

Year 9 Homework Booklet

Learning Cycle 3



*“Knowledge is power.
Information is liberating.
Education is the premise of
progress, in every society,
in every family”*

Nelson Mandela

Name

Tutor

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Homework Timetable

It is expected that you complete one full page in your workbook as a minimum. Students should spend around 20 minutes on homework for each subject. Tutors will check your Knowledge Organiser homework during Tutor Time. They will be looking for a full page of work on the correct subjects of the Knowledge Organiser completed with no gaps, as well as for purple pen ticks/corrections and good presentation. Your writing needs to be neat and legible with H/W, Title and Date underlined with a ruler at the top of the page. If your tutor feels that any of these elements are not up to standard, your tutor will enter you for a homework support session that same day.

In addition to the timetable below students should also complete 30 minutes per week using online Sparx Maths.

	WEEK 1	WEEK 2
Monday	Online Maths Drama	Music Religious Studies
Tuesday	English History	Computing PE
Wednesday		
Thursday	Science French & Spanish	Science Design Technology
Friday	Art Maths	English Geography



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Your Homework Booklet

Learning Cycle 3

This is your homework booklet, in your homework booklet you will find a knowledge organiser for each subject that you are going to study in learning cycle 3, these are a summary of the most important pieces of information that you need to know.

You will be expected to learn all this information and complete activities in your workbook.

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Your Homework Booklet

At TKASA, we place a great emphasis on the importance of reading in order to accelerate the development of your vocabulary and fluency in communication. Not only that, a good book will teach you more about the world around you and help you empathise with others. We recommend a minimum of 20 minutes of reading per day. Have a look at the reading list below for some inspiration

The Hunger Games

Suzanne Collins

Northern Lights

Philip Pullman

The Fault in Our Stars

John Green

The Lord of the Rings

J. R. R. Tolkien

Twilight

Stephenie Meyer

To Kill a Mocking Bird

Harper Lee

When Hitler Stole Pink Rabbit

Judith Kerr

Maggot Moon

Sally Gardner

Shug

Jenny Han

Jane Eyre

Charlotte Brontë

A Street Cat Named Bob

James Bowen

Stargirl

Jerry Spinelli

Roll of Thunder Hear My Cry

Mildred D. Taylor

Swallows and Amazons

Arthur Ransome

The Wheel of Surya

Jamila Gavin

The Earthsea Quartet

Ursula K. Le Guin

Never Say Die

Anthony Horowitz

Treasure Island

Robert Louis Stevenson

Fly-By-Night

Frances Hardinge

Mortal Engines

Philip Reeve

Geek Girl

Holly Smale

Flour Babies

Anne Fine

My Family and Other Animals

Gerald Durrell

Holes

Louis Sachar

Cirque Du Freak

Darren Shan

Cow Girl

G R Gemin

The Girl Who Drank the Moon

Kelly Barnhill



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Knowledge Quiz

Your teacher will quiz you on your knowledge organiser 3 times each learning cycle to check how well you are doing your homework.

The 'Mark' box must be used to record your score from each quiz.

	Maths	English	Science	Geography
QUIZ 1	/	/	/	/
QUIZ 2	/	/	/	/
QUIZ 3	/	/	/	/

	History	MFL	Drama	Music	PE
QUIZ 1	/	/	/	/	/
QUIZ 2	/	/	/	/	/
QUIZ 3	/	/	/	/	/

	Art	DT	Comp	RS
QUIZ 1	/	/	/	/
QUIZ 2	/	/	/	/
QUIZ 3	/	/	/	/



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Learning Cycle 3

Learning Cycle 3

Online Maths Work

Learning Cycle 2	Topic practised	Signed by parent	Signed by Maths Teacher
Week 1			
Week 2			
Week 3			
Week 4			
Week 5			
Week 6			
Week 7			
Week 8			
Week 9			



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How to use your knowledge organiser for homework

The Knowledge Organisers are designed to help you learn a wide range of knowledge which in turn will mean you are more prepared for your lessons as well as the new style GCSEs that you will sit in the future.

For homework you should use your knowledge organiser to complete one of our accepted strategies in your workbook you should either

- **Write**
- **Mind Map**
- **Transform**

Do not just copy into your workbook!

Here are some tips on how you can use your workbook

Your tutor will check your workbook each week



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Learning Cycle 3

Look, cover Write, check, Correct

First

Look through and read the information on a section of your knowledge organiser



Then

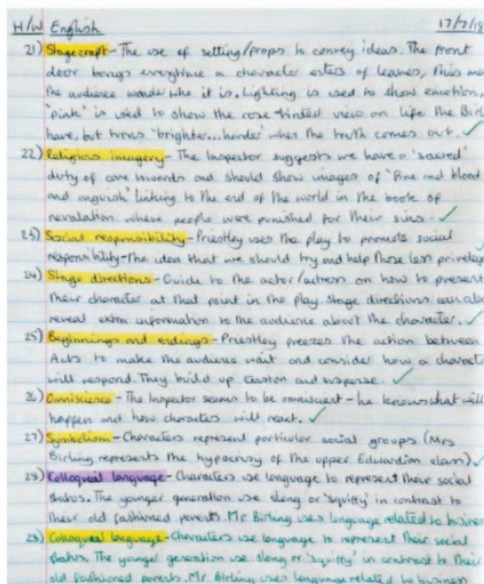
Cover the section so you can no longer see the information

homework you should use your knowledge organiser to complete one of our accepted strategies in your workbook you could either

- **Write**
- **Mind Map**
- **Transform**

not just copy into your workbook!

here are some tips on how you can use your workbook



Next

Try and write out the key definitions or facts that you need to know

Now

Uncover the section of your knowledge organiser and check how correct you were

Finally

Correct anything that you wrote down that was incorrect

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Look, cover Mind Map, check, Correct

First

Look through and read the information on a section of your knowledge organiser



Then

Cover the section so you can no longer see the information

History


Cycle 1 in History will focus on: An introduction to studying history, a depth study enquiry called *why did William win the Battle of Hastings?* and a short enquiry into why the Church was so important in medieval times.

Key Words and Definitions	
Chronology	The order in which events happened
Primary Source	Something from the time being studied for example if you were studying The Battle of Hastings a shield from the Saxon shield Wall would be primary source
Interpretation	A view of the past created from primary sources e.g. a museum exhibition about the Battle of Hastings is an interpretation.
Cause	A reason why something happened
Consequence	A result of an event or change
Significance	A measure of how much impact an event, person or change has had.
Saxon	Most of the English people before 1066
Norman	People from Normandy, France e.g. William the Conqueror
Tactics	A planned action to help you achieve success
Cavalry	Soldiers on horseback
Infantry	Soldiers on foot
The Church	Christian organisation led by the Pope. England was a catholic country until the 16th century

Topic 1 What is History?
History is finding out about the past by using the evidence that has been left behind. It is also about asking questions and sorting out answers. In history we also look at how why interpretations are created

Here are the different **time periods** we use to divide up British History:

55BC - 410AD	Roman Britain
410 - 1066	Saxon and Viking Britain
1066 - 1485	Medieval Britain
1485 - 1603	Tudor Britain
1603 - 1714	Stuart Britain
1714 - 1837	Georgian Britain
1837 - 1901	Victorian Britain
1901 - 1910	Edwardian Britain



The five ways a historian can measure significance

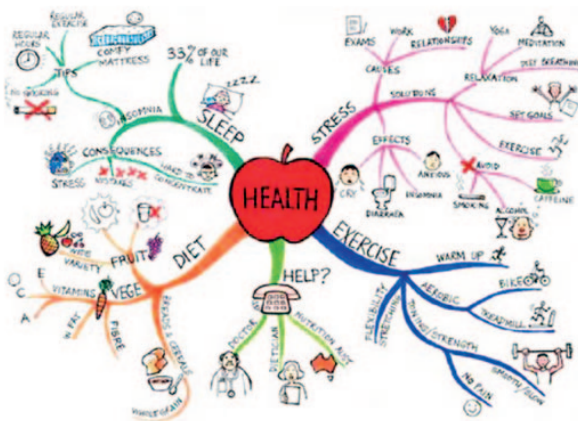
- 1 Did the person or event **matter to the people at the time?**
- 2 Did the person or event **affect a large number or a small but important group** of people?
- 3 Did the person or event **cause change** and if so, **how great** was the change?
- 4 Was the change **long lasting or short term?**
- 5 Is the person or event **still seen as important** today?

Interpretations are versions of history. Authors, film makers, and museum designers are all producers of interpretations. There are different interpretations of the same event or person.



Next

Create a mind map that maps out everything from your knowledge organiser using keywords, colour and images



Now

Uncover the section of your knowledge organiser and check how correct you were

Finally

Correct anything that you wrote down that was incorrect

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Learning Cycle 3

Look, cover Transform, check, Correct

First

Look through and read the information on a section of your knowledge organiser



Then

Cover the section so you can no longer see the information

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The five ways a historian can measure significance

- 1 Did the person or event **matter to the people at the time?**
- 2 Did the person or event **affect a large number or a small but important group** of people?
- 3 Did the person or event **cause change** and if so, how **great** was the change?
- 4 Was the change **long lasting or short term?**
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Kings	Play	Chess	On	Fine	Glass	Sets
K	P	C	F	K	G	S
I	H	L	A	I	E	P
N	Y	A	M	N	N	E
G	L	S	I	G	U	C
D	L	S	L	D	S	I
O	O	S	Y	O	S	E
M	M	S		M	S	S

Next

Transform the information on the knowledge organiser into either a mnemonic or series of images

Now

Uncover the section of your knowledge organiser and check how correct you were

Finally

Correct anything that you wrote down that was incorrect

WHY SKETCHNOTES...

- SIMPLIFIES THE COMPLEX
- ENABLES CONNECTION and SYNTHESIS OF IDEAS
- ORGANIZES and SUMMARIZES insights
- RAISES ATTENTION and ENGAGEMENT
- HELPS IN SENSE MAKING
- QUICK GRASP and BETTER RETENTION
- EASY sharing & COMMUNICATION

visual METAPHORS allow brain to fill gaps

A TOOL FOR IMMERSIVE LEARNING

Text increases 10% to 35% with sketching

QUICK GRASP and BETTER RETENTION

EASIER CLARITY and comprehension

JOHN MEDINA "BRAIN RULES"

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Cycle 3 in **Maths** focuses on shape. Initially we look at solving angle problems using geometrical reasoning. We then move on to rotations and translations. Later in the cycle we investigate Pythagoras' Theorem which helps us to find missing sides in right-angled triangles. The final topic of the cycle is enlargement and similarity of shapes.

DEDUCTION – KEY WORDS AND DEFINITIONS	
parallel	two lines that are always the same distance apart (they will never meet)
transversal	a line that crosses at least two other lines
interior angle	an angle inside a shape
exterior angle	the angle between any side of a shape, and a line extended from the next side
polygon	a 2D shape with three or more straight sides
conjecture	a statement that might be true, but is not proven
counterexample	an example that shows a statement is false
construct	to draw a shape, line or angle accurately using a compass and a ruler
bisector	the line that divides something into two equal parts
equidistant	the same distance from each other

Corresponding Angles

Corresponding angles are equal and form an 'F' shape

Alternate Angles

Alternate angles are equal and form a 'Z' shape

Interior Angles

Co-interior angles add up to 180° and form a 'C' shape

Angles in a polygon add up to $(n - 2) \times 180$ (n = number of sides)

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

Topic 1: DEDUCTION

Perpendicular bisector

Angle bisector


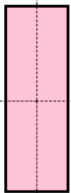
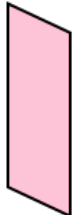
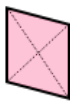
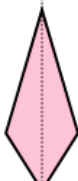

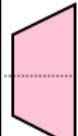
E.g.

