

Year 9 – Term 1



Knowledge Organiser

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.


Keyword 	Definition
Gradient	The steepness of a line.
Intercept	Where two lines cross. The y-intercept is where a line crosses the y-axis.
Linear	Linear graphs (straight line).
Aymptote	A straight line that a graph will never meet.
Reciprocal	A pair of numbers that multiply to give 1.
Rearrange	Change the order.
Solve	Find a numerical vauethat satisfies an equation.
2D	Two dimensions to the shape (length and width).
3D	Three dimensions to the shape (length, width, and height).
Vertex	A point where two or more line segments meet.
Edge	A line on a boundary joining two vertices.
Face	A flat surface on a solid object.
Cross-section	A view inside a solid shape made by cutting through it.
Bisector	A line that divides something into two equal parts.


Sparx Maths 	
Topic	Video Numbers
Graphs and Coordinates	M618, M230, M662, M311, M797, M932, M544, M888
Real-life Graphs	M843, M771, M205, M751
Motions-time Graphs	M551, M581, M247, M221
Constructions and Loci	M985, M196, M565, M232, M239, M253
Area and Perimeter	M900, M920, M390, M635, M269, M690, M610, M996, M291, M705, M303
Nets of 3D Shapes	M518
Plans and Elevations (of 3D Shapes)	M229
Surface Area	M884, M534, M661, M936
Volume	M765, M722, M697

Topic Links 


This topic links to:

- Substitution
- Perimeter, area, and volume
- Angles and perpendicular lines

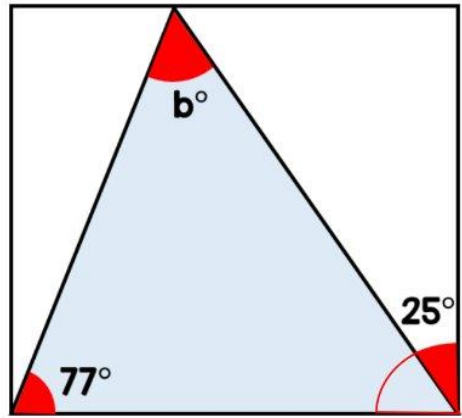
Career Focus - Where could this take you? 



As a data analyst I collect, organise, and study data to provide business insights. I use my skills to uncover patterns, trends, and relationships within the data, helping companies make decisions.

Challenge Activities 

Find the size of angle b.





- draw straight line graphs
- form and solve equations



Key Concepts

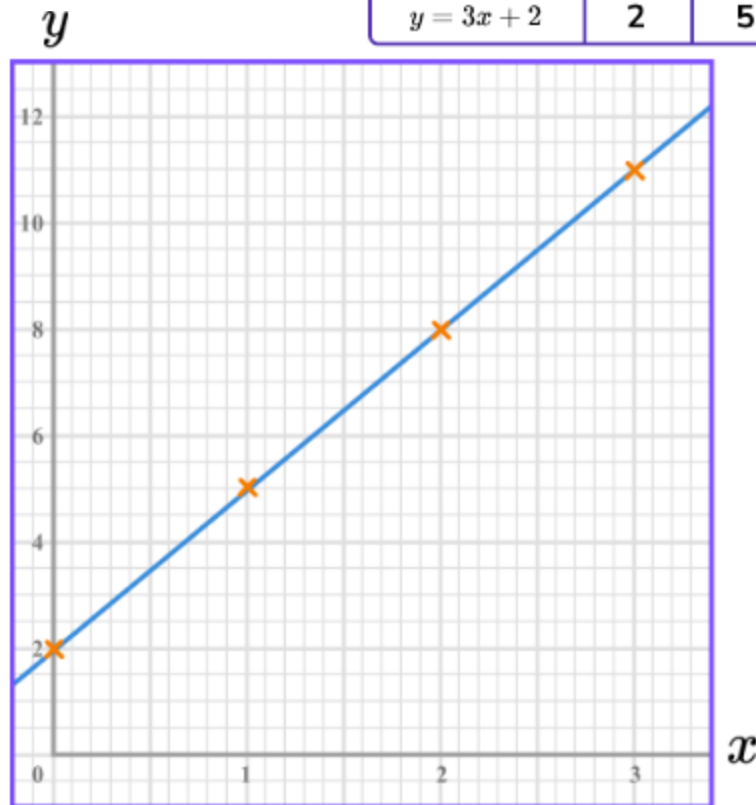
Plotting graphs allows us to accurately plot coordinates onto a grid to produce the graph of a function.

To do this we need to find x -coordinates and their y -coordinates.

These are plotted on $x - y$ axes and the points are joined up.

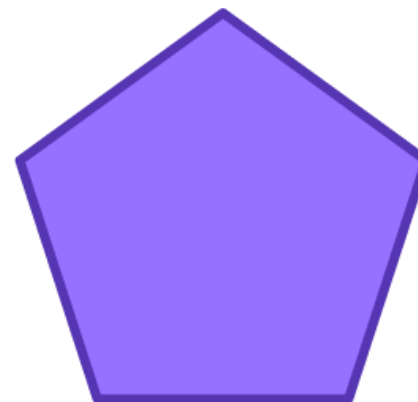
For example, $y = 3x + 2$

x	0	1	2	3
$y = 3x + 2$	2	5	8	11



We can take information from a question and use it to formulate algebraic expressions.

For example, here is a diagram of a regular pentagon.



$$x + 4$$

We can form an expression for the perimeter of the pentagon.

$$\text{Perimeter} = 5(x + 4)$$

If we give a value for the perimeter, we can work out the value of x .

For example, if the Perimeter = 50cm,

We can set up the following -

$$5(x + 4) = 50\text{cm}$$

$$5x + 20 = 50\text{cm}$$

$$5x = 30\text{cm}$$

$$x = 6\text{cm}$$

- work with three dimensional shapes
- geometrically construct and understand congruency



Key Concepts

Surface area is the total area occupied by the surface of a 3D shape.

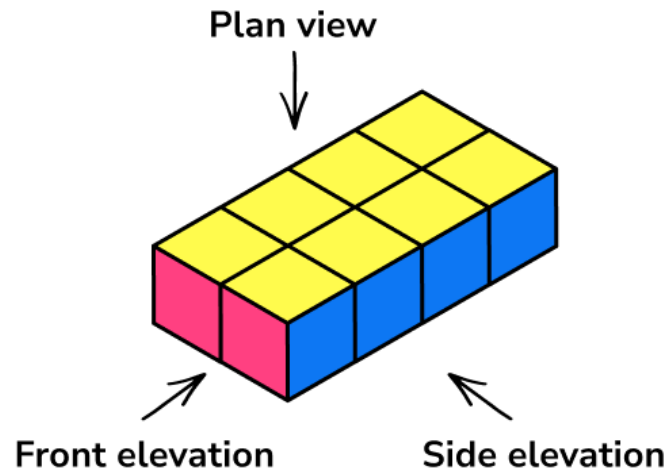
To find the surface area of a prism, cylinder or pyramid it is often helpful to draw the net of the 3D shape, calculate the area of each face, and then add them together.

To find the surface area of 3D shapes with curved surfaces such as spheres and cones (higher GCSE only), there are special formulas you should use

$$\text{Surface area of a sphere} = 4 \times \pi \times \text{radius}^2$$

$$\text{Curved surface area of a cone} = \pi \times \text{radius} \times \text{length}$$

We can also draw 2D images of 3D shapes from different perspectives. These are called **plans and elevations**.



A **plan** is a drawing of what a 3D shape looks like from above looking down (like the bird's eye view). An **elevation** is a drawing of what a 3D shape looks like from the side or front.

Congruent shapes are shapes that are exactly the same.

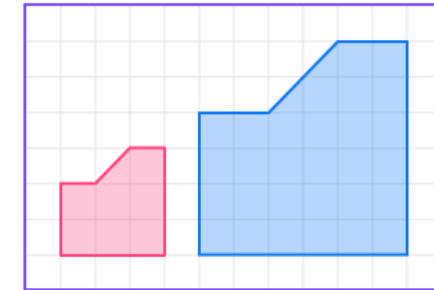
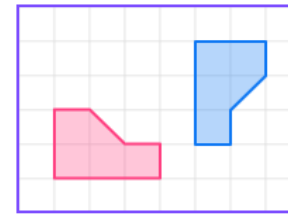
The corresponding sides are the same and the corresponding angles are the same.

To do this we need to check all the angles and all the sides of the shapes. If two shapes are congruent they will fit exactly on top of one another.

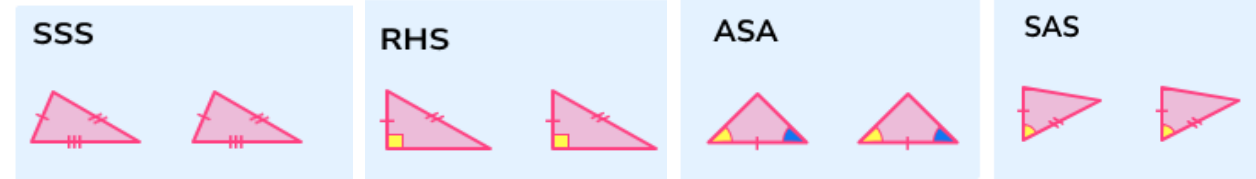
E.g.

These two polygons are NOT congruent. They are similar.

These two polygons are congruent.



There are four conditions to be able to prove if a pair of triangles are congruent.



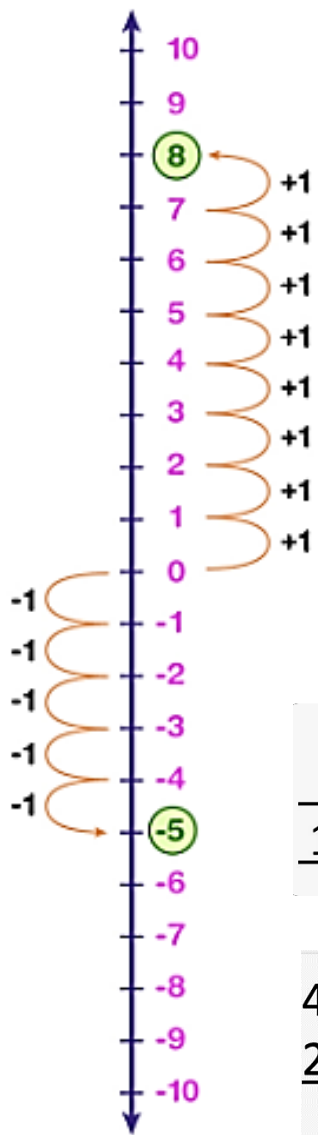
SSS (three sides the same),

RHS (right-angled triangle, hypotenuse and a side the same),

ASA or AAS (two angles and one side the same),

SAS (side-angle-side, two sides and the included angle the same)

Maths Quick Reference: Number Skills



100 Hundreds	10 Tens	1 Units	$\frac{1}{10}$ Tenths	$\frac{1}{100}$ Hundredths
3	5	2	7	1

addition

- add
- more
- plus
- sum
- total
- altogether

subtraction

- subtract
- minus
- leave
- less
- take away
- difference between

multiplication

- lots of
- times
- multiply
- groups of
- product
- multiplied by
- multiple of
- repeated addition
- array

division

- divide
- divided by
- divided into
- share
- share equally
- equal groups of

$$\begin{array}{r} 476 + \\ 874 \\ \hline 1350 \\ 11 \end{array}$$

$$\begin{array}{r} 586 \\ \times 7 \\ \hline 42 \\ 560 \\ \hline 3500 \end{array}$$

$$\begin{array}{r} 045 \\ 8 \overline{) 3360} \end{array}$$

$$\begin{array}{r} 7 \\ 4,783 - \\ 2,349 \\ \hline 4 \end{array}$$

156000. = 1.56×10^5
Move decimal point 5 places left,
exponent goes up by 5

0.0000053 = 5.3×10^{-6}
Move decimal point 6 places right,
exponent goes down by 6

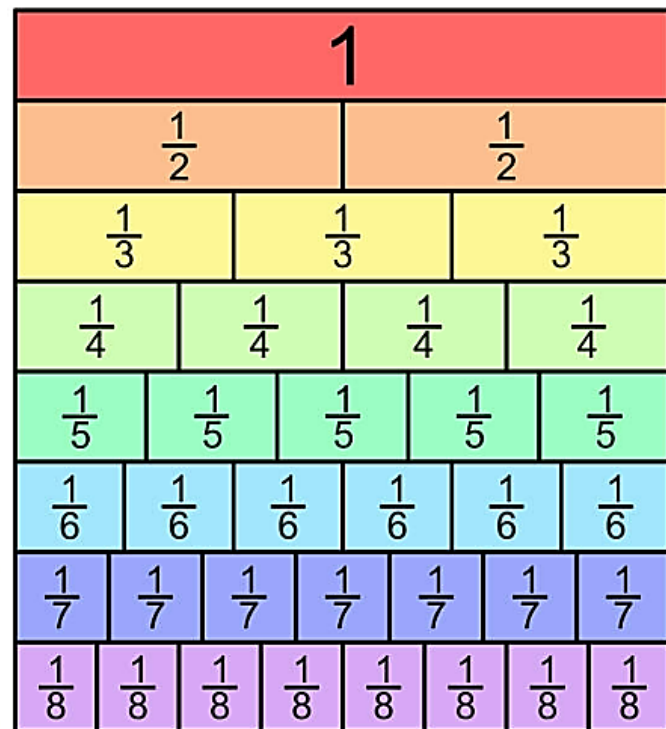
X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72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

BIDMAS

() x^y \div or \times + or -
Brackets Indices Divide & Multiply Add & Subtract



<p>1% of</p> <p>$\div 100$</p> <p>$\frac{1}{100}$ of</p> <p>$\times \frac{1}{100}$</p> <p>$\times 0.01$</p>	<p>5% of</p> <p>$\div 10, \div 2$</p> <p>$\frac{1}{20}$ of</p> <p>$\times \frac{1}{20}$</p> <p>$\times 0.05$</p>	<p>10% of</p> <p>$\div 10$</p> <p>$\frac{1}{10}$ of</p> <p>$\times \frac{1}{10}$</p> <p>$\times 0.1$</p>	<p>20% of</p> <p>$\div 5$</p> <p>$\frac{1}{5}$ of</p> <p>$\times \frac{1}{5}$</p> <p>$\times 0.2$</p>
<p>25% of</p> <p>$\div 4$</p> <p>$\frac{1}{4}$ of</p> <p>$\times \frac{1}{4}$</p> <p>$\times 0.25$</p>	<p>50% of</p> <p>$\div 2$</p> <p>$\frac{1}{2}$ of</p> <p>$\times \frac{1}{2}$</p> <p>$\times 0.5$</p>	<p>75% of</p> <p>$\div 4, \times 3$</p> <p>$\frac{3}{4}$ of</p> <p>$\times \frac{3}{4}$</p> <p>$\times 0.75$</p>	



Maths Quick Reference: Geometry & Measures

Quadrilaterals

<p>Square</p> <p>Four sides of equal length, four internal right angles.</p>	<p>Rectangle</p> <p>Four internal right angles, opposite sides of equal length.</p>	<p>Parallelogram</p> <p>Opposite sides are parallel and equal in length, opposite angles are equal.</p>	<p>Rhombus</p> <p>All four sides are the same length, like a square that has been squashed sideways.</p>
<p>Trapezium (or trapezoid)</p> <p>Two sides are parallel. Side lengths and angles are not equal.</p>	<p>Isosceles Trapezium (or trapezoid)</p> <p>Two sides are parallel and base angles are equal, non-parallel sides are equal length.</p>	<p>Kite</p> <p>Two pairs of adjacent sides are of equal length, the shape has an axis of symmetry.</p>	<p>Irregular Quadrilateral</p> <p>No sides are equal in length and no internal angles are the same.</p>

3D shapes

Cone	Cylinder	Sphere	Square Based Pyramid
Cube	Triangular Prism	Tetrahedron	Cuboid

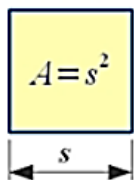
Triangle	Quadrilateral	Pentagon	Hexagon
Heptagon	Octagon	Nonagon	Decagon

Pentagon		$180^{\circ} \times 3 = 540^{\circ}$
Hexagon		$180^{\circ} \times 4 = 720^{\circ}$
Heptagon		$180^{\circ} \times 5 = 900^{\circ}$

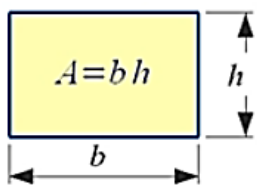
Length		
cm	mm	m
$\times 10$	$\times 100$	$\times 1,000$
$\div 10$	$\div 100$	$\div 1,000$
km	m	
Mass		
g	mg	kg
$\times 1,000$	$\times 1,000$	$\times 1,000$
$\div 1,000$	$\div 1,000$	$\div 1,000$
t	kg	
Volume		
l	ml	cl
$\times 1,000$	$\times 10$	$\times 100$
$\div 1,000$	$\div 10$	$\div 100$

Maths Quick Reference: Geometry (Areas & Volumes)

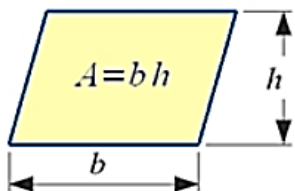
Square



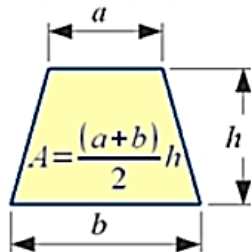
Rectangle



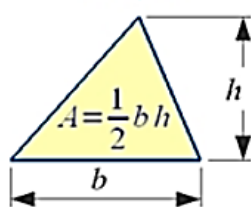
Parallelogram



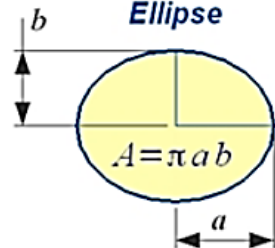
Trapezoid



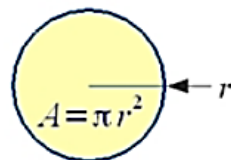
Triangle



Ellipse


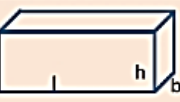




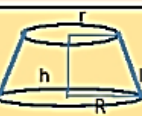


Circle



electronics-micros.com

Area and volume of 3d figures

S.No	Name	Figure	Curved Surface Area	Total Surface Area	Volume
1)	Cube	 $a = \text{side}$	$4a^2$	$6a^2$	a^3
2)	Cuboid	 $l = \text{length}$ $b = \text{breadth}$ $h = \text{height}$	$2h(l + b)$	$2(lb + bh + lh)$	$l \times b \times h$
3)	Sphere	 $r = \text{radius}$	$4\pi r^2$	$4\pi r^2$	$\frac{4}{3}\pi r^3$
4)	Solid Hemisphere	 $r = \text{radius}$	$2\pi r^2$	$3\pi r^2$	$\frac{2}{3}\pi r^3$
5)	Right circular cylinder	 $r = \text{radius}$ $h = \text{height}$	$2\pi rh$	$2\pi r(h+r)$	$\pi r^2 h$
6)	Right circular cone	 $r = \text{radius}$ $h = \text{height}$ $l = \text{slant height}$	$\pi r l$	$\pi r(l+r)$	$\frac{1}{3}\pi r^2 h$
7)	Frustum of a cone	 $r = \text{top radius}$ $R = \text{base radius}$ $h = \text{height}$ $l = \text{slant height}$	$\pi l(R + r)$	$\pi l(R+r) + \pi r^2 + \pi R^2$	$\frac{1}{3}\pi h(R^2 + r^2 + Rr)$

Maths Quick Reference: Algebra Skills

Simplifying Expressions

Like terms

$$3y + 2x + 4x - y = 2y + 6x$$

Like terms

$$C \times C \times C \times C = C^4$$

$$C + C + C + C = 4C$$

Expanding Brackets

multiply

$$7(x + 2)$$

$$7x + 14$$

multiply

$$5a(b - 4)$$

$$5ab - 20a$$

Expand & Simplify...

$$5(x + 3) + 6(x - 4)$$

$$5x + 15 + 6x - 24$$

$$11x - 9$$

FOIL Method

F O

$$(2x + 3)(5x - 8)$$

I L

First: $(2x)(5x) = 10x^2$
Outer: $(2x)(-8) = -16x$
Inner: $(3)(5x) = 15x$
Last: $(3)(-8) = -24$

$$(2x + 3)(5x - 8)$$

$$= 10x^2 - 16x + 15x - 24$$

$$= 10x^2 - x - 24$$

Grid Method

$$(2x + 3)(5x - 8)$$

	2x	+ 3
5x	10x ²	+ 15x
- 8	- 16x	- 24

$$10x^2 + 15x - 16x - 24$$

$$= 10x^2 - x - 24$$

An Expression

$$4a + 7b$$

A Formula

$$A = \pi r^2$$

An Equation

$$4a + 12 = 60$$

An Identity

$$(a + b)^2 = a^2 + 2ab + b^2$$

Factorising Brackets

Common factor?

$$7x + 14$$

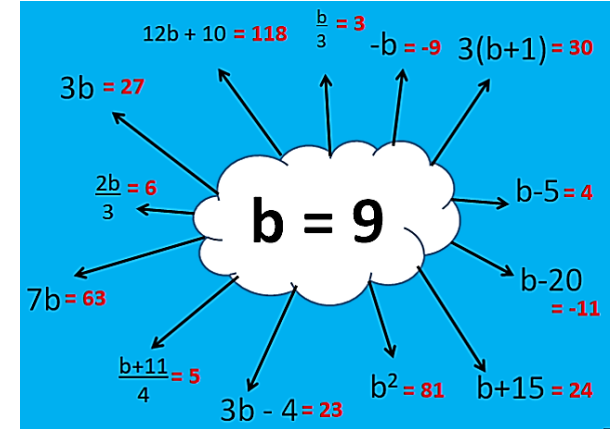
$$7(x + 2)$$

Common factor?

