

Year 9 – HT4



Knowledge Organisers

Name:

Team:

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.



- rotate and translate shapes
- calculate Pythagoras' theorem

What do I need to be able to do?

By the end of this unit you should be able to:

- Identify angles in parallel lines
- Solve angle problems
- Make conjectures with angles
- Make conjectures with shapes

Keywords

Parallel: two straight lines that never meet with the same gradient

Perpendicular: two straight lines that meet at 90°

Transversal: a line that crosses at least two other lines

Sum: the result of adding two or more numbers

Conjecture: a statement that might be true but is not proven

Equation: a statement that says two things are equal

Polygon: a 2D shape made from straight edges

Counterexample: an example that disproves a statement



Career Focus - Where could this take



As an astronomer, I use many mathematical skills, including Pythagoras' Theorem to calculate the paths of spacecrafts like rockets and satellites.

Challenge Activities



Workers in a factory make toys.


- On Monday they make 2,350 toys.
- On Tuesday they make 235 more toys than they did on Monday.

By Wednesday they have to make 7,500 toys in total.

How many toys do they need to make on Wednesday to make 7,500 in total?

Retrieval Practice



- 1) What 2-D shapes make up the net of a triangular prism?
- 2) What is the mathematical name of this shape? 
- 3) Solve $20x - 15 \leq 15x + 100$
- 4) A coat costs £86. It is in the sale with 25% off. Work out the sale price of the coat.

Topic Links

This topic links to:

- Angles, shapes, trigonometry, and circle theorems

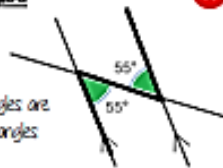
Additional Resources

To further practice and develop your knowledge see:
<https://corbettmaths.com/contents/>
Number: 25, 30, 32-35, 37-39

Alternate angles



Because alternate angles are equal the highlighted angles are the same size



Corresponding angles



Because corresponding angles are equal the highlighted angles are the same size

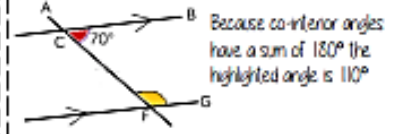


Co-interior angles



Because co-interior angles have a sum of 180° the highlighted angle is 110°

As angles on a line add up to 180° co-interior angles can also be calculated from applying alternate/ corresponding rules first



Solving angle problems

Link angle facts to algebra

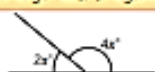
Form an equation

State the reason

Solve

Angles on a straight line

180°



$$2x + 4x = 180^\circ$$

The sum of angles on a straight line is 180°

$$2x + 4x = 180^\circ$$

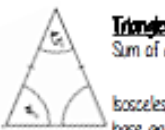
$$6x = 180^\circ$$

$$x = 30^\circ$$

Vertically opposite angles
Equal



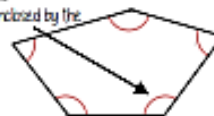
Angles around a point
 360°



Triangles
Sum of angles is 180°
Isosceles have the same base angles

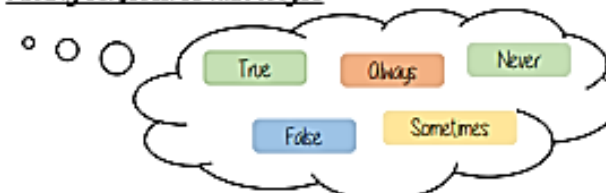
Interior Angles

The angles enclosed by the polygon



$$(\text{number of sides} - 2) \times 180$$

Making conjectures with angles



Proving a conjecture

A pattern is noticed for many cases



Disproving a conjecture

Only one counterexample is needed to disprove a conjecture

Apply the angle rules

Test the theory

Make conjecture

The sum of angles in a triangle is 180°

$$180 - 70 - 20 = 90$$

$$180 - 85 - 5 = 90$$

$$180 - 45 - 45 = 90$$

The angle that meets the circumference in a semi circle is 90°

Making conjectures with shapes

Keywords and facts to recall with shape

Area: the amount of space inside a shape
Perimeter: the length around a shape
Regular Polygons: All sides and angles are equal

Quadrilateral Facts

Square
All sides equal size
All angles 90°
Opposite sides are parallel



Parallelogram
Opposite sides are parallel
Opposite angles are equal
Co-interior angles

Rectangle
All angles 90°
Opposite sides are parallel

Rhombus
All sides equal size
Opposite angles are equal



Kite
No parallel lines
Equal lengths on top sides
Equal lengths on bottom sides
One pair of equal angles

- rotate and translate shapes
- calculate Pythagoras' theorem

What do I need to be able to do?

By the end of this unit you should be able to:

- Identify the order of rotational symmetry
- Rotate a shape about a point on the shape
- Rotate a shape about a point not on a shape
- Translate by a given vector
- Compare rotations and reflections

Keywords

- Rotate:** a rotation is a circular movement
- Symmetry:** when two or more parts are identical after a transformation
- Regular:** a regular shape has angles and sides of equal lengths
- Invariant:** a point that does not move after a transformation
- Vertex:** a point two edges meet
- Horizontal:** from side to side
- Vertical:** from up to down

Career Focus - Where could this take



As an astronomer, I use many mathematical skills, including Pythagoras' Theorem to calculate the paths of spacecrafts like rockets and satellites.

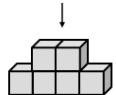
Challenge Activities



Parsnips
£2.60 per kg

How much does 300 g of parsnips cost?

Retrieval Practice

- 1) Sketch the plan view of this shape. 
- 2) Which 3-D shape is made up of two circular faces and a rectangle?
- 3) Ron buys 6 bottles of water. He pays with a £5 note and gets 26p change. How much does each bottle of water cost?
- 4) Write 20,000,000 in standard form.

Topic Links

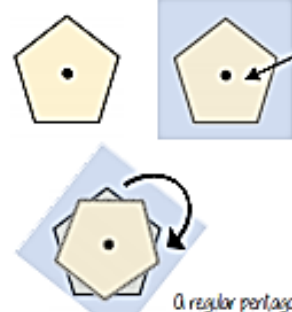
This topic links to:

- Coordinates, graph transformations, and symmetry

Additional Resources

To further practice and develop your knowledge see:
<https://corbettmaths.com/contents/>
Number: 275, 317, 323-326

Rotational Symmetry



A regular pentagon has rotational symmetry of order 5

Tracing paper helps check rotational symmetry

- 1 Trace your shape (mark the centre point)
- 2 Rotate your tracing paper on top of the original through 360°
- 3 Count the times it fits back into itself

Rotate from a point (in a shape)

Original shape

Point of rotation

Image 90° clockwise

- 1 Trace the original shape (mark the point of rotation)
- 2 Keep the point in the same place and turn the tracing paper
- 3 Draw the new shape

Clockwise Anti-Clockwise

Rotate from a point (outside a shape)

Image 90° anti-clockwise

Point of rotation

Original shape

- 1 Trace the original shape (mark the point of rotation)
- 2 Keep the point in the same place and turn the tracing paper
- 3 Draw the new shape

Translation and vector notation

Vector Notation $\rightarrow \begin{pmatrix} 1 \\ -2 \end{pmatrix}$

How far left or right to move
Negative value (left)
Positive value (right)

How far up or down to move
Negative value (down)
Positive value (up)

Translation $\begin{pmatrix} -3 \\ 3 \end{pmatrix}$

Original shape

Every vertex has been translated by the same amount

Compare rotations and reflections

R Reflections are a mirror image of the original shape

Information needed to perform a reflection

- Line of reflection (Mirror line)

Rotations are the movement of a shape in a circular motion

Information needed to perform a rotation

- Point of rotation
- Direction of rotation
- Degrees of rotation

- rotate and translate shapes
- calculate Pythagoras' theorem

What do I need to be able to do?

By the end of this unit you should be able to:

- Use square and cube roots
- Identify the hypotenuse
- Calculate the hypotenuse
- Find a missing side in a Right angled triangle
- Use Pythagoras' theorem on axes
- Explore proofs of Pythagoras' theorem

Keywords

Square number: the output of a number multiplied by itself
Square root: a value that can be multiplied by itself to give a square number
Hypotenuse: the largest side on a right angled triangle. Always opposite the right angle.
Opposite: the side opposite the angle of interest
Adjacent: the side next to the angle of interest

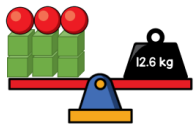
Career Focus - Where could this take



As an astronomer, I use many mathematical skills, including Pythagoras' Theorem to calculate the paths of spacecrafts like rockets and satellites

Challenge Activities

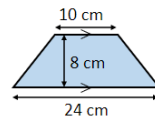
Gina balances some scales.



What is the mass of a cube?

Retrieval Practice

Work out the area of the trapezium.



How many edges does a square-based pyramid have?

The cost of 4 identical pens is greater than £3.68
 What is the minimum price of one pen?

Sketch the graph of $y = 3$

Topic Links

This topic links to:

- Number skills, Pythagoras, and trigonometry

Additional Resources

To further practice and develop your knowledge see:
<https://corbettmaths.com/contents/>
 Number: 257-263

Squares and square roots

$\sqrt{\quad}$ is the square root symbol
 eg $\sqrt{64} = 8$
 Because $8 \times 8 = 64$

This can also be written as 6^2

1=1	2=2	3=3	4=4	5=5	6=6	7=7	8=8	9=9	10=10
1	4	9	16	25	36	49	64	81	100

Square numbers

Determine if a triangle is right-angled

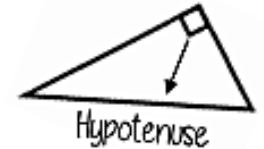
If a triangle is right-angled, the sum of the squares of the shorter sides will equal the square of the hypotenuse.

$a^2 + b^2 = \text{hypotenuse}^2$

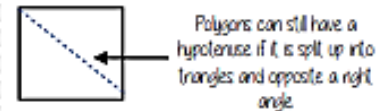
eg $a^2 + b^2 = \text{hypotenuse}^2$
 $3^2 + 4^2 = 5^2$
 $9 + 16 = 25$

Substituting the numbers into the theorem shows that this is a right-angled triangle

Identify the hypotenuse



The hypotenuse is always the longest side on a triangle because it is opposite the biggest angle.



Calculate the hypotenuse

3 cm 6 cm
 a b
 Hypotenuse

Either of the short sides can be labelled a or b

$a^2 + b^2 = \text{hypotenuse}^2$

1. Substitute in the values for a and b

$$3^2 + 6^2 = \text{hypotenuse}^2$$

$$9 + 36 = \text{hypotenuse}^2$$

$$45 = \text{hypotenuse}^2$$

2. To find the hypotenuse square root the sum of the squares of the shorter sides

$$\sqrt{45} = \text{hypotenuse}$$

$$6.71\text{cm} = \text{hypotenuse}$$

Calculate missing sides

Hypotenuse 15 cm
 a 12 cm b

Either of the short sides can be labelled a or b

$a^2 + b^2 = \text{hypotenuse}^2$

$$12^2 + b^2 = 15^2$$

I substitute in the values you are given

$$144 + b^2 = 225$$

$$-144 \quad -144$$

Rearrange the equation by subtracting the shorter square from the hypotenuse squared

Square root to find the length of the side

$$b^2 = 111$$

$$b = \sqrt{111} = 10.54\text{ cm}$$

Pythagoras' theorem on a coordinate axis

Find the length of the line segment

The segment can be made into a right-angled triangle by adding the sides on the diagram.

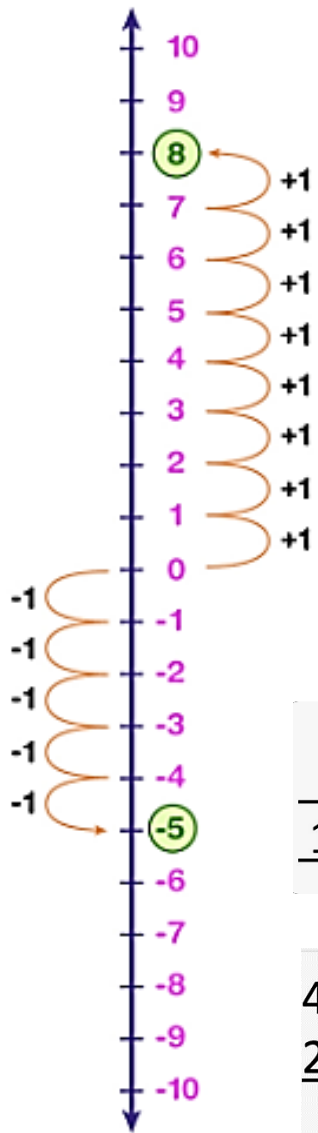
The line segment is the hypotenuse

$a^2 + b^2 = \text{hypotenuse}^2$

The lengths of a and b are the sides of the triangle

Be careful to check the units on the axes

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

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

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

$$8 \overline{) 045} \begin{array}{l} 3^3 \\ 6^4 \\ 0 \end{array}$$

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

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

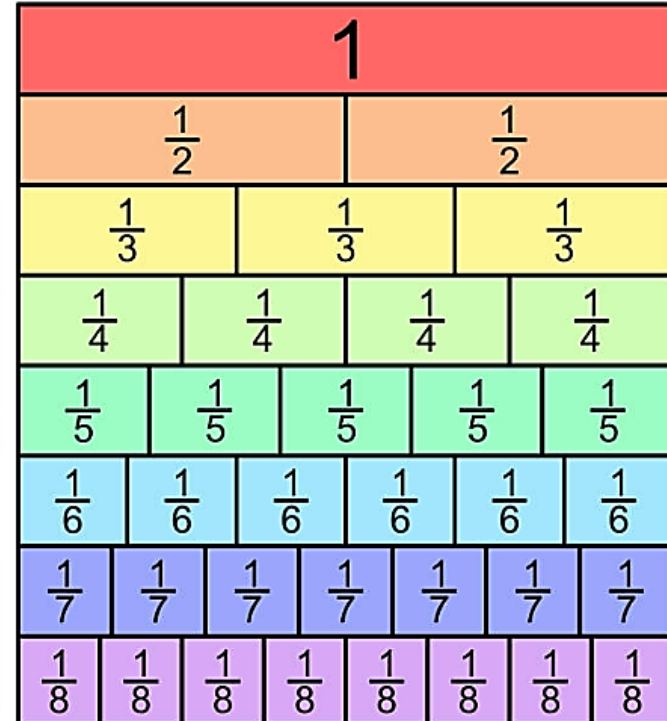
X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	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