Constructions are accurate drawings of shapes, angles and lines. To carry out constructions you need a pencil, ruler and compass.

Maths

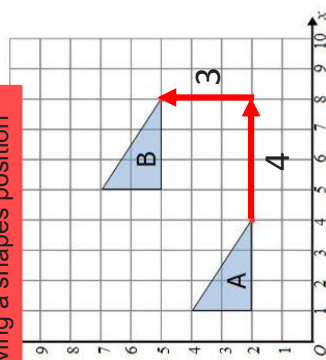
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2D shapes and their lines of symmetry

Quadrilateral	Image	Number of Lines of Symmetry
Square		4
Rectangle		2
Parallelogram		0
Rhombus		2
Kite		1
Trapezium		0
Isosceles Trapezium		1

Translation: moving a shapes position

From A to B the triangle has been translated by the vector $\begin{pmatrix} 4 \\ 3 \end{pmatrix}$

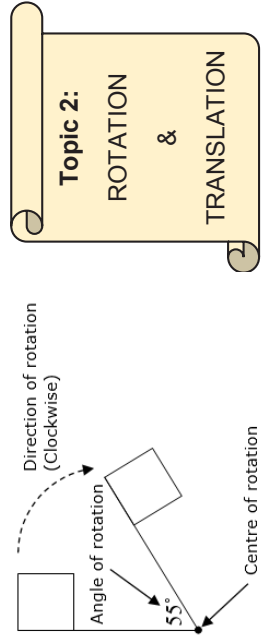


ROTATION AND TRANSLATION – KEY WORDS AND DEFINITIONS

rotation	turning of a shape
direction	the line or course on which something is going
clockwise	moving in the direction of the hands on a clock
anti-clockwise	moving in the opposite direction to the hands on a clock
centre	the middle
invariant point	a point that does not change after certain transformations
translate	moving a shape to a different place
vector	tells you the direction to translate a shape
horizontal	parallel to the horizon (x-axis)
vertical	in an up-down direction (y-axis)
reflection	mirror image of a shape
symmetry	when two or more parts are identical

In order to rotate a shape you need:

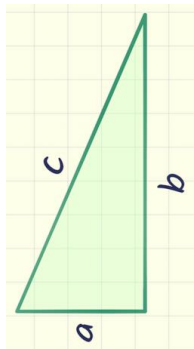
1. Direction
2. Angle
3. Centre



Topic 2:
ROTATION
&
TRANSLATION

Topic 3:
PYTHAGORAS'
THEOREM

Pythagoras' Theorem

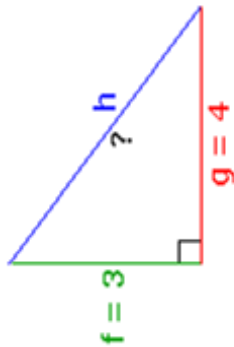


$$a^2 + b^2 = c^2$$

PYTHAGORAS' THEOREM – KEY WORDS AND DEFINITIONS

square	to multiply by itself
square root	a value that, when multiplied by itself, gives the number e.g. the square root of 16 is 4
right-angled triangle	a triangle which contains a 90 degree angle
hypotenuse	the side opposite the right angle in a right-angled triangle
opposite	the side across from the given angle in a triangle
adjacent	the side next to the given angle in a triangle
sum	add together
origin	where the x-axis and y-axis meet (0,0)
line segment	the part of a line that connects two points
gradient	the steepness of a line
2D	two-dimensional
3D	three-dimensional

Example 1:
Finding the hypotenuse



$$h^2 = f^2 + g^2$$

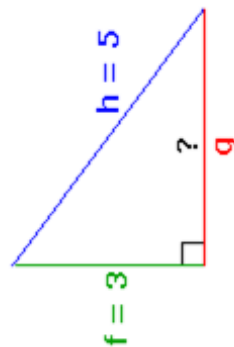
$$h^2 = (3)^2 + (4)^2$$

$$h^2 = 9 + 16$$

$$h^2 = 25$$

$$h = 5$$

Example 2:
Finding a shorter side



$$h^2 = f^2 + g^2$$

$$g^2 = h^2 - f^2$$

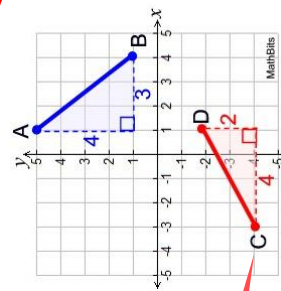
$$g^2 = (5)^2 - (3)^2$$

$$g^2 = 25 - 9$$

$$g^2 = 16$$

$$g = 4$$

You can use Pythagoras' theorem to find the length of a line segment



You can form a right-angle triangle to help

Maths

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Similar triangles

The scale factor of $\triangle ABC$ to $\triangle DEF$ is **2**.

Multiply each side by 2



Note: the angles do not change size

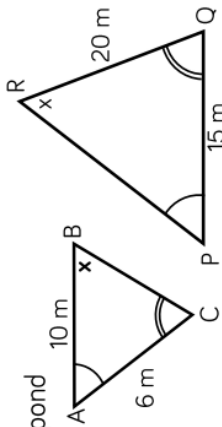
QUESTION

The two triangles are similar.

Which sides in triangle ABC correspond to which sides in triangle PQR?

SOLUTION

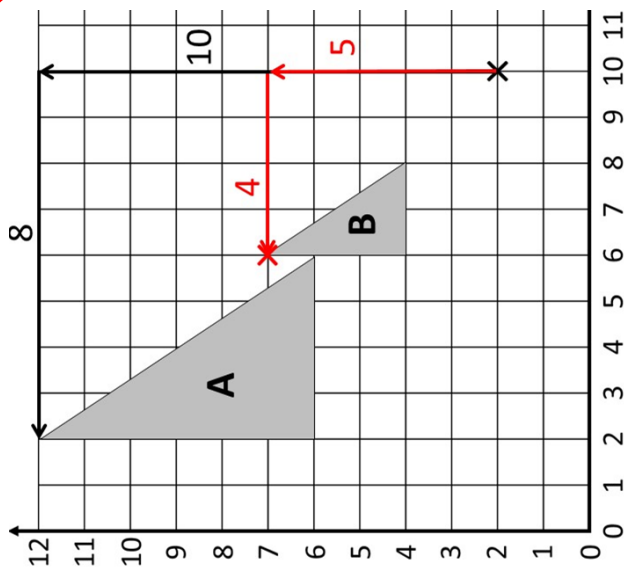
- AB corresponds to PR
- AC corresponds to PQ
- BC corresponds to QR



What missing sides and angles could you work out?

ENLARGEMENT AND SIMILARITY – KEY WORDS AND DEFINITIONS	
similar shapes	when one shape can become the other after a resize, flip, slide or turn
enlargement	changing the size of a shape by a scale factor
scale factor	a number which is used as a multiplier
ratio	compares amounts
corresponding sides	sides that are in the same position in different shapes

Enlargement from a centre



Shape A to B shows an enlargement, scale factor 0.5, centre (10,2)

Shape B to A shows an enlargement, scale factor 2, centre (10,2)

Topic 4:
ENLARGEMENT
&
SIMILARITY:

Noughts and Crosses

Cycle 3 you will explore the dystopian world of Noughts and Crosses. Consider big themes such as race, love, loyalty, terrorism and family. Work on your oracy skills through presentation and debate.

PUNCTUATION

	How to use	Examples of use
Colon :	<ul style="list-style-type: none"> Introduce things in a list Present a statement 	<p>“He was going to buy three things: chairs, tables, and utensils.”</p> <p>“Above them the sign read: do not enter.”</p>
Semicolon ;	<ul style="list-style-type: none"> Joins two sentences Separates items in a list 	<p>“It was the best of times; it was the worst of times.”</p> <p>“There are three soldiers in the trench: Matthew, from London; Bill, from Bristol; Fred, from York.”</p>

CONTEXT: The Author

MALORIE BLACKMAN

Blackman was the Children’s Laureate from 2013 to 2015. Blackman’s motivation for writing Noughts and Crosses, “I wanted to turn society as we know it on its head in my story, with new names for the major divisions in society. I wanted to see this new world through the eyes of the main two characters, Callum (a Nought) and Sephy (a Cross). Race and racism are emotive issues that most people are loathe to discuss, but I think they should be discussed, no matter how painful.”



THE HADLEY FAMILY

X

KAMAL

Kamal strongly dislikes noughts. Kamal is a government official, and he regards Crosses as superior to noughts. His belief in the importance of segregation drives his behaviour in the novel.

JASMINE

Despite her family’s power and status, Jasmine suffers throughout the book. Her husband’s neglect causes Jasmine to feel lonely, insignificant and powerless.

RYAN

Ryan does all that he can to protect his family. He, alongside Jude, joins the Liberation Militia. However, as a result of his loyalty to this cause, and his devotion to his family, Ryan is imprisoned.

MARGARET (MEGGIE)

Meggie is a protective woman. For fourteen years, she worked for the Hadley family as a member of household staff. However, after being sacked by the Hadley family, Meggie and her family suffer financial hardship.

THE MCGREGOR FAMILY

O

PERSEPHONE (SEPHY)

‘Sephy’ is the daughter of the powerful Kamal Hadley. She is a Cross, meaning that she was born with a certain amount of privilege, which is contrasted with her childhood friend Callum. Initially, Sephy is naive to the brutal world around her. However, she learns to sympathise with Callum’s suffering.

MINERVA (MINNIE)

Minerva is the older sister of Sephy. Often, Minerva does not agree with Sephy’s positive opinions of noughts. Despite frequent arguments with her sister, Sephy does sometimes confide in Minerva.

LYNETTE

Lynette is Jude and Callum’s older sister. Previously, she dated a Cross and as a result, she was attacked by some noughts. Consequently, due to the trauma, the attack affects Lynette mentally.

JUDE

Callum’s older brother, who displays violent and aggressive tendencies. While Callum is resolved to playing the system and becoming successful within it, Jude is concerned with rebellion, becoming involved with a terrorist organisation.

CALLUM

Callum is intelligent and hard-working. During childhood, he was best friends with Sephy, sharing a close connection, and later entering into a romantic relationship. With the help of a scholarship, Callum is able to join Sephy’s ‘Cross’ school, which leads to discrimination and bullying.

