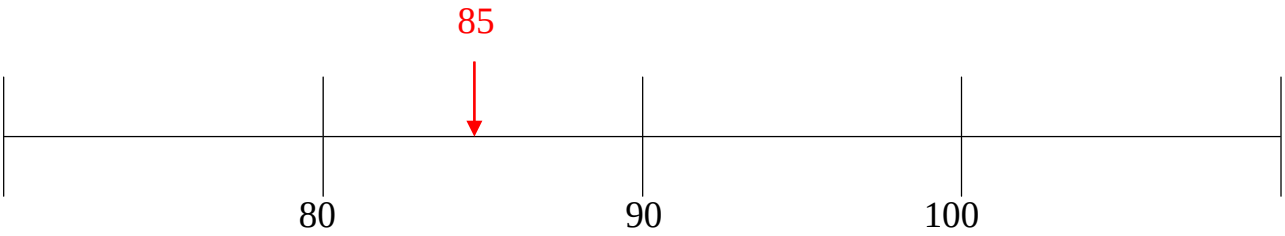
Round 352.4 to the nearest 100

Put 352.4 on a number line marked in 100s



It is more than half way along, so it is closest to 400

Remember that anything ending in 5 is exactly half way between the numbers so there has to be a special rule that you always round up.



85 rounded to the nearest 10 is 90

Knowing and using number facts

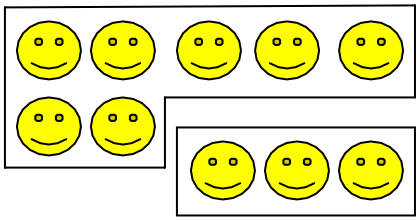
Addition and subtraction to 20

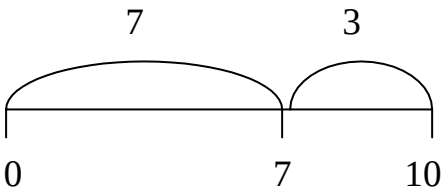
7 + 3 = 10

3 + 7 = 10

10 – 3 = 7

10 – 7 = 3





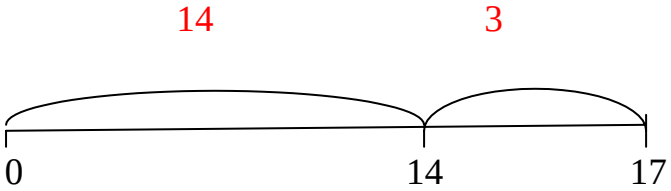
Number lines can help you remember a range of facts such as:

14 + 3 = 17

3 + 14 = 17

17 – 3 = 14

17 – 14 = 3



Addition and subtraction of multiples of 10, 100, 1000

8 + 9 = 17	9 + 8 = 17	17 – 9 = 8	17 – 8 = 9
80 + 90 = 170	90 + 80 = 170	170 – 90 = 80	170 – 80 = 90
800 + 900 = 1700	900 + 800 = 1700	1700 – 900 = 800	1700 – 800 = 900
8000 + 9000 = 17000	9000 + 8000 = 17000	17000 – 9000 = 8000	17000 – 8000 = 9000

Counting in steps

Counting in 6s……. 6, 12, 18, 24, 30, 36, 42, 48, 54, 60

Then try …… 60, 120, 180, 240, 300, 360, 420, 480, 540, 600,

0.6, 1.2, 1.8, 2.4, 3.0, 3.6, 4.2, 4.8, 5.4, 6.0

Then you know

7 x 6 = 42	7 x 60 = 420	7 x 0.6 = 4.2
6 x 7 = 42	60 x 7 = 420	0.6 x 7 =4.2
42 ÷ 6 = 7	420 ÷ 60 = 7	4.2 ÷ 0.6 = 7
42 ÷ 7 = 6	420 ÷ 7 = 60	4.2 ÷ 7 = 0.6

Doubles of 2- digit numbers, multiples of 10 and 100 and corresponding halves

Double 37

30 ↓ 60 7 ↓ 14

60 + 14 = 74

Double 370

300 ↓ 600 70 ↓ 140

600 + 140 = 740

Double 3700

3000 ↓ 6000 700 ↓ 1400

6000 + 1400 = 7400

Half 93

90 ↓ 45 3 ↓ 1.5

45 + 1.5 = 46.5

Half 930

900 ↓ 450 30 ↓ 15

450 + 15 = 465

Half 9300

9000 ↓ 4500 300 ↓ 150

4500 + 150 = 4650

Doubles and halves of decimals

Double 3.7

3 ↓ 6 0.7 ↓ 1.4

6 + 1.4 = 7.4

Half 9.3

9 ↓ 4.5 0.3 ↓ 0.15

4.5 + 0.15 = 4.65

Multiplication and division facts to 12 x 12

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Types of numbers – Factors, Prime and squares and square roots

Prime numbers have only 2 factors – themselves and 1

Prime numbers to 100 are:

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

Factors are always in pairs – a pair of numbers you can multiply together to make your number

Number	**Pairs of Factors**					**Factors**
28	1 and 28	2 and 14	4 and 7			1,2,4,7,14,28
17	1 and 17					1,17
100	1 and 100	2 and 50	4 and 25	5 and 20	10 and 10	1,2,4,5,10,20,25,100
36	1 and 36	2 and 18	3 and 12	4 and 9	6 and 6	1,2,3,4,6,9,12,18,36

Prime Factors

You find all the prime numbers that you multiply together to make the number

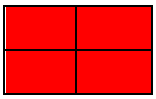
28 = 2 x 14 = 2 x 2 x 7

60 = 2 x 30 = 2 x 2 x 15 = 2 x 2 x 3 x 5

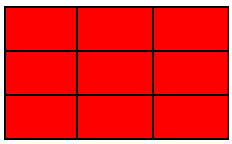
Squares and square roots

Square numbers are 1 x 1, 2 x 2, 3 x 3 and so on.

2 x 2 = 4



3 x 3 = 9



Square	**Square Root**
1^2 means 1 x 1 = 1	√ 1 = 1
2^2 means 2 x 2 = 4	√ 4 = 2
3^2 means 3 x 3 = 9	√ 9 = 3
4^2 means 4 x 4 = 16	√ 16 = 4
5^2 means 5 x 5 = 25	√ 25 = 5
6^2 means 6 x 6 = 36	√ 36 = 6
7^2 means 7 x 7 = 49	√ 49 = 7
8^2 means 8 x 8 = 64	√ 64 = 8
9^2 means 9 x 9 = 81	√ 81 = 9
10^2 means 10 x 10 = 100	√ 100 = 10
11^2 means 11 x 11 = 121	√ 121 = 11
12^2 means 12 x 12 = 144	√ 144 = 12

Tests of Divisibility

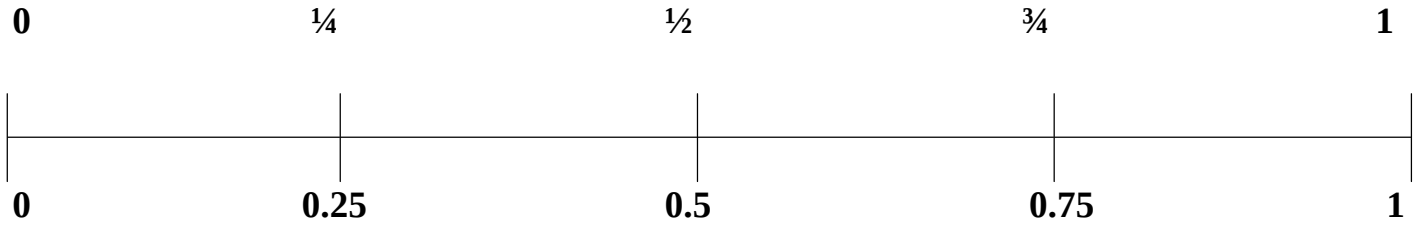
Exact multiples of :		Example
2	All even numbers. The last digit is 0, 2, 4, 6, 8	34, 716
3	The sum of all the digits is divisible by 3	582 5+ 8+2= 15 1 + 5 = 6
4	The last 2 digits are divisible by 4 (half the last 2 digits, they will be even)	128, 5716, 69 384
5	The last digit is 5 or 0	265, 870, 1235
6	It is divisible by 3 and the number is even	282 2+8+2= 12 1+2=3
8	The last 3 digits are divisible by 8 (Halve the last 2 digits twice and the answer is even)	34 064, 190 728
9	The sum of all digits is divisible by 9	747 7+4+7=18 1+8 =9
10	The last digit is 0	260, 450, 1200
25	The last 2 digits are 00, 25, 50 or 75	3600, 975, 850
100	The last 2 digits are 00	1200, 600, 7900

