



Year 4 Maths Knowledge Organiser

Place Value Chart for 4 digit Numbers

Thousands	Hundreds	Tens	Ones
1	4	8	9

Multiplication Facts

6 times table	7 times table	9 times table
1x6=6	1x7=7	1x9=9
2x6=12	2x7=14	2x9=18
3x6=18	3x7=21	3x9=27
4x6=24	4x7=28	4x9=36
5x6=30	5x7=35	5x9=45
6x6=36	6x7=42	6x9=54
7x6=42	7x7=49	7x9=63
8x6=48	8x7=56	8x9=72
9x6=54	9x7=63	9x9=81
10x6=60	10x7=70	10x9=90
11x6=66	11x7=77	11x9=99
12x6=72	12x7=84	12x9=108

Round these numbers to the nearest...

...10

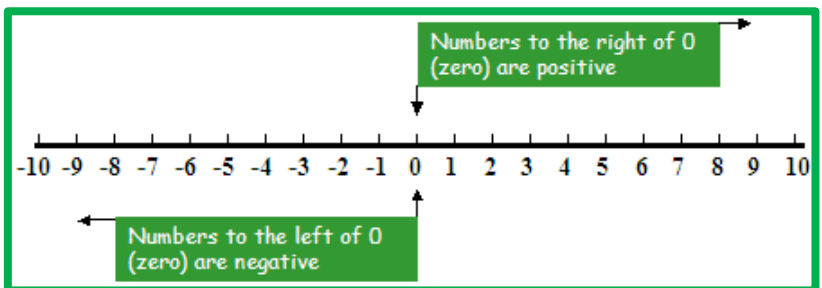
48 → 50
87 → 90
184 → 180
145 → 150

...100

209 → 200
2867 → 2900
3467 → 3500
1095 → 1100

...1000

3456 → 3000
5349 → 5000
89231 → 89000
37849 → 38000



Addition: Column Method

1	2	3
7349 +6785 _____	7349 +6785 _____	7349 +6785 _____
Place the numbers one on top of the other, lining up the thousands, hundreds, tens and ones.	Add the ones and write the answer.	Carry any tens under the tens column.
4	5	6
7349 +6785 34 1-7	7349 +6785 134 14-1	7349 +6785 14134 111
Add the tens including any tens you have regrouped. Carry any hundreds under the hundreds column.	Add the hundreds including any hundreds you have regrouped.	Add the thousands including any thousands you have regrouped.
7		
7349 +6785 14134 111		
Check your answer.		

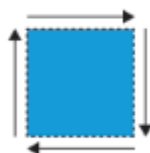
Subtraction: 4-Digit Column Method

1	2	3
5346 -2747 _____	5346 -2747 _____	5346 -2747 _____
Place the numbers one on top of the other, lining up the thousands, hundreds, tens and ones. Subtract the ones. (the answer to 6 - 7 is negative)	Exchange a 10 from the 40 to give 16 ones. Subtract the ones: 16 - 7 = 9.	Subtract the tens (the answer to 40 - 40 is negative). Exchange a 100 from the 300 to give 120 - 40 = 80.
4	5	6
5346 -2747 599	5346 -2747 2599	5346 -2747 2599
Subtract the hundreds (the answer to 200 - 200 is negative). Exchange a 1000 from the 5000 to give 1200 - 200 = 500.	Subtract the thousands: 4000 - 2000 = 2000.	Check your answer.