English

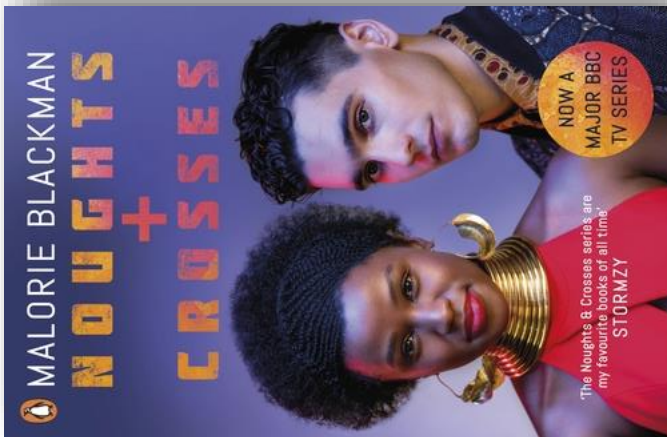
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KEY VOCABULARY

1. Ambiguous	Open to more than one interpretation; not having one obvious meaning. Not clear or decided.
2. Abrupt	i). Sudden and unexpected. ii). Brief to the point of rudeness.
3. Relentless	Continuing in a severe or extreme way.
4. Victimised	To treat someone in an intentionally unfair way, often because of their race, sex or beliefs.
5. Disconcerting	Making someone feel uncertain and uncomfortable, or worried.
6. Tension	An unsettling feeling of nervousness and apprehension before or during an important or difficult event.
7. Segregation	The act of keeping one group of people apart from another and treating them differently, especially because of race, sex, or religion.
8. Ignorance	Lack of knowledge, understanding, or information about something.
9. Prejudice	An unfair and unreasonable opinion or feeling, especially when formed without enough thought or knowledge.
10. Discrimination	Treating a person or particular group of people differently, especially in a worse way from the way in which you treat other people (e.g. because of their skin colour, sex or sexuality).
11. Equality/inequality	Equality - the right of different groups of people to have a similar social position and receive the same treatment. Justice - fairness in the way people are dealt with.
12. Justice/injustice	If a group of people are rebellious, they oppose the ideas of the people in authority and plan to change the system, often using force.
13. Rebellious	The ability to share someone else's feelings or experiences by imagining what it would be like to be in that person's situation.
14. Empathy	The act of hurting someone or doing something harmful to someone because they have done or said something harmful to you.
15. Retaliation	

KEY TERMINOLOGY

1. Dual narrative	A story that is told from two different perspectives.
2. Contrast	A type of opposition between two ideas or objects used to highlight differences.
3. Structure	The structure of a text refers to its shape as a whole. This can mean the order of plot events.
4. Theme	The main ideas that are explored throughout a piece of literature.
5. Context	The context of a text is the place and time in which it was written, who it was written by, and where it was published. All of these affect the purpose and effect of the text.
6. Shift of focus	Changes in what the writer focuses upon as texts develop – e.g. changing from focusing on one scene to another.
7. Dystopian	An imagined society where there is great suffering and injustice.
8. First-person narrative	When the text that you are reading is told from the point of view of a character in the novel.
9. Sentence functions	Declarative – when a sentence is making a statement. Exclamative – when a sentence conveys a strong sense of emotion and alarm, or strong emphasis. Imperative – when a sentence is giving a command. Interrogative – when a sentence is asking a question.
10. Dialogue	Spoken conversation between characters in a text.



FURTHER READING:

- The Colour Purple
by Alice Walker
- Shatter Me
by Tahereh Majfi
- Sweetfreak
by Sophie McKenzie
- Romeo and Juliet
by William Shakespeare
- An Eye for An Eye
by Malorie Blackman
- Boys Don't Cry
by Malorie Blackman

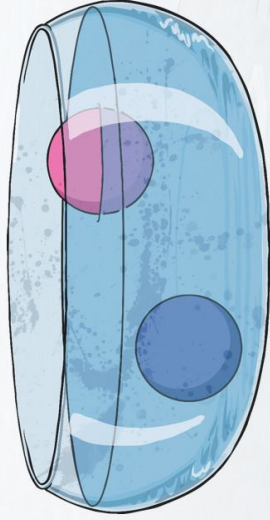
Key concept- Floating, sinking and density

Volume	Volume describes the amount of space taken up by an object or substance.
Mass	Mass is the amount of matter taken up by an object. Although mass is often referred to as weight and weighed in kilograms, they are not the same thing. An object's weight will vary according to gravity; its mass will not change.
Density	Density is the mass of an object or substance divided by its volume.

What Is Density?

Density describes how much space an object or substance takes up. Density represents how thick or closely packed together an object of substance is. Density can vary depending on temperature and pressure.

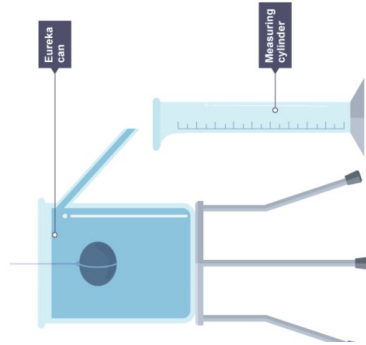
Density is the **mass** of an object or substance divided by its **volume**.



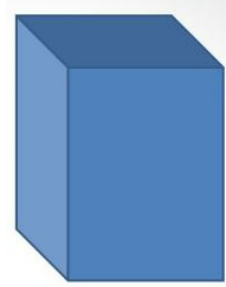
$$\text{Density} = \frac{\text{mass}}{\text{volume}}$$

$$\rho = \frac{m}{v}$$

Measuring volume of an irregularly shaped object



Measuring volume of a regularly shaped object Length x width x height



Density values

The densities of some everyday substances are:

- Steel has a density of **7.82 g/cm³**
- Water has a density of **1.00 g/cm³**
- Air has a density of **0.0013 g/cm³**

These values show that the **steel** (solid) is the most dense while the **air** (gas) is the least dense.

Key concept- Hidden forces

Describe the motion of the car.

Resultant force = $500\text{ N} - 500\text{ N}$
Resultant force = 0 N

There is no resultant force and the car is travelling on a motorway, this means that the car is travelling at a constant velocity.

Describe the movement of the box.

Resultant force = $100\text{ N} - 100\text{ N}$
Resultant force = 0 N

There is no resultant force acting on the box and the box is **at rest** on the table, meaning that the box is stationary.

Key Points

- Multiple forces act on an object at the same time.
- The size and direction of these forces determines the movement of the object.

Multiple forces act on an object at once and the resultant force that is acting on the object can be calculated.

A resultant force is **the overall force that acts on the object.**

Remember that forces are vectors.

Describe the motion of the rocket.

Resultant force = $50\,000\text{ N} - 10\,000\text{ N}$ Resultant force = $40\,000\text{ N}$ upwards

The rocket has just launched. The resultant force is acting upwards, which in the same direction as the rocket is moving, which means the rocket is accelerating upwards.

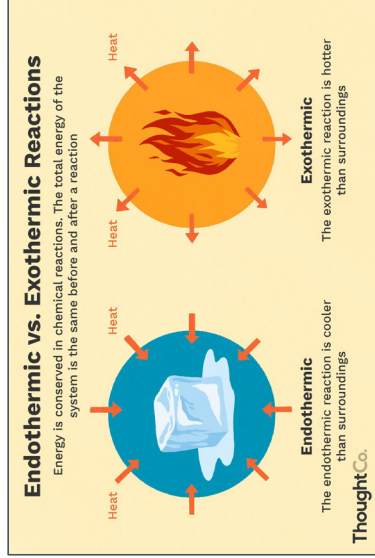
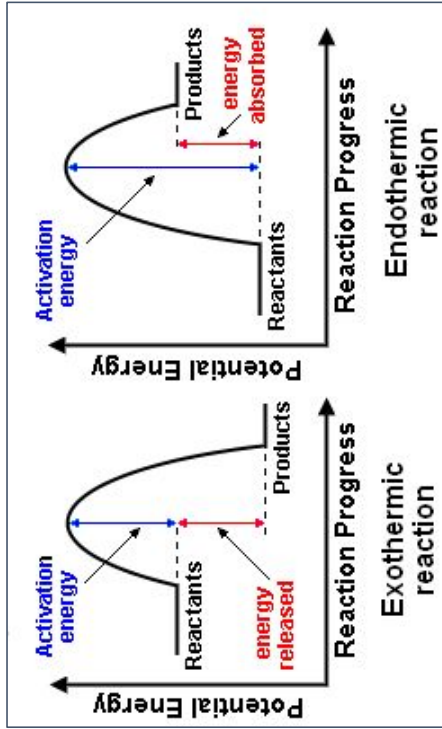
2. A sky diver has just opened her parachute. The weight of the sky diver is 500 N and the air resistance acting on her is 700 N

Resultant force = $700\text{ N} - 500\text{ N}$ Resultant force = 200 N upwards

The parachutist is travelling downwards, the resultant force is acting against the movement. This means that the parachutist is decelerating.

Key concept- Exothermic and endothermic reactions

Endothermic	More heat taken in than given out to the surroundings.
Exothermic	More heat given out than taken in from the surroundings.



Examples of exothermic reactions are combustion, most oxidation reactions and neutralisation. Exothermic reactions are used in things like self-heating cans and hand warmers.

Examples of endothermic reactions are thermal decomposition reactions and the reaction of citric acid with sodium hydrogencarbonate. Endothermic reactions are used in some sports injury packs to help muscles cool after injury

Endothermic

- Cold packs are **endothermic** – they make the surroundings **colder**
- Heat is taken from the surroundings and transferred to the object
- Examples include **melting** and **boiling**

In cold packs, two chemicals are mixed together to create a reaction which makes the surroundings colder.

Exothermic

- Hand warmers are **exothermic** – they make the surroundings **warmer**
- Heat is transferred from the object to the surroundings and makes it feel warmer
- Examples include **condensing** and **freezing**

In hand warmers, an exothermic reaction is caused by two substances being mixed together – this gives off heat.

Key concept- pH scale

The pH scale is a number scale from 0 to 14. It tells us how acidic or alkaline an **aqueous solution** is. The pH scale is used to classify **solutions** as acidic, alkaline or neutral.

- Neutral solutions are exactly pH 7.
- Acidic solutions have pH values less than 7. The closer to pH 0, the more acidic a solution is.
- Alkaline solutions have pH values more than 7. The closer to pH 14, the more alkaline a solution is.

Finding the pH of a substance

The pH of a substance can be tested if it is an aqueous solution. The substance must be dissolved in water.

There are 2 methods for testing for pH:

- Using a pH meter
- Using an **indicator**

Using universal indicator

Universal indicator is supplied as a solution or as universal indicator paper. It is a mixture of several different indicators. Unlike litmus, universal indicator can show us how strongly acidic or alkaline a solution is, not just that the solution is acidic or alkaline. This is measured using the pH scale, which runs from pH 0 to pH 14.

Universal indicator has many different colour changes, from red for strongly acidic solutions to dark purple for strongly alkaline solutions. In the middle, neutral pH 7 is indicated by green.



Making an indicator

Lots of highly coloured vegetables and flowers can be used to make indicators just by mashing them in hot water. Red cabbage is one of the best, and can be compared to the colour charts above.

Other good natural indicators are beetroot, tea, turmeric and blackberries.

To make your own indicator, you will need:



You can use red cabbage to make your own universal indicator

Key concept- Neutralisation

Key points

- An acid and alkali will neutralise each other and produce a salt and water. This is called a neutralisation reaction.
- The name of the salt produced can be worked out from the names of the acid and the alkali.
- Chemical equations can be written to describe a neutralisation reaction.

Neutralisation reactions

A **chemical reaction** happens if you mix together an acid and a **base**. The reaction is called neutralisation. A **neutral** solution is made if you add just the right amount of acid and base together.

Salts have scientific names. For example, the scientific name of table salt is sodium chloride.

Names of salts can be worked out from the names of the acid and the alkali that react to make them.

