

# Year 5 Maths Knowledge Organisers

## Summer



Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Half term	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7
<b>4OPS</b> <u>Place value</u>  <u>+ &amp; -</u>  <u>X &amp; ÷</u>	<u>Fractions, decimals</u>  %	<u>Missing numbers</u>	<u>Geometry 1</u>  <u>Geometry 2</u>	<u>Time</u>				<b>4OPS</b> <u>Place value</u>  <u>+ &amp; -</u>  <u>X &amp; ÷</u>	<u>Position &amp; direction</u>	<u>Statistics</u>	Consolidation			



## Vocabulary

- 1 more
- 1 less
- Greater than
- Less than
- Equal
- Equivalent
- Millions
- Thousands
- Hundreds
- Tens
- Ones
- Zero
- Place Value
- Order
- Round
- Negative
- Number
- Digit

## More or Less

	+1,000
<b>Number</b>	<b>1,000 more</b>
4,600	5,600
6,643	7,643
8,021	9,021
	-1,000

## Place Value

Y5/6



### Rounding

Round 3,576,219 to the nearest million

Identify the millions

3,576,219

Look at the digit beside the millions

**Rounding rhyme – 0,1,2,3,4 stays the number before**

**5,6,7,8,9 rounds up on the number line**

So, rounding 3,576,219 to the nearest million will mean it will round up on the number line because of the 5 digit in the hundred thousands.

4,000,000

### Roman Numerals

I = 1

Value = 5

Xylophones = 10

Like = 50

Cows = 100

Do = 500

Milk = 1000

• Bridging numbers

V, L and D (you can't have 2 together)

• Top rule – you cannot have more than 3 of the same letter in a row

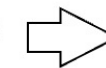
MM XX III

**MMXXIII = 2023**

## Ordering

Order from largest to smallest

1,009,909 → 1<sup>st</sup>  
 1,023,065 → 2<sup>nd</sup>  
 1,009,099 → 3<sup>rd</sup>  
 1,230,650 → 4<sup>th</sup>



• Look at the largest digit first (millions)

Same { 1,230,650  
 1,009,099

• Then go to the next digit. If the digit is greater, then the number is larger

Larger { 1,230,650  
 1,009,099

## Ordering Decimals

Order starting with the smallest

1.25    0.99    1.025    0.009

Add place holders (write zeros) and follow the steps above

1.250 → 1.250

0.990 → 1.025

1.025 → 0.990

0.009 → 0.009

Greater number

Grater number

## Recognise value of digits

What is the value of 4?

1,042,851

Move from the ones across writing the value of the column above

M	H	T	Th	H	T	O
1	0	4	2	9	5	1

Forty thousand

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## Vocabulary

- Add
- Plus
- Total
- Sum
- Altogether
- Equals
- Digit
- Tens
- Ones
- Hundreds
- Subtract
- Minus
- Take away
- Regroup

## Add and subtract mentally

1. 3 digit and ones

Circle the ones and subtract

$$\begin{array}{r} 384 - 3 = 381 \\ 4 - 3 = 1 \end{array}$$



2. 3-digits and tens

Circle the tens and add

$$\begin{array}{r} 839 + 60 = 899 \\ 3 + 6 = 9 \end{array}$$

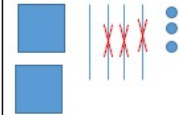
3. 3-digit and hundreds

Circle the hundreds

$$\begin{array}{r} 649 - 400 = 249 \\ 6 - 4 = 2 \end{array}$$

Prove all with resources and drawings in school. E.g.

$$243 - 30 = 213$$



## Column addition

### example

	4	5	8	6	4
+	2	3	4	9	7
	6	9	3	6	1
	1	1	1		

## Column addition (without regrouping)

$$241 + 52 = 293$$

- Write in a column
- Make sure each digit is in the correct column

Wrong column as fifty should be in the tens column

H	T	O
2	4	1
	5	2
<hr/>		

❖ Start with the ones.

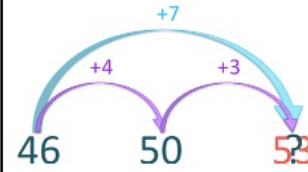
$$1 + 2 = 3$$

❖ Then go to the tens.

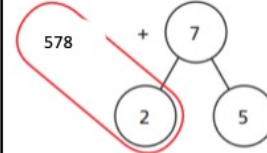
			2	4
			5	2
			<hr/>	
			2	9
			2	9

## Mental addition and subtraction bridging

$$46 + 7 = 53$$



❖ Get to the next ten or hundred and then add the rest.



$$580 + 5 = 585$$

E.g.  $394 - 40 =$   
 $404 + 30 = 434$

## Addition and subtraction Y5/6



## Column addition (with regrouping)

$$2482 + 3138 = 620$$

- Start with ones,  $2 + 8 = 10$   
So regroup by carrying  
The 1 to the tens column
- $8 + 3 + 1 = 12$   
Don't forget to add the 1  
That you regrouped!
- $4 + 1 + 1 =$

4. Add the Ths

Th	H	T	O
2	4	8	2
+	3	1	3
<hr/>			
5	6	2	0

Apply with greater numbers up to 1

## Column subtraction example

	3	5	<del>7</del> <sup>6</sup>	<del>4</del> <sup>13</sup>	<del>2</del> <sup>1</sup>
-		3	4	7	6
	3	2	2	6	6

## Column subtraction (with regrouping)

$$875 - 287 = 589$$

- Start with ones,  $5 - 7$ , you cannot do so regroup by taking one ten from the 7, leaving 6 tens, and put in the ones column to make 15.  $15 - 6 = 9$
- Next, the tens.  $6 - 8$ , you cannot do so regroup by taking one of the hundreds, leaving 7 hundred, and put it in the tens column to make 16.  $16 - 8 = 8$
- Finally,  $7 - 2 = 5$

H	T	O
8	7	5
-	2	8
<hr/>		
5	8	9

You cannot do  $5 - 7$  so go to the tens column. Take a ten to leave 6 tens and make 15 in the ones column.



