

# Year 7



**Newsome  
Academy**  
Everyone Exceptional Everyday

# Knowledge Organisers

Name:

Team:



# Mathematics

Our students will:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.


# 7.06 Ordering decimals and estimates

**The learning outcomes for this topic are:**

- Round numbers to a given power of 10
- Round numbers to a given amount of decimal places
- Round numbers to one significant figure


- Put a list of decimals in ascending or descending order
- Estimate simple calculations by rounding to one significant figure
- Order a list of decimals that recur


Key Word	Definition
<b>Decimal</b>	a number that is not an integer, it has decimal places
<b>Place Value</b>	the numerical value that a digit has based on the position in the number
<b>Rounding</b>	When you make a number simpler by choosing a nearby number with fewer significant figures
<b>Approximate</b>	close to the actual answer but not exact
<b>Estimate</b>	doing a rough calculation by rounding all numbers to 1 significant figure
<b>Recurring</b>	when a decimal repeats forever $1/3 = 0.333...$
<b>Significant</b>	number of digits in a number that contribute to its degree of accuracy


**Additional Resources** 

**MathsWatch:** [N2a](#), [N2b](#), [N27a](#), [N27b](#), [N38](#), [N43a](#), [N43b](#)

**Corbett Maths:** Videos [95](#), [215](#), [276](#), [277a](#), [277b](#), [278](#), [279a](#); Worksheets [95](#), [215](#), [276](#), [277](#), [278](#), [279a](#)

**Careers Focus – Where could this take you?** 

Plenty of workers such as **accountants** and **auditors** use a range of mathematics skills including simple addition and subtraction 

**Curriculum Links - Coherence** 

**Required Knowledge:**

- 7.02 Multiplying and dividing integers
- 7.05 Squares and roots and Order of Operations

**Applied to:**

- 7.07 Areas of shapes
- 7.15 Fractions, decimals and percentages
- 7.23 Angles on parallel lines
- 8.09 Rounding and approximation
- 8.26 Pythagoras' Theorem
- 9H.02 Approximation with multiplication and division

**Links across school:**

- Comparing values (Science)
- Checking calculations (Science)

**Key Concepts**

When asked to round to a certain degree of a number, you need to have a solid understanding of place value names. For example, if you were asked to round 131.47359 to the nearest **HUNDREDTH**, you would understand that means to 2 decimal places (131.47359 → 131.47)

Also, when asked to round to 1 decimal place for example, if that decimal place rounds to a zero then write it out fully (e.g. 7.03 → 7.0 NOT 7)

When asked to round to a number of significant figures (e.g. 3 significant figures) then you would round to the third non-zero number

17895 to 3 significant figures = 17900  
 95 to 1 significant figure = 100  
 0.0008954 to 2 significant figures = 0.00090

If a question asks you to estimate an answer, you round all numbers to **1 significant figure** and then answer the question

Work out an estimate for

$$\begin{array}{r} 58.8 \times 20.9 \\ \hline 101.4 \end{array}$$

58.8 → 60 and 20.9 → 20 and 101.4 → 100  
 Therefore, 60 x 20 = 1200 and 1200 ÷ 100 = 12

In order to work out the size order of recurring decimals then it can be beneficial to write them out to more decimal places

$0.\dot{4}\dot{6} = 0.46464646 \dots$  or  $0.\dot{4}\dot{6}\dot{4} = 0.464464464 \dots$

As a result of writing them out to more decimal places, we can see that  $0.\dot{4}\dot{6}\dot{4} < 0.\dot{4}\dot{6}$

**Concept – what it is**

Estimate

$$\begin{array}{r} 31 \times 398 \\ 61 \end{array}$$

Show clearly how you obtained your answer.

$$\approx \frac{30 \times 400}{60} = \frac{12000}{60}$$

$$= \frac{1200}{6} = \frac{600}{3} = 200 \quad \frac{200}{(3)}$$


---

Write these numbers in order of size.  
 Start with the smallest number.

0.417    0.417 $\dot{7}$ 77    0.417 $\dot{1}$ 717    0.417 $\dot{4}$ 17

$$0.417, 0.41\dot{7}, 0.4\dot{1}7, 0.417$$

**Standard Examples**

Write these numbers in order of size.  
 Start with the smallest number.

0.245 $\dot{4}$ 5    0.245 $\dot{5}$ 55    0.245 $\dot{2}$ 45    0.245

$$0.245, 0.24\dot{5}, 0.24\dot{5}, 0.24\dot{5}$$


---

Estimate

$$\begin{array}{r} 31 \times 398 \\ 61 \end{array}$$

Show clearly how you obtained your answer.

$$\approx \frac{30 \times 400}{60} = \frac{12000}{60}$$

$$= \frac{1200}{6} = \frac{600}{3} = 200 \quad \frac{200}{(3)}$$


---

Round 3925 to the nearest hundred.

$$3900$$

**Non-Concept – what it isn't**

Round 17.96 to 1 decimal place

**18** Even if the answer ends up with a zero in the first decimal place column you need to write your answer as **18.0**

Whilst the answers have the **same value** they have a **different degree of accuracy**

Read decimals properly 0.31 **should NOT** be read as zero point thirty-one, it **SHOULD** be read as zero point three one

**Non-Standard Examples**

Estimate the cost of 31 televisions at £196.50 each and 19 DVD players at £50.99 each.

Show clearly how you obtained your answer

$$\approx 30 \times 200 + 20 \times 50 = 6000 + 1000 = 7000$$


---

At the football match 2156 hot drinks were sold.

The caters round this number to the nearest hundred

(b) Round 2156 to the nearest hundred.

$$2200$$

# 7.06 Ordering decimals and estimates

**The learning outcomes for this topic are:**

- Round numbers to a given power of 10
- Round numbers to a given amount of decimal places
- Round numbers to one significant figure

- Put a list of decimals in ascending or descending order
- Estimate simple calculations by rounding to one significant figure
- Order a list of decimals that recur



### Useful Formulae and Hints

Become familiar with place value names (examples at bottom of 9,)

If rounding to a number of significant figures or decimals, look at the number after the desired and see if rounds up or down (1,2,3,4 DOWN 5,6,7,8,9 UP)  
For example 26.6789 to 2 decimal places 26.67 89 8 rounds up therefore 26.68 (2d.p.)

When dealing with recurring decimals, it is very beneficial to write them out to a larger number of decimals (6-8 decimal places)  
For example,  $0.345 = 0.345345$

If you have rounded an answer and the final decimal is a zero, KEEP IT THERE  
8.99 to 1 d.p. → 9.0 NOT 9

- |          |                   |               |           |          |      |      |               |        |            |             |                 |
|----------|-------------------|---------------|-----------|----------|------|------|---------------|--------|------------|-------------|-----------------|
| 2        | 6                 | 2             | 4         | 3        | 4    | 5    | .             | 2      | 3          | 4           | 5               |
| millions | hundred thousands | ten thousands | thousands | hundreds | tens | ones | decimal point | tenths | hundredths | thousandths | ten thousandths |

### GCSE Questions

(b) Round 184 329 to the nearest hundred.

(b) ..... [1]

2 (a) Write down.

(i) 3091 rounded to the nearest hundred

(a)(i) ..... [1]

19 Asha worked out  $\frac{326.8 \times (6.94 - 3.4)}{59.4}$ .

She got an answer of 19.5, correct to 3 significant figures.

Write each number correct to 1 significant figure to decide if Asha's answer is reasonable.

.....

..... [3]

(a) Round 7.3065 to 2 decimal places.

(a) ..... [1]

(b) Round each number to 3 significant figures.

(i) 408 231

(b)(i) ..... [1]

(ii) 0.006 137 02

(ii) ..... [1]

2 By rounding each value to one significant figure, estimate the cost of 3.9kg of apples at 87p per kg.

£ ..... [2]



# 7.07 Perimeter and area of rectangles and compound shapes

- The learning outcomes for this topic are:**
- Calculate the area of a rectangle
  - Calculate the perimeter of a rectangle
  - Find possible dimensions of a rectangle given its area

- Find possible dimensions of a rectangle given its perimeter
- Find the area of a compound shape constructed from rectangles
- Find the perimeter of a compound shape constructed from rectangles

Key Word	Definition
Perimeter	distance around the outside of a shape
Area	the total area inside a shape
Dimension	the measure of the size of an object
Width	horizontal measurement of a shape or object
Height	length from the base of an object to the top
Length	measurement of distance from one point to another
Perpendicular	two lines that intersect or meet at a right angle
Right Angle	90° angle
Compound shape	a shape made up of two or more shapes


**Additional Resources**

MathsWatch: [G8a](#), [G8b](#), [G9](#), [G20a](#), [G24](#)

Corbett Maths: Video [41](#), [42](#), [45](#), [241](#); Worksheet [41](#), [42](#), [45](#), [241](#)

**Careers Focus – Where could this take you?**

Painters and decorators need a good understanding of area and perimeter to know how much paint is needed to paint a room or a wall



**Curriculum Links - Coherence**

Required Knowledge:

- 7.01 Addition and subtraction
- 7.02 Multiplication and division

Applied to:


- 7.08 Areas of 2D shapes
- 8.06 Volume and surface area of a prism
- 8.11 Compound units
- 9F.21 Rectangles
- 8.19 Interior and exterior angles
- 10F.06 3D shapes, cuboids and prisms

Links across school:

- Calculating land area (Geography)

**Key Concepts**

Area of a rectangle = length x width



Area = length x width  
= 8 x 3  
= 24cm<sup>2</sup>

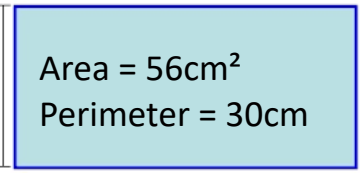
**3 cm**

*Make sure you squared units when working out area*

Perimeter = (2 x length) + (2 x width) OR simply add all sides

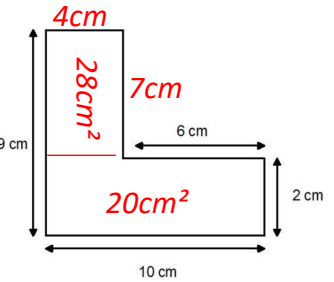
Perimeter = (2 x length) + (2 x width)  
= (2 x 8) + (2 x 3)  
= 16 + 6  
= 22cm *Don't forget units!*

*If we know the area or perimeter, we can work backwards to find a missing length*



Area = length x width  
56 = 8 x ?  
56 ÷ 8 = 7cm

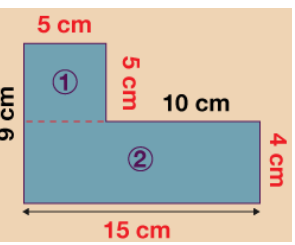
**UNITS!**



For compound shapes, try work out the missing lengths using the lengths already given

*Perimeter – add up all the sides*  
*Area – split into two rectangles (or more) and add up area of both rectangles*  
*Area = 28cm<sup>2</sup> + 20 cm<sup>2</sup> = 48cm<sup>2</sup>*

**Concept – what it is**



*In this example, the compound shape has been split into two different shapes and the relevant dimensions have been outlined in red*

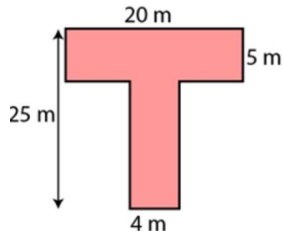
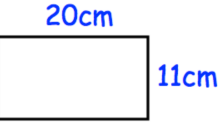
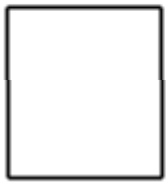
P = 2L + 2W  
42 = 2x8 + 2W  
42 = 16 + 2W  
42 - 16 = 2W  
2W = 28cm  
W = 14cm

? Perimeter = 42cm

8cm


**Standard Examples**

Find perimeter and area.

Perimeter = 26m  
Find missing length

**Non-Concept – what it isn't**

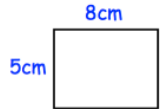
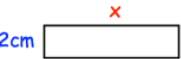


*If given a rectangle like this and asked to work out the area, do NOT multiply all four numbers A = 32m x 20m = 640m<sup>2</sup>*


*When given a compound shape, it is highly likely you'll have to find missing lengths in order to work out a perimeter or an area. Alongside this, it can be beneficial to draw your separated shapes separately to find area.*

**Non-Standard Examples**


These two rectangles have the same area. Find the length of the second rectangle.

Notice how the units are different



The bathroom floor is a rectangle measuring 4m by 2m. Each tile is 20cm by 20cm.



How many tiles does he need?

- The learning outcomes for this topic are:*
- Calculate the area of a rectangle
  - Calculate the perimeter of a rectangle
  - Find possible dimensions of a rectangle given its area

- Find possible dimensions of a rectangle given its perimeter
- Find the area of a compound shape constructed from rectangles
- Find the perimeter of a compound shape constructed from rectangles



**Useful Formulae and Hints**

**Area of rectangle = length x width**

**Perimeter = distance around the outside of a shape**

When working out **area**, if you're given all four sides, you only need to use the **length and width once**

If you've been given the area and you're struggling to find what the missing length is, use a bus stop method -  
Area ÷ length = missing length

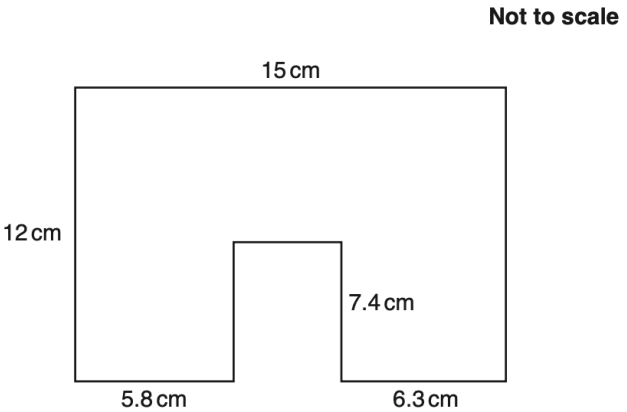
When working out a missing length when you've been given the perimeter, remember that your missing length is doubled in the perimeter so don't forget to half it -  
(Perimeter - 2 x length) ÷ 2 = missing length

When facing a **compound shape** problem, you will likely have to **work out the missing lengths** before finding an area or perimeter

When splitting you compound shapes into two or more shapes, it can be helpful to **draw your new rectangles with the correct dimensions**. Alternatively, you can circle the dimensions that are relevant

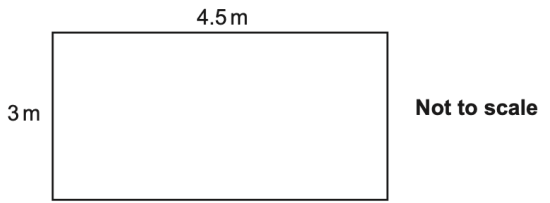
**GCSE Questions**

**12** The shape below is formed from a rectangle measuring 12 cm by 15 cm from which a rectangle of length 7.4 cm has been removed.



Work out the perimeter of the shape.  
.....cm [3]

**15** Here is the floor plan of a rectangular room.



Tim buys carpet tiles for this room.  
Each tile is a square measuring 50 cm by 50 cm.  
The tiles are only sold in packs of ten.  
Each pack costs £20.  
Tim pays for fitting at a rate of £7.50 per square metre, with any fraction of a square metre rounded up.

Work out the **total** cost of the tiles and fitting.  
£ ..... [6]

**22** The diagram shows two rectangles, A and B.



Rectangle A has a width of 25 cm and a height of 12 cm.  
The width of rectangle B is three times the height of rectangle B.

The area of rectangle A is equal to the area of rectangle B.

Find the perimeter of rectangle B.  
..... cm [5]

**15** A rectangle is three times as long as it is wide.  
It has a perimeter of 44 cm.

Find the length of the rectangle.  
..... cm [4]

# 7.08 Areas of 2D shapes

The learning outcomes for this topic are:

- Name simple 2D shapes
- Find the area of a right-angled triangle
- Find the area of a triangle (height contained or outside)
- Find the area of a parallelogram or trapezium
- Find the circumference of a circle
- Find the area of a circle

Key Word	Definition
Area	amount of space inside a shape
Triangle	three-sided shape
Parallelogram	type of quadrilateral with two sets of parallel lines
Trapezium	type of quadrilateral with one set of parallel lines
Circumference	perimeter of a circle
Diameter	a straight line from one side to the other side of a circle through the centre
Radius	straight line from middle of circle to the side, half the diameter

**Additional Resources**

MathsWatch: [G9](#), [G20b](#), [G20c](#), [G20d](#), [G22a](#), [G22b](#)

Corbett Maths: Videos [40](#), [44](#), [48](#), [49](#), [60](#); Worksheets [40/59](#), [44](#), [48](#), [49](#), [60](#)

**Careers Focus – Where could this take you?**

**Construction managers** need to use area in order to build houses and other buildings

**Curriculum Links - Coherence**

**Required Knowledge:**

- 7.02 Multiplying and dividing

**Applied to:**

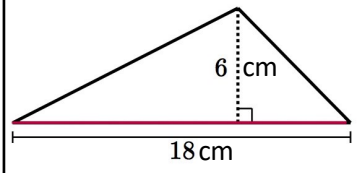
- 8.06 Volume and surface area of a prism
- 8.19 Interior and exterior angles
- 9F.06 & 9H.14 Angle facts, triangles, special quadrilaterals
- 10F.06 3D shapes, cuboids and prisms

**Links across school:**

- Areas of land (Geography)
- Force, pressure, area (Science)

**Key Concepts**

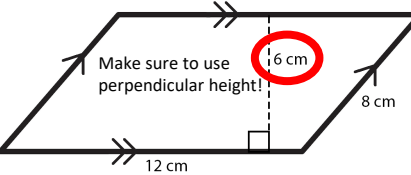
Area of a **triangle** =  $\frac{1}{2} \times \text{base} \times \text{perpendicular height}$



Area =  $\frac{1}{2} \times 18\text{cm} \times 6\text{cm}$   
 =  $0.5 \times 18\text{cm} \times 6\text{cm}$   
 =  $54\text{cm}^2$

**DON'T FORGET UNITS**

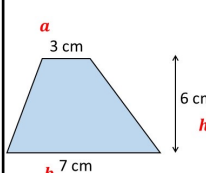
Area of a **parallelogram** =  $\text{base} \times \text{perpendicular height}$



Area =  $12\text{cm} \times 6\text{cm}$   
 =  $72\text{cm}^2$

**DON'T FORGET UNITS**

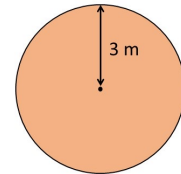
Area of a **trapezium** =  $\frac{1}{2} (a + b) \times \text{perpendicular height}$



Area =  $\frac{1}{2} \times (3\text{cm} + 7\text{cm}) \times 6\text{cm}$   
 =  $0.5 \times 10\text{cm} \times 6\text{cm}$   
 =  $30\text{cm}^2$

**DON'T FORGET UNITS**

Area of a **circle** =  $\pi \times \text{radius} \times \text{radius} (= \pi r^2)$   
 Circumference (perimeter) of a **circle** =  $2 \times \pi \times \text{radius} (= 2\pi r)$

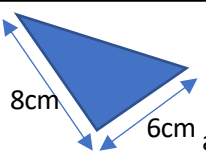


$\pi = 3.14159265... = 3.14$  (3 sig. fig.)

