ARENA ACADEMY

Knowledge Organiser Booklet

Year 9

2024-25

Summer Term

Collaboration Opportunity Respect Excellence

DELIVERING A CORE EDUCATION

Subjects

Key Stage 3 (Y7-9):

English
Maths
Science
Geography
History
Religious Education
French
Spanish
Physical Education
Computer Science
Art
Performing Arts
Design Technology
Personal Development

Key Stage 4 (Y10-11):

English
Maths
Art
Business Studies
Religious Education
Food Science
French
Spanish
Geography
Health & Social Care
Combined Science
Triple Science: Biology, Chemistry & Physics
History
Computer Science
Design Technology
Sports Studies
Performing Arts
Psychology
DIT
GCSE PE
Photography
Sociology
Personal Development

What are knowledge organisers?

For students to succeed in a particular area, they must have a foundation of factual knowledge, understand those facts in the context of a conceptual framework and organise knowledge in order to facilitate retrieval and application. We can see knowledge organisers as a way to enable this, in a much more systematic way than traditional revision guides and textbooks.

There are many arguments made for the necessity of the memorisation of important knowledge. Our working memory capacity is limited, so by storing more in our long-term memory, we can free up working memory capacity.

Knowledge organisers are a summary of the key facts and essential knowledge that pupils need about a unit of work or a curriculum subject. Each page contains the essential information broken down into easily digestible chunks. Each single side of A4 is important to focus the minds of the teachers creating them so they only include what's crucial.

Pupils will review, revise and quiz themselves using their knowledge organisers.
Knowledge organisers are a really clear and easy to understand way for parents to be more aware of what their children are learning at school and thus to support them whilst they revise/test themselves at home.

How to use your Knowledge Organiser?

What is a Knowledge Organiser and how will it help me ?
It is an organised collection of knowledge that you need to know and learn for every topic you study in every subject. It will help you to be successful in your tests and exams.
Your teacher will use the knowledge organiser in your lessons. They will ask you to refer to various sections - they might talk this through and/or ask you to make key notes in your books or to highlight certain sections on your knowledge organiser.
Your teacher will set homework, where you will be asked to learn key knowledge from your knowledge organiser - you will then be tested in lessons regularly via short quizzes.

Do I have to bring my Knowledge Organiser every day ?
Yes, you do. It is one of our key expectations that you bring your knowledge organiser to every lesson, every day in your special Knowledge Organiser bag. Your Form Tutor will check this every morning.

Is there anything I could use to support me when using my knowledge organiser ?
Some people find post it's handy to stick onto their knowledge organiser pages - these are useful for extra notes. Small white revision/flash cards are helpful so you can write key facts down. These can then be placed up around the house to help your revision.

How should I use my Knowledge Organiser to help me learn ?
There are lots of ways to use your knowledge organiser - the key to success is to find what works for you. The table below shows you some different ways to use them.

How to use a knowledge organiser – A step by step guide

	Look, Cover, Write, Correct	Definitions to key words	Flash Cards	Self Quizzing	Mind Maps	Paired Retrieval
Step 1	Look at and study a specific area of your knowledge organiser. 	Write down the key words and definitions. 	Use your knowledge organiser to condense and write down key facts and information on your flash cards 	Use your knowledge organiser to create a new quiz. Write down questions using your knowledge organiser. 	Create a mind map with all the information you can remember from your knowledge organiser. 	Ask a partner or family member to have the knowledge organiser or flash cards in their hands 
Step 2	Cover or flip the knowledge organiser over and write down everything you remember. 	Try not to use your knowledge organiser to help you. 	Add pictures to help support. Then self quiz yourself using the flash cards. You can write questions on one side and answers on the other. 	Answer the questions and remember to use full sentences. 	Check your knowledge organiser to see if there were any mistakes with the information you have made. 	They can then test you by asking you questions on different sections of your knowledge organiser 
Step 3	Check what you have written down. Correct any mistakes in green pen and add anything you missed. Repeat. 	Use your green pen to check your work. 	Use a parent/carer or friend to help quiz you on the knowledge. 	You can also use family to help quiz you. Keep self-quizzing until you get all questions correct. 	Try to make connections that links information together. 	Write down your answers. 

What can be found in knowledge organisers?

Some of the core knowledge you can find in your knowledge organiser includes:

- key vocabulary / terminology (tier 3 vocabulary)
- key knowledge that students will require to have memorised for the subject
- key places and people
- useful diagrams (as required for the topic)
- key dates for a subject like history (e.g. when the two World Wars were) would clearly also be included
- key information they should know before starting the topic
- important quotes (that demonstrate those themes)
- important equations
- key academic language (tier 2 vocabulary)

Learn, Cover, Write, Correct

1. LEARN

Choose a small 'chunk' of the page to learn. Read it over and over again in your head.