There are two parts to a salt name:

1. The first word is a metal, taken from the alkali.
2. The second word ends in ~ide or ~ate, taken from the acid.

Word equations

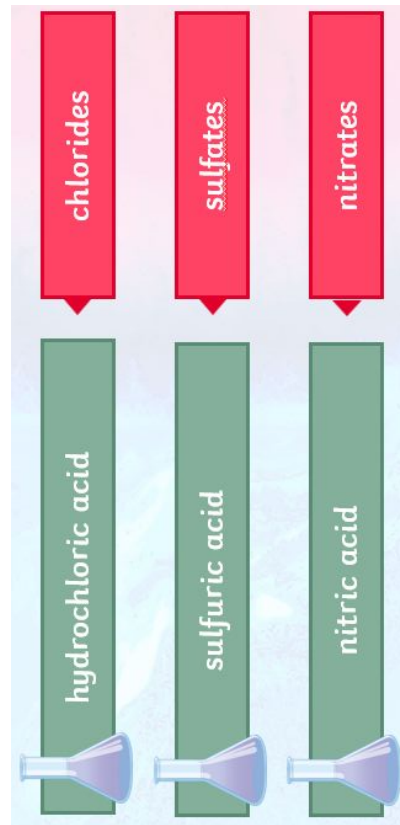
Neutralisation reactions can be described using **chemical equations** like a word equation. This uses the scientific names for the acid and alkali placed on the **reactant** side of the equation. The scientific name for the salt goes on the **product** side, together with water.

For example:



Symbol equations

A symbol equation describes a reaction more precisely using chemical symbols and formulas. Here is an example of a word equation and a symbol equation describing the same reaction.

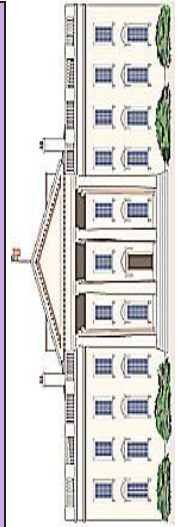


Year 9 Cycle 3 Knowledge Organiser

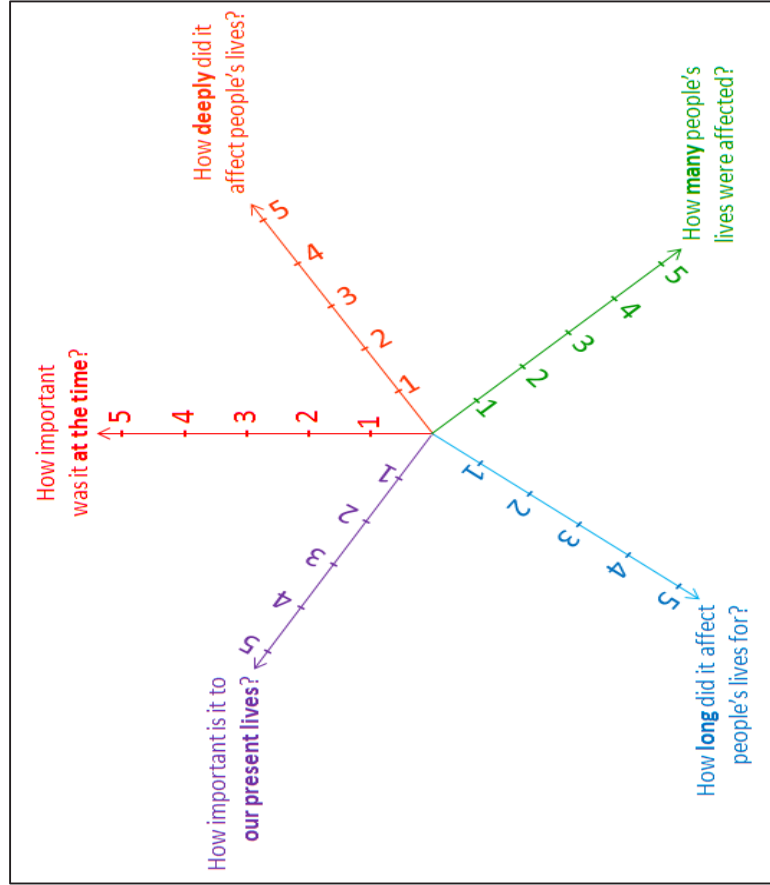
Cycle 3 in History will focus on: **Race, gender, religious freedom, and LGBT+ rights in the 20th century.** This will involve learning about the lives of 10 civil rights campaigners. You will assess their significance.

Key words and definitions

Suffrage	The right to vote.
Suffragist	A peaceful campaigner for women's rights in the UK; a member of the NUWSS.
Suffragette	A militant campaigner for women's rights in the UK; a member of the WSPU
Militancy	Confrontational or violent methods of campaigning for rights.
Gender pay gap	The difference between male/female pay.
Stonewall riots	Riots which took place following the raiding of the Stonewall Inn in New York, 1969. The Gay Liberation Front was formed as a result.
democracy	Political idea where all people vote for who runs the country.
Enigma machine	cipher device to pass secret messages
Segregation	Separating people based on race.
civil rights	Rights to freedom and equality like the right to vote.
President	United States leader (Head of State)
Boycott	When people refuse to buy or use something.
Nazi	Follower of the ideas of Adolf Hitler
social justice	The fair treatment of all people in society
discrimination	treating people differently from others
White House	The office and home of the President of the United States



Measuring historical significance



TIER 2 Vocabulary

significant/significance = importance.

In history, significance is measured using the questions in the diagram above.

History

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	<p>Alan Turing Turing was a code breaker during WW2. He cracked the Enigma code. His ideas led to early versions of modern computing, but he died as a criminal for his homosexuality.</p>		<p>Dietrich Bonhoeffer Bonhoeffer was a German religious leader. He helped found the Confessing Church. He was part of a plot to overthrow Hitler in 1944. He was executed in 1945.</p>
	<p>Mamie Till Mamie was the mother of Emmett Till who was lynched in Mississippi in 1955. Mamie's fight for justice in the second half of 20th century helped cause change in the USA.</p>		<p>Marsha P. Johnson Marsha was a gay rights activist who took a leading role in the Stonewall Riots of 1969. They led a group committed to helping homeless transgender youth in New York City.</p>
	<p>Millicent Fawcett Fawcett was the leader of the NUWSS, a group who fought for the vote for women in Britain. She used peaceful tactics and won the argument that women should have the right to vote.</p>		<p>Eileen Pullen Pullen worked at the Dagenham Ford Motor Plant. She highlighted the gender pay gap and discrimination in the workplace, by taking part in a strike which led to the Equal Pay Act 1970.</p>
	<p>Emily Davison Davison was a Suffragette. She was so passionate about votes for women that she tried to disrupt the Derby in 1913. She was killed after colliding with the king's horse.</p>		<p>Manche Masemola Manche was a young South African woman. She joined a small Christian community against her parents wishes. As a result, they murdered her.</p>
	<p>Roy Hackett Hackett was one of the organisers of the Bristol Bus Boycott in 1963. He stood up to racial discrimination in the Bristol Bus Company. His action led to the Race Relations Act 1965.</p>		<p>Malcolm X Malcolm X was an African American Muslim minister and human rights activist. He informed and inspired to fight for social justice and equality.</p>

History

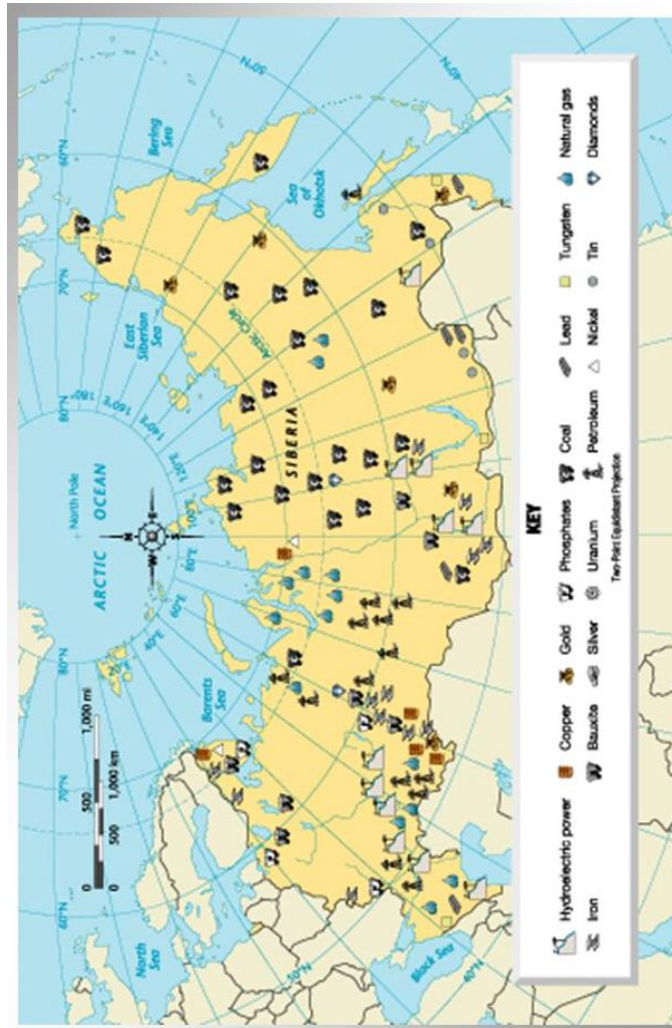
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Cycle 3 Knowledge Organiser

Cycle 3 in Yr 9 Geography will focus on the topic Resource Futures. We will look at resources in Russia, the Middle East and East Africa, considering the current situation and what may happen in the future in these areas.

Key words and definitions	
Natural resource	Materials found in nature which are useful to people or can be sold.
Energy source	Something like oil, the sun or coal which can be used to provide power.
Energy mix	The range of energy sources of a region or country, both renewable and non renewable.
Renewable	Produced as quickly as it is used.
Non-renewable	Exists in limited quantities and so will run out.
Fossil fuel	A natural fuel such as coal or gas, formed in the geological past from the remains of living organisms.
Conflict	Disagreement between people with different opinions.
Carbon footprint	A measurement of all the greenhouse gases we individually produce, through burning fossil fuels for electricity, transport etc.
Resource management	The control and monitoring of resources so that they do not become depleted or exhausted.
Sustainability	Using natural resources responsibly so they can support people both in the present and the future.
Energy security	Uninterrupted availability of energy sources at an affordable price.

Topic 1: Russian Resources



Russia is the largest country in the world and spans Europe and Asia. The landscape is diverse, with deserts, mountains, marshes and tundra. The population is over 140 million and the capital city is Moscow. **Siberia** is a region of Russia which occupies over three quarters of the country and is part of the **taiga biome**. Russia's economy is based on its **natural resources**, which are shown on the map above. In 2022 Russia's war with Ukraine significantly effected its relationships with other countries.

Topic 2: Resources & the Middle East



The countries making up the Middle East are shown on the map above. Most of these countries are part of the **Arab world**. This area has been important for thousands of years and Judaism, Christianity and Islam began in this region.

Most parts of the Middle East are part of the **hot desert biome**. Rivers such as the Nile, Tigris and Euphrates are very important in providing water for people to use in their homes (domestic use), industry and farming (irrigation).

Most of the countries around the Persian Gulf have rich **fossil fuel** resources. 18% of global oil reserves are found in Saudi Arabia and it is the largest oil exporter in the world.

The United Arab Emirates became rich through oil but now are trying to **diversify** their economy by developing tourism.

Topic 3: Resources in East Africa



East Africa usually refers to the countries of Uganda, Kenya, Tanzania, Rwanda and Burundi, as shown on the map. These countries are members of the **East African Community**, which supports the countries in working together in trade and culture.

East Africa lies on the **Equator**, so some parts have **tropical rainforests**. Much of the land has a high altitude (height above sea level), making it cooler. Rainfall levels are often high.

The **East Africa Crude Oil Platform (EACOP)** is being built to transport oil extracted in Uganda to the port of Tanga in Tanzania. This is a controversial project. Some argue that it will increase **foreign investment** in Uganda and Tanzania by 60%, making the countries richer, but others are concerned about the impact on local people and the environment (**sustainability**).