Decimals and fractions

0.5 is half way between 0 and 1

½ is half way between 0 and 1

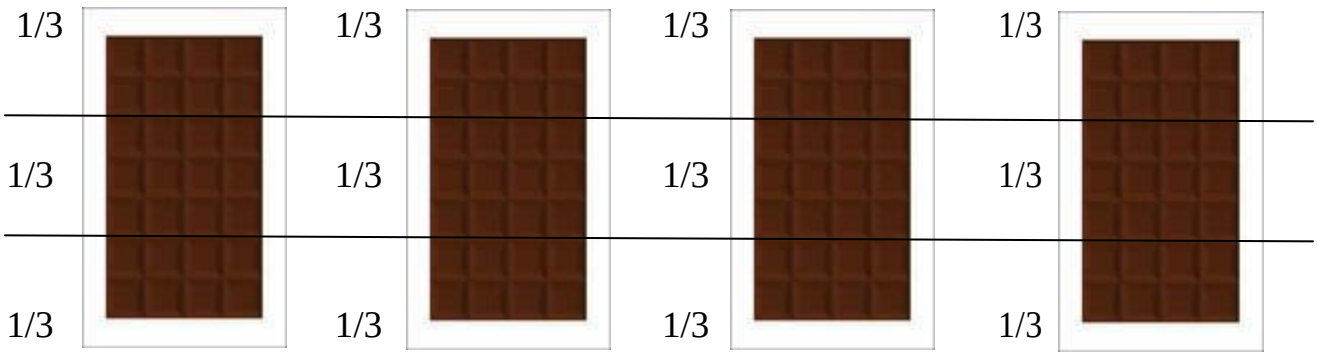
So 0.5 and ½ are the same amount



Decimal and fraction equivalents you should know

½ = 0.5	¼ = 0.25	2/4 = 0.5	¾ = 0.75
1/10 = 0.1	1/100 = 0.01	1/5 = 0.2	1/8 = 0.125

I have 4 chocolate bars, and I cut each of them into three pieces – thirds. I have 12/3



Equivalent Fractions

The fraction wall shows:

½ = 2/4

½ = 4/8

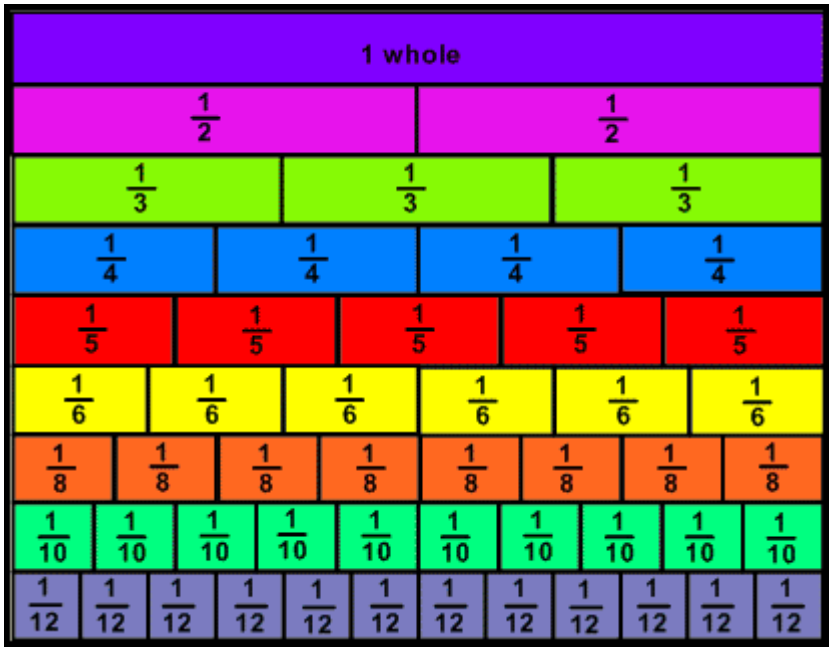
½ = 6/12

1/3 = 2/6

2/5 = 4/10

2/3 = 4/6 = 8/12

1 whole = 12/12



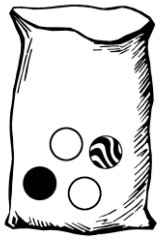
Ratio and proportion

Ratio

1 out of 4 is striped

2 out of 4 are plain

1 out of 4 is coloured



For every 2 red, there are 3 green

For every 20 red there are 30 green

For every 10 red there are 15 green

For every 5 red there are 7.5 green

Red	Green
2	3
20	30
10	15
5	7.5

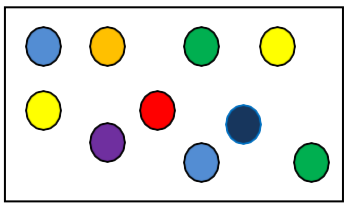
Proportion

Proportion is the same as a fraction, decimal or percentage

1/10 of sweets are red

10% of sweets are red

0.1 of the sweets are red



Addition Calculation Policy

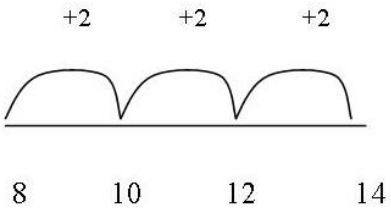
Reception

- Use concrete and physical representations
- Draw objects
- Use numbers to represent objects
- To begin to record
- To use a number line practically to add

Year 1 and 2

Models and Pictorial representation

Number line



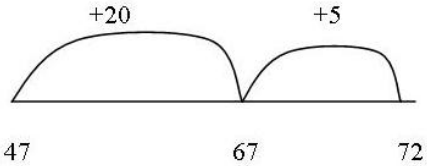
Partitioning

12+18 = ?
10+10 = 20
8 + 2 = 10
20+10=30

Year 3 and 4

Number line through partitioning

47+25=72



Partitioning—Written and Mental
242+117 = ?
200+100 = 300
40 + 10 = 50
2+7=9
300+50+9=**359**

Partitioning Decimals (yr4)—Written and Mental
15.7 + 13.2 = ?
10+10=20
5+3=8
0.7+0.2=0.9
20+8+0.9=28.9

Short Column addition And decimals (yr4)

$$\begin{array}{r} 18 \\ +\ \underline{12} \\ 30 \\ {\scriptstyle 1} \end{array}$$

Short Column Addition decimals (yr4)

$$\begin{array}{r} 12.3 \\ +\ \underline{15.8} \\ 28.1 \\ {\scriptstyle 1} \end{array}$$

Year 5 and 6

Short Column addition

$$\begin{array}{r} 1673 \\ +\ \underline{1294} \\ 2967 \\ 1 \end{array}$$

Short Column addition up to 3 decimal places

$$\begin{array}{r} 16.528 \\ +\ \underline{17.348} \\ 33.876 \\ {\scriptstyle 1\quad 1} \end{array}$$

Also cover partitioning for mental Addition and to 2 decimal places
e.g.