2. COVER

Cover up the information you have just learnt.

3. WRITE

When the knowledge is covered up, write down the information you studied.

4. CORRECT

Correct your answer, write any missing or incorrect words in red pen.

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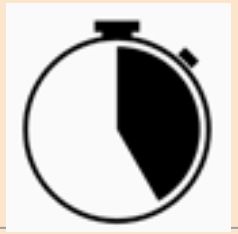
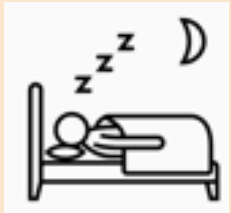
Practice makes Permanent

The Essential Steps for ‘Revising’

Limit distractions 	**Find a nice space to revise in** 	**Create and use a revision timetable. No cramming.** 
Set an alarm and start early 	**Work in intensive blocks of time (25 mins works well)** 	**The more you put in, the more you get out** 
Get plenty of sleep 	**Eat well** 	**Ask your teachers for help** 

Mathematics

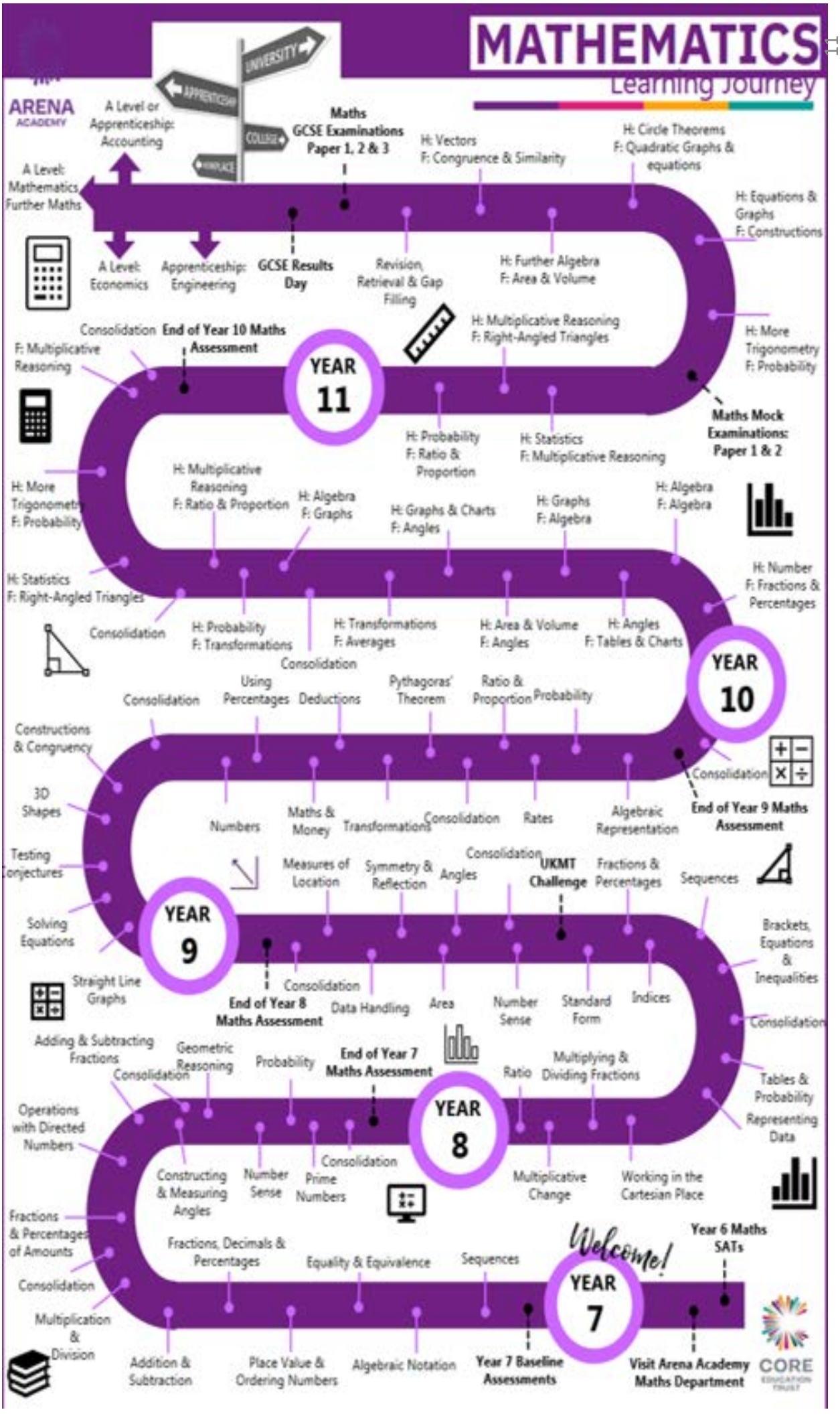
Topics covered from the beginning of the academy year to the end of this half-term.