Geography

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Cycle 3 Knowledge Organiser

Cycle 4 in RS will focus on: Philosophy & Ethics so that you can begin to understand the theories behind the big questions of life and moral actions.

Key words and definitions

Human Rights	Rights which every person is entitled to.
The Universal Declaration of Human Rights	An international document which outlines the human rights and freedoms in which everyone is entitled to.
Capital Punishment	The legal killing of someone by the government due to a crime they have committed.
Forgiveness	The act of pardoning someone.
Sanctity of Life	All life is sacred because God made it.
Gender Equality	The state of being equal in rights or opportunities regardless of gender.
Feminism	Advocating women's rights to be equal to that of men.
Gender Roles	Learnt behaviours as to what is considered appropriate for genders based on cultural norms.
Discrimination	Unjust or prejudicial treatment of different categories of people.
Racism	Prejudice or discrimination towards someone of a different race based upon the belief that one's own race is superior.
The Civil Rights Movement	The effort to remove racism and discrimination during the 1950s and 60s in America.
Principle of Utility	The greatest good for the greatest number.

In KS3 RS you will study Philosophy and Ethics and learn how certain concepts can be applied in society today:

Philosophy
Is there a God?

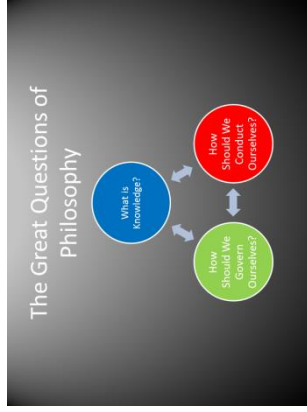
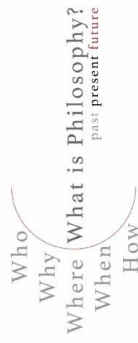
Philosophy
What actions can be considered good?

Ethics
Is human life sacred?

Ethics
Can ethical theories be applied to modern society?

Topic 4 Studying Ethics

Asking questions are important in the study of Philosophy and Ethics. Sometimes, questions don't always have answers but they are still worthy of discussion.



There are **big questions** which we will discuss in RS, such as:

1. **What are human rights?**
2. **Is everyone entitled to human rights?**
3. **Are all lived sacred?**
4. **Can the death penalty be justified?**
5. **What is a good action?**
6. **Are men and women equal?**
7. **Do we have free will?**

In LC3 we look at traditions and festivals. You'll be buying food and planning a meal for a party, choosing an outfit for a special occasion, and talking about family and marriage plans.

Subject Pronouns	<u>Singular</u> Je = I tu = you (informal) il/elle = he/she on = we	<u>Plural</u> nous = we vous = you (formal) ils = they (masc) elles = they (fem)
Nouns	identify places, people and things. Nouns have <i>gender</i> e.g. le collège (school) la femme (woman) les bonbons (sweets)	
Adjectives	describe nouns. They have to <i>agree</i> with the noun: e.g. le pantalon bleu → les pantalons bleus la chemise bleue → les chemises bleues	
Verbs	are doing words, e.g. il joue au foot = he plays football. Verbs need to be put into a <i>tense</i> (see below)	
Adverbs	add more detail to a sentence e.g. très (very), vraiment (really), souvent (often), quelquefois (sometimes)	
Infinitives	are the "to" form of the verb. French has three kinds: -ER (e.g. jouer) -IR (e.g. finir) and -RE (e.g. faire)	

Present tense e.g. je joue	I play, I am playing, I do play
Perfect tense e.g. j'ai joué	I have played, I played
Imperfect tense e.g. je jouais	I used to play, I was playing
Future tense e.g. je jouerai	I will play, I shall play
Near future tense e.g. je vais jouer	I am going to play
KEY WORD: Conditional Something that <i>would</i> happen	e.g. je voudrais jouer I would like to play

Adverbs of frequency

toujours	<i>always</i>
fréquemment	<i>frequently</i>
jamais	<i>never</i>
souvent	<i>often</i>
rarement	<i>rarely</i>
quelquefois	<i>sometimes</i>
parfois	<i>sometimes</i>
d'habitude	<i>usually</i>

Opinion phrases

J'aime	<i>I like</i>
Je n'aime pas	<i>I don't like</i>
J'adore	<i>I love</i>
Je déteste	<i>I hate</i>
Je crois que...	<i>I think that</i>
Je pense que...	<i>I think that...</i>
J'imagine que...	<i>I imagine that...</i>
Je suppose que...	<i>I presume that...</i>
Je dirais que...	<i>I would say that...</i>
Il me semble que...	<i>It seems to me that...</i>
D'une part...	<i>On the one hand...</i>
D'autre part...	<i>On the other hand...</i>

Time phrases

la semaine dernière	<i>last week</i>
l'année dernière	<i>last year</i>
avant hier	<i>the day before yesterday</i>
hier	<i>yesterday</i>
aujourd'hui	<i>today</i>
demain	<i>tomorrow</i>
le lendemain	<i>the day after</i>
la semaine prochaine	<i>next week</i>
l'année prochaine	<i>next year</i>

Key verbs (*=irregular)

manger	<i>to eat</i>
parler	<i>to speak</i>
jouer	<i>to play</i>
écouter	<i>to listen</i>
visiter	<i>to visit</i>
voyager	<i>to travel</i>
travailler	<i>to work</i>
habiter	<i>to live</i>
aimer	<i>to like</i>
adorer	<i>to love</i>
acheter	<i>to buy</i>
penser	<i>to think</i>
étudier	<i>to study</i>
demander	<i>to ask</i>
chanter	<i>to sing</i>
finir	<i>to finish</i>
rougir	<i>to blush</i>
choisir	<i>to choose</i>
réfléchir	<i>to reflect</i>
tenir*	<i>to hold</i>
sentir	<i>to smell</i>
dormir	<i>to sleep</i>
vomir	<i>to vomit</i>
attendre	<i>to wait</i>
apprendre	<i>to learn</i>
vendre	<i>to sell</i>
peindre	<i>to paint</i>
boire*	<i>to drink</i>
prendre*	<i>to take</i>
croire*	<i>to believe</i>
rire*	<i>to laugh</i>
écrire*	<i>to write</i>
dire*	<i>to say</i>
connaître*	<i>to know (so)</i>
mettre*	<i>to put</i>

French

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French

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Translation task →

Choose to translate into English (easy) or French (harder).

LOOK at one line of the text at a time

COVER the language you're translating into

WRITE your translation

CHECK and correct mistakes in purple pen

Food and drink

un sandwich	a sandwich
un hotdog	a hotdog
une pizza	a pizza
du boeuf	beef
du coca	cola
du couscous	couscous
du curry	curry
du fromage	cheese
du gâteau au chocolat	chocolate cake
du jambon	ham
du pain	bread
du poisson	fish
du poulet	chicken
du riz	rice
du saumon	salmon
du thé/café	tea/coffee
du vin rouge/blanc	red/white wine
de la limonade	lemonade
de la salade	salad
de la viande	meat
de l'eau	water
des biscuits	biscuits
des fruits/légumes	fruits/vegetables
des pâtes	pasta
des sucreries	sweets

D'habitude je mange des céréales avec du lait	Normally I eat cereal with milk.
Hier j'ai mangé une pizza au fromage.	Yesterday I ate a pizza with cheese.
Demain je vais manger des spaghettis bolognaises.	Tomorrow I'm going to eat spaghetti bolognese.
Quand j'étais plus jeune, je mangeais de la viande	When I was younger I used to eat meat
mais maintenant je suis <u>végétarienne</u> ,	but now I'm <u>vegetarian</u> .
Normalement je porte un jean et un pull,	Normally I wear jeans and a jumper,
mais j'ai acheté une <u>jolie robe</u>	but I've bought a <u>pretty dress</u>
pour l'anniversaire de mon père ce weekend.	for my dad's birthday this weekend
En août c'est le mariage de ma cousine,	In August it's the wedding of my <u>cousin</u>
donc je vais porter un <u>bel ensemble bleu</u> .	so I'm going to wear a <u>beautiful blue</u> outfit.
En février c'est la Chandeleur, donc on <u>fait des crêpes</u>	In February it's Chandeleur, so we <u>make pancakes</u>
et on invite des amis <u>pour le goûter</u> .	and we invite friends <u>for afternoon tea</u> .
Le quatorze juillet il y a un feu d'artifice	On the fourteenth of July there are fireworks
pour célébrer <u>la Fête Nationale</u> .	to celebrate <u>Bastille Day</u> .

Clothes

un pantalon	trousers
un haut	a top
un jean	jeans
un pull	a jumper
un manteau	a coat
un short	shorts
un tee-shirt	a t-shirt
une jupe	a skirt
une robe	a dress
une écharpe	a scarf
des chaussures	shoes
des chaussettes	socks
des baskets	trainers
des bottes	boots

the: le (m), la (f), les (pl), l' (vowel)

a/an: un (m), une (f)

some: du (m), de la (f), des (pl), de l' (vowel)

Examples: le chat (**the** cat)

un chat (**a** cat)

des chats (**some** cats)

All your LC3 vocab
is also on Quizlet:



Ma fête
préférée, c'est le
Saint-Valentin.

My **favourite**
festival is
Valentine's Day.

Music

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Music for 'Stage and Screen'

If you are **determined** to be a great musician, you need to commit to regular, daily, focused practice of your instrument / voice.
 — **DETERMINED** = Firmly decided and refused to change your mind.

Key Terminology	Definition
Leitmotif	A short musical motif that represents a character, place or theme.
Timbre	The different sounds made by the instruments within the orchestra.
Homophonic	Two lines of music, one playing a melody, and the other playing a different accompanying part.
Repetition	Repeating different sections of melody/riffs in different parts in the song.
Dynamics	How loud or quiet the music is.
Tonality	The type of overall sound created in a piece of music, e.g. Major or Minor

Extended listening:



When listening to these, use the 'Pillars of Music' diagram on the following page and write down anything you notice about the music which relates to these pillars. E.g. *The music uses a syncopated rhythmic pattern to create an uneasy atmosphere.*

Music technology:

Samples — small sets of recorded music which can be dragged and dropped into different sections of the music with ease.

Loops — a small section of music, usually between 4 and 8 bars, that is continually repeated.

Soundtrack — music accompanying TV, Film, Games, Audio books, etc.

Chiptune — Electronic sounds made by the programme sound generator sound chips used in vintage arcade machines.

Synthesizer — An electronic keyboard that allows the player to change the sound.

Key Composer — Top Trump Card:



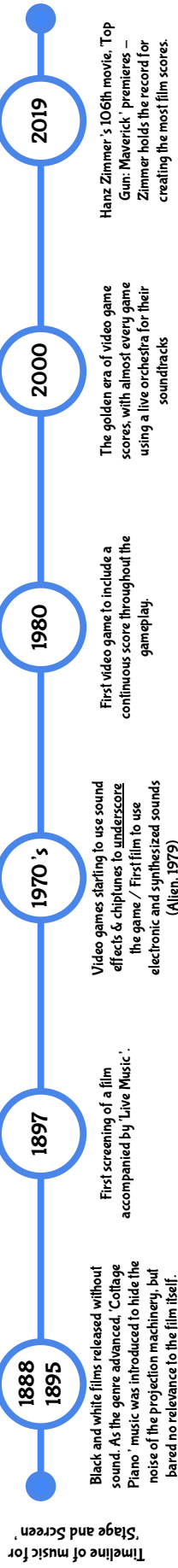
John Williams is one of the most well known and influential composers in film music. His 'Leitmotifs' are memorable, well constructed, and known by millions of people. His greatest works include 'Star Wars', 'Jaws', 'Jurassic Park', 'Harry Potter', 'Home Alone', and many more.