$$5ab - 20a$$

$$5a(b - 4)$$

Substitution



Solving Equations

$$6x - 5 = 7$$

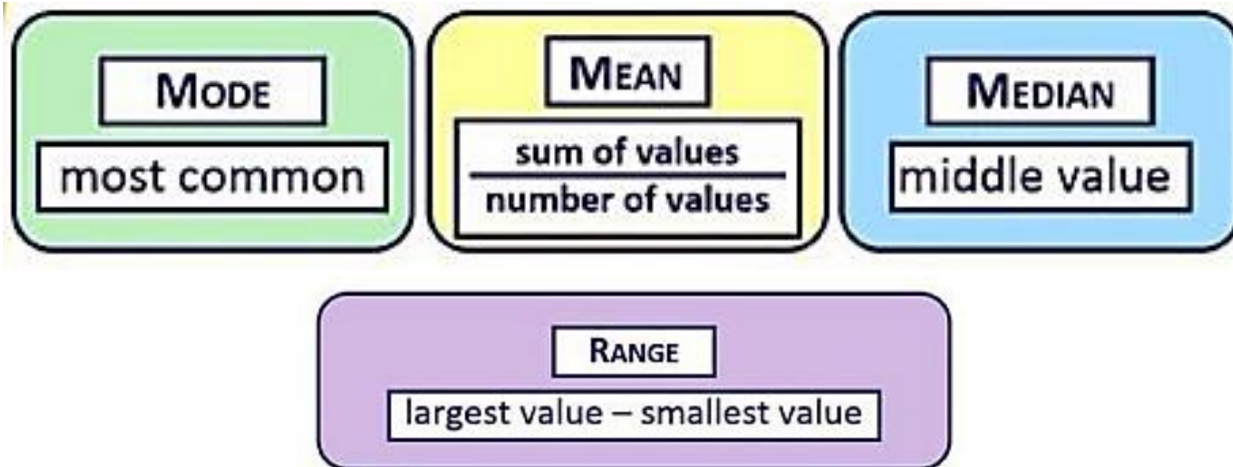
$$\boxed{+ 5} \qquad \boxed{+ 5}$$

$$6x = 12$$

$$\boxed{\div 6} \qquad \boxed{\div 6}$$

$$x = 2$$

Maths Quick Reference: Statistics



<p>Mean</p> <p>7, 3, 4, 1, 7, 6</p> <p>Sum of numbers divided by the total numbers</p> <p>Mean = $(7+3+4+1+7+6)/6$ = $28/6 = 4.66$</p>	<p>Median</p> <p>7, 3, 4, 1, 7, 6</p> <p>Arrange in order and pick the middle value</p> <p>1, 3, <u>4</u>, <u>6</u>, 7, 7</p> <p>Median = $(4+6)/2 = 5$</p>
<p>Mode</p> <p>7, 3, 4, 1, 7, 6</p> <p>Most common number</p> <p><u>7</u> 3, 4, 1, <u>7</u> 6</p> <p>Mode = 7</p>	<p>Range</p> <p>7, 3, 4, 1, 7, 6</p> <p>Difference between highest and lowest</p> <p>Range = $7 - 1 = 6$</p>

Mean from the Frequency Table

Discrete Data Frequency Table

$$\text{Mean} = \frac{\text{Sum of (value} \times \text{frequency)}}{\text{Total frequency}}$$

Grouped Data Frequency Table

$$\text{Mean of grouped data} = \frac{\text{Sum of (interval midpoint} \times \text{frequency)}}{\text{Total frequency}}$$

Length (x cm)	Frequency	Midpoint	Midpoint \times frequency
$0 < x \leq 10$	4	$\times 5$	= 20
$10 < x \leq 20$	10	$\times 15$	= 150
$20 < x \leq 30$	7	$\times 25$	= 175
$30 < x \leq 40$	4	$\times 35$	= 140
	25		485

estimated mean = $485 \div 25 = 19.4 \text{ cm}$

Simple Probability

$$\text{Probability} = \frac{\text{Favorable outcomes}}{\text{Total outcomes}}$$

Example:

$$P(\text{red}) = \frac{7}{12}$$

← Number of red marbles
← Total number of marbles (sample space)

$$P(\text{blue}) = \frac{5}{12}$$

← Number of blue marbles
← Total number of marbles (sample space)



In words:	Impossible	Very unlikely	Unlikely	Even chances	Likely	Very likely	Certain
As decimal fractions:	0	0,2	0,4	0,5	0,6	0,8	1
As fractions:	0	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{1}{2}$	$\frac{3}{5}$	$\frac{4}{5}$	1
As percentages:	0%	20%	40%	50%	60%	80%	100%

Sample Space Diagrams

		Dice 1					
		1	2	3	4	5	6
Dice 2	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12
		Total Score					





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.

Writing about texts

Point = The idea you are starting.

Evidence = The part of the text which proves your idea.

Technique = Identify a key word or phrase from your evidence.

Effect = Explain what this means and how it impacts the characters/reader in the text.



The idea of is seen.....

because the text says ‘.....’

The technique x suggests...

This makes the reader / audience think that...

- Identify and interpret ideas in a text.
- Explain and analyse how writer's use language and structure.
- Use quotes to support their views.



Knowledge



Plot summary:

- We see the final moments of Mickey and Edwards lives as the Narrator begins the tale
- Mrs Johnstone, a struggling single mother of seven, finds out that she is pregnant with twins. Her employer, Mrs Lyons persuades Mrs Johnstone to give her one of the babies.
 - Mrs Lyons takes Edward and brings him up as her own, convincing her husband this is true. Mrs Johnstone goes back to work but fusses over Edward, leading to Mrs Lyons firing her.
 - Aged seven, Mickey and Edward meet and become best friends, along with Mickey's neighbour Linda. The three get into trouble with the police when they begin to throw stones at windows.
 - Scared of Edward becoming close to his biological family, Mrs Lyons convinces her husband to move the family to the countryside. Soon afterwards, the Johnstone's (and Linda's family) are rehoused by the council.
 - As teenagers, Mickey and Edward meet again and they rekindle their friendship. Linda and the boys remain close throughout their teenage years before Edward goes to university.
 - After marrying a pregnant Linda, Mickey loses his factory job. Unemployed, Mickey is involved in a crime with one of his brothers, Sammy, and both are sent to prison.
 - Mickey becomes depressed and takes pills to help him cope, which he continues to take after being released.
 - After Mickey comes out of prison and starts a new job, Edward and Linda start a light romance. Mickey finds out and is furious so he finds Sammy's gun and goes to find Edward at his workplace, the town hall.
 - Mrs Johnstone follows Mickey and tells him in front of Edward that they are twins. The police also arrive.
 - Mickey waves the gun around and it accidentally goes off, killing Edward. The police

Challenge Activities



Task 1: Research into the following contextual areas. Can you make a poster for each one to show your understanding?

1960s 'Youth culture' was becoming more evident. Teenagers who enjoyed music, fashion and culture were making themselves heard more and they were often associated with freedom and potential. Teenager's started to believe they had the power to change the future and started to be more involved in protesting the issues they believed in.



Thatcherism

In 1979 Margaret Thatcher became Prime Minister. She made the decision that Britain's traditional industries should be shut down. This had a huge impact on working class communities where a huge amount of men were left unemployed and having to sign on to the dole. This led to an increase in depression and crime rates. One of Thatcher's central political beliefs was that success came to those who chose to work hard.

Career Focus - Fostering



I am a Foster Care Worker. I care for and meet the emotional and social needs of a child in my care. I often help with schoolwork and promote a positive attitude to education. I keep my young people safe from harm and abuse. If you wanted this morally rewarding job then you would have to support the young people in your care and put their views forward.

Topic Links 	Additional Resources 
<p>This topic links to:</p> <ul style="list-style-type: none"> • History- Britain in the 1980s • Geography - Unfair Trade 	<p>To further practise and develop your knowledge see: Blood Brothers - Plot summary - Plot summary - GCSE English Literature Revision - WJEC - BBC Bitesize Blood Brothers — willyrussell.com</p>

- Identify and interpret explicit and implicit information and ideas.
- Explain and analyse how writer's use language to achieve effects and influence readers
- Use relevant subject techniques to support their views.

Skills



Retrieval Practice

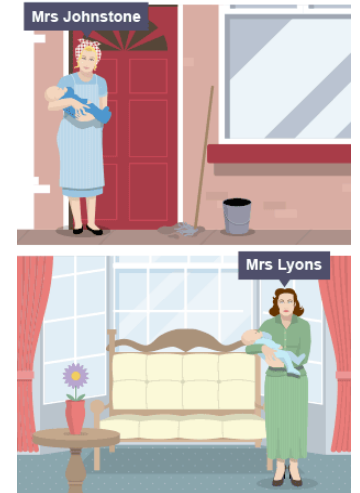


Questions	Answers
What does Mrs Lyons say will happen if twins who are separated at birth find out the truth about their connection?	They shall both immediately die.
What is important about Mrs Johnstone swearing on the bible to give one of her babies away?	It is a form of blackmail as she knows that Mrs J won't go back on a sworn oath, so the bible is symbolic of a pact that can't be broken
What does Mrs Johnstone's reference to Marilyn Monroe and Mickey suggest?	It foreshadows his early death as Marilyn Monroe overdosed on pills.
What is an accent?	An accent is a way of pronouncing a language depending on which region you are from.
How is superstition seen in the play?	Omens such as 'new shoes upon the table', 'separated twins finding out about each other' etc.
What is Mrs Johnstone's main motivation for agreeing with Mrs Lyons to give her her child?	The Welfare State has been 'onto her'
Who shows Mickey, Eddie and Linda's betrayal?	Mrs Lyons

Key Skill: Writing about Context

A handy skill is understanding how context links or has inspired a text. Find moments in the play that have been inspired or are a reaction to these social-cultural moments in 1960-80s Britain.

- Marilyn Monroe
- Film and Tv more accessible to all
- Pop Culture
- New towns vs. Council Housing
- Recession
- Margaret Thatcher



CHALLENGE – how do these contextual factors help us to understand the differences between Mrs Johnstone and Mrs Lyons?

Skills Practice

Write a diary as either Mrs Johnstone or Mrs Lyons. Can you imagine how they might be feeling at the beginning, middle and end of the play?

Design a set for your version of the production. How will you use props or backgrounds to show the different classes?

Create an extra scene- You could script the birth of Mickey and Linda's first child or imagine what Mickey, Edward and Linda are saying during the 'growing up' montage.

- Identify and interpret explicit and implicit information and ideas.
- Explain and analyse how writer's use language to achieve effects and influence readers
- Use relevant subject techniques to support their views.



Vocabulary - You will be tested on five words per week as part of your home learning.



Keyword	Definition
Abandon	cease to support or look after (someone); desert
Adoption	the action or fact of legally taking another's child and bringing it up as one's own, or the fact of being adopted
Aspiration	a hope or ambition of achieving something
Cynical	believing the worst of human nature and motives; having a sneering disbelief in e.g. selflessness of others, distrust
Expectation	a strong belief that something will happen or be the case
Inequality	difference in size, degree, circumstances, etc.; lack of equality
Inferior	lower in rank, status or quality
Nature	the phenomena of the physical world collectively, including plants, animals, the landscape, and other features and products of the earth, as opposed to humans or human creations
Nurture	care for and protect (someone or something) while they are growing
Manipulative	exercising unscrupulous control or influence over a person or situation
Masculinity	qualities and attributes regarded as characteristic of men
Politics	the activities associated with the governance of a country or area, especially the debate between parties having power

Keyword	Definition
Superior	higher in rank, status, or quality
Superstition	a widely held but irrational belief in supernatural influences, especially as leading to good or bad luck
Social conscience	a sense of responsibility or concern for the problems and injustices of society
Unrest	a state of dissatisfaction, disturbance, and agitation, typically involving public demonstrations or disorder
Working class	the group of people in a society who do not own much property, who have low social status, and who do jobs which involve using physical skills rather than intellectual skills
Upper Class	the social group that has the highest status in society, especially the aristocracy
Union	a society or association formed by people with a common interest or purpose (in this case- fair pay and working conditions)
Unemployment	a situation where a person actively searches for employment but is unable to find work
Welfare	welfare, or commonly social welfare, is a type of government support intended to ensure that members of a society can meet basic human needs such as food and shelter.



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.

Keyword	Definition
Organ	A group of tissues carrying out a particular function.
Organ System	Organs working together as a system.
Organism	Organ systems all working together to form a living organism.
Breathing system	Network of organs and tissues that help you breathe including airways, lungs and blood vessels.
Ventilation	The movement of air into and out of the lungs.
Gas exchange	The exchange of gases (oxygen and carbon dioxide) in the lungs or leaves.
Alveoli	Tiny sacs in the lungs where gas exchange occurs.
Asthma	A medical condition where the airways become irritated and swell up.
Bronchitis	Bronchiole tubes become inflamed and leads to excess mucus and coughing.
COPD	Chronic obstructive pulmonary disease. Damage caused to lungs that prevents gas exchange.
Carcinogen	A substance that can cause cancer.
Photosynthesis	A process that occurs in plants that turns carbon dioxide and water into glucose and oxygen.
Stomata	Tiny holes on the bottom of leaves that allow gases in and out. Can open and close.

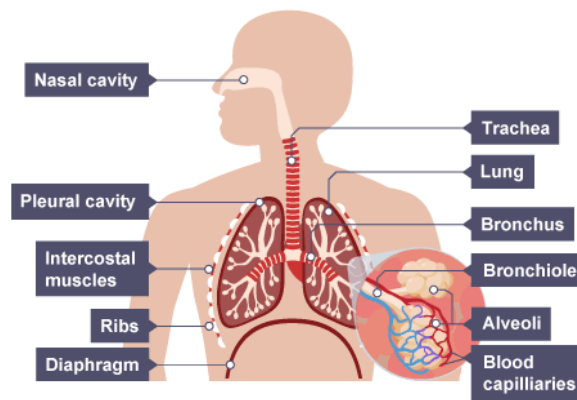
Key Concepts

The Lungs and Gas Exchange

The human lungs provide an **exchange surface** adapted for:

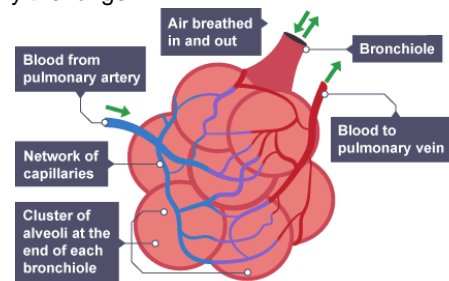
- absorbing **oxygen** – needed for respiration – into the blood from the air
- transferring **carbon dioxide** – produced by respiration – from the blood into the lungs then the air

The lungs are organs enclosed within the chest or **thorax**. Air needs to be breathed in to be brought into contact with the exchange surfaces within the lungs. This process is called **ventilation**.



The exchange of gases occurs between the alveoli and blood in the **capillaries** that supply the lungs.

Capillaries cover 70% of the outside of alveoli, providing a large surface area for gases to diffuse across.



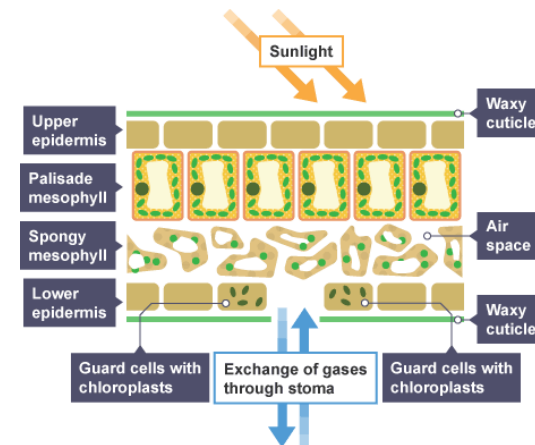
Exercise, Asthma and Smoking


Regular exercise strengthens the intercostal muscles and diaphragm which make breathing more efficient. Asthma is a medical condition in which the lining of the airways from the mouth to the lungs become irritated and swell up. This reduces the air that can move in and out from the lungs. It is often treated by inhaling medication from an inhaler. Smoking damages the tiny hairs that line the gas exchange system; these hairs are called ciliated cells. These move mucus up that has trapped dust and pathogens out of the airways. This can result in smokers developing a cough to remove this mucus. Smoking also irritates the bronchi which can lead to bronchitis. Smoking also breaks down the lining of the alveoli, which means less gas exchange can occur and can lead to chronic obstructive pulmonary disease (COPD). Cigarette smoke also contains carcinogen chemicals like tar, which can cause mouth, throat and lung cancer.

Plants and Gas Exchange


Plant leaves are adapted for **photosynthesis**, and the exchange of gases required for the process. The structure of the tissues is related to their functions in the plant.

When the plant is photosynthesising during the day, these features allow carbon dioxide to diffuse into the spongy mesophyll cells, and oxygen to diffuse out of them. To enter the leaf, gases diffuse through small pores called stomata.



Retrieval Practice 	
Questions	Answers
What is an organ?	A group of tissues that work together to perform a function.
What is an organ system?	A group of organs working together to perform a function.
Name the parts of the breathing system	Nasal cavity, Lungs, Trachea, Bronchus, Bronchioles, Alveoli, Diaphragm, Intercostal muscles, Rib cage
What controls ventilation?	The diaphragm and intercostal muscles.
How are the alveoli adapted for gas exchange?	Many alveoli = large surface area Thin walls (one cell thick) = short diffusion pathway Good blood supply (many capillaries) = a concentration gradient
What is diffusion?	The movement of substances from a high concentration to a low concentration. Down a concentration gradient.
How does exercise impact the breathing system?	This can strengthen the muscles of the breathing system (diaphragm and intercostal muscles) and make it more efficient.
How does smoking impact the breathing system?	Tobacco contains harmful substances that damage cilia (small hairs), the alveoli and bronchioles and can lead to serious diseases such as cancer and COPD.
How does asthma impact the breathing system?	Can cause constriction of muscles and swelling of airways making it difficult to breathe.
What gases are exchanged in leaves?	Carbon dioxide and oxygen.
Why do plants need to carry out gas exchange?	For photosynthesis: plants need carbon dioxide to make their food (glucose) and oxygen is a waste product they need to remove.
What controls the movement of gases in and out of leaves?	Stomata on the bottom of leaves open and close to allow gases to enter and leave the leaf.

Career Focus - Where could this take you?





I am a veterinary assistant. I work in a veterinary practice assisting in the care and treatment of animals. This can be a physically and emotionally demanding job where I have a variety of day-to-day tasks such as preparing animals for treatments, giving injections and medicines, taking x-rays, keeping the practice and equipment clean and assisting pet owners.

The skills I need for this job include knowledge of animal health, customer service, keeping calm in stressful situations and excellent communication skills.

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 possible treatments for lung cancer, the risks and benefits of the treatments and turn the information into a leaflet.
4. Research how different lifestyle factors influence the breathing system.
5. Find out more about veterinary assistants and what they do. What qualifications would you need for this career? What current research is being done? What is the salary?
6. Construct a fact file about a famous historical scientist that helped us to understand more about plants and gas exchange.

Topic Links 	Additional Resources 
<p>This topic links to:</p> <ul style="list-style-type: none"> • Cells • Respiration • Photosynthesis • Transport systems <p>We will also be practising how to</p> <ul style="list-style-type: none"> • Calculate lung capacity • Write an evaluation to compare treatments 	<p>To further practise and develop your knowledge see:</p> <p>Educake - https://www.educake.co.uk/</p> <p>BBC Bitesize - https://www.bbc.co.uk/bitesize/topics/zvrrd2p/articles/zhcg7h#zvp4r2p4</p> <p>https://www.bbc.co.uk/bitesize/guides/z9kx8mn/revision/2</p> <p>YouTube Cognito – https://www.youtube.com/watch?v=B44n2SMLv-s</p>

- Calculate pressure
- Explain why pressure changes at different heights (atmosphere) and depths (ocean)

Keyword	Definition
Pressure	How much force is exerted on an object.
Force	A push or pull that acts on an object due to interaction with another object.
Area	A measurement of a surface.
Newton	A unit of force. How forces are measured. Symbol = N
Pascal	A unit of pressure. How pressure is measured. Symbol = Pa
Fluid	Both liquids and gases are fluids. Their particles are free to move so they can flow or be poured.
Particles	Tiny things that all matter are made from.
Collision	When one object runs into another.
Volume	The amount of space that a 3D object takes up.
Liquid pressure	The force exerted on an object when it is in a liquid.
Gas pressure	The force exerted on the sides of a container by particles of gas.
Atmosphere	The layer of gases that surrounds the Earth. Made up mainly of nitrogen 78% and oxygen 21%.
Atmospheric pressure	The weight of the atmosphere pushing down on the Earth.
Altitude	How high something is compared to sea level.

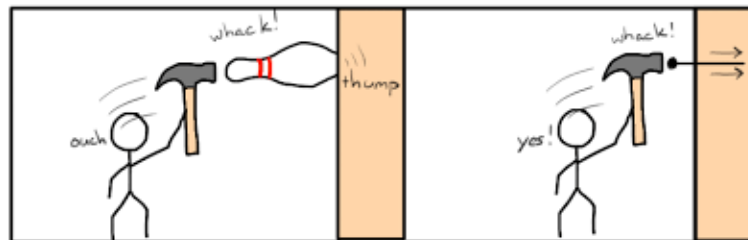
Key Concepts

Pressure in solids

Pressure is a measure of how concentrated (or spread out) a force is. The amount of pressure exerted on an object depends on the force applied and the surface area it is spread over. We can calculate the amount of pressure on an object using a simple formula:

$$\text{Pressure} = \text{force} \div \text{area}$$

A rock resting on a soft surface, like sand or mud, will create an indentation. The depth of this indentation depends on the pressure exerted on the ground. The larger the pressure the deeper the indentation it will create. The greater the weight of the rock, the higher the pressure it exerts on the ground. The smaller the surface area resting on the ground, the higher the pressure it exerts on the ground.

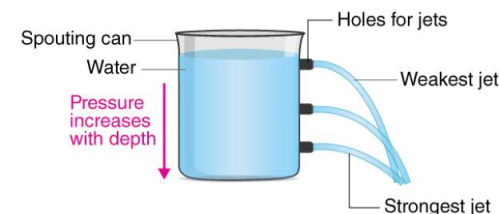


Pressure can be measured in many different units, but scientists usually use units called pascals (Pa). Other units commonly used to measure pressure include newtons per square centimetre (N/cm²), bars and pounds per square inch (P.S.I.). One pascal is the pressure exerted when a force of one newton is spread over an area of 1 square metre, so one pascal (1 Pa) is the same as **one newton per square metre (1 N/m²)**. Understanding the connection between force, pressure and area can help scientists and engineers design and make more effective machines and devices.

Pressure in Liquids

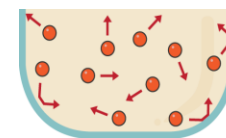
Just like gases, liquids exert pressure on objects due to collisions between the liquid particles and the object. The amount of pressure exerted depends on both the density of the liquid and the depth of the liquid.

- The deeper you go:
- the greater the weight of liquid above the object
 - the greater the liquid pressure.