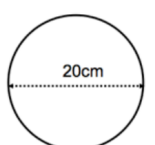
**A =  $\pi r^2$**       **C =  $\pi d$**

=  $\pi \times (3)^2$       =  $\pi \times (3 \times 2)$   
 =  $28.3 \text{ m}^2$       =  $18.8 \text{ m}$

**Concept – what it is**



Triangles and other shapes can often be different orientations, as long as base and height are perpendicular then work out area as normal



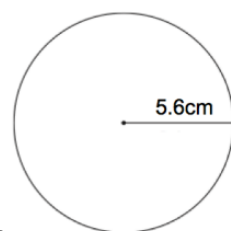
Area =  $\pi \times \text{radius}^2$   
 =  $3.14 \times (10\text{cm})^2$   
 =  $3.14 \times 100\text{cm}^2$   
 =  $314\text{cm}^2$

**DON'T FORGET UNITS**

Sometimes in circle questions, make sure you're familiar with whether you need to use the radius or the diameter, hence why the diameter has been halved

**Standard Examples**

**Find area and Circumference. Leave answer in terms of  $\pi$**

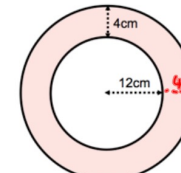


Area =  $\pi \times \text{radius}^2$   
 =  $\pi \times (5.6\text{cm})^2$   
 =  $31.36\pi \text{ cm}^2$

Circumference =  $2 \times \pi \times \text{radius}$   
 =  $2 \times \pi \times 5.6\text{cm}$   
 =  $11.2\pi \text{ cm}$

**Non-Concept – what it isn't**

**Work out the area of the shaded region.**

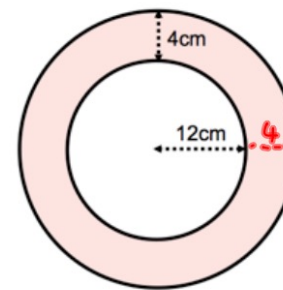


In 'doughnut' questions, make sure to use the full length radius for the bigger circle. So in this case, the radius of the bigger circle is 16cm (12cm + 4cm). Then to work out area of the shaded region, use formula big circle area – small circle area

When working with area of a circle, remember to apply the order of operations to  $\pi \times r^2$   
 Square the radius FIRST

**Non-Standard Examples**

Shown below is a circular photo surrounded by a frame.



The photo has radius 12cm. The frame has width 4cm.

Work out area of the frame. This area is shaded in the diagram.

The learning outcomes for this topic are:

- Name simple 2D shapes
- Find the area of a right-angled triangle
- Find the area of a triangle (height contained or outside)

- Find the area of a parallelogram or trapezium
- Find the circumference of a circle
- Find the area of a circle



### Useful Formulae and Hints

Area of a triangle =  $\frac{1}{2} \times \text{base} \times \text{height}$

Area of a parallelogram =  $\text{base} \times \text{height}$

Area of a trapezium =  $\frac{1}{2} \times (a + b) \times \text{height}$

Area of a circle =  $\pi \times \text{radius} \times \text{radius}$   
=  $\pi r^2$

Circumference (perimeter) of a circle =  $2 \times \pi \times \text{radius} = 2\pi r$  OR  $\pi \times \text{diameter} = \pi d$

Remember, when working out circle area, square the radius before you multiply by pi

Also when working with circles, think about whether you need to use the radius or the diameter

When working with other shapes, if the base and height are perpendicular (meet at a right angle) then it doesn't matter on the orientation of the shape.

### GCSE Questions

3 Here is a trapezium drawn on a centimetre grid.

On the grid, draw a triangle equal in area to this trapezium.

4 The diagram shows a logo made from three circles.

Each circle has centre *O*.  
Daisy says that exactly  $\frac{1}{3}$  of the logo is shaded.  
Is Daisy correct?  
You must show all your working.

12 A farmer has a field that is in the shape of a trapezium. He measures the field so that he can work out the area. He puts his measurements on this diagram of the field.

Not to scale

(a) The farmer has rounded his measurements to two significant figures.  
Give a reason why he may have done this.  
.....  
..... [1]

(b) The field produces 6400 kilograms of wheat per hectare. One hectare is 10 000 m<sup>2</sup>.  
Work out how many kilograms of wheat the field produces.

10 The area of the parallelogram is four times the area of the triangle.

Not to scale

Calculate the length, *L*, of the parallelogram.

9 The diagram represents a rectangular garden of length 10 m and width 8 m. The flower bed is a triangle and the patio is a trapezium. The rest of the garden is lawn.

Not to scale

Work out the area of the lawn.

The learning outcomes for this topic are:

- Read coordinates in all four quadrants
- Plot coordinates in all four quadrants
- Draw the graph of a single step equation
- Use a table of values to draw a more complex graph
- Find the gradient of a line segment
- Find the equation of a straight line from its graph

Key Word	Definition
<b>Linear</b>	The highest power is 1
<b>Equation</b>	An algebraic statement that two expressions are equal
<b>Graph</b>	A representation of a sequence of numbers
<b>Coordinate</b>	A point in 2D or 3D space
<b>Axis</b>	The frames of reference for coordinates
<b>Vertical</b>	Straight up and down, the y-axis
<b>Constant</b>	From left to right, the x-axis
<b>Intercept</b>	The point at which the line crosses the y-axis
<b>Gradient</b>	The slope of a line, how high it climbs for each unit across
<b>Intersect</b>	When two lines cross over one another

**Additional Resources**

**MathsWatch:** [A14a](#), [A14b](#), [A14c](#)

**Corbett Maths:** Videos [186](#), [186a](#), [189](#), [190](#), [191](#), [192](#), [193](#), [194](#); Worksheets [186](#), [189/190](#), [191/4/5](#), [192/3](#)

**Careers Focus – Where could this take you?**

Many fields of work look at the linear relationships between different variables. For example, a **Biostatistician** would study data with linear relationships related to human health, animals or plants.

**Curriculum Links - Coherence**

**Required Knowledge:**

- 7.01 Adding and subtracting
- 7.02 Multiplying and dividing
- 7.03 Adding and subtracting negatives
- 7.04 Multiplying and dividing negatives

**Applied to:**

<ul style="list-style-type: none"> <li>- 7.10 Real life graphs</li> <li>- 9F.04 Statistical diagrams</li> <li>- 9F.15 <math>y = mx + c</math></li> <li>- 10F.19 Nth term of a linear sequence</li> </ul>	<ul style="list-style-type: none"> <li>- 10H.02 Parallel and perpendicular lines</li> <li>- 10H.12 Solving simultaneous equations with graphs</li> <li>- 11F.03 Distance and velocity time graphs</li> </ul>
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**Links across school:**

- Graphing experiment results (Science)

## Key Concepts

### 1. Plotting straight line graphs

In order to **plot straight line graphs** we need to substitute values for  $x$  into the equation for the graph and work out the corresponding values for  $y$ . We often put these values in a table to make our work clearer. Once we have calculated the coordinates, we can plot these as a graph.

**Example**

Complete the table to plot the graph of the equation.

$y = x + 4$

$x$	-2	-1	0	1	2	3	4
$y = x + 4$			5	7	8		

**1** Substitute each given value for  $x$  into the general equation of a straight line.

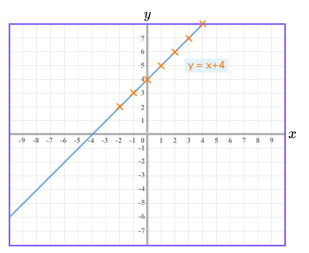
Here we need to substitute the values of  $x$  in the table to calculate the values for  $y$ .

$x$	-2	-1	0	1	2	3	4
$y = x + 4$	$y = -2 + 4$	$y = -1 + 4$	$y = 0 + 4$	$y = 1 + 4$	$y = 2 + 4$	$y = 3 + 4$	$y = 4 + 4$
	$y = 2$	$y = 3$	$y = 4$	$y = 5$	$y = 6$	$y = 7$	$y = 8$

**2** Plot the resulting coordinates onto a set of labelled axes.

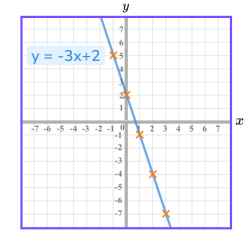
As a coordinate is written as  $(x, y)$ , from the table we now have the coordinates  $(-2, 2)$ ,  $(-1, 3)$ ,  $(0, 4)$ ,  $(1, 5)$ ,  $(2, 6)$ ,  $(3, 7)$ , and  $(4, 8)$  which we can plot:

**3** Draw a straight line through all the plotted coordinates across the whole plotting area.



Top tip: don't forget to label the line as the equation in the question. Here we have labelled the straight line  $y = x + 4$ .

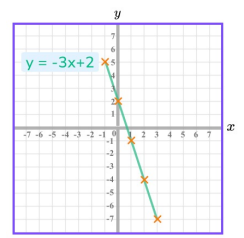
### Concept – what it is



A graph has a gradient of 4 and a y-axis intercept of 5. What is its equation?

$y = 4x + 5$

### Non-Concept – what it isn't



A straight line graph should be extended to the edge of the axes, not just join the crosses

A graph has a gradient of 4 and a y-axis intercept of 5. What is its equation?

$y = 4 + 5x$

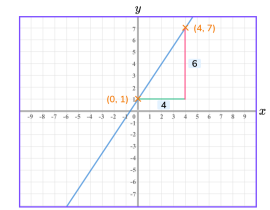
The gradient is the coefficient (number in front of  $x$ ) and the intercept is the constant (number on its own)

### Standard Examples

The **gradient of a line** tells us how steep a line is. It tells us how many steps the line goes up for every one it goes across. Therefore, the higher the gradient, the steeper the line. If the gradient is negative, the line goes down rather than up (from left to right).

**Example:**

Calculate the gradient of the straight line in the diagram.



The change in  $y$  is equal to  $y_2 - y_1 = 7 - 1 = 6$ .

The change in  $x$  is equal to  $x_2 - x_1 = 4 - 0 = 4$ .

$m = \frac{6}{4} = \frac{3}{2}$

So the gradient of the line is  $m = \frac{3}{2}$ .

### Non-Standard Examples

On the grid below draw the graph

$2x + y = 10$

Either rearrange the equation to read ' $y =$ ' so  $y = 10 - 2x$  in this case.

Or use the 'cover up method' where we first let  $x = 0$ , so the equation reads  $y = 10$  and then let  $y = 0$  so the equation reads  $2x = 10$  so  $x = 5$ .

Plot the coordinates  $(0, 10)$  and  $(5, 0)$  and join them to form the line.



## The learning outcomes for this topic are:

- Read coordinates in all four quadrants
- Plot coordinates in all four quadrants
- Draw the graph of a single step equation
- Use a table of values to draw a more complex graph
- Find the gradient of a line segment
- Find the equation of a straight line from its graph



### Useful Formulae and Hints

**Coordi nates** are written in **alphabetical order**, x and then y. So, the first number is the **across** value and the second number is the **up** or down value.

Always put **negative** values into **brackets** when using a calculator.

When plotting the coordinates of a **linear equation**, ensure they form a **straight line**. If a point doesn't seem to fit the pattern, check your workings. **NEVER** join the crosses in a **zig-zag** for a linear equations.

$$y = mx + c$$

**M** stands for the **gradient** (the slope =  $\frac{\text{up}}{\text{across}} = \frac{\text{rise}}{\text{run}}$ )

**C** stands for the **y-axis intercept**

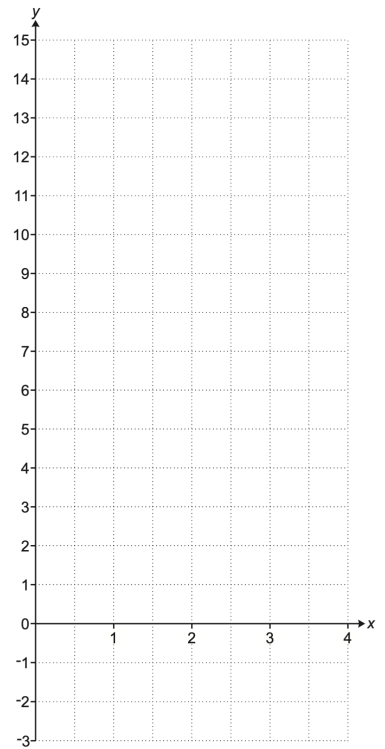
### GCSE Questions

17 (a) Complete this table for  $y = 4x - 2$ .

x	0	1	2	3	4
y	-2	2	6		14

[1]

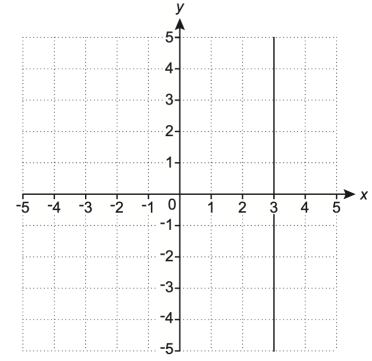
(b) On the grid below, draw the graph of  $y = 4x - 2$  for values of x from 0 to 4.



[2]

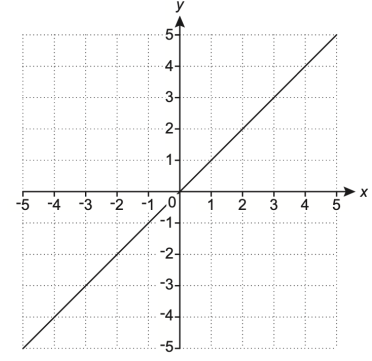
10 (a) Write down the equation of each of these lines.

(i)



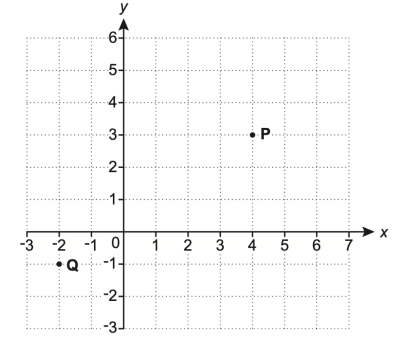
(a)(i) ..... [1]

(ii)



(ii) ..... [1]

5 Points P and Q are shown on this grid.



(a) (i) Write down the coordinates of point P.

(a)(i) (....., .....) [1]

(ii) Write down the coordinates of point Q.

(ii) (....., .....) [1]

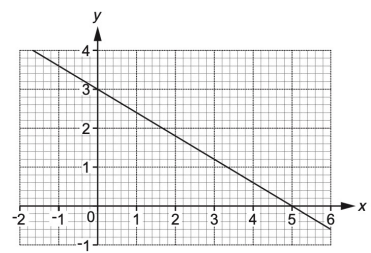
(b) Plot point R at (3, -2).

[1]

(c) Draw the line  $y = 3$  on the grid.

[1]

19 (a) This graph shows part of a straight line.



Write down the y-intercept.

(a) ..... [1]

The learning topics for this are:

- Read information from a time series graph
- Describe features of a time series graph
- Use a conversion graph
- Draw a graph from a data table
- Compare two time series graphs
- Create a conversion graph from a conversion rate

Key Word	Definition
<b>Graph</b>	A representation of a sequence of numbers
<b>Coordinate</b>	A point in 2D or 3D space
<b>Axis</b>	The frames of reference for coordinates
<b>Scale</b>	The amount the axes increase by each time
<b>Interpret</b>	Turn a graph into meaningful information, describe trends and patterns and explain their meaning
<b>Extrapolate</b>	Continue a sequence to estimate a value from the pattern
<b>Interpolate</b>	Estimate a value within the data range of the pattern
<b>Describe</b>	Give a detailed account of the shape and features of a graph


**Additional Resources**

MathsWatch: [A21a](#), [A21b](#)

Corbett Maths: Videos [151](#), [152](#), [171](#), [171a](#), [198a](#); Worksheets [151/2](#), [171](#)

**Careers Focus – Where could this take you?**

Scientists who work for **Government agencies** or **national laboratories** will analyse and interpret the information from graphs to test hypotheses and understand data.



**Curriculum Links - Coherence**

**Required Knowledge:**

- 7.09 Graphs of linear equations

**Applied to:**

- 9F.04 Statistical diagrams
- 11F.03 Distance and velocity time graphs

**Links across school:**

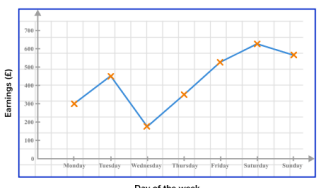
- Interpreting graphs of climate (Geography)
- Interpreting graphs of variables (Science)

**Key Concepts**

## Line Graph

A **line graph** is a way of displaying data to easily see a trend over time.

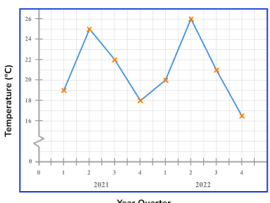
To draw a line graph, we need to **plot individual items** of data onto a set of axes, and then connect each **consecutive data** point with a **line segment**.



The **x-axis** is labelled as time e.g. Day of the week.  
The **y-axis** is labelled as the dependent variable e.g. Earnings (£).

## Time Series Graphs

A **time series graph** is a line graph that shows data such as measurements, sales or frequencies over time. They can be used to show a pattern or trend in the data and are useful for making predictions about the future such as weather forecasting or financial growth.



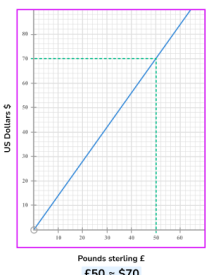
E.g. This **time series graph** shows the temperature of a town recorded over two years at three-monthly periods known as quarters.

The coordinates are plotted and then joined together with **straight line segments**.

## Conversion graphs

**Conversion graphs** are straight line graphs that show a relationship between two units and can be used to convert from one to another. They are very useful to solve real-life problems.

Some **conversion graphs** can show a direct proportion between two units, for example, converting between two currencies to show an exchange rate, such as Pounds Sterling to US Dollars.

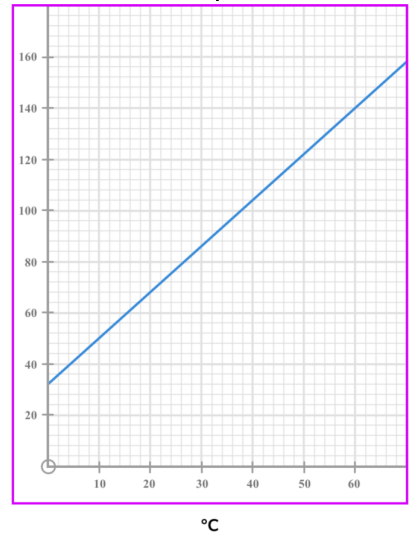


**Concept – what it is**

What is 200 °C in Fahrenheit?

Every increase of 10°C is an increase of 18°F.

So if 0°C = 32°F then

$$200^{\circ}\text{C} = 20 \times 18 + 32 = 360 + 32 = 392^{\circ}\text{F}$$


**Non-Concept – what it isn't**

20°C is the same as 68°F

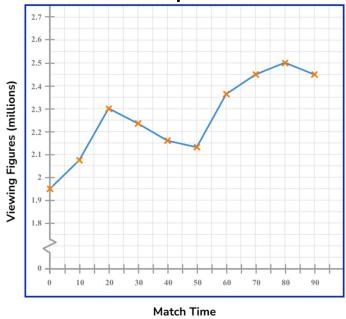
So 200°C = 10 x 68 = 680°F

When using a conversion graph we can only extrapolate the line (make it longer) when it passes through the origin (0,0). If it doesn't, then we **can't** just multiply values to find larger ones

**Standard Examples**

At what time were the viewing figures the highest?

At what time were the viewing figures the lowest?