Sum 1:

1. Enlargement and similarity
2. Solving ratio and proportion problems
3. Rates

Sum 2:

4. Probability
5. Algebraic representation


MATHEMATICS
Learning Journey
ARENA ACADEMY
A Level or Apprenticeship: Accounting
UNIVERSITY
APPRENTICESHIP
COLLEGE
WORKPLACE
A Level: Mathematics, Further Maths
A Level: Economics
Apprenticeship: Engineering
Maths GCSE Examinations Paper 1, 2 & 3
GCSE Results Day
H: Vectors F: Congruence & Similarity
Revision, Retrieval & Gap Filling
H: Circle Theorems F: Quadratic Graphs & equations
H: Equations & Graphs F: Constructions
H: Further Algebra F: Area & Volume
H: Multiplicative Reasoning F: Right-Angled Triangles
H: More Trigonometry F: Probability
Maths Mock Examinations: Paper 1 & 2
H: Probability F: Ratio & Proportion
H: Statistics F: Multiplicative Reasoning
YEAR 11
Consolidation
End of Year 10 Maths Assessment
F: Multiplicative Reasoning
H: More Trigonometry F: Probability
H: Multiplicative Reasoning F: Ratio & Proportion
H: Algebra F: Graphs
H: Graphs & Charts F: Angles
H: Graphs F: Algebra
H: Algebra F: Algebra
H: Statistics F: Right-Angled Triangles
H: Number F: Fractions & Percentages
Consolidation
H: Probability F: Transformations
H: Transformations F: Averages
Consolidation
H: Area & Volume F: Angles
H: Angles F: Tables & Charts
YEAR 10
Consolidation
Using Percentages
Deductions
Pythagoras' Theorem
Ratio & Proportion
Probability
Constructions & Congruency
3D Shapes
Testing Conjectures
Solving Equations
Numbers
Maths & Money
Transformations
Consolidation
Rates
Algebraic Representation
Consolidation
End of Year 9 Maths Assessment
YEAR 9
Straight Line Graphs
Measures of Location
Symmetry & Reflection
Angles
Consolidation
UKMT Challenge
Fractions & Percentages
Sequences
Brackets, Equations & Inequalities
End of Year 8 Maths Assessment
Consolidation
Data Handling
Area
Number Sense
Standard Form
Indices
Consolidation
Adding & Subtracting Fractions
Geometric Reasoning
Probability
End of Year 7 Maths Assessment
Ratio
Multiplying & Dividing Fractions
Tables & Probability
Representing Data
YEAR 8
Consolidation
Operations with Directed Numbers
Constructing & Measuring Angles
Number Sense
Prime Numbers
Consolidation
Multiplicative Change
Working in the Cartesian Place
Fractions & Percentages of Amounts
Consolidation
Multiplication & Division
Fractions, Decimals & Percentages
Equality & Equivalence
Sequences
Welcome!
YEAR 7
Year 6 Maths SATs
Addition & Subtraction
Place Value & Ordering Numbers
Algebraic Notation
Year 7 Baseline Assessments
Visit Arena Academy Maths Department
CORE EDUCATION TRUST

Maths: Topic 1: Enlargement and Similarity

Recognise enlargement & similarity

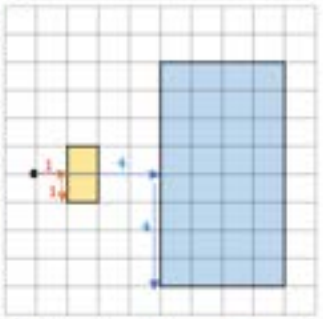
Shapes are similar if all pairs of corresponding sides are in the same ratio

These shapes are similar because all sides are increased by the same ratio

Enlargements are similar shapes with a ratio other than 1

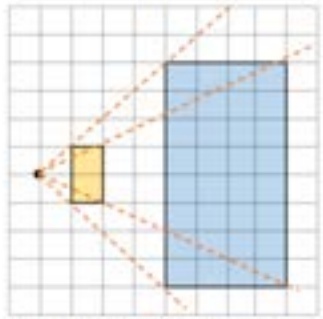
Enlarge a shape from a point

Scaled distances method



Scale the distance between the point of enlargement and each corresponding vertex