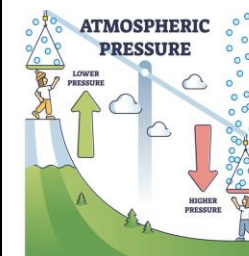


Pressure in Gases

The particles in a gas move quickly in random directions. Therefore, the particles regularly bump into each other and the walls of their container. These collisions exert pressure on the walls of the container and any objects surrounded by the gas.



If the temperature of a gas is increased, the particles move faster, so they hit the walls of the container more often. This causes the pressure to increase. Decreasing the volume of the container also increases the pressure. This is because the rate at which the particles collide with the surfaces increases because there are more particles in a smaller space.



Atmospheric pressure decreases as the height of a surface above ground level increases.

- This is because, as the altitude increases:
- the number of air molecules decreases
 - the **weight** of the air decreases
 - there is less air above a surface

- Calculate pressure
- Explain why pressure changes at different heights (atmosphere) and depths (ocean)



Retrieval Practice

Questions	Answers
What is pressure?	The amount of force exerted on an object.
How is pressure calculated?	Pressure = Force ÷ Area
What are the units for pressure?	Pascals (Pa) which is the same as 1 Newton per square metre (N/m ²)
Which objects exert the most pressure?	Objects with the greatest weight being exerted on the smallest area.
How can we decrease pressure?	Either by decreasing the weight of the object or increasing the surface area it is exerting its force on.
What causes pressure in liquids?	The pressure caused by liquid particles colliding with an object.
How does pressure change with depth in a liquid?	The pressure increases as the depth of a liquid increases.
Why does pressure increase as you increase the depth of a liquid?	The weight of the liquid above the object increases as you increase the depth.
What causes pressure in gases?	The pressure is caused by gas particles colliding with the sides of a container.
What increases pressure in gases?	Pressure increases when gas particles collide more often which can occur when temperature increases or volume decreases.
What is atmospheric pressure?	The pressure caused by the weight of the atmosphere pushing down on the Earth.
How does pressure change with altitude?	As altitude increases pressure decreases.
Why does pressure change with increasing altitude?	The number of air particles decreases and the weight of the atmosphere decreases.

Career Focus - Where could this take you?



I am a scuba diving instructor. My job is an awesome way for me to share my love of diving with other people. I can work almost anywhere – my local PADI dive shop, a resort on a far-flung island or even on a superyacht!

To become an instructor, you'll need to have a number of scuba-diving qualifications. These include the PADI Open Water Diver, PADI Advanced Open Water Diver, PADI Rescue Diver, PADI Divemaster and emergency first response certifications. You'll also need to successfully log 100 open water dives, complete an instructor development course and complete an instructor evaluation.

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 effects of pressure on the human body. How do we manage when people need to go to high altitudes or deep under the ocean?
4. Research how different lifestyle factors influence the breathing system.
5. Find out more about scuba diving instructors and what they do. What qualifications would you need for this career? What is the salary?
6. Construct a fact file about a famous historical scientist that helped us to understand more about pressure.

Topic Links



This topic links to:

- Forces
- Chemistry and the Atmosphere
- Blood pressure and the heart

We will also be practising how to

- Calculate pressure
- Research the ways pressure is used in machines

Additional Resources



To further practise and develop your knowledge see:

Educake - <https://www.educake.co.uk/>
 BBC Bitesize - <https://www.bbc.co.uk/bitesize/topics/z4brd2p/articles/zvdpf82>
 YouTube Cognito – <https://www.youtube.com/watch?v=0P3b8bWgAkC>
<https://www.youtube.com/watch?v=s8C2RktZtbM>

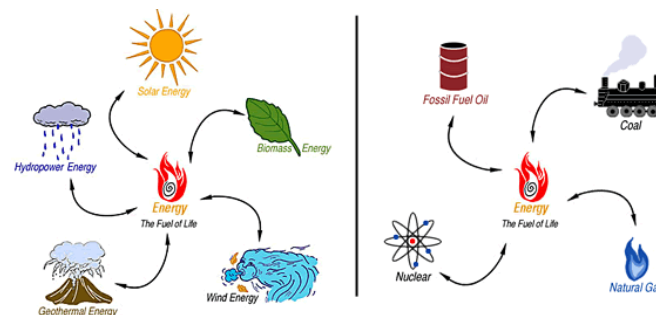
- Describe how the Earth has limited resources and the importance of recycling
- Explain how the reactivity series is used to displace metals from their ores

Keyword	Definition
Finite	Resources which will run out soon. There is a limited supply.
Renewable	Resources which will not run out in the foreseeable future.
Resource	A resource is a physical material that humans need and value such as land, air, and water.
Reserves	Deposits of natural deposits that are known to exist.
Sustainability	Sustainability is the idea that humans must interact with the environment in a way that ensures there will be enough resources left for future generations.
Metals	Substances that have high melting/boiling points, conduct electricity/heat, are shiny and are malleable.
Chemical Bonds	Forces holding atoms together in a molecule. Require energy to break.
Reactivity Series	How well a metal can react will affect its order in the reactivity series.
Displacement	A more reactive element can displace a less reactive element out of its compound during a chemical reaction.
Electrolysis	Electrolysis is a process which uses electrical energy to break a compound and collect pure metals.
Reduce	Producing less waste.
Reuse	Using items as much as you can before replacing them.
Recycle	Converting waste materials that would be thrown away into new materials and/or objects.

Key Concepts

Finite and Renewable Resources

Many of the Earth's resources are finite. Chemists have a role in estimating the number of reserves remaining and ensuring that the use of resources is sustainable.



Reduce Reuse and Recycle



Extracting metals

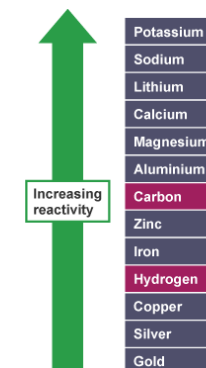
Metals mostly occur as compounds in rocks and minerals and must be extracted before they can be used.

The method used to extract the pure metal depends on its position in the reactivity series.

The most **unreactive** metals, silver and gold, are found as **elements** in the rocks. They are not **chemically bonded** to other elements in compounds.

Most of the metals found in rocks are combined with other elements in **compounds**. These compounds are called **minerals**.

Metals below carbon can be extracted using a displacement reaction but those above carbon must be extracted using electrolysis.



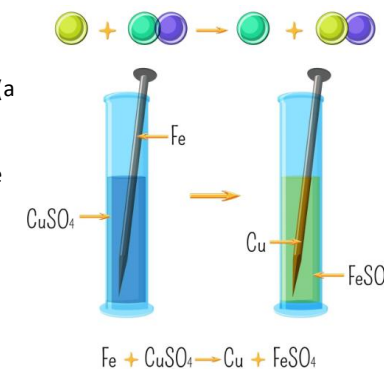
Displacement

Displacement reactions are chemical reactions which involve a metal and a compound containing a different metal.

These compounds containing metals and non-metals are called **salts**. For example, iron (a metal) reacts with copper sulfate (a salt containing copper).

In a displacement reaction, a *less* reactive metal is displaced from its compound by a *more* reactive metal.

When a displacement reaction happens, the temperature rises.



- Describe how the Earth has limited resources and the importance of recycling
- Explain how the reactivity series is used to displace metals from their ores



Retrieval Practice	
Questions	Answers
What name is given to resources which may run out one day if not managed carefully?	Finite resources such as crude oil.
What are the 4 main non-renewable energy sources?	Coal, Oil, Natural gas and Uranium.
What is a renewable resource?	A resource that will not run out for the foreseeable future.
Name some renewable resources.	Wind, Solar, Geothermal, Wood, Hydro (water) and Cotton.
Where are metals found?	In their ores, as compounds chemically bonded to other elements.
What is displacement?	When a more reactive substance removes an element from its compound.
Why can't all metals be extracted using carbon?	They are more reactive than carbon so cannot be displaced.
Which metals can be extracted using carbon?	Zinc, iron and copper.
What process is used to extract reactive metals?	Electrolysis
Name the three R's	Reduce, Reuse and Recycle.
What is recycling?	When waste materials are made into new materials and objects.
Why is it important to reduce, reuse and recycle?	So that resources do not run out and so that less waste goes to landfill or for incineration.

Career Focus - Where could this take you?



I am a dental technician. I work with a variety of materials such as polymers and ceramics to help improve or replace lost teeth. I work with the information that dentists provide me to make things like dentures, veneers, bridges, crowns and braces. I need a good understanding of the science of dental materials to ensure the correct material is chosen for the particular job it needs to do. I work mainly in the laboratory with a range of specialised equipment, so my day is very varied and never boring. My qualifications include a BTEC national diploma in dental technology.

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 career dental technician and find out more about what they do. How much is their salary and what routes are there to become one?
4. Produce a fact file on renewable resources. What technology is being developed now to help with the energy crisis?
5. Construct a fact file about a famous historical scientist that helped us to understand more about extracting metals.

Topic Links



This topic links to:

- Energy
- Chemical Reactions
- Interdependence

We will also be practising how to

- Evaluate data
- Design a leaflet to promote the 3 R's

Additional Resources



To further practise and develop your knowledge see:

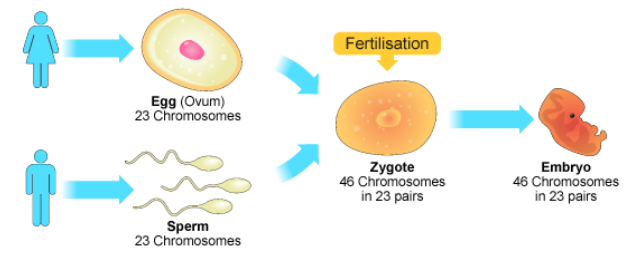
Educake - <https://www.educake.co.uk/>
 BBC Bitesize - <https://www.bbc.co.uk/bitesize/guides/zgqhcj6/revision/2>
 YouTube Cognito - <https://www.youtube.com/watch?v=PDeiRIQvWnM>

Keyword	Definition
Biodiversity	The variety of different species in a habitat.
Natural selection	The process that drives evolution; some species are better adapted to environment and pass on genes.
Evolution	The process by which organisms change over a long period of time.
Extinction	The dying out of a species.
Fossil record	The record of organisms that existed over time using fossils as evidence
DNA	The genetic information found inside the nucleus
Chromosome	Highly coiled strands of DNA that occurs in pairs
Gene	A section of DNA that codes for a protein
Inherited characteristics	Features that are passed from parents to offspring.
Allele	The form of a gene (e.g. an allele for the hair colour gene might be blonde, or brown etc).
Dominant	The allele that <u>will</u> show up. (Written as a CAPITAL letter eg B for brown)
Recessive	The allele that <u>does not</u> show up if there's a dominant allele too. (Written as a lowercase letter eg b for blonde)
Genotype	Genetic makeup of an individual for a particular characteristic eg Dd

Key Concepts

Inheritance

Characteristics are passed along from parents to their offspring
Half of the genetic information comes from each parent; this is passed on through the sex cells in the process of fertilization.

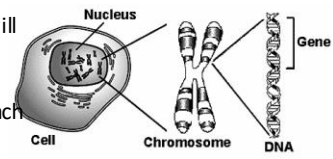


Humans get 23 chromosomes from their Father (sperm) and 23 chromosomes from their Mother (egg), which combine to make an embryo with 23 pairs of chromosomes.

Genetics

Our genetic information is stored inside the nucleus of all cells. DNA consists of two long strands wound together in a double helix structure.

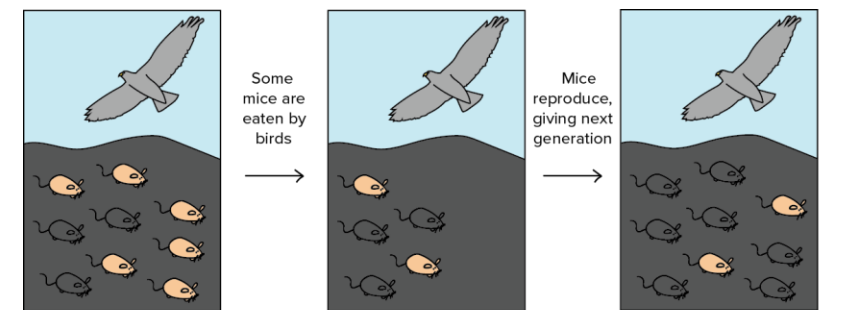
For every characteristic an organism will have two alleles, this is two different genes which can code for the same characteristic, one is inherited from each parent



- Dominant alleles will cause the characteristic to be displayed even if they are with another allele, this is represented by a capital letter
- Recessive alleles will not be displayed as characteristics unless there are two of the same allele, they are the characteristic least likely to be shown, this is represented by a small letter.

Natural Selection

Scientists believe that the organisms which we see on Earth today have gradually developed over millions of years, this is known as evolution
Charles Darwin came up with the concept of natural selection, he said that only the best adapted animals will survive to pass on their genes, weaker animals will die out.



A population of mice has moved into a new area where the rocks are very dark. Due to natural genetic variation, some mice are black, while others are tan.

Tan mice are more visible to predatory birds than black mice. Thus, tan mice are eaten at higher frequency than black mice. Only the surviving mice reach reproductive age and leave offspring.


Because black mice had a higher chance of leaving offspring than tan mice, the next generation contains a higher fraction of black mice than the previous generation.

Extinction

A species will become extinct when all of a species die out. The fossil record shows us that animals have existed in the past which have now become extinct.
Extinction can be caused by: Changes to the environment, Destruction of habitat, New diseases, Introduction of new predators and Increased competition
When a species becomes extinct, the variety of species within an ecosystem is reduced, this is also known as a reduction in biodiversity.
The more diverse a population is, the more likely they are to survive environmental changes.

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

- Describe the process of natural selection and how this can lead to extinction
- Explain how biodiversity can be maintained

Retrieval Practice 	
Questions	Answers
What is genetic information?	This is the DNA that is passed to us from our parents.
How are characteristics inherited?	Half the DNA is passed on from the father in the nucleus of the sperm and half the DNA is passed on from the mother in the nucleus of the egg.
How many chromosomes does a person have?	46 chromosomes in pairs of 23.
What is a gene?	A section of DNA that codes for a protein
What is an allele?	A gene that codes for a particular characteristic e.g. blue or brown eyes
What is the difference between a dominant and recessive allele?	Dominant alleles always show in our phenotype, recessive alleles only show in our phenotype if both are present.
What is the difference between phenotype and genotype?	Phenotype = our characteristics Genotype = our genetic makeup
What is natural selection?	The process by which organisms that are better adapted to their environment survive and pass on their genes to their offspring.
What is evolution?	The process by which species slowly change, generation after generation due to natural selection.
What are the fossil records?	The records of organisms that existed in the past based on fossils.
What is biodiversity?	The number and diversity of different species living in a habitat.
Why can low biodiversity lead to extinction?	Makes organisms more vulnerable if changes in the environment occur.
How can biodiversity be improved?	Ban hunting animals, prevent plants from being removed and trees cut down, protect areas with high levels of biodiversity, plant more species.

Career Focus - Where could this take you?



I am a geneticist. I work mainly in a lab to look at how genes affect how cells and organisms behave. I prepare and analyse samples of genetic tissue, use data and statistics to produce computer models, write reports and publish my findings in scientific journals.

I have to wear protective equipment when I work in the lab. The skills I need for this job include a good knowledge of biology, excellent communication skills, math skills, good attention to detail, thinking and reasoning skills and the ability to use scientific equipment.

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 how biodiversity has decreased around the planet and the things that have been done to try and stop biodiversity reducing.
4. Find out more about geneticists and what they do. What qualifications would you need for this career? What current research is being done? What is the salary?
5. Construct a fact file about a famous historical scientist that helped us to understand more about evolution.

Topic Links

This topic links to:

- Cells
- Ecosystems

We will also be practising how to

- Draw punnet squares and calculate probability
- Evaluate claims based on fossil records

Additional Resources

To further practise and develop your knowledge see:

- Educake - <https://www.educake.co.uk/>
 BBC Bitesize - <https://www.bbc.co.uk/bitesize/topics/zpffr82>
 YouTube Cognito – https://www.youtube.com/watch?v=T6_wKPAbf2k
<https://www.youtube.com/watch?v=zNEtVaNO0s8>

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

- Describe how forces move and distort objects (inc. Hooke's law)
- Explain how moments and levers work

Keyword	Definition
Force	A push or pull that acts on an object due to interaction with another object.
Newton	A unit of force. How forces are measured. Symbol = N
Simple machine	Devices that alter the direction or force of an object.
Pulley	A wheel with a cord that can be used to lift objects.
Axle	A rod that goes through the centre of a wheel
Screw	A rotating helix that moves straight.
Lever	A ridged bar that rotates around a pivot point.
Inclined plane	A sloping surface used for lifting heavy objects.
Moments	The turning effect of a force.
Pivot	The point around which an object rotates or turns.
Work done	The amount of energy transferred when a force acts over distance.
Hooke's Law	The extension of a spring is directionally proportional to the force applied.
Extension	When an object is stretched (made longer).
Directionally proportional	As one variable doubles in size (e.g. weight of mass) the other variable also doubles in size (e.g. length of spring)

Key Concepts

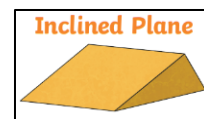
Simple machines

Simple machines are devices which alter the direction or force of a certain object, making it easier to move. A simple machine makes it easier and reduces the time it takes to complete a job.

Simple machines have made life easier for humans in loads of different ways, and it's hard to imagine we'd have developed this far without them. Many of the complex designs and tools we use today stemmed from simple machines of the past - they're a key stepping stone towards complex machinery.

Simple machines can work in a variety of ways. They can transfer a force from one place to another, change the direction of a force, increase a force's magnitude, or increase the distance or speed of a force.

Examples of simple machines:



Work Done

When a force causes an object to move, **work** is being done. Work is a measure of the energy transferred when a force acts over a distance. This is often when a force moves an object, but work is also done when a force compresses or extends a spring or other flexible object.

This means that:

$$\text{energy transferred} = \text{work}$$

Work and energy are both measured in joules (J).

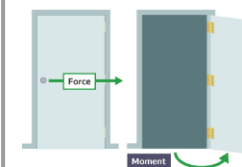
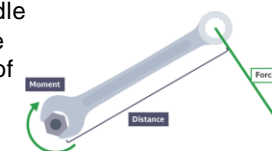
The following equation can be used to calculate work:

$$\text{Work done in joules (J)} = \text{force in newtons (N)} \times \text{distance moved in the direction of the force in metres (m)}$$

Moments and Levers

A moment is the turning effect of a force. Forces that create a moment act around a point called the pivot. The pivot is the point around which the object can rotate or turn.

On a seesaw the pivot is the point in the middle. It makes calculations easier to try to measure the perpendicular distance between the line of action of the force and the pivot. For example, if you apply a force to a Spanner, it rotates. The pivot is at the bolt.

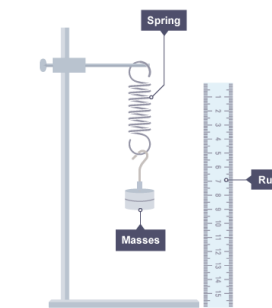


When you push open a door, you apply a force to the edge of the door furthest from the hinges. This force has a turning effect on the door - a moment which causes the door to rotate around the hinges - the - and the door opens.

Hooke's Law

When a force is applied to an object it can change its size and shape. The force will either stretch or compress the object. Some objects, like springs, obey **Hooke's law**.

This law describes the relationship between the force applied and the spring's extension or compression.



To investigate, you can add masses to a spring and measure the length of the spring when the of the masses is increased. This experiment investigates Hooke's law.

The results from this experiment should show that the extension of a spring is directionally proportional to the force applied to the spring.

- Describe how forces move and distort objects (inc. Hooke's law)
- Explain how moments and levers work



Retrieval Practice

Questions	Answers
What is a simple machine?	A device that can alter the direction or the force of an object.
What is a pulley?	A device that consists of a wheel and a cord that can be used to lift objects.
How do pulleys work?	An object is attached to one end of a cord that is placed around the wheel. The opposite end of the cord is pulled to lift the object.
What is an inclined plane?	A sloping surface that allows heavy objects to be lifted.
How do inclined planes work?	The inclined plane (ramp) allows objects to be lifted up or down with less force.
What is a moment?	The turning effect of a force.
How do levers work?	They act as force multipliers; one end of the lever is rotated around a pivot point and the opposite end of the lever moves up or down.
What is work done?	The amount of energy needed to move an object a certain distance with a certain amount of force.
How do we calculate work done?	Work done = Force X Distance
What is work done measured in?	Joules (J) or Newtons per meter (Nm)
What is Hooke's Law?	The extension of a spring is directionally proportional to the force applied.
How do we investigate Hooke's Law?	We add masses (100g) to a spring and measure the extension of the spring (how much it stretched)
What does directly proportional mean?	As one variable increases so does the other variable in the same proportions e.g. as one doubles so does the other.

Career Focus - Where could this take you?



I am a machine learning engineer. My job is to work in a special branch of artificial intelligence that enables machines to learn without further programming. My role is to be responsible for creating programs and algorithms that allow machines to take actions without being directed.

To become a machine learning engineer, I needed a degree and a masters in a relevant discipline. The skills they were looking for when employing me included understanding computer science, excellent math skills, use data modeling, being able to work with other data analysts and be able to analyse complex data sets.

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 uses of moments and levers in different machines. What are their functions? How do levers and moments act as force multipliers.
4. Produce a poster about Hooke's Law and the famous scientists work.
5. Find out more about machine learning engineers and what they do. What qualifications would you need for this career? What is the salary?
6. Construct a fact file about a famous historical scientist that helped us to understand more about moments and levers.

Topic Links



This topic links to:

- Forces
- Energy

We will also be practising how to

- Calculate moments
- Collect data and interpret graphs

Additional Resources



To further practise and develop your knowledge see:
 Educake - <https://www.educake.co.uk/>
 BBC Bitesize - <https://www.bbc.co.uk/bitesize/topics/z4brd2p/articles/z96g3j6>
 YouTube Cognito – <https://www.youtube.com/watch?v=p7OS4cz-Avs>



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

- To explore how people voted before reforms.
- To evaluate the significance of the Peterloo Massacre on working men.
- To explore how the Chartists fought for the right to vote.

- To explore what life was like for women in 20th Century Britain.
- To evaluate the impact of the Suffragette and Suffragists Movement in 20th Century Britain.