1 P Parentheses
2 E Exponents
3 M Multiply
4 D Divide
A Add
S Subtract

() e^2 (×) (÷) (+) (-)

Left to Right (whichever comes first) Left to Right (whichever comes first)

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



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

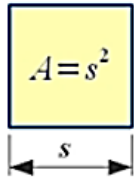
Triangle	Quadrilateral	Pentagon	Hexagon
Heptagon	Octagon	Nonagon	Decagon

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

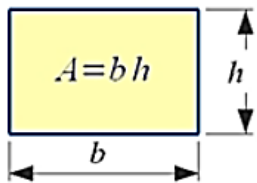
Length		
cm	mm	m
$\times 10$	$\times 100$	$\times 1,000$
$\div 10$	$\div 100$	$\div 1,000$
km	m	
Mass		
g	mg	kg
$\times 1,000$	$\times 1,000$	$\times 1,000$
$\div 1,000$	$\div 1,000$	$\div 1,000$
t	kg	
Volume		
l	ml	cl
$\times 1,000$	$\times 10$	$\times 100$
$\div 1,000$	$\div 10$	$\div 100$

Maths: Quick Reference: Geometry (Areas & Volumes)

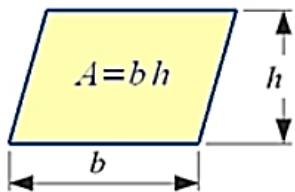
Square



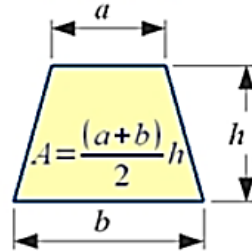
Rectangle



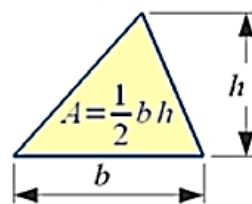
Parallelogram



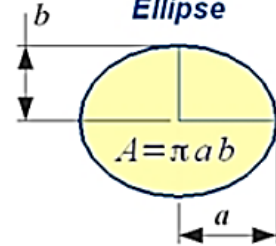
Trapezoid



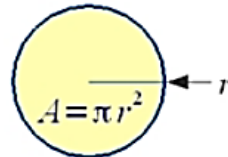
Triangle



Ellipse


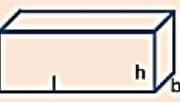




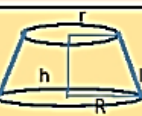


Circle



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?

$$7x + 14$$

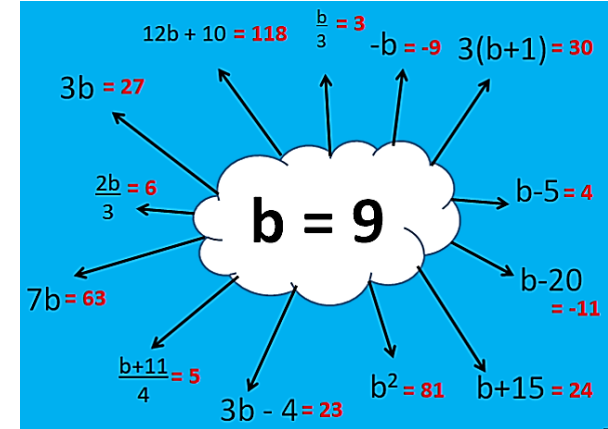
$$7(x + 2)$$

Common factor?

$$5ab - 20a$$

$$5a(b - 4)$$

Substitution



Solving Equations

$$6x - 5 = 7$$

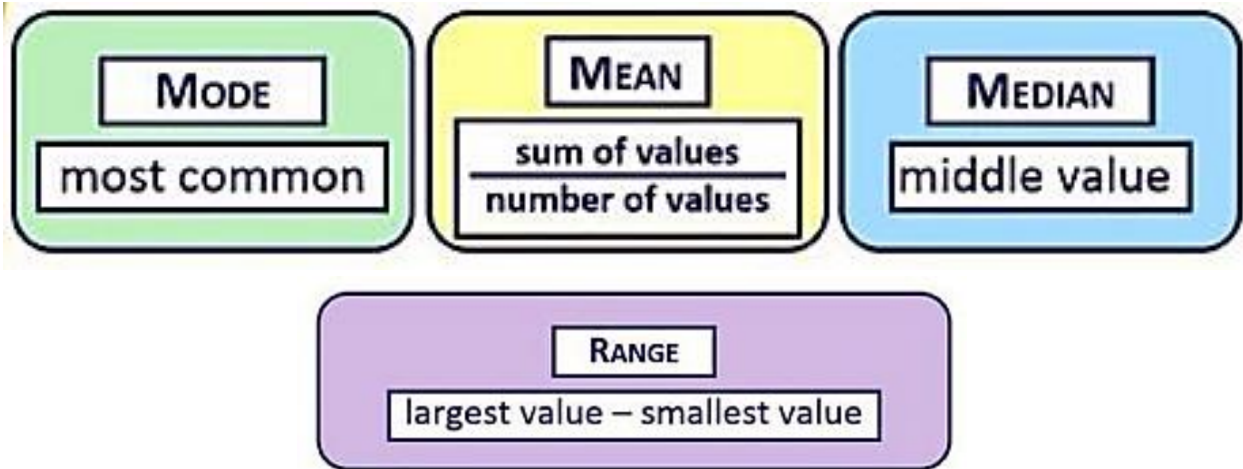
$$\boxed{+ 5} \qquad \boxed{+ 5}$$

$$6x = 12$$

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

$$x = 2$$

Maths: Quick Reference: Statistics



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

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

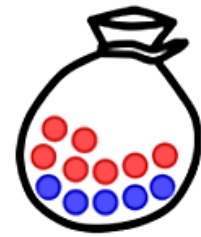
Length (x cm)	Frequency	Midpoint	Midpoint \times frequency
$0 < x \leq 10$	4	$\times 5$	$= 20$
$10 < x \leq 20$	10	$\times 15$	$= 150$
$20 < x \leq 30$	7	$\times 25$	$= 175$
$30 < x \leq 40$	4	$\times 35$	$= 140$
	25		485

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.



Knowledge



Shakespeare's 'Richard III'

When Shakespeare wrote *Richard III*, **Elizabeth I** was on the throne. Her grandfather was **Henry VII**, the character Richmond in the play. It is thought that Shakespeare presented Richmond in a positive way, and Richard in an especially negative way, to please the queen.

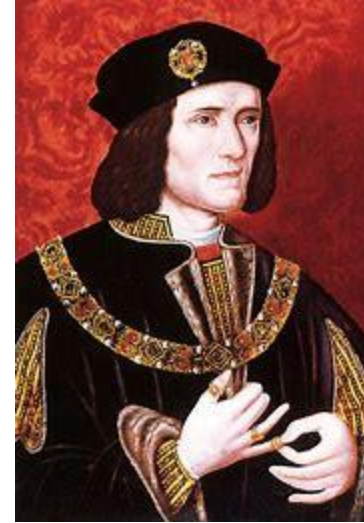
Shakespeare therefore made his Richard III a deformed, two-faced evil man, intent on forcing events to go his way and seizing the crown through deception and murder.



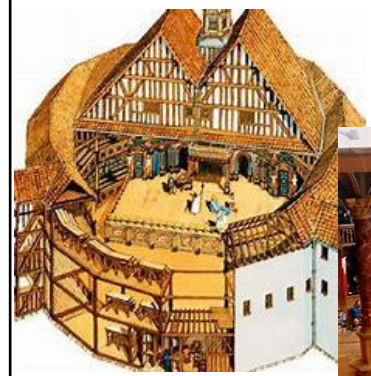
The real Richard III

Shakespeare depicts Richard as a typical villain, stabbing Prince Edward along with his brothers, before going to the Tower and dispatching Henry VI. Then during Act I of *Richard III*, he seemingly plots to become King and engineers the downfall of his brother George, Duke of Clarence by having him sent to the tower and eventually murdered.

Like Richard's exaggerated deformity, this is a major fabrication and in fact Richard proved extremely loyal to his brother, performing as a successful military commander during the Wars of the Roses. His loyalty was rewarded with control of the North and on Edward's death, he was considered the principal statesman of the realm. Richard took no part in either the death of King Henry VI or Edward, with the former's death most likely on the orders of Edward IV, while his son died at the Battle of Tewkesbury. Although Richard and George had a hostile relationship due to issues of inheritance, it was Edward IV who tired of George's antics and ordered his execution for treason in 1478.



Facial reconstruction of Richard III made by sculpting over his skull once it was discovered in 2012

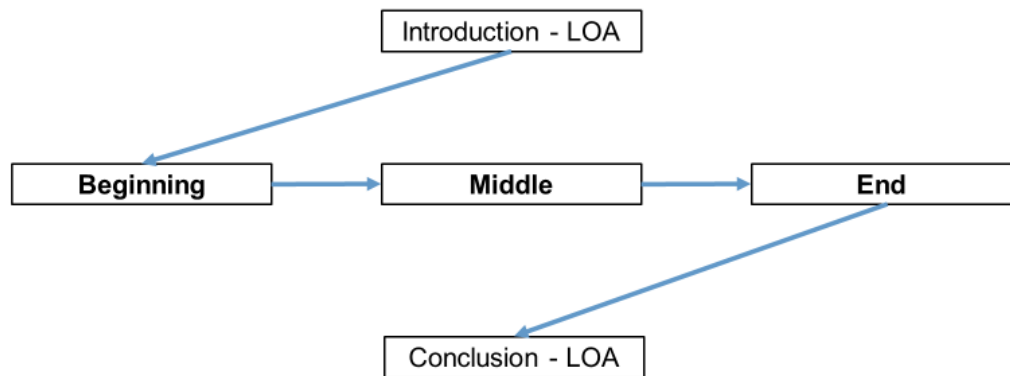




Skills

Key Skill-

When answering any literature essay, we structure our responses using a three-strand argument - **Line of Argument: BME** (beginning, middle, end)



Skills Practice

LOA or 'Line of Argument' basically means your main argument- the big ideas that form the base of your response to the question you are being asked. You would then support your argument with quotes from the text and explain how they prove your argument.

E.G: Fake exam question- **In 'Goldilocks and the Three Bears', how is Goldilocks presented as a villain?**

L.O.A- By committing multiple offences in the Bears' house and not showing remorse, Goldilocks is presented as a villain.

Challenge Activities

Task –

Using the Line Of Argument for the question above, plan your main points from the beginning, middle and end of the story of 'Goldilocks and the Three Bears' [\(5\) Goldilocks and the three bears - Kids Stories - LearnEnglish Kids British Council - YouTube](#)

Career Focus - Playwright



A playwright is a person who writes plays and theatre productions for performance on the stage. If you dream of becoming the next Shakespeare, Willy Russell or Andrew Lloyd Webber and want to bring your ideas to life for a live audience, keep practicing your writing skills and have a look at these links:

Career links:

- [Writing for Theatre | National Theatre](#)
- [How to Be a Playwright | Skillshare Blog](#)

Topic Links

This topic links to:

- History- British Monarchs, The War of the Roses
- PME- Rule of law, Democracy

Additional Resources

To further practise and develop your knowledge see:

- BBC Bitesize Richard III revision:
<https://www.bbc.co.uk/bitesize/topics/zmxh34j>
- The Animated Tales of Shakespeare- Richard III
<https://www.youtube.com/watch?v=eG5gqA6cxBM>



Vocabulary

You will be tested on five words per week.



Keyword	Definition
Adversary	one's opponent in a contest, conflict, or dispute.
Amorous	showing, feeling, or relating to a desire.
Anagnorisis	A moment, when a character discovers another character's true identity.
Aside	a dramatic device in which a character speaks to the audience.
Conflict	a serious disagreement or argument.
Deceit	concealing or misrepresenting the truth.
Deformity	a deformed part, especially of the body; a malformation.
Hamartia	a fatal flaw leading to the downfall of a tragic hero or heroine.
Hubris	excessive pride or self-confidence.
Hypocrite	a person who pretends to have virtues or beliefs that they do not possess.
Lascivious	feeling or revealing an overt sexual interest or desire.
Machiavellian	cunning and scheming, especially in politics.
Nemesis	a long-standing rival; an archenemy.

Keyword	Definition
Ominous	a feeling of fear or anxiety about something that may happen.
Peripeteia	a sudden reversal of fortune or change in circumstances.
Premonition	a strong feeling that something (usually) unpleasant is about to happen.
Propaganda	information of a misleading nature, to promote a political point of view.
Prophecy	a prediction of what will happen in the future.
Shakespeare	the greatest writer, poet and playwright in the English language. Writer of Richard III.
Soliloquy	. when a character speaks their thoughts aloud on the stage.
Sinister	Something or someone that is evil.
Symbolism	the use of symbols to represent ideas or qualities.
Treacherous	guilty of or involving betrayal or deception.
Traitor	a person who betrays someone
Villain	a character whose evil actions or motives are important to the plot.



Our students will:

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



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

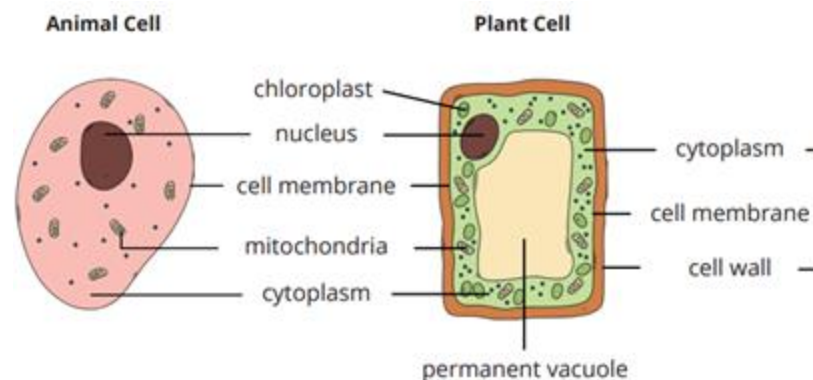
- Describe the structure of different types of cells (animal, plant, bacterial and specialised)
- Explain how to use a microscope to observe cells



Keyword	Definition
Cell	Basic unit of life.
Cell membrane	Controls the movement of substances in and out of the cell.
Nucleus	Contains genetic information and controls the activity of the cell
Cytoplasm	Jelly-like substance where chemical reactions take place.
Mitochondria	Where respirations takes place. Releases energy.
Chloroplasts	Contains the green pigment chlorophyll, the site of photosynthesis.
Vacuole	Contains cell sap and supports the cell.
Cell wall	Provides support to plant cells.
Specialised cell	Cells designed to carry out a particular role in the body.
Diffusion	The movement of particles from an area of high concentration to an area of low concentration.
Active transport	The movement of particles from an area of low concentration to an area of high concentration.
Osmosis	The movement of water from an area of high concentration to an area of low concentration, through a partially permeable membrane.