Challenge Theory Papers:

Fancy a challenge? Have a go at some of these questions from a grade 1 theory paper.



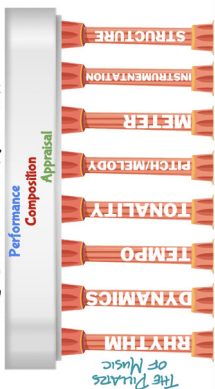
This is not a substitution for your knowledge organiser work. You must still prioritize the information in your knowledge organiser in preparation for your lessons and knowledge quizzes.



Music

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KEY CONCEPTS OF MUSIC (20)



Composers Toolbox and analysis of Music for Stage and Screen

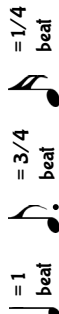
'The Imperial March' Star Wars – Leitmotif

Tempo: marked as 'Allegretto', meaning moderately fast

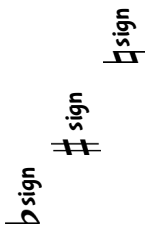
Allegretto

Instrumentation: To create the menacing sound of this leitmotif, this **fanfare** is played on instruments within the brass family, such as a trumpet

Rhythm: A mix of rhythms are used here:



Melody:



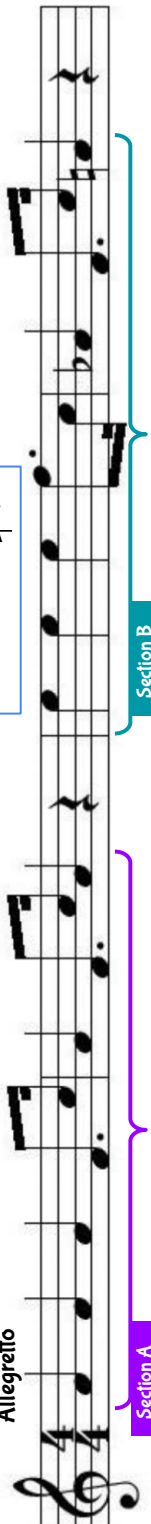
Video Game Music:

Early video games were limited to electronic sounds due to computers having a limited amount of space at the time.
Cue – key sections of a game where the music is required to change for effect

Generative music – generated from various composed elements and changes each time you play the game

John Williams

The name of the composer, always placed in the top right of a musical score.



Structure: This leitmotif is split into two different sections, part 'A' and part 'B'. This is common when creating a leitmotif.

Common features of music for screen:

Varying orchestration: use of combined 'live' sounds and synthesised sounds and effects.

No formal structure: Most film music scores referred to as Through-composed.

Use of non-diatonic harmonies: Dissonant (chords that clash)

Doubling of parts: Copy and pasting a melody or accompaniment part onto multiple instruments to represent a stronger feeling in the music and story.

Questions you may be asked:

- Q. How does the composer create a sense of calm?
- Q. What different timbres does the composer use in film and video game music?

After knowledge quizzes, create questions of your own based on things you got wrong:

- Q.
- Q.
- Q.

Cliches within Music for Stage and Screen:

Instrumentation: using instruments in a specific way to better represent the type of music. E.g. *Playing a Violin in a high pitch to create an eerie, creepy atmosphere*
Tonality: Using a major key (sounds happy) to represent a happy emotion, place or person, or using a minor key (sounds sad) to represent a sad emotion, place or person.

Tempo: Playing a piece of music slowly to create a sad/scary atmosphere.

Playing a piece of music quickly to create a upbeat/happy atmosphere.

Dynamics: Using a variety of different volumes in order to create a variety of atmospheres. E.g. a 'piano' dynamic during a tense scene from a horror film to create a uneasy atmosphere.

Music

Belong Believe Be Proud

Performance:

Throughout your time in KS3, your lessons will consist of lots of performance tasks. Performance is when musicians play music, often in front of other people. This helps develop our skills and build our confidence levels.

Rhythm

Note values, and the patterns of different note values

Crotchet, = 1 beat
Quaver = ½ beat
Semi-quaver = ¼ beat

Dynamics

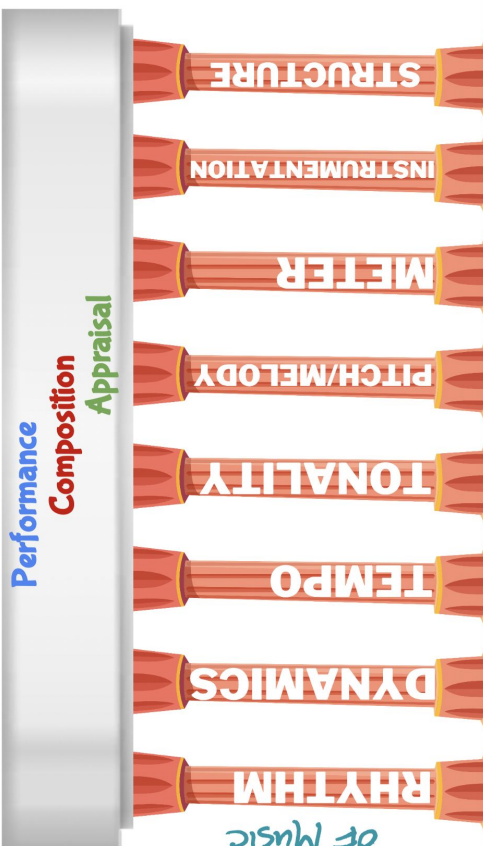
How loud or quiet the music is

Forfe (f) – Loud
Piano (p) – Quiet
Forfissimo (ff) – Very loud
Pianissimo (pp) – Very Quiet

Composition:

In Music, this word means to create our own music. Composers will take ideas, and use the 'Pillars of Music' to create their own, unique soundtracks to Films, TV and Video Games, but also compose pop songs, and any other type of music.

KEY CONCEPTS OF MUSIC (PCA)



Appraisal:

Refers to the listening and appreciation of music. If you listen to any type of music, whether it be on your phone, on a film or a video game, or on an advert, you are 'appraising' music. In a more detailed version of appraisal, you may be asked to feedback on what you have heard (like we do in class), or to answer questions based on the music you have heard.

Structure

the difference sections of a piece of music

Introduction, Verse, Chorus, Bridge, Outro

Instrumentation

The different instruments used to create a piece of music

Split into 'families' where each instrument belongs. E.g. Trumpet belongs to the brass family. Drums belong to the percussion family.

Meter

Time signatures – how many beats are in each bar

3/4 – 3 crotchet beats per bar
2/2 – 2 minim beats per bar
3/8 – 3 quaver beats per bar

Higher up the staff, the higher the pitch.

Usually, the smaller the instrument, the higher the pitch

Pitch/Melody

How high or low the notes are

Major – Sounds happy
Minor – Sound sad

Tonality

The type of overall sound created in a piece of music.

Tempo

Speed of the music

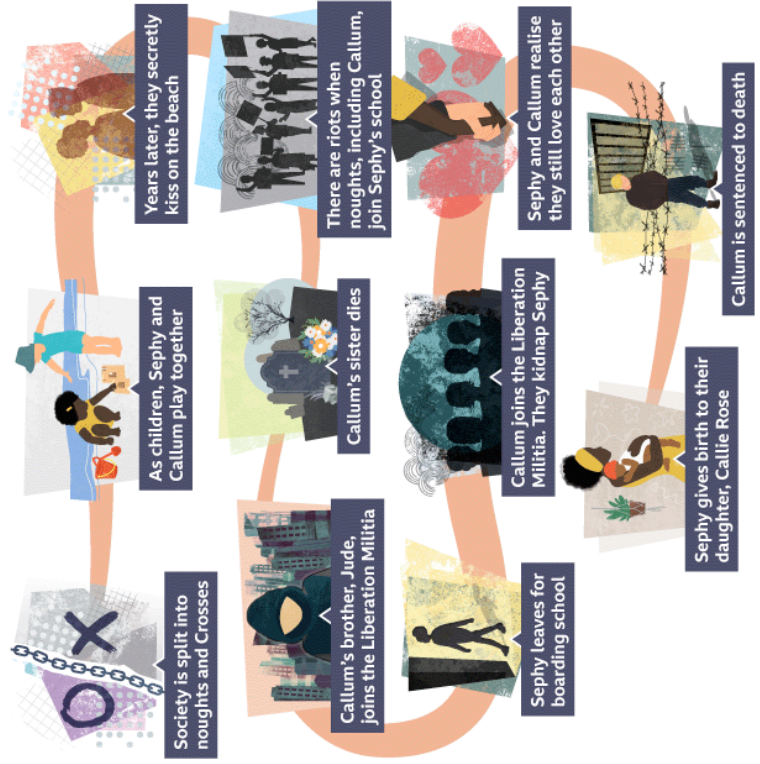
Allegro – Fast
Andante – Moderate
Adagio – Slow


The focus for cycle 3 in drama is: A study of the play 'Noughts and Crosses'.

The play is set in an alternative reality where people with dark skin have colonised Europe. In this alternative history, people with white skin were enslaved. Even though slavery no longer exists in the novel, society is segregated and white people are discriminated against.

The novel shows how racism and discrimination destroys friendships, families and societies.

PLOT



Crosses	Noughts
<p>Persephone Hadley 'Sephy' is one of the two characters. Sheltered by her wealthy, privileged Cross background, she only realises the injustice of the society she lives in through her friendship and love for Callum.</p> 	<p>Callum McGregor Callum is the other main character and shares the story with Sephy. He loves Sephy but is frustrated by her ignorance of the terrible difficulties that noughts face. The loss of his sister and father pushes him to anger and violence. He is put to death for the crime of kidnapping and raping Sephy, even though she consented.</p> 
<p>Kamal Hadley Kamal is Sephy's father. He is a wealthy, powerful politician who believes that noughts and crosses should stay separated.</p> 	<p>Ryan McGregor Ryan is Callum's father. He tries to protect his family and dies after attempting to escape prison for a crime committed by his other son, Jude.</p> 
<p>Jasmine Hadley Jasmine is Sephy's mother who is unhappily married to Kamal and is addicted to alcohol. She attempts to take her own life. She tries to help Ryan, Callum's father, by secretly paying for a lawyer when he is arrested.</p> 	<p>Jude McGregor Jude is Callum's brother. He is angry at the inequality he faces. He joins the Liberation Militia and uses violence to try to force society to change.</p> 
<p>Minerva Hadley 'Minnie' is Sephy's older sister. She and Sephy get on very well and she reveals Sephy's pregnancy to their parents.</p> 	<p>Margaret McGregor 'Meggie' is Callum's mother. She tries to keep her family together.</p> 
	<p>Lynette McGregor Lynette is Callum's sister. She becomes lost in a fantasy world after a violent attack and eventually takes her own life.</p> 

Drama

Drama

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SET DESIGN

Flats

A flat (short for scenery flat) is a flat piece of theatrical scenery which is painted and positioned on stage so as to give the appearance of buildings or other background. They are usually made of MDF wood.



Backdrop

A backdrop is the scenery that hangs behind the actors in a play, which helps to provide a setting for a play. It is made from cloth which has been painted to look like a scene. It is pulled tightly across two metal beams and hung at the back of the



Decking

This is a type of make-shift staging which is used to create upper levels on the stage.



Trucks

A moving platform on which a piece of scenery is built to facilitate scene changing.



Revolve

A turntable built into the stage floor on which scenery can be set and then turned.