Keyword	Definition
Suffrage	The right to vote in political elections.
Suffragette	A campaigner for women's suffrage willing to undertake militant action or to break the law.
Suffragist	A campaigner for women's suffrage who believes in constitutional methods of campaigning.
NUWSS	The National Union of Women's Suffrage Societies, formed in 1897 and brought together many smaller suffrage organisations. The NUWSS's method was non-confrontational and constitutional.
WSPU	Women's Social and Political Union was formed when Emmeline Pankhurst found disillusionment with the progress of NUWSS. 'Deeds not Words' was their slogan.
Petition	A formal written request or application, especially one signed by many people, to a particular individual or group, for example, a government.
Chartists	Working class men who fought for the right to vote and to end the Rotten Borough System.
Moral Force Chartism	The belief that peaceful methods like petitions and protest would be the best way for men to fight for the vote.
Physical Force Chartism	The belief that more militant and aggressive methods were needed for working class men to gain the vote.
Constitutional	A peaceful, legal way of campaigning, often using recognised 'political' methods such as petitions.
Hunger Strike	Some imprisoned suffragettes went on hunger strikes to further raise awareness for their cause.
Rotten Borough	A smaller area that had a disproportionate number of MPs representing them in the House of Commons.
Peterloo Massacre	The largest working class gathering for political reasons which ended with a brutal response by the calvary in Manchester.
Enfranchisement	To be granted the vote or the state of having the vote.

Key Concepts

Expectations of Women from the 17th to 19th Century:

At the start of the Twentieth Century, women had a very stereotypical role in British society. If married, they stayed at home to look after the children while their husband worked and brought in a weekly wage. If single, they did work which usually involved some form of service such as working as a waitress, cooking etc. Many young women were simply expected to get married and have children. The term "spinster", though not a term of outright abuse, was still seen as having some form of stigma attached to it... That you were not good enough to get a husband!

For decades women's progress in British society was haunted by the words of Queen Victoria:

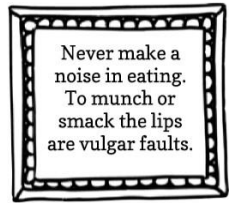
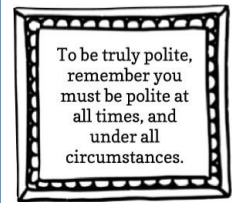
"Let women be what God intended, a helpmate for man, but with totally different duties and vocations."



Key People:



<p>Emmeline Pankhurst (WSPU): Led the WSPU from October 1903. Took more militant action such as window smashing, arson and hunger strikes. Arrested numerous times, went on hunger strikes and was force fed. Died in 1928.</p>	<p>William Lovett (Moral Force Chartism): Was the leader of the moral force Chartists who believed the working class and middle classes should be working together. He wanted to present petitions to parliament.</p>	<p>Feargus O'Connor (Physical Force Chartism): Followed by mostly working-class people and believed that they could only get their demands by force and advocated for an armed uprising. Responsible for the riots, such as the Peterloo Massacre.</p>	<p>Millicent Fawcett (NUWSS): Leading suffragist and led NUWSS from 1897-1919. Played a key role in getting women the vote. Dedicated to using constitutional means and argued that militancy was counter-productive.</p>
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Key events

1897	NUWSS formed. Millicent Fawcett is leader
1903	WSPU is formed by Emmeline Pankhurst and daughters.
1905	Militant campaign begins – Christabel Pankhurst and Annie Kenney arrested.
1908	Mass rally in London – 300,000 to 500,000 activists attend. Window smashing using stones with written pleas on them.
1909	Hunger strike and force feeding starts. Marian Wallace Dunlop becomes the first hunger striker.
1913	Militant bomb and arson campaigns and increasing arrests which results in the passing of the 'Cat and Mouse Act' under which hunger strikers are temporarily released then rearrested to prevent them dying in police custody.
1913	Emily Wilding Davison attempts to pin a Suffragette scarf onto the King's Horse at the Derby. She is struck by the horse and dies four days later.
1914	World War One starts. Suffragette leaders urge women to join the war effort. NUWSS continues to campaign for recognition for their work.
1918	The Representation of the People Act is passed, allowing men over 21 and women over 30 to vote.



- To explore how people voted before reforms.
- To evaluate the significance of the Peterloo Massacre on working men.
- To explore how the Chartists fought for the right to vote

- To explore what life was like for women in 20th Century Britain.
- To evaluate the impact of the Suffragette and Suffragists Movement in 20th Century Britain

Retrieval Practice 	
Questions	Answers
What 'stereotypical' role did women have at the start of the 20 th Century?	If married, they stayed at home to look after the children while their husband worked and brought in a weekly wage
When was the NUWSS formed and who was its leader?	The NUWSS was formed in 1897 and Millicent Fawcett was its leader until 1919.
When was the WSPU formed and who by?	The WSPU was formed in 1903 by Emmeline Pankhurst and her daughters.
What kind of militant protests did the WSPU carry out?	Campaigns included mass rallies, smashing windows throwing stones with pleas on and arson. All of which resulted in many arrests.
What kind of protests did the NUWSS carry out?	They used more constitutional campaigns like leaflets and petitions as they believed militant campaigns were counter-productive to the cause.
What was a 'hunger strike' and what would happen to the women who carried them out?	Hunger strikes were when prisoners would refuse to eat so that they could bring further attention to their cause. Prison officers would use force feeding (through a tube) to ensure the prisoners stayed alive.
Why is Emily Wilding Davison so famous in the Suffragette Movement?	Emily Davison ran out in front of the King's horse on Derby day to pin a Suffragette scarf to it. She was badly injured and died shortly after.
What was the result of the Peterloo Massacre?	Many of the unarmed protesters were killed by the cavalry. It led to the banning of the movement and the meetings of large groups. In the long term, it is viewed by many as an inspiration for change to this day.
What was the 1832 Great Reform Act?	This removed all rotten boroughs across the UK and 43 MPs were given to new industrial towns like Manchester, Liverpool and Leeds. This also expanded who could vote in the elections, however still limited.
By 1884, how much percentage of the population could now vote?	It increased from 6% in 1832 to 30% by 1884.

Career Focus - Where could this take you?



I am a Prison Officer; My job is to keep prisoners secure and support anyone who is vulnerable. I need to carry out security checks and searches of prisoners and cells, to ensure they are following the rules and that they are safe. Sometimes I have to use authorised physical control and restraint. I require many skills to do my job, including knowledge of public safety and security, the ability to accept criticism and work well under pressure. I need to have patience and be thorough, paying attention to detail, as well as excellent verbal communication skills.

Challenge Activities

1. Write a newspaper article about one of the key events of the Chartist movement. This should include who was involved, what happened and what action was taken against them by the police. This should be your own work not an actual article from the internet.
2. Write a script to use in a movie or play about the Suffragette Movement and their fight for women to have the vote. Some movies have already been produced on this which use historical fiction (incorporating some historical facts with a fictional storyline), so that's what you should aim to do.
3. Imagine its 1917... Write a petition to Parliament detailing why it's important that women have the vote. Include the importance of women in society, their role in World War One and why they should also have the right to make decisions in the country they live in.

Topic Links

This topic links to other humanities topics such as:

- World War One
- The end of World War Two
- Britain's Homefront

Additional Resources

To further practise and develop your knowledge see:





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

- identify the long- and short-term causes of World War One.
- explore and explain the sequence of events that led to the start of war after the 'spark'.

- explain what trench warfare was, including the advantages and disadvantages, structure of a trench and weapons used.

Keyword	Definition
Causes	Something or someone that brings about a result or effect.
Nationalism	The belief that your country is better than anyone else's.
Alliances	Two or more countries who agree to support each other when needed.
Empires	A group of territories / colonies controlled by another country and one ruler.
Imperialism	The desire to take over and conquer other countries.
Arms Race	A competition between two or more countries to have the best armed forces. This normally involves recruiting and training more soldiers and developing new, better weapons.
Assassination	The act of murdering a usually important person by a surprise or secret attack.
Mobilise	Prepare and organise troops or soldiers and weapons.
Military	Anything relating to the army and armed forces.
Trenches	Long, deep ditches dug as protective defenses in war
Conditions	Environment, circumstances or factors affecting the way in which people live or work and their well-being.
Strategy	A plan of action aimed to achieve a long-term goal.
Bloody	Describing a situation or event as bloody means it was violent and many people were killed.
Useful	A judgement about how relevant or helpful a particular source is in providing information about the topic being studied.
Provenance	A term used for a source's 'background': nature, origin and

Key Concepts

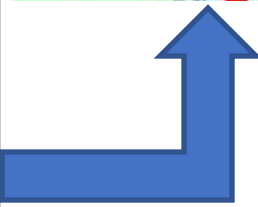
The M.A.I.N Long Term Causes of World War One:

Militarism	People were proud of their countries and wanted strong armies and navies to show off their strength. To make sure that theirs were the best, countries increased their spending on bigger and better armies and got caught up in an arms race. Many countries had overseas Empires and needed a large army and navy to protect and control their colonies. However, if countries fell out, temptation to use those weapons was always there.
Alliances	Militarism meant that countries were growing very suspicious of each other and wanted to protect themselves from possible attack. A good way to achieve this was to make an alliance with another powerful country that would promise military support in case of war. Europe split into two alliances: Germany, Austro-Hungary and Italy formed the Triple Alliance and Britain, France and Russia formed the Triple Entente.
Imperialism	Britain had conquered lots of land all over the world by 1914 and had a huge Empire. Other nations wanted big Empires too – a desire known as imperialism. The race to gain control of other colonies, particularly in Africa, led to tension and rivalry among European countries. They began to see each other as a threat to their overseas possessions, so thought war was the only way to remove this threat permanently.
Nationalism	From the middle of the 19 th century, people started to take great pride in their countries. Many nations did not have their own countries like Czechs, Hungarians and Slovaks in central Europe or Bosnians and Greeks in the Balkans. They felt it was time for them to become independent and they were willing to fight for it.



Short Term Cause of World War One – The Spark:

The 'spark' which led to a sequence of events and the breakout of war was the assassination of the heir to the Austro-Hungarian throne; Archduke Franz Ferdinand on 28th June 1914. Austro-Hungary now wanted revenge...



Life in the Trenches

Trenches could be very wet, muddy and smelly. There were many dead bodies buried nearby and the latrines (toilets) sometimes overflowed into the trenches. It was not just the toilets that were an issue, there were many other problems in the trenches including; Trench foot, lice and rats... We will look at the issues these caused in our lessons.

Trench warfare:



Retrieval Practice:



Questions:	Answers:
Name the three countries in the Triple Alliance:	Germany, Austria-Hungary and Italy.
Name the three countries in the Triple Entente:	Britain, France and Russia.
Who was the leader of Germany at the start of World War One?	Kaiser Wilhelm II.
Tell me one long term cause of World War One and explain how it would lead to war:	Militarism this meant that countries were growing very suspicious of each other and wanted to protect themselves from possible attack.
What significant event happened on 28 th June 1914?	The assassination of Archduke Franz Ferdinand.
Tell me one design feature of a trench and what it was used for:	Fire step – to stand on and shoot from.
Tell me two weapons used by soldiers during World War One:	Rifle and Bayonet.
What new weapon was used for the first time during the Battle of the Somme	Tanks.
Tell me one way the conditions in the trenches were poor for soldiers:	Rats spread diseases, such as Cholera and Trench foot from the cold and damp.
What was signed to end World War One and on what date?	The Armistice on 11th November 1918.

Career Focus - Where could this take you?



I am a Barrister: My job is to represent clients and argue their cases in Court. To prepare for court cases I need to conduct legal research, gather evidence from my client and their solicitor, then put together an argument to ensure the outcome of proceedings goes in favour of my client. I am a very confident speaker as I need to present my client's case with conviction. I am also good at analysing, problem-solving, ensuring attention to detail and managing projects. It is vital I have good written communication skills too.



Challenge Activities



1. Research what happened to your relatives during World War One. There are several ways of doing this – speak to your teacher for extra guidance:
 - Talk to your family members; it's quite possible that someone in your family has already undertaken some family History research and knows what your relatives did during WWI.
 - Use the War Graves website to find out if any of your relatives died in the war and if so, where they are buried, what date they died and what battle they were fighting in.
 - If you can't find anything about a relative, you could research the relatives of celebrities or look for someone who won a medal such as the Victoria Cross.
2. Write a newspaper article about one of the key battles in World War One. Make sure you include key information, interviews with soldiers who survived and pictures.

Topic Links



This topic links to other history topics such as:

- Weimar Germany
 - The Roman Empire
- We will also be practicing how to
- Create a balanced argument
 - Hold a class debate (*Voice 21*).

Additional Resources



Commonwealth War Graves website:

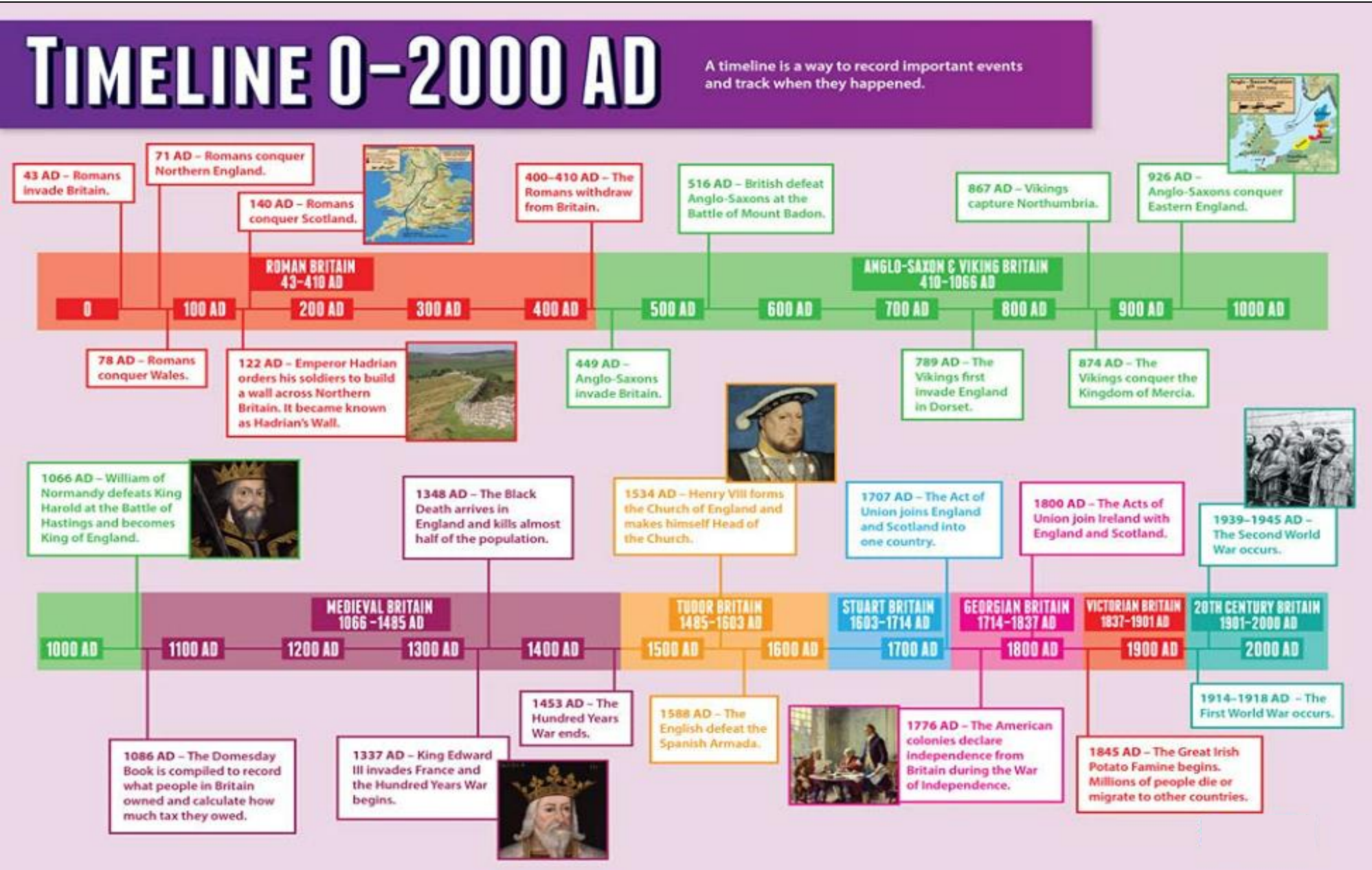


Battles of WWI:





Timeline



- The aims of the sequence of learning are to ensure that all students can:
- State how rivers erode and transport material
 - Explain the formation of different river features in the rivers

- Describe the human and physical causes of flooding
- Evaluate strategies to reduce flood risk

Keyword	Definition
Erosion	The breakdown and removal of material.
Transportation	The processes which move river material down the river.
Bedload	The material carried by a river.
Deposition	The dropping of carried material when a river loses energy.
Meander	A bend in a river. Normally found in the middle course.
Waterfall	A step in the long profile of a river. Usually formed when a river crosses over a hard band of rock.
Discharge	The volume of water passing a given point on the river course.
River Channel	The route the water flows through.
Thalweg	The line of fastest flow in a river.
Mouth	The end of a river where a rivers meets a sea or lake
Source	Where a river begins.
Tributary	Stream that feeds into a larger stream, river or other body of water.
Drainage Basin	An area of land drained by a river and its tributaries.
Confluence	Where 2 or more rivers/tributaries meet.
Watershed	The boundary of a river basin.

Key Concepts

Erosional Processes

Hydraulic Action – as the water is forced into the sides of the river channel, air is compressed in the small cracks in the rock. Tiny fragments of rock get broken away as the process is repeated.

Abrasion – the river picks up eroded rocks, pebbles and sand. The material then rubs against the channel, wearing it away.

Attrition – eroded materials in the river bump into each other and eventually wear each other down.

Over time, the materials become smaller and more rounded.

Solution – water reacts with minerals in rocks and the structure of the rock is changed.

Transportation processes

Traction – material carried by the river is rolled along the riverbed.

Saltation – material carried by the river is bounced along the riverbed.

Suspension – material is carried by the river water.

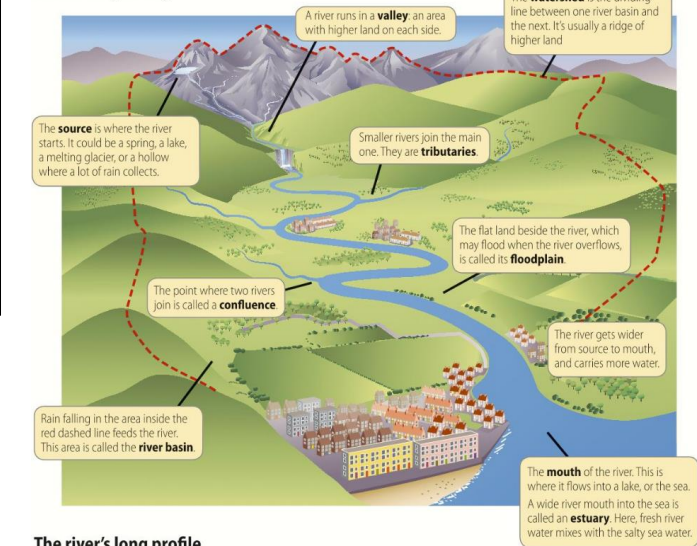
Solution – soluble material is dissolved and carried by the river water.

Deposition

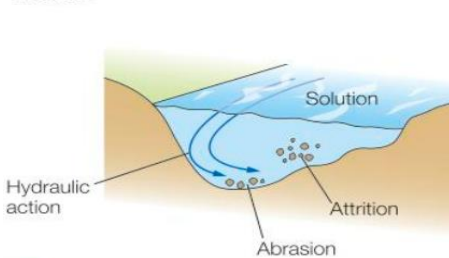
River's deposit eroded material as they lose energy (velocity) this happens when:

- The river becomes shallower.
- The discharge (volume of water) is reduced. The amount of transported material increases.
- The river reaches the mouth.

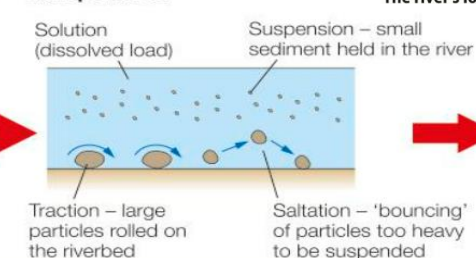
The river's journey



Erosion



Transportation



The river's long profile

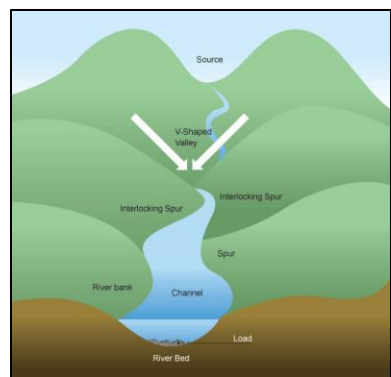
Deposition
Sediment is deposited on the bed and banks of the river and at the mouth, where velocity falls



Key Concepts

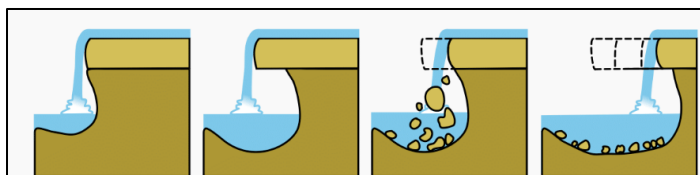
Interlocking spurs

Form in the upper course of a river where vertical erosion creates steep-sided V-shaped valleys. The river winds and bends to avoid areas of hard rock creating interlocking spurs of land.



Waterfalls

Waterfalls are found in the upper course of a river and are created when the riverbed is comprised of alternating hard and soft rock.

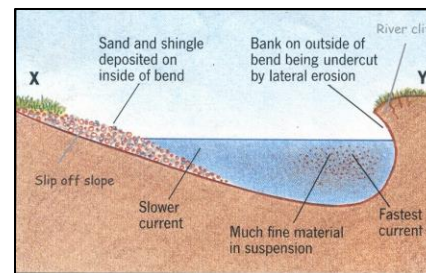


1. Waterfalls typically form in the upper stages of a river. They occur where a band of hard rock overlies a softer rock. Falling water and rock particles erode the soft rock below the waterfall, creating a plunge pool.
2. The soft rock is undercut by erosional processes such as hydraulic action and abrasion creating a plunge pool where water and debris swirl around eroding the rock through corrosion further deepening it and creating an overhang.
3. Hard rock overhang above the plunge pool collapses as its weight is no longer supported.
4. Erosion continues and the waterfall retreats upstream leaving behind a gorge.