Key Concepts

Cell structure

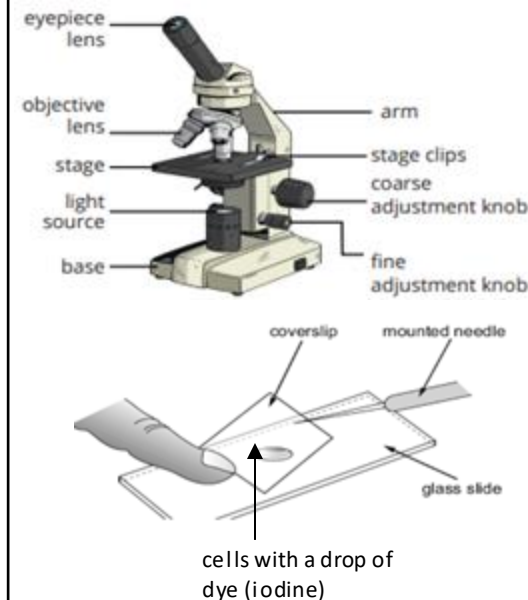


Specialised Cells

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

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

Using a light microscope



Method:

- Prepare a slide.
- Plug in microscope and turn on light.
- Place slide on stage and hold with clips.
- On the lowest magnification objective lens move the stage as close to the lens as possible
- Focus the image
- Then turn up the magnification by turning to a higher power objective lens.

Cell transport

Diffusion
(does not require energy)



Active transport
(Requires energy from respiration)






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

- Describe the structure of different types of cells (animal, plant, bacterial and specialised)
- Explain how to use a microscope to observe cells

Retrieval Practice	
Questions	Answers
What is a cell?	Cells are the basic building blocks of all living organisms.
What is an organelle?	Specialised structures that perform various jobs inside cells.
What is the function of the nucleus?	Contains genetic information (DNA) that controls cell activities.
What is the function of the cell membrane?	To control what enters and leaves the cell.
What is the function of the cytoplasm?	Where chemical reactions take place.
What is the function of mitochondria?	The site of respiration - where energy is released.
What is the function of the cell wall?	To strengthen and support plant cells.
What is the function of chloroplasts?	Contains chlorophyll to absorb light energy for photosynthesis.
Which organelles are present in both animal and plant cells?	Nucleus, Cell membrane, Cytoplasm, Mitochondria,
Which organelles are present in plant cells but not in animal cells?	Chloroplasts, Cell wall, Vacuole.
How is diffusion different to active transport?	In diffusion, particles move from a high to low concentration and it doesn't require energy. In active transport, particles move from a low to high concentration and it does require energy.
How is a red blood cell adapted to its function?	No nucleus, large surface area and contains haemoglobin to allow the red blood cell to transport oxygen around the body.

Career Focus - Where could this take you?



I am a pathologist. This is a medical healthcare provider who examines bodies and body tissues, I am also responsible for performing lab tests. I help other healthcare providers reach diagnoses and I play an important role in the treatment team. I could work in an NHS or private hospital or in a laboratory. My job is exciting and fulfilling because I get to use my problem solving and analytical skills to come up with a better solution to fight viruses, infections, and other life-threatening conditions.

Challenge Activities

1. Make flashcards for the definitions and retrieval practice questions.
2. Make a mindmap for this topic. Remember to include keywords and the links between information.
3. Research specialised cells found in both animals and plants and turn the information into a leaflet.
4. Research how a bacterial cell is different to a plant or animal cell.
5. Find out more about pathologists 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 cells.

Topic Links

This topic links to other science topics such as

- Scientific Skills
- Organisation
- Energy

We will also be practising how to

- Carry out practicals safely
- Write descriptively to compare cells

Additional Resources

Educake - <https://www.educake.co.uk/>

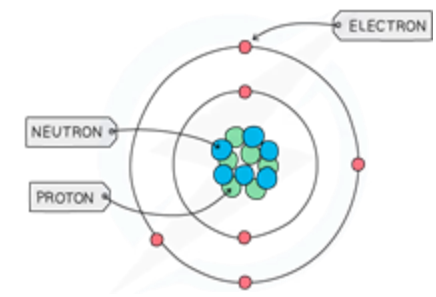
BBC Bitesize - <https://www.bbc.co.uk/bitesize/guides/zpqpqhv/revision/1>

YouTube Cognito - https://www.youtube.com/watch?v=OCCp-Y_-7IQ
<https://www.youtube.com/watch?v=qHkUOIC8Nbo>

Keyword	Definition
Atom	The smallest unit of matter.
Element	A substance made up of only one type of atom.
Compound	Contains two or more different elements that are chemically bonded together.
Mixture	Contains two or more different substances that are not chemically joined together.
Proton	Positively charged particle in the atom.
Neutron	Neutral particle in the atom.
Electron	Negatively charged particle in the atom.
Subatomic particle	Particles that make up the atom.
Nucleus	The centre of the atom, containing protons and neutrons.
Periodic table	A table of elements which are organised into groups and periods.
Group	A column on periodic table (all elements in the same group have similar properties).
Period	A row on the periodic table.
Properties	Characteristics or features of something.

Key Concepts

Atomic Structure



Overall, atoms have no charge (they are neutral). This is because they have the same number of protons (+1 charge) and electrons (-1 charge).

	Particle	Relative Mass	Charge
Located in the nucleus	proton	1	+1
	neutron	1	0
Located in the electron shells	electron	Very small	-1

Periodic Table

Substances



Element **Compound** **Mixture**

The properties of a compound are **different** to that of the elements that make it up. For example, iron (element) is magnetic but iron sulphide (compound) is not magnetic.

Number of Subatomic Particles

Number of protons and neutrons → **4** (mass number)

atomic number → **2** (Number of protons, same number of electrons)

He ← element symbol

Worked example (sodium):

$^{23}_{11}\text{Na}$	Protons = 11
	Neutrons = 23 - 11 = 12
	Electrons = 11

Retrieval Practice	
Questions	Answers
What is an atom?	The smallest unit of matter.
What is an element?	A substance made up of only one type of atom.
What is a compound?	Contains two or more different elements that are chemically bonded together.
What is a mixture?	Contains two or more different substances that are not chemically joined together.
What is the structure of an atom?	Protons and neutrons located in the nucleus, with electrons in electron shells.
What is a subatomic particle?	A particle that makes up the atom.
What is the charge, mass and location of a proton?	Charge = +1, Mass = 1, Location = nucleus.
What is the charge, mass and location of a neutron?	Charge = 0, Mass = 1, Location = nucleus.
What is the charge, mass and location of an electron?	Charge = -1, Mass = very small, Location = shell
What does the mass number tell you?	Number of protons + neutrons an element has.
What does the atomic number tell you?	Number of protons an element has.
What is the overall charge of an atom?	An atom has no charge because it has an equal number of protons (+1) and electrons (-1).
How is the periodic table arranged?	In groups and periods (elements in the same group all have similar properties).

Career Focus - Where could this take you?



I am a chemical engineer. My job is to changing the chemical, biochemical and physical state of a substance to turn it into something else, such as making plastic from oil. I need to understand how to alter raw materials into required products, while taking into consideration health and safety and cost issues. My main workplace is in a lab, office or processing plant develop raw materials into a range of useful products. A career in the field will see you creating petrochemicals, medicine and plastics.

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 the periodic table was created? What scientists were involved?
4. Make a 3D model of an atom (showing the subatomic particles)
5. Find out more about chemical engineers and what they do. What qualifications would you need for this career? What is the average salary?
6. Research the history of the atomic model? What were the previous models? How do we know the atom looks the way we think it does?

Topic Links

This topic links to other science topics such as:

- Bonding
- States of matter
- Radiation
- Chemical reactions

Additional Resources

Educa ke - <https://www.educake.co.uk/>

BBC Bitesize - <https://www.bbc.co.uk/bitesize/topics/zcckk2p>

YouTube Cognito -

<https://www.youtube.com/watch?v=fN8kH9Vqo0>

<https://www.youtube.com/watch?v=jBDr0mHyc5M>



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

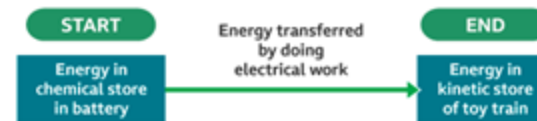
- Understand and calculate energy stores and transfers
- Compare renewable and non-renewable energy sources

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

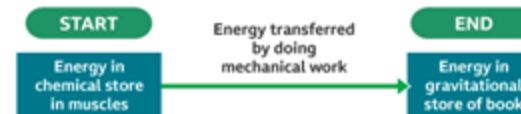
Key Concepts

Energy transfers

Example 1: Battery powered train



Example 2: Person moving a book to a high shelf



Law of Conservation of Energy

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

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

Energy efficiency

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

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

Energy resources

FOSSIL FUELS (NON-RENEWABLE)

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



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

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

SOLAR PANELS (RENEWABLE)

They use the sunlight to produce an electrical current.



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

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

WIND TURBINES (RENEWABLE)

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



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

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



- Understand and calculate energy stores and transfers
- Compare renewable and non-renewable energy sources



Retrieval Practice

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

Career Focus - Where could this take you?



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



Challenge Activities

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

Topic Links

This topic links to other science topics such as:

- Digestive system
- Types of pollution

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

Additional Resources

Educake - <https://www.educake.co.uk/>

BBC Bitesize – <https://www.bbc.co.uk/bitesize/topics/z89d dxs>

YouTube Cognito - <https://www.youtube.com/watch?v=JGwcDCeYRYo&list=PLidgqIGKox7UVC-8WC9djoebZwxPeXph7>



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

- Explore how the Nazis treated minority groups in Germany.
- Explain why life in Nazi Germany could be seen as positive and negative between the years 1933 to 1939?

- Analyse the causes of World War Two and the consequences of Hitler's actions.
- Evaluate the key events and battles of World War Two and their significance.

Keyword	Definition
Causes	The reason an event happened.
Dictator	A political leader who has total control and power over a country.
Communism	Communism is a type of government. In a Communist system, individual people do not own land, factories, or machinery. Instead, the government or the whole community owns these things. Everyone is supposed to share the wealth that they create.
Lebensraum	Living Space - the land Nazis believed was required in order to grow and flourish.
Appeasement	When Britain and France gave Hitler what he wanted (<i>appeased him</i>) to try to avoid war.
Anschluss	German word for 'Union' – Hitler declared an Anschluss between Germany and Austria in 1938.
Blitzkrieg	German attack on enemy targets, means 'lightning war'.
Evacuation	Taking people away from danger.
Persecution	To treat someone cruelly or unfairly especially because of race or religious or political beliefs.
Anti-Semitism	Hostility towards Jews or discrimination against them as a group.
Aryan	Northern Europeans, including Germans, who Hitler believed were the 'Master Race'.
Ghettos	Areas of towns (usually run-down) sectioned off to separate Jews within the community.
Kristallnacht	Night of Broken Glass: attacks on Jews & Jewish property that intensified persecution of Jews in Germany.
Synagogues	Jewish places of worship.

Key Concepts



Causes of WWII: C. Timeline of Hitler's Actions:

1933: Hitler becomes Chancellor of Germany and builds up Germany's armed forces which breaks one of the terms of the Treaty of Versailles.

1936: German soldiers occupy the Rhineland where they were not supposed to go. Other countries, including Britain, did not stop this as the land belonged to Germany. This is the start of **Appeasement** by Britain and France.

1938: Hitler took over Austria, again breaking the Treaty. Britain protested but did nothing.

1938: Hitler threatened war with Czechoslovakia if they did not return the Sudetenland to Germany. 3 million Germans lived there. Britain and France agreed that Germany should be allowed to take the Sudetenland but made Hitler promise not to invade any other countries.

1939: Hitler broke his promise by taking over the rest of Czechoslovakia. He then started to threaten Poland. Poland was determined to fight Hitler...

1st September 1939: Germany invaded Poland, using 'Blitzkrieg' strategy. Britain and France (Poland's allies) gave notice to Germany to remove their troops from Poland. When they did not, Britain and France declared war on **3rd September 1939**.

This was the start of World War 2!



Other Causes of WWII:

Treaty of Versailles: By the 1930's many people believed that Germany had been treated too harshly in the Treaty including Britain. Germany had lost land to create new countries like Poland and Czechoslovakia and Hitler promised to overturn the Treaty of Versailles and reunite all German speaking people in a greater Germany.

Appeasement: The policy of appeasement aimed to prevent another war and is linked particularly with the British Prime Minister Neville Chamberlain. Many believe he made a mistake by trusting Hitler. Britain and France could have stopped Germany. Opportunities, such as the Rhineland, were missed and Chamberlain even negotiated with Hitler in Munich to give him the Sudetenland. This prompted the Nazi Soviet Pact.

The Nazi Soviet Pact: Stalin felt alienated by the Munich Agreement and this encouraged him to sign the pact even though he and Hitler hated each other. It was a truce to agree to share Poland. This would help Hitler avoid a war on two fronts and give him back up from the USSR. This made him more confident about invading Poland even though Britain and France had promised to protect them.



What was the most important turning point of World War II?

A turning point is a significant moment when events alter in a way that has an impact both in the short and long term. There are many key moments in WWII that had an impact on the outcome of the war.