185.74+126.25
100+100=200
80+20=100
5+6=11
0.70+0.20=0.90
0.04+0.05=0.09
200+100+11+0.90+0.09=311.99
(Encourage jottings to record answers)

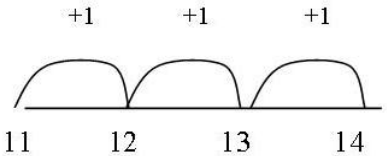
Subtraction Calculation Policy

Reception

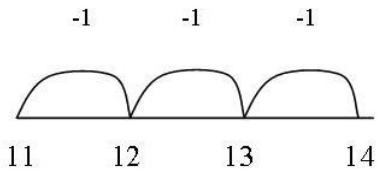
Use concrete and physical representations
Draw objects
Use numbers to represent objects
To begin to record
To use a practical number line to subtract

Year 1 and 2

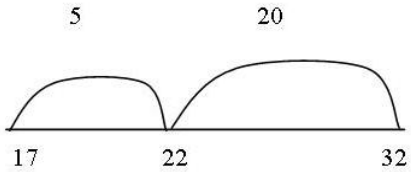
Counting on with a number line e.g. finding the difference



Number line to count back



Number line with partitioning



Mental strategies to include:

Partitioning
Round and adjust
Counting on
Count back
Use of number bonds

Year 3 and 4

Short Column subtraction e.g. 325—184

```
  200 120
  ~~300~~ ~~20~~  5
- 100  80   4
  100  40   1 = 141
```

Short Column subtraction

```
  28        2
- 12      - ~~3~~ ¹2
  16        1  8
            1  4
```

Partitioning for Mental

242-117 = ?
242-100 = 142
142-10 = 132
132-7=125

Year 5 and 6

Short Column subtraction

1095-876

```
      8
  ~~1~~ ¹~~0~~ ~~9~~ ¹5
- 8 7 6
  2 1 9
```

Short Column subtraction with decimal places e.g. 24.95—16.87

```
  1       8
  ~~2~~ ¹4 . ~~9~~ ¹5
- 1 6 . 8 7
    8 . 0 8
```

Mental subtraction. e.g.

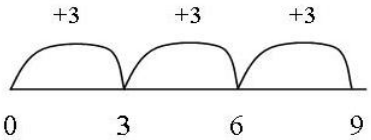
985-216
985-200=785-10=775-6=769

985-99
985-100=785+1=786

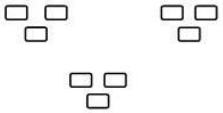
Multiplication Calculation Policy

Year 1 and 2

Number line for repeated addition



Grouping objects (3 lots of 3)



Arrays

3x3=9

Counting in 2, 5, 10s
Tables to be introduced in Y2

Year 3 and 4

Grid method for TUxU and TUxTU only

14x3

X	10	4
3	30	12

```
  30
+ 12
  42
```

This is a step towards short multiplication – but children need to stick here until they understand the place value principles underlying multiplication

By end of Y3, x and / facts secure for 2,3,4,5,8,10. By end Y 4, all to 12 x 12

By end of Y4: Long multiplication (vertical layout) TUxU, TUxTU, HTU xU

```
 14        1
x 3       14
           x 3
 12        42
 30
 42
```

This step is explicitly to support children in moving short multiplication

Year 5 and 6

Short Multiplication

```
  2          2 1          2
  24         342          24
x  6        x  7        x 16
 144       2394         144
                        240
                        384
```

In line with new NC, schools are free to decide where to position 'carried' digits. However, schools should be consistent internally so that children arrive in Y7 confident in whichever layout they have learned.

Y5 use short multiplication to multiply numbers to 2dp by single digit whole number. Y6 extend to by 2 digit whole numbers

X and ÷ facts extended to decimals and multiples of 10 (e.g. 4x0.2, 40x2 etc) - using known facts

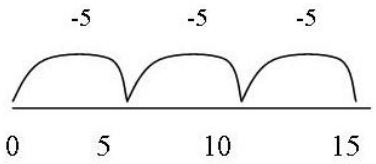
Estimation and mental methods to be taught as key skills throughout KS1 and 2. Rounding, partitioning, halving/ doubling, use of factors, known facts.

Division Calculation Policy

Year 1 and 2

Multi link number line to share

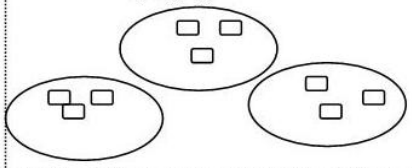
Number line for repeated subtraction and repeated addition to show the inverse.



Count the amount of jumps to find the answer

Grouping group by the divisor

9÷3=3

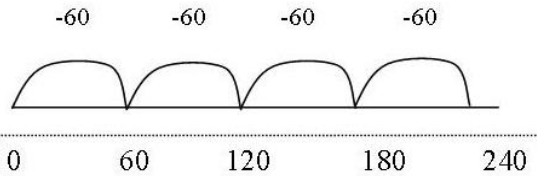


Mental strategies
5 x 2= 10
10 ÷ 5 = 2

Apply problem solving skills

Year 3 and 4

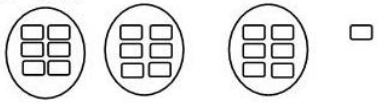
Number line for repeated subtraction and repeated addition including remainders



Count the amount of jumps to find the answer

Grouping

19÷3=6 r1



Short Division

84÷4= 74÷4=

```
  2 1          1  8 r2
4 | 8 4      4 | 7  34
```

Apply problem solving skills

Mental strategies

Inverse
42÷6=?
6x7=42

Repeated subtraction
42-6-6-6….

Year 5 and 6

Short Division TU÷U, HTU÷U

98÷7=14 432÷5=86r2

```
  1  4            8  6  r2
7 | 9 28       5 | 4 43 32
```

Long Division ThHTU÷TU, HTU÷TU

432÷15=28r12

```
        2  8 r12
15 | 4  3  2
   - 3  0  0
     1  3  2
   - 1  2  0
        1  2
```

Mental strategies

Inverse	**Repeated subtraction**
420÷60=?	420÷60=?
6x7=42	420-60-60-60…
60x7=420	

Apply problem solving skills

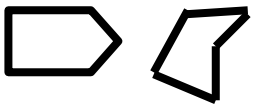
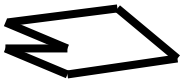
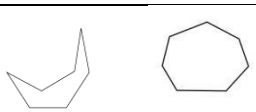
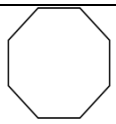
Estimation and mental methods to be taught as key skills throughout KS1 and 2. Rounding/partitioning/halving/doubling, and use of related and derived facts

Shape and Space

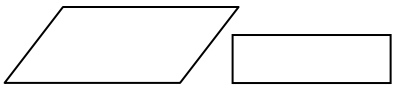
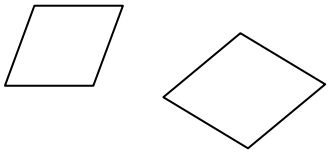
2D shapes you need to know

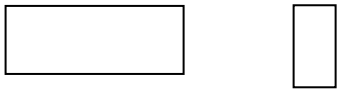
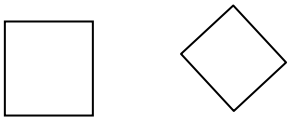
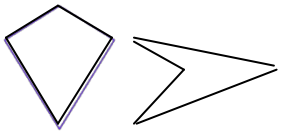
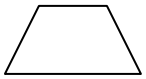
Polygons are closed plane shapes with straight sides.

Regular polygons have all their sides and all their angles equal.