Formation

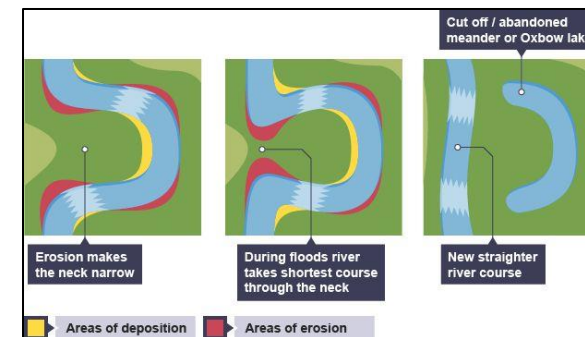
Meanders

Form in the middle and lower course where lateral erosion causes the river to widen. The outside of a river bend erodes more quickly as the water is forced to the outside of the bend as it turns.



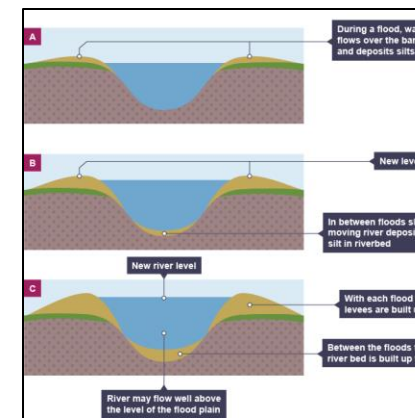
Ox-bow lakes

Form where meanders have become so enlarged that the river breaks through the neck of the meander and cuts off the bend.



Levees

Form in the lower course along the riverbanks due to repeated flooding. As water overflows the main channel, it loses energy, depositing material on the banks. This creates natural embankments.



- State how rivers erode and transport material
- Explain the formation of different river features in the rivers

- Describe the human and physical causes of flooding
- Evaluate strategies to reduce flood risk

Keyword	Definition
Flood	When a river bursts its banks and the water spills onto the floodplain.
Precipitation	Moisture falling from the atmosphere - rain, sleet or snow.
Geology	Studying the earth and rocks.
Urbanisation	When an increasing number of people live in cities and towns.
Deforestation	The cutting down and removal of forest.
Hydrograph	A graph which shows the discharge of a river related to rainfall over time.
Lag time	The difference between the peak rainfall and peak river discharge.
Hard Engineering	Using artificial structures to defend against natural processes.
Channel Straightening	Removing meanders from a river to make it straighter.
Soft Engineering	Managing erosion by working with nature to reduce the flood risk.
Floodplain Zoning	Identifying and planning how a floodplain can be developed.
Afforestation	Planting trees in areas that haven't recently had any tree cover, in order to create a forest.





Key Concepts

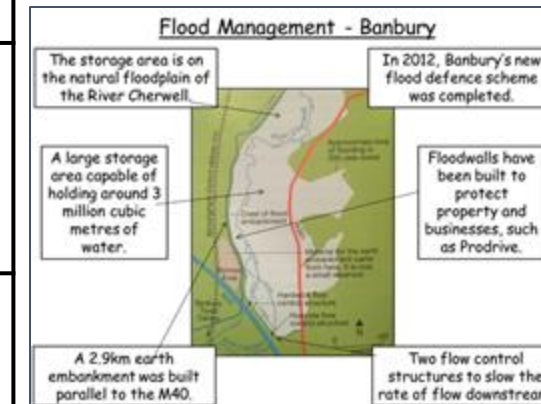
Flooding is where land that is not normally underwater becomes inundated.

A **hydrograph** shows the rivers discharge after a storm. Their shape can be affected by several factors, shown in the table. The lag time is key - the shorter the lag time the greater the flood risk.

Drainage basin and precipitation characteristics	'Flashy' hydrograph with a short lag time and high peak	Low, flat hydrograph with a low peak
Basin size	Small basins often lead to a rapid water transfer.	Large basins result in a relatively slow water transfer.
Drainage density	A high density speeds up water transfer.	A low density leads to a slower transfer.
Rock type	Impermeable rocks encourage rapid overland flow.	Permeable rocks encourage a slow transfer by groundwater flow.
Land use	Urbanisation encourages rapid water transfer.	Forests slow down water transfer, because of interception.
Relief	Steep slopes lead to rapid water transfer.	Gentle slopes slow down water transfer.
Soil moisture	Saturated soil results in rapid overland flow.	Dry soil soaks up water and slows down its transfer.
Rainfall intensity	Heavy rain may exceed the infiltration capacity of vegetation, and lead to rapid overland flow.	Light rain will transfer slowly and most will soak into the soil.

Flood management can be done in two ways **Hard Engineering** or **Soft Engineering**.

Hard Engineering		Soft Engineering	
Dam/Reservoir 	Regulate river flow Water can be stored to drink or for HEP. Expensive & flood large areas of land.	Afforestation 	Cheap and trees can obstruct the flow of water through, leaves and roots.
Channel Straightening 	Speeds up water flow to reduce flood risk but can pass on the risk to other areas downstream. Can damage wildlife habitats.	Floodplain Zoning 	Restricts different land uses to certain zones on the floodplain. Can reduce the cost of damage but can be difficult to implement.



- The aims of the sequence of learning are to ensure that all students can:
- State how rivers erode and transport material
 - Explain the formation of different river features in the rivers

- Describe the human and physical causes of flooding
- Evaluate strategies to reduce flood risk

Retrieval Practice	
Questions	
What are four erosional processes active in a river?	Hydraulic Action, Abrasion, Attrition and Solution
What are four transportational processes in a river.	Traction, Saltation, Suspension and Solution
What landforms are found in the upper course of a river?	Waterfalls and gorges
What landforms are found in the lower course of the river?	Levees and estuaries
Name a waterfall on the River Tees	High Force
What is the load of a river?	The material carried in the river
Give 2 factors which can create a flashy hydrograph?	Steep slopes and urbanisation
Name a hard engineering scheme and give 1 positive and 1 negative impact of it	Building a dam - it controls the amount of water in a river channel, but they cost a lot of money and people need to be displaced to build them
Give 2 flood management schemes in Banbury	2.9km flood embankment and they raised the (A361) main road

Career Focus - Where could this take you?

Geomorphologists study how the earth's surface is formed and changed by rivers, mountains, oceans, air and ice. This topic will help you understand how Rivers shape the surface of the planet and how processes create those shapes. The skills from this topic will help in any part of geomorphology and aren't limited to focusing on rivers.



Challenge Activities

1. Make a crossword using the key terms from this sheet. Don't forget to write detailed clues.
2. Create a collage using images, words and photographs to show the features of a river.
3. Create a full colour storyboard and script to depict the key information in the formation of at least 2 river features.
4. Research the flood defences in a UK city (like York) - create a presentation or booklet with details and images about them.
5. Produce a piece of artwork or a 3D model to demonstrate your understanding of flood risk and management.

Topic Links

This topic links to other subjects such as:
RE and science

We will also be practising how to:

- Analyse data from maps
- Develop locational knowledge and physical geography skills

Additional Resources

BBC Bitesize:



River Management:





Key Concepts: World – Countries and Oceans



- Describe the difference between natural and moral evil.
- Explain how different religions respond to evil.
- Describe how the Jews were persecuted in Germany.
- Explain the impact of the Holocaust on survivors.

Keyword	Definition
Theodicy	An attempt to justify God in the face of evil.
Omnipotent	All powerful.
Omniscient	All knowing.
Omnibenevolent	All loving.
Omnipresent	All present.
Moral evil and suffering	This is suffering caused by the actions of humans. Examples include acts of murder, and war.
Natural evil and suffering	This is suffering that is caused by nature and has nothing to do with the actions of humans. Examples include earthquakes, floods, <i>tsunamis</i> and disease.
Holocaust	The mass murder of Jews and other groups of people considered by the Nazis to be 'undesirable', during the second world war.
Auschwitz	The largest Nazi concentration camp, located 37 miles west of Krakow, Poland. The Auschwitz main camp (Auschwitz I) was established in 1940. In 1942, a killing centre was established at Auschwitz-Birkenau.
Concentration camps	Throughout Nazi German-occupied Europe, the Nazis established camps to detain the Jewish people and other groups of people they considered to be 'non-desirable'.
Ghetto	A small area, usually with poor housing and sanitation, where large number of people live.

Key Concepts

How evil and suffering cause problems for religious beliefs.

The existence of evil and suffering is important because it can cause problems for Christians' belief in God. God is described as all-loving, as stated in Psalms 103:8: The Lord is compassionate and gracious. Some Christians cannot believe that an Omnibenevolent God would design a world full of natural evils. They find it easier to believe these are random acts of nature. Some Christians also find it hard to believe in an omnipotent God. They question why God would allow humans to cause so much evil and suffering if he had the power to stop them from doing so. Another problem relates to the idea that God is omniscient. This means God would have known about all the evil and suffering that would come from him creating the universe the way he did. Some Christians therefore wonder why he did not create the universe without this potential for evil and suffering. This suggests that, because evil and suffering clearly exist in the world, either God does not exist, or he cannot be omnibenevolent, omnipotent and omniscient.

Biblical response.

The biblical response suggests that people cannot understand why God allows evil and suffering to exist. Suffering is a part of human existence and enables Christians to demonstrate their commitment to God. The biblical response uses the Book of Job, which is found in the Old Testament. Job was a sinless man who led a good life. God was convinced that the only reason for this was that Job had a pleasant life, suggesting this made it easy for Job to be faithful to God. God decided to see whether this was the case and allowed Satan to test Job. Satan did this in several ways, for example killing Job's sons and daughters, and making Job sick. Although Job began to question God's goodness, he defended God to his friends, and when God heard this, he blessed Job. Additionally, this shows that suffering is intended to be a part of life; joy and suffering cannot exist without each other. They also show that suffering can bring Christians closer to God.

What was the Holocaust?

Hitler blamed the Jewish people for Germany's defeat in the First World War. Nazi race-scientists incorrectly claimed that the Jewish people were sub-human. As soon as Hitler came to power, he introduced a programme of persecution. The Nuremberg Laws (1935) deprived Jewish people of many of their civil rights. On 9 November 1938, Kristallnacht, or the 'Night of Broken Glass', took place. Jewish businesses, synagogues and homes were attacked and destroyed. This was a response to the assassination of a German diplomat by a Polish Jewish man in Paris. After the outbreak of World War Two in 1939, the Nazis stepped up the persecution of the Jewish people: they were herded into over-crowded 'Ghettos'. After 1941, following the invasion of the Soviet Union, Nazi death-squads, called 'einsatzgruppen', murdered more than a million Jewish people in eastern Europe. In 1942, a Nazi conference at Wannsee decided on the 'Final Solution' – the Jewish people were to be systematically taken to camps such as Auschwitz and gassed. Nobody knows how many Jewish people died during the Holocaust, but the usual figure given is 6 million. The Jews were not the only group of people whom the Nazis considered to be undesirable. They persecuted other groups such as; gypsies, homosexuals and disabled people.

When is Holocaust Memorial Day?

Holocaust Memorial Day takes place every year on 27 January, and marks the liberation day of Auschwitz-Birkenau, the largest Nazi death camp.



- Describe the difference between natural and moral evil.
- Explain how different religions respond to evil.
- Describe how the Jews were persecuted in Germany.
- Explain the impact of the Holocaust on survivors.



Retrieval Practice

Questions	Answers
What is the problem of evil and suffering for Christians?	Some Christians find it hard to believe in an omnipotent God. They question why God would allow humans to cause so much evil and suffering if he had the power to stop them from doing so.
What are the two different types of evil?	Natural evil Moral evil.
What is the story of Job?	Job was a sinless man who led a good life. God was convinced the only reason for this was that Job had a pleasant life, suggesting this made it easy for Job to be faithful to God. God allowed Satan to test Job. Job was still faithful to God, therefore God rewarded Job. This shows that joy and suffering are linked.
What are the four omni words?	Omniscient, omnipotent, omnibenevolent, omnipresent.
What was the Holocaust?	The mass murder of the Jewish people and other groups of people they considered to be 'non-desirable', during the Second World War, by the Nazis.
What is Holocaust memorial day and when is it?	Holocaust Memorial Day takes place every year on 27 January, and marks the liberation day of Auschwitz-Birkenau, the largest Nazi death camp.
What is theodicy?	An attempt to justify God in the face of evil.
Where is Auschwitz?	Krakow Poland.
What were concentration camps?	Camps that the Nazi's detained Jewish people and other groups of people they considered to be 'non-desirable'.

Career Focus - Where could this take you?



I am a human rights lawyer, and Religious studies has helped me learn to think deeply, understand right from wrong, and see things from different points of view. These skills are important in my job because they help me solve problems, understand clients from different backgrounds, and make fair decisions.

Challenge Activities



- 'Morals are always with us, it's what we choose to do with it, that's what counts.' Explain this statement in detail.
- Create a poster explaining how the holocaust affected the Jewish people.
- How can you live an ethical life if you're not religious? Explain your answer in detail.

Topic Links



This topic links to:

- History
- PME
- GCSE RE

We will also be practising how to:

- Argue a point and practise in debates - Voice 21
- Participate in debates
- Write in PEE paragraphs and how to structure exam questions

Additional Resources









To further practise and develop your knowledge see:

- <https://www.bbc.co.uk/newsround/29363650>
- <https://www.bbc.co.uk/bitesize/topics/znwhfg8/articles/z4vvhjv>
- <https://www.bbc.co.uk/bitesize/guides/zf3yb82/revision/6>



Key Concepts

SIX WORLD RELIGIONS (spellings vary)

Religion name	Follower	SYMBOL	NAME OF GOD/GODS	COUNTRY OF ORIGIN	FOUNDER /MESSENGER	HOLY BOOK/S	PLACE OF WORSHIP	MAIN FESTIVALS	Denominations /schools/type/	Followers in the UK (approx.)	Followers in the world (approx.)
BUDDHISM	Buddhist	 Dharmachakra	none	India (Today in Nepal)	Siddhartha Gotama (The Buddha)	Tripitaka	Temple Shrine room Vihara	Wesak Dharma day	Theravada Mahayana Zen Triratna Pure Land	98,000	376 million
HINDUISM	Hindu	 Om/Aum	Brahman (Shiva Vishnu Brahma)	Indus Valley	none	Vedas Bhagavad Gita Mahabharata	Mandir Temple	Holi Diwali		272,000	1 billion
CHRISTIANITY	Christian	 Cross	God	Palestine Israel	Jesus of Nazareth	Bible	Church Cathedral	Easter Christmas	Catholic Eastern Orthodox Church of England Baptist Quaker	30 million	2.2 billion
JUDAISM	Jew	 Star of David	G_d	Israel	Abraham	Torah Tenakh	Synagogue	Rosh Hashanah Pesach Yom Kippur	Hasidic Orthodox Reform Liberal	214,000	14 million
SIKHISM	Sikh	 The Khanda	God Waheguru	Punjab, India	Guru Nanak The ten Gurus	Guru Granth Sahib	Gurdwara	Vaisakhi Diwali	Sahajdhari Amritdhari	239,000	23 million
ISLAM	Muslim	 Five pointed star & crescent moon	Allah (God)	Saudi Arabia	Muhammad (pbuh)	Quran	Mosque	Eid-ul-Fitr Eid-ul-Adha	Sunni Shi'a Sufi	1,278,000	1.6 billion

Theist = Someone that believes in God

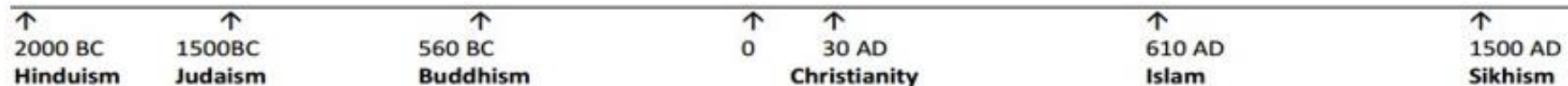
Atheist = Someone that doesn't believe in God

Agnostic = Someone that is not sure about the existence of God

Monotheist = Someone that believes in one God

Polytheist = Someone that believes in many gods

Timeline of religions (all dates approximate)







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.

- Describe themselves and family in detail.
- Use adjectives accurately to describe people and relationships.
- Narrate a celebration in the past.


Key structures 	Translation	Key Concepts 						
Samedi dernier	Last Saturday	Qu'est-ce que tu aimes faire le weekend? <i>What do you like to do at the weekend?</i>		Ton ami(e) est comment? What's your friend like? Mon ami(e) s'appelle... My friend is called...				
J'ai fêté le jour de mes treize ans	I celebrated my 13th birthday	Quand je suis seul(e) j'aime ... <i>When I'm alone I like...</i>	lire des BD faire des promenades nager prendre des selfies faire du vélo aller à la pêche aller en ville écouter de la musique tchatter / poster faire de la cuisine faire du footing faire des randonnées jouer au rugby	<i>reading comics</i> <i>going for walks</i> <i>swimming</i> <i>taking selfies</i> <i>going cycling</i> <i>going fishing</i> <i>going to town</i> <i>listening to music</i> <i>chatting/posting</i> <i>cooking</i> <i>jogging</i> <i>going hiking</i> <i>playing rugby</i>	<u>Avoir - to have</u> j'ai tu as il/elle/on a nous avons vous avez ils/elles ont	les yeux <i>eyes</i>	bleus blue gris grey verts green bruns brown marron chestnut noisette hazel	
Normalement pour mon anniversaire...	Normally for my birthday...						les cheveux <i>hair</i>	blonds <i>blonde</i> bruns <i>brown</i> noirs <i>black</i> roux <i>red</i>
Je vais au restaurant avec mon ami	I go to a restaurant with my friend					des tâches de rousseur - freckles un bon sens de l'humour - a sense of humour		
Il est toujours rigolo	He is always funny					Comment as-tu fêté ton anniversaire? <i>How did you celebrate your birthday?</i>		
et nous jouons au foot ensemble depuis 5 ans	and we have been playing football together for 5 years					j'ai fêté mon anniversaire le... j'ai invité mes ami(e)s j'ai ouvert mes cadeaux j'ai reçu un tee-shirt j'ai lu mes messages j'ai mangé du gâteau j'ai bu du coca nous avons fait du bowling nous avons dansé nous avons pris des selfies je suis allé(e) en ville	<i>I celebrated my birthday on...</i> <i>I invited my friends</i> <i>I opened my presents</i> <i>I received a tee-shirt</i> <i>I read my messages</i> <i>I ate some cake</i> <i>I drank some cola</i> <i>we did bowling</i> <i>we danced</i> <i>we took selfies</i> <i>I went to town</i>	<u>Être - to be</u> je suis tu es il/elle/on est nous sommes vous êtes ils/elles sont
Cependant, cette année	However, this year	sympa <i>nice</i> drôle <i>funny</i> égoïste <i>selfish</i> impatient(e) <i>impatient</i> bête <i>stupid</i> arrogant(e) <i>arrogant</i> timide <i>shy</i> agaçante <i>annoying</i> têtu <i>stubborn</i>						
J'ai invité mes amis chez moi	I invited my friends to my house							
et j'ai reçu beaucoup de tee-shirts comme cadeaux	And I got lots of tee-shirts as presents							
Tout le monde a dansé, c'était génial.	Everyone danced, it was great.							
C'est l'anniversaire de Marc ce samedi	It's Marc's birthday this Saturday.							
Il va avoir une fête chez lui aussi.	He's going to have a party at his house too.							
Je pense que je vais porter un nouveau tee-shirt!	I think I'm going to wear a new tee-shirt!							



- Describe themselves and family in detail.
- Use adjectives accurately to describe people and relationships.
- Narrate a celebration in the past.

Retrieval Practice	
Questions	Answers
Qu'est-ce que tu aimes faire le weekend ? – What do you like to do at the weekend?	D'habitude j'aime jouer au foot avec mes copains . Je trouve ça chouette . Quelquefois j'aime aller en ville mais je n'aime pas faire du vélo . À mon avis, c'est nul .
Qu'est-ce que tu fais comme activités extrascolaires ? - What extra curricular activities do you do?	Après le collège le mardi, je vais au club de danse Le lundi, je chante dans la chorale . J'adore chanter!
Tu es comment ? – What are you like?	Je suis assez grand et mince . J'ai les cheveux blonds et longs et les yeux verts . Je suis très intelligent et je ne suis pas arrogant .
Ton ami(e) est comment? <i>What's your friend like?</i>	Mon ami s'appelle Fred . Il est très timide . Il a les cheveux noirs et courts et il porte des lunettes. Je m'entends bien avec lui car il est sympa .
Comment as-tu fêté ton anniversaire? <i>How did you celebrate your birthday?</i>	L'année dernière, j'ai invité mes copains chez moi et nous avons pris des selfies. Après, j'ai ouvert mes cadeaux et j'ai mangé du gâteau. Miam miam.
C'était comment ? – What was it like?	À mon avis c'était fantastique.
Qu'est-ce que tu vas porter? <i>What are you going to wear ?</i>	Je vais aller chez mes amis et je vais porter un jean avec un tee-shirt rouge . Je vais aussi porter des baskets noires et un sweat bleu .

Career Focus - Where could this take you?



I am a vlogger. I use French and German to make videos. Sometimes these are just for fun and sometimes I use them to teach people how to speak French and German. It is a lot of fun and I need to be creative to keep my audience watching my content.

Challenge Activities

Describe how you get on with some of your friends using the vocabulary below.

Je m'entends bien avec lui/elle. *I get along well with him/her.*

Je me dispute avec lui/elle. *I argue with him/her.*

Je me fâche contre lui/elle. *I get angry with him/her.*

Il/Elle se fâche contre moi. *He/She gets angry with me.*

Topic Links	Additional Resources
This topic links to: <ul style="list-style-type: none"> • Greetings and introductions. • The present tense of key verbs. • The perfect tense. (Holidays) • The near future tense. (Holidays) • Future plans (Jobs) 	To further practise and develop your knowledge see: <ul style="list-style-type: none"> • Active learn tasks • www.sentencebuilders.com • Review the future tense here

- Give justified opinions about music.
- Use aller + infinitive to talk about future plans.
- Give details about a concert in the past.
- Ask and answer questions in French.
- Pronounce and transcribe key French sounds



Keyword	Definition
Tu aimes la chanson?	Do you like the song?
Pourquoi? Pourquoi pas?	Why? Why not?
Qu'est-ce que tu aimes comme musique?	What do you do?
Qu'est-ce que tu n'aimes pas écouter?	What do you not like to listen to?
Le jazz est plus relaxant que la techno.	Jazz is more relaxing than techno.
Le hip hop est meilleur que le rap.	Hip hop is better than rap
Est-ce que tu écoutes souvent de la musique?	Do you often listen to music?
Je n'écoute jamais de.....	<i>I never listen to.....</i>
Qui est ton chanteur préféré?	Who is your favourite singer?
Qu'est-ce que tu vas faire à l'avenir?	What are you going to do in the future?
Je vais + infinitive	I'm going to
Ce sera + opinion.	That will be.....
<u>Tu es allé à un concert?</u>	Have you been to a concert?
Qu'est-ce que tu as fait?	What did you do?
C'était comment ?	What was it like?