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## Missing number

$$\begin{array}{r} 1. \quad \boxed{3} \boxed{\phantom{0}} \boxed{1} \boxed{\phantom{0}} \boxed{8} \\ + \quad \boxed{\phantom{0}} \boxed{9} \boxed{\phantom{0}} \boxed{1} \boxed{4} \\ \hline \boxed{5} \boxed{5} \boxed{6} \boxed{2} \boxed{2} \end{array}$$

With all column missing number problems, go through the normal method and note down your carries.  $8+4=12$

## Inverse operations

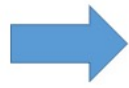
? - 764 = 999  
Some missing number problems need to use the inverse to find the missing value.  
 $999 - 764 = 235$

## Vocabulary

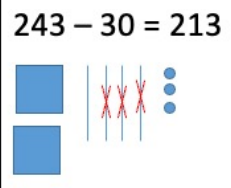
- Add
- Plus
- Total
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- Digit
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- Subtract
- Minus
- Take away
- Regroup

## Add and subtract mentally

- 3 digit and ones  
Circle the ones and subtract  
 $384 - 3 = 381$   
 $4 - 3 = 1$
- 3-digits and tens  
Circle the tens and add  
 $839 + 60 = 899$   
 $3 + 6 = 9$
- 3-digit and hundreds  
Circle the hundreds  
 $649 - 400 = 249$   
 $6 - 4 = 2$



Prove all with resources and drawings in school. E.g.



## Mental addition and subtraction bridging

$46 + 7 = 53$

❖ Get to the next ten or hundred and then add the rest.

E.g.  $394 - 40 =$   
 $404 + 30 = 434$

$578 + 7 = 585$

$580 + 5 = 585$

## Addition and subtraction Y5/6

## Column addition (with regrouping)

- $2482 + 3138 = 620$
- Start with ones,  $2 + 8 = 10$   
So regroup by carrying  
The 1 to the tens column
  - $8 + 3 + 1 = 12$   
Don't forget to add the 1  
That you regrouped!
  - $4 + 1 + 1 = 6$

4. Add the Ths

	<b>Th H T O</b>
	2 4 8 2
+	3 1 3 8
	5 6 2 0

Apply with greater numbers up to 1

## Column subtraction example

	3	5	<del>7</del> <sup>6</sup>	<del>4</del> <sup>13</sup>	<del>2</del> <sup>1</sup>
-		3	4	7	6
	3	2	2	6	6

## Column subtraction (with regrouping)

- $875 - 287 = 589$
- Start with ones,  $5 - 7$ , you cannot do so regroup by taking one ten from the 7, leaving 6 tens, and put in the ones column to make 15.  $15 - 7 = 8$
  - Next, the tens.  $6 - 8$ , you cannot do so regroup by taking one of the hundreds, leaving 7 hundred, and put it in the tens column to make 16.  $16 - 8 = 8$
  - Finally,  $7 - 2 = 5$

	<b>H T O</b>
	8 7 5
-	2 8 7
	5 8 9

You cannot do  $5 - 7$  so go to the tens column. Take a ten to leave 6 tens and make 15 in the ones column.

## Column addition

### example

	4	5	8	6	4
+	2	3	4	9	7
	6	9	3	6	1
		1	1	1	

## Column addition (without regrouping)

$241 + 52 = 293$

- Write in a column
- Make sure each digit is in the correct column

	<b>H T O</b>
	2 4 1
+	5 2
	2 9 3

❖ Start with the ones.  $1+2=3$

❖ Then go to the tens.

Wrong column as fifty should be in the tens column

**H T O**

Click here to return to selection page

## Vocabulary

- Multiply
- Multiplication
- Lots of
- Times
- Division
- Grouping
- Sharing
- Arrays

## Short division

$$217 \div 7 = 31$$

- This division is quicker because you are dividing by a times table up to 12. This example is dividing by 7.
- Write in a bus stop

$$\begin{array}{r} 7 \overline{)217} \end{array}$$

- Look at the first digit in 217. How many 7s are in 2? Zero.

$$\begin{array}{r} 0 \phantom{0} \\ 7 \overline{)217} \end{array}$$

- Look at the next digit with the 2. How many 7s in 21? Three.

$$\begin{array}{r} 031 \\ 7 \overline{)217} \end{array}$$

- How many 7s in 7? One.

## Highest common factor (HCF)

What is a factor?

- A factor is a number that goes into another number.
- LCF is when you compare 2 or more numbers, list their factors and identify what factor is common between them. The highest value is the HCF.

Top tip – list the factors as pairs and start from 1, then go to 2, 3, etc.

Factors for 16	
1	16
2	8
4	4

Factors for 12	
1	12
2	6
3	4

What is the HCF for 16 and 12?

4 is the HCF.

2 is a common factor but it isn't the highest.

## Order of operations

Remember **BODMAS**

**B** – brackets

**O** – orders (squared or cubed)

**D** – division

**M** – multiplication

**A** – addition

**S** – subtraction

Follow this order to complete calculations correctly.

E.g.  $(16-10) \div 3 = ?$

1. Brackets 1<sup>st</sup>, so  $16-10=6$

2. Then,  $6 \div 3 = 2$

So,  $(16-10) \div 3$  equals 2.

## Apply times tables

If you know  $2 \times 8 = 16$ , then you know...

$$2 \times 8 = 16$$

$$20 \times 8 = 160$$

$$2 \times 80 = 160$$

20 has a 0 so your answer will have 1 zero as it is 10x greater

**Top tip** – look at the number of zeros. This tells you if you need to write any zeros in your answer.

In total, 20 and 80 have 2 zeros so the answer will have 2 zeros as it is 100x greater

$$20 \times 80 = 1600$$

## Column multiplication

$$324 \times 13$$

- Write the calculation in a column. Make sure the digits are in the correct column.

e.g. **HTO**

$$\begin{array}{r} 324 \\ \times 13 \\ \hline \end{array}$$

**HTO**

$$\begin{array}{r} 324 \\ \times 13 \\ \hline \end{array}$$

**HTO**

$$\begin{array}{r} 324 \\ \times 13 \\ \hline \end{array}$$

$$\begin{array}{r} 324 \\ \times 13 \\ \hline \end{array}$$

- Start with multiplying the 3 in 13 with the ones column. So,  $3 \times 4 = 12$ . Carry the 1 in the number 12 into the tens column.

- Move onto  $3 \times 2$  (the tens column) and **add the extra 1** that you carried.  $3 \times 2 = 6$ , add  $1 = 7$

- Then,  $3 \times 3$  (in the hundreds column), which is 9

- You have multiplied the 3 in 13, now move onto the 1 ten in 13.

- Put a zero (0) in the ones column as we are x by 10 not 1.