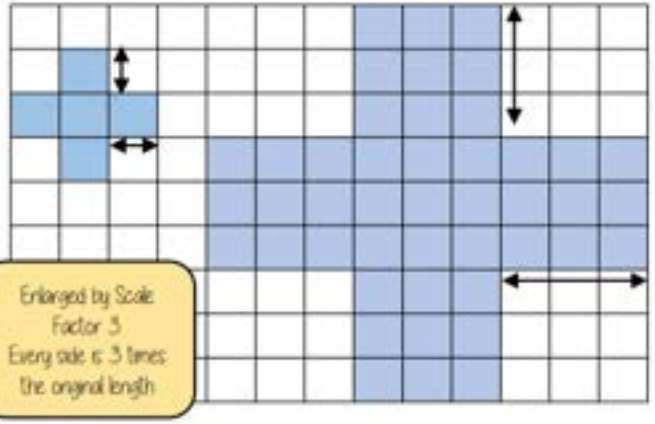
Rays method



Multiply the distance from the centre of corresponding vertices by the scale factor along the ray

Enlarge by a positive scale factor

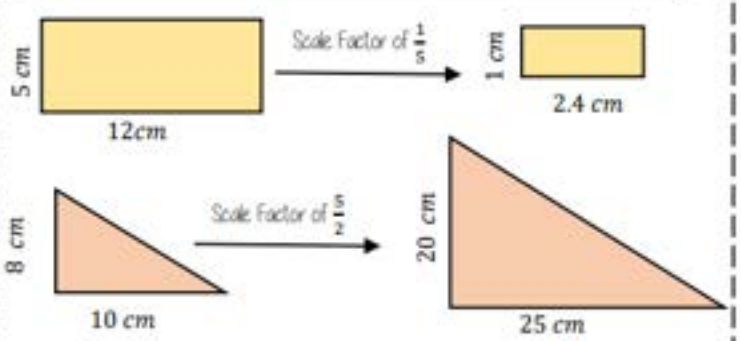
With a scale factor larger than 1 it makes the shape **bigger**



Enlarged by Scale Factor 3
Every side is 3 times the original length

Positive fractional scale factor

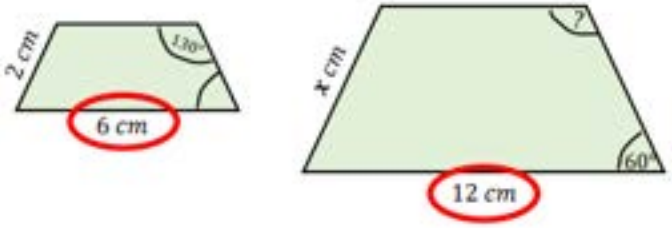
With a scale factor between 0 and 1 it makes the shape **smaller**



Calculations in similar shapes

Don't forget that properties of shapes don't change with enlargements or in similar shapes

The two trapezium are similar find the missing side and angle



Corresponding sides identify the scale factor $\frac{12}{6} = 2$ Scale Factor = **2**

Calculate the missing side Length (corresponding side) x scale factor

$2cm \times 2$

$x = 4cm$

Enlargement does not change angle size

Calculate the missing angle Corresponding angles remain the same

$130°$

Keywords

Similar Shapes: shapes of different sizes that have corresponding sides in equal proportion and identical corresponding angles

Scale Factor: the multiple describing how much a shape has been enlarged

Enlarge: to change the size of a shape (enlargement is not always making a shape bigger)

Corresponding: objects (or sides) that appear in the same place in two similar situations

Image: the picture or visual representation of the shape

Maths: Topic 2: Solving ratio and Proportion problems

Direct Proportion

As one variable changes the other changes at the same rate

4 cans of pop = £2.40

4 cans of pop = £2.40 → ×0.5 → 2 cans of pop = £1.20 → ×0.5

This multiplier is the same in the same way that this would be for ratio

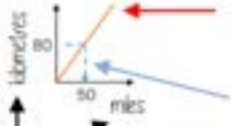
This is a multiplicative change

4 cans of pop = £2.40 → ×3 → 12 cans of pop = £7.20 → ×3

Sometimes this is easiest if you work out how much one unit is worth first. e.g. 1 can of pop = £0.60

Conversion Graphs

Compare two variables



This is always a straight line because as one variable increases so does the other at the same rate

Labelling of both axes is vital

To make conversions between units you need to find the point to compare – then find the associated point by using your graph

Using a ruler helps for accuracy

Showing your conversion lines help as a "check" for solutions

Inverse Proportion

As one variable is multiplied by a scale factor the other is divided by the same scale factor

Examples of inversely proportional relationships:

Time taken to fill a pool and the number of taps running

Time taken to paint a room and the number of workers

T is inversely proportional to G. When T=2 then G=20

T	1	2	8
G	40	20	5

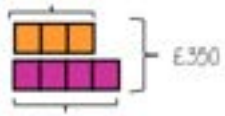
÷2 ×4 ×2 ÷4

Sharing a whole into a given ratio

James and Lucy share £350 in the ratio 3:4
Work out how much each person earns

Model the Question

James : Lucy = 3 : 4



Find the value of one part

Whole: £350
7 parts to share between
(3 James; 4 Lucy)

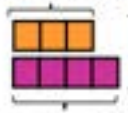
£350 ÷ 7 = £50

□ = one part = £50

Put back into the question

James : Lucy
3 : 4
×50 ↓ ×50
£150 : £200

James = 3 × £50 = £150



Lucy = 4 × £50 = £200

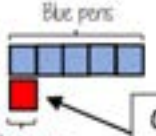
Finding a value given 1n (or n:1)

Inside a box are blue and red pens in the ratio 5:1
If there are 10 red pens how many blue pens are there?

Model the Question

Blue : Red
5 : 1

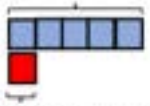
□ = one part = 10 pens



One unit = 10 pens

Put back into the question

Blue : Red
5 : 1
×10 ↓ ×10
50 : 10



Blue pens = 5 × 10 = 50 pens

Red pens = 1 × 10 = 10 pens

There are 50 Blue Pens

Best Buys

Have a directly proportional relationship

To calculate best buys you need to be able to compare the cost of one unit or units of equal amounts

Cost per item

Shop A	Shop B
4 cans for £1.20	3 cans for 93p
£1.20 ÷ 4	£0.93 ÷ 3
1 can is £0.30 Or 30p	1 can is £0.31 Or 31p

Shop A is the best value as it is 1p cheaper per can of pop

Cost per pound

Shop A	
4 cans for £1.20	3 cans for 93p
4 ÷ £1.20	3 ÷ £0.93
£1 buys 3.333 cans of pop	£1 buys 3.23 cans of pop

Shop A is still shown as being the best value but pay attention to the unit you are calculating, per item or per pound

Best value is the most product for the lowest price per unit

Keywords

Proportion: a comparison between two numbers

Ratio: a ratio shows the relative size of two variables

Direct proportion: as one variable is multiplied by a scale factor the other variable is multiplied by the same scale factor

Inverse proportion: as one variable is multiplied by a scale factor the other is divided by the same scale factor

Maths: Topic 3: Rates

Speed, Distance, Time

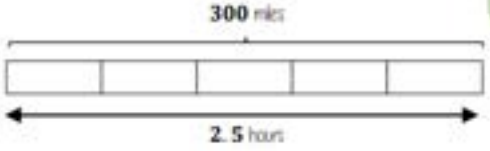
"per" for every
e.g. 80 miles per hour (mph)
Travel 80 miles every hour

$$\text{speed} = \frac{\text{distance}}{\text{time}}$$

You can use a double number line to help you calculate distance

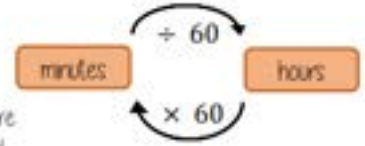
e.g. A boat travels at a constant speed for 2.5 hours
It travels 300 miles

Bar models can help to calculate mph



Each part is half an hour
Each part is 60 miles

Speed, Distance, Time



Before calculations – make sure you are working in the same units as the speed

Learn or learn how to rearrange the formular for speed, distance and time

$$\text{time} = \frac{\text{distance}}{\text{speed}}$$

Substitute in the variables given

$$\text{distance} = \text{speed} \times \text{time}$$

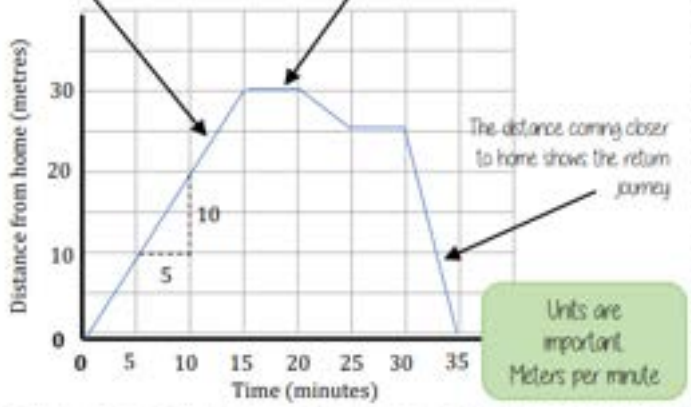
Distance – Time graphs

Gradient = speed

The steeper a gradient the faster the speed

$\frac{10}{5}$ = 2 metres per min

Horizontal lines represent staying still



The distance coming closer to home shows the return journey

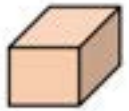
Units are important
Meters per minute

Density, Mass, Volume

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

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

$$\text{mass} = \text{volume} \times \text{density}$$



volume of prism = Area of cross section × Depth

R

Flow problems & graphs

This will fill at a constant rate, then as the space decreases it will speed up and the neck of the bottle fill at a faster constant speed