Turning Point: Was the evacuation of Dunkirk seen as a triumph or disaster?


Large numbers of British, French and Belgian troops were surrounded by German soldiers in the French town Dunkirk but 338,226 were saved by a fleet of British navy ships and 800 small boats. These soldiers made up of much of Britain's army went on to fight throughout the war. It gave the British public hope.

Turning Point: How important was the Battle of Britain?

The Royal Air Force (RAF) successfully defended against attacks by Nazi Germany's air force: Luftwaffe. It has been described as the first military campaign fought entirely by air forces. Hitler changed his tactics when it was clear the RAF could not be defeated, and he cancelled the invasion of Britain. The RAF went on to bomb targets in Germany.

- Explore how the Nazis treated minority groups in Germany.
- Explain why life in Nazi Germany could be seen as positive and negative between the years 1933 to 1939

- Evaluate the key events and battles of World War Two and their significance.

Retrieval Practice 	
Questions	Answers
Tell me three minority groups persecuted by the Nazis:	Jewish, disabled and homosexuals
What date was Kristallnacht and what happened?	8th November 1938 when gangs smashed and burned Jewish homes, businesses & synagogues all over Germany and attacked Jews. Many Jews were killed and 20,000 arrested and sent to concentration camps.
Who was Anne Frank and why is she significant when studying the Holocaust?	Anne Frank was a German girl and Jewish victim of the Holocaust who is famous for keeping a diary of her experiences. Anne and her family went into hiding for two years to avoid Nazi persecution
Explain two causes of World War Two (short or long term):	Treaty of Versailles – Many believed Germany was too harshly punished Appeasement- Many believe Chamberlain made a mistake by trusting Hitler. Britain and France could have stopped Germany.
What was the Nazi Soviet pact? Explain with examples.	A pact between Hitler and Stalin. It was a truce to agree to share Poland. This would help Hitler avoid a war on two fronts and give him back up from the USSR.
Why did Britain and France eventually declare war on Germany?	When Germany invaded Poland
Was Dunkirk a triumph or disaster? Explain your answer.	A disaster as large numbers of French, British and Belgium troops died. A success as 338,226 troops were saved
What happened at the Battle of Britain and why was it a turning point of WWII?	The Royal Air Force (RAF) successfully defended Britain against attacks by Nazi Germany's air force the Luftwaffe. Britain could now bomb targets in Germany
What consequences did Germany face after the Battle of Stalingrad?	It was the first failure of the war to be publicly acknowledged by Hitler and put Hitler and the Axis powers on the defensive boosting Russian confidence.
Why did Germany surrender? Tell me one reason.	Soviet forces neared Adolf Hitler's command bunker in central Berlin. On April 30, 1945, Hitler committed suicide. Within days, Berlin fell to the Soviets.

Career Focus - Where could this take you?



I am a Screenwriter: My job is to write and develop screenplays for film or TV drama. I do this either based on an original idea, by adapting an existing story into a screenplay or by joining an existing project (if on TV). I will also use events that have happened in History and dramatise it while including historical facts. I have to make sure I have researched the area I want to focus on and plan my ideas, plots and characters.

Challenge Activities

1. Write a newspaper article about one of the key battles in World War Two. You need to research the battles and decide which one you want to write about- ensure you know enough to make a comparison to at least one other battle.
2. Write a script to use in a movie or play about one of the key battles of World War Two or about the Holocaust. Many movies have been produced which use historical fiction (incorporating some historical facts with a fictional storyline).
3. Produce a timeline which can be used as a display piece of key events in World War Two. This should include dates, key individuals, the event (what happened) and pictures to match.

Topic Links

This topic links to other humanities topics such as:

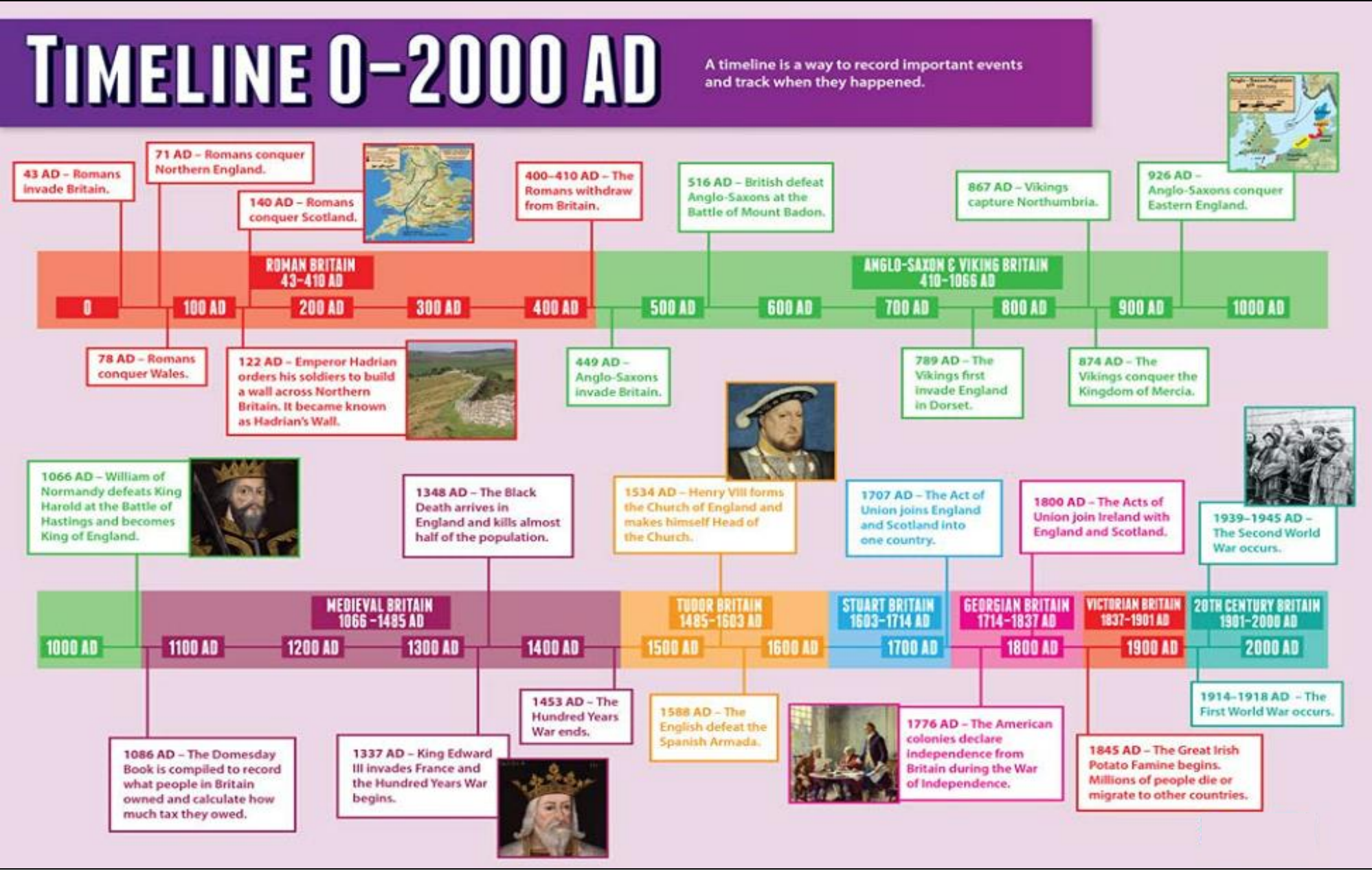
- From Democracy to Dictatorship
- The end of World War Two
- Britain's Homefront
- Judaism

Additional Resources

To further practise and develop your knowledge see:
<https://www.familysearch.org/en/blog/world-war-2-facts>
<https://www.youtube.com/watch?v=8a8fqGpHjSk>
<https://www.britannica.com/study/world-war-ii-major-events-battles>
<https://www.bbc.co.uk/bitesize/topics/zk94jxs/articles/z6vff82>



Timeline



Keyword	Definition
Epicentre	The point on the earth's surface vertically above the focus of an earthquake
Focus	The point of origin in the ground of an earthquake
Geothermal energy	A type of renewable energy that uses the Earth's natural heat to heat homes and businesses or generate electricity
Immediate response	The reaction of people as the disaster happens and in the immediate aftermath.
Long-term responses	Later reactions that occur in the weeks, months and years after the event.
Monitoring	Using equipment to detect the warning signs of tectonic events
Planning	Identifying and avoiding places at risk from tectonic activity
Prediction	Using evidence and monitoring to predict when a tectonic hazard might happen
Protection	Designing buildings that will withstand tectonic hazards
Primary effects	The initial impact of a natural event on people and property, caused directly by it.
Secondary effects	The after-effects that occur as indirect impacts of a natural event, sometimes on a longer timescale
Richter Scale	A numerical scale for expressing the magnitude of an earthquake from 0-10
Seismograph	An instrument that measures and records details of an earthquake
Tsunami	Giant waves caused by earthquakes or volcanic eruptions under the sea

Key Concepts

Responses to hazards

Immediate Responses:

Immediate responses to tectonic hazards include:

- Issuing warnings
- Rescue teams searching for survivors
- Providing treatment to injured people
- Food, drink and shelter provided
- Bodies recovered
- Fires extinguished

Long-Term Responses:

Long term responses to tectonic hazards include:

- Rebuilding and repairing properties
- Rebuilding and repairing transport infrastructure
- Improving building regulations
- Restoring utilities such as water, electric and gas
- Resettling local people
- Developing opportunities for the economy to recover
- Install monitoring equipment

Why live at risk of hazards?

Economic reasons for living at risk

- Geothermal energy can be used to generate electricity and heat people's homes.
- Nutrient rich soils are ideal for agriculture.
- Resources and income is provided from mining minerals.
- Tourism creates jobs and provides income.



Social reasons for living at risk

- People want to stay close to family and friends.
- People may not understand the risk or the threat may not be great enough.
- People are confident that the measures taken to monitor, predict, plan and protect from tectonic hazards will keep them safe.



Key Concepts

Chile Earthquake 2010 - A HIC

February 27th 2010

8.8 magnitude



Primary Effects:

- 500 people died
- 12,000 people were injured
- 800,000 affected
- 220,000 homes damaged/destroyed along with 4500 schools, 56 hospitals and 53 ports.

Secondary Effects:

- Landslides destroyed up to 1500 km of roads, cutting off remote communities for days
- Tsunami waves devastated coastal towns.

Immediate Responses:

- Emergency services responded quickly.
- International support provided field hospitals, satellite phones and floating bridges.
- Within 24 hours, the north-south highway was temporarily repaired, allowing aid to be transported from Santiago.
- Within ten days, 90% of homes had their power and water restored.

Long-term responses:

- Chile's government launched a housing reconstruction plan just one month after the earthquake to help nearly affected 200,000 families.
- The recovery took over four years.

Nepal Earthquake 2015 -

April 25th 2015

7.9 magnitude



Primary Effects:

- 8632 people died.
- 19,009 people were injured.
- 8 million affected.
- 3 million people made homeless.
- 1.4 million people needed support with access to water, food and shelter.

Secondary Effects:

- At least nineteen people lost their lives on Mount Everest due to avalanches.
- 250 people were missing in the Langtang region due to an avalanche.

Immediate Responses:

- India and China provided over \$1 billion of international aid.
- Over 100 search and rescue responders, medics and disaster experts were provided by The UK, including 3 Chinook helicopters.
- Support from aid workers from charities such as the Red Cross

Long-term responses:

- Many countries donated aid. £73 million was donated by the UK (£23 million by the government and £50 million by the public).
- Stricter building codes were introduced.



Key Concepts - Managing tectonic hazards

Monitoring

Earthquakes

- Foreshocks monitored using seismometers.
- Radon detection devices used to monitor the release of radon from cracks prior to earthquakes.

Volcanoes

- GPS is used to monitor changes in the shape of a volcano.
- Seismometers used to detect magma moving.

Prediction

Earthquakes

- Predicting location, date and time of earthquakes is notoriously difficult, though foreshocks can give an indication of a potential event.

Volcanoes

- Advance warning signals, such as earthquakes swarms and the deformation of land can support predicting volcanic eruptions.

Planning

Earthquakes

- Practice drills can be help e.g. Japan, Sept 1st.
- Emergency supplies and evacuation centres.
- Securing objects/furniture.

Volcanoes

- Exclusion zones
- Evacuation
- Educating people how to response

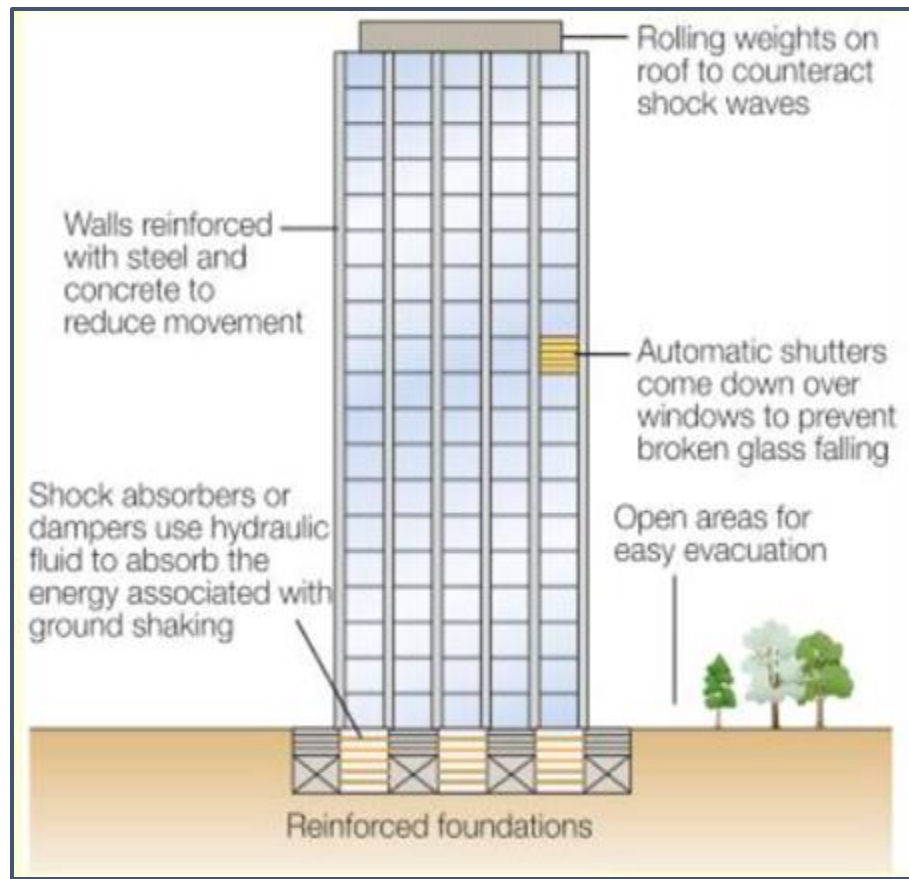
Protection


Earthquakes

- Building and transport infrastructure design can include shock absorbers.
- Sea walls constructed to protect from tsunamis.