- Then follow the same process described in the previous Steps but multiplying each digit by 1 instead ( $1 \times 4, 1 \times 2, 1 \times 3$ )

- Finally,  $972 + 3240 = 4212$ . Use the column method (see the addition and subtraction KO for support)

$$\begin{array}{r} 324 \\ \times 13 \\ \hline 972 \\ \phantom{972} + 3240 \\ \hline 4212 \end{array}$$

$$\begin{array}{r} 324 \\ \times 13 \\ \hline 972 \\ \phantom{972} + 3240 \\ \hline 4212 \end{array}$$

$$\begin{array}{r} 324 \\ \times 13 \\ \hline 972 \\ \phantom{972} + 3240 \\ \hline 4212 \end{array}$$

$$\begin{array}{r} 324 \\ \times 13 \\ \hline 972 \\ \phantom{972} + 3240 \\ \hline 4212 \end{array}$$

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$$\begin{array}{r} 324 \\ \times 13 \\ \hline 972 \\ \phantom{972} + 3240 \\ \hline 4212 \end{array}$$

## Multiplication and division Y5/6



### Long division

$$6786 \div 29 = 234$$

$$\begin{array}{r} 29 \overline{)6786} \end{array}$$

- You don't know the 29x table? Calculate the first 5 numbers in the 29x table by adding 29 five times.

1x	29	58	87	116	145
	+29	+29	+29	+29	+29
2x	58	87	116	145	174

$$2. \begin{array}{r} 29 \overline{)6786} \end{array}$$

How many 29s in 67? Zero. So go to the next digit to make 67 and write 0.

$$4. \begin{array}{r} 023 \\ 29 \overline{)6786} \end{array}$$

How many in 98? Three.  $98-87=11$

### Important facts

Anything  $\times 0$  is always 0 as you do not have any groups.

$$3. \begin{array}{r} 02 \\ 29 \overline{)6786} \end{array}$$

How many 29s in 67? Use your notes to help. Two times.  $67-58=9$ . Carry the 9 to the next column.

$$5. \begin{array}{r} 0234 \\ 29 \overline{)6786} \end{array}$$

How many 29s in 116? Four times.

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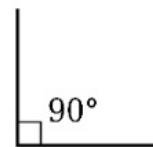
## Vocabulary

- Angle
- Right Angle
- Acute Angle
- Obtuse Angel
- Reflex Angle
- Triangle
- Isosceles Triangle
- Scalene Triangle
- Right Angled Triangle
- Equilateral Triangle
- Diameter
- Vertically opposite
- Angles

[Click here for Shape 2](#)

[Click here to return to selection page](#)

## The Angles



Right Angles are  $90^\circ$



Obtuse angles are greater than  $90^\circ$  but less than  $180^\circ$

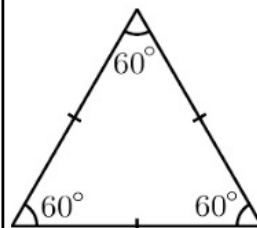


Acute angles are less than  $90^\circ$



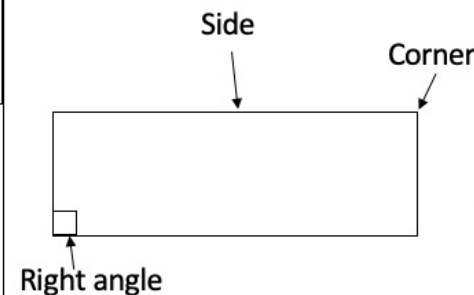
Reflex angles are greater than  $180^\circ$

## Angles in a triangle add up to $180^\circ$

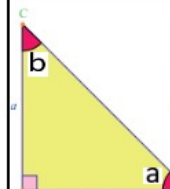


$$60^\circ \times 3 = 180^\circ$$

## Labelling a 2D shape

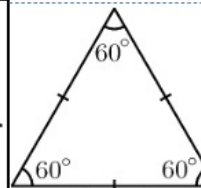


## Different triangles



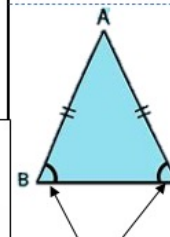
**Right angled triangle**

1. It has an angle measuring  $90^\circ$ , which is shown by the square
2. The other 2 angles add up to  $90^\circ$  ( $a + b = 90^\circ$ )



**Equilateral triangle**

1. All angles are  $60^\circ$
2. All sides are the same



**Isosceles triangle**

1. Two angles are equal
2. Two lengths are equal



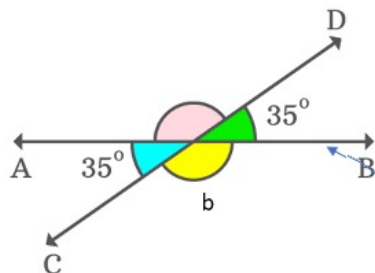
**Scalene triangle**

1. All angles are different
  2. All lengths are different
- \* Remember all angles in a triangle add up to  $180^\circ$ !

## Vertically opposite angles

Vertically opposite angles are always the same

e.g.



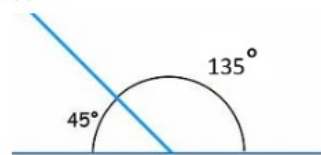
1. If one side is  $35^\circ$  then the other side is  $35^\circ$
2.  $35^\circ$  and  $b$  are on a straight line so have a total of  $180^\circ$  altogether. Subtract 35 from  $180^\circ$  to find  $b$ .  
 $180^\circ - 35^\circ = 145^\circ$

## Shape Y5/6

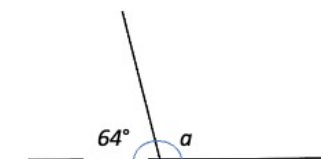
(Part 1)



Angles on a straight line add up to  $180^\circ$



$$135^\circ + 45^\circ = 180^\circ$$

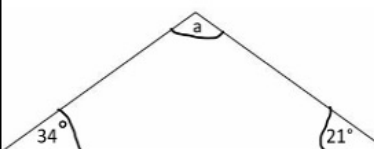


If there is a missing angle, subtract the angles you know from  $180^\circ$

$$180^\circ - 64^\circ = 116^\circ$$

$$a = 116^\circ$$

## Finding missing angles

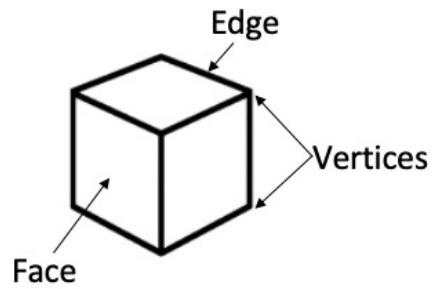


1. Add together the angles you know  
 $34^\circ + 21^\circ = 55^\circ$
2. Subtract this total from 180  
 $180^\circ - 55^\circ = 125^\circ$   
 $a = 125^\circ$

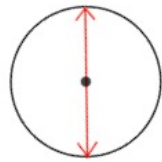
## Vocabulary

- 3D shapes
- Cube
- Cuboid
- Sphere
- Square based pyramid
- Tetrahedron
- Triangular prism
- Vertices
- Edges
- Faces
- Angles
- Degrees
- Radius
- Diameter
- Volume

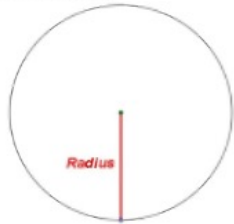
## Parts of a 3D shape



## Radius and diameter

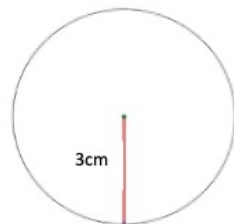


Diameter is the distance from one side of the circle to the opposite side of the circle.