The cylinder will fill at a constant speed

Units are important
Ensure any volume calculations are the same unit as the rate of flow

Rates of change & units

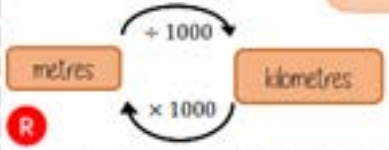
Common rates of change relationships

Revisit your conversions between units of length and capacity

Speed miles **per** hour

Exchange rates euros **per** pounds

Density mass **per** volume



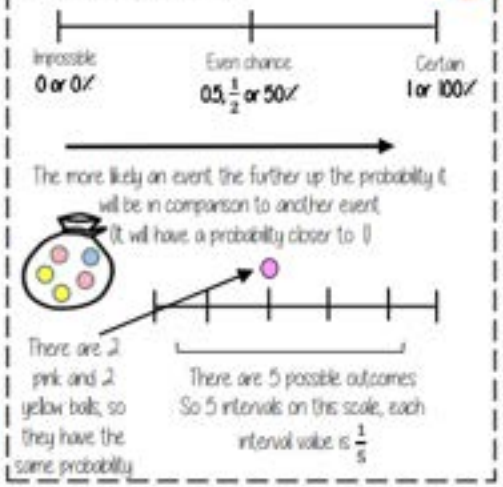
R

Keywords

Convert: change
Mass: a measure of how much matter is in an object. Commonly measured by weight
Origin: the coordinate (0, 0)
Volume: the amount of 3D space a shape takes up
Substitute: putting numbers where letters are – replacing numbers into a formula

Maths: Topic 4: Probability

The probability scale



Single event probability

Probability is always a value between 0 and 1

The probability of getting a blue ball is $\frac{1}{5}$

∴ The probability of **NOT** getting a blue ball is $\frac{4}{5}$

The sum of the probabilities is 1

The table shows the probability of selecting a type of chocolate

Dark	Milk	White
0.15	0.35	

P(White chocolate) = 1 − 0.15 − 0.35 = 0.5

Relative Frequency

$$\frac{\text{Frequency of event}}{\text{Total number of outcomes}}$$

Remember to calculate or identify the overall number of outcomes!

Colour	Frequency	Relative Frequency
Green	6	0.3
Yellow	12	0.6
Blue	2	0.1
	20	

Relative frequency can be used to find expected outcomes

e.g. Use the relative probability to find the expected outcome for green if there are 100 selections

Relative frequency x Number of times

$0.3 \times 100 = 30$

Expected outcomes

Expected outcomes are estimations. It is a long term average rather than a prediction

Dark	Milk	White
0.15	0.35	0.5

The sum of the probabilities is 1

An experiment is carried out 400 times

Show that dark chocolate is expected to be selected 60 times

$0.15 \times 400 = 60$

Independent events

The rolling of one dice has no impact on the rolling of the other. The individual probabilities should be calculated separately

Probability of event 1 × Probability of event 2

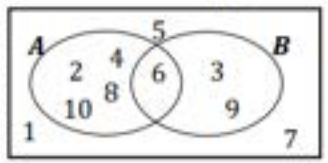
$P(5) = \frac{1}{6}$ $P(R) = \frac{1}{4}$

Find the probability of getting a 5 and a red

$P(5 \text{ and } R) = \frac{1}{6} \times \frac{1}{4} = \frac{1}{24}$

Using diagrams

Recap Venn diagrams, Sample space diagrams and Two-way tables



	Car	Bus	Walk	Total
Boys	15	24	14	53
Girls	6	20	21	47
Total	21	44	35	100

The possible outcomes from rolling a dice

The possible outcomes from tossing a coin	1	2	3	4	5	6
H	1H	2H	3H	4H	5H	6H
T	1T	2T	3T	4T	5T	6T

Keywords

Probability: the chance that something will happen

Relative Frequency: how often something happens divided by the outcomes

Independent: an event that is not effected by any other events

Chance: the likelihood of a particular outcome

Event: the outcome of a probability – a set of possible outcomes

Biased: a built in error that makes all values wrong by a certain amount

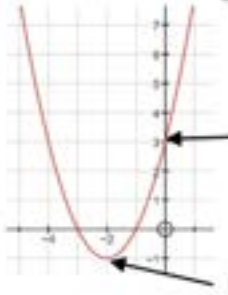
Maths: Topic 5: Algebraic representation