ROMAN NUMERALS CHART 1 TO 100

1 I	21 XXI	41 XLI	61 LXI	81 LXXXI
2 II	22 XXII	42 XLII	62 LXII	82 LXXXII
3 III	23 XXIII	43 XLIII	63 LXIII	83 LXXXIII
4 IV	24 XXIV	44 XLIV	64 LXIV	84 LXXXIV
5 V	25 XXV	45 XLV	65 LXV	85 LXXXV
6 VI	26 XXVI	46 XLVI	66 LXVI	86 LXXXVI
7 VII	27 XXVII	47 XLVII	67 LXVII	87 LXXXVII
8 VIII	28 XXVIII	48 XLVIII	68 LXVIII	88 LXXXVIII
9 IX	29 XXIX	49 XLIX	69 LXIX	89 LXXXIX
10 X	30 XXX	50 L	70 LXX	90 XC
11 XI	31 XXXI	51 LI	71 LXXI	91 XCI
12 XII	32 XXXII	52 LII	72 LXXII	92 XCII
13 XIII	33 XXXIII	53 LIII	73 LXXIII	93 XCIII
14 XIV	34 XXXIV	54 LIV	74 LXXIV	94 XCIV
15 XV	35 XXXV	55 LV	75 LXXV	95 XCV
16 XVI	36 XXXVI	56 LVI	76 LXXVI	96 XCVI
17 XVII	37 XXXVII	57 LVII	77 LXXVII	97 XCVII
18 XVIII	38 XXXVIII	58 LVIII	78 LXXVIII	98 XCVIII
19 XIX	39 XXXIX	59 LIX	79 LXXIX	99 XCIX
20 XX	40 XL	60 LX	80 LXXX	100 C

PERIMETER
The distance around the edge of a shape



AREA
The amount of space inside a shape



Measurement conversions

Length

1 kilometre = 1000 metres

1 metre = 100 centimetres

1 centimetre = 10 millimetres

km
m
cm
mm



Multiplication Square

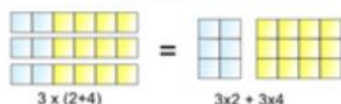
x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Distributive Law

The distributive law allows us to distribute (break up) larger numbers into sums, differences and products to help with calculations.

For example:

$$\begin{aligned}
 5 \times 32 &= 5 \times (30 + 2) \\
 &= 5 \times 30 + 5 \times 2 \\
 &= 150 + 10 \\
 &= 160
 \end{aligned}$$



3 x (2+4)

3x2 + 3x4

3 lots of (2+4) is the same as 3 lots of 2 plus 3 lots of 4

Commutative Law

The commutative law means numbers can be added or multiplied in any order without affecting the answer.

For example: 2 x 4 x 5 is the same as 5 x 4 x 2

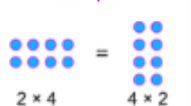
OR When adding 26 + 30 + 4, the commutative law lets you rearrange the 30 and the 4 to get 26 + 4 + 30 so that we can add the 26 and 4 first.

Example:



Subtraction and division are not commutative

Example:



Decimal Equivalents

Tenths	Hundredths
10=0.1	100=0.01
20=0.2	200=0.02
30=0.3	300=0.03
40=0.4	400=0.04
50=0.5	500=0.05
60=0.6	600=0.06
70=0.7	700=0.07
80=0.8	800=0.08
90=0.9	900=0.09
100=1.0	1000=0.10

Rounding decimals... to the nearest whole number

We look at the 1st decimal place

- If it is 0, 1, 2, 3 or 4 we just throw all the decimal digits away
- If it is 5, 6, 7, 8 or 9 we throw all the decimal digits away and we increase the units by 1

Examples:

23.7 → 24

8.94 → 9

53.6 → 54

3.52 → 4

1.768 → 2

20.32 → 20

5.8757 → 6

40.071 → 40



WHEN TWO FRACTIONS HAVE THE SAME DENOMINATOR

Add or subtract the numerators to form the new numerator. The denominator stays the same. When working with mixed numbers, add or subtract the whole numbers too.

$$\frac{2}{9} + \frac{5}{9} = \frac{7}{9} \quad \bigg| \quad \frac{6}{7} - \frac{2}{7} = \frac{4}{7}$$

Fractions and their decimal equivalents



£5.00



£10.00



£20.00



£50.00

TELLING TIME

Analog Clock



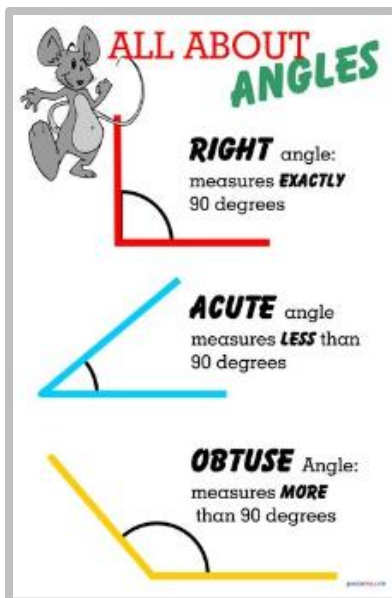
Digital Clock



AM OR PM

beforenoon afternoon

↑ = hour hand ↑ = minute hand



The word 'discrete' means separate.