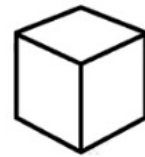


Radius is the distance from the middle of the circle to the side.

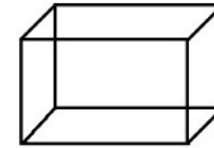
The diameter is twice as long as the radius



Radius = 3cm  
Diameter = 6 cm

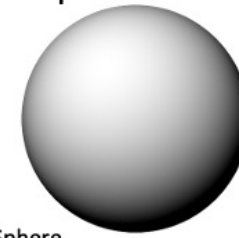


Cube  
Faces = 6  
Vertices = 8  
Edges = 12

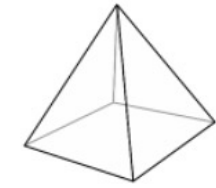


Cuboid  
Faces = 6  
Vertices = 8  
Edges = 12

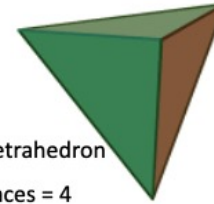
## Shapes



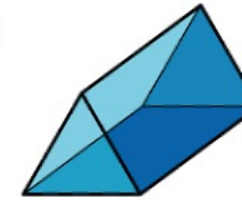
Sphere  
Faces = 1  
Vertices = 0  
Edges = 0



Square based pyramid  
Faces = 5  
Vertices = 5  
Edges = 8



Tetrahedron  
Faces = 4  
Vertices = 4  
Edges = 6



Triangular prism  
Faces = 5  
Vertices = 6  
Edges = 9

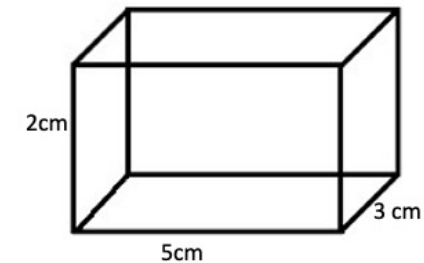
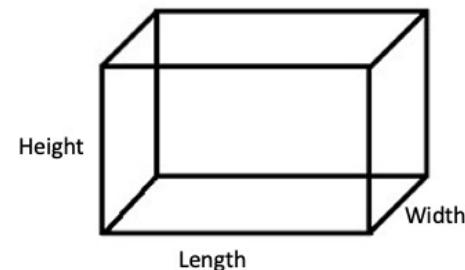
## Shape Y6 (Part 2)

## Volume

Volume is the 3D space something can hold

Volume = length x width x height

The units in volume always end in <sup>3</sup> for cubed (e.g. cm<sup>3</sup>)



$$5 \times 3 \times 3 = 12\text{cm}^3$$
$$6 \times 2 = 12\text{cm}^3$$



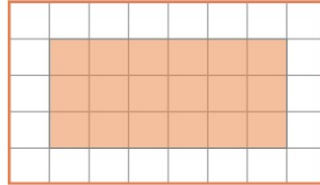
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## Vocabulary

- Perimeter
- Area
- Volume
- Units
- Width
- Length
- Rectangle
- Formula
- Height
- Base
- Parallelogram

## Area of rectangles

length  $\times$  width = area of a rectangle



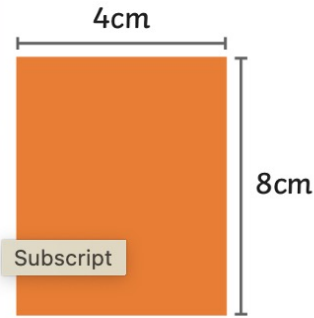
**Counting squares:**

$$\text{area} = 18\text{cm}^2$$

**Use formula:**

$$6\text{cm} \times 3\text{cm}$$

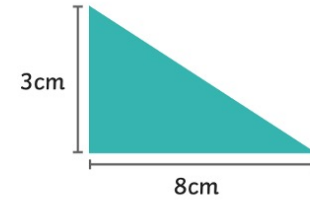
$$\text{area} = 18\text{cm}^2$$



$$8\text{cm} \times 4\text{cm} \text{ area} = 32\text{cm}^2$$

## Area of triangles

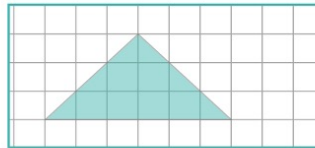
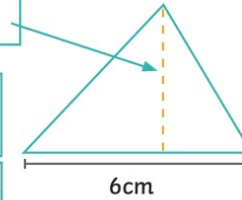
base  $\times$  perpendicular height  $\div 2$  = area of a triangle



$$8\text{cm} \times 3\text{cm} \div 2$$
$$\text{area} = 12\text{cm}^2$$

**perpendicular height** = 5cm

$$6\text{cm} \times 5\text{cm} \div 2$$
$$\text{area} = 15\text{cm}^2$$



**Counting squares:**

$$6 \text{ whole squares} = 6\text{cm}^2$$

$$6 \text{ half squares} = 3\text{cm}^2$$

$$6\text{cm}^2 + 3\text{cm}^2 = 9\text{cm}^2$$

$$\text{area} = 9\text{cm}^2$$

**Using formula:**

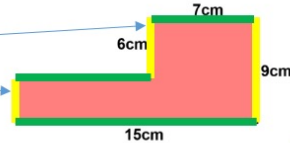
$$6\text{cm} \times 3\text{cm}$$

$$\div 2 = 9\text{cm}^2$$

## Missing lengths

Use 2 colours to show vertical and horizontal lines.