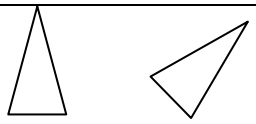
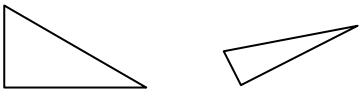
Shape	Regular	Irregular	Number of sides
triangle		other than equilateral	3
quadrilateral		other than square	4
pentagon			5
hexagon			6
heptagon			7
octagon			8

Quadrilaterals

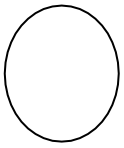
Name	Shape	Properties
parallelogram		2 pairs of opposite parallel sides Opposite sides and angles equal
rhombus		4 equal sides – a special parallelogram opposite sides equal and parallel, opposite angles equal, 2 lines of symmetry

rectangle		4 right angles – a special parallelogram opposite sides equal and parallel, opposite angles equal, 2 lines symmetry
square		4 equal sides and 4 right angles – a special rhombus, a special rectangle opposite sides equal and parallel, 4 lines of symmetry
oblong		4 right angles, but length and breadth different – a rectangle which is not a square – 2 lines of symmetry
kite inverted kite (delta)		2 pairs of adjacent sides equal 1 pair of opposite angles equal 1 line of symmetry
trapezium		1 pair parallel sides

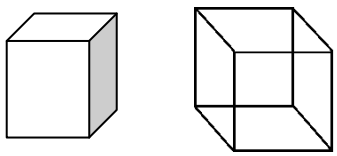
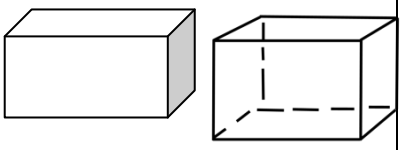
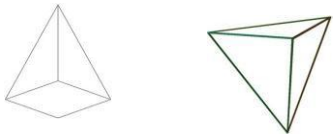
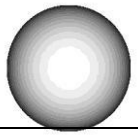
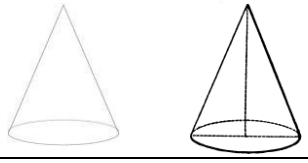
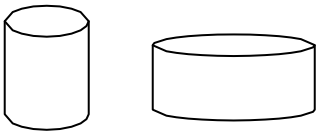
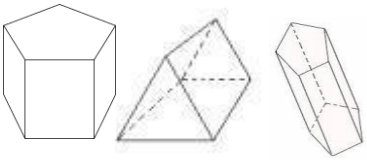
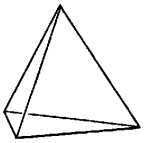
<u>Triangles</u>

equilateral triangle		All sides and angles equal
isosceles triangle		2 sides and angles equal
scalene triangles		sides all different lengths and angles all different
right angled triangle		1 angle is a right angle but he others are both acute

Circle

One side, infinite lines of symmetry 

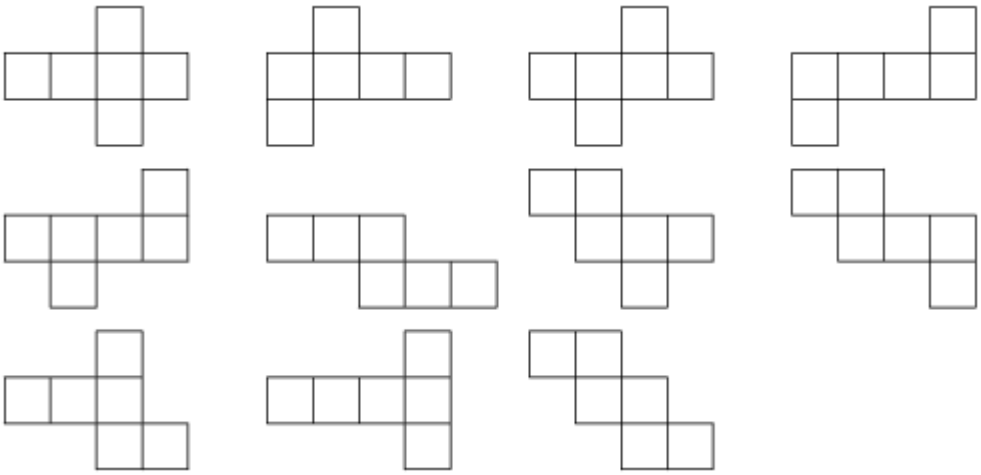
3D Shapes

cube		a block with all right angles that is the same size in height, width and depth faces (6) are squares, edges (12) are straight and vertices (8) right angles
cuboid		a rectangular box with 6 faces all angles are right angles and opposite faces are equal. 8 vertices and 12 edges
pyramid		upper faces are triangular and converge on 1 point, base can be square or a triangle
sphere		a symmetrical object, with 1 curved face
cone		1 circular face, 1 curved face, 1 vertex and 1 edge
cylinder		a circular prism 2 circular faces, 1 rectangular face and 2 edges – no vertices
hemi –sphere		half a sphere
prism		2 parallel polygons joined by a rectangular face
tetrahedron		4 triangular faces, 3 of which meet at a vertex, 6 edges regular tetrahedron has 4 equilateral triangles

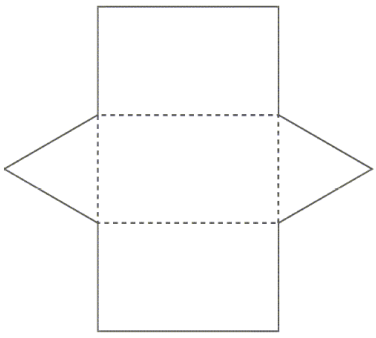
Nets

3D shapes can be made by folding paper. Each 3D shape can have a variety of arrangements for their nets.

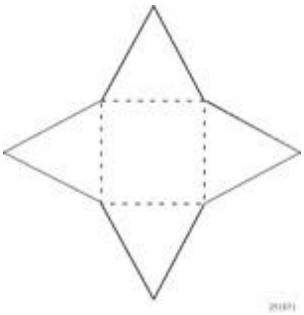
Nets of a cube contain 6 square faces but these can be arranged in a number of ways.



net for a triangular prism

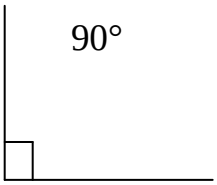


net for a square based pyramid

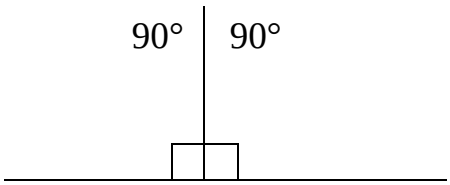


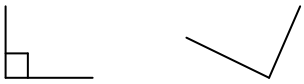
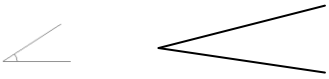
Angles

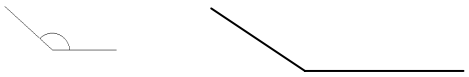
1 right angle is 90°



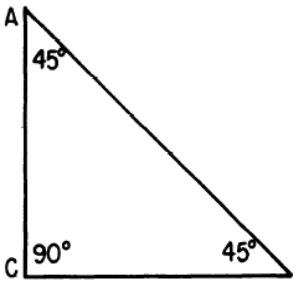
2 right angles make a straight line

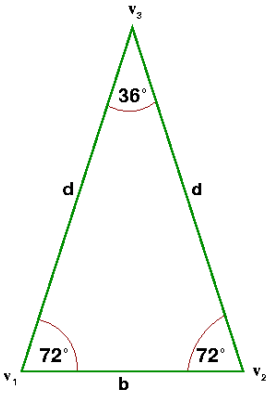


right angle		90°
acute angle		less than 90°

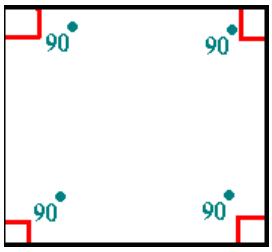
obtuse angle		between 90° - 180°
reflex angle		between 180° - 360°