Key Concepts

Est-ce que tu aimes la musique?

J'adore / J'aime la chanson ...	<i>I love / I like the song ...</i>
Je n'aime pas / Je déteste la chanson ...	<i>I don't like / I hate the song ...</i>
parce que ...	<i>because ...</i>
le chanteur est ...	<i>the singer (male) is ...</i>
la chanteuse est ...	<i>the singer (female) is ...</i>
le rythme est ...	<i>the rhythm is ...</i>
la mélodie est ...	<i>the tune/melody is ...</i>
la chanson est ...	<i>the song is ...</i>
amusant(e) / démodé(e).	<i>fun / old-fashioned.</i>
intéressant(e).	<i>interesting.</i>
bon(ne) / nul(le).	<i>good / rubbish.</i>
ennuyeux/ennuyeuse.	<i>boring.</i>

Qu'est-ce que tu vas faire à l'avenir?


Je vais...

faire une tournée avec la chorale.	chanter toutes sortes de chansons
<i>to do a tour with the choir</i>	<i>to sing all sorts of songs</i>
visiter les États-Unis.	prendre beaucoup de photos
<i>to visit the USA</i>	<i>to take loads of photos</i>
voyager en avion	être musicien(ne) professionnel(le)
<i>to travel by plane</i>	<i>to be a professional musician</i>




Use expressions of frequency to say how often you do things.

tout le temps	all the time
souvent	often
parfois	sometimes
de temps en temps	occasionally, from time to time
ne ... jamais	never

Phonics and Vocabulary



tion

<p>La natation</p> 	<p>L'équitation</p> 	<p>addition</p> 
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Est-ce que tu es allé à un concert?

Je suis allé(e) à un concert samedi dernier	<i>I went to a concert last Saturday</i>
J'ai acheté un billet en ligne	<i>I bought a ticket online</i>
J'ai acheté une casquette	<i>I bought a cap</i>
J'ai retrouvé mes amis au stade	<i>I met my friends at the stadium</i>
J'ai chanté et j'ai dansé	<i>I sang and I danced</i>
J'ai pris beaucoup de photos	<i>I took lots of photos</i>
J'ai mangé un hamburger	<i>I ate a burger</i>
J'ai bu un coca	<i>I drank a cola</i>
Je n'ai pas mangé de pizza	<i>I didn't eat pizza</i>
J'ai vu mon groupe préféré	<i>I saw my favourite group</i>
C'était fantastique!	<i>It was fantastic!</i>

- Give justified opinions about music.
- Use aller + infinitive to talk about future plans.
- Give details about a concert in the past.

- Ask and answer questions in French
- Pronounce and transcribe key French sounds

Retrieval Practice



Questions	Answers
<u>Est-ce que tu aimes la chanson ?</u>	Oui, j'aime la chanson parce que <u>le rythme est cool.</u> 👍 Non, je n'aime pas la chanson car <u>le chanteur est ridicule.</u> 👎
<u>Qu'est-ce que tu aimes comme musique?</u>	Je préfère <u>le rap.</u> À mon avis c'est plus <u>interessant</u> que <u>le jazz.</u>
<u>Qu'est-ce que tu n'aimes pas écouter?</u>	Je n'aime pas vraiment <u>la techno.</u> Je trouve <u>la mélodie monotone.</u>
<u>Est-ce que tu écoutes souvent de la musique?</u>	<u>Normalament j'écoute</u> la musique <u>tous les jours.</u> (quand je fais mes devoirs)
<u>Qui est ton chanteur préféré? Quel est ton groupe préféré?</u>	Personnellement, j'adore " <u>The Arctic Monkeys</u> " parce que à mon avis <u>le chanteur est talentueux.</u>
<u>Qu'est-ce que tu vas faire à l'avenir?</u>	Je veux visiter <u>le Canada</u> et je veux voyager <u>en avion.</u> Je voudrais aller à un concert de <u>Stromae.</u> Ce serait <u>chouette.</u>
<u>Tu es allé à un concert?</u>	<u>Oui, l'année dernière, je suis allé à un concert de Green Day. Je pense que c'était inoubliable</u>
<u>Qu'est-ce que tu as fait?</u>	Je suis allé <u>au stade</u> avec <u>mes amis. J'ai chanté et j'ai dansé</u> Après, j'ai mangé une pizza.

Career Focus - Where could this take you?



I work in music marketing and promotion. I have the chance to work all over Europe and even worldwide promoting new music from around the world. It helps me that I can speak another language and understand the customs in that country.

Challenge Activities



- 1) Research some French musicians and groups. Send any recommendations to Mrs Fox via Teams and we can listen to them in class.
- 2) Create a fact file of a French speaking artist. Include as much detail as you can.
- 3) Complete the activities on www.sentencebuilders.com

Topic Links



This topic links to:

- Hobbies
- The past tense.
- My future plans.
- All about me.

Additional Resources



To further practise and develop your knowledge see:

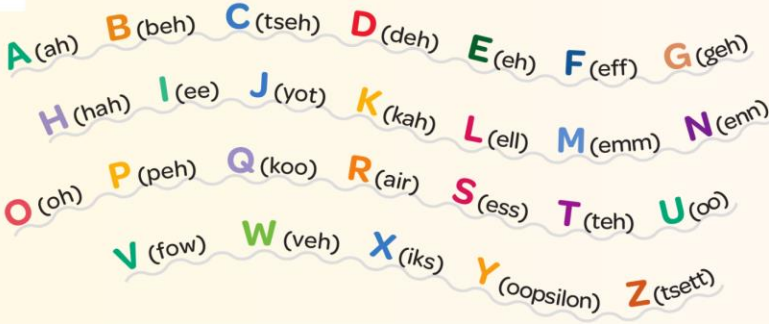
















































































- Sentencebuilders
- Active learn.- your teacher will give you your login details.

<https://www.pearsonactivelearn.com/app/home>

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

- Meet and greet in German.
- Count to 31
- Give dates in German.
- Pronounce key phonics sounds.
- Ask and answer simple questions in German.
- Give their name age and birthday

Keyword	Definition
Hallo! Guten Tag	Hello!
Wie geht's?	How are you?
Es geht mir gut danke	I'm fine thank you
Wie heißt du?	What are you called?
Ich heiße <u>Clara</u>	I'm called <u>Clara</u>
Wie alt bist du?	How old are you?
Ich bin <u>zwölf</u> Jahre alt	I'm <u>12</u> years old
Wann hast du Geburtstag?	When is your birthday?
Ich habe am vierten Juli Geburtstag.	My birthday is on the 4th July.
Wo wohnst du?	Where do you live?
Ich wohne in Huddersfield.	I live in Huddersfield
Ich bin sehr freundlich und kreativ.	I am very friendly and creative

Key Concepts																																																																														
Alphabet 		Phonics 																																																																												
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- Meet and greet in German
- Count to 31
- Give dates in German
- Pronounce key phonics sounds
- Ask and answer simple questions in German
- Give their name age and birthday

Retrieval Practice

Questions	Answers
-----------	---------

Hallo! Guten Tag	Hallo! Guten Tag!
------------------	-------------------

Wie geht's?	Gut, danke ! ✓ Nicht so gut! ✗
-------------	-----------------------------------

Wie heißt du?	Ich heiße Clara.
---------------	-------------------------

Wie schreibt man das?	tseh- el-ah-air-ah
-----------------------	---------------------------

Wie alt bist du?	Ich bin zwölf Jahre alt.
------------------	---------------------------------

Wann hast du Geburtstag?	Mein Geburtstag ist am neunten November. Ich habe am neunten November Geburtstag.
--------------------------	--

Welchen Tag haben wir?	Heute ist Dienstag.
------------------------	----------------------------

Was hast du in deiner Tasche?	Ich habe einen Bleistift, einen Radiergummi und ein Lineal
-------------------------------	---

Hast du ein Handy?	Ja, ich habe ein Handy. Nein, Ich habe kein Handy.
--------------------	---

Welche Farbe ist das?	Das ist blau.
-----------------------	----------------------

Auf Wiedersehen.	Tschüss
------------------	---------

Career Focus - Where could this take you?



I am a travel agent. I book holidays for my clients. Having language skills means I can get my clients the best deals by communicating directly with tour operators around the world. I also use my excellent communication skills and understanding of how to build relationships with people from all cultures.

Challenge Activities

1. Make flashcards for the questions and answers.
2. Use Sentence builders to practise numbers, days, months and key phonic sounds.
3. Research a famous German person. Make a factfile. What do they do? Where do they live? Why are they famous?
4. What do you know about German? Present your knowledge in a creative way.

Topic Links Additional Resources

This topic links to other German topics such as

- Introducing yourself and family.

This topic also links to :

- Numeracy
- Geography
- Literacy

To further practise and develop your knowledge see:

- www.sentencebuilders.com
- Active Learn

You will be given your username and password by your teacher..

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

- Say how many brothers and sisters they have.
- Describe their pets.
- Say what they like and dislike using cognates
- Describe their personality.
- Conjugate key verbs in 1st/2nd/3rd person singular, e.g. haben and sein.
- Understand a traditional celebration in Germany – Weihnachten.

Keyword	Definition 
Wie heißt du?	What is your name?
Wie schreibt man das?	How do you spell it?
Wie alt bist du?	How old are you?
Wann hast du Geburtstag?	When is your birthday?
Wo wohnst du?	Where do you live?
Hast du Geschwister?	Do you have any brothers and sisters?
Hast du ein Haustier?	Do you have a pet?
Wie bist du?	What are you like?
Wie siehst du aus?	What do you look like?




Wie?	How?
Was?	What?
Wo?	Where?
Woher?	Where... from?
Wer?	Who?

Most verbs end in **-en**, e.g. **wohnen** (to live). For the present tense you replace the **-en** ending like this:





ich **wohne** I live.
 du **wohnst** you live.
 er/sie/es **wohnt** he/she/it lives

Key Concepts:



Hast du ein Haustier? – Ich habe / Ich möchte.....

eine Katze 	ein Kaninchen 	einen Papagei 	eine Maus 
einen Hund 	einen Fisch 	Ein Meerschweinchen 	eine Schildkröte 
eine Schlange 	einen Hamster 	eine Spinne 	einen Vogel 

Hast du Geschwister? – Do you have any brothers or sisters?

Ich habe einen Bruder  Ich habe eine Schwester 
 Ich habe zwei Brüder  Ich habe zwei Schwestern 

✗ Ich bin Einzelkind / Ich habe keine Geschwister ✗

 Ich habe..... Augen	blau(e)	grün (e)	gelb (e) blonde	 Ich habe..... Haare
	rot (e)	schwarz(e)	grau (e)	
	rosa	weiß(e)	braun(e)	

sein (to be) is an important verb, which you need to learn.

ich **bin** I am
 du **bist** you are
 er/sie/es **ist** he/she/it is

haben (to have) is another important verb, which you need to learn.

ich **habe** I have
 du **hast** you have
 er/sie/es **hat** he/she/it has

Phonics

sch	sh	ü	oo
u	uh	j	y
u	oo	w	v

Numbers 20-100

zwanzig	twenty
dreißig	thirty
vierzig	forty
fünfzig	fifty
sechzig	sixty
siebzig	seventy
achtzig	eighty
neunzig	ninety
hundert	hundred
einundzwanzig	twenty-one
zweiundzwanzig	twenty-two

Personality – Wie bist du? Ich bin

freundlich	friendly	sportlich	sparty
launisch	moody	laut	loud
kreativ	creative	faul	lazy
intelligent	clever	lustig	funny



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- Say what they like and dislike using cognates
- Describe their personality.
- Conjugate key verbs in 1st/2nd/3rd person singular, e.g. haben and sein.
- Understand a traditional celebration in Germany – Weihnachten.



Retrieval Practice

Questions	Answers
Wie heißt du?	Ich heiße <u>Clara</u> .
Wie schreibt man das?	<u>tseh- el-ah-air-ah</u>
Wie alt bist du?	Ich bin <u>zwölf</u> Jahre alt.
Wann hast du Geburtstag?	Mein Geburtstag ist am <u>neunten November</u> .
Wo wohnst du?	Ich wohne in <u>Huddersfield</u> .
Hast du Geschwister?	Ich habe <u>einen Bruder</u> 🧒 Ich habe zwei Schwestern 🧒🧒 Ich bin Einzelkind ❌
Hast du ein Haustier?	Ja, ich habe <u>ein Kaninchen. Er ist grau.</u> 🐰 Er heißt Peter. Nein, Ich habe <u>kein Haustier.</u> ❌
Wie bist du?	Ich bin <u>kreativ</u> und <u>musikalisch</u> .
Wie siehst du aus?	Ich habe lange braune Haare. Ich habe blaue Augen.

Career Focus - Where could this take you?



I am a charity worker. I work abroad to help animals, that are mistreated or abandoned in many towns and cities. It helps that I can speak a language, because I can communicate with local people, tourists and other charity workers. I find that speaking another language has really helped me to settle into life in a foreign country and helped me to make lots of new friends.

Challenge Activities



1. Make flashcards for the questions and answers.
2. Use Sentence builders to practise describing yourself and other people.
3. Make a fact file about yourself in German. Include lots of information, including your favourite things.
4. Design your ideal zoo. Say what you have in the crazy zoo and then describe each animal. Eg Ich habe eine Katze. Sie ist blau und rosa. Sie heißt Fifi.

Topic Links



This topic links to other German topics such as:

- Introducing yourself and family.

This topic also links to :

- Numeracy
- Geography
- Literacy

Additional Resources



To further practise and develop your knowledge see:

- www.sentencebuilders.com
- Active Learn - You will be given your username and password by your teacher..



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

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

- Demonstrate knowledge of planning techniques and financial literacy by developing a plan for a music festival and calculating the estimated profit for the event
- Demonstrate knowledge of event planning by developing a logical site-plan for the music festival

- Demonstrate knowledge of using Adobe Express by developing a range of professional looking promotional material for the music festival
- Apply knowledge from this unit to accurately describe some keywords

Keyword	Definition
Target Audience	The primary group of people that something is aimed at appealing to
Income	The amount of money received for providing goods or services
Expenditure	The amount of money spent to purchase goods or services
Profit	The remaining balance after subtracting the total expenditure from the total income
Site Plan	A detailed Plan showing the proposed placement of structures, parking areas and open space
Digital Project	Products that are both developed and delivered digitally using a computer
Theme	The elements used that create a consistent look and feel for a product
Promotional Material	Graphical products created to promote and increase the awareness of an event or business
Professional Design	A design that aims to replicate the design of something that has been created by a professional


Key Concepts

Students will be expected to plan a brand new music festival by following project planning and marketing strategies inspired by industry experts.

The tasks include developing a site plan for the festival, managing the finances and creating a range of social media posts to advertise the music festival.


Start a New Graphic

Select the blue plus button at the top of the screen.




Working with Images

Image/Photo- Images can be added by clicking the 'Photo' button. **Upload from your device**, or use the **Search option within Spark** for copyright free images. Click '**Icons**' to search for simple black & white clip art.

To change an image, select it and click  **Replace**

To crop an image to a Shape, select it and click **Shape Crop**



Save your Graphic

Once your graphic is finished you can export it two different ways. You can download your graphic to your computer as an image file or pdf.

 **Download**

- PNG
- JPG
- PDF BETA

[Start download](#)

Styles Tabs

The Style Tabs on the right hand side of the Post Editor allow you to change the look and feel of your entire graphic project. These tabs are broken up into; the "**Design**" Tab, the "**Colors**" Tab, the "**Layout**" Tab, and the "**Resize**" Tab.

DESIGN

Edit the entire visual style of your graphic all at once. Once you select a style all the visual and typographical elements will be based on the template style chosen.

LAYOUT

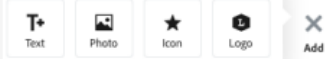
The "Layout" Tab allows you to change the layout of every picture box within a graphic design all at once. This is also where you go to add more picture boxes to your design if needed.

RESIZE

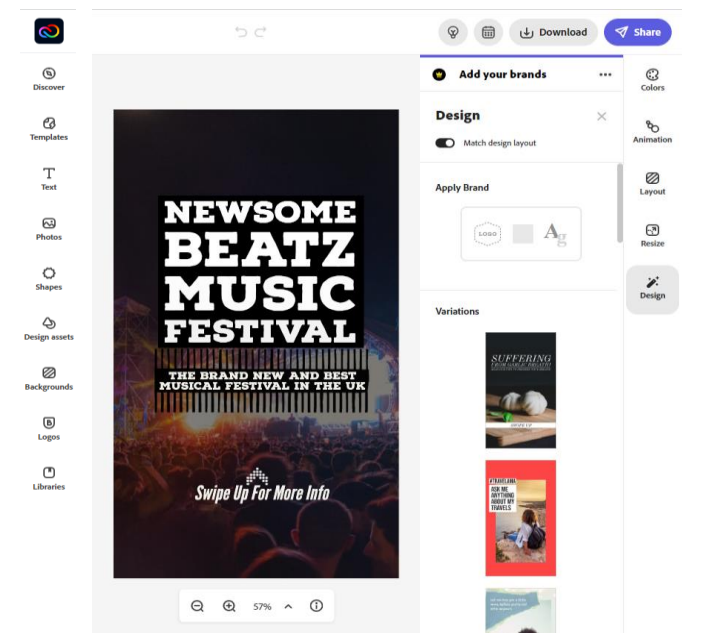
Allows you to change the size of your canvas at anytime during the design process.

Add Content

You can add text, photos, icons, etc..to build your graphic by clicking the '**Add**' button




Text- You can start from a template, or from scratch. Set the font, color, style, shape and effect.



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

- Demonstrate knowledge of planning techniques and financial literacy by developing a plan for a music festival and calculating the estimated profit for the event
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Retrieval Practice 	
Questions	Answers
Why is it important to calculate your expected income and costs before beginning a project?	Without this information it becomes difficult to calculate how much profit your project is likely to make.
What is the purpose of developing a site plan for this musical festival?	Every event has to plan how their site will be setup. It is important to understand how much space you have and where things can be placed before you do it in real life.
Why is it important to make sure that you understand who the target audience is for the music festival?	You need to know who you are aiming the music festival at e.g. age group, gender, musical interests, etc. Everything you do should be based on meeting the requirements and expectations of your target audience. Different categories of people tend to prefer things to done in a particular way that is most suited to their preferences.
Why do you think companies spend so much money on advertising or promoting their events and products?	Companies need to create an awareness, hype and buzz about something to make people to want to attend or purchase something. An increase in sales usually means an increase in profits.
Why do you think it is important to make sure that you create professional looking and eye-catching digital content to advertise and promote the music festival?	The first impression counts for a lot. If your digital content does not look eye catching and professional then people may choose not to click on it, develop a negative view of the company or just not take things seriously enough. The time and money spent on creating and promoting the digital content would have been a complete waste of time and may actually have the opposite effect.
Why do you think it would help to promote your music festival on a lot of different social media platforms?	People use a range of social media platforms. Posting your digital content to promote or advertise on multiple platforms will increase the likelihood of somebody within your target audience seeing it. With the use of cookies and other tracking tools, your content could follow a user on each linked platform that they use.



Career Focus - Where could this take you?



In my role as a **project manager** I ensure my team work to deliver any project on time and to a high standard. I need to lead my team, plan the project, deal with any issues that arise and report regularly to my clients.

Challenge Activities

1. Create a logo and slogan for the musical festival. Explain the reasons behind the design decisions you have made.
2. Design an app for your music festival - include a launch screen, menu screen and at least three other pages. Explain the design, the reasons you have designed the app the way that you have and how you would expect to benefit from creating the app.
3. Do some research on the internet to find out what other things a real music festival would need to plan/do before it can go ahead. Rank each task/activity from most important to least important. Explain your rankings.

Topic Links 	Additional Resources 
<p>This topic links to: <u>Computing Curriculum:</u></p> <ul style="list-style-type: none"> • Undertake creative projects that involve combining multiple applications to achieve challenging goals • Create and re-purpose digital artefacts for a given audience, with attention to trustworthiness and usability • Art and design (creating advertisements and images) • English (planning thoroughly) 	<p>To further practise and develop your knowledge see:</p> <ul style="list-style-type: none"> • Adobe Express Tutorial: youtu.be/24rM8v2hAAo • MS PowerPoint Tutorial: youtu.be/TZfcVbKJ1E

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.

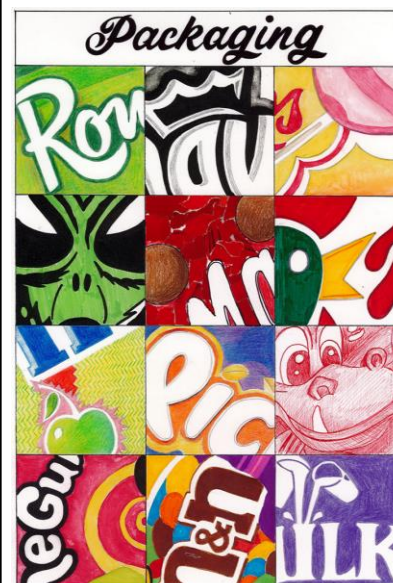
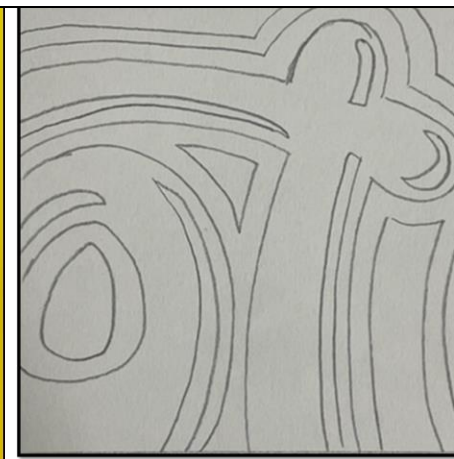
- Learn about typography styles and branding.
- Develop observational drawing skills.
- Learn to scale up an image using the grid technique.

- Select appropriate media to complete a mixed media piece of work.
- Learn how to use lino cutting tools safely.
- Produce a reduction lino print using up to 4 colours.