$$\_\_ + 6 = 9 \text{ and } 7 + \_\_ = 15$$

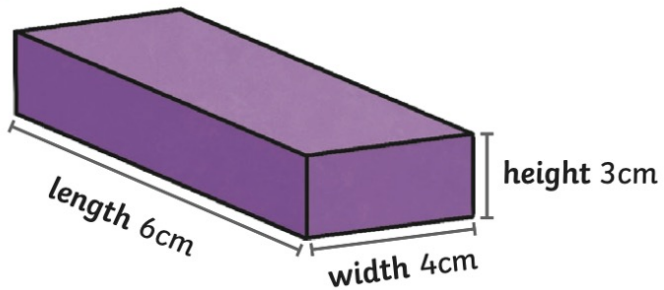


## Area, perimeter and volume Y5/6



## Volume of cuboids

length  $\times$  width  $\times$  height = volume of a cuboid



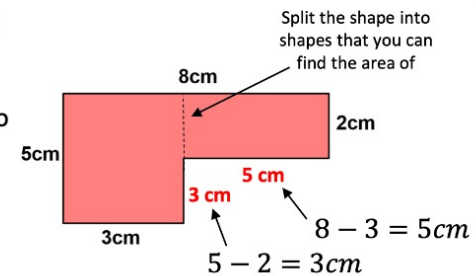
Multiply dimensions in **any** order:

$$3\text{cm} \times 6\text{cm} \times 4\text{cm}$$

$$\text{volume} = 72\text{cm}^3$$

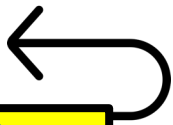
## Compound shapes

Compound shapes are shapes that two shapes joined together.



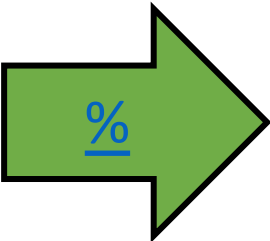
$$\text{Area} = (5 \times 3) + (2 \times 5)$$
$$= 25\text{cm}^2$$

$$\text{Perimeter} = 3 + 5 + 8 + 2 + 5 + 3$$
$$= 26\text{cm}$$



[Click here to return to selection page](#)





### Vocabulary

- Fraction
- Part
- Whole
- Equal
- Share
- Half
- Quarter
- Third
- Equivalent
- Numerator
- Denominator
- Proper Fraction
- Improper Fraction
- Factor
- Highest Common Factor
- Lowest Common Multiple
- Simplify
- Simplest Form
- Mixed Number
- Whole Number

### Add Fractions

$$\frac{4}{5} + \frac{2}{3}$$

1. Find a common multiple of 5 and 3

e.g.  $\frac{15}{5} + \frac{10}{3}$

$$\begin{array}{c} \frac{4}{5} + \frac{2}{3} \\ \times 3 \qquad \qquad \times 5 \\ \hline \frac{12}{15} + \frac{10}{15} \end{array}$$

Whatever you do to the top you must do to the bottom

3.

$$\begin{array}{c} \frac{4}{5} + \frac{2}{3} \\ \times 3 \qquad \qquad \times 5 \\ \hline \frac{12}{15} + \frac{10}{15} \\ \hline \frac{22}{15} \end{array}$$

### Multiply Fractions

$$\frac{5}{8} \times \frac{3}{5}$$

Times the top AND times the bottom

$$\frac{5 \times 3}{8 \times 5} = \frac{15}{40}$$

Fractions  
Y6

$$\frac{5}{7}$$

← Numerator  
← Denominator

$$\frac{2}{5} \text{ Of } 15$$

Divide by the bottom

Times by the top

$$15 \div 5 = 3$$

$$3 \times \underline{2} = 6$$

$$\frac{2}{5} \text{ Of } 15 = 6$$



$$\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$$

### Subtract fractions

Lowest common multiple

$$8=8,16,24,32,40$$

$$5=5,10,15,20,25,30,35,40$$

$$\frac{7}{8} - \frac{3}{5}$$

$$\times 5 \left( \frac{35}{40} - \frac{24}{40} \right) \times 8 = \frac{11}{40}$$

### Divide fractions

$$\frac{4}{7} \div \frac{2}{5}$$

Stay Change Flip

$$\frac{4}{7} \times \frac{5}{2} = \frac{20}{14} = 1\frac{6}{14} = 1\frac{3}{7}$$

Lowest common multiples

$$8 = 8, 16, 24$$

$$12 = 12, 24$$

$$\frac{3}{8} + \frac{5}{12}$$

$$\times 3 \left( \frac{9}{24} + \frac{10}{24} \right) \times 2 = \frac{19}{24}$$

Mixed number → Improper Fractions

$$2\frac{3}{5} \text{ 1. Multiply whole number by the denominator}$$

$$2 \times 5 = 10$$

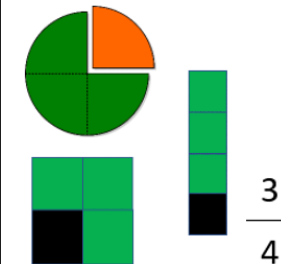
2. Add the number to the answer

$$10 + 3 = 13 = \frac{13}{5}$$

Common denominator = find another number that the bottom number (denominator) multiplies into.

e.g.  $\frac{3}{6} = \frac{6}{12}$

$$\frac{4}{5} = \frac{16}{20}$$



Multiply fraction by whole number

$$\frac{2}{5} \times 3 = \frac{6}{5} = 1\frac{1}{5}$$



Improper fractions → mixed fractions

$$\frac{17}{3}$$

1. How many 3s in 17?

$$5 \underline{3} (3 \times 5 = 15)$$

$$5 \frac{17-15}{3}$$

Subtract 15 from 17

$$= 5 \frac{2}{3}$$

Divide fraction by whole number

$$\frac{5}{7} \div 3$$

Turn whole number into fraction so  $3 = \frac{3}{1}$

$$\frac{5}{7} \div \frac{3}{1}$$

Stay Change Flip

$$\frac{5}{7} \times \frac{1}{3} = \frac{5}{21}$$



Click here to return to selection page

## Vocabulary

- Percent (%) = out of 100
- Percentage
- Discount
- Equivalent
- Convert
- Compare
- Order
- Whole

## Top tips!

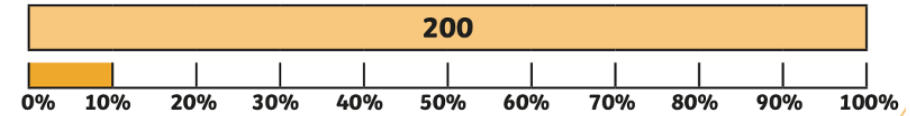
Percentages are always out of 100!