Flies

The flies or 'fly system' is a rigging system which operates above the stage. It is a series of ropes, pulleys and weights which enable crew to quickly and safely hoist up and down curtains, scenery or people.

LIGHTING DESIGN

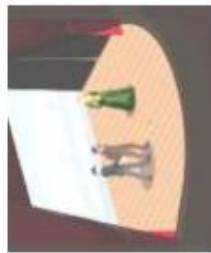
Spotlight

A Spotlight has a hard-edged effect, used to light characters or elements on the stage. It helps to draw audience focus or attention. Coloured gels can be used with this lamp.



Fresnel

A Fresnel is similar to a spot but is used for a softer edged effect, it's useful for good overall light when used with other Fresnels. Coloured gels can be used with this lamp.



Floodlight

A Floodlight produces a clear wide-angled light to fill the whole stage, but there's little control over the spread of the light. Coloured gels can be used with this lamp.



Gobo

A Gobo is a sheet inserted on a frame at the front of the light with a design cut into it. It filters the light, creating a picture effect on the stage. EG: to create the leaves of a forest, or the bars of a prison.



Coloured Gels

Coloured gels are a sheet of colour which are added to the front of some lanterns so that they throw coloured light onto the stage.

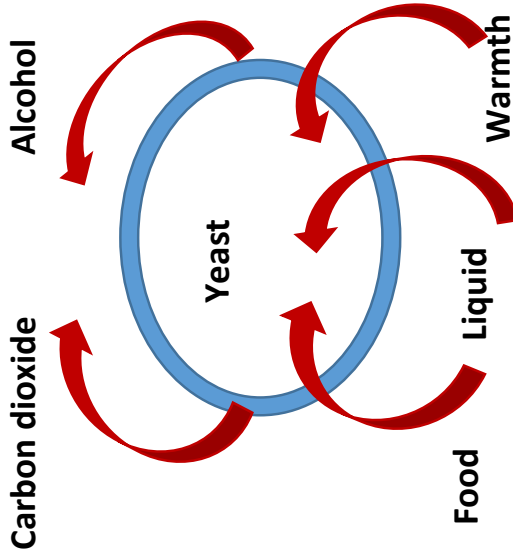


Strobe light

A strobe is a flashing light, used for special effects. It's often used to give the effect of old movies. It produces a jerky effect on the movements of actors when used on its own



Quiz 1 General Knowledge



Yeast needs:

Food / Liquid / Warmth

Yeast makes:

Carbon dioxide

Alcohol

Yeast is a microorganism:

It grows or multiplies making carbon dioxide and alcohol.

Modify

'make partial or minor changes to (something).'

Criteria

'are the ideals or requirements on which a judgment, evaluation, or selection is based.'

Food Cycle Knowledge Organiser

Gluten in flour

There are two proteins in flour called gliadin and glutenin. When you add water to flour you make gluten.

Gluten is stretchy like an elastic band. You need to stretch it so that it gives bread a strong structure but if you over stretch it the strings of gluten snap.

To prevent gluten strands from snapping you add vitamin C (ascorbic acid) to bread dough because it strengthens the gluten. This means you only have to prove the bread once. This is called the Chorleywood Bread Process.

We can buy FAST ACTION yeast which has vitamin C added to it.

This confuses people because they then think the vitamin C helps the yeast!



Design and Technology

Belong Believe Be Proud

Quiz 2

Key words

Gluten	A protein in flour made from gliadin and glutenin
Yeast	A biological raising agent used in bread and bread products
Kneading	Stretching the bread dough to stretch the gluten
Proving	Resting bread dough to let the yeast grow and the gluten rest
Fortifying	Adding vitamins and / or minerals into a food product after it has been made
Environment	Refers to the air, water and land on which people, animals and plants live.
Food Security	Having reliable, safe access to a sufficient quantity of affordable, nutritious food
Traceability	Means you can track any food through all stages of production, processing and distribution (including importation and at retail).
Carbon Footprint	The amount of carbon dioxide released into the atmosphere as a result of the activities of a particular individual, organisation, or community.

Food Cycle Knowledge Organiser

Quiz 3 General Knowledge

Environmental issues

You need to consider these topics and also research the wider issues around each one.

Organic foods (made without any chemicals, pesticides or fertilisers)

Sustainability (making sure that we have enough to eat without destroying natural resources).

Food miles (how far the food travelled from being grown to being served on a plate and then the miles that any waste travelled).

Waste and landfill (dealing with waste in a sustainable way with little impact on the environment).

Packaging (using recycled packaging, re-using and recycling packaging).

Pesticides and chemicals (their impact on the environment and food chains).

In your test you will be asked to write an explanation of why more people buy locally sourced foods. These are some reasons, there are many more, try to think of some of your own.

The negative effects of buying food that has travelled a long way.	Reasons why we buy food that has travelled a long way.
More fuel used, higher carbon emissions, more pollution, not supporting our local economy.	Getting foods out of season (eg strawberries at Christmas), can't grow those foods in our own country, cost.

Y9 Timbers Cycle Knowledge Organiser

During this topic you will learn some timber properties, tool names and uses, wood joints, veneers and chipboard.



Design and Technology

Belong Believe Be Proud

Quiz 1 General Knowledge

Manufactured Boards

Made from wood; often using off-cuts from natural timber. Manufactured Boards are bonded together with adhesives. They tend to be cheaper than solid wood planks



Chipboard

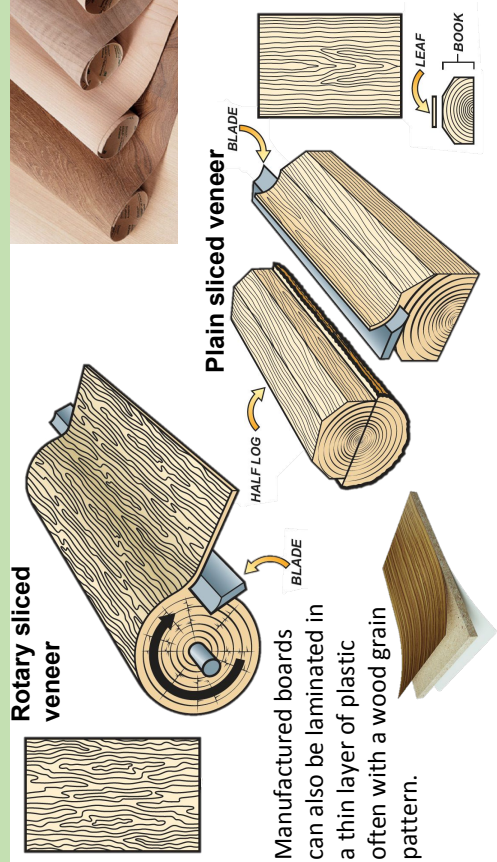
- Chipboard uses waste materials so is cheap to produce
- Not much structural strength, especially in damp conditions.
- Surface is very rough, so usually laminated with plastic or wood veneers.
- Used for loft boards, kitchen worktops and flatpack furniture.

Wood chips are mixed with glue and pressed into flat sheets.

Quiz 1 General Knowledge

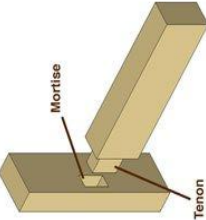
Veneers

Veneer is a thin sheet/layer of natural wood, it is produced from a tree trunk in a number of ways. Veneer is usually glued onto the surface of a cheaper manmade board, giving the illusion of expensive natural wood.



Quiz 1 General knowledge

Wood Joints

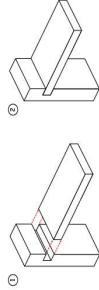


Mortise and Tenon

This is a very strong joint. The joint is split into two parts one part is the tenon (which the tenon saw is named after), the other part is the mortise (which the mortise chisel is named after).

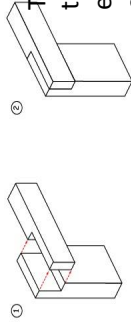
Housing joint

This is just a simple slot cut into one piece of wood to increase the glue area. This is often done with a router and works very well in MDF. This joint can be used for dividers or shelves.



Halving joint

There are many versions of the halving joint but they all involve removing half of the wood from each piece using a saw or a chisel. This joint is often strengthened with dowel.



Quiz 2 Materials / Properties

Timber Properties

Aesthetics	The appearance of the material, e.g. wood grain.
Compression Strength	Resisting compression (being squashed or crushed)
Tensile Strength	Resisting tension (being pulled apart)
Hardness	Resisting being scratched or damaged at the <u>surface</u>
Toughness	Resisting a sudden impact

Quiz 2 Key words





Clarify

Conclude

Y9 Timbers Cycle Knowledge Organiser

Quiz 2 Materials / Properties

Wood is an organic material that is the main substance in the trunk and branches of a tree. Wood prepared for use in building and carpentry is known as timber. There are two types of natural timber: Hardwood and softwood. These names do not necessarily refer to how hard or soft the wood is.

Material	Properties	Uses
Softwood  Larch	<ul style="list-style-type: none"> Tough Durable Resistant to water Use outside untreated 	<ul style="list-style-type: none"> Exterior cladding on buildings Small boats
 Ash	<ul style="list-style-type: none"> Tough Flexible Finishes well Low resistant to rot 	<ul style="list-style-type: none"> Handles for tools Sports equipment Ladders
Hardwood  Balsa	<ul style="list-style-type: none"> Very light Good strength to weight ratio 	<ul style="list-style-type: none"> Surfboard cores Air craft and model making
 Birch	<ul style="list-style-type: none"> Even grain Finishes well Low resistant to rot 	<ul style="list-style-type: none"> Veneers Interior furniture

Quiz 3 Processes

Tool Names and uses

1. Dowels	Used for making strong, accurate joints in wood.
2. Hole saw	Cutting large holes in wood
3. Mortise gauge	It has two pins for marking two parallel lines where a mortise and tenon joint is to be cut.
4. Sash clamp	Used to clamp work together when it is glued.
5. Auger	Drilling deep holes in wood
6. Smoothing plane	Finishes a surface and used on end grain
7. Rasp	Coarse file used for shaping wood or other material.
8. Cross pein hammer/Warrington hammer	The cross pein allows you to gently tap the nail between your fingers without striking a finger or thumb.
9. Mortise chisel	Used with a mallet for cutting mortise joints
10 Forstner bit	Drilling flat-bottomed holes in wood





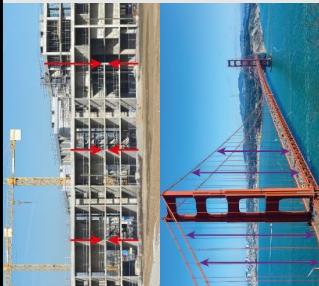
Design and Technology

Belong Believe Be Proud

During this topic you will learn the types, properties and uses of metals

Y9 Metal Cycle Knowledge Organiser

Quiz 1 General knowledge



Compression is squashing forces.

Tension is stretching or pulling forces.

Shear is where the opposing forces are not directly opposite each other.



Forces and Stresses



Quiz 1

Key words

Variation

Rigid

Justify

Design

Quiz 1 General Knowledge

All four help to prevent corrosion of ferrous metals by creating a barrier against moisture. They also enhance the aesthetics (appearance)

Paint



Plastic dip coating



Lacquering



Galvanising



Metal surface finishes

Non-ferrous Alloy metals and properties



Brass

- Alloy of copper + zinc
- Corrosion resistant
- Good thermal & electrical conductivity

Ferrous Alloy metals and properties



Stainless Steel

- Alloy of iron + chromium and other elements.
- Corrosion resistant
- Hard
- Tough



High Speed Steel

- Alloy of iron + carbon + tungsten
- Brittle
- Hard

Quiz 2 Materials / Properties

ALLOYS

Metals can be divided into 3 categories. You have previously looked at Ferrous Metals (contain iron) and Non-Ferrous Metals (contain no iron).