**Non-Standard Examples**

Why might the viewing figures fall from 20 to 50 minutes and then increase from 50 to 80 minutes?

This question is asking us to apply our own experience to suggest a possible reason for this.

Highest at 80 minutes (2.5 million viewers)

Lowest at 0 minutes (1.95 million viewers)

The match might have been boring so people stopped watching. Maybe the match became more exciting, one of the teams may have scored, so people tuned back in.

## The learning outcomes for this topic are:

- Read information from a time series graph
- Describe features of a time series graph
- Use a conversion graph
- Draw a graph from a data table
- Compare two time series graphs
- Create a conversion graph from a conversion rate



### Useful Formulae and Hints

Check that any graphs don't have the common inconsistencies or misleading features.

- Are the axis **scales consistent** (do the numbers go up by the same amount each time)?
- Does the y-axis **start at zero**?
- Are the values **equally spaced**?

When describing trends remember to talk about

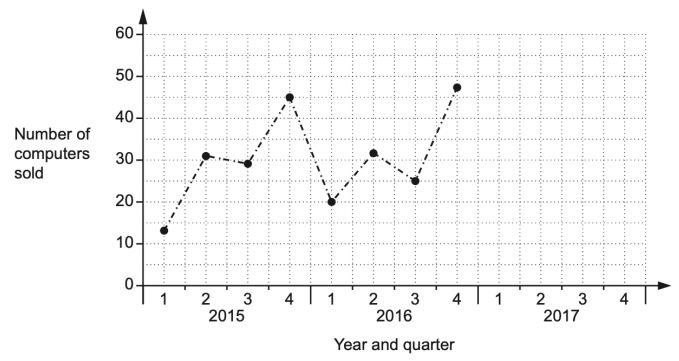
- The **highest** and **lowest** points
- Sections of the graph that are **increasing** or **decreasing**
- Any repeating **patterns**
- Any **peaks** or **troughs**

### GCSE Questions

20 The table shows the number of computers sold in Tom's shop each quarter from 2015 to 2017.

	2015				2016				2017			
Quarter	1	2	3	4	1	2	3	4	1	2	3	4
Number of computers sold	13	31	29	45	20	32	25	47	27	40	30	58

(a) Complete this graph using the information for 2017.



[2]

(c) Make two comments about Tom's sales over the period 2015 to 2017.

Comment 1 .....

.....

Comment 2 .....

.....

[2]

(d) Tom predicts that he will sell more than 60 computers in the 4<sup>th</sup> quarter of 2018.

What assumption has he made?

.....

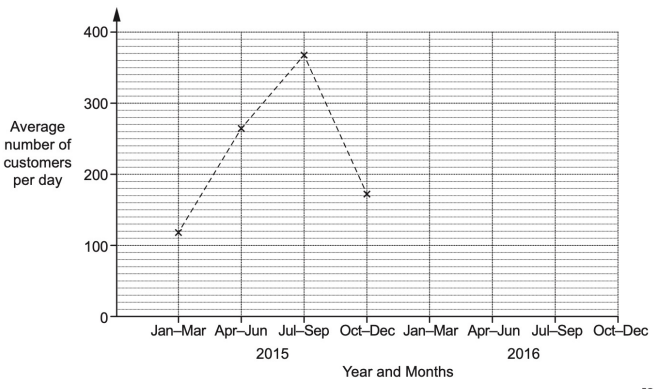
.....

[1]

23 The table shows the average number of customers per day entering a shop.

	2015				2016			
Months	Jan-Mar	Apr-Jun	July-Sep	Oct-Dec	Jan-Mar	Apr-Jun	July-Sep	Oct-Dec
Average number of customers per day	119	264	368	172	130	304	381	192

(a) Complete the time series graph below.



[2]

(b) Make two different comments comparing the number of customers entering the shop in 2015 and 2016.

Comment 1 .....

.....

Comment 2 .....

.....

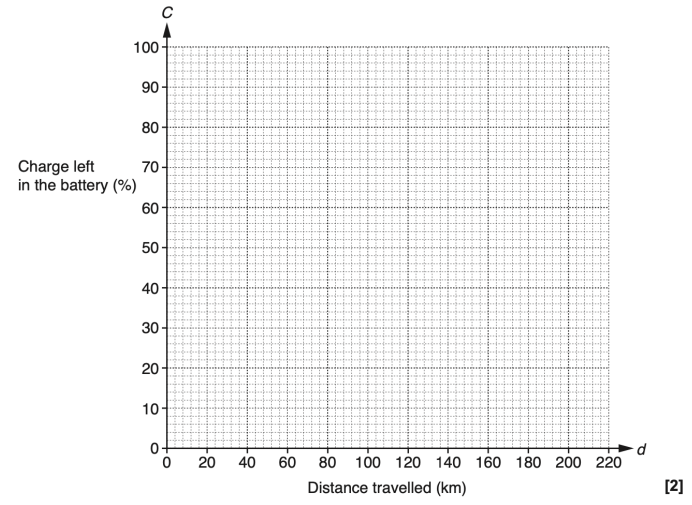
[2]

11 A company tests a new battery for an electric car. The distance the car travels,  $d$  km, and the charge left in the battery,  $C$ %, are measured.

Some measurements are shown in the table.

Distance travelled, $d$ km.	0	50	100	150
Charge left in the battery, $C$ %.	100	75	50	25

(a) Plot these values on the grid and use them to draw a straight line.



[2]

(b) (i) Use your line to estimate the greatest distance the car will travel.

(b)(i) ..... km [1]

(ii) What assumption is made when estimating the greatest distance?

.....

..... [1]





Our students will:

- read easily, fluently and with good understanding
- develop the habit of reading widely and often, for both pleasure and information
- acquire a wide vocabulary, an understanding of grammar and knowledge of linguistic conventions for reading, writing and spoken language
- appreciate our rich and varied literary heritage
- write clearly, accurately and coherently, adapting their language and style in and for a range of contexts, purposes and audiences
- use discussion in order to learn; they should be able to elaborate and explain clearly their understanding and ideas
- are competent in the arts of speaking and listening, making formal presentations, demonstrating to others and participating in debate.

# Year 7 'Private Peaceful'

- The aims of the sequence of learning are to ensure that all students:
- develop a wider range of learning strategies to extract meaning
  - explore and explain contextual factors affecting the text/writer
  - Identify and analyse use of language to create effects
  - Write analytical paragraphs explaining use and impact on the reader.

- Explore and identify how a text is structured
- Use prior knowledge of genre to predict narrative
- Identify and explain writer's purpose in creating the text.

Keyword	Definition
Symbolism	the use of symbols to represent ideas or qualities
Foreshadowing	be a warning or indication of (a future event).
Juxtaposition	the fact of two things being seen or placed close together with contrasting effect.
Insubordination	refusal to obey orders
Desertion	illegally leaving the armed forces
AWOL	(Absence without leave) walking out of barracks without permission
Tied cottage	a cottage owned by your employer that you live in on their land whilst you are employed by them
Class system	a system where social status is decided by which family you were born into

Key Concepts
<p><b>Context</b></p> <p><b>Michael Morpurgo</b> – Michael Morpurgo is an author, poet and playwright who is predominantly known for his children's novels such as War Horse (1982) and Private Peaceful (2003). His skill in 'magical story-telling' and vivid description has often been commended, most notably his depictions of World War I conditions and the Cornish coastline. Morpurgo served as the Children's Laureate from 2003 until 2005. Morpurgo has revealed that his fireside conversations with World War I veterans in Devon informed his writing of Private Peaceful</p> <p><b>World War I</b> – World War I, also known as the 'Great War', was a global war originating in Europe that took place from July 1914 to November 1918. It involved all of the world's major powers, opposing the Allies (including Russia, France, UK, and USA) against the Alliance (Germany, AustroHungary, the Ottoman Empire) Over 9 millions armed forces and 7 million civilians were killed in the war. Many more returned injured. The winter of 1916-17 was so cold that many lost fingers &amp; toes to frostbite - trenches offered no protection.</p> <p><b>Trench Warfare</b> – The use of trench warfare significantly influenced the high death toll. Both sides dug deep defensive lines in the soil called trenches. Attacks involved going across No Man's Land (in the middle) where attackers were open to machine gun fire, mines, and shells. Even if successful, casualties were huge – No Man's Land was littered with bodies. Life in the trenches were awful, with disease and exposure rife. Men would often spend weeks at a time on the front line, where they would need to sleep, eat, and defecate close to the trenches.</p> <p><b>'Desertion' and 'Cowardice' in WWI</b> – Soldiers were expected to stand and follow orders (even die for their country) irrespective of their own beliefs/ ideas. As the war, however, quickly became the bloodiest in history, for many, the horror proved too much. Shellshock and insanity ran rife, and some abandoned their posts. Throughout World War I, the British military executed 306 of their own soldiers for desertion and cowardice. In 2006, the British government announced that all 306 soldiers will receive posthumous pardons.</p>
<p><b>Motifs and Themes</b></p> <p><b>Relationships</b> – Despite the cruelties and inequalities that the Peaceful family face, they remain resolute in their togetherness and their care for one another. Tommo quickly learns that he cannot truly trust anyone except his family, and in particular Charlie. In a world that seems determined to divide and break them, the brothers remain sheltered by their relationships with one another. In the end, Charlie pays the ultimate price for this, as he puts his family bonds ahead of military commands. Tommo tries to ensure that his bravery is not forgotten.</p> <p><b>The Futility of War</b>– Morpurgo aims to capture the harshness of war and the terror faced by the soldiers. Through Tommo and Charlie's experiences, a generation of young men are pressurised into enlisting, trained inadequately, and sent off to face horrors of which the world had never seen before. Morpurgo makes clear that the reasons for fighting in the war were lost at the front lines, as progressively younger men are wiped out. War continues to divide people, to change them forever, and I write about it both because I want people to understand the absolute futility of war, the "pity of war" as Wilfred Owen called it." (Michael Morpurgo)</p>

Plot in 10 Quotes
<ul style="list-style-type: none"> <li>• I won't dream it away. I mustn't, because every moment of it will be far too precious...Tonight, more than any other night of my life, I want to feel alive.' - Tommo</li> <li>• 'then Charlie would be there beside me, and everything would be all right again. Charlie always made things all right again.' Tommo</li> <li>• Charlie could have left me there. He could have made a run for it and got clean away, but Charlie's not like that. He never has been.' Tommo</li> <li>• I couldn't believe what he was saying. They hadn't told me. They'd been meeting in secret and neither of them had told me.' Tommo</li> <li>• 'we both knew enough hurt had been done already, that more would only widen the rift between us and neither of us wanted that.' Tommo</li> <li>• 'Charlie was stirring Hanley up unnecessarily, and was making things difficult for the rest of us.'</li> <li>• 'even if I wanted to, I can't go with you because I'd have to leave Tommo behind, and I can't do that.' Charlie</li> <li>• 'It wasn't a trial Tommo, they'd made up their minds I was guilty before I even sat down' Charlie</li> <li>• 'They tell me he refused the hood and that he was singing when he died..' Tommo</li> <li>• 'All I know is that I must survive. I have promises to keep.' Tommo</li> </ul>

Theories
<p><b>Shell-shock</b> - Shell-shock was a reaction to being constantly under bombardment from high explosives. It caused insanity and many physical problems such as being unable to stop shaking.</p> <p><b>Gas/chemical weapons</b> - these were first used in WW1 and were seen as immoral by many. However, many did not see a difference between using gas and other forms of weapons.</p> <p><b>Propaganda</b> - Propaganda was not new, but due to more efficient printing systems and the need to recruit more soldiers than in any other war, it was used more often. However, anti-war propaganda also increased.</p>

## TONE WORDS LIST

**POSITIVE**

- Sympathetic
- Wistful
- Ebullient
- Zealous
- Self-assured
- Confident
- Fervent
- Compassionate
- Scholarly
- Happy
- Sanguine
- Romantic



**NEGATIVE**

- Worshipful
- Reassuring
- Proud
- Facetious
- Placid
- Mirthful
- Passionate
- Optimistic
- Nostalgic
- Forthright
- Expectant
- Reflective

- Doubtful
- Disrespectful
- Acerbic
- Horror
- Abhorring
- Hopeless
- Grim
- Gloomy
- Furious
- Frustrated
- Ambivalent
- Indifferent

- Frantic
- Confused
- Threatening
- Condescending
- Forceful
- Evasive
- Disliking
- Pedantic
- Disappointed
- Belligerent
- Diabolic
- Bewildered



## Retrieval Practice - Model Response and Assessment

Assessment Questions will be linked to Creative Writing and Paper 1: Q1-4 Skills.

The assessment objectives are as follows:

P1Q1: A01- Inference and comprehension

P1Q2: A02- Methods (language)

P1Q3: A02- Methods (structure)

P1Q4: A04- Look at and explore texts critically. Presenting an argument.

P1Q5: A05- Clear communication and A06- Spelling, punctuation and grammar.

### Questions

### Answers

**P1Q1: List four things you learn about Thomas**

- a) Thomas is alone.
- b) Thomas is feeling alive.
- c) Thomas is led by Charlie.
- d) Thomas feels nervous.

**P1Q2: How does Morpurgo use language to present Thomas' feelings about war?**

Morpurgo possibly uses a pattern of adjectives such as 'heavy' and 'strange' to not only present Thomas' feelings of anxiousness about war and his fate but also Thomas' sense that nature is against him.

**P1Q3: How does Morpurgo use structure to interest the reader?**

The writer possibly uses juxtaposition between the innocence of Thomas in 'my heart is heavy' and the experience of Charlie in 'he's done everything and knows everything' to highlight the sense that Thomas is foregrounded as a character who experiences a feeling of injustice in life.

**P1Q4: A student once said 'Thomas Peaceful is a true victim of war in this novel.' To what extent do you agree with the statement?**

It can be argued that Thomas Peaceful is constructed by Morpurgo to be a character who is an innocent young man who struggles with war and is a victim because he is seen as isolated during battle and 'huddled in his tent'. This imagery of 'huddled' maybe presents him as oppressed by war and metaphorically trapped as a victim by the battle around him.

**P1Q5:**

- Write a narrative about a conflict.
- Or write a description of a soldier's feelings in war.



## Character Descriptions

**Thomas 'Tommo' Peaceful** – Tommo is the young narrator and central character in the novel. As he narrates, he is an underage soldier, fighting in France in WWI. He is scared and alone. He looks back on his earlier childhood memories, in which he has relied on his brother for guidance and protection. They have a joint-love of their childhood friend: Molly. It appears Tommo may have early PTSD or shellshock.

**Charlie Peaceful** – Charlie is Tommo's older brother, and also acts as his protector. As a child, he has always looked out for his brother, and he now continues to do so as a soldier. By putting family loyalty first, Charlie faces the death sentence through a military court. Charlie is tough, yet strong, brave and righteous, caring for others (such as Molly and Tommo) before himself. He deserves better than the fate he is given.

**Big Joe** – Big Joe, the eldest Peaceful brother, has learning difficulties which stemmed from early childhood meningitis. He is highly sensitive and unable to adequately communicate his thoughts. His brothers adore him and help to care for him.

**Mrs Peaceful** – She is the mother to the three sons, and does this job alone (after her husband's death) very well. She stands up for her boys at numerous times in the novel, and takes hard jobs to ensure that they are provided for.

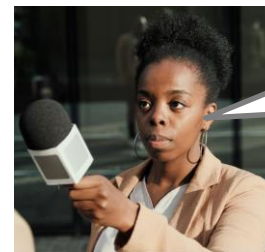
**Molly** – Molly is the girl with whom Charlie and Tommo have grown up. As a young girl, she is a bit of a tomboy, and engages in all of the activities that the boys do. She is thrown out of her house by her parents when she becomes pregnant by Charlie, which forces her to grow up quickly. She seems to hold strong feelings for both of the Peaceful brothers.

**The Colonel** – represents upper class attitudes and power. The 'enemy' of working class people like the Peacefuls. Blackmails Charlie into joining up by threatening to throw them out of the cottage.

**Sergeant Hanley** – Hanley demonstrates all that is wrong with the outlook and attitudes of many people at war. He lacks empathy or sensitivity, and his bullying of Tommo becomes even worse when he realises that Tommo is underage. When Charlie addresses this with him, he is written up for subordination, rather than ceasing his behaviour.



## Career Focus - Where could this take you?



*As a **journalist** I investigate, collect and present information as a news story or article featured in a newspapers, magazines, radio, television and the internet.*

*I have to research and conduct interviews to find out background information.*

*I can specialise in an area such as sports, politics, travel etc.*

## Topic Links



This topic links to:

- Self expression and religious beliefs in RE.
- The World War One focus in History.
- Previous novel study in English in Year 6 and you will cover novels later in Year 8 and onwards.

## Additional Resources



To further practise and develop you knowledge see:

- AQA guidance on responses:  
<https://filestore.aqa.org.uk/textbooks/sample/gcse-english/AQA-8700-8702-COLLINS-SAMPLE-CORE.PDF>



Our students will:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

The aims of the sequence of learning are to ensure that all students:

- to understand how energy is stored and transferred
- to be able to calculate energy efficiency

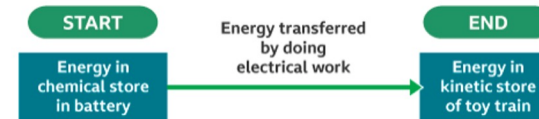
- to understand the different types of energy resources
- to be able to identify the different between renewable and non-renewable energy sources

Keyword	Definition
Energy store	Type of energy. Energy is measured in Joules (J).
Kinetic energy	Anything moving has energy in its kinetic store (faster = more energy).
Gravitational potential energy	Anything that has mass and is in a gravitational field (higher up = more energy).
Chemical energy	Anything that can release energy by a chemical reaction (examples include food and fuels).
Elastic potential energy	Anything that can be stretched or compressed.
Thermal energy	Every object has thermal energy (higher temperature = more energy).
Energy transfer	When energy moves from one store to another.
Heat transfer	Energy transfer between hot and cold objects.
Electrical transfer	Energy transfer when a charge (current) moves.
Radiation transfer	Energy transfer through light/sound.
Mechanical transfer	Energy transfer when an object moves due to a force.
Renewable	Naturally replenished (will not run out), for example solar panels and wind turbines.
Non-renewable	Not naturally replenished (will run out), for example fossil fuels.

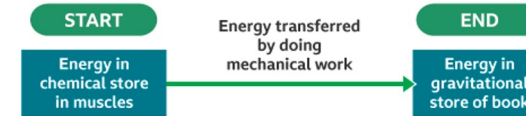
## Key Concepts

### Energy Transfers

#### Example 1: Battery powered train



#### Example 2: Person moving a book to a high shelf



### Law of Conservation of Energy

The law of conservation of energy states that energy **cannot** be **created** or **destroyed**, it can **only** be **transferred** from one store to another.

When energy is transferred, it can be **dissipated**. This is where energy is **'wasted'** by being transferred to the **surroundings**. Energy becomes stored in less useful ways, e.g. as thermal energy.

### Energy Efficiency

How good a device is at transferring energy input to useful energy output is called **efficiency**. The more efficient a device is, the less energy it will waste.

$$\text{EFFICIENCY} = \frac{\text{USEFUL POWER OUTPUT}}{\text{TOTAL POWER INPUT}} \times 100$$

### Energy Resources

#### FOSSIL FUELS (NON-RENEWABLE)

Coal, oil and gas are all fossil fuels. They are formed from dead remains over millions of years. They are burnt which produces thermal energy used to turn a generator and make electricity.