Volcanoes

- Buildings cannot be completely designed to protect from volcanic eruptions.
- Evacuation by the authorities is likely to be the most effective method of protection.



Retrieval Practice 	
Questions	Answers
Give 2 immediate responses to a tectonic hazard	Rescue teams searching for survivors and providing treatment to injured people
Give 2 long-term responses to a tectonic hazard	Rebuilding and repairing properties and improving building regulations
Give 2 reasons why people might live near volcanoes	Tourism increases with those interested in volcanoes. Ash breaks down, providing nutrients to farmland.
Two primary effects of the Chile Earthquake?	500 people died 12,000 people were injured
One secondary effect of the Chile Earthquake?	Tsunami waves devastated coastal towns.
Two primary effects of the Nepal Earthquake?	8632 people died 3 million people made homeless
One secondary effect of the Nepal Earthquake?	250 people were missing in the Langtang region due to an avalanche
What are the 3 Ps of tectonic management	Prediction, Planning and Protection
How can buildings be designed to withstand earthquakes?	Rolling weights on the top and shock absorbers in the foundations to absorb shockwaves

Career Focus - Where could this take you?



I am an aid worker for the Red Cross. We provide emergency aid like food, shelter and medical supplies. We have to oversee the distribution of goods write reports, monitor budgets and do general administration network with other organisations and government officials in affected areas. Our aim is to work with communities longer term, to roll out healthcare, education programmes, or work on buildings.

Challenge Activities

- Create a model of an erupting volcano - if you need help watch this video - How to make a volcano: <https://www.nhm.ac.uk/discover/how-to-make-a-volcano.html>
- Research a recent volcanic eruption and write a news report on the causes, the effects and how people tried to reduce the impacts
- Design (draw or build) an earthquake safe building - add details to explain its shape, materials used and foundations

Topic Links Additional Resources

This topic links to:

- Science
- Weather Hazards - in Year 10 Geography

To further practise and develop your knowledge see:

Earthquakes	Nepal	Chile
		



- Describe how the Jews were persecuted in Germany
- Explain the impact of the Holocaust on survivors



Key Concepts

Anti-Semitism is a certain perception of Jews, which may be expressed as hatred toward Jews. Rhetorical and physical manifestations of antisemitism are directed toward Jewish or non-Jewish individuals and/or their property, toward Jewish community institutions and religious facilities.

Origin – How did antisemitism start?

Jewish people have been discriminated against for more than 2,000 years. Often it has been because of their religious beliefs. In ancient times some people worshipped many gods. They did not trust the Jewish people because the Jews did not follow the same gods. The Jewish people worship only one God.

Later, the new religion of Christianity developed from the religion of Judaism. The new religion was based on the teachings of Jesus Christ. He and his followers were Jewish, but the two religions became separate because of different beliefs. The Christians thought that Jesus was a saviour sent by God. The Jewish people did not believe that. At the time, the Roman Empire controlled the land where both religions began. The Romans destroyed the Jewish Temple in Jerusalem and forced the Jews to leave. Eventually, the Roman rule accepted Christianity. The empire controlled many lands, so the religion of Christianity spread. The Roman leaders were powerful. They tried to turn Christians against the Jewish people. People treated the Jews poorly. Anti-Jewish laws in ancient Rome separated the Jews and limited their freedoms. Jewish people moved to many parts of Europe, but in some places they were forced to live in areas called ghettos. They were forced to live in other areas altogether. People made up myths about Jewish people so others would not trust them.

Anti-Semitism in the Russian Empire

When they were forced out of parts of western Europe, many Jews moved to Poland and Russia. Toward the end of the 1800s, however, they were mistreated there as well. The Russian Empire wrote laws to take away land from the Jews. Jewish people had to move to a different part of Russia, away from others. Many Jewish people could no longer work. Mobs of people attacked the Jews. These violent attacks were called pogroms.

Anti-Semitism in Modern Europe

In the 1800s people in Europe began to think of Jewish people as a separate race. Racism toward Jews helped a political party in Germany come to power in 1933. The Nazi Party was led by Adolf Hitler. The party spread hateful misinformation about Jewish people. They ordered boycotts of Jewish-owned businesses. They said that the Aryan race was superior. The Aryans were white people from northern Europe. The Nazis wanted to get rid of all Jewish people. They collected Jewish people from throughout Europe. They forced the Jews into concentration camps to work as slaves. Many Jews were killed right away. This time is called the Holocaust. Nazi Germany and those who helped the Nazis killed about 6 million Jews.

The Nazis were defeated in World War II, which ended in 1945. Many places in the world did not express anti-Semitism any more. Jewish people became part of the culture. But in some places, anti-Jewish acts still happened.

Anti-Semitism Today

Today many people believe that anti-Semitism is wrong. Unfortunately, anti-Semitic acts still happen. For example, people paint anti-Jewish symbols on buildings and Jewish graves. Others spread misinformation. They say Jewish people have too much control of the media, the economy, and the government. Some people even say that the Holocaust never happened.

Keyword	Definition
Antisemitism	Hatred towards Jewish people
Boycotts	Refusing to buy products from a business, country or group of people
Ghettos	A poor urban area mainly occupied by minority groups
Persecution	Punishment or harassment usually of a severe nature based on race, religion, or political opinion in one's country of origin.
Concentration Camps	A place in which large numbers of people, especially political prisoners or members of persecuted minorities, are deliberately imprisoned in a relatively small area with inadequate facilities, sometimes to provide forced labour or to await mass execution



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

- Describe how the Jews were persecuted in Germany
- Explain the impact of the Holocaust on survivors



Key Concepts

The Holocaust: What is it? The mass murder of Jews under the German Nazi regime during the period 1939 - 1945. More than 6 million European Jews, as well as members of other persecuted groups, were murdered at concentration camps such as Auschwitz. Holocaust means destruction or slaughter on a mass scale, especially by fire. Many Jews use the term 'Shoah' which comes from the Hebrew meaning catastrophe.

A History of Anti-Semitism

The Nazis did not invent hatred of Jews or anti-Semitism.

Jews were persecuted in the Middle Ages for religious reasons. In 1190, 150 Jews were massacred in York and all Jews were expelled in 1290.

In many European countries, Jews were blamed for spreading the Black Death and were banned from owning land. In towns they were usually confined to certain areas—ghettos and subject to restrictions, such as curfews.

Martin Luther, who started the Protestant Reformation, called for Jewish synagogues to be destroyed.

In the 1800s, millions of Jews fled the Russian Empire because of pogroms (organised massacre) against them. Immigrants often ended up in Britain or the USA.



Nazis Persecution of the Jews:

Hitler's dislike of the Jews was based on many things including his experiences in Vienna as a youth, but mainly the economy. He blamed them for making Germany weak and for the defeat of World War One.

1933: From 1st April the Nazi Party began an official Boycott of all Jewish shops, businesses, doctors and lawyers. The SA were used to paint Jewish stars or the word 'Jude' (Jew) outside Jewish businesses and they stood outside holding banners to discourage people from going inside. Jews were also banned from government jobs and Jewish civil servants and teachers were sacked.

1935: The Nuremberg Laws were passed and stated only those of German blood could be German citizens. Jews became German 'subjects', not citizens and marriage between Jews and Aryans was banned. Placards saying 'Jews not wanted here' were displayed in resorts, public buildings, restaurants and cafes.

9th November 1938: Kristallnacht (*Night of Broken Glass*) - gangs smashed and burned Jewish homes, businesses & synagogues all over Germany and attacked Jews. Many Jews were killed and 20,000 arrested and sent to concentration camps.

1939-41: Millions of Jews living in Poland & the USSR came under Nazi control. Many were shot or kept in Ghettos.

1942: Leading Nazis agreed upon a 'Final Solution' at the Wannsee Conference to the "Jewish problem". Death camps would be used to eradicate Jews from Europe.

Concentration Camps:

The Nazis had been using concentration camps since 1933 as extended prisons or work camps, often for political opponents, but thousands of Jews were taken to camps like Dachau following Kristallnacht.

Germany's invasions of Poland & The Soviet Union meant that there were now millions more Jews under Nazi control. Initially, groups of SS troops – 'Einsatzgruppen', murdered Jews by shooting.

Following the decision at the Wannsee Conference in 1942 to eradicate all Jews, death camps were built. The death camps used gas chambers to murder Jews and others on an industrial scale.

When Jews arrived from all over Europe, 'selection' happened. Women with young children, the Elderly and the unfit were sent straight to the gas chambers. The Jews were told they were being taken to 'showers' but the 'showers' were in fact gas chambers which used a chemical called Zyklon-B. Usually, people 14 years of age and upwards were sent to the camp if they were fit and healthy. They would receive showers to clean them up. The showers were either really hot or extremely cold. They would then be given a uniform, tattooed with a number and have their hair shaved.

Sometimes, horrifying medical experiments were carried out on camp inmates, for example, by Dr Mengele at Auschwitz who was fascinated in studying twins.

All of the Jews' personal belongings: gold, silver, spectacles, clothes, even hair was kept to be re-used. Even in work camps, deaths through beatings, lack of food and disease were common. It is widely accepted that as many as 6 million Jews were murdered during the Holocaust.

Other groups, such as Russian prisoners, homosexuals, communists, gypsies and the mentally and physically disabled were also victims of the Nazi regime.

As the map shows, most death camps were in Poland rather than Germany, and Poles made up half of the victims. Jews from nearly all European countries were victims during World War Two.



The Ghettos:

Ghettos were usually in the most run-down area of a city and were used to segregate the Jews. By mid-1941, nearly all Jews in occupied Poland had been forced into these overcrowded districts.

In the Warsaw ghetto, by far the largest, 490,000 Jews and a few hundred Roma and Sinti (Gypsies) struggled to survive. In larger centres, ghettos were shut in by walls, fences or barbed wire. No one could leave or enter without a special permit.

Jews received little food and the ghettos were overcrowded. Diseases such as typhus and tuberculosis were rife. It is estimated that 500,000 Jews died in the ghettos of disease and starvation. Many also perished in nearby slave labour camps, where conditions were even worse.



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

- Describe how the Jews were persecuted in Germany
- Explain the impact of the Holocaust on survivors



Retrieval Practice

Questions	Answers
What is Antisemitism?	Hatred towards Jewish people
What does persecution mean?	Punishment or harassment usually of a severe nature based on race, religion, or political opinion in one's country of origin.
Where were some of the Jewish people forced to live?	Some Jews were forced by the Nazis to live in Ghettos.
What did Hitler blame the Jewish people for?	Making Germany weak and losing World War 1
What happened in Germany on 9th November 1938	Kristallnacht (<i>Night of Broken Glass</i>) - gangs smashed and burned Jewish homes, businesses & synagogues all over Germany and attacked Jews. Many Jews were killed and 20,000 arrested and sent to concentration camps.
Which other groups of people were persecuted in Nazi Germany?	Russian prisoners, homosexuals, communists, gypsies and the mentally and physically disabled

Career Focus - Where could this take you?



I am a Historical researcher. I study past events, people, policies and documents to gain an in-dept understanding of their significance and impact on modern and future societies. Examining primary and secondary sources is an essential part of a historical researcher, as well as knowing and understanding peoples' beliefs and views.

Challenge Activities



- Explain in your own words, the history of Judaism that led to antisemitic attacks.
- Research how the holocaust has affected many Jews in the world today.

Topic Links

This topic links to other RE topics such as

- Judaism

This topic links with other subjects such as:

- History

We will also be practising how to

- Argue a point and practise our Voice 21
- Participate in debates
- Write PEE sentences/how to answer exam questions


Additional Resources

To further practise and develop your knowledge see:

<https://www.bbc.co.uk/newsround/29363650>

<https://www.bbc.co.uk/bitesize/topics/znwhfg8/articles/z4vvhv>







<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

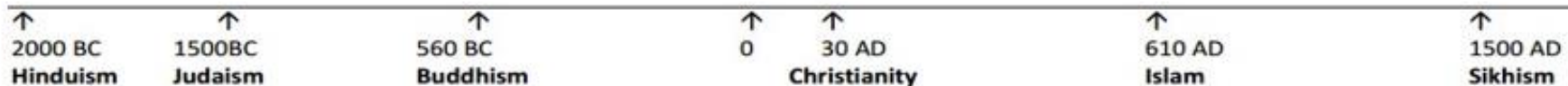
Atheist = Someone that doesn't believe in God

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.

- Consolidate conjugation of future tense and time phrases
- Describe a day out in the near future
- Take part in a short conversation, asking and answering questions.
- Identify key information from a longer text containing two time-frames.
- Identify key information from a longer passage containing two time-frames

Keyword	Definition
Qu'est-ce que tu veux faire comme métier?	What do you want to do as a job?
Je veux être.....	<i>I want to be.....</i>
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.....
Qu'est-ce que tu veux faire à l'âge de seize ans.	What do you want to do when you are 16?
Je vais me marier	I am going to get married.
Je vais acheter une maison	I am going to buy a big house.
Je ne vais pas être riche.	I am not going to be rich
Pourquoi?	Why?
Pourquoi pas?	Why not?
Ce sera comment?	What will it be like?
À mon avis, ce sera	In my opinion it will be

Essential Vocabulary, grammar and phonics.

Qu'est-ce que tu veux faire comme métier?