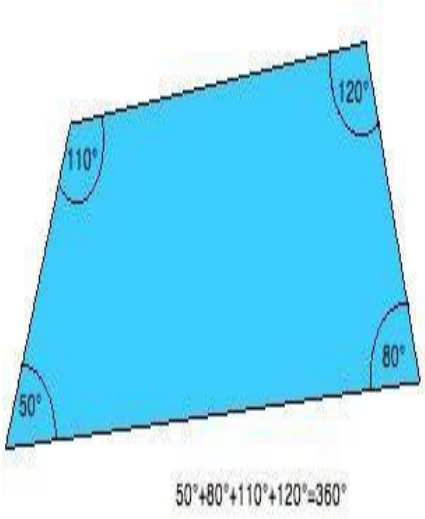
Angles in a triangle always total 180°



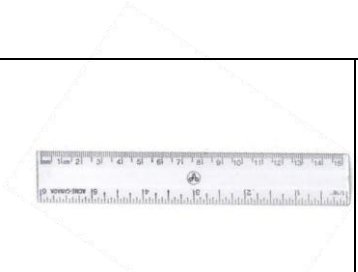
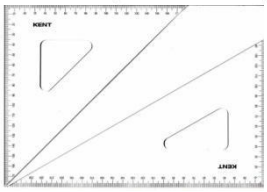
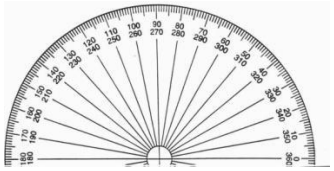


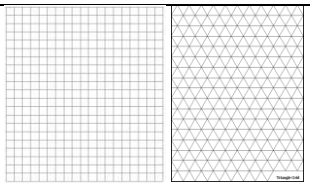
Angles in a quadrilateral always total 360°



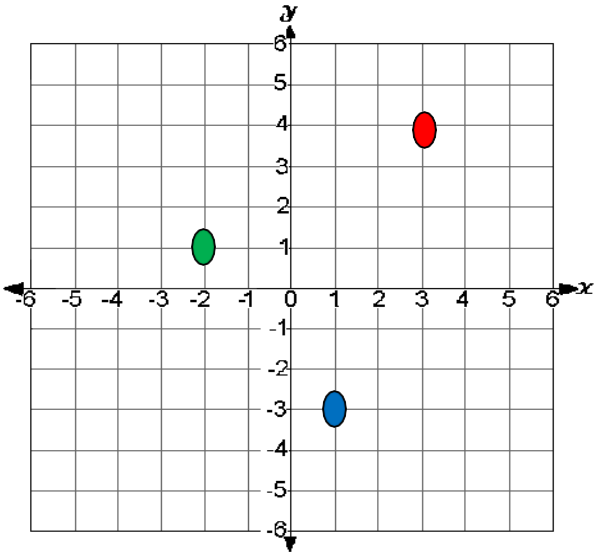


Tools

ruler		Used for drawing and measuring straight lines. Usually 15cm or 30cm long and marked in cm and mm. 1cm=10mm.
set square		Used for measuring and drawing common angles such as 45°, 90°, 30° or 60°.
protractor		Measures angles – the size of turn. Normally labelled at every 10° with lines marking each 1°. You need to be able to measure and draw angles to the nearest 1° and estimate the size of angle.
mirror		Images and shapes can be reflected in a mirror. They look the opposite way round and the distance between the shape and the mirror is the same on both sides. It can help draw reflected shapes.

tracing paper		Use tracing paper to draw shapes, and then turn it over to show you how to draw the reflection. Draw and tear the paper to check if a net you have made will work.
grids		Different grids can help draw shapes including 3D shapes.

Coordinates



To write the coordinates of a point you put the number for the *x* axis first, then a comma, then the number for the *y* axis.

The red dot is at the point (3,4)

The blue dot is at the point (1,-3)

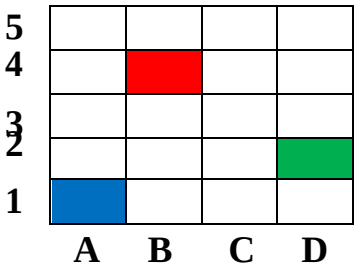
The green dot is at point (-2, 1)

Squares in grids can also be labelled. Numbers and letters can be used.

The blue square is A1

The red square is B4

The green square is D2

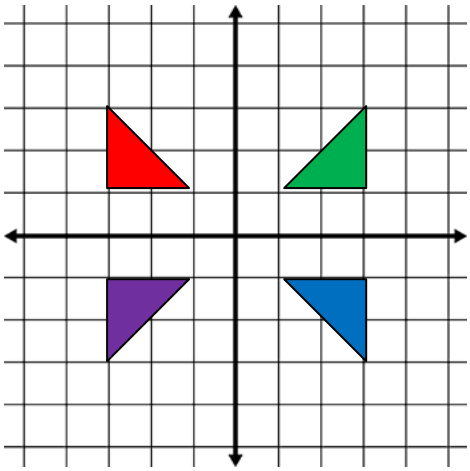


Reflection, rotation and translation

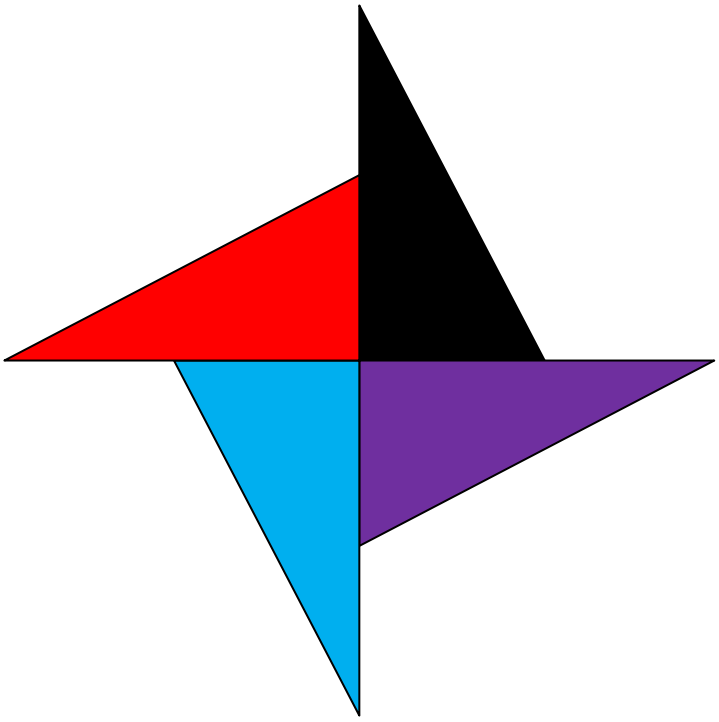
Shapes can be reflected in mirror lines. The mirrors often cross at right angles. The reflection is the same distance away from the mirror line as the original shape.

Start with the red triangle

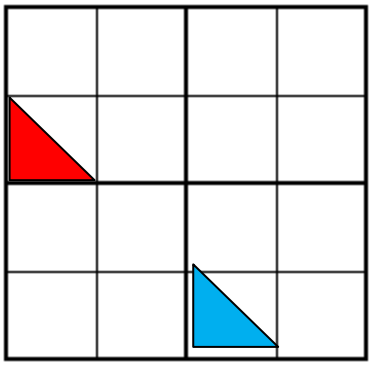
It is reflected 3 times



The black triangle has been rotated 90° four times. After its fourth time of rotation, it is back to where it started, so it has rotational symmetry of order 4.



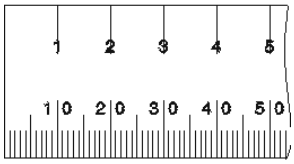
Translation is just sliding. The blue triangle has been translated 2 units to the right and 2 units down.