Discrete Data

This table shows data for a survey about how children travel to school. This data is discrete, or separate, because you have to count the different ways of travelling separately.

Walk	Bicycle	Scooter	Car	Taxi	Bus
9	2	6	6	0	7

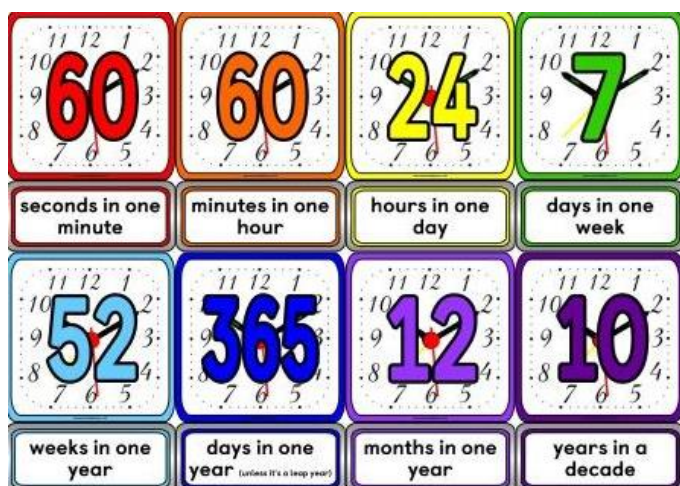
Continuous Data

Time questions usually produce continuous data.

I measured my cactus once a week. Here are the measurements.

Week 1	Week 2	Week 3	Week 4	Week 5	Week 6
21cm	24cm	26.5cm	29cm	33cm	36cm

This data is continuous because the cactus continues to grow all the time. It didn't suddenly jump from one measurement to the next - it grew continuously!



Drawing Shapes on a Grid

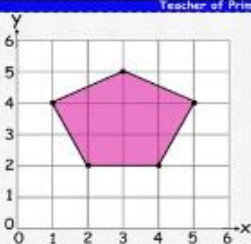
By drawing lines between coordinates plotted on a grid you can complete shapes. For example...



(1,2) [Click here](#)
(2,5) [Click here](#)
(5,5) [Click here](#)
(4,2) [Click here](#)

What shape do you get when you join up all the coordinates?

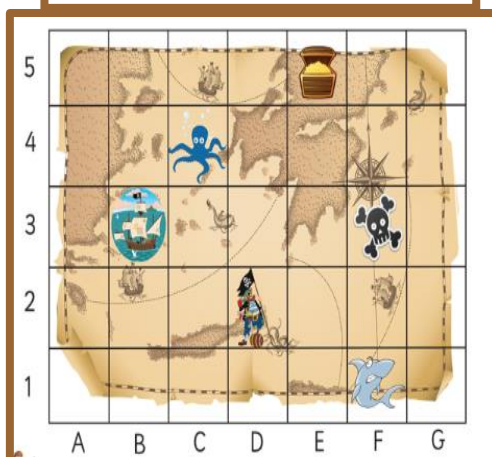
Teacher of Primary



(1,4) [Click here](#)
(2,2) [Click here](#)
(3,5) [Click here](#)
(4,2) [Click here](#)
(5,4) [Click here](#)

Pentagon

Describing position on a 2D grid as coordinates.



Types of data handling representations

Bar Charts

Pictograph

Pie Chart

Tables

A 2D shape is **symmetrical** if a line can be drawn through it so that either side of the line looks exactly the same. The line is called a line of **symmetry**.