<p>Je veux être ...</p> <p>scientifique.</p> <p>pilote.</p> <p>ingénieur/ingénieure.</p> <p>danseur/danseuse.</p> <p>acteur/actrice.</p> <p>dessinateur/dessinatrice.</p> <p>infirmier/infirmière.</p> <p>policier/policière.</p> <p>mécanicien/mécanicienne.</p>	<p><i>I want to be a(n) ...</i></p> <p><i>scientist.</i></p> <p><i>pilot.</i></p> <p><i>engineer.</i></p> <p><i>dancer.</i></p> <p><i>actor/actress.</i></p> <p><i>designer.</i></p> <p><i>nurse.</i></p> <p><i>police officer.</i></p> <p><i>mechanic.</i></p>
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Qu'est-ce que tu veux faire à l'âge de 16 ans?

À l'âge de 16 ans, je veux ... *At the age of 16, I want ...*

rester à l'école. *to stay at school.*

étudier les sciences. *to study science.*

étudier les maths. *to study maths.*

étudier le dessin. *to study art.*

étudier les langues. *to study languages.*

trouver un petit boulot. *to find a part-time job.*


aller au lycée. *to go to sixth form college.*

faire un apprentissage. *to do an apprenticeship.*

faire du travail bénévole. *to do voluntary work.*

travailler en équipe. *to work in a team.*

travailler avec des personnes âgées. *to work with elderly people.*




QU – qu'est-ce que


quatre

4

musique




équipe



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

<p>Je vais habiter ... à l'étranger.</p> <p>Je vais acheter ... une grande maison.</p> <p>Je vais acheter ... une Ferrari rouge.</p> <p>Je vais être ... célèbre.</p> <p>Je vais être ... heureux/heureuse.</p> <p>Je vais avoir ... cinq enfants.</p> <p>Je vais aller ... à New York.</p> <p>Je vais aller ... en Chine.</p> <p>Je vais faire du travail bénévole.</p> <p>à l'avenir dans dix ans</p> <p>dans vingt-cinq ans</p> <p>Ce sera ... cool / fantastique.</p>	<p><i>I am going to live ... abroad.</i></p> <p><i>I am going to buy ... a big house.</i></p> <p><i>I am going to buy ... a red Ferrari.</i></p> <p><i>I am going to be ... famous.</i></p> <p><i>I am going to be ... happy.</i></p> <p><i>I am going to have ... five children.</i></p> <p><i>I am going to go ... to New York.</i></p> <p><i>I am going to go ... to China.</i></p> <p><i>I am going to do voluntary work.</i></p> <p><i>in the future</i></p> <p><i>in 10 years</i></p> <p><i>in 25 years</i></p> <p><i>It will be ... cool / fantastic.</i></p>
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- Consolidate conjugation of future tense and time phrases
- Describe a day out in the near future
- Take part in a short conversation, asking and answering questions.
- Identify key information from a longer text containing two time-frames.
- Identify key information from a longer passage containing two time-frames

Retrieval Practice 	
Questions	Answers
Qu'est-ce que tu veux faire comme métier?	<u>Je ne sais pas exactement. Je veux être acteur mais c'est difficile. Aussi je veux être pilote.</u>
Qu'est-ce que tu vas faire à l'avenir?	<u>Dans dix ans je vais habiter à New York. Je vais acheter une grande maison.</u> <u>Dans vingt ans je vais avoir deux enfants.</u>
Ce sera comment?	<u>Je crois que ce sera formidable.</u>
Qu'est-ce que tu veux faire à l'âge de seize ans.	<u>Je veux étudier les maths et l'anglais</u>
Pourquoi?	À mon avis, ce sera formidable car j'aime l'anglais.
Qu'est-ce que tu ne veux pas faire à l'âge de seize ans.	<u>Je ne veux pas trouver un petit boulot.</u>
Pourquoi pas?	Personnellement <u>je n'aime pas travailler. Je préfère regarder la télé.</u>

Career Focus - Where could this take you?



I am a language specialist in business. I work for a multinational company that requires me to communicate with French-speaking clients and manage French-language documents

Challenge Activities

1. Research some careers where Languages are important. Make a fact file. Which of these are you interested in?
2. Create a plan for the future. This could be next year, in 5 years' time or for when you are 50!
3. Complete the activities on sentencebuilders.com

Topic Links

This topic links to:

- Sports and leisure.
- All about me.
- Expressing future plans for a concert.
- Expressing future career plans.

Additional Resources

To further practise and develop your knowledge see:

- Sentencebuilders.com
 - Active learn.
- Look in Teams to find your logins.

PERFECT TENSE ("has done/did")

Start with the present tense of *avoir/être*, then add the past participle of the second verb:

-er	-ir	-re
Remove -er Add -é	Remove -r	Remove -re Add -u
jouer → (j'ai) joué	finir → (j'ai) fini	vendre → (j'ai) vendu

VERBS USING ÊTRE e.g. je suis allé(e)

*monter entrer sortir venir aller naître
partir descendre arriver tomber rester
mourir retourner (and all reflexive verbs)*

The past participle for these verbs must agree with the subject in gender and number:

*je suis allé (m) je suis tombée (f)
on est entrés (mpl) on est entrées (fpl)*

PRESENT TENSE ("does/is doing")

Remove the *-er/-ir/-re* and add these endings:

	jouer	finir	vendre
je	joue	finis	vends
tu	joues	finis	vends
il/elle/on	joue	finit	vend
nous	jouons	finissons	vendons
vous	jouez	finissez	vendez
ils/elles	jouent	finissent	vendent

ÊTRE

je suis / tu es / il est / nous sommes / vous êtes / ils sont

AVOIR

j'ai / tu as / il a / nous avons / vous avez / ils ont

SIMPLE FUTURE TENSE ("will/shall do")

Add these endings to the infinitive:

	jouer	finir	vend r
je	jouera i	finira i	vendra i
tu	jouera s	finira s	vendra s
il/elle/on	jouera	finira	vendra
nous	jouer ons	finir ons	vendr ons
vous	jouerez	finirez	vendrez
ils/elles	jouer ont	finir ont	vendr ont

IRREGULAR STEMS

*être (ser-) avoir (aur-) faire (fer-)
venir (viendr-) savoir (saur-) aller (ir-)
devoir (devr-) pouvoir (pourr-) voir (verr-)*

Negatives

Most negatives work like *ne...pas* (not). They are in two parts and go around the verb:

- ne...rien* (nothing)
- ne...jamais* (never)
- ne...plus* (no longer, not anymore)

With *il y a* (there is/are), the negatives go around *y a* and *ne* shortens to *n'*:

Il n'y a rien à faire. (There is nothing to do.)

Il n'y a jamais de bus. (There are never any buses.)

Il n'y a plus de magasins. (There are no longer any shops.)

Sequencers (narrative words)

d'abord firstly/first of all
ensuite next
puis then
après after/afterwards
finalement finally

Connectives

et and **mais** but
ou or **où** where
parce que because
donc/alors therefore/so
cependant however
car as (because)
puisque since (because)

Present vs. imperfect

il y a (there is)
il y avait (there was)
c'est (it is)
c'était (it was)

IMPERFECT TENSE ("was doing/used to do")

Remove *-ons* from the *nous* form of the present tense, add these endings (*ais/ais/ait/ions/iez/aient*)

	jouer	finir	vendre
je	jouais	finissais	vendais
tu	jouais	finissais	vendais
il/elle/on	jouait	finissait	vendait
nous	jouions	finissions	vendions
vous	jouiez	finissiez	vendiez
ils/elles	jouaient	finissaient	vendaient

NEAR FUTURE TENSE ("is going to do")

Use the present tense of *aller* followed by the infinitive:

	je	vais	
	tu	vas	jouer finir vendre être aller vouloir etc.
il/elle/on	va		
nous	allons		
vous	allez		
ils/elles	vont		

CONDITIONAL TENSE ("would do")

Begin with the future stem, add imperfect endings:

	jouer	finir	vend r
je	jouera is	finira is	vendra is
tu	jouera is	finira is	vendra is
il/elle/on	jouera it	finira it	vendra it
nous	jouera ions	finira ions	vendra ions
vous	jouera iez	finira iez	vendra iez
ils/elles	jouera ient	finira ient	vendra ient

IRREGULAR STEMS

Same as for the simple future

EXTRA MARKS: USE WITH THE IMPERFECT TENSE

Si j'avais le temps, j'irais... (If I had time, I'd go to...)

PLUPERFECT TENSE ("had done")

Very similar to the perfect tense, except you start with the *imperfect* tense of auxiliary verbs *avoir/être*:
e.g. *j'avais joué, il avait fini, nous étions allés, elles s'étaient brossées les dents*

1st step - Description

To start off:

Sur l'image/la photo	In the image/the photo
Il y a	There is/ are
Je vois / On peut voir	I see / We can see
La photo montre	The photo shows
Le scène se passe	The scene takes place

2nd step - Opinions

Hypothesis:

Ils/Elles ont l'air	They seem
Il/Elle a l'air	He/She seems
Ça/Il a l'air	It looks like
Peut-être	Maybe
Ça semble être	It seems to be

Locating:

Au premier plan	In the foreground
À l'arrière plan	In the background
À gauche/ à droite	To the left/to the right
Près de..	Close to
Devant/Derrière..	In front of/At the back
Au milieu..	In the middle

Say what you think about the photo

Je crois que...	Je suppose que...
I think that...	I suppose that...
Je pense que...	Il me semble que...
I think that...	It seems to me that...
Je dirais que...	Cela me rappelle...
I would say that...	It reminds me of...

Décrire
une
photo

Remember to mention the 4 Ws

Where/Où	When/Quand	Who/Qui	What/Quoi
<ul style="list-style-type: none"> • À l'école • Dans la rue • À la montagne • Au bord de mer • À l'intérieur • À l'extérieur • En ville 	<p><u>Weather</u></p> <ul style="list-style-type: none"> • Il fait beau • Il pleut • Il y a du soleil <p><u>Moment</u></p> <ul style="list-style-type: none"> • Le soir • Le midi • Pendant 	<ul style="list-style-type: none"> • Une famille • Des enfants • Beaucoup de monde • Quelques personnes • Des arbres • Des bâtiments 	<ul style="list-style-type: none"> • Ils/Elles sont en train de: parler, manger, faire la fête, rigoler, s'amuser, recycler, apprendre, faire du sport, jouer, bronzer...

J'aime
cette
photo

- parce que les gens ont l'air heureux/drôles...
- car j'adore la plage, la montagne, les festivals...
- j'aimerais faire partie de la scène pour...

Je n'aime
pas cette
photo

- parce que la météo n'est pas à mon goût
- car je n'aime pas les activités, je préfère...
- Je ne voudrais pas participer à la photo car...



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 and design techniques by creating a detailed moodboard and storyboard
 - Demonstrate knowledge of using MS PowerPoint by developing a professional looking website

- Demonstrate knowledge of testing techniques by completing a testing table document
- Apply knowledge from this unit to accurately describe some keywords

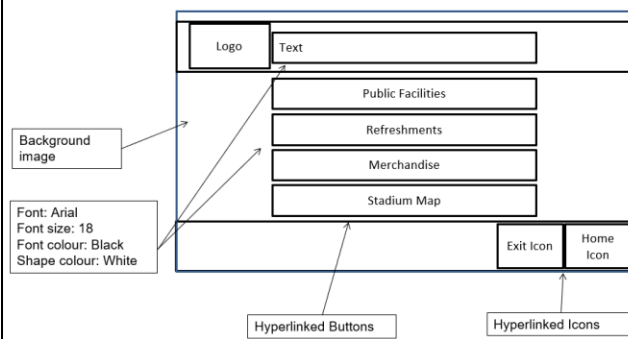
Keyword	Definition
User Interface (UI)	The method in which a person controls and interacts with a software application or hardware device
Mock-up	A realistic representation or a visual draft of the design of a digital product e.g. app, website...
Mood board	A 'collage' of design ideas, colours or other inspirations used to show the thinking towards a design task
Storyboard	A graphical representation of the main sequence of steps/screens that users will use on an interface
Project Requirements	The features, functions, and tasks that need to be completed for a project to be deemed successful
House Style	A company's preferred manner of presentation and layout of written or digital material
Master Slide	A feature in Microsoft PowerPoint that helps you create a template design that can be applied across the whole document.
Hyperlink	An object (word, shape or image) that you can click on to jump to a new section within the current document or to a brand new document
Professional Design	A design that aims to follow industry standards or rules to replicate the design quality or style of something that has been created by a professional

Key Concepts

Colour Attributes

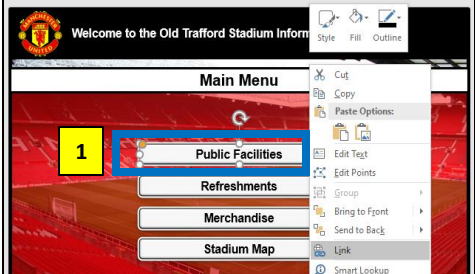
	Action Strength Passion	Stability Trust Loyalty	Natural Energetic Wealth	Optimistic Warm Eye-catching	Vibrant Creative Healthy	Luxurious Mysterious Unique
POSITIVE	● Red	● Blue	● Green	● Yellow	● Orange	● Purple
NEGATIVE	Aggression Danger Financial loss	Conventional Boring Cold	Envy Sickness Inexperience	Cowardice Warning Toxicity	Frivolous Cautionary Overbearing	Unnatural Egotistical Impractical

Example Storyboard



How to create Hyperlinks

1) Right click on button > Link

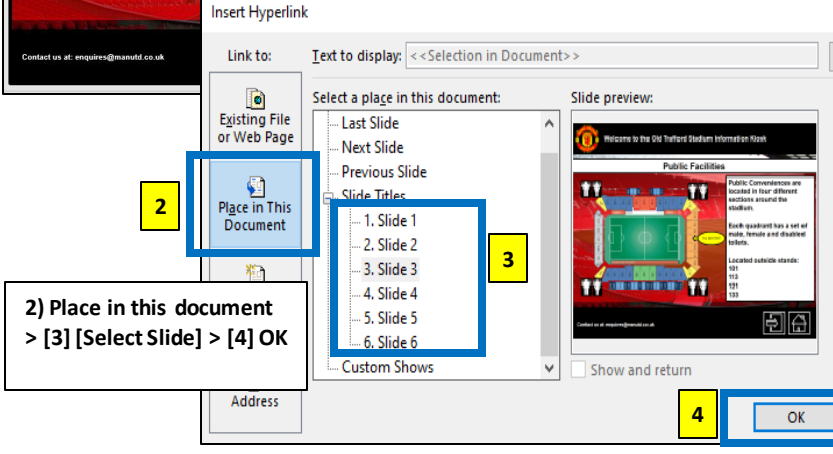


Applying the Master Slide to the document

2) Place in this document > [3] [Select Slide] > [4] OK

How to create Hyperlinks


1) Right click on button > Link





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

- Demonstrate knowledge of planning and design techniques by creating a detailed moodboard and storyboard
- Demonstrate knowledge of using MS PowerPoint by developing a professional looking website
- Demonstrate knowledge of testing techniques by completing a testing table document
- Apply knowledge from this unit to accurately describe some keywords