Measures

Length

centimetres

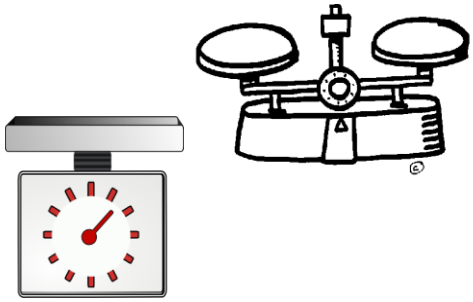


millimetres

10mm (millimetres)	=	1cm
100cm (centimetres)		1m
1000m (metres)		1km
1mm (millimetre)		1/10cm
1cm (centimetre)		1/100 m
1m (metre)		1/1000km

2.1km = 2100m 75cm = 750mm or 0.75m 3mm = 0.3cm

Mass – measuring the weight of an object



1000g (gram)	=	1kg (kilogram)
1g (gram)		1/1000 kg

3 ½ kg = 3500g 500g = 0.5kg

Capacity – measuring how much a container holds

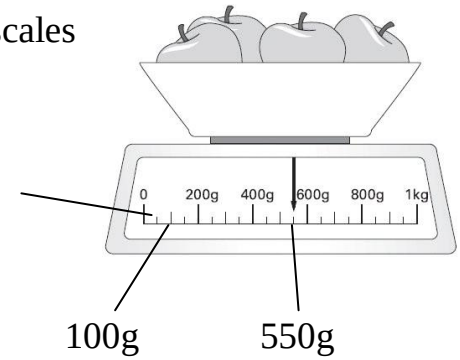
1*l* (litre)	=	1000ml
1ml (millilitre)		1/1000 *l*

2300ml = 2*l* 300ml or 2.3 *l* 34.6*l* = 34600ml

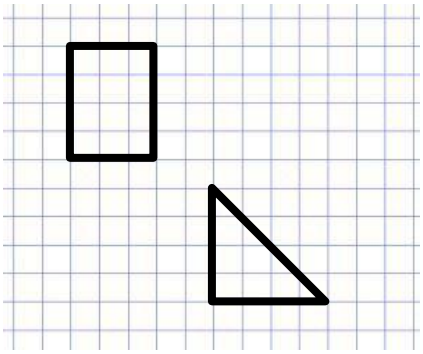
Scales

Cooking is a practical way of learning how to read scales

This scale is labelled in 100s. Each smaller line represents 50g. It helps to write in the missing numbers when reading scales.



Perimeter and Area



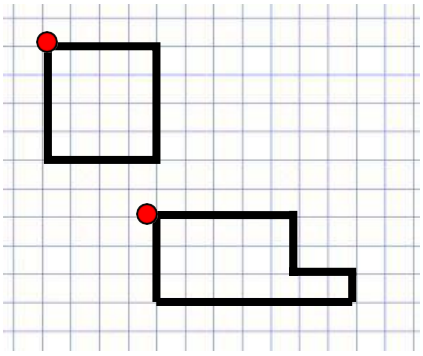
Area means how much space something covers.

The rectangle has an area of 12 squares – 4 rows of 3 squares (4x3=12)

The triangle has an area of 8 squares.

6 whole squares and 4 ½ squares = 8 squares.

Area is often measured in squares and recorded as square centimetres (cm^2)



Perimeter is the distance around the shape.

You measure by counting around the sides of the shape.

Start at one point (●) and count around.

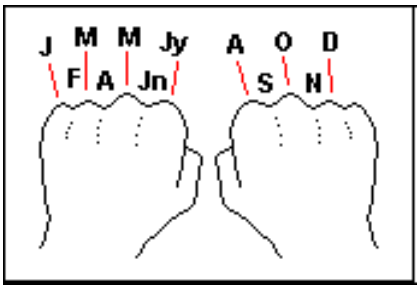
The perimeter of the square is 16cm.

The perimeter of the other shape is 20cm.

Time

1 millenium	=	1000 years
1 century		100 years
1 decade		10 years
1 year		12 months 52 weeks 365 days
1 leap year		366 days
1 week		7 days
1 day		24 hours
1 hour		60 minutes
1 minute		60 seconds

Thirty days hath September,
April, June and November;
February has twenty eight alone
All the rest have thirty-one
Except in Leap Year, that's the time
When February's Days are twenty-nine



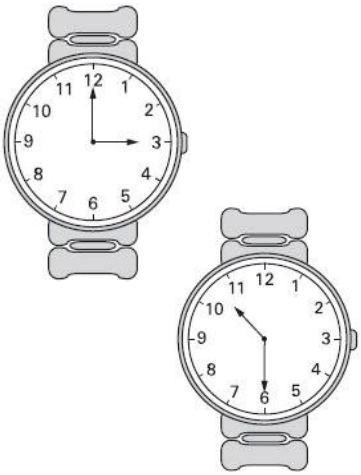
Poems and your knuckles can help when remembering how many days in each month.

Analogue clocks show the hours and sometimes minutes.

Time needs to be recorder as either am or pm.

The longer hand points to the minutes and the shorter hand to the hour. Time is recorded as 3:00am or pm and 10:30am or pm.

Quarter past is 15 minutes past the hour, half past is 30 minutes past the hour and a quarter to is 15 minutes before the next hour.



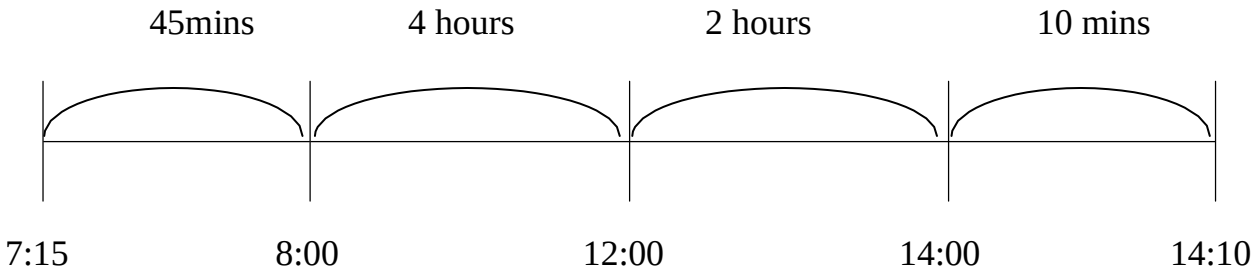
Digital time is recorder as 24 hour times.

15:45 3:45

3:45 is a morning time, 12 hours later, 15:45 is an afternoon time.

Use a number line to find out the difference between two times.

You leave home at 7:15am and return at 2:10pm. How long were you away?

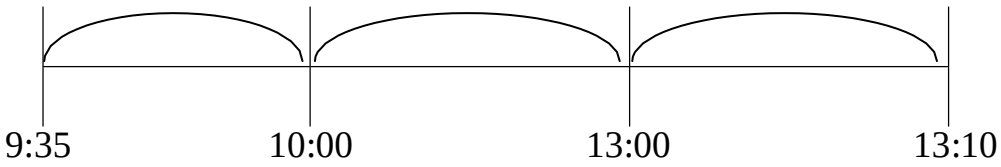


Edinburgh	–	09:35	–	–	13:35	–	–
Glasgow	09:15	–	11:15	13:15	–	13:45	15:15
Stirling	09:57	–	11:57	13:57	–	14:29	15:57
Perth	10:34	10:51	12:34	14:34	14:50	15:15	16:35
Inverness	–	13:10	–	–	17:05	–	–

Timetables can be used to work out how long a train journey is.

Again a number line can be used to calculate length of journey.