The 3rd category is Alloys. This is where 2, or more metals are melted together to make a new one

E.g. Brass is an alloy Metal - Copper + Zinc = Brass

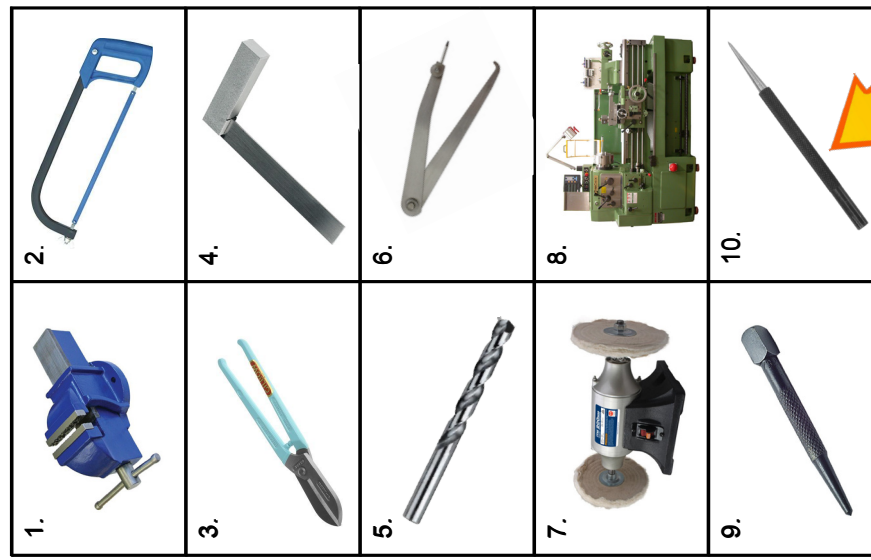


Y9 Metal Cycle Knowledge Organiser

Quiz 2 Properties

Metal Properties

Ductility	The ability to make metal longer and thinner and thinner.
Toughness	The ability to withstand a sudden impact without fracture.
Electrical conductivity	The ability to allow electricity to pass through the material (conduct)
Thermal conductivity	The ability to transfer heat through the material (conduct).
Hardness	The ability to resist indentation and wear and tear at the surface.
Alloys	Two, or more metals melted together to form a new one. They are usually made to improve the properties of the metal. They can be ferrous or non-ferrous, depending whether they contain iron or not.
Pure metals	Made up from only one chemical element, such as aluminium or copper.
Malleable	If a metal is able to be hammered or pressed into a flatter and wider shape without breaking or cracking.
Corrosion resistant	The ability of a material to be weather resistant and not rust.
Durability	The ability to resist damage, pressure and the general wear and tear of daily use.



Quiz 3 Processes

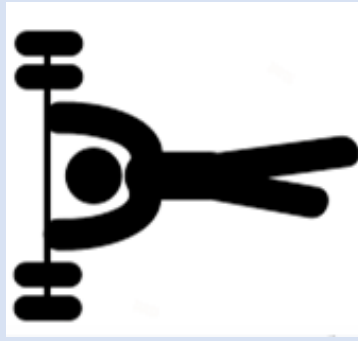
Tools and uses

1. Metal vice	To hold work whilst cutting/ filing.	6. Odd leg callipers	To scribe lines parallel to the edge of metal
2. Hacksaw	Cutting straight lines in metal.	7. Buffer machine	To polish metals and plastics
3. Tin snips	Cutting straight lines in sheet metal.	8. Centre lathe	To manufacture cylindrical shapes from metals and plastics
4. Engineers' square	Marking 90° angles	9. Centre punch	Make an indent in metal before drilling.
5. HSS drill bit	Cutting tool used to create holes	10. Scriber	Use to mark out lines/ design on metal.

Cycle 3 in Year 9 PE will focus on developing your *resilience* through activities such as *Table Tennis, Football & Health Related Fitness*

Cycle 3 Knowledge Organiser

<u>Key words and definitions</u>	
<u>Concept - Resilience</u>	<u>Resilience - Focus Statement</u>
Resilience	<i>Demonstrate mental toughness when developing complex skills</i>
Be Fearless	<i>Learning from my mistakes with confidence</i>
Adapt	<i>Modify my technique in order to improve with confidence</i>
Perseverance	<i>Persevering no matter the outcome</i>
Collaboration	<i>Working with others to develop and adapt tactics</i>
Marginal Gains	<i>Developing tactics to outwit my opponents with confidence</i>
Communication	<i>I can constructively feedback to others</i>
Determination	<i>Completing my assessment with the best of my ability</i>
Be Proactive	<i>I can support learning and progress in PE</i>



Resilience

Computer Science

Belong Believe Be Proud

In cycle 3 we study Python programming with a focus on learning the basics of this powerful computer language to solve problems.

Key words and definitions	
Python	Python is a popular programming language used in schools and industry. Python is used by Google, NASA, Instagram, Facebook and thousands of other companies to develop applications.
Syntax	A set of rules that a programming language must follow to work.
Debugging	Finding and fixing errors (called bugs) in your program code including syntax errors.
Input	Any information or data sent to a computer for processing.
Output	Any information or data sent to another device or user, for example to a monitor, printer or speaker.
Variable	A named value to store data that changes.
Constant	A named value which cannot be changed.
Integer	A positive or negative whole number for example 7 or -3.
Float (or Real)	A positive or negative number with a decimal part for example 3.66.
Print command	This outputs a message to the screen based on your input.
Comments	Code that does not actually run, but is there to explain what the code does. In Python # is used as the comments symbol.
Multiply	*is the symbol for multiply (not 'x')
Rounding	To round a number to the nearest whole number.

Topic 1 To learn key Python commands

Learning outcome 1: To understand key Python commands

Input	If the program asks for username and password this would be called an input to the program
Output	If someone puts in the wrong password a program will output a message saying wrong password

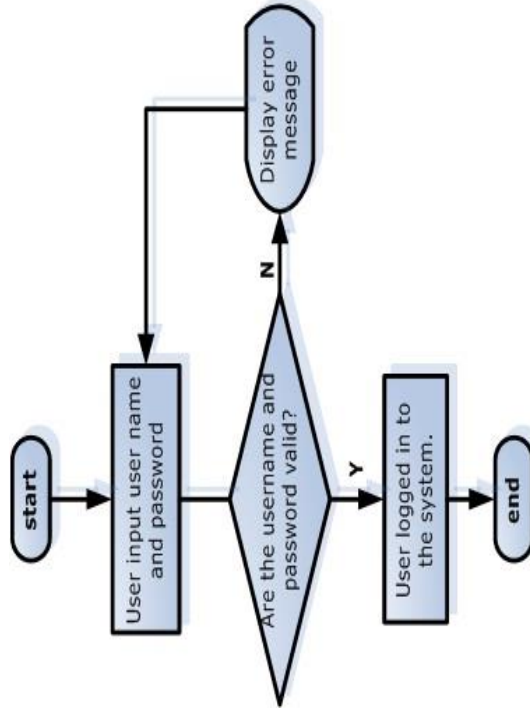
```
password=""
animal=input( ''' Please choose an animal for your password
1. Lion
2. Zebra
3. Chetah
4. Camaleon
5. Dragon ''')
if animal==1: password='Lion'
elif animal==2: password='Zebra'
elif animal==1: password='Chetah'
elif animal==1: password='Camaleon'
else :password= 'dragon'
```

You will understand the key Python commands and the correct syntax for these commands

Topic 2

Learning outcome 2: To be able to write and test programs to solve a range of problems.

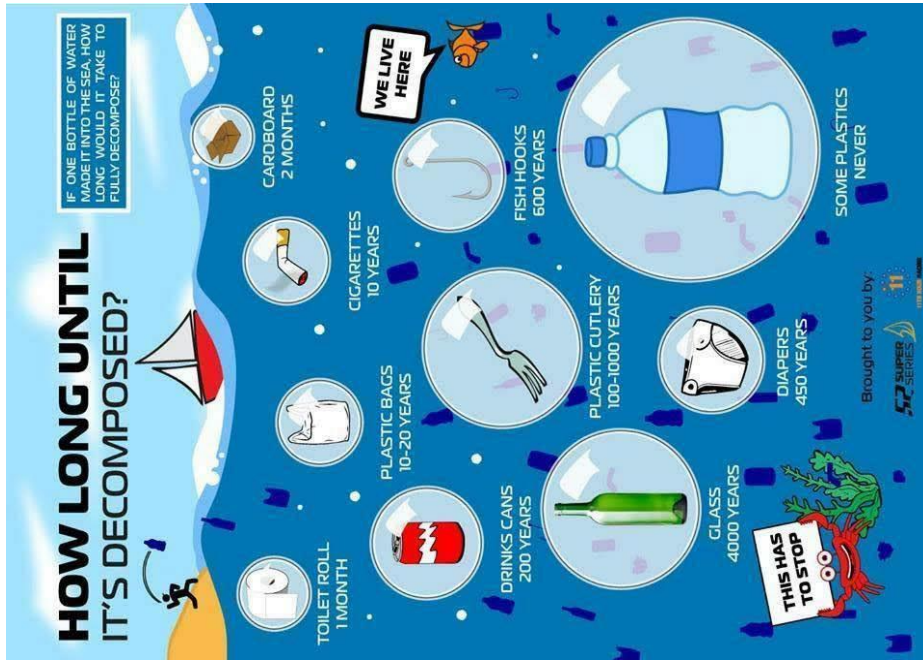
Key words and definitions	
Software	Programs or applications that can be used on a computer system.
Data Type	Tells you what kind of data it is eg integer, real, string.
String	A data type used for text.
Testing	A way of checking if a program works correctly.
Test data	Inputs chosen to see if a program works correctly.
Test plan	A detailed plan of how you are going to test a program including the test data to be used.
Sequence	Where each instruction is carried out in order one after another.
Selection	Where decisions are made that affect which instructions are carried out next.
Iteration	Where a certain set of instructions are repeated.
Validation	Checks that an input is correct and suitable.
Operators	Mathematic functions like add, subtract and multiply.
Algorithm	A step-by-step set of rules or instructions.
Flowchart	A graphical way of showing an algorithm.
Pseudocode	A set of instructions in the style of a programming language but using plain english.
Comments	Used to explain what code is doing and start with # in Python.
File	Where you save your programs to so that you can use them again in the future.
Database	A store of data (information) held in a computer.



Testing

Your programs should be tested to make sure they work as expected and to identify any errors. The errors should then be fixed and your program retested to see it now works as expected.

During Cycle 3 you will learn about the effects that plastic has on the ocean and sea life. You will be introduced to the issues of plastic waste and the amazing plastic artwork by Steve McPherson. This project will inspire a 3D art piece made from throwaway plastic!



What is plastic pollution?

Whether washing up on our beaches, appearing deep in the Arctic ice or poisoning marine wildlife, Plastic Pollution is plastic where it shouldn't be. And it's causing catastrophic harm.



Big pieces of plastic are choking and entangling turtles and seabirds and tiny pieces are clogging the stomachs of creatures who mistake it for food, from tiny plankton to whales.

12 million tonnes of **plastic** enter the ocean each year. 1 in 3 fish caught for human consumption now contains plastic.



100,000 marine mammals and turtles and 1 million sea birds are killed by marine plastic pollution every year.



Art

Belong Believe Be Proud



Belong

Believe

Be Proud