Retrieval Practice 	
Questions	Answers
What is a 'User Interface' and what is the purpose of it?	A user interface, also called a "UI", is the method in which a person controls and interacts with a software application or hardware device. The UI acts as the layer between the software and the computer hardware – most software will be unusable without a UI.
Why is it important to carefully consider the use of a colour when designing a user interface?	Colour can speak, as powerful as language. It is the visual appearance, which largely depends on colour, that always leaves you the very first impression.
Which details do you need to include on a 'Storyboard' design?	A storyboard must include the following: Details such as font name, font size, font colour, shape colour, logo position, text box position and positioning of other objects.
What are you able to do using the 'Slide Master' tool in MS PowerPoint?	In MS PowerPoint, a Slide Master is a feature that allows you to create master templates (or master slides). One template design can be applied to slides within the document – this reduces interface development time and allows the designer to develop a clear house style.
Which features and tools in MS PowerPoint are useful when developing a user interface?	Some useful features and tools are: <ul style="list-style-type: none"> • Slide Master – to create template designs • Hyperlinks – to create a navigation bar and other interactive buttons • Drawing tools e.g. Shape -Fill, -Outline, -Effects... • Arrange tool – for layering of objects (sent to front and send to back) • Text boxes – add content on each slide • Insert Online Pictures tool – to insert images from the web
Explain what a 'Hyperlink' allows you to do and how you could it on your user interface?	A hyperlink is an object (word, shape or image) that you can click on to jump to a new section within the current document or to a brand-new document. They allow users to click their way from page to page.
What is the purpose of testing a digital product or interface?	There are many benefits to testing a digital product or interface: <ul style="list-style-type: none"> • Refines the whole product before release • It reduces development and maintenance costs • Provides better usability and enhanced functionality • Reduces the number of 'bugs' or errors • Creates a positive impression of you/ your company

Career Focus - Where could this take you?



In my role as a **User experience (UX) designer** I create accessible, aesthetically appealing and meaningful physical and digital products that people find enjoyable to use. It is about understanding users' emotions and feelings to make sure they continue to come back to the product.

Challenge Activities

1. Create a professionally designed and formatted questionnaire or survey to gather feedback for the user interface. Include questions that clearly check if you have met the requirements of the project. Use the feedback to make improvements to your user interface.
2. Create a tutorial video or document to explain how to create an interactive user interface using MS PowerPoint. Make sure it includes a step-by-step breakdown of each task.
3. Do some research on the internet to find out which other pieces of software can be used to create a user interface. Create a table which compares the features, tools and functionality of each piece of software and then decide which software you think is the most appropriate to use to create a most professional looking user interface.

Topic Links

This topic links to:
Computing Curriculum:

- Design, use and evaluate computational abstractions that model the state and behaviour of real-world problems and physical systems
- Create and re-purpose digital artefacts for a given audience, with attention to trustworthiness and usability
- Art and design (creative design, colour schemes etc..)
- English (appropriate language for a target audience)

Additional Resources

To further practise and develop your knowledge see:

- Colour scheme designer: <https://paletton.com/>
- Master Slide Tutorial: <youtu.be/bDk7z0mYmeE>
- Hyperlinks Tutorial <youtu.be/bYkUuaA63vc>



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.

- The aims of the sequence of learning are to ensure that all students:
- Will have an understanding of what happened to the Aztec Empire
 - Will develop their observational drawing skills
 - Will be able to describe the characteristics of Aztec textile designs

- Understand how to produce a relief printing block
- Be able to produce a mixed media background
- Will produce a repeat print of an Aztec symbol
- Will be able to talk about their work using subject specific language

Keyword	Definition
Aztecs	The Aztecs were a Mesoamerican culture that flourished in central Mexico in the post-classic period from 1300 to 1521.
Polytheist	Someone who believes in many Gods.
Belief	Trust, faith or confidence in someone or something.
Symbol	A mark or character used to represent an object, function, or process.
Textile	Any fabric or cloth.
Geometric	Characterised by or decorated with regular lines and shapes.
Poly printing	A method of relief printing that doesn't use sharp tools.
Repetition	The act of doing, saying or writing something again.
Mixed media	In visual art, mixed media describes artwork in which more than one medium or material has been employed.

Key Concepts



THE GODS OF THE AZTECS





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

- Will have an understanding of what happened to the Aztec Empire
- Will develop their observational drawing skills
- Will be able to describe the characteristics of Aztec textile designs

• Understand how to produce a relief printing block

- Be able to produce a mixed media background
- Will produce a repeat print of an Aztec symbol
- Will be able to talk about their work using subject specific language



Retrieval Practice

Questions	Answers
Where did the Aztecs live?	The Aztecs were the Native American people who dominated northern Mexico at the time of the Spanish conquest in the early 16th century. A nomadic culture, the Aztecs eventually settled on several small islands in Lake Texcoco where, in 1325, they founded the town of Tenochtitlan, modern-day Mexico City.
What food products did the Aztecs introduce to the Spanish?	Corn, tomatoes, chocolate and vanilla.
Name 3 man-made structures the Aztecs introduced to the Spanish.	Suspension bridges, pyramids, sewage system.
What is relief printing?	A printing methods where a printing block which has had ink applied to its non-recessed surface, is brought into contact with paper. The non-recessed surface will leave ink on the paper, whereas the recessed areas will not.
Why should you do a test print?	Doing a test print means you have the chance to make sure that your printing block is as you want it to be, and that the ink is loaded enough to leave a good print.
Why does your mixed media background need to be flat?	So that your printing block will make contact with the surface of the paper and leave a perfect print.



Career Focus - Where could this take you?



My job is a textile technician. I make sure the machines and equipment that are used to produce textiles in factories are operating correctly, minimising interruption in production and ensuring people can work safely on the machines.



Challenge Activities

Make an Aztec inspired relief painting.

[Art Attack! - Time Travel - Aztec Art! - Disney Junior UK HD - YouTube](#)

Make an Aztec symbol/God weaving.

[Aztec Suns | theMESSYartroom \(wordpress.com\)](#)



Topic Links



This topic links to:

- History – Spanish conquest of the Aztec Empire.
- Geography – Location of the Aztec and Mayan Empires.
- Mathematics – geometric shapes.

Additional Resources



To further practise and develop your knowledge see:

- [How Hernán Cortés Conquered the Aztec Empire | HISTORY](#)
- [See How Indigenous Weaving Styles Are Preserved in Guatemala | National Geographic - YouTube](#)



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

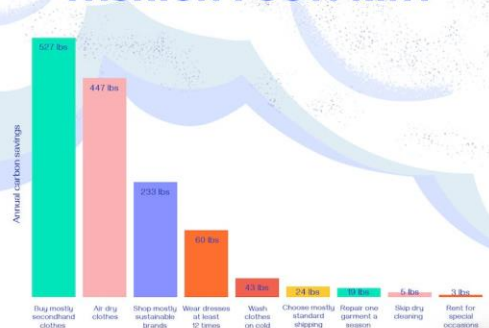
- Demonstrate safe use of tools and equipment.
- Explain a range of Decorative Techniques
- Rank Smart Fibres in order of environmental impact.

- Annotated a range of design ideas which include moral and cultural issues.
- Demonstrate an understanding of smart materials.

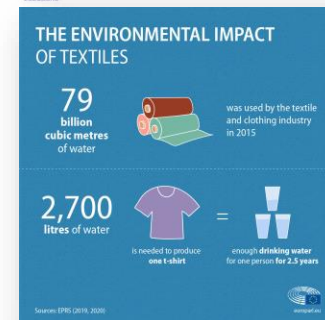
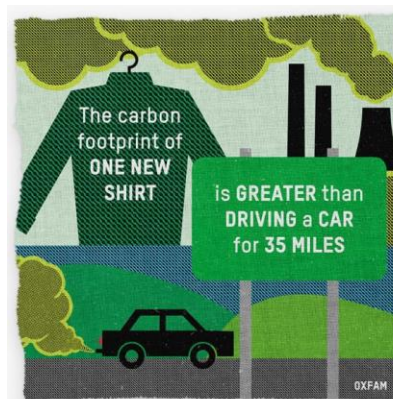
Keyword	Definition
Corrugated	Describing a series of parallel ridges and furrows
Fabric	Cloth or other material produced by weaving or knitting fibres.
Synthetic	Made by chemical synthesis, especially to imitate a natural product.
Smart Fibres	Smart fibres and structures can be defined as materials and 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

HOW TO REDUCE YOUR FASHION FOOTPRINT



Some manufacturers are also working on ways to reduce the environmental impact from the production of their jeans, while others have been developing ways of recycling denim or even jeans that will decompose within a few months when composted.



SMART FIBRES

Antimicrobial Nano Silver	Micro Encapsulated	Thermochromic	Kevlar	Photochromic

ACCESS FM

- A AESTHETICS**
 - 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 COST**
 - IS IT AFFORDABLE TO YOUR CUSTOMER? WILL IT MAKE A PROFIT?
 - IS IT VALUE FOR MONEY?
 - HOW MUCH DOES IT COST?
- C CUSTOMER**
 - 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 ENVIRONMENT**
 - 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 SAFETY**
 - 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 SIZE**
 - 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 FUNCTION**
 - 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 MATERIALS**
 - 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?

- Demonstrate safe use of tools and equipment.
- Explain a range of Decorative Techniques
- Rank Smart Fibres in order of environmental impact.

- Annotate a range of design ideas which include moral and cultural issues.
- Demonstrate an understanding of smart materials.

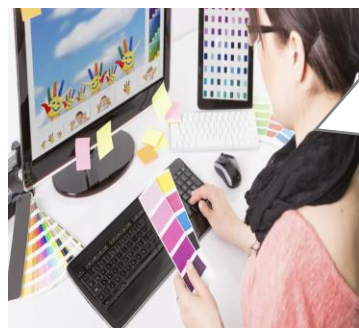
Retrieval Practice



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.

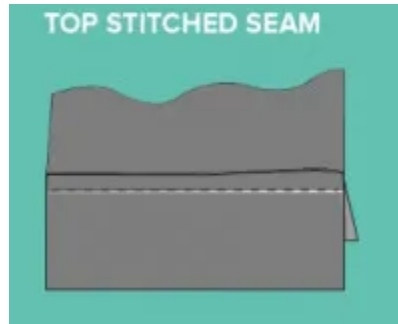
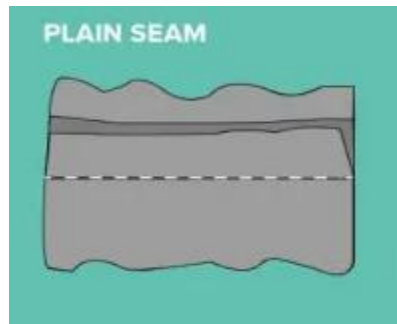
Huddersfield University offer an BA Hons degree in Graphics Design, and you will need 5 GCSE grades 5 and above and a higher-level certificate in the subject.

Salaries usually range from £45,000 - £67,000

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](#)

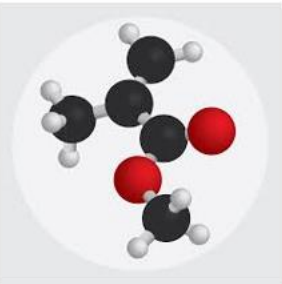
[Heat Transfer Printing | textile art | 열전사염 | Basic Part III - YouTube](#)

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</u> peripherals.
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>

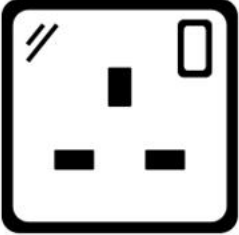
Key Concepts




Polythene



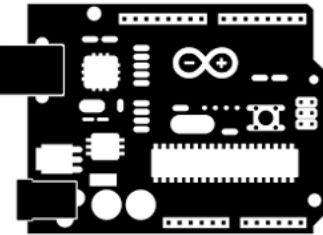
Acrylic




ABS




Vacuum Former




Microcontroller



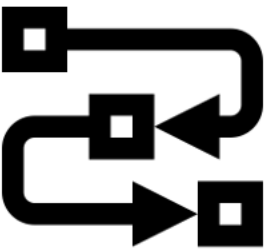
Switch




LED




Resistor




Process



Health & Safety



Time Constraints



Modifications

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

- Demonstrate safe use of tools and equipment.
- Explain a range of material properties and end uses.
- Rank materials in order of environmental impact.

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



Architects are responsible for designing buildings that meet the needs of their clients and comply with local building codes. Architects work with clients and other professionals to develop project plans that outline the scope, budget, and timeline for the project

Huddersfield University offer an Architectural Technology BSc(Hons) and you will need 5 GCSE grades 5 and above and a higher-level certificate in the subject.

Salaries usually range from £21,000-£80,000

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



HDPE
PTE
Poly Propylene

Topic Links Additional Resources

This topic links to:


- Science- The creation of Plastics.
- English- Subject specific Vocabulary knowledge, understanding and spelling.
- Maths- Measurements and scales of productions.

To further practise and develop your knowledge see:

<https://youtu.be/iO3SA4YyFYU>

https://youtu.be/_6xINyWPpB8

<https://youtu.be/eISJ33Scnrc>

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.

