Maths
Year Group: 5

ROBERT SHAW PRIMARY AND NURSERY SCHOOL

Place Value

Place Value

Millions Period			Thousands Period			Ones Period		
Hundred Millions	Ten Millions	Millions	Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	One
1	3	2	4	3	7	8	2	5

Count forwards and backwards in 1,000s, 10,000s and 100,000s up to 1,000,000.

0 10,000 20,000 30,000 40,000 50,000 60,000 70,000 80,000 90,000 100,000
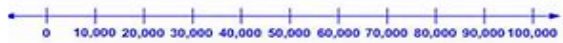
Interpret negative numbers counting forwards and backwards

-8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9 10
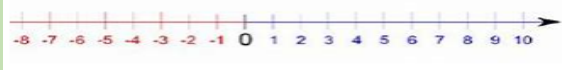
Round any number to the nearest 100,000 10,000, 1000, 100 and 10.

315	→ 320	Nearest 10
455	→ 500	Nearest 100
1595	→ 2000	Nearest 1000

Read **Roman numerals** to 1000(M)

I	1	XXX	30
II	2	XL	40
III	3	L	50
IV	4	LX	60
V	5	LXX	70
VI	6	LXXX	80
VII	7	XC	90
VIII	8	C	100
IX	9	D	500
X	10	M	1,000
XX	20	MD	1,500

Number Knowledge

Know prime numbers and prime factors

Prime Numbers up to 50
Prime numbers are numbers that can only be divided by themselves and 1.
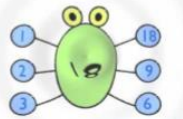
2 3 5 7 11 13 17 19 23 29 31 37 41 43 47

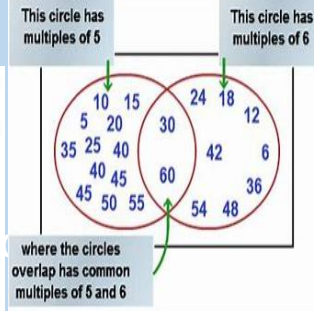Identify **multiples** and be able to find all factor pairs.

Multiples are all the numbers in a times table.
Eg. The multiples of 2 are all the numbers in the 2 times table: 2. 4. 6. 8. 10 and so on.

Factors: Numbers that you can divide a bigger number by e.g.

Find the factors of 18

The factors of 18 are 1, 2, 3, 6, 9 and 18

This circle has multiples of 5
This circle has multiples of 6

10 15 24 18
5 20 30 12
35 25 40 42 6
40 45 60 36
45 50 55 54 48

where the circles overlap has common multiples of 5 and 6

Recognise and use squared and cubed numbers.

Square number patterns
Square numbers get their name from the pattern they make.

Area = 1 × 1 = 1^2 = 1

Area = 2 × 2 = 2^2 = 4

Area = 3 × 3 = 3^2 = 9

Area = 4 × 4 = 4^2 = 16

See if you can continue the pattern!

Calculation

Add and **subtract** any 1000s number from any 5-digit number.

$$58,391 + 27,431 = 85,822$$

	8^7	$^1 6$	.	3^2	$^1 0$
-	1	9	.	0	4
	6	7	.	2	6

Multiply numbers up to 4-digits by a 1-digit and 2-digit number using an efficient written method.

$$2826 \times 8 = 22608$$
624

		1	3	2
	×		1	2
		2	6	4	→ multiply by 2
+	1	3	2	0	→ multiply by 10
	1	5	8	4	

Divide numbers up to 4-digits by a 1-digit number using short division written method.

	0	7	6	2
8	6	$^6 0$	$^4 9$	$^1 6$

Multiply and divide by 10, 100, 1000

MULTIPLICATION AND DIVISION BY 10, 100, 1000

×10	move digits one place to left
×100	move digits two places to left
×1000	move digits three places to left
÷10	move digits one place to right
÷100	move digits two places to right
÷1000	move digits three places to right

hundred thousands	ten thousands	thousands	hundreds	tens	ones
100,000	10,000	1,000	100	10	1
2	3	6	1	7	9

×10 ×10 ×10 ×10 ×10
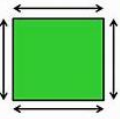
To the left... to the left.