- + Reliable
- + Releases energy quickly
- + Can be used in vehicles as fuel

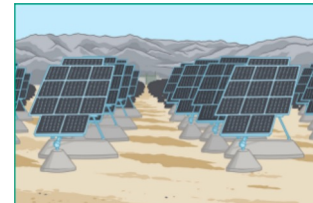


- Will run out
- Releases carbon dioxide
- Extraction can run landscapes

#### SOLAR PANELS (RENEWABLE)

They use the sunlight to produce an electrical current.

- + No pollution
- + No fuel costs
- + Can be used in remote locations



- Unreliable
- Expensive to set up
- Can only be used in daytime

#### WIND TURBINES (RENEWABLE)

Wind turns the blades which turns a generator, this produces electricity.

- + No pollution
- + No fuel costs
- + Minimal running costs



- Unreliable
- Spoils the view
- Can only be used when it is windy



- to understand how energy is stored and transferred
- to be able to calculate energy efficiency

- to understand the different types of energy resources
- to be able to identify the different between renewable and non-renewable energy sources



## Retrieval Practice

Questions	Answers
What is kinetic energy?	Anything moving has energy in its kinetic store (faster = more energy).
What is thermal energy?	Every object has thermal energy (higher temperature = more energy).
What is elastic potential energy?	Anything that can be stretched or compressed.
What is gravitational potential energy?	Anything that has mass and is in a gravitational field (higher up = more energy).
What is chemical energy?	Anything that can release energy by a chemical reaction (examples include food and fuels).
What are the 4 methods of energy transfer?	Heat, electrical, radiation, mechanical.
What is unit of measurement for energy?	Joules (J).
What is the law of conservation of energy?	Energy cannot be created or destroyed; it can only be transferred from one store to another.
What does the efficiency tell you about a device?	How much of the input energy is transferred usefully and how much is wasted.
What does renewable mean?	It is naturally replenished (will not run out).
What does non-renewable mean?	It is not naturally replenished (will run out).
What are the disadvantages of using fossil fuels?	It is non-renewable so will run out, it releases carbon dioxide and extraction can ruin landscapes.
What are the advantages of solar panels?	It is renewable so will not run out, there is no pollution or fuel costs and has minimal running costs.

## Career Focus - Where could this take you?



I am a welder. My job is to use high heat to fuse materials, creating strong, durable bonds between them. I must decide the best techniques to use on different materials to quickly create strong and safe joints. Welders are required in most sectors so my workplace could be in a workshop, in a factory, on a construction site, on a demolition site or even on an oil rig. Welding combines the mental satisfaction of exacting technical standards with the physical rewards of precise handcrafting.

## Challenge Activities



1. Make flashcards for the definitions and retrieval practice questions.
2. Make a mind map for this topic. Remember to include keywords and the links between information.
3. Research the latest innovations in renewable energy. What is currently being developed and how does it work?
4. Make a poster about energy transfers.
5. Find out more about welders and what they do. What qualifications would you need for this career? What is the average salary?
6. Research the famous scientist Thomas Edison (1847-1931) and how he influenced and improved our understanding of energy. What contributions to society did he make?

## Topic Links



This topic links to other science topics such as:

- Digestive system
- Types of pollution

We will also be learning how to create a sustainable future and economy.

## Additional Resources



To further practise and develop you knowledge see:  
Educake - <https://www.educake.co.uk/>

BBC Bitesize –  
<https://www.bbc.co.uk/bitesize/topics/z89ddxs>

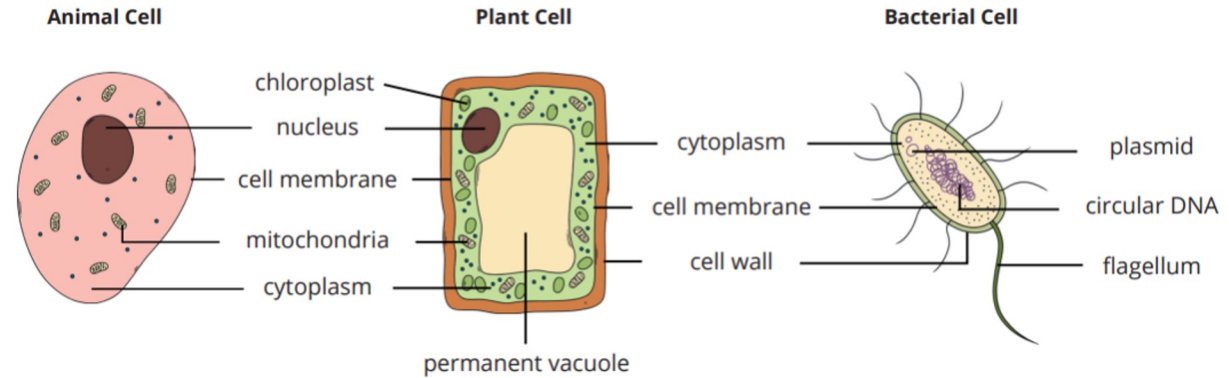
YouTube Cognito -  
[https://www.youtube.com/watch?v=JGwcDCeYRYo&list=P\\_LidqqIGKox7UVC-8WC9djoebZwxPeXph7](https://www.youtube.com/watch?v=JGwcDCeYRYo&list=P_LidqqIGKox7UVC-8WC9djoebZwxPeXph7)

- to understand the structure of an animal, plant and bacterial cell including identifying organelles and their functions

- to be able to describe how use a microscope and look at different cells under the microscope
- explain what specialised cells are and give some examples

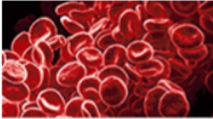
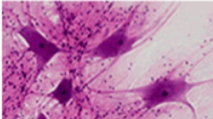
Keyword	Definition
Cell	Basic unit of life.
Cell membrane	Controls the movement of substances in and out of the cell.
Nucleus	Contains genetic information.
Circular DNA	The genetic information found inside bacteria (without nucleus).
Cell wall	Provides support to plant and bacterial cells.
Cytoplasm	Jelly-like substance where chemical reactions take place.
Mitochondria	Where respirations takes place. Releases energy.
Chloroplasts	Contains the green pigment chlorophyll, the site of photosynthesis.
Vacuole	Contains cell sap.
Flagella	Hairlike structure that allows bacteria to move.
Plasmid	Small circular ring of DNA.
Specialised cell	Cells designed to carry out a particular role in the body.
Function	The purpose for which something exists, its role.
Adaptation	Features of living organisms that help them survive

## Key Concepts

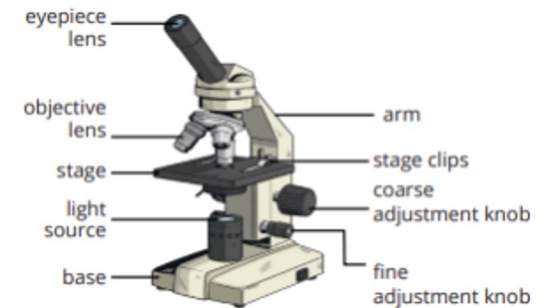


## Specialised Cells

Humans are multicellular. That means we are made of lots of cells, not just one cell. The cells in many multicellular animals and plants are specialised, so that they can share out the processes of life. They work together like a team to support the different processes in an organism.

Image	Type of animal cell	Function	Special features
	Red blood cells	To carry oxygen	<ul style="list-style-type: none"> <li>Large surface area, for oxygen to pass through</li> <li>Contains haemoglobin, which joins with oxygen</li> <li>Contains no nucleus</li> </ul>
	Nerve cells	To carry nerve impulses to different parts of the body	<ul style="list-style-type: none"> <li>Long</li> <li>Connections at each end</li> <li>Can carry electrical signals</li> </ul>

## Parts of a light microscope




### Using a Light microscope


- Prepare a slide.
- Plug in microscope and turn on light.
- Place slide on stage and hold with clips.
- Use lowest magnification objective lens to focus image.
- Then turn up the magnification by turning to a higher power objective lens.

- to understand the structure of an animal, plant and bacterial cell including identifying organelles and their functions

- to be able to describe how use a microscope and look at different cells under the microscope
- explain what specialised cells are and give some examples

Retrieval Practice 	
Questions	Answers
What is a cell?	Cells are the basic building blocks of all living organisms.
What is an organelle?	Specialised structures that perform various jobs inside cells.
What is the function of the nucleus?	Contains genetic information (DNA) that controls cell activities.
What is the function of the cell membrane?	To control what enters and leaves the cell.
What is the function of the cytoplasm?	Where chemical reactions take place.
What is the function of mitochondria?	The site of respiration - where energy is released.
What is the function of the cell wall?	To strengthen and support plant and bacterial cells.
What is the function of chloroplasts?	Contains chlorophyll to absorb light energy for photosynthesis.
Which organelles are present in both animal and plant cells?	Nucleus, Cell membrane, Cytoplasm, Mitochondria,
Which organelles are present in plant cells but not in animal cells?	Chloroplasts, Cell wall, Vacuole.
Name the parts of a microscope	Eye piece, objective lens, stage, lamp, focusing wheel.
What does focus mean and how do you focus an image?	Making an image clear enough to be viewed under the microscope by using the focussing wheel.
What is a specialised cell?	Specialised cells are cells designed to carry out roles in the body.



### Career Focus - Where could this take you?



I am a biochemist. My job is to investigate the chemical processes that take place in all living things such as bacteria, plants and people. My workplace is a laboratory at a University where I get to plan and carrying out scientific experiments, use lab equipment and publish my findings. Biochemistry has hugely benefited society, for example it has provided explanations for many diseases, helped with food production and improved human health!

### Challenge Activities

1. Make flashcards for the definitions and retrieval practice questions.
2. Make a mindmap for this topic. Remember to include keywords and the links between information.
3. Research specialised cells found in both animals and plants and turn the information into a leaflet.
4. Make a 3D model of a cell - you can use recycled materials or even bake!
5. Find out more about Biochemists and what they do. What qualifications would you need for this career? What current research is being done?
6. Construct a fact file about a famous historical scientist that helped us to understand more about cells

Topic Links 	Additional Resources 
<p>This topic links to:</p> <ul style="list-style-type: none"> <li>• Scientific Skills</li> <li>• Organisation</li> <li>• Energy</li> </ul> <p>We will also be practising how to</p> <ul style="list-style-type: none"> <li>• Calculate area and volume</li> <li>• Write descriptively to compare cells</li> </ul>	<p>To further practise and develop you knowledge see:</p> <p>Educake - <a href="https://www.educake.co.uk/">https://www.educake.co.uk/</a>            BBC Bitesize - <a href="https://www.bbc.co.uk/bitesize/guides/z9hyvcw/revision/3">https://www.bbc.co.uk/bitesize/guides/z9hyvcw/revision/3</a>            YouTube Cognito - <a href="https://www.youtube.com/watch?v=qHkUOIC8Nbo&amp;list=PLldqqlGKox7X5UFT-expKluR-i-BN3Q1g&amp;index=2">https://www.youtube.com/watch?v=qHkUOIC8Nbo&amp;list=PLldqqlGKox7X5UFT-expKluR-i-BN3Q1g&amp;index=2</a></p>






The aims of the sequence of learning are to ensure that all students:

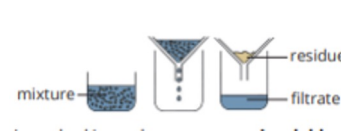
- to understand the states of matter and how we use the particle model to draw them including how states change
- to understand how we can separate substances using filtration, evaporation, chromatography and distillation

Keyword	Definition
Solid	Solid objects can hold their shape.
Liquid	Liquids can flow but cannot be compressed (squashed).
Gas	Gases can flow and expand to fill a container.
State of Matter	The states at which substances can exist, either solid, liquid or gas.
Particles	A small portion of matter usually drawn as a circle.
Properties	The characteristics of a substance.
Melt	When a substance changes from a solid to a liquid.
Freeze	When a substance changes from a liquid to a solid.
Condense	When a substance changes from a gas to a liquid.
Evaporate	When a substance changes from a liquid to a gas.
Diffuse	When particles of a substance spread out.
Filtration	Separating insoluble solid from liquid.
Distillation	Separating a solvent from a mixture.
Chromatography	Separating a mixture of soluble substances.

## Key Concepts

	Solid	Liquid	Gas
<b>particle model diagram</b>			
<b>particle arrangement</b>	regular structure no space between particles	irregular structure very little space between particles	irregular structure large space between particles
<b>volume and shape</b>	fixed volume fixed shape	fixed volume shape changes to fill bottom of container	volume increases to fill capacity shape changes to fill capacity
<b>able to flow</b>	no (forces between particles are very strong and hold them in fixed positions)	yes (forces between particles are weak and particles slide over one another)	yes (forces between particles are very weak and particles move randomly and rapidly)
<b>density</b>	high cannot be compressed (particles are already tightly packed)	high cannot be compressed (particles are already tightly packed)	low can be compressed (particles are forced closer together)
<b>particle energy levels</b>	low (particles vibrate around a fixed point only)	moderate (particles can move and flow but slowly)	high (particles moving rapidly and freely)

## Filtration and Crystallisation



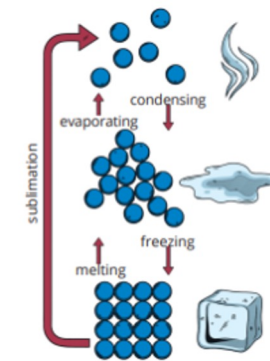
Filtration can be used to separate an insoluble solid from a liquid by passing the mixture through a funnel and filter paper. The solid residue remains in the paper and the liquid is called the filtrate. For example separating sand and water.

Evaporation can be used to separate a soluble solid from a liquid by heating the solution and allowing the liquid to evaporate. The soluble solid will be left behind and will crystallise. For example separating salt and water.



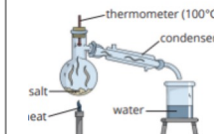
## Changes of State

Substances can change state; from a solid to a liquid (melting) liquid to a gas (evaporating) gas to liquid (condensing) and liquid to solid (freezing). Sublimation is when a substance changes from a solid directly to a gas.



The arrangement of particles changes when the substance changes state.

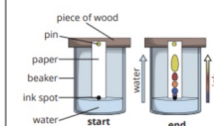
## Distillation



Distillation can be used to separate a solvent from a solution. The liquid is heated and evaporates from the flask and into the condenser where it turns back into a liquid.

Distillation is used to either collect a liquid or separate 2 liquids with different boiling points. E.g. collect pure water from salt water or separating water and ink.

## Chromatography



Chromatography can be used to separate a mixture of soluble substances. For example different dyes in inks. The colours are separated because they have varying solubilities.

The inks are carried up the filter paper (stationary phase) by a solvent (the mobile phase).



The aims of the sequence of learning are to ensure that all students:

- to understand the states of matter and how we use the particle model to draw them including how states change
- to understand how we can separate substances using filtration, evaporation, chromatography and distillation



## Retrieval Practice

Questions	Answers
How are particles arranged in solids?	A regular structure with no space between particles
How are particles arranged in liquids?	An irregular structure with little space between particles
How are particles arranged in gases?	An irregular structure with large spaces between particles
What are the properties of a solid?	Fixed volume and shape that cannot flow or be compressed
What are the properties of a liquid?	Fixed volume, can flow/change shape, can't be compressed
What are the properties of a gas?	No fixed volume or shape, can be compressed
What is happening when a substance melts?	The particles gain energy and change from solid to liquid
What is happening when a substance freezes?	The particles lose energy and change from liquid to solid
What is happening when a substance evaporates?	The particles gain energy and change from liquid to gas
What is happening when a substance condenses?	The particles lose energy and change from gas to liquid
What equipment is used during filtration?	Funnel, filter paper and conical flask
How does filtration work?	Insoluble solids remains in paper and liquid passes through
What equipment is used during crystallisation?	Evaporating dish and bunsen burner
How does crystallisation work?	Liquid evaporates when heated and soluble solid crystallises
What equipment is used during distillation?	Round bottom flask, thermometer and condenser
How does distillation work?	Substances are boiled (evaporated) then cooled (condensed) they separate because they have different boiling points

## Career Focus - Where could this take you?



I am an alcohol and drug technician. My job is to carry out alcohol and drug testing for workplaces, the police force and drug rehabilitation programmes. My main workplace is a laboratory where I test urine samples using techniques such as immunoassay and gas chromatography to help me identify the type and the amount of substances in a person's system. Chromatography is used for many applications and affects everything from what you eat to how we fight disease.

## Challenge Activities



1. Make flashcards for the definitions and retrieval practice questions.
2. Make a mindmap for this topic. Remember to include keywords and the links between information.
3. Research the real life applications for the different separating techniques. Who uses them in which careers?
4. Make a 3D model of the different states of matter - solid, liquid and gas.
5. Find out more about alcohol and drug technicians and what they do. What qualifications would you need for this career? What is the average salary?
6. Construct a fact file about a famous historical scientist that helped us to understand more about substances and particles.

## Topic Links



This topic links to:

- Scientific Skills
- Chemical reactions
- Energy

We will also be practising how to

- Use numerical data to identify states of matter
- Present using V21 skills

## Additional Resources



To further practise and develop you knowledge see:

Educake - <https://www.educake.co.uk/>  
 BBC Bitesize - <https://www.bbc.co.uk/bitesize/topics/zkr4jxs/articles/z3qyydm>  
 YouTube Cognito - [https://www.youtube.com/watch?v=vi\\_SJBnxmHo&list=PLldqqIGKox7WeOKVGHxcd69kKqtwrKl8W&index=5](https://www.youtube.com/watch?v=vi_SJBnxmHo&list=PLldqqIGKox7WeOKVGHxcd69kKqtwrKl8W&index=5)

Our students will:

- understand and respond to spoken and written language from a variety of authentic sources
- speak with increasing confidence, fluency and spontaneity, finding ways of communicating what they want to say, including through discussion and asking questions, and continually improving the accuracy of their pronunciation and intonation
- can write at varying length, for different purposes and audiences, using the variety of grammatical structures that they have learnt
- discover and develop an appreciation of a range of writing in the language studied.







The aims of the sequence of learning are to ensure that all students:

- Can give their name age and birthday.
- Can say how many brothers and sisters they have.
- Can describe their pets.

- Can say what they like and dislike using cognates.
- Can describe their personality.
- Can use avoir
- Can use être.

Keyword	Definition
Comment ça va?	How are you?
Comment t'appelles-tu?	What is your name?
Ça s'écrit comment?	How do you spell it?
Quel âge as-tu?	How old are you?
C'est quand ton anniversaire?	What date is your birthday?
Tu as des frères et soeurs?	Do you have any brothers or sisters?
Qu'est-ce qu'il y a dans ta salle de classe?	What is there in your classroom?
Tu aimes <b>le foot</b> ?	Do you like football?
Tu est comment?	What are you like?
Qu'est-ce que tu fais?	What do you do?

## Key Concepts

Un chat 	Un lapin 	Un perroque 	Une souris 
Un chien 	Un poisson 	Un cochon d'inde 	Une tortue 
Un serpe 	Un hamster 	Une araignée 	

## Verbs

**aimer** (to like) is a regular **-er** verb.

*j'aime* I like  
*tu aimes* you like  
*il/elle aime* he/she likes

**avoir** (to have)

*j'ai* I have  
*tu as* you have  
*il/elle a* he/she has

**J'ai deux frères. I have two brothers.**

You also use **avoir** with age.

*Quel âge as-tu?* How old are you?

**J'ai onze ans.** I am 11 years old.

**être** (to be)

*je suis* I am  
*tu es* you are  
*il/elle est* he/she is

To make it negative, use

**ne ... pas** to make a 'sandwich' around the verb.

*Je ne suis pas très grand(e).*  
I am not very tall.