Make a fraction over 100 to make conversion easier! (see fractions to percentages)

## Percentages and decimals Y5/6



## Percentage of an amount

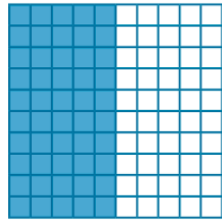


$$10\% = 20$$

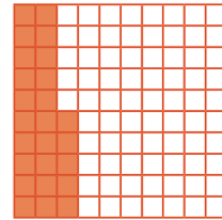


$$20\% = 40$$

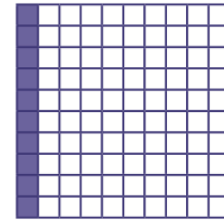
## Equivalent



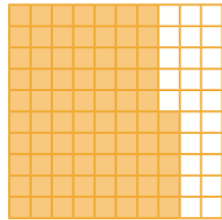
$$\frac{50}{100} = \frac{1}{2} = 0.5 = 50\%$$



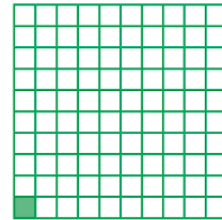
$$\frac{25}{100} = \frac{1}{4} = 0.25 = 25\%$$



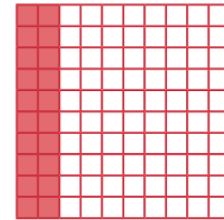
$$\frac{10}{100} = \frac{1}{10} = 0.1 = 10\%$$



$$\frac{75}{100} = \frac{3}{4} = 0.75 = 75\%$$



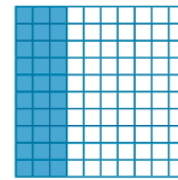
$$\frac{1}{100} = 0.01 = 1\%$$



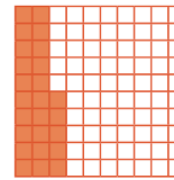
$$\frac{20}{100} = \frac{2}{10} = 0.2 = 20\%$$

## Comparing percentages, decimals and fractions

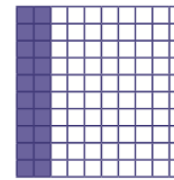
$$\frac{3}{10} > 25\% > 0.2$$



$$\frac{30}{100} = 30\%$$

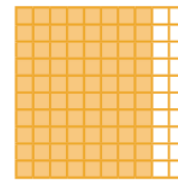


$$\frac{25}{100} = 25\%$$

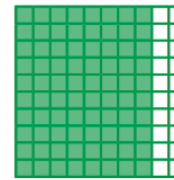


$$\frac{20}{100} = 20\%$$

$$80\% = 0.8 = \frac{4}{5}$$



$$\frac{80}{100} = 80\%$$



$$\frac{80}{100} = 80\%$$



$$\frac{80}{100} = 80\%$$

## Fractions to percentages

$$\begin{array}{c} \times 2 \\ \downarrow \\ \frac{15}{50} = \frac{30}{100} = 0.3 = 30\% \\ \uparrow \\ \times 2 \end{array}$$

$$\begin{array}{c} \div 2 \\ \downarrow \\ \frac{60}{200} = \frac{30}{100} = 0.3 = 30\% \\ \uparrow \\ \div 2 \end{array}$$

$$50\% = \frac{1}{2} \text{ so we can divide by 2}$$

$$10\% = \frac{1}{10} \text{ so we can divide by 10}$$

$$25\% = \frac{1}{4} \text{ so we can divide by 4}$$

$$1\% = \frac{1}{100} \text{ so we can divide by 100}$$

[Click here to return to selection page](#)

## Vocabulary

- Bar chart
- Pictogram
- Frequency table
- Tally chart
- Pie chart
- Discrete data
- Continuous data
- Line graph
- Sum
- Difference
- Comparison
- Interpret
- Mean
- Average

## Statistics Y5/6



### Tables and tally charts

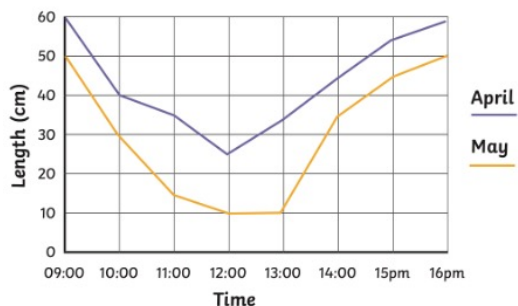
Method of Travel	Tally	Frequency
Walk		9
Bike		3
Car	I	6
Bus		12
TOTAL		30

## Line graph

Line graphs are used to show changes to a measurement over time.

It is used for continuous data (numbers that are not fixed).

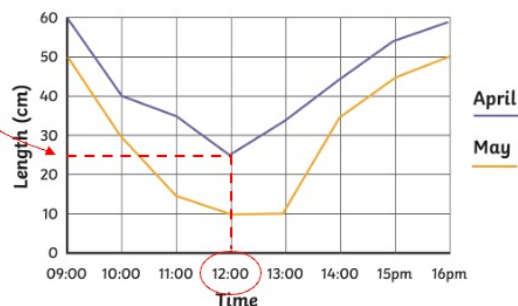
A line graph to show the length of shadows over time



To find values on a line graph, your child must use a ruler to draw lines to find the corresponding value.

For example, what time was the length of the shadow 25cm during April?

A line graph to show the length of shadows over time

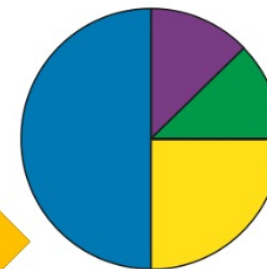
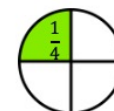
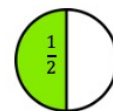


Mean is when you add up all the values and divide it by the total number of values.

## Pie charts

Children should use what they know from previous years.

A pie chart to show children's favourite sports



- Key**
- swimming
  - netball
  - football
  - gymnastics

Use these fractions and the total to find out different values

24 children were asked in total.