Keyword	Definition
Viewfinder	A tool that enables artists to frame or crop a particular scene to arrange their composition. It is usually a square or a rectangle made out of card or plastic through which you look at an area in more detail.
Scale up	Scale refers to the size of one whole object in relation to another whole object. To scale up means making an image larger whilst keeping the correct proportions.
Typography	The art of arranging letters and text in a way that makes the copy legible, clear, and visually appealing to the reader
Brand logo	A logo is a graphic device that identifies a brand.
Lino block	A thin layer of linoleum that can be cut away to produce a raised surface that can be inked and printed.
Reduction print	A method of printing in which each colour layer is carved into the same block.

Key Concepts

Using a viewfinder to select details.
Scaling up a selected detail using grid system.



4 colour reduction lino printing.





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

- Learn about typography styles and branding.
- Develop observational drawing skills.
- Learn to scale up an image using the grid technique.

- Select appropriate media to complete a mixed media piece of work.
- Learn how to use lino cutting tools safely.
- Produce a reduction lino print using up to 4 colours.



Retrieval Practice

Questions	Answers
What is a bench hook?	A piece of wood that hooks on to the edge of a table. It is used to stop lino sliding around as you carve into it.
In what order do you print a reduction lino print?	You start with the lightest colour and print in order to the darkest.
When scaling up, how can you make it easier to draw the correct proportions?	Use a grid system and draw what you see in each square.
Why do many brand logos use complimentary colours?	Complimentary colours make each other stand out. So companies use them in their logos to be eye-catching.
Why should you regularly sit on your lino block?	Your body heat will soften the lino making it easier to carve. Body heat is free and better for the environment than using a heater.
Why do you use two rollers during the printing process?	One roller is used to apply ink to the lino block. A clean roller is used to apply even pressure when printing onto the paper or fabric.



Career Focus - Where could this take you?



My job is a **printer**. I operate various types of printing machines including offset, letterset, and screen printers. I have to work with customers to determine quantities required for print job, and match colours for print job per job request.



Challenge Activities

Create a viewfinder piece of Art.
<https://www.youtube.com/watch?v=zjUug6Z1lpg>

Grid technique drawing activities
<https://www.pinterest.co.uk/NewsomeArt/grid-technique-drawing-exercises/>

Topic Links



- This topic links to:
- Business – creating a brand image.
 - Mathematics – measuring to scale up.

Additional Resources



- To further practise and develop your knowledge see:
- <https://www.youtube.com/watch?v=tgKNEJfd78s>
 - <https://www.youtube.com/watch?v=32UEX7WM104>



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

- Demonstrate safe use of tools and equipment.
- Create a suitable design brief for the clients' needs.
- Create a design specification using Access fm.

- Analyse the work of others and form your own opinions.

Keyword	Definition
Corrugated	Describing a series of parallel ridges and furrows
Fabric	Cloth or other material produced by weaving or knitting fibres
Synthetic	Made by chemical synthesis, especially to imitate a natural product
Smart Fibres	Smart fibres and structures can be defined as materials and structures that can sense and react to environmental conditions or stimuli, mechanical, thermal, chemical, electrical, magnetic.
Regenerated	Class of materials manufactured by the conversion of natural cellulose
Textiles	A type of cloth or woven/ knitted fabric.
Aesthetics	A set of principles concerned with the nature and appreciation of beauty
Encapsulated	These microspheres gradually release active agents when rubbed, which rupture the thin-walled membrane.
Design	A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is built or made
Microfibre	Thinner than human hairs and can be coiled to provide a very warm, soft or absorbent material
Resistant	Offering resistance to something
Conductive	Allow a small electrical current to safely pass through them.
Couching	Yarn or other materials are laid across the surface of the ground fabric and fastened in place with small stitches of the same or a different yarn.
Equipment	Supplying someone or something with items necessary for a particular purpose:
Embroidery	Craft of decorating fabric or other materials using a needle to apply thread or yarn

Key Concepts



ACCESS FM

A

WHERE DID THE DESIGNER GET THEIR INSPIRATION? COULD THE PRODUCT LOOK BETTER?

DO YOU THINK IT LOOKS ATTRACTIVE OR UGLY, WHY?

WHAT DOES THE PRODUCT LOOK LIKE? THINK SHAPE, FORM, MATERIALS, SIZE, BEAUTY, UGLINESS

C

IS IT AFFORDABLE TO YOUR CUSTOMER? WILL IT MAKE A PROFIT?

IS IT VALUE FOR MONEY?

HOW MUCH DOES IT COST?

C

WHAT IMPACT WOULD IT HAVE ON A CUSTOMERS LIFE?

WHY WOULD A CUSTOMER BUY IT? WHAT MAKES IT SUITABLE FOR THEM?

WHO WOULD BUY IT? WHO WOULD USE IT?

E

WHAT IS THE PRODUCTS IMPACT ON THE ENVIRONMENT? THINK BATTERIES, RETHINK, REFUSE, REDUCE, REUSE, RECYCLE, LIFE-CYCLE

HOW WOULD THE PRODUCT BE DISPOSED OF?

IS THE PRODUCT NEEDED OR WANTED? HOW LONG WILL IT LAST?

S

IS THE PRODUCT HIGH QUALITY? DOES IT MEET SAFETY STANDARDS?

HOW HAS THE DESIGNER CONSIDERED SAFETY?

COULD THE PRODUCT HURT ANYONE? ARE THERE ANY SHARP EDGES?

S

IS IT AN APPROPRIATE SIZE? WOULD IT WORK BETTER IF IT WAS BIGGER OR SMALLER?

DOES IT COME IN DIFFERENT SIZES?

HOW BIG IS IT?

F

DOES THE PRODUCT WORK? COULD THE PRODUCT WORK BETTER?

HOW DOES THE PRODUCT WORK? WHY IS THE PRODUCT NEEDED?

WHAT DOES THE PRODUCT DO? IS IT EASY TO USE?

M

WHAT IMPACT COULD THE DESIGNERS CHOICE OF MATERIAL HAVE ON THE ENVIRONMENT?

WOULD A DIFFERENT MATERIAL MAKE IT BETTER?

WHAT MATERIAL HAS IT BEEN MADE FROM?



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

- Demonstrate safe use of tools and equipment.
- Create a suitable design brief for the clients needs.
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- Analyse the work of others and form your own opinions.

Retrieval Practice



Question	A1	A2	A3	A4	A5
A. What is Applique?	A Decorative Technique	A sewing technique	A type of material	A type of Felt	A design technique
B. What is a Material Life Cycle?	The Cycle of Silkworms	The Cycle of Smart Fibres	The cycle of a product	The cycle of fibres	The cycle of a Design process
C. What is a Design Specification?	A list of design solutions	A list of costings	A list of design issues	A list of important points	A detailed list of what the product must be/
D. What are Fibres?	A thin thread of a natural or synthetic substance	A source of material	An origin of cotton	A type of synthetic fibre	A fraying edge
E. What are Smart Materials?	A material which collects water	Intelligent or responsive materials.	A washing process	A type of clever fabric	A fibre which stretches
F. What are Decorative Techniques?	Methods of decorating the walls	Techniques to improve the design	Methods of decorating fabrics.	Decorations to add to a Christmas tree	Techniques to add to shoes

Question	Quick Corrections (bridge learning gaps & misconceptions)

Career Focus - Where could this take you?

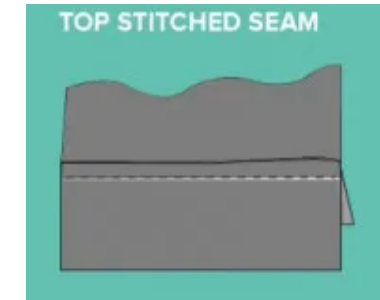
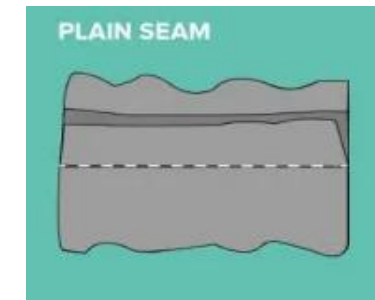


A Graphic Designer creates visual images or layouts for their clients. Graphic designers use digital software to create their unique images. A graphic designer can create visuals for a range of media, including social media posts, websites, company logos and print materials.

Challenge Activities



Can you create the seams Opposite? If you have a Sewing machine, it will Make it easy for you. If Not you can sew it by Hand,



Topic Links



- This topic links to:
- Science- How smart fibres and created and used in end products.
 - English- Subject specific Vocabulary knowledge, understanding and spelling.
 - Maths- Calculating our own carbon footprint.

Additional Resources



To further practise and develop your knowledge see:
[What is Smart Textiles – YouTube](#)
[Technical Textile - Types and Application of Technical Textile – YouTube](#)
[Textiles Decorative techniques – YouTube](#)
[Heat Transfer Printing | textile art | 열전사염 | Basic Part III - YouTube](#)



- The aims of the sequence of learning are to ensure that all students:
- Demonstrate safe use of tools and equipment.
 - Communicate design ideas effectively.

- Annotate design solutions with manufacturing production in mind.
- Demonstrate an understanding of Prototyping.

Keyword	Definition
Seasonal	Seasoning wood is the process of correctly drying timber in order to remove moisture in the cells of the wood walls.
Specification	an act of describing or identifying something precisely or of stating a precise requirement:
Mass Production	the production of large quantities of a standardized article by an automated mechanical process:
Batch Production	Batch production is a method of manufacturing where the products are made as specified groups or amounts, within a time frame
Ergonomics	Human factors and ergonomics are the application of psychological and physiological principles to the engineering and design of products.
Anthropometric Data	a list of <u>units of measurement</u> based on <u>human body</u> parts or the attributes and abilities of humans
JIT Production	Just-in-time manufacturing tries to match <u>production</u> to <u>demand</u> by only supplying <u>goods</u> which have been ordered and focuses on efficiency,
Continuous Production	Continuous production is a <u>flow production</u> method used to <u>manufacture</u> , produce, or process materials without interruption
Resistor	A resistor is a <u>passive two-terminal electrical component</u> that implements <u>electrical resistance</u> as a circuit
Micro Controller	A microcontroller contains one or more <u>CPUs (processor cores)</u> along with <u>memory</u> and programmable <u>input/output peripherals</u>
Modifications	A change in design/ product which makes it better.
LED	is a light-emitting diode.
PET	most common thermoplastic polymer resin of the polyester family
Poly Propylene	a thermoplastic polymer used in a wide variety of applications.
HDPE	<u>thermoplastic polymer</u> produced from the monomer <u>ethylene</u>

Key Concepts



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

- Demonstrate safe use of tools and equipment.
- Communicate design ideas effectively.

- Annotate design solutions with manufacturing production in mind.
- Demonstrate an understanding of Prototyping.

Retrieval Practice



Question	A1	A2	A3	A4	A5
A. What is rethinking?	Designing	Making	Discarding	Creating	Upscaling
B. What is reusing?	Maintaining	Discarding	Making	Upscaling	Creating
C. What is recycling?	Creating	Upscaling	Discarding	Making	Collecting
D. What is repairing?	Making	Fixing	Creating	Discarding	Upscaling
E. What is reducing?	Discarding	Making	Imprint	Creating	Upscaling
F. What is refusing?	Creating	Discarding	Upscaling	Morals	Making
G. What is mass production?	Detailed	Maintenance	Rapid	Thousands	Expensive
H. What is batch production?	Hundreds	Detailed	Detailed	Maintenance	Rapid
I. What is one off?	Maintenance	Rapid	Expensive	Detailed	Singular
J. What is continuous?	Expensive	Ongoing	Maintenance	Rapid	Detailed
K. What is seasonal?	Rapid	Expensive	Monthly	Maintenance	Thousands
L. What does the JIT process provide?	Expensive	Thousands	Rapid	Efficiency	Maintenance

Question	Quick Corrections (bridge learning gaps & misconceptions)

Career Focus - Where could this take you?



I am an architect, and my studies taught me creativity, problem-solving, and attention to detail. These skills are essential in my job because they help me design buildings that are both beautiful and functional, carefully choose materials, and create accurate, detailed plans that ensure the structures are safe and effective.

Challenge Activities- Can you match the correct product to material?



HDPE
PTE
Poly Propylene

Topic Links



- This topic links to:
- Science- The creation of Plastics.
 - English- Subject specific Vocabulary knowledge, understanding and spelling.
 - Math's- Measurements and scales of productions.

Additional Resources




To further practise and develop your knowledge see:

<https://youtu.be/iO3SA4YyEYU>

https://youtu.be/_6xINyWPpB8

<https://youtu.be/eISJ33Scmc>

Keyword	Definition 
Legislation	rules or laws relating to a particular activity that are made by a government
FSA (food standards agency)	responsible for food safety and food hygiene in England, Wales and Northern Ireland.
Food safety act	The Food Safety Act 1990 is a vital part of environmental law and is an act that all food businesses in the UK must comply with.
Adaptation	Changing the ingredients or cooking methods of a dish in some way
Shortening	Shortening is any fat that is a solid at room temperature and used to make crumbly pastry and other food products.
Aeration	Aeration is the process of adding very tiny pockets of air to something. In the case of fats and oils, this is normally done using mechanical/physical means, such as creaming a mixture together using a wooden spoon or using an electric whisk.
Coagulation	Coagulation is defined as the change in the structure of protein (from a liquid form to solid or a thicker liquid) brought about by heat, mechanical action or acids. Enzymes may also cause protein coagulation e.g. cheese making.
Food choices	Calcium is a mineral your body needs to build and maintain strong bones and to carry out many important functions.
Dietary needs	Carbohydrates provide energy for the body. The body breaks carbohydrates down into glucose, which is the primary energy source for the brain and muscles.
Coeliac	Coeliac disease is a condition where your immune system attacks your own tissues when you eat gluten.
Lactose intolerance	Lactose intolerance is when you get symptoms, such as tummy pain, after eating food containing lactose, a sugar found in dairy products.
Allergy	An allergy is a reaction the body has to a particular food or substance.
Intolerance	an inability to eat a food or take a drug without adverse effects.
Vegan	Veganism is the practice of abstaining from the use of animal product—particularly in diet—and an associated philosophy that rejects the commodity status of animals.
Ethics/ethical	relating to beliefs about what is morally right and wrong

Key Concepts

The Food Standards Agency (FSA) is responsible for food safety and food hygiene in England, Wales and Northern Ireland. It works with local authorities to enforce food safety regulations and its staff work in meat plants to check the standards are being met.


[Food Standards Act 1999](#)

The Act was introduced in the House of Commons in 1999. It sets out our main goal to protect public health in relation to food. It gives us the power to act in the consumer's interest at any stage in the food production and supply chain.

[Food Safety Act 1990](#)

The main responsibilities for all food businesses covered by the Act are to ensure that:

- businesses do not include anything in food, remove anything from food or treat food in any way which means it would be damaging to the health of people eating it
- the food businesses serve or sell is of the nature, substance or quality which consumers would expect
- the food is labelled, advertised and presented in a way that is not false or misleading



Shortbread



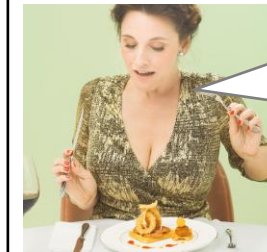
Ingredients:

- 200 g plain flour , plus extra for dusting
- 50 g caster sugar , plus extra for sprinkling over
- 125 g unsalted butter

Equipment:

- Mixing bowl
- Wooden spoon
- Greased baking tray
- Cookie cutter

Career Focus - Where could this take you?



I am a food critic and I analyse the food and restaurants around the country and write about them in newspapers, magazines and blogs.

Challenge Activities

Try some of these recipes at home
Follow the links

- [Swiss Roll](#)
- [Lasagne](#)
- [Breakfast Muffins](#)

Food skills are acquired, developed and secured over time

Bridge hold

Claw grip



Method:

1. Preheat the oven to 170°C/325°F/gas 3.
2. Mix the flour and sugar together in a mixing bowl.
3. Rub in the butter with your thumb and forefinger. Don't knead it, you just want to pat it down flat.
4. Push or roll it out until it's 1cm thick on a floured surface – cut out your shapes and then put onto your baking sheet
5. If it splits or tears, just press it back together – but remember, the less you work the dough, the shorter and better these biscuits will be.
6. Put into the middle of your preheated oven for 20-25 minutes until golden brown.
7. Allow to cool.

At home:

Dip them into melted chocolate or add toppings and icing onto the top

<u>Skills:</u>	<u>Meanings</u>
1.	General Practical Skills: Weighing ingredients, measuring, preparing ingredients and equipment, correct cooking times, testing for readiness and sensory testing.
2.	Rubbing in method: rubbing in butter with sugar and flour to create a workable dough
3.	Cutting out: Using the cookie cutters to create biscuits
4.	Use of the cooker (and Skills 6: Cooking Methods): Using the cooker including: the hob, grill and oven.
5.	Cooking Methods: Using the cooker including: the hob, grill and oven.
6.	Preparing, combine and shape: Techniques to prepare, cook and combine different ingredients.



Vegetable Samosas

Ingredients

- 1/2 potato
- 1/2 carrot
- 1/2 onion
- 1x15ml spoon fresh coriander
- 1/2 red chilli
- Spray oil
- 1x5ml spoon garam masala
- 1/2 5ml spoon turmeric
- 2-3x15ml spoons water
- 25g peas (frozen)
- 1 pack filo pastry
- 25g butter or soft spread



Equipment:

- Chopping board
- Knife
- Vegetable peeler
- Saucepan
- Frying pan
- Colander
- Wooden spoon
- Small bowl
- Pastry brush
- Baking tray.

Skills:	Meanings
1.	General Practical Skills: Weighing ingredients, measuring, preparing ingredients and equipment, correct cooking times, testing for readiness and sensory testing.
2.	Knife and chopping skills
3.	Use of the cooker (and Skills 6: Cooking Methods): Using the cooker including: the hob, grill and oven.
4.	Cooking Methods: Using the cooker including: the hob, grill and oven.
5.	Preparing, combine and shape: Techniques to prepare, cook and combine different ingredients.

Method:

1. Preheat oven to 200°C or gas mark 6.
2. Prepare the filling:
 - peel and finely dice the potato;
 - peel and finely dice the carrot;
 - peel and finely dice the onion;
 - deseed and finely dice the chilli;
 - chop the coriander.
1. Par-boil the potatoes for 5-8 minutes.
2. Fry the onion in the oil for 4-5 minutes.
3. Add the chilli and spices and cook for a further 1 minute.
4. Drain the potatoes and carrots in a colander.
5. Add the potatoes, carrots and water to the onion mixture, fry gently for 5 minutes.
6. Add the peas and coriander.
7. Remove from the heat and allow to cool.
8. Lay 2-3 sheets of filo pastry on the work surface.
9. Cut into 10 cm wide strips.
10. Place 1x15ml spoon of filling in the bottom left-hand corner. Fold over to make a triangle. Repeat this process.
11. Place on a baking sheet and repeat the process.
12. Lightly spray the samosas with oil, or brush with the fat, and bake for 10 minutes.

INGREDIENTS

For this recipe, you only need to bring in the following ingredients, but you **must chop the vegetables at home into a small dice**

- 1 small potato
- 1 small carrot
- 1 small onion
- 25g peas
- 1 pack **filo** pastry (available from larger supermarkets) or spring roll type pastry sheets (available from Asian supermarkets)

School will provide the spices and extra ingredients



Chop into a small dice at home





Chicken Alfredo



Ingredients:

You will need to bring in:

- **4 skinless boneless chicken thighs, cut in half**
- **300g pasta**
- **200ml double cream**
- **100g parmesan (or any Italian hard cheese)**
- **A large plastic container**

School will provide:

- **1 tbsp olive oil**
- **1 tbsp butter**
- **½ a nutmeg, grated**
- **parsley, chopped, to serve**

Method:

1. Chop your chicken thighs using correct technique and a red chopping board
2. Heat the oil in a non-stick frying pan over a medium high heat.
3. Add the chicken thighs and fry for around 10 mins, turning halfway, until they are golden brown and cooked through.
4. Set aside to cool a little, then use two forks to shred them on a plate or in a bowl
5. Bring a pan of salted water to the boil and add the pasta, cook for 8-10 minutes until al dente.
6. Whilst the pasta is cooking, add the butter to the frying pan over a medium heat, scraping the bottom a little to get any of the browned bits. Tip in the cream along with the nutmeg and bring to a simmer. Add the chicken back to the pan.
7. Once the pasta is cooked, use tongs or a slotted spoon to transfer the pasta straight from the water into the frying pan with the cream mixture.
8. Sprinkle most of the parmesan over and use the tongs/spoon to toss it all together, adding a splash of the pasta water if it looks a little stiff. Season well, then tip into bowls. Top with the remaining parmesan, a scattering of parsley, and black pepper.



Seasoning means to bring out or intensify the natural flavour of the food without changing it.

The most common seasonings are salt, pepper, and acids (such as lemon juice).



Boiling is the method of cooking food in boiling water or other water-based liquids such as stock or milk. **Simmering** is gentle boiling, while in poaching the cooking liquid moves but scarcely bubbles. The boiling point of water is typically considered to be 100 °C



Tongs

Slotted Spoon





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

- Use safe and hygienic practices in a working kitchen environment
- Demonstrate sound preparation skills of both equipment and ingredients

Safely use a range of cooking techniques, appropriate to the task

Fruity Muffins

Ingredients:

- | | |
|--------------------------------|------------------------------|
| • 250g self-raising flour | • 1 egg |
| • 2 x 5ml spoons baking powder | • 60ml oil |
| • 100g caster sugar | • 150g canned fruit, drained |
| • 230ml semi-skimmed milk | *** container with a lid *** |



Equipment:

- | | |
|--------------------|------------------|
| • Weighing scales | • Cake cases |
| • Large bowl | • Patty tin |
| • Measuring spoons | • Can opener |
| • Measuring jug | • 2 metal spoons |
| • Wooden spoon | • Cooling rack |

Method:

1. Preheat the oven to 180°C or gas mark 4.
2. Mix all the ingredients together to form a smooth batter.
3. Stir in the fruit.
4. Divide the mixture equally between the cake cases using 2 spoons.
5. Bake for 20 – 25 minutes, until golden.
6. Allow to cool on a cooling rack.