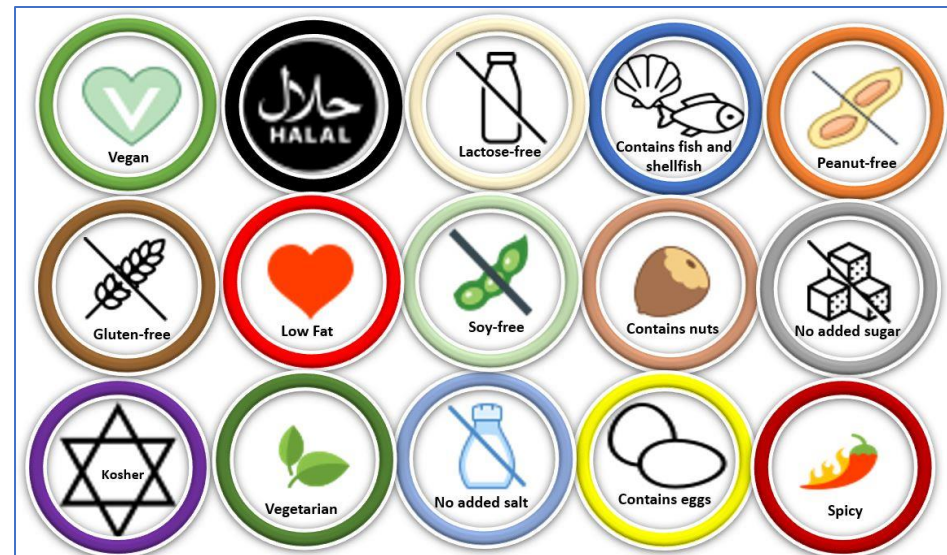
[Food Standards Act 1999](#)

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



Chocolate Brownies



Ingredients

- 170 grams Margarine or butter
- 200 grams Dark chocolate
- 100 grams Self Raising flour
- 250 grams Sugar
- 2 large eggs
- Optional nuts, marshmallows, biscuits, cream eggs

*** **Oven proof dish** ***

Equipment:

- 2 bowls
- Square tin
- Wooden spoon
- Spatula
- Cooling tray



Method

- Pre-heat oven to 180 degrees
- Grab 2 bowls
- Grease and line a square tin. See Demo
- Melt the butter and the chocolate in the microwave for 30 seconds at a time until melted, beat with a wooden spoon.
- Leave to cool while you prepare the other ingredients.
- In a bowl add the sugar and eggs. Beat together.
- Fold in the cooled chocolate mixture.
- Add the flour
- Pour into the tin and bake for 30 minutes. They should still be soft in the centre.
- Turn out onto a cooling tray.



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 different 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.

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 below:

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

Food skills are acquired, developed and secured over time

Bridge hold

Claw grip

Topic Links



This topic links to:

- Mathematics - use standard units of mass, length, time, other measures
- Science: Nutrition and digestion
- Physical health and fitness - The characteristics and mental and physical benefits of an active lifestyle.

Additional Resources



To further practise and develop your knowledge see:
[Eat well guide Quiz](#)
[Eat well guide](#)
[Eat well video resource](#)

Beef burgers

Serves 4 people



Equipment:

- Mixing bowl
- Fork
- Brown chopping board
- Green chopping board
- 2 x Sharp knife
- Butter knife

Ingredients:

- 500g lean minced beef
- 1 onion, finely chopped
- 1 tbsp mustard
- 1 medium egg
- 1 tbsp olive oil
- Salt and freshly ground black pepper

To serve the burger (optional):

- 4 slices mature Cheddar cheese
- 2 tbsp mayonnaise
- ¼ iceberg lettuce, shredded
- 4 ciabatta or ordinary bread rolls
- 1 small red onion, thinly sliced
- 1 large tomato, sliced.

Cooking methods:




- Shallow frying and baking

Method:




1. Preheat your oven to 180°C
2. Chop your onion very finely.
3. Place all the burger ingredients in a mixing bowl and mix thoroughly with a fork (or with your clean hands) to combine. Using your hands, shape the mixture into four equal-sized balls and then squash down to create a burger shape.
4. Put a small amount of oil in the frying pan and wait for it to heat (moderate/high). Carefully add your burgers, turn down the heat slightly and turn every 1-2 minutes so that they do not burn, up to 10 minutes.
5. Finally, carefully put your burgers onto a baking sheet and into the oven for 10 minutes to cook through.
6. Check that they are cooked through with the temperature probe

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. Peeling.
3.	Preparing fruit and vegetables: I can prepare fruit and vegetables in many different 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

KITCHEN CONVERSIONS						
SPOONS & CUPS						
TSP	TBSP	FLOZ	CUP	PINT	QUART	GALLON
3	1	1/2	1/16	1/32	-	-
6	2	1	1/8	1/16	1/32	-
12	4	2	1/4	1/8	1/16	-
18	6	3	3/8	-	-	-
24	8	4	1/2	1/4	1/8	1/32
36	12	6	3/4	-	-	-
48	16	8	1	1/2	1/4	1/16
96	32	16	1	1	1/2	1/8
-	64	32	4	2	1	1/4
-	256	128	16	8	4	1

		
TABLESPOON 15 ML	DESSERTSPOON 10 ML	TEASPOON 5 ML


MILLILITERS				GRAMS		
OZ	ML	CUP	ML	OZ	G	LB
2	60	1/4	60	2	58	-
4	115	1/2	120	4	114	-
6	150	2/3	160	6	170	-
8	230	2/4	180	8	225	1/2
10	285	1	240	12	340	-
12	340	2	480	16	454	1

		
FLOUR 32g SUGAR 50g BUTTER 55g	FLOUR 64g SUGAR 100g BUTTER 112g	FLOUR 125g SUGAR 200g BUTTER 225g

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

- Learn to perform a range of film music, developing performance skills
- Listen with discrimination to film music and be able to recognise a range of composing devices

- Compose music suitable for a scene, that uses a range of musical devices
- Use audio software to edit and enhance compositions

Retrieval Practice 	
Questions	Answers
What is an ostinato and why is it effective in film music?	An ostinato is a repeated pattern. It can be rhythmic or melodic. They help to build up suspense.
What is the difference between major, minor and discordant chords?	Major chords sounds pleasing and happy. Minor chords sound sad and reflective. Discords create a clash and sound nasty, and scary.
What composing devices might you use to create a spooky scene?	An ostinato, the chromatic scale and/or a pedal note
What instrumentation would be effective for a scene about grief, emotion and loss?	Strings, harp or woodwind
How would you play a chromatic scale on the piano?	You would move from white key to black, using your thumb and middle finger
What is the device pedal note used for	It is a long held and it can make the audience feel tense and uneasy.
Name three film composers and the films that they have written music for.	There are lots to choose from!

Career Focus - Where could this take you?



I am a composer for film and TV programmes. I write in a variety of different styles to suit the job that I am commissioned to do. I use a range of musical skills but mostly my keyboard and music technology skills are used. Sometimes I work with other musicians, and film directors and producers. I have an excellent understanding of composing devices and how musical cliches work.

Challenge Activities

- Music in a film is there to set the scene, enhance the mood, tell the audience things that the visuals cannot, or manipulate their feelings. Sound effects are not music!
- Some music is composed specially for a film (original). Much of this is broadly classical in style
- Some music used in film soundtracks was composed for other (non-film) purposes but is adopted for use in a film because it fits the film-maker's intentions.
- Watch a film and think about what mood the music is creating. What musical devices can you recognise?

Topic Links

Drama – actors and directors on stage have to think about the music they will use to support their action
History – very often, film music helps to set the time or age of a film. Watch a film from a different time period and think about how the music reflects that
Computing – in Computing you will learn to edit sound and moving image, which is a transferable skill to music

Composers to have a listen to...

- James Horner
- Danny Elfman
- Thomas Newman
- Rachel Portman
- Ennio Morricone
- John Barry

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

- Learn to perform a range of film music, developing performance skills
- Listen with discrimination to film music and be able to recognise a range of composing devices
- Compose music suitable for a scene, that uses a range of musical devices
- Use audio software to edit and enhance compositions

Keyword	Definition
Dynamics	How loud or quiet the music is and how it changes - suddenly or gradually
Tempo	How fast or slow the music is and how it changes - suddenly or gradually
Texture	The layers of sounds/instruments – thick or thin
Attack and Decay	How the sounds start and stop – fading in and out or attacking suddenly
Pitch	How high or low the music is
Instrumentation	The instruments that are used
Ostinato	An idea that repeats again and again
Pedal Note	A long, held note
Discord	A clashing chord – usually sounds quite nasty
Major	A happy and bright sounding chord
Minor	A sad and sombre sounding chord
Chromatic Scale	Moving by semitones

Key Concepts

“Pirates of The Caribbean Theme” by Hans Zimmer
Opening Rhythmic Ostinato




Ostinatos are musical ideas that repeat – they are used in music to drive tension, create suspense and to help us respond to characters



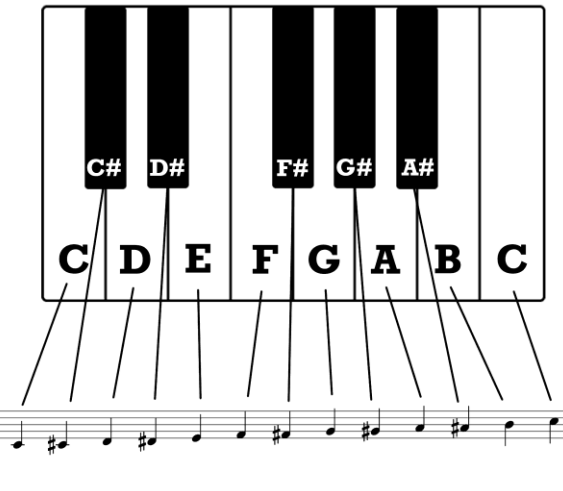
A **pedal note** (or pedal point) is a long held note that often has other musical ideas happening at the same time. It is a Clever way to make a scene more tense

The **chromatic scale** is where we move by semitones. On the piano, this is from white key to black key. This creates a really spooky sound

Instrumentation is how we use musical instruments to create associations with feelings or events or stories. These are called musical cliches. Examples are:

Woodwind	Natural sounds such as bird songs, animals, rivers etc
Bassoon	Sometimes for comin effect (eg. A drunk person)
Brass	Soldiers, war, royalty, ceremonial occasions
Tuba	Large and slow moving things
Harp	Tenderness, love
Glockenspiel	Magic, music boxes, fairytales
Timpani/Drums	War, fighting, thunder
Strings	Used to portray emotions, passion, grief etc
Tremelo strings	Tension, fear, drama

A **discord** is a chord where the notes clash. This is usually because the notes are very close together, in a cluster

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

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

Table Tennis

Ready Position

Players should always be in the ready position before receiving the ball.

- Knees bent
- Feet shoulder width apart
- Feet shoulder width apart
- Racket should be level with the table and in front of body



Forehand Drive

- Ready position
- Controlled backswing, with striking arm opening up extending outwards
- Positive forward movement, arm moves forward and weight transfers from right to left foot
- Strike the ball on top of the bounce
- Follow through the shot, moving upwards and finishes in line with your nose

Backhand push

- Ready position
- Controlled backswing so your elbow bends inwards towards chest (making an L shape)
- Forward movement comes from the elbow making contact underneath the ball
- Finish by extending your arm in the follow through (changing from an L shape to a I shape)

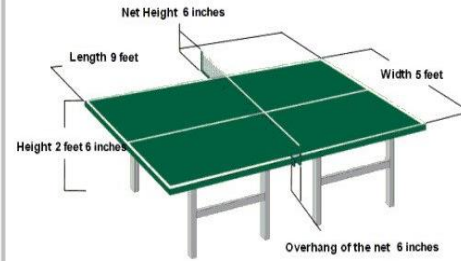
Backhand serve

- Ready position
- The ball rests in the palm of the resting hand
- Arm moves back towards chest
- Toss the ball up (at least 15cm)
- Forward movement comes from the elbow making contact down on the ball so it bounces on your half of the table first
- Head should be over the ball when making contact
- Follow through by returning to the ready position

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.



Badminton

The aim of badminton is to hit the shuttle with your racket so that it passes over the net and lands inside your opponent's half of the court. Whenever you do this, you have won a rally; win enough rallies, and you win the match.

Your opponent has the same goal. He will try to reach the shuttle and send it back into your half of the court. You can also win rallies from your opponent's mistakes: if he hits the shuttle into or under the net, or out of court, then you win the rally.

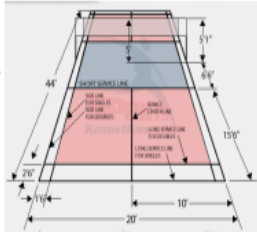
Scoring

A point is scored when you successfully hit the shuttlecock over the net and land it in your opponent's court before they hit it. A point can also be gained when your opponent hits the shuttlecock into either the net or outside the parameters


To win a game you must reach 21 points before your opponent. If you do so then you will have won that set. If the scores are tied at 20-20 then it comes down to whichever player manages to get two clear points ahead. If the points are still tied at 29-29 then the next point will decide the winner of the set. Winning the overall game will require you to win 2 out of the 3 sets played.

The Court

The overall dimensions of a badminton court is 20 feet by 44 feet. The lines along these measurements mark the side-lines for doubles play and long service lines for singles play. The net line marks the middle of the court where the net is placed, creating a 22 feet by 20 feet area on each side of the net. The badminton net measures 5 feet tall in the centre.



- 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. 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 sports sales executive. I have a degree in Sports Science Technology. A sports sales executive is a sales professional who specialises in sports sales. My responsibilities include persuading people to buy our products, negotiating sales prices, presenting to clients and meeting sales targets.

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 can:

- demonstrate the set up, completion and interpretation of fitness tests.
- understand the components of fitness and how they can be trained
- Identify which components of fitness are important to specific types of athlete.

- complete training sessions to train specific components of fitness.
- understand how to live a healthy, active lifestyle.

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

Health and Fitness Key Concepts

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.



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.

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

- demonstrate the set up, completion and interpretation of fitness tests.
- understand the components of fitness and how they can be trained
- Identify which components of fitness are important to specific types of athlete.

- complete training sessions to train specific components of fitness.
- understand how to live a healthy, active lifestyle.



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?



I am a gym fitness technician. I 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

Additional Resources

- 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

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

Username and Passwords