Edinburgh to Inverness

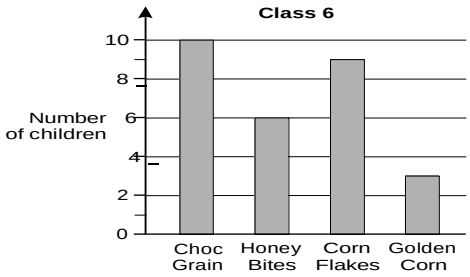


Data

Tally Charts

You can record information in a tally chart. You can group answers in 5s.

Choc Grain	
Honey Bites	
Corn Flakes	
Golden Corn	

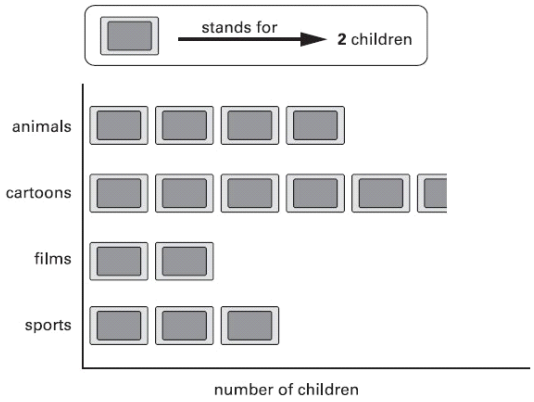


Pictograms

In a pictogram each picture or symbol stands for one or more units.

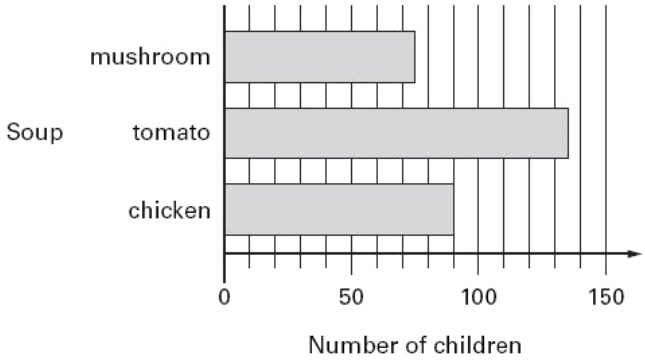
In this pictogram one square = 2 children

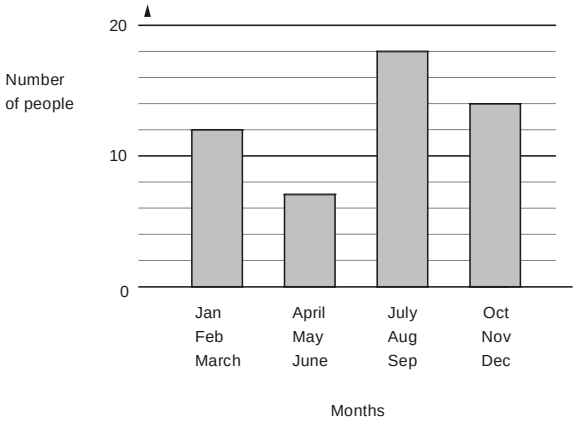
so half a square = 1 child.



Bar Charts

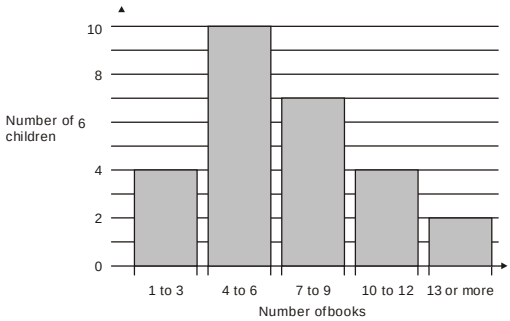
Bar charts and bar line charts can be drawn vertically or horizontally.





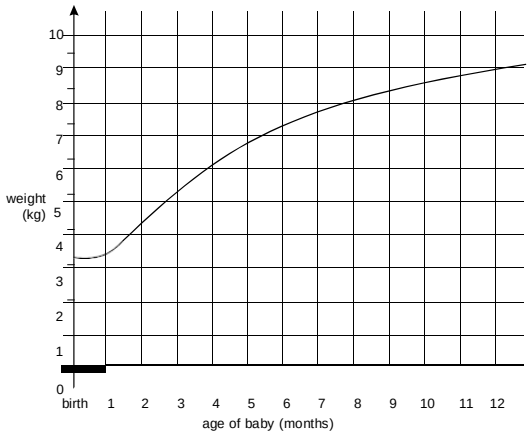
When reading a bar chart you need to look carefully at the scale. Using a ruler can help with accurate reading of the value of each bar. Frequency is often labelled on a bar chart – it means how often or how many.

Some bar charts group data.

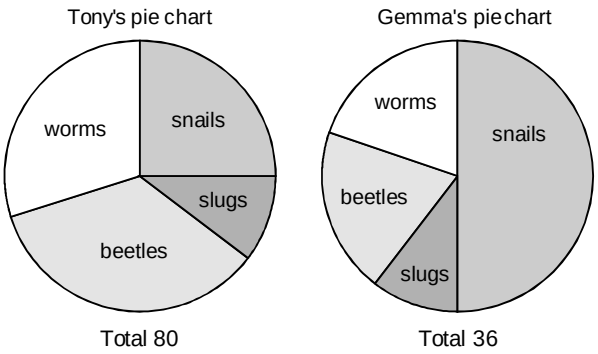


Line graphs

Line graphs show continuous data – where something is being measured over a period of time. They usually show temperature, height or speed.



Pie Charts



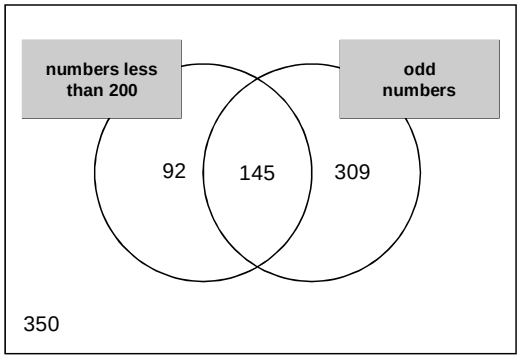
Pie charts are circles. They show fractions of amounts.

Carroll Diagrams

Carroll Diagrams can be used to sort or classify numbers or shapes. They usually sort with 2 criteria.

	Prime	Not prime
Even	2	4, 6, 8, 10, 12, 14, 16, 18, 20
Not even	3, 5, 7, 11, 13, 17, 19, 23, 29	1, 9, 15, 21, 25, 27, 33, 35, 39

Venn Diagrams



A Venn diagram can be used to sort numbers and shapes. Each number or shape can only be entered once. You can also enter numbers outside the circles for numbers which do not meet either criteria.

With data you can also find different values.

Mode - most common occurring item

Range - difference between greatest and least

Mean - the average

Median – the middle value when you place them in order

2 ,7, 4, 5, 8, 4, 12

The **mode** is 4.

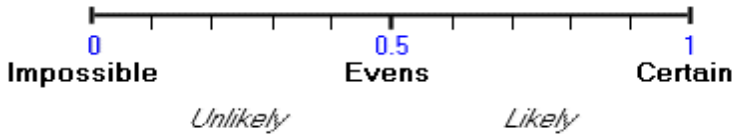
The **range** is 10 (largest – smallest, 12 – 2 = 10).

The **mean** is 6. (Add all the digits and divide by the number of digits. 42 ÷ 7 = 6)

The **median** is 5 (when you put the numbers in order it is the middle number – 2,4,4,5,7,8,12).