Skills:	Meaning
1.	General Practical Skills: Weighing ingredients, measuring, preparing ingredients and equipment, correct cooking times, testing for readiness and sensory testing.
2.	Knife skills: Can use equipment safely. Slicing, dicing and chopping
3.	Preparing fruit and vegetables: I can prepare fruit and vegetables in many ways: Slicing, peeling, grating, dicing and chopping.
4.	Use of the cooker (and Skills 6: Cooking Methods): Using the cooker including: the hob, grill and oven.
6.	Cooking Methods: Using the cooker including: the hob, grill and oven.
7.	Preparing, combine and shape: Techniques to prepare, cook and combine different ingredients.
11.	Raising Agents: Use of raising agents including eggs, chemical, steam and biological.






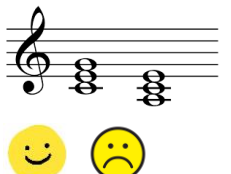

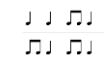

Top Tips:

Vary the type of fruit you use. Try bananas, cherries or blueberries.

Experiment with different spices, such as cinnamon, ginger or mixed spice.

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

- To apply and evaluate with confidence - appropriate musical vocabulary through the MAD TSHIRT mnemonic.
- To be able to aurally identify musical features from Three Little Birds and the wider Reggae genre. As well as the music that developed because of it.
- To be able to perform Three Little Birds on the keyboard, using appropriate instrumental technique.

Keyword(s)	Definition
Melody 	The main layer or tune of a piece
Articulation 	The way the notes are played – long and smooth or short and detached Legato – Long and smooth Staccato – Short and choppy.
Dynamics 	How loud or quiet the sound is
Texture 	The layers that make up a piece <ul style="list-style-type: none"> • Monophonic – Single layer on its own. • Homophonic – One melody with accompaniment. • Polyphonic – More than one melody at the same time.
Structure 	The way the music is put together in sections. E.g. – Verse, Chorus, Bridge.
Harmony and Tonality 	Harmony: The chords and scales that accompany the melody. <i>Diatonic Harmony</i> – Chords and scales that blend well together. <i>Dissonant Harmony</i> – Chords and scales that clash with each other. Tonality – Whether the music is in a Major ☺ or Minor ☹ Key.
Instrumentation/ Performance Forces	The instruments or voices used to perform a piece. 
Rhythm 	The note values used
Tempo 	The speed of the beat

Key Concepts – Reggae		
Three Little Birds: Tonality Three Little Birds is in a Major key .	One Drop drum beat A common drum beat in Reggae music is the One Drop drum beat . It emphasises beat three of the bar.	Syncopation Offbeat rhythms/patterns. The ska rhythm uses syncopation.
Ska Rhythm A Ska rhythm is used in Three Little Birds, which means that all of the chords are played on beats 2 and 4 .	Metre/Time Signature Three Little Birds is in 4/4 , meaning each bar has 4 crotchet beats.	Texture Three Little Birds has a homophonic texture . Homophonic – One melody and accompaniment (during the verse sections)
Riff A repeating pattern in popular music. The riff is played on the electric Organ in Three Little Birds and uses legato articulation.	Word setting How the words are set to the music (how they are sung).	Syllabic Singing one note per syllable. Most of the time, when you hear singing in a song, it is syllabic.
Performance Forces in Reggae In Reggae music you often hear: Vocals / Drum Kit / Electric Guitar / Organ and Electric Bass Guitar.	Vocalisation Wordless singing Melisma Singing more than one note per syllable.	Dub Music ' Dub ' is an abbreviation of 'double'. Dub music takes an existing recording of Reggae music and remixes it. It usually emphasises the drums and bass, which makes it good to dance to.
Studio FX - Delay Delay repeats a sound back shortly after it is first played creating an 'echo' effect	Studio FX - Reverb Reverb gives a 'fuller' sound as though the music is being played in a larger room or space.	Riddim The stripped-down version of just drums and bass is known as the 'riddim' in Dub Music Dub music uses a lot of syncopation (off beat rhythms) and because it remixes Reggae Music, often has a one drop drum pattern (which emphasises beat three)



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

- apply and evaluate with confidence - appropriate musical vocabulary through the MAD TSHIRT mnemonic.

- aurally identify musical features from Three Little Birds and the wider Reggae genre. As well as the music that developed because of it.
- perform Three Little Birds on the keyboard, using appropriate instrumental technique.

Retrieval Practice

Firstly, make sure you have **memorised** the definitions for all the keywords we use in music:

Melody / Articulation / Dynamics / Texture / Structure / Harmony and Tonality / Instrumentation and Forces / Rhythm / Tempo.

Using your knowledge organiser you must:

- Look, cover and check.
- Have somebody else test you.
- Make flash cards to test yourself.

Questions	Answers
What is a ska rhythm (used in all Reggae music)?	A rhythm that emphasises beats 2 and 4 of each bar.
What is the tonality of Three Little Birds?	Major tonality
What is a riff?	A repeating pattern in popular music
What keyboard instrument is commonly heard in Reggae music?	Electric Organ
What is the time signature of Three Little Birds?	4/4
What type of word setting can be heard on the word 'You' in Three Little Birds?	Melisma
What type of texture is used throughout Three Little Birds?	Homophonic (one melody and accompaniment)
Identify three specific features of rhythm used in Three Little Birds.	One Drop Drumbeat / Syncopation / Ska Rhythm
What style of Electronic Dance Music developed after Reggae (and uses remixed version of Reggae songs).	Dub Music
What type of articulation is used when performing the ska rhythm?	Staccato
What type of articulation is used when performing the riff?	Legato

Career Focus - Where could this take you?



We are all session musicians. We have developed our instrumental skill to such a high level that we are employed to perform in the studio (and on stage) for other artists.

Challenge Activities

Why not try developing your instrumental skills further? Come along to Music Club and try the following Reggae performance skills:

- One Drop Drumbeat
- Ska rhythm on an electric guitar (applying staccato articulation and barre chords).

Topic Links

This topic links to:

History – Reggae music is deeply rooted in the Rastafari movement and the history that comes with it. Also, Reggae and in particular Dub Music has its developmental roots in Huddersfield.

Additional Resources

To further practise and develop your knowledge see:

[BBC KS3 Music – Reggae](#)

[GCSE BBC Bitesize - Reggae](#)



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

- Can identify core skills and processes
- Can demonstrate core skills in isolation with accuracy and competence

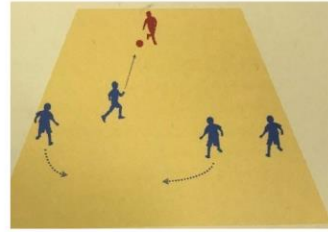
- Can demonstrate core skills in a competitive game with accuracy and competence

Keyword	Definition
Pass	To keep possession of the ball by maneuvering it between different players with the objective of advancing it up the playing field.
Catch	To receive the ball from another player and keep possession.
Defend	To resist the attack of the opposing team.
Attack	The action of attacking or engaging an opposing team with the objective of scoring points or goals.
Tackle	Trying to take the ball from an opponent.
Intercept	Obstruct someone/something from getting to their desired position/destination.
Tactics	A strategy planned and implemented to achieve a set goal.

Defending


Cover

When a defender puts pressure on the attacker — the other defenders **cover the space the defender left.**



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**).



Attacking


Depth

Sometimes passes need to go away from the goal to draw the defenders away from the goal— **creating space for a future forward pass.**



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.



You should already know:

- The aim of invasion games
- The name of at least 3 invasion games
- The core principles of invasion games
- The core skills core to be successful in invasion games
- Tactics to achieve success in invasion games

You will be assessed on:

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

Laura Malcolm

Maro Itoje


Athletes to research further: Josh Koroma and Michael Jordan.





- Can identify core skills and processes
- Can demonstrate core skills in isolation with accuracy and competence

- Can demonstrate core skills in a competitive game with accuracy and competence

Retrieval Practice 	
Questions	Answers
What are the core Netball and Basketball skills?	Chest pass, Bounce pass, Shoulder pass, Overhead pass, Two-footed landing, One-footed landing, Shooting, Pivot, Man Marking, marking the space, Dodging and spinning.
What are the Netball positions?	Goalkeeper, Goal defence, Wing defence, Centre, Wing attack, Goal attack and Goal shooter.
What are the core football skills?	Dribbling close to feet, Dribbling changing direction with speed, Passing side foot (close distance), Passing on laces (long distance), Defending (man to man), Defending (line defending), Offside trap/rule , Attacking (two versus one), Attacking (channels) and Throw ins .
What are the core Rugby skills?	Target with hands out, Push pass, Spin pass , Catch and pass, Protecting, Holding, Contact tackling , Side-stepping, Spinning , Attacking (line speed), Attacking (creating an overlap), Defending (line and movement) and Defending (moving 10 yards).

Career Focus - Where could this take you?



I am a team nutritionist and it is my role to develop meal and dietary plans to suit athletes' individual goals, performance and body types. My job also involves educating athletes on hydration, meal timing, and making healthy food choices, helping them stay at peak fitness and achieve their best results in competition.

Challenge Activities

1. Create a mind map of the differences between netball, basketball, football and rugby components of fitness an invasion games player needs.
2. Answer the following question: What component of fitness is most important to an invasion games player and why?

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

Voice 21 – coaching peers

Additional Resources

To further practise and develop you knowledge see:

- https://web.uvic.ca/~thopper/WEB/Cahperd/Space_in_InvasionGames.pdf
- <https://www.theukrules.co.uk/rules/sport/netball/index.html>

- Can identify at least five core skills required for net and wall games
- Demonstrate core skills in a practice situation
- Demonstrate core skills in a game situation

Keyword	Definition
Racket	A piece of equipment with a handle, frame and head. This is used to hit the shuttle or ball over the net
Shuttle	A cone shaped object with a cork base. This is hit over the net with the racket.
Net	Rectangular net placed across the court. It divides the court in two.
Court	The playing surface area marked out with lines
Table	The playing surface used to play table tennis
Serve	A shot that is selected to start a game in net and wall activities
Forehand shot	Shot taken with the palm of your hand facing the direction of the stroke
Backhand shot	Shot taken with back of your hand facing the direction of the stroke across your body
Let	The shuttle or ball hits the top of the net and lands in the service box. The serve is retaken for fair play
Drop shot	The shuttle or ball is hit gently so it falls just over the net
Spin	Applying rotation on the ball so it moves faster in the air and rebounds on the table
Clear shot	A defensive shot where the shuttle is placed to the back of the court

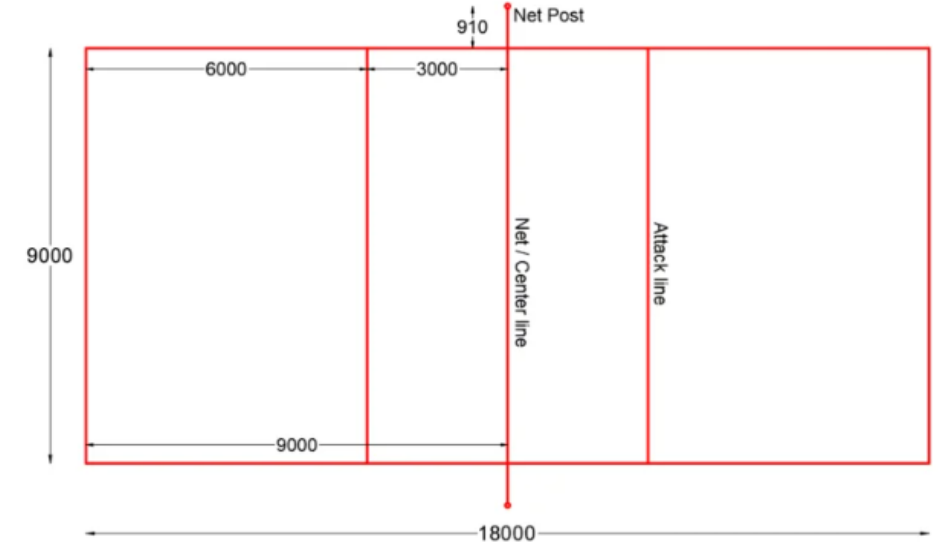
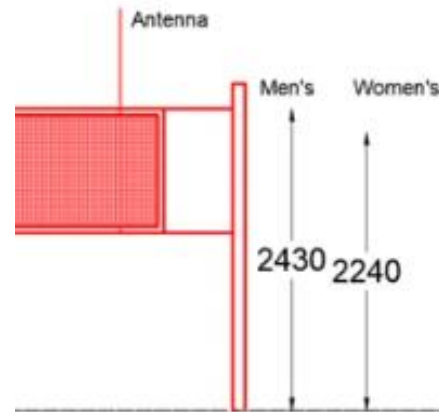
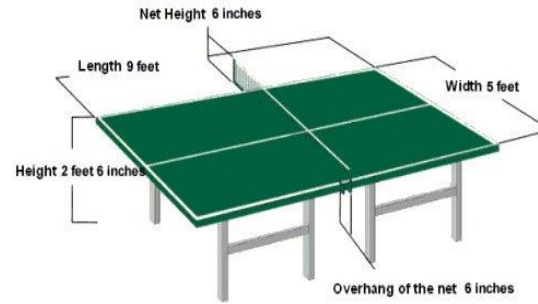
Key Concepts You should already know: - The aim of net and wall games

You will be assessed on: - Understanding - Technique in isolation - Technique in game - Leadership - Attitude to learning


9 feet (2.74m) long,
5 feet (1.525m) wide and
2 feet 6 inches (76cm) high

... and the net is

6 feet (1.83m) long and
6 inches (15.25 cm) high.



- Can identify at least five core skills required for net and wall games
- Demonstrate core skills in a practice situation
- Demonstrate core skills in a game situation
- Lead a small group of peers in a skill practice session

Retrieval Practice 	
Questions	Answers
What are some of the core skills needed for attacking in badminton and why are they important?	<ol style="list-style-type: none"> 1. Smash shot is a core skill and the aim is to hit the shuttle as hard as possible to the oppositions side of the court floor so they are unable to return the shot due to the velocity (speed and direction) placed on the shuttle. 2. The long serve is a core skill for attacking in badminton. The aim is to send the opponent to the back of the court so they find it more difficult to return the shuttle back to you. If the shuttle is returned, it shall usually be a high return giving (you) the attacker time to react by selecting the smash shot in order to win the next point.
What are some of the core skills needed for defending in badminton and why are they important?	<ol style="list-style-type: none"> 1. The overhead clear shot is used in a rally situation so that you force your opponent to move to the back of the court. This then allows you time to get prepared into a better court position and to apply attacking tactics to win the next point. 2. The drop shot is a gentle forehand or backhand shot that applies little force to the shuttle so it drops just over the net. This is usually a defensive shot as it slows down the speed of the rally. It does however have an advantage of attacking if your opponent is at the back of the court. The shot can force your opponent to move and make an error.
What are some of the core skills needed for attacking in table tennis and why are they important?	<ol style="list-style-type: none"> 1. Top spin forehand drive shot is a fast open palm shot facing the direction of the stroke. By placing top spin on the ball, the balls rotation means it travels faster through the air and recoils off the table meaning that the opponent will find it hard to react to return the shot successfully. This means you are more likely to win the point in a game. 2. Back spin forehand or backhand shot is skill that is designed to slow down the speed of a rally in table tennis. It forces the ball to gently land just over the net and stop dead. This means the opponent has to move quickly forward from the back of the table to the front of the table.
What are some of the core skills needed for defending in badminton and why are they important?	<ol style="list-style-type: none"> 1. Backhand push shot and the forehand push shot are two skills designed to slow down the speed of a rally in a game. This gives the person more time to react to the next shot so they can have time to think about where they want to place the ball when they are in a better attacking position so they can then try to win the next point.

Career Focus - Where could this take you?



I am a badminton umpire. My role involves understanding the rules, making quick and fair decisions, and clearly communicating with players. These skills ensure that I can effectively manage matches, uphold the standards of the game, and maintain a fair and enjoyable playing environment for everyone.

Challenge Activities

Design a skill card:-

This can be used in a PE lesson to help a student to assess their current ability level.

The skill card should have basic key instructions and diagrams that you have learnt from badminton or table tennis.

Create a rules of the game poster:-

This can be used by all students in their PE lessons for badminton or table tennis when their role is umpiring a game so that all games can be played fairly following RITA values.

Topic Links

This topic links to:

- Science –The role of the cardiovascular system; the physics of sports
- English –understanding and defining key terminology
- Mathematics –problem solving, recording figures and analysing performance and score keeping
- Voice 21 –coaching peers and explaining rules by officiating

Additional Resources

To further practise and develop your knowledge see:

<https://www.badmintonengland.co.uk/>

<https://www.tabletennisengland.co.uk/>



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

- Show Knowledge and understanding of more advanced key concepts
- Demonstrate safe working practice
- Apply knowledge and practice in a fitness programme.

Keyword	Definition
Power	This is the ability to perform maximum strength and maximum speed of your muscles in order to generate forces to move an object or propel yourself forward. Power = strength x speed.
Co-ordination	The ability for muscles to work together in pairs to move different body parts at the correct time with ease and efficiency.
Reaction Time	The time taken for a person to respond and initiate movement to a stimulus (object or person or sound).
Agility	The ability to change direction at speed in a controlled movement without losing balance.
Balance	The ability to maintain your centre of mass and control of sports performance either statically (stationary) or dynamically (moving).
Speed	The rate at which a person moves as fast as possible to cover a distance over the shortest time possible. Speed=distance/time.
Cardiovascular endurance	The ability for the heart and blood vessels to transport oxygenated blood to the working muscles in sports performance. The performer can work at a moderate level of intensity for a long period of time without getting fatigued (tired).
Muscular strength	This is the maximum force that can be applied from muscles in order to overcome resistance (external force) so that movement can take place.
Muscular endurance	The ability for muscles to work in a repeated muscular action in unison at moderate intensity for a long period of time without them getting fatigued (tired).
Flexibility	This is the range of movement that can be performed around a joint by the muscles, ligaments and tendons without any pain or over stretching.
Body composition	This is the combined total percentage of fat, bone and muscles ratio (amount) made up by a persons body.

Key Concepts You should already know: - Some components of fitness and be able to apply them to a healthy and active lifestyle
You will be assessed on: - Understanding - Technique - Application - Leadership



SPECIFICITY
Training programmes must be specific to the needs of the sport and the performer.
For example, the training needs of a cross country runner will be different from those of a weight lifter.

PROGRESSION
To improve and continue to develop, the training programme must be made progressively harder.
As the athlete/performer becomes fitter the training needs to be made more difficult.

OVERLOAD
To become fitter the body must work harder than normal. This can be achieved by applying the **FITT** principles:
Frequency - how often do you exercise?
Intensity - how hard do you exercise?
Time - how long do you exercise for?
Type - is the exercise suitable for your sport?

REVERSIBILITY
Exercise improves fitness. If we stop exercising our fitness levels will drop.
If we train, our muscles get bigger (**hypertrophy**). Alternatively, if we stop training, our muscles get smaller (**atrophy**).

TEDIUM
Training must be varied to ensure the athlete/performer maintains motivation.
If the same activity is performed frequently, training will become repetitive and boring.

REMEMBER - To avoid injury, all training programmes should include a full warm up and cool down.

The Principles of Training (SPORT) is used to create a training programme that is designed to improve a persons performance over time. What ways can you see how changed have been made in the programme below.

Action	1.-3. Week	4.-6. Week	7.-8. Week
	Action/ Repetition	Action/ Repetition	Action/ Repetition
Jump Squat	20 sec x 3 repetition	35 sec x 3	40 sec x 3 repetition
Alternate Legs Jump	20 repetition	25 repetition	25 repetition
Squat	25 repetition	35 repetition	25 repetition
Chunch	30 repetition	35 repetition	30 repetition
Lying Twist Trunk	25 sec x 2 repetition	30 sec x 2 repetition	25 sec x 3 repetition
Lunge	30 sec x 3 repetition	35 sec x 3 repetition	30 sec x 3 repetition
Side Plank	30 sec x 2 repetition	40 sec x 2 repetition	35 sec x 3 repetition
Burpee	30 sec x 2 repetition	40 sec x 3 repetition	35 sec x 3 repetition
Mountain Climber	30 sec x 2 repetition	40 sec x 2 repetition	35 sec x 2 repetition
Twist With Medicine Ball	30 sec x 3 repetition	45 sec x 2 repetition	30 sec x 3 repetition



- Show Knowledge and understanding of more advanced key concepts
- Demonstrate safe working practice
- Apply knowledge and practice in a fitness programme.



Retrieval Practice: Match the word banks to the for a correct explanation on the methods of training

Questions:
Use the word banks below:

Answers:
Use the words to match to create the correct sentence for each method of training.

times
rest
activity
swimming
time
week
aerobic

Continuous training:
Continuous Training involves performing an _____ for an extended period of _____ without _____ (often longer than 20 minutes). Activities might be jogging, _____, cycling, walking or rowing and should be completed at least 3 or 4 _____ a _____ to improve _____ endurance.

Pace
Repetitions
Resistance
Hill
Striding
Standing
walking

Acceleration Sprints
Acceleration sprints involve changing the _____ of the sprint and gradually increase speed from a _____ or rolling start to jogging, followed by _____ and a maximum sprint. Different drills can be used such as _____ drills and _____ sprints where speed is the focus. This type of training requires regular rest intervals of jogging or _____ that is used in between _____.

strength stronger
weights stress tears
fibres size hours repair

Weight training
Weight Training is an effective way to improve _____, this is done by free _____ or resistance machines to place _____ on certain muscles. As the muscle works lifting weights, small _____ occur in between individual muscle _____ which _____ naturally over 24 _____ so that they become bigger and _____. This also leads to increases in _____ and strength of the overall muscle.

Career Focus - Where could this take you?



My career is known as a gym fitness technician. My role is to visit gyms within a designated area and make sure all the equipment is safe and in a good working condition. This is so that the people using the equipment can exercise and avoid any injuries. If the equipment has stopped working, I have to investigate the problem. I order new parts and repair them so the machines can be used again.

Challenge Activities

Design a training programme:-
Can you create a 4 week training programme that shows 5 different exercises that get progressively harder each week. Use the example provided on the previous page for guidance.

Create a match the keywords to definition poster:-
This can be used by all students in their PE lessons as memory recall revision task. Select between five to eight different key words and match them to the correct definition answers. Make sure on the reverse of your skill card you have included the correct answers so students can test and assess themselves and others.

Topic Links

This topic links to:

- RSHE – Understanding how physical activity can reduce stress and anxiety and promote physical, mental and social wellbeing
- English –understanding and defining key terminology
- Mathematics –problem solving, recording figures and analysing performance.
- Voice 21 –coaching peers with their training sessions

Additional Resources

To further practise and develop your knowledge see:
<https://www.topendsports.com/testing/tests/>
<https://www.brianmac.co.uk/eval.htm>

Username and Passwords