Swimming =  $\frac{1}{2}$  so  $\frac{1}{2}$  of 24 = 12 children

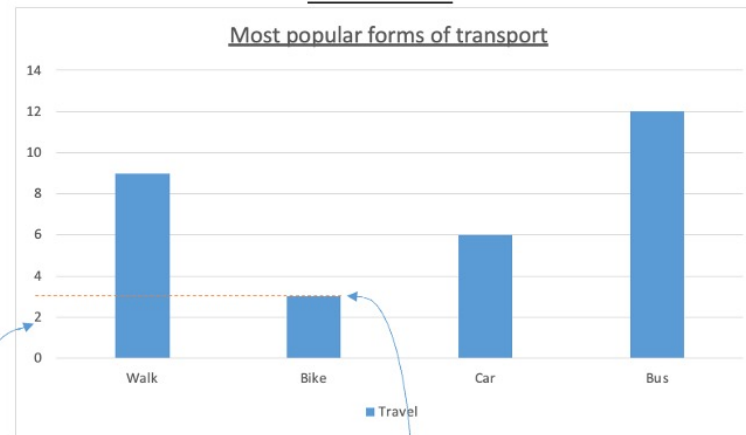
Netball =  $\frac{1}{4}$  so  $\frac{1}{4}$  of 24 = 6 children

Football =  $\frac{1}{8}$  so  $\frac{1}{8}$  of 24 = 3 children

Gymnastics =  $\frac{1}{8}$  so  $\frac{1}{8}$  of 24 = 3 children

## Bar chart

Most popular forms of transport



Scale (counting in 2s)

- To interpret a bar chart, children must draw a line to check the value of a bar.
- To draw a bar chart, the children must decide on a suitable scale, make sure the bars are an equal distance apart and the same thickness.



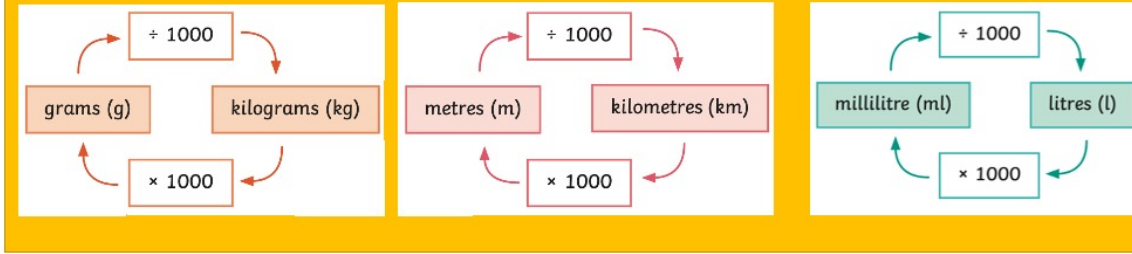
Click here to return to selection page

## Vocabulary

- Measure
- Compare
- Add
- Subtract
- Mass
- Volume
- Millilitres (ml)
- Litres (l)
- Kilograms (kg)
- Grams (g)
- Metres (m)
- Centimetres (cm)
- Millimetres (mm)
- Perimeter
- Time
- Analogue
- Digital
- Hours
- Minutes
- Seconds
- O'clock
- Half past
- Quarter past/to
- Midday
- Am and pm

## Conversion

### The 1000 club!!!



### Kilo = 1000

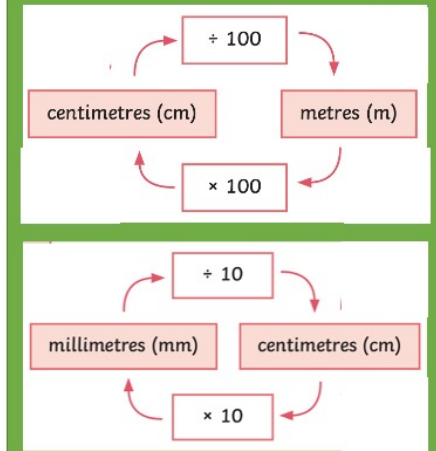
Children learn what the 1000 club is which means you always multiply or divide by 1000.

$$3600\text{g} = 3.6\text{kg} \quad 3421\text{m} = 3.421\text{km} \quad 342\text{cm} = 3.42\text{m}$$

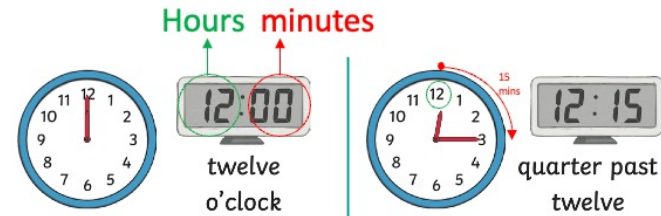
$$4521\text{g} = 4.521\text{kg} \quad 9465\text{m} = 9.465\text{km} \quad 2837\text{cm} = 2.837\text{m}$$

Conversion and  
time  
Y5/6

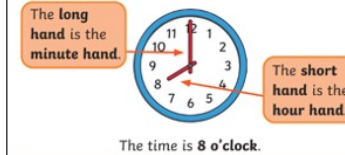
## The sad club ☹️



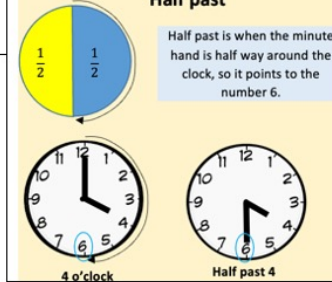
## Digital and analogue



## Telling the time - o'clock

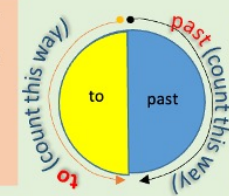


### Half past

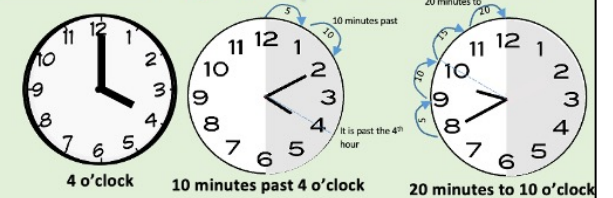


## Past and to (5 minute intervals)

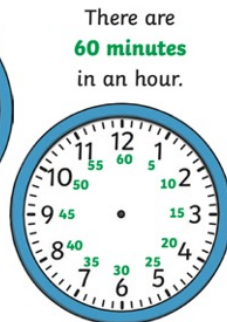
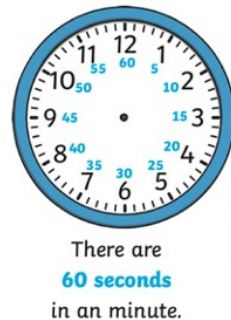
When the minute hour is on this side, you count to see how many minutes it is until the next hour (count this way from 12)



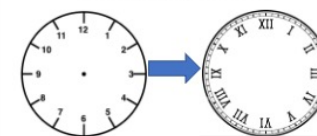
When the minute hour is on this side, you count to see how many minutes it is past the last hour (count in 5s this way from 12)



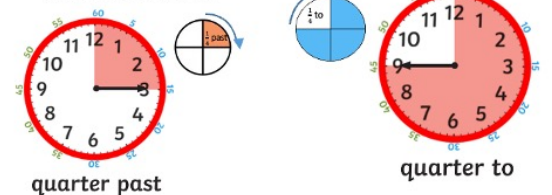
## How we measure time?