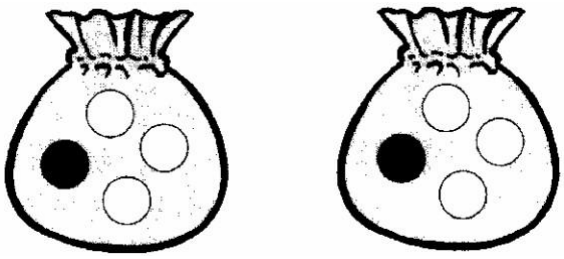
<u>Probability</u>

Probability is the likelihood of an event happening. It can be shown on a probability scale from 0 -1. If an event is impossible (cannot happen) its probability is 0, if it's certain to happen, it's probability is 1.

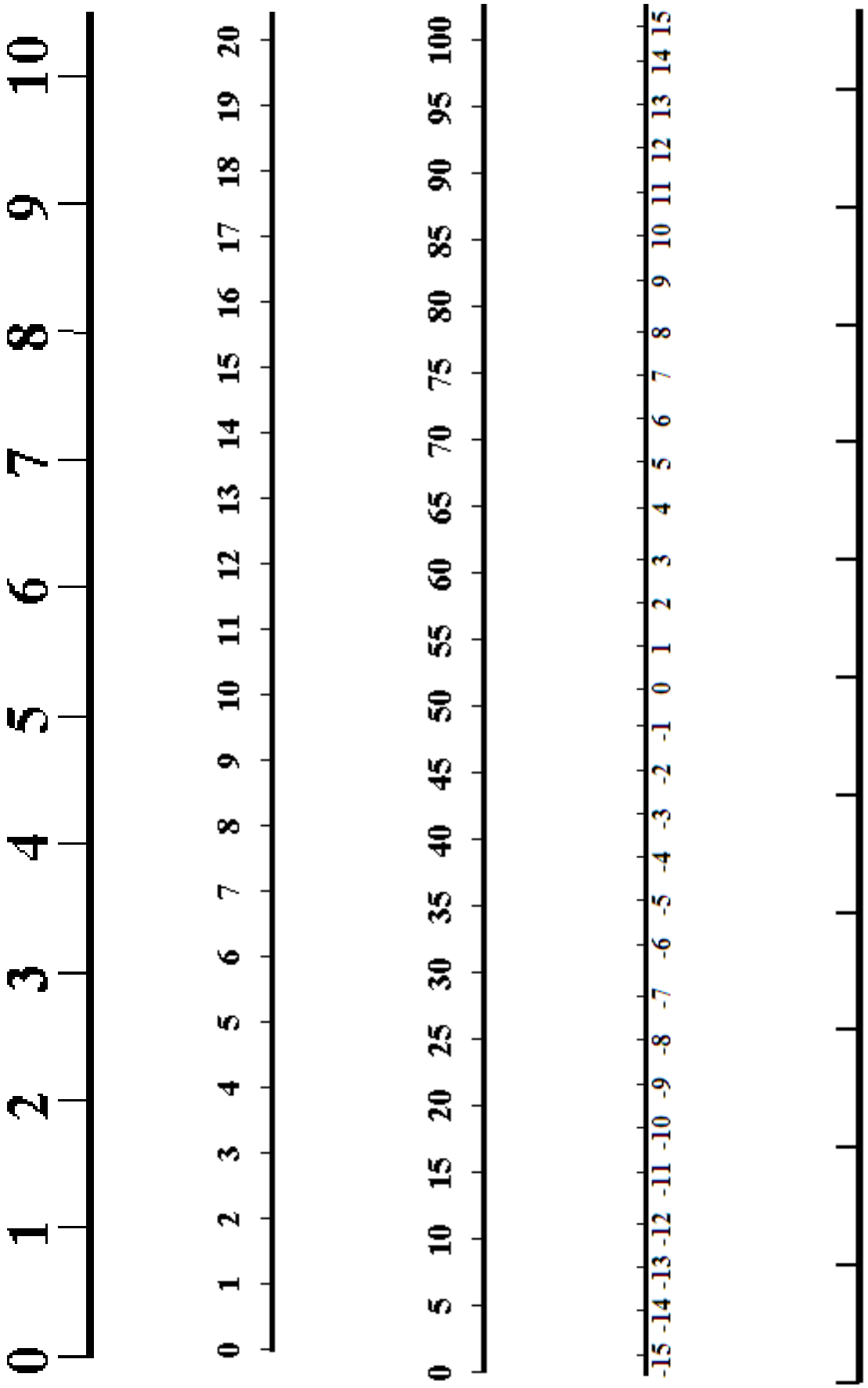


It can also be recorded as a fraction.

The probability of picking a black ball from either bag is ¼.



Number lines



The 100 Square

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

Times Tables

0 x 1 = 0 1 x 1 = 1 2 x 1 = 2 3 x 1 = 3 4 x 1 = 4 5 x 1 = 5 6 x 1 = 6 7 x 1 = 7 8 x 1 = 8 9 x 1 = 9 10 x 1 = 10 11 x 1 = 11 12 x 1 = 12	0 x 2 = 0 1 x 2 = 2 2 x 2 = 4 3 x 2 = 6 4 x 2 = 8 5 x 2 = 10 6 x 2 = 12 7 x 2 = 14 8 x 2 = 16 9 x 2 = 18 10 x 2 = 20 11 x 2 = 22 12 x 2 = 24	0 x 3 = 0 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	0 x 4 = 0 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
0 x 5 = 0 1 x 5 = 5 2 x 5 = 10 3 x 5 = 15 4 x 5 = 20 5 x 5 = 25 6 x 5 = 30 7 x 5 = 35 8 x 5 = 40 9 x 5 = 45 10 x 5 = 50 11 x 5 = 55 12 x 5 = 60	0 x 6 = 0 1 x 6 = 6 2 x 6 = 12 3 x 6 = 18 4 x 6 = 24 5 x 6 = 30 6 x 6 = 36 7 x 6 = 42 8 x 6 = 48 9 x 6 = 54 10 x 6 = 60 11 x 6 = 66 12 x 6 = 72	0 x 7 = 0 1 x 7 = 7 2 x 7 = 14 3 x 7 = 21 4 x 7 = 28 5 x 7 = 35 6 x 7 = 42 7 x 7 = 49 8 x 7 = 56 9 x 7 = 63 10 x 7 = 70 11 x 7 = 77 12 x 7 = 84	0 x 8 = 0 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
0 x 9 = 0 1 x 9 = 9 2 x 9 = 18 3 x 9 = 27 4 x 9 = 36 5 x 9 = 45 6 x 9 = 54 7 x 9 = 63 8 x 9 = 72 9 x 9 = 81 10 x 9 = 90 11 x 9 = 99 12 x 9 = 108	0 x 10 = 0 1 x 10 =10 2 x 10 = 20 3 x 10 = 30 4 x 10 = 40 5 x 10 = 50 6 x 10= 60 7 x 10 = 70 8 x 10 = 80 9 x 10 = 90 10 x 10 = 100 11 x 10 = 110 12 x 10 = 120	0 x 11 = 0 1 x 11 = 11 2 x 11 = 22 3 x 11 = 33 4 x 11 = 44 5 x 11 = 55 6 x 11 = 66 7 x 11 = 77 8 x 11 = 88 9 x 11 = 99 10 x 11 = 110 11 x 11 = 121 12 x 11 = 132	0 x 12 = 0 1 x 12 = 12 2 x 12 = 24 3 x 12 = 36 4 x 12 = 48 5 x 12 = 60 6 x 12 = 72 7 x 12 = 84 8 x 12 = 96 9 x 12 = 108 10 x 12 = 120 11 x 12 = 132 12 x 12 = 144

R	Read 	Read the question carefully.
U	Underline 	Underline the keywords and numbers.
C	Calculations 	Choose the correct operation(s) and mental or written method of calculation.
S	Solve 	Solve it! Make sure you follow the steps.
A	Answer 	Check you have answered the question. What did I have to find out?
C	Check 	Check your answer. Can I use the inverse to check my working?