**assez** quite      **trop** too  
**très** very      **un peu** a bit

Most adjectives change their ending to 'agree' with the noun.

masculine	feminine
<i>amusant</i>	<i>amusante</i>
<i>arrogant</i>	<i>arrogante</i>
<i>bavard</i>	<i>bavarde</i>
<i>fort</i>	<i>forte</i>
<i>grand</i>	<i>grande</i>
<i>intelligent</i>	<i>intelligente</i>
<i>méchant</i>	<i>méchante</i>
<i>patient</i>	<i>patiente</i>
<i>petit</i>	<i>petite</i>
<i>timide*</i>	<i>timide</i>



- Can give their name age and birthday.
- Can say how many brothers and sisters they have.
- Can describe their pets.

- Can say what they like and dislike using cognates.
- Can describe their personality.
- Can use avoir
- Can use être.

## Retrieval Practice



Questions	Answers
Comment ça va?	Ça va bien merci et toi?
Comment t'appelles-tu?	Je m'appelle <b>Sarah</b> .
Ça s'écrit comment?	Ça s'écrit <b>ess- ah – air – ah – ash</b> .
Quel âge as-tu?	J'ai <b>onze</b> ans.
C'est quand ton anniversaire?	Mon anniversaire c'est le <b>douze novembre</b> .
Tu as des frères et soeurs?	J'ai <b>deux</b> frères et <b>une</b> soeur.
Qu'est-ce qu'il y a dans ta salle de classe?	Dans ma salle de class il y a <b>des chaises</b> et <b>des tables</b> . Il y a aussi <b>un tableau interactif</b> .
Tu aimes <b>le foot</b> ?	<b>Oui j'aime</b> le foot mais je n'aime pas <b>la gymnastique</b> .
Tu est comment?	Je suis <b>assez grand</b> et <b>tintelligent</b> .
Qu'est-ce que tu fais?	J'aime <b>jouer</b> et <b>tchatter en ligne</b> .

## Career Focus - Where could this take you?



I am a marketing officer. I create ideas to advertise products and services. I use languages to communicate with

customers overseas and I do research to see what sells



## Challenge Activities

1. Create a poster all about you. Add as much detail as you can. Choose some pictures to decorate your work.
2. Record a short paragraph about yourself.
3. Make a calendar with the French months and add your birthday and other important dates.
4. Make a fact file about France or a French – speaking country,

## Topic Links



This topic links to:  
Bienvenue.  
Hobbies  
Family and friends.

## Additional Resources



To further practise and develop you knowledge see:

- Language nut.
- Oak academy.
- Click here for some additional exercises.



# Humanities

Our students will:

- know and understand the history of these islands as a coherent, chronological narrative, from the earliest times to the present day: how people's lives have shaped this nation and how Britain has influenced and been influenced by the wider world
- understand historical concepts such as continuity and change, cause and consequence, similarity, difference and significance, and use them to make connections, draw contrasts, analyse trends, frame historically-valid questions and create their own structured accounts, including written narratives and analyses
- understand the methods of historical enquiry, including how evidence is used rigorously to make historical claims, and discern how and why contrasting arguments and interpretations of the past have been constructed
- develop contextual knowledge of the location of globally significant places – both terrestrial and marine – including their defining physical and human characteristics and how these provide a geographical context for understanding the actions of processes
- understand the processes that give rise to key physical and human geographical features of the world, how these are interdependent and how they bring about spatial variation and change over time

# Year 7 About the UK

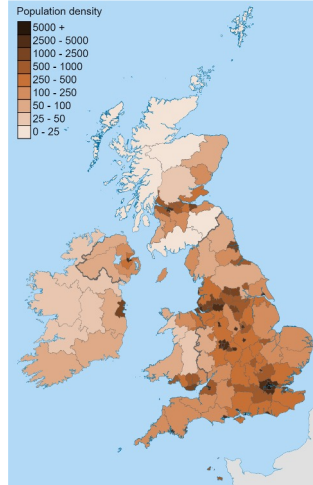
The aims of the sequence of learning are to ensure that all students:

- Explain how the population is spread around the UK
- Describe the different aspects of the UK and its economy
- Explain London's location and how it has grown
- Evaluate the UK's links to the rest of the world

Keyword	Definition
<b>Population</b>	The number of people living in a place
<b>Population Density</b>	The average number of people living in a place
<b>Rural</b>	An area which is mainly countryside
<b>Urban</b>	A built up area
<b>Economy</b>	All the business going on in a country
<b>Primary Sector</b>	Jobs in which people work with natural materials
<b>Secondary Sector</b>	Jobs in which people make products from raw materials
<b>Tertiary Sector</b>	Jobs which provide a service for others
<b>Multiracial</b>	Consisting of people of many different nationalities and cultures.
<b>Trade</b>	The buying and selling of goods and services between countries
<b>Gross National Income</b>	A measure of how well off people in a country are
<b>Communications</b>	The transfer of information
<b>Sanctions</b>	A penalty - for example a ban on trade with a country

## Key Concepts

### UK Population Distribution



Population distribution of people in the UK is not evenly spread due to physical geography (climate and mountains). Most people live in the south east and in towns and cities. The UK is a highly developed country with a strong industrial base.



### UK links to the World



- Trade - Buy & sell goods to other countries
- Transport - 25 airports, Channel Tunnel & 30 ports
- Communications - Internet, phone, music & TV
- Investment - Many foreign companies have business here
- Membership - Of the UN and Commonwealth
- Tourism - 40 million visitors come to our country each year
- Culture - Books, fashion, music, TV & sport is watched around the World
- Aid - We give 0.7% of our earning a year to poorer countries

### London

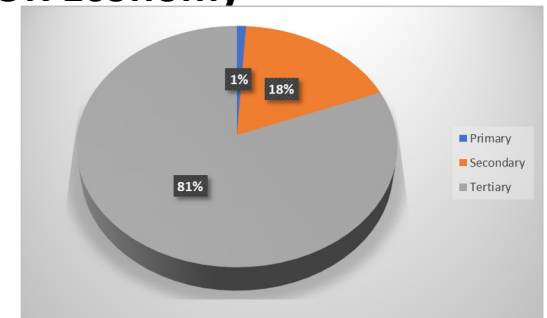
South West of the UK, developed and named Londinium by the Romans

#### Our capital city

population: 8.3 million, or 13% of the UK's population  
 share it contributes to the UK's wealth: 19%  
 % of its population born outside the UK: 37%  
 daily commuters from outside London: around 750 000  
 secondary schools: around 660  
 hospitals: around 80  
 cinemas: around 110  
 premier ship football clubs: 5  
 shops: thousands  
 places to eat: thousands




### The UK Economy



# Year 7 About the UK

The aims of the sequence of learning are to ensure that all students:

- Explain how the population is spread around the UK
- Describe the different aspects of the UK and its economy
- Explain London's location and how it has grown
- Evaluate the UK's links to the rest of the world

Retrieval Practice 	
Questions	Answers
Which area of the UK has the highest population density and why?	The South East of the UK (around London) as the land is flatter, a warmer climate and good transport links to Europe
Which areas of the UK have the lowest population density and why?	The Highlands of Scotland (North West Highlands) as the climate is cooler and the land is steep and difficult to build on
Why might people want to live in an urban area?	Better job opportunities more places of entertainment
Which sector of the economy employs the most people?	Tertiary with 81%
Name 3 jobs associated with the tertiary sector	Teacher, Nurse and Firefighter
Give 3 ways we are linked to the rest of the World	Members of the UN, 0.7% of our income goes to countries who are poorer and 40 million people visit every year from other countries
Why do you think 40 million tourists a year visit the UK?	The history of the country and the castles/tourist attractions like Buckingham Palace and Houses of Parliament
Who founded London and what was it called?	The Romans - Londinium
Why do you think London is an International city?	Many international companies and banks have headquarters there, it also has 2 huge airports (Heathrow and Gatwick) to link to other countries.

## Career Focus - Where could this take you?



### Aid Worker

We help people in overseas countries affected by man-made and natural disasters like wars, outbreaks of disease and earthquakes. We work with organisations and government officials in affected areas, to roll out healthcare or education programmes and work on building or engineering projects.

## Challenge Activities

- Design a quiz based on the UK. Include at least 10 questions plus their answers
- Create top trumps cards for 6 cities in the UK - include size, population, age, height above sea level and distance from London
- Create an advert (on paper or online) encouraging people to visit London. You must include at least 4 tourist destinations

## Topic Links

This topic links to:

- History and the Roman Invasion of Britain
- Geography Half term 1 the physical landscape and population
- English producing an advert (persuasive writing)
- CAPE - foods, technologies and music produced in the UK

## Additional Resources

To further practise and develop your knowledge see:

- Changes to the UK economy (Bitesize) - <https://www.bbc.co.uk/bitesize/guides/zqhvmbn/revision/1>
- UK population change (Bitesize) <https://www.bbc.co.uk/bitesize/guides/z334nbk/revision/1>
- UK economy & links to the world (Bitesize) <https://www.bbc.co.uk/bitesize/guides/z332sg8/revision/7>



# Year 7: The Roman Army

The aims of the sequence of learning are to ensure that all students:

- Explore the legend of how Rome began.
- Describe how the Roman Empire developed.

- Evaluate all aspects of life in the Roman Army. Including; Recruits, Weapons & Tactics, Organisation, Punishments & Rewards.
- Explain why the Roman Army was so successful supported by evidence.

Keyword	Definition
Chronology	Arranging events or dates in the order they took place.
Legend / Myth	A story believed to be fact, but over time has taken on fictional elements.
Romans	Citizens of Ancient Rome and the Roman Empire.
Expansion	How a state or country grows by taking over other states or countries.
Invasion	Attacking another state or country and its people on their own land.
Empires	A group of territories controlled by another country and one ruler.
Emperor	The ruler of an Empire.
Legion	A large section of the Roman Army made up of 5000 soldiers.
Centurion	Responsible for training the soldiers and making sure they obey orders.
Legionary	A soldier from a Roman tribe (a citizen of Rome).
Auxiliary	A soldier from lands conquered (not a citizen of Rome).
Tactics	Carefully planned actions and strategies to achieve a specific goal.
Formations	The arrangement of soldiers and weapons to act as a unit.
Sources	Different types of evidence used to study the past. (See Half-Term 1).
Successful	Achieving a desired aim or result.

## Key Concepts

### Birth of Rome (Myth and Legend)

Legend has it that an ancient land called **Alba Longa** was ruled by good king **Numitor**. He had a daughter called **Rhea Silvia** who was imprisoned by her Uncle **Amulius** as he wanted to be King. Whilst imprisoned in the temple of **Vestal Virgins**, Rhea Silvia became pregnant by **Mars** (God of War) and gave birth to twin boys, **Romulus and Remus**. Amulius ordered that the twins be put to death, so a servant placed the twins in a basket and set them adrift on the river **Tiber**. The twins did not drown and were instead found by a **she wolf** who raised them until they were taken in by a **shepherd** and his wife. They went on to become fierce soldiers who defeated Amulius and gave the throne back to Numitor. They went on to build their own city. However, Romulus **killed** Remus in a fierce fight and named the city after himself, **Rome**.

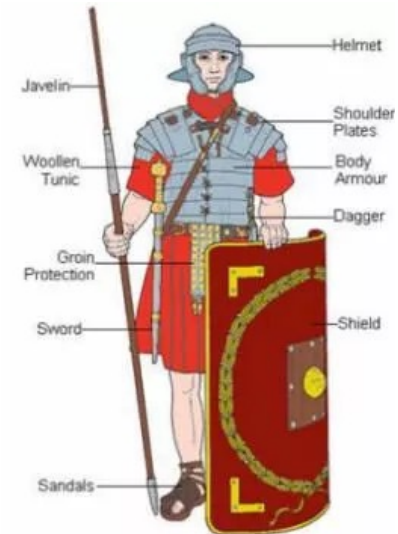


### Expansion of the Roman Empire:

The **Roman Empire** did not begin as the mighty Roman Empire that we know today. They were actually defeated many times by other groups and **tribes** within **Italy**. The **Gauls** (French) defeated the Romans in Italy and only left when the Romans **paid** them a lot of money to go back north. From **340 BC - 275 BC**, the Romans defeated the **Etruscans** (neighbours and friends), the **Samnites** (southern Italy) and the **Greek settlers** in the north (the **Pyrrhic war**). Wars with **Carthage** (North Africa) lasted 118 years from **264 - 146 BC** and became known as **The Punic Wars**. Once the **Carthaginians** had been defeated Rome had control over the whole region. Now they could expand across **Europe, North Africa and the Middle East** swallowing up other countries.

### Life as a Roman Soldier:

As the Empire grew bigger the army had to fight further and further away from home. Being a soldier became a full-time job and soldiers were no longer sent home when a battle ended. These full-time soldiers were well-trained and disciplined. They had to be tough and confident in the use of a number of weapons. There were two types of Roman soldiers: Legionaries and Auxiliaries. Legionary soldiers were Roman citizens and grouped into large numbers called Legions. Auxiliaries were conquered people who joined the Roman Legions. These served for 25 years in the army and became full Roman citizens when they retired. This meant that their families would be entitled to all the things that Roman citizens had too.



- 753 BC** - The building of Rome begins.
- 510 BC** - Rome becomes a republic. Officials are elected.
- 202 BC** - Rome conquers territories outside Italy and its power spreads.
- 130 BC** - Rome conquers Greece and Spain.
- AD 1** - The birth of Jesus.
- AD 43** - The Romans conquered Britain.
- AD 61** - Boudicca rebels against the Romans.
- AD 122** - The building of Hadrian's wall begins.
- AD 200** - Rome is attacked by the Barbarians.
- AD 235-285** - 20 Roman emperors are assassinated.
- AD 410** - Roman rule in Britain comes to an end.
- AD 455** - Vandals destroy Rome and the Empire collapses.

The aims of the sequence of learning are to ensure that all students:

- Explore the legend of how Rome began.
- Describe how the Roman Empire developed.

- Evaluate all aspects of life in the Roman Army. Including; Recruits, Weapons & Tactics, Organisation, Punishments & Rewards.
- Explain why the Roman Army was so successful supported by evidence.



Retrieval Practice	
Questions	Answers
Which part of the Romulus and Remus story do you think is fact and which part do you think is fiction?	
What animal helped Hannibal defeat the Romans in 218BC?	
What was the name given to the Commander of a Roman Legion?	
Tell me two qualities a Legionary had to have to join the Roman Army:	
Write down two pieces of equipment a Roman Legionary had – in Latin!	
Tell me one tactic and one formation the Romans used which were successful:	
List as many advanced weapons as you can that the Roman Army had:	
What did the Roman soldiers like to do when they were 'off-duty'?	
Tell me two 'rewards' of being a Roman soldier and two possible 'punishments':	
In your opinion, why was the Roman Army so successful? Explain	

## Career Focus - Where could this take you?



**I am a Recruitment Consultant:** My job is to attract candidates for various roles by creating job adverts and matching them to temporary or permanent positions with different companies. I need to check over their job application to make sure they are right for the business. I must carefully read their information, analysing as I go to ensure I make the correct choice. Then I need to interview them to check they have the key qualities and skills needed for the role.

## Challenge Activities



1. Research a Roman settlement in Britain and produce an information leaflet about it. You must include true historical facts and images.
2. Research key battles the Romans fought to expand their Empire and produce a PowerPoint to explain what happened. Include the facts (dates, events etc.) and images.
3. Produce a display piece of a Roman Soldier - this could be drawn, chalked, painted or modelled and either take a photo of your creation or bring it along to your History teacher. Don't forget to add labels detailing what their weapons and armour were called.

## Topic Links



- This topic links to other humanities topics such as:
- Roman Society
  - The makeup of the UK
  - Migration

- We will also be practicing how to:
- Complete a job application form.
  - Decide on the utility of a source.

## Additional Resources



To further practise and develop you knowledge see:

<https://www.historic-uk.com/HistoryMagazine/DestinationsUK/RomanSites/>

<https://www.historyhit.com/the-best-roman-sites-in-britain/>

<https://www.worldhistory.org/collection/50/battles-of-the-roman-republic/>






The aims of the sequence of learning are to ensure that all students:

- Consider global context of Hinduism & its' origins in India
- Show understanding of the 3 main aspects of God (Trimurti)
- Explore the meaning & the symbolism behind Krishna, Ganesh & Lakshmi
- Understand the beliefs of the cycle of Samsara & Moksha

- Discuss & describe how Hindu beliefs are part of their everyday life
- Know that in Hinduism there are 3 main sources of authority
- Explore the key texts in Hinduism

Keyword	Definition
Dharma	Means religious duty but also refers to the Hindu code of conduct and way of life.
Reincarnation	Most Hindus believe in reincarnation – the idea that death, the soul is reborn into a new life.
Karma	The belief that actions in this life will have a consequence for a persons' rebirth.
Brahman 	Many people misunderstand Hindu beliefs about God, who can be seen in many forms. The different forms of God are referred to as deities. Brahman is often represented through the Aum symbol.
Atman	Hindus believe that all living things have a soul (an atman). It is the soul that is reborn after death.
Good & Evil	According to Hindu scriptures there is constant struggle between good & evil, order & chaos, light & darkness. The deities are believed to uphold order whilst demons are said to be trying to disrupt it.
Ahimsa	Non-violence
Brahmin	A Hindu priest
Incarnation	A living form of God; God in the flesh
Ramayana	A Hindu holy book

## Key Concepts

### Sanatana Dharma

This is the more accurate name for the religion and way of life that is popularly called Hinduism. It is a belief system that began around 5000 years ago in India. The Hindu Dharma has evolved over time and there is great deal of diversity within the religion. It is the 3<sup>rd</sup> largest religion in the world, with around 750 million followers.

### One God in many forms

Hinduism teaches that there is one God (Brahman) with many forms. Brahman is an energy that fills the universe and is far too complex for the human brain to comprehend. Hindus understand Brahman through the many deities of Hinduism.



### The Ramayana

The Ramayana is a Hindu holy book and tells the story of Prince Rama and his wife Sita. They are banished to live in the forest for 14 years but Sita is kidnapped by the demon king Ravana. With the help of the monkey general Hanuman, Rama & his brother Lakshman rescue Sita and kill Ravana. They return home to the kingdom of Ayodhya and Rama becomes king. Rama is no ordinary human, he is an avatar of the God Vishnu.

### Vishnu & Avatars

Vishnu is believed to have visited earth in living forms (AVATARS) to destroy evil. Some avatars were in animal form, others were human. Rama & Krishna are the most well known and popular incarnations of Vishnu.



### The Trimurti

The 3 main aspects of Brahman are known as the Trimurti (tri=3, murti = an image of God). These are:  
Brahma – the creator  
Shiva – the regenerator  
Vishnu – the protector







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## Hinduism Beliefs



- Beliefs
  - Extremely Diverse → Everyone has different beliefs
  - Agree → Main Ideas
    - Dharma → Ethics/Duties
    - Samsara → Continuing Cycle → Life, Death, Rebirth
    - Karma → Action and Reaction
    - Moksha → Liberation from Samsara
    - Yogas → Paths or Practices

## Major Beliefs Of Hinduism

Dharma

Artha



Karma

Moksha



### Overview

Hindus are the followers of the religion of Hinduism.

Hinduism is the oldest of the world religions we study, about 6000 years old.

Hindus believe in reincarnation, the belief that after death the soul is reborn into a different form.

Hindus worship in a Mandir but may also have shrines in the home.

Hindu sacred texts are called the Vedas.