## Roman numerals



## Quarter past and to



[Click here to return to selection page](#)

## Key Vocabulary

coordinate

quadrant

x-axis

y-axis

reflection

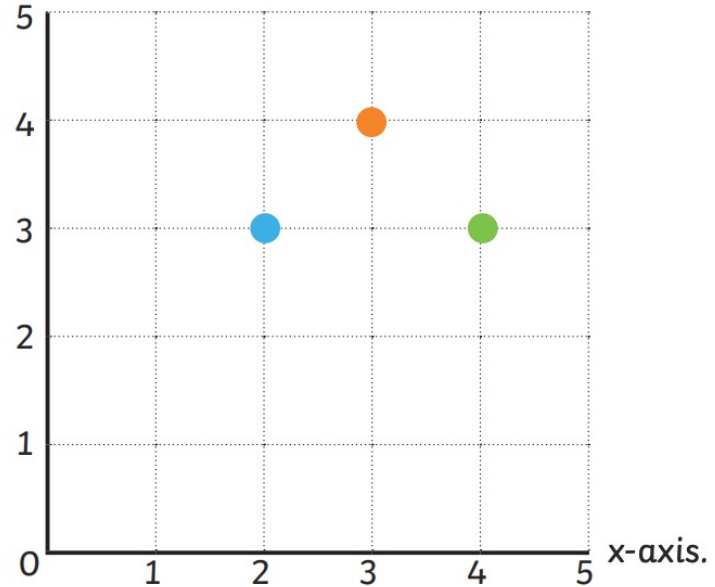
mirror line

translation

horizontal

vertical

y-axis.



Coordinates are a useful way to locate a position on a map or grid.

The numbers across the horizontal line of the grid are on the **x-axis**.

The numbers on the vertical line of the grid are on the **y-axis**.

We always read or write the number on the x-axis before the y-axis.

The x and y position are written in brackets with a comma.

The coordinate of the orange spot is **(3, 4)**.

To help you remember which point to read or write first, simply remember to move 'along the corridor and up the stairs'.

In other words, move on the **x-axis** and then move on the **y-axis**.



[Click here for #2](#)

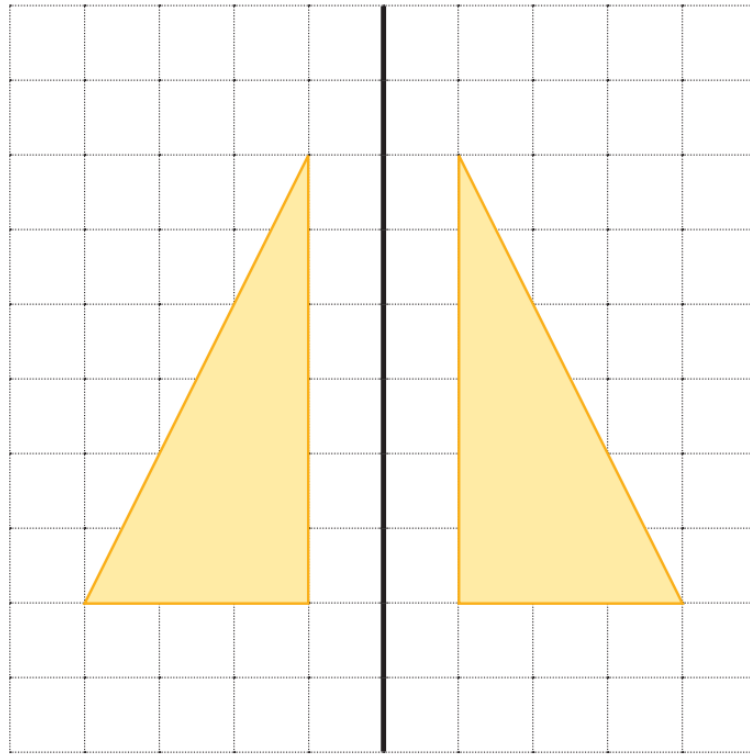
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## Reflection

A shape is reflected when it is flipped over a mirror line.

The reflected image is congruent to the original. This means that the measurements of the sides and angles have not changed.

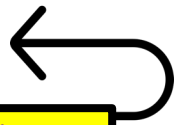
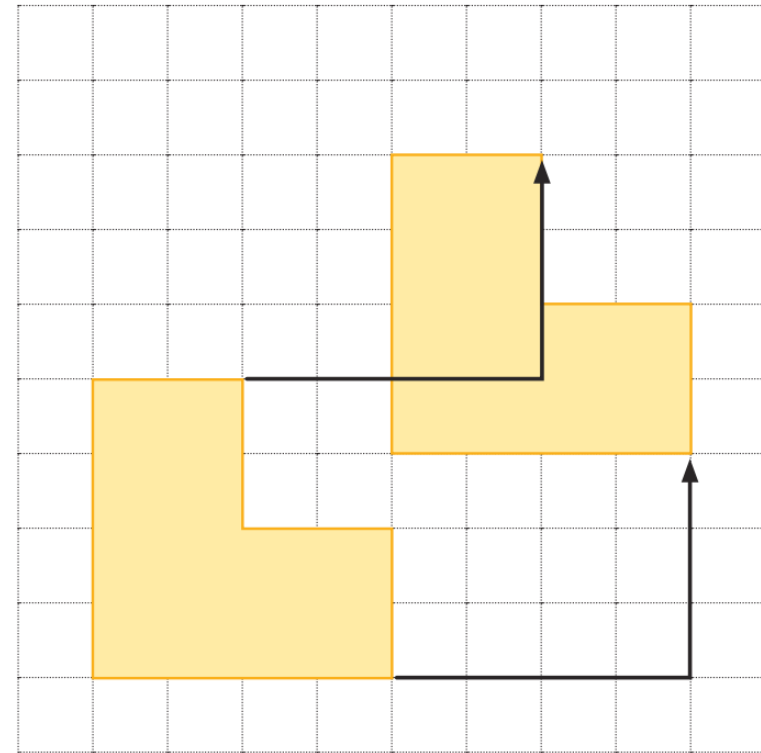
Each point of the reflected shape is the same distance from the mirror line as the original shape.



## Translation

In maths, translation means moving an object on a grid. The object is moved without changing the size, turning or reflecting it.

When translating an object on a grid, it can move up or down, left or right.



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