Quadratic Graphs

$y = x^2 + 4x + 3$

If x^2 is the highest power in your equation then you have a quadratic graph

It will have a parabola shape



Intersection with the y axis

Substitute the x values into the equation of your line to find the y coordinates

x	−4	−3	−2	−1	0	1
y	3	0	−1	0	3	8

Coordinate pairs for plotting $(-3, 0)$

Plot all of the coordinate pairs and join the points with a curve (freehand)

Quadratic graphs are always symmetrical with the turning point in the middle

Interpret other graphs

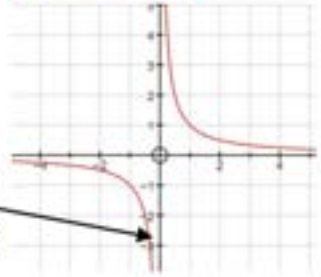
Cubic Graphs

$y = x^3 + 2x^2 - 2x + 1$

If x^3 is the highest power in your equation then you have a cubic graph

Reciprocal Graphs

$y = \frac{1}{x}$



Reciprocal graphs never touch the y axis

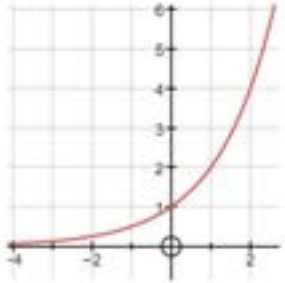
This is because x cannot be 0

This is an asymptote

Exponential Graphs

$y = 2^x$

Exponential graphs have a power of x

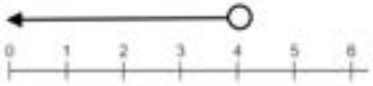


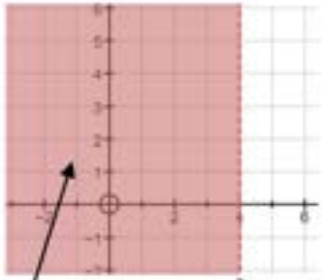
Represent Inequalities

Multiple methods of representing inequalities

$x < 4$

All values are less than 4





The shaded area indicates all possible values of x

The dotted line shows that the inequality does not include these points

The solid line shows that the inequality includes all the points on this line

$y \geq 2x + 1$

The shaded area indicates all possible solutions to this inequality

Keywords

Quadratic: a curved graph with the highest power being 2. Square power.

Inequality: makes a non equal comparison between two numbers

Reciprocal: a reciprocal is **1** divided by the number

Cubic: a curved graph with the highest power being 3. Cubic power.

Origin: the coordinate (0, 0)