Hindus believe in one Great Power called Brahman.

Brahman is worshipped through many other Gods and Goddesses called Deities.

### Religious teachings

*"God is one, but wise men call it by many names." (Rigveda)*

*"Great indeed are the Gods who have sprung out of Brahman." (Atharva Veda)*

*"I will come forth for the protection of the good  
For the destruction of evil doers  
For the sake of establishing righteousness  
For this purpose I am born from age to age."  
(Bhagavad Gita)*

*"You have violated dharma and punishment will come to you more quickly than you think. You don't know Rama; he is not what you imagine him to be. You speak of the sea being an obstacle between him and me. But I say to you, Ravana, even if an ocean of stars lay between us, my Rama would come to find me" (Sita to Ravana in the Ramayana)*

### Key Teachings

Reincarnation is an important part of Hindu teaching. It is the belief that when you die your soul (atman) is reborn. This is called the Law of Samsara.

Mahatma Gandhi was a very influential Hindu who practised Ahimsa (non violence).

There are hundreds of Hindu Gods and Goddesses, the most significant being the Trimurti; Brahma, Vishnu and Shiva.

Hindus believe that life involves a series of duties called Dharma.



- The aims of the sequence of learning are to ensure that all students:
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Retrieval Practice	
Questions	Answers
Where did Hinduism start?	Hinduism originated from the Indus Valley. Most scholars believe that it started somewhere between 2300B.C and 1500B.C in the Indus Valley, near modern day Pakistan.
What is meant by one God in many forms?	Hindus worship one Supreme Being called Brahman though by different names. This is because the people of India, with many different languages and cultures have understood the one God in their own distinct way. Supreme God has uncountable divine powers.
What is a deity?	A God or a Goddess.
Who was Krishna?	Krishna, worshipped as the eight incarnation (avatar) of the Hindu God Vishnu.
Name the three gods associated with Brahman	The three Gods which are associated with Brahman are; Brahma, Vishnu and Shiva.
What is Samsara?	Samsara is the process of rebirth in Hinduism. There is no clear beginning or end.
What is the difference between Samsara and Moksha?	Samsara is the cycle of birth and rebirth (or reincarnation) and is governed by how karma is created and balanced. Moksha is liberation from the cycle of Samsara.
What are the 3 main sources of authority in Hinduism?	The three main sources of authority in Hinduism are; The Brahmanas – rituals and prayers to guide priestly duties and rituals. The Aranyakas – this involves worship and meditation. The Upanishads – the mystical and philosophical teachings of Hinduism.

## Career Focus - Where could this take you?



I am a community development worker and it is my role to help communities to bring about social change and improve the quality of life in their area. I act as a link between communities and a range of other local authorities and voluntary providers..

## Challenge Activities



- What makes something a religion?
- How might a religion and religious life change over time?
- Should religion and religious life change with the times?
- What do Hindus believe about God and why are Hindu beliefs so often misunderstood?
- Create a leaflet for someone to explain the key beliefs of Hinduism.
- Research the history of the Indus Valley and find facts on the early civilization of Hinduism.

When answering these questions make sure you can justify your point with clear examples and quotes.

Don't forget!  
Point  
Explain  
Evidence (Quote)

## Topic Links

- This topic links to other RE topics such as
- Ethics – Animal Rights
  - Sikhism
  - Buddhism
- We will also be practising how to
- Argue a point and practise our Voice 21
  - Participate in debates
  - Write PEE sentences/how to answer exam questions

## Additional Resources



To further practise and develop your knowledge see:

<https://www.hinduismfacts.org/basic-beliefs-of-hinduism/>





# Computing

Our students will:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology



Keyword	Definition
<b>E-Safety</b>	The safe and responsible use of technology
<b>Cyber bullying</b>	The use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature
<b>Pop-up message</b>	A message that appears on your browser or desktop designed to grab the users attention
<b>Password</b>	A combination of characters that allows access to a computer system or service
<b>Error Message</b>	Information displayed on a computer system when an unexpected problem occurs
<b>Smart Devices</b>	An electronic gadget that is able to connect, share and interact with its user and other smart devices
<b>Hacking</b>	The gaining of unauthorised access to data in a system or computer system

## Key Concepts

**S SAFE** Keep safe by being careful not to give out personal information – such as your full name, email address, phone number, home address, photos or school name – to people you are chatting with online.

**M MEETING** Meeting someone you have only been in touch with online can be dangerous. Only do so with your parents' or carers' permission and even then only when they can be present.

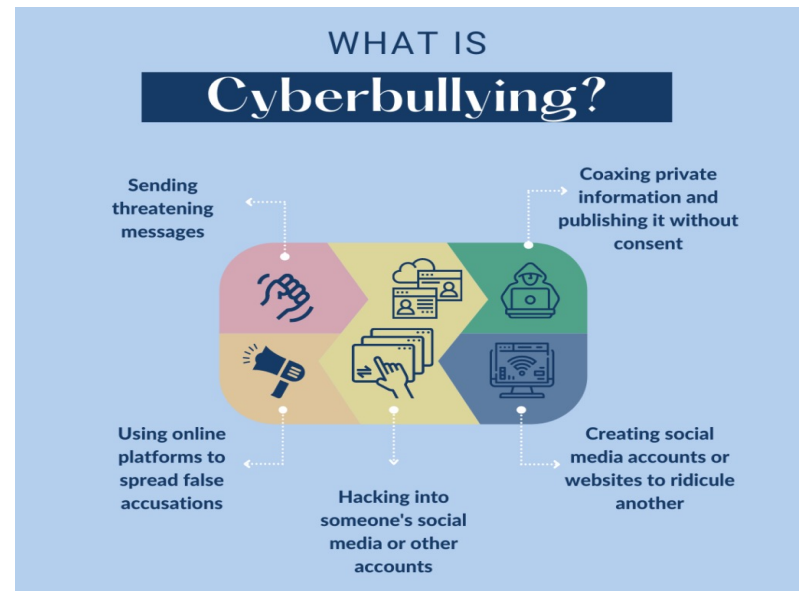
**A ACCEPTING** Accepting emails, IM messages, or opening files, pictures or texts from people you don't know or trust can lead to problems – they may contain viruses or nasty messages!

**R RELIABLE** Information you find on the internet may not be true, or someone online may be lying about who they are.

**t TELL** Tell your parent, carer or a trusted adult if someone or something makes you feel uncomfortable or worried, or if you or someone you know is being bullied online.  
You can report online abuse to the police at [www.thinkuknow.co.uk](http://www.thinkuknow.co.uk)

## STOP

- Take time out before getting involved, and don't share or like negative comments
- Try and get an overview of what's really going on
- Check the community guidelines for the site you're on



## SUPPORT

- Give the person being bullied a supportive message to let them know they're not alone
- Encourage them to talk to someone they can trust
- Give the person being bullied a positive distraction from the situation

## SPEAK

- Ask an adult or friend that you can trust for advice
- Use the report button on the social platform it's happening on
- Speak to one of the charities set up to help with situations like this, such as Childline



The aims of the sequence of learning are to ensure that all students:

- Describe what cyber bullying is and how to deal with it
- Describe how to safely deal with a some different situations that you may experience when using the internet

• Describe the dangers of using technology

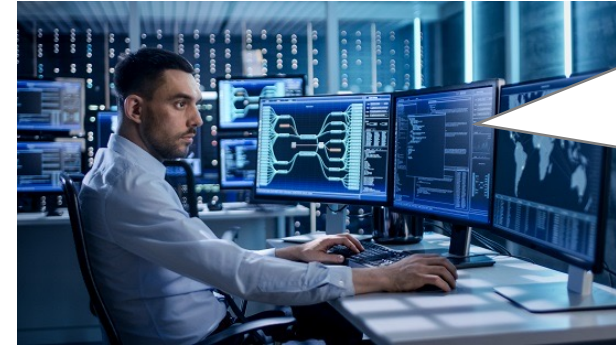
- Evaluate an e-safety resource aimed at primary school students



## Retrieval Practice

Questions	Answers
What does the term 'Cyberbullying' mean?	The use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature.
Why should you not post your real name online?	It becomes possible to find out some personal details about you, such as, your home address, age and telephone number.
Why should you always update your virus checker when asked to do so?	Your computer will not be protected against the newest threats. This will leave your computer vulnerable to attacks.
What are the dangers of using free public Wi-Fi?	As you are connecting to an unsecure internet connection, your computer will be easier to hack. Hackers can access every piece of information your sending out on the internet and also access the files on that computer, and any other connected devices.
What would you do in the following situation? You click on a link that loads up a website with unsuitable and inappropriate content.	Switch my monitor off and tell my parent or carer – they help you to block the website to stop it from loading up again.
What advice would you give to somebody to stay safe when playing online games?	Disable the chat feature, if that's not possible, only play and talk to people you know in real life and play where your parents can hear the conversations.
What are the dangers of using technology in our everyday life?	Although technology can be used to help make our lives easier, it can result in a lack of privacy, increased chances of your devices being hacked and an over-reliance of technology making it difficult to do things that have become automated or not required to do manually.

## Career Focus - Where could this take you?



I am a **cyber security engineer** and it is my job to identify any threats or vulnerabilities in systems or software. I have to be confident in trouble shooting problems and testing systems.

## Challenge Activities



1. Create a poster on MS PowerPoint that includes the following details: definition of cyberbullying, advice on what you should do if somebody was being cyberbullied and what you think we can do in the future to help stop cyberbullying in our school.
2. Do you agree or disagree with the following statement? You must back up your answer with reasons and examples. "People under the age of 14 should not be allowed to use the internet without adult supervision".
3. Create a short vlog about which new technologies you think could create safety issues for children in the future? Give advice on how you could tackle these problems.

## Topic Links



This topic links to:

- Computing Curriculum: Understand a range of ways to use technology safely, respectfully, responsibly and securely
- English and RSE (being a responsible citizen and using language appropriately)

## Additional Resources



To further practise and develop your knowledge see:

- [www.childline.org.uk](http://www.childline.org.uk)
- [www.thinkuknow.co.uk](http://www.thinkuknow.co.uk)
- [stopcyberbullying.org](http://stopcyberbullying.org)





Our students will:

- produce creative work, exploring their ideas and recording their experiences
  - become proficient in drawing, painting, sculpture and other art, craft and design techniques
  - evaluate and analyse creative works using the language of art, craft and design
  - know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms.
- 
- develop competence to excel in a broad range of physical activities
  - are physically active for sustained periods of time
  - engage in competitive sports and activities
  - lead healthy, active lives.



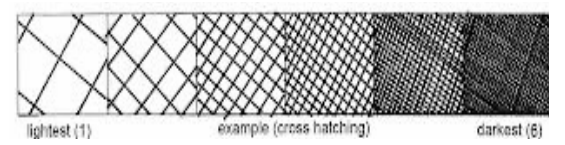
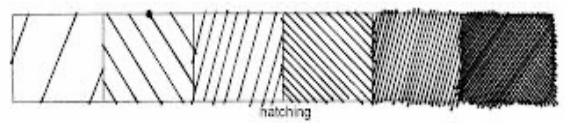
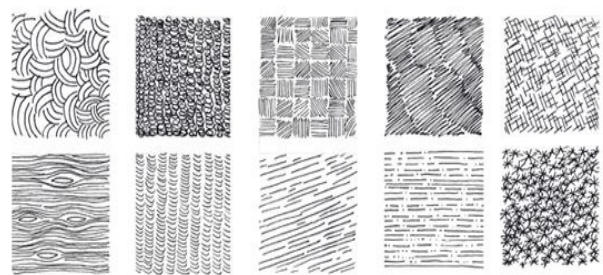
- Describe multiple methods for mark making
- Describe complementary colours
- Synthesise a 3D drawing by employing mark making techniques



Keyword	Definition
<b>Colour</b>	What you see when light reflects off something. Red, yellow and blue are primary colours
<b>Line</b>	A mark which can be long, short, wiggly, straight etc
<b>Tone</b>	How light or dark something is
<b>Texture</b>	How something looks or feels, e.g. rough or smooth
<b>Pattern</b>	A symbol or shape that is repeated
<b>Shape</b>	A 2D area which is enclosed by a line, e.g. a triangle
<b>Form</b>	Something which has 3 dimensions, e.g. a cube, sphere or sculpture

## Key Concepts

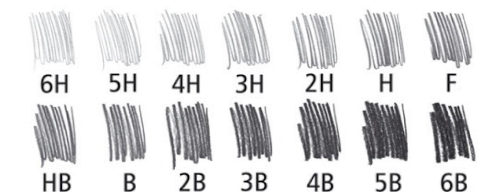
**Mark Making** describes the different lines, dots, marks, patters we create in an artwork. It can be loose and gestural or controlled and neat. **Mark Making** can be used to create texture in an artwork.



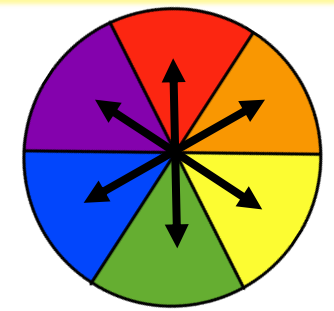
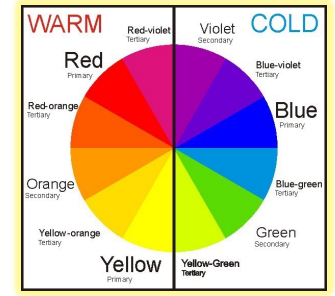
## Grades of Pencils

Pencils come in different grades, the softer the pencil, the darker the tone.

**H = Hard B = Black**

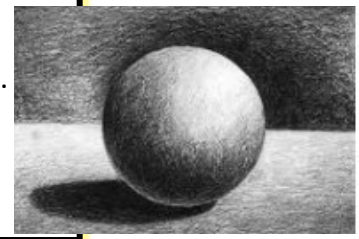


In art the most useful pencils for shading are B, 2B and 4B. If your pencil has no grade it is likely to be HB.



## Making something look 3D

To prevent objects looking flat, a range of tonal shading is essential to make them appear 3D. Shading straight across a surface will make an item appear flat. Shading with the form will help to enhance the 3D surface.





- Describe multiple methods for mark making
- Describe complementary colours
- Synthesise a 3D drawing by employing mark making techniques



## Retrieval Practice

Questions	Answers
What are complementary colours	These are colours that are found opposite each other on the colour wheel. Complementary colours are pairs of colours that contrast with each other more than any other colour, and when placed side-by-side make each other look brighter.
What are primary colours?	Red, blue and yellow. These are colours that cannot be made by mixing other colours together but are used to make all other colours.
What are secondary colours?	Green, orange and purple. Secondary colours are made by mixing two primary colours together.
What are tertiary colours?	These are colours created by mixing a primary and a secondary colour together.
What are harmonious colours?	These are colours that are next to each other on the colour wheel.
What is tint?	When you add white to a colour to make it lighter
What is shade?	When you add black to a colour to make it darker.
What is a primary source?	Observational drawing: drawing something directly from first-hand experience. Drawing from something real that is in front of you.
What is a secondary source?	Observational drawing: drawing from something that was produced by another person

## Career Focus - Where could this take you?



I am a **magazine art director** and my job is to put together the illustrations and photographs for my magazine to ensure that the articles look interesting and people purchase our magazine

## Challenge Activities



1. Draw an object using your mark making techniques to make it appear to be 3D.
2. Create a complementary colour wheel

## Topic Links



This topic links to:

- Maths – ratios of mixing paints to make various colours
- Science – accurate observation skills

## Additional Resources



To further practise and develop your knowledge see:



Here you will find why art education is important from artists, young people and major cultural figures.

Keyword	Definition
Timing	Moving to the beat of the movement
Choreographic Intention	What it makes the audience think, see and feel.
Gesture	A movement that doesn't transfer weight.
Dynamics	The quality of the movement.
Unison	All together at the same time
Cannon	One after the other.
Speed	How fast or slow a movement is.
Confidence	Showing you know what you are doing and where you should be
Stamina	The ability to keep energy going over time
Flexibility	The range of movement around a joint
Strength	A combination of maximum speed and power
Coordination	The ability to move two or more body parts at the same time to create a movement
Energy	Performing all movements with as much effort as possible
Power	Is a combination of using speed and strength
Reaction time	The time it takes for you to respond to a stimulus
Accuracy	Making sure movements are the way they were taught
Facial Expression	Showing the mood of the character
Dynamics	The quality of a movement
Speed	How fast or slow a movement is

## Key Concepts



## Merce Cunningham



Cunningham technique focuses on the 5 movements of the back; tilt, twist, curve, arch and straight. He also invented chance choreography which used random methods to determine the movements, staging and music.

- mirroring – this technique requires dancers to do the same travel, jump, shape or balance at exactly the same time
- leading and following – these movements require one dancer to lead and the other partners to follow
- meeting, avoiding or passing by – these movements require dancers to travel towards each other and then move right or left to avoid and pass
- meeting and parting – these movements require dancers to meet, turn and travel away
- canon – this technique requires dancers to take it in turns to perform a movement that is then identically copied and performed by others
- unison – this technique requires dancers to move at the same time as each other
- contrasting – this technique requires dance partners to perform contrasting movements to each other





- The aims of the sequence of learning are to ensure that all students:
- Define and spell key elements apply key elements in performance
  - Describe elements in a performance
  - Apply dance skills and techniques

- perform with timing, extension and fluency.
- develop dance by using choreographic devices.
- Demonstrate leadership skills



## Retrieval Practice

Questions	Answers
What are performance skills?	Performance skills are those used during a performance they set dancing apart from mechanical movement they draw the audience's attention and helps to show mood and meaning.
What are physical skills?	A Physical skill is a skill that can be developed over time
What is balance?	The ability to maintain a centre of mass over a base whilst stationary (Static) or during movement (dynamic)
What are the six basic actions?	Travel, Turn, Jump, Stillness, Transfer of weight and Gesture.
What is focus?	Where the dancer looks: into space; at the audience; at another dancer or a body part

## Career Focus - Where could this take you?



I am a **Personal Trainer** and it is my job to work with people on their physical skills and abilities. I designed workout routines and support clients in achieving their goals and improving their performance.

## Challenge Activities



[Interview and examples of work](#)

[An interview with Cunningham and Cage.](#)

## Topic Links



- This topic links to:
- Drama Performance skills
  - PE - Physical skills
  - English - Understanding terminology and verbs.
  - Maths - Problem solving

## Additional Resources



- To further practise and develop you knowledge see:
- <https://www.bgsperformingarts.com/drama.html>
  - [http://www.kneehigh.co.uk/page/about\\_kneehigh.php](http://www.kneehigh.co.uk/page/about_kneehigh.php)
  - <https://www.bbc.com/bitesize/subjects/zbckjxs>



- develop knowledge of what Drama Elements mean.
- develop drama technique and skills.
- Identify and perform drama

Keyword	
Storytelling	Gesture
Still image	Projection
Narration	Performance
Body Language	Volume
Facial expression	Timing
Characterisation	Pause
Space	Pace
Levels	Posture
Improvisation	Hot-Seating

## Key Concepts

### Thinking Questions

- How am I showing my character?
- What is my body language?
- How is it different to my normal?
- What is my character feeling?
- Do my facial expressions match this?
- What is my posture like?
- How do I walk? What is my gait like?
- How do I react to the other characters?
- How close do I stand next to others

### Techniques:

**Projection** (Speaking loud enough for the audience to hear you)

**Characterisation** (Making and being in character that is different to yourself)

**Posture** (How you stand and how that is different to you normally)

**Narration** (Used in the art of storytelling. Its purpose is to tell stories. Narration can be factual or fictional)

### A good devised performance ...

Will have a range of different believable characters. It will use a set scenario or one you have made up. The audience will be able to understand what is happening and will be engaged by the action and the storyline.