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Shape

Perimeter and area
Can you find the missing lengths and calculate the perimeter and area?

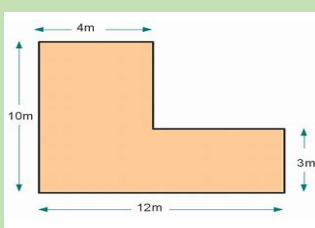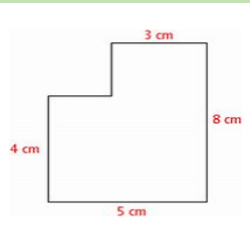**What is Perimeter?**
The perimeter is the distance all the way around the outside of a 2D shape.

Finding the Area (square)
Area and Perimeter
To work out the area of a square, multiply one side by the adjacent side.
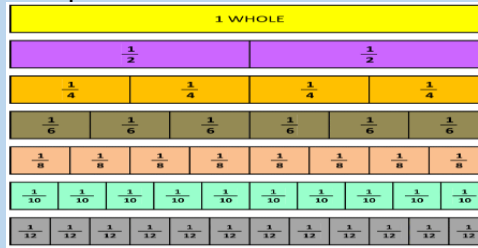The area of this square is 6cm x 6cm = 36cm²
6cm
6cm

3 cm
4 cm
8 cm
5 cm

4m
10m
3m
12m

Nets

Cone	
Cuboid	
Hexagonal Prism	
Cylinder	

Fractions, decimals, percentages

Write equivalent fractions and order fractions

1 WHOLE
$\frac{1}{2}$ $\frac{1}{2}$
$\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$
$\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$
$\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$ $\frac{1}{8}$
$\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$ $\frac{1}{10}$
$\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$ $\frac{1}{12}$

Add and subtract fractions

Multiply fractions by whole numbers

The right way
$\frac{1}{4}$ $\frac{1}{4}$
$\frac{1}{4}$ $\frac{1}{4}$

$\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$

Convert mixed numbers and improper fractions

Convert Mixed Numbers to Improper Fractions

FIRST multiply denominator by the whole number
$4\frac{2}{3}$
$3 \times 4 = 12$

How many thirds are in the whole number?

NEXT add the product to the numerator
$4\frac{2}{3}$
$12 + 2 = 14$

PLUS how many thirds are in the fraction?

LAST The sum is the numerator. Keep the same denominator
$4\frac{2}{3} = \frac{14}{3}$

TOTAL THIRDS:

Write decimals as fractions and percentages

Percentage	Fraction	Decimal
100%	1	1
75%	3/4	0.75
66.66%	2/3	0.66
50%	1/2	0.50
33.33%	1/3	0.33
25%	1/4	0.25
20%	1/5	0.20
12.5%	1/8	0.125
10%	1/10	0.10
5%	1/20	0.05
2.5%	1/40	0.025

Measure
Converting measurements

Length:
km →(x 1000)→ m →(x 100)→ cm →(x 10)→ mm
km ←(÷ 1000)← m ←(÷ 100)← cm ←(÷ 10)← mm

Weight:
kg →(x 1000)→ g
kg ←(÷ 1000)← g

Capacity:
l →(x 1000)→ ml
l ←(÷ 1000)← ml

Which jug contains the most juice?
A   B

Angles

Acute - Less than 90°
Straight Line - 180°
Obtuse - Greater than 90° and less than 180°
Reflex - Greater than 180°, but less than 360°
Full Rotation - 360°
Angles in a quadrilateral - 360°
Angles in a triangle - 180°
Angles around a point - 360°

Reflex angle
A reflex angle is an angle that is bigger than 180°

Obtuse angle
An obtuse angle is an angle between 90° and 180°

Right angle
A right angle is an angle that measures 90°

Triangles
The angles of any triangle will always add up to 180°
a + b + c = 180°