### STORYTELLING DRAMA

You will be developing your knowledge and understanding of DRAMA, STORYTELLING, DEVISING and CHARACTERISATION. These are key drama skills that you will need. We will be creating MYTHICAL characters and creating improvised performances where good characters overpower evil forces to right wrongs.

### Assessment

You will take part in several peer and self assessment tasks over the project, as well as your teacher assessment. receiving feedback from your teacher.

Your assessment for this Topic will be based on creating characters and devising performances, before evaluating them.



- develop knowledge of what Drama Elements mean.
- develop drama technique and skills.
- Identify and perform drama

## Career Focus - Where could this take you?



I am a Physical theatre performer. Knowledge of different movement traditions, such as mime and clowning is very important. Being able to utilize your facial expressions, body language, posture, spatial awareness, and physicality to tell a story is key to engaging the audience.

## Challenge Activities



Write a short 50-100 word description of a lesson or Drama activity you are doing in school. Are you learning a new skill? What is it? How will you learn this skill? Or are you developing a skill you already have to make it better? Which one? How?

Prove that you took part in this activity. You could film yourself doing a version at home, or write up a step-by-step list of all of the things you did.

Write 200 words which explain what you have learnt by taking part in and doing the lesson and how your interests, knowledge and skills have developed. Be specific about your skills.

## Topic Links



Dance  
Music  
English  
History

## Additional Resources



If you want to do more and extend yourself in Drama...Explore the Arts as a participant

Watch to learn more about tableau/still-image

<https://youtu.be/YfNmIY1-t5k>

## Dramatic Elements

### Role & Character

Require actors to identify and portray a person's values, attitudes, intentions and actions. Role focuses on type and stereotype while characters are detailed and specific.

### Tension

A sense of anticipation or conflict within characters or character relationships. Problems, surprises and mystery in stories to further the dramatic action and create audience engagement.

### Situation

Situation refers to the circumstances the characters are in - the who, what, where, when and what is at stake of the roles/characters.

### Language

The choice of linguistic expression and ideas in drama used to create dramatic action. This includes the vocal skills.

### Mood & Atmosphere

Mood is the feeling or atmosphere that is created by, and emerges through, the dramatic action.

An atmosphere is a surrounding environment or influence.

### Relationship

The connections and interactions between people.

### Focus

Focus requires you to concentrate the attention on a spatial direction or a point in the space or to direct and intensify attention and frame moments of dramatic action.

### Time & Place

Time refers to the fictional time in the story or setting.

Place refers to the fictional place in the story or setting that the action occurs in.

### Movement

Movement refers to the physical way in which a character or object transitions through a provided space. It can also refer to stillness. This includes the physical skills.

### Symbols

Symbols are what the drama makes you understand. They sum up the meaning of the play, sometimes even on a subconscious level.

## Dramatic Action



to be able to identify how and why people make different food and drink choices

- to be able to name the key nutrients, sources and functions
- to acquire and demonstrate a range of food skills and techniques
- to be able to acquire and demonstrate the principles of food hygiene and safety

to be able to identify how and why people make different food and drink choices

- to acquire and apply a knowledge and understanding of food science;

Keyword	Definition
Weighing scales	A tool used to accurately measure the weight/mass of ingredients
Knife	A sharp tool used for cutting food. Different types of knives have different uses, e.g. bread knife, fish knife
Chopping board	Board used for cutting food on to protect work surfaces. Generally made from glass, plastic or wood
Saucepan	A larger pan used for boiling water or making sauces
Wooden spoon	Used for stirring hot food as the material insulates the heat well
Tablespoon	A measure of 15 millilitres
Teaspoon	A measure of 5 millilitres
Dessert spoon	A spoon midway in size between a teaspoon and a tablespoon
Grater	A metal tool used for grating food into much smaller pieces
Baking tray	A metal or Pyrex tray used in the oven to cook food on
Cooling rack	A wire rack used to cool food, often baking
Peeler	Tool used for removing the skin/peel from a food item, usually a fruit or vegetable
Spatula	A broad, flat tool used for mixing or spreading
Nutrient	a substance that provides nourishment essential for the maintenance of life and for growth.
Healthy	in a good physical or mental condition; in good health.

## Key Concepts

Food skill	Food skill	Food skill
Bake	Fry and sauté	Portion / divide
Beat	Glaze and coat	Prove
Blitz, puree and blend	Grate	Roast
Casserole	Grill	Roll-out
Chill	Juice	Rub-in

Core	Knead	Sift
Cream	Layer	Snip
Crush	Mash	Spread
Cut out	Measure	Stir-try
Cut, chop, slice, dice and trim	Melt, simmer and boil	Weigh
Decorate and garnish	Microwave	Whisk
Drain	Mix, stir and combine	Zest

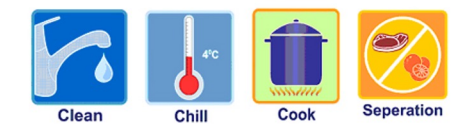


## The 4C's Concept

By practicing the four Cs of food hygiene **cross-contamination, cleaning, cooking and chilling** those working with food can avoid food poisoning and other illnesses.


## COOKING CONVERSION CHART


Measurement				Temperature		Weight	
CUP	ONCES	MILLILITERS	TABLESPOONS	FAHRENHEIT	CELSIUS	IMPERIAL	METRIC
8 cup	64 oz	1895 ml	128	100 °F	37 °C	1/2 oz	15 g
6 cup	48 oz	1420 ml	96	150 °F	65 °C	1 oz	29 g
5 cup	40 oz	1180 ml	80	200 °F	93 °C	2 oz	57 g
4 cup	32 oz	960 ml	64	250 °F	121 °C	3 oz	85 g
2 cup	16 oz	480 ml	32	300 °F	150 °C	4 oz	113 g
1 cup	8 oz	240 ml	16	325 °F	160 °C	5 oz	141 g
3/4 cup	6 oz	177 ml	12	350 °F	180 °C	6 oz	170 g
2/3 cup	5 oz	158 ml	11	375 °F	190 °C	8 oz	227 g
1/2 cup	4 oz	118 ml	8	400 °F	200 °C	10 oz	283 g
3/8 cup	3 oz	90 ml	6	425 °F	220 °C	12 oz	340 g
1/3 cup	2.5 oz	79 ml	5.5	450 °F	230 °C	13 oz	369 g
1/4 cup	2 oz	59 ml	4	500 °F	260 °C	14 oz	397 g
1/8 cup	1 oz	30 ml	3	525 °F	274 °C	15 oz	425 g
1/16 cup	1/2 oz	15 ml	1	550 °F	288 °C	1 lb	453 g




- to be able to name the key nutrients, sources and functions
- to acquire and demonstrate a range of food skills and techniques
- to be able to acquire and demonstrate the principles of food hygiene and safety


- to be able to identify how and why people make different food and drink choices
- to acquire and apply a knowledge and understanding of food science;

Retrieval Practice 	
Questions	Answers
What are 8 tips for healthy eating?	<p>Base your meals on higher fibre starchy carbohydrates.            Eat lots of fruit and veg.            Eat more fish, including a portion of oily fish.            Cut down on saturated fat and sugar.            Eat less salt: no more than 6g a day for adults.            Get active and be a healthy weight.            Do not get thirsty.            Do not skip breakfast</p>
Why is weighing and measuring important?	<p>Weighing and Measuring For good results in most recipes, accurate weighing and measuring is essential.</p> <p>When you are baking with flour, sugar and liquids, you must measure accurately or your cooking will be spoiled. If you weigh out too much sugar or too little raising agent, your cakes would not rise or you could spoil the taste and/or texture.</p> <p>Food can be weighed in Grams (g) and there are 1000g in a Kilogram (kg). Liquid is measured in Millilitres (ml) or litres</p>
What are the most important health and safety and personal hygiene rules?	<p>Be aware of sharp equipment such as knives, peelers and graters- store them carefully and use the bridge hold and claw grip when chopping.            Take care with hot equipment and food/ liquids- turn pan handles in, always use oven gloves and avoid splashes when stirring or draining foods.            Wipe up spills quickly so you do not slip over            Be aware of others in the kitchen            Report any accidents to the teacher            Tie hair back            Wash your hands</p>

**Career Focus - Where could this take you?** 



My job is **food technologist** and I study foods and their nutritional content. I use laboratory skills and techniques to identify nutrients and calorie content of foods.


**Challenge Activities** 


**Try some of these recipes at home**  
**Follow the links**  
[Energy Bar](#)  
[Home made burgers](#)  
[Chapatti recipe](#)  
[For Further 30 minute recipes](#)


Food skills are acquired, developed and secured over time

**Bridge hold**

**Claw grip**



**Topic Links** 

**Additional Resources** 

This topic links to:

- English - relating explicitly to known vocabulary and understanding it with the help of context
- Mathematics - use standard units of mass, length, time, other measures
- Science: Nutrition and digestion RSE - What constitutes a healthy diet
- Physical health and fitness - The characteristics and mental and physical benefits of an active lifestyle.

To further practise and develop you knowledge see:

[Eat well guide Quiz](#)

[Eat well guide](#)

[Eat well video resource](#)

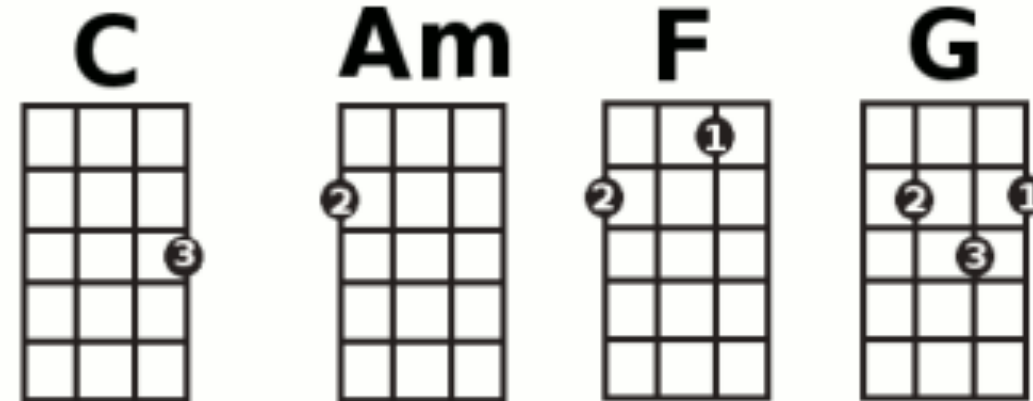
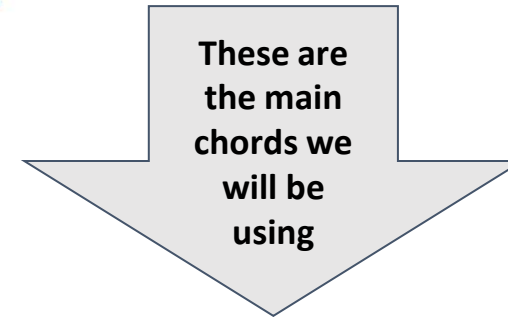
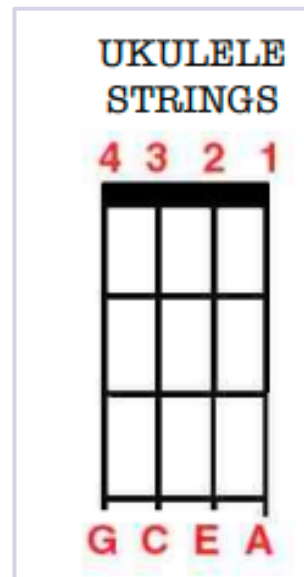
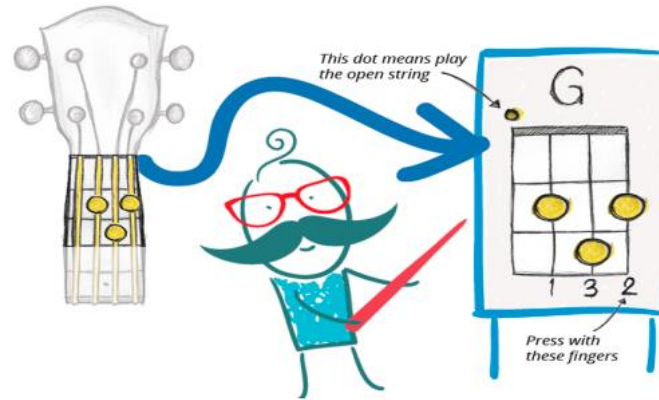


The learning outcomes for this topic are:

- What musical elements are, how and why we use them in music, and how to use them within your singing and playing
- How to play a range of chords on the ukulele, including C, Am, F and G
- How to recognise the musical elements when listening to music and how to use them when playing and singing music
- How to use correct technique when holding and playing the ukulele

Keyword	Definition
Dynamics	How loud or soft the music is and how this changes
Tempo	How fast or slow the music is and how this changes
Texture	The layers within the music - how thick or thin the music is
Pitch	how high or low the music is
Timbre	The tone of the instrument
Attack & Decay	How sounds start and stop - suddenly or gradually
Silence	When no sound is used
Ukulele	The ukulele is a four stringed instrument which looks more or less like a miniature classical guitar.
Strumming	To play all 4 strings by sweeping down with your hand or a plectrum
Picking	To play or 'pick individual strings to create a melody
Technique	The correct way to play the instrument
Chord	Multiple notes played at the same time

## Key Concepts

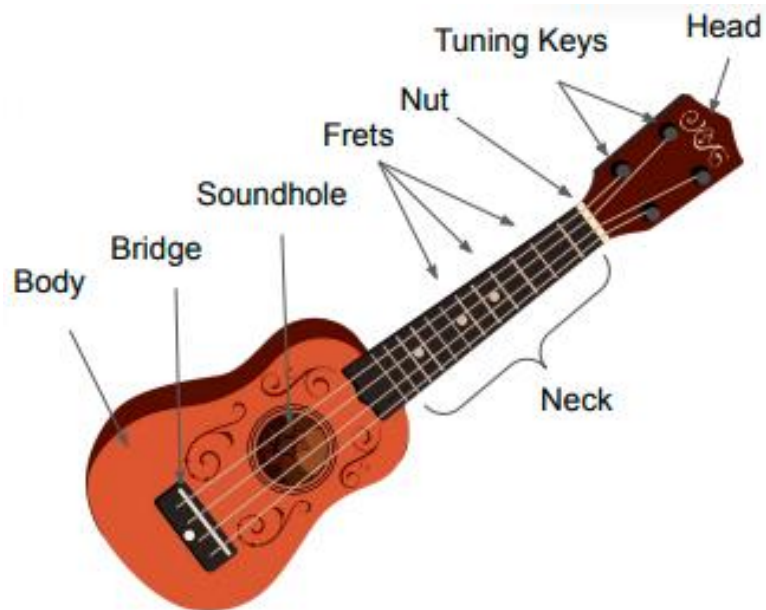






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**STRUMMING SYMBOLS**

D = Down  
U = Up  
X = Tap/Hit

## C MAJOR SCALE ON UKULELE

### Career Focus - what skills are you learning?



I am a ukulele player and I have to use lots of **skills** to play this instrument. I have to use **coordination** as my left hand is always doing something different to my right. I have to **listen** very carefully so I know what I am playing is correct. This also helps when I am playing in a group and demonstrating good **teamwork**. I also have to **read** the chords as I play. **Coordination** and **teamwork** are skills needed in many other jobs and careers.

### Challenge Activities



How well do you know your musical elements? Take this quiz to find out.

[Elements Quiz Link](#)

Here is a more indepth quiz to really test yourself:

[Challenge Elements Quiz](#)

Listen (and watch) the following piece of music by clicking here "[Thunderstorm](#)" a [graphic notation composition by Alex Chorley, age 12](#) and describe the musical elements within it.

### Topic Links



- Band Skills
- Rhythm & Pulse
- Geography and culture
- Literacy - keywords and spellings
- Numeracy - Counting, rhythm, understanding patterns

### Further Listening



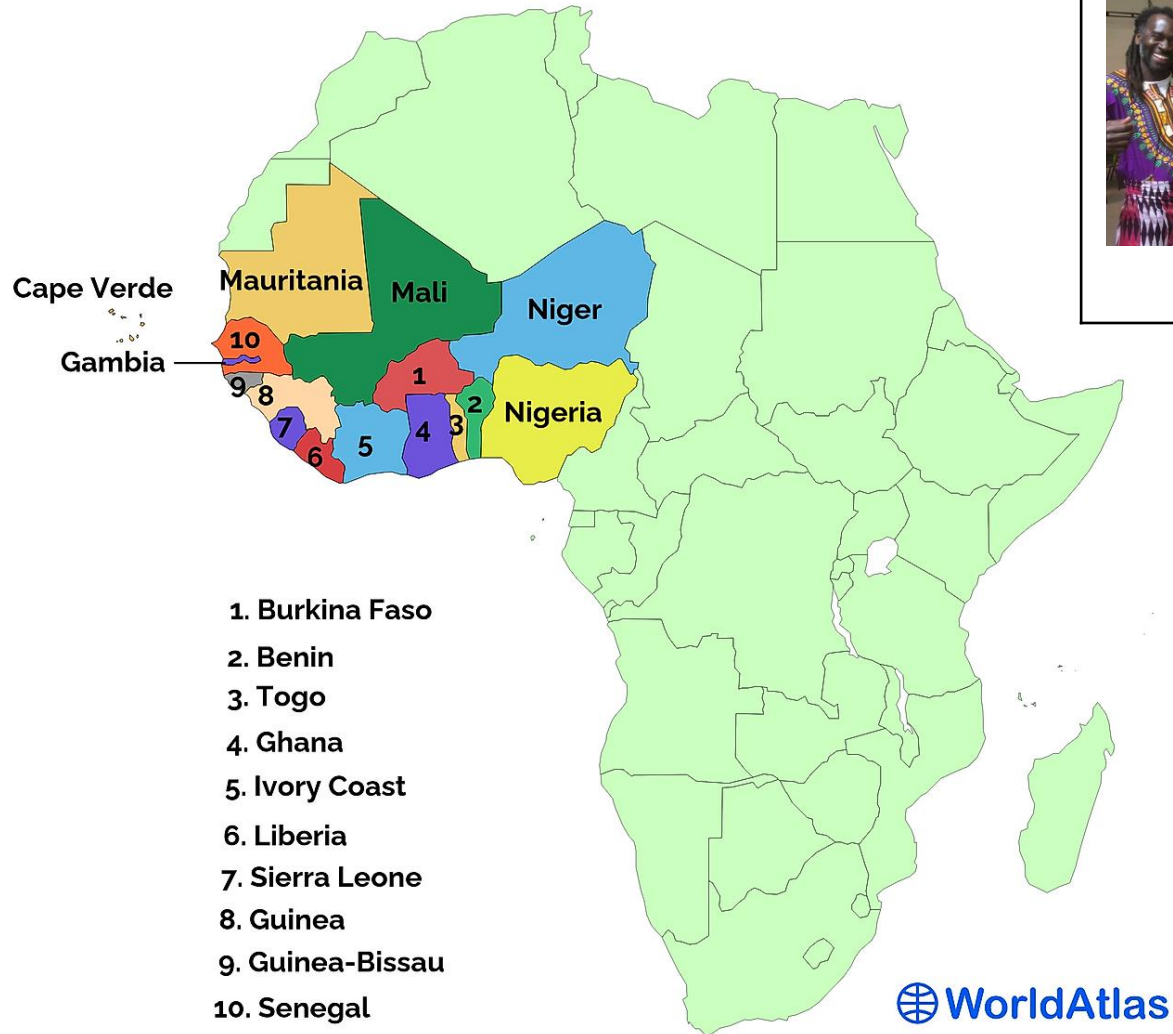
- [Ukulele Orchestra of Great Britain](#)
- [George Formby](#)



The learning outcomes for this topic are:

- To understand the importance of rhythm in West African culture
- To be able to play the djembe using correct technique
- To be able to improvise rhythms
- To develop ability to compose in groups

## Map of West Africa



### Career Focus - Where could this take you?



We are djembe drummers. Group composition requires us to respect the ideas and contributions of others in the group. It also builds teamworking skills as we have to work creatively with other musicians. It is important to learn about music from all over the world to understand different backgrounds and cultures. Tolerance is one of the core British values. Teamwork, creativity and respecting others are important in most jobs and careers

### Challenge Activities

1. Here's a rhythm quiz to really test your knowledge:  
<https://www.macprovideo.com/course/musictheory103-rhythm/quiz>
2. Here is an online djembe lesson. See if you can learn this rhythm:  
[https://www.youtube.com/watch?v=jfNs0Z2duPs&ab\\_channel=DjembeGuru](https://www.youtube.com/watch?v=jfNs0Z2duPs&ab_channel=DjembeGuru)

#### Further Listening:

- 'Jalikunda African Drums' on YouTube
- 'Kasiva Mutua: How I use the drum to tell my story' on YouTube
- Famoudou Konate - Spotify

### Topic Links

This topic links to other music topics such as:

- Rhythm, pulse and tempo
- Group composition
- Performance skills
- Geography and culture
- Literacy – Keywords and spelling
- Oracy – singing/chanting

### Additional Resources

To further practise and develop your knowledge see:

BBC Bitesize – Music of Africa:  
<https://www.bbc.co.uk/bitesize/guides/zhsny4j/revisio/n/1>

Free online djembe lessons and information:  
<https://afrodrumming.com/>



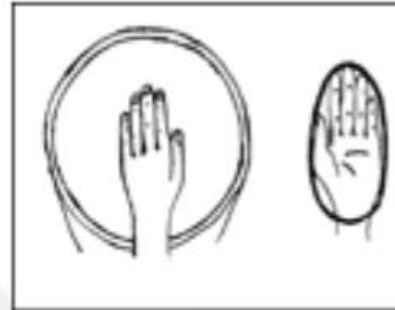
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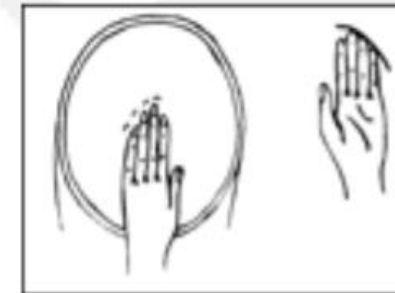
Keyword	Definition
Rhythm	a strong, regular repeated pattern of movement or sound
Dynamics	The volume of a note or sound
Duration	The length of a note or sound
Pulse	A steady beat like a ticking clock or your heartbeat. It can be measured in time by counting the number of beats per minute (BPM).
Tempo	The speed of the pulse.
Ostinato	A short, repeating pattern.
Polyrhythm	When two or more rhythms are being played at the same time.
Improvisation	To make music up in the moment, without planning or rehearsing what you will play.
Imitation Call and Response	One drummer plays a rhythm and the rest of the group repeat it exactly
Master drummer/ griot	The master drummer is the leader of the group. They give the cues and lead the call and response. Griots are the wise leaders and musicians of West African villages.

## Key Concepts

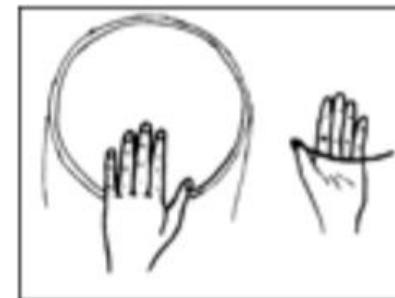
### Djembe Hand Techniques



**Bass** is played in the center of the head with your fingers closed and your hand flat.



**Tone** is played on the edge of the djembe with your fingers closed and your hand cupped.



**Slap** is played near the edge of the head with your fingers open.

### Djembe Parts





- Can identify at least four core skills required for invasion games
- Demonstrate basic core skills such as a chest pass

- Demonstrate basic core skills in a game situation
- Lead a small group of peers in a warmup

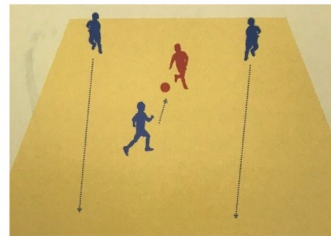
Keyword	Definition
<b>Pass</b>	keep possession of the ball by maneuvering it between different players with the objective of advancing it up the playing field
<b>Catch</b>	to receive the ball from another player and keep possession
<b>Defend</b>	to resist the attack of the opposing team
<b>Attack</b>	the action of attacking or engaging an opposing team with the objective of scoring points or goals
<b>Tackle</b>	trying to take the ball from an opponent
<b>Intercept</b>	Obstruct someone/something from getting to their desired position/destination

## Key Concepts

### Defending

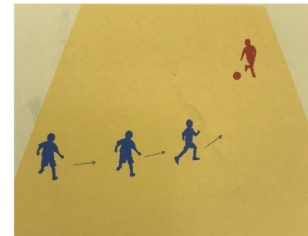
#### Delay

If possession is lost quickly—a defender should try to slow the **attacker** down so other players can get back in position (**goal side**).



#### Balance

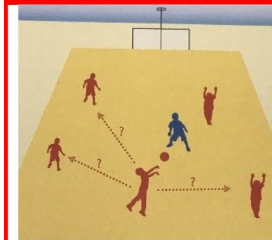
Defenders need to move into an appropriate **formation** in relation to where the ball is.



### Attacking

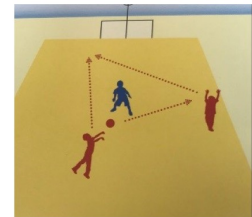
#### Support

To give the player in possession **as many options as possible** team-mates move into different positions to receive the ball. This could be to the side / behind / in front of the ball.



#### Improvisation

Players need to become **creative** to get past an organised defence e.g. one-twos, fake passes, outwit defenders with the ball



### You should already know:

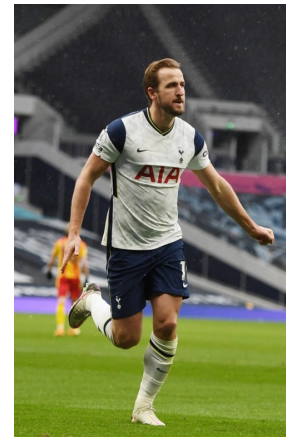
- The aim of an invasion game
- The name of at least 2 invasion games

### You will be assessed on:

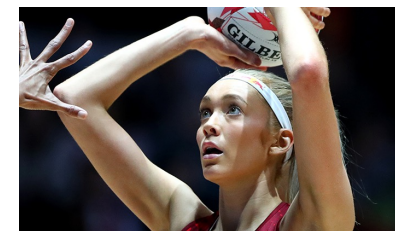
- Understanding
- Technique in isolation
- Technique in game
- Leadership
- Attitude to learning

### Athletes to research further:

Harry Kane



Helen Housby




Lewis Ludlam







- Can identify at least four core skills required for invasion games
- Demonstrate basic core skills such as a chest pass

- Demonstrate basic core skills in a game situation
- Lead a small group of peers in a warmup

Retrieval Practice 	
Questions	Answers
<b>What are the core Netball skills?</b>	Chest pass, Bounce pass, Shoulder pass, Overhead pass, Two-footed landing, Shooting, Pivot, Defending and Attacking
<b>What are the Netball positions?</b>	Goal keeper, Goal defence, Wind defence, Centre, Wing attack, Goal attack and Goal shooter
<b>What are the core football skills?</b>	Dribbling close to feet, Dribbling changing direction, Passing side foot, Passing close distance, Defending and Attacking
<b>What are the core Rugby skills?</b>	Target with hands out, Push pass, Catching, Protecting, Side-stepping, Attacking, Defending

**Career Focus - Where could this take you?** 



I am a **human biologist** and it is my job to study the human skeleton and muscular systems to understand how it works and moves.


**Challenge Activities** 

1. Design a new rule for either football, netball or rugby. Explain how your rule will impact the game.
  
2. Create a mind map of all of the equipment needed to play an invasion game of your choice.

**Topic Links** 

This topic links to:

- Science – movement of the body and muscles; the physics of sports
- English – understanding and defining key terminology
- Mathematics – problem solving, recording figures and analysing performance

**Additional Resources** 

To further practise and develop you knowledge see:

- <https://tgfu.weebly.com/invasion-games.html>
- [https://en.wikipedia.org/wiki/Association\\_football](https://en.wikipedia.org/wiki/Association_football)
- <https://www.youtube.com/watch?v=aBuxsRnU50A>
- <https://www.world.rugby/the-game/laws/home>



**Newsome  
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# PI and HI Department

Keyword	Definition
<b>influence</b>	something that has changed the way people think or behave
<b>multi</b>	means more than one, usually a lot more than one
<b>faith</b>	if you have faith in something, you trust it or believe in it.
<b>religion</b>	a set of ideas people have about a god or gods
<b>RE</b>	Religious Education. A subject where students learn about religions and what people believe
<b>festival</b>	a special time when people celebrate something
<b>tradition</b>	people have done it in the same way for a very long time

## Key Concepts

### Can you identify the six world religions by their symbols?



BUDDHISM



JUDAISM



CHRISTIANITY



ISLAM



HINDUISM



SIKHISM



The aims of the sequence of learning are to ensure that all students:

- Describe different things which influence our lives
- Know the different faiths practiced in Britain
- Discuss why religion is important to people
- Describe what RE is and why we study it

## Retrieval Practice



Questions	Answers
Who/ what influences our lives?	Family Friends Schools Clubs Media (TV, radio, news) Village, town or city we live in
What does multi-faith Britain mean?	Britain is a county which has many different faiths. Many people follow the six world religions of Christianity, Islam, Hinduism, Judaism, Buddhism and Sikhism. There are others as well!
What is Religion?	This is a set of ideas people have about a god or gods.
Give some reasons why we study RE at school?	To understand and discuss your own and other people's beliefs To learn from others
How can we show respect for people's different beliefs?	Show an interest in people's faith. Ask about the festivals people are celebrating. Share food and presents with them at festival times. Find out more by talking and reading.

## Career Focus - Where could this take you?



In any job you do in the future and wherever you go you will meet people from different faiths and religions. If you understand why a person behaves how they do and what they believe in the better you will all work together.

## Challenge Activities



1. Have a chat with a friend or family member about who are their biggest influences.
2. Find out how many people follow a faith in the UK? Can you write down how many people are of which faith?
3. Design a webpage that promotes RE at Newsome

## Topic Links



This topic links to:

- PSHE
- Geography
- History

## Additional Resources



To further practise and develop your knowledge see:  
A great website to find out about different religions. You can keep returning to this throughout your time at Newsome Academy  
<https://www.bbc.co.uk/bitesize/subjects/z7hs34j>



Keyword	Definition
Tooth	Used to cut, tear and grind food into small pieces
Teeth	More than 1 tooth.
Mouth	The place where food is chewed
Gum	Where your tooth sits
Clean	To get rid of food and "bits"
Brush	Clean your teeth with a toothbrush
Toothpaste	A cream for cleaning teeth
Dentist	A person who checks your teeth are ok (healthy)
Wash	To use water to get clean
Shower	A spray of water
Soap	Use with water for washing
Shampoo	A mix used to clean hair

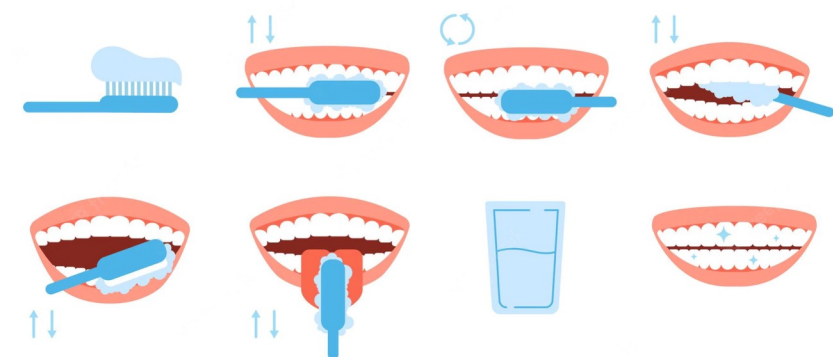
## Key Concepts

### Clean or Dirty?



1. Toothpaste on brush
2. Brush up and down
3. Brush around
4. Brush behind
5. Brush sides of teeth
6. Brush tongue
7. Do not rinse
8. Clean teeth!!!

### HOW TO BRUSH YOUR TEETH



- The aims of the sequence of learning are to ensure that all students:
- Understand the importance of cleaning and looking after your teeth
  - Know why it is important to keep your body and clothes clean



## Retrieval Practice

Questions	Answers
1. What do you use to wash your hair?	Shampoo
2. How many minutes should you brush your teeth for?	About 2 minutes
3. Why is it important to have a wash or shower every day?	To stay clean and not get smelly
4. Name 5 items (products) that you can use to keep you clean.	eg Soap Shower gel Shampoo Hand gel Toothpaste

## Career Focus - Where could this take you?



I am a dental assistant. My job is to help the dentist. I make sure the equipment is ready for the dentist to use. I meet lots of people every day. I talk to the patients to try make them feel happy.

## Challenge Activities



Why is it important to brush your teeth?

2. Use a laptop to find the names of these types of teeth. What is their function (job)?



## Topic Links



This topic links to:

Literacy - verbs, scientific words

French - teeth = les dents

## Additional Resources



To further practise and develop you knowledge see:

- BBC bitesize KS2 - How to keep your teeth healthy

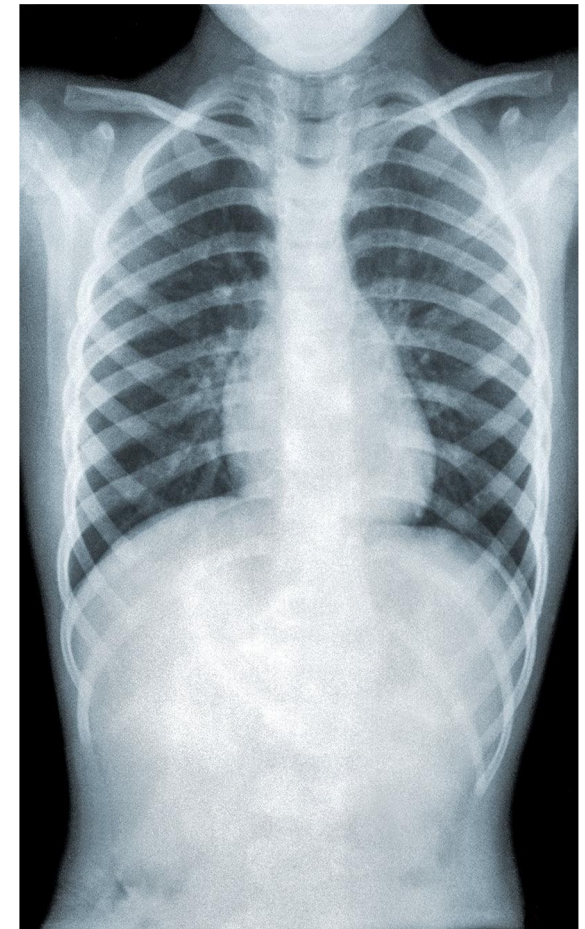
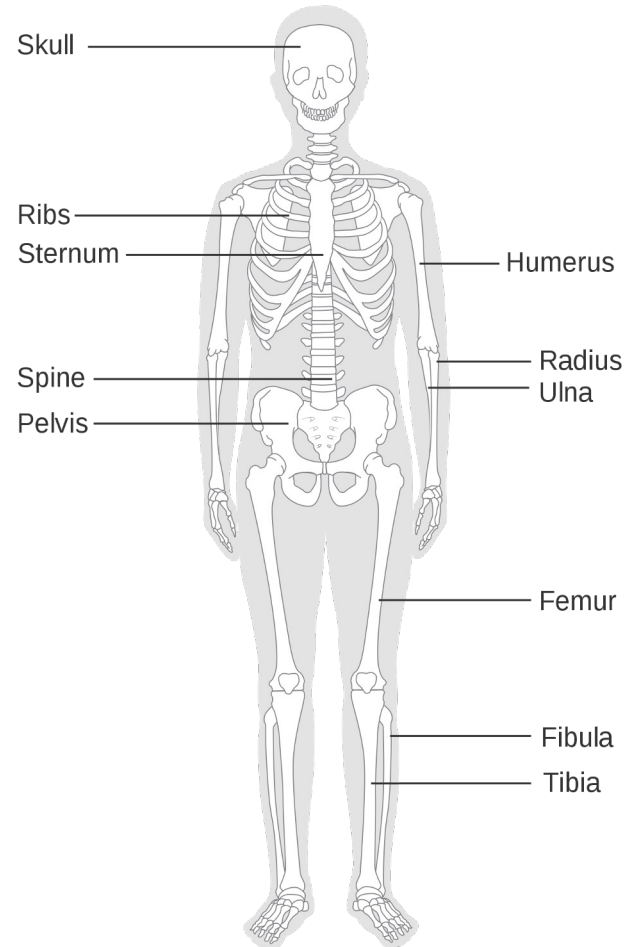


- Name the bones of the skeleton
- Understand the functions (jobs) of the skeleton
- Understand that muscles work in pairs to move bones

Keyword	Definition
bone	Bones are strong and support your weight
muscle	Muscles let us move
skeleton	A skeleton is made up of lots of different bones.
support	Lets you stand up, sit down
protect (look after)	Looks after your heart, brain etc
move	Change position

## Key Concepts

### Bones of the skeleton



The rib cage protects the heart and lungs



- Name the bones of the skeleton
- Understand the functions (jobs) of the skeleton
- Understand that muscles work in pairs to move bones



## Retrieval Practice

Questions	Answers
1. What are the 3 jobs (functions) of the skeleton?	Protect the organs Lets you move Supports your body
2. What is the job (function) of the skull?	To look after (protect) the brain
3. Name 5 bones in your body	eg skull, jaw, ribs, spine, thigh bone
4. Why is your rib cage important?	It looks after (protects) the heart and the lungs
5. Where in your body are your hamstrings and quads (quadriceps)?	In the top (upper) part of your leg

## Career Focus - Where could this take you?



I am an X-ray nurse (radiologist). I use a machine to make x-ray pictures of the inside of your body. The pictures show the parts of your body in black, white and grey. X-ray pictures can tell us if you have a broken bone.

## Challenge Activities



1. How do your biceps and triceps work together to move your arm?
2. Use a laptop to find the name of the substance that is around the ends of bones to makes your bones move smoothly.
3. Find the scientific names for the skull, the thigh bone and the kneecap
4. Which muscles work in pairs to move your arm?
5. Which muscles work in pairs to move your upper leg?

## Topic Links



This topic links to:

- PE
- Physiotherapy sessions

## Additional Resources



To further practise and develop you knowledge see:

- BBC bitesize video - how does the human skeleton work?
- Fred - our model skeleton
- Torso model - showing where organ fit together in the chest



# Username and Passwords