Parabola: a 'U' shaped curve that has mirror symmetry

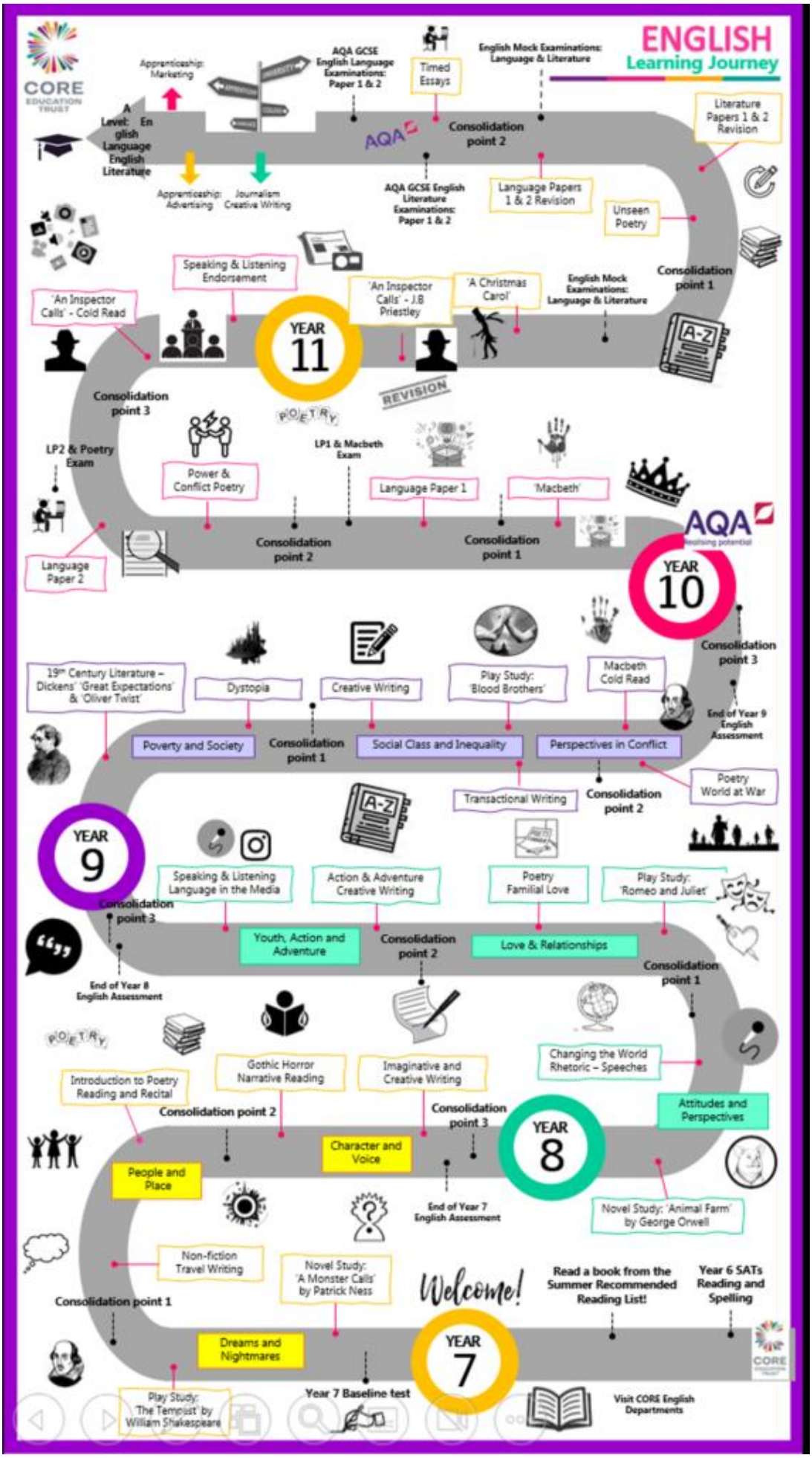
English

Topics covered from the beginning of the academy year to the end of this half-term.

Summer: Macbeth 'cold read'

In this unit you will be taught the plot, context, themes and key ideas in Shakespeare's famous tragedy 'Macbeth'.

This is a key GCSE text for your exams in Year 10 and 11.



ARENA ACADEMY

'Macbeth' – Knowledge Organiser

Context

- **King James I** – Macbeth was written in 1606, early in the reign of James I, who succeeded to the English throne in 1603 after being King of Scotland. The play pays homage to the king's Scottish lineage and hatred of witches. Additionally, the witches' prophecy that Banquo will found a line of kings is a nod to James' family's claim to have descended from the historical Banquo.
- **The Divine Right of Kings** – the idea that kings got their power from God and not from their subject. James I was a believer in this, and the idea meant that any treasonous activity was a crime against God. Only a century earlier, England had suffered under the massive disorder of the Wars of the Roses, so many supported the idea to avoid civil unrest.
- **Patriarchy** – patriarchal societies are those in which men dominate, and inheritance passes through male heirs.
- **Gender** – Macbeth and Lady Macbeth switch between having masculine and feminine characteristics. In the play, gender is often linked to ambition and a willingness to do anything to achieve power.
- **Women** – Women were expected to follow social expectations with their behaviour towards men. They were meant to obey all men, be faithful and respectful, not be violent and be religious. They would have been regarded as a possession, first owned by the father, then given to and owned by the husband. Women were considered the delicate, 'fairer' sex and they should be quiet and reserved, always respecting the wishes and opinions of the males in their lives. Lady Macbeth subverts these expectations in the play to manipulate Macbeth in getting what she wants.
- **Adam, Eve and the serpent** – in the bible, Adam and Eve live peacefully in the Garden of Eden until Eve is tempted by the serpent and eats the forbidden fruit from the tree of knowledge. She convinces Adam to eat as well, and God curses them and banishes them to Earth. The serpent is frequently alluded to in Macbeth.
- **Witchcraft** – in Shakespeare's time there was no scientific knowledge to explain natural disasters such as earthquakes, floods and droughts. One of the ways they accounted for the unexplained was the idea of witches. In Elizabethan England, hundreds of thousands of women were tortured and executed in Europe because they were accused of witchcraft. The King wrote a book on the subject entitled 'Daemonologie' and appealed to parliament to pass the following act in 1563 which was still a part of English law until 1951. At the time Shakespeare was writing, many people thought that witches were real, so the weird sisters would have seemed believable and frightening to an audience in the 1600s.
- **The 5 Acts:** Macbeth is a typical tragedy. The first part builds up the turning point (Duncan's murder), and the second part deal with the consequences of this, which leads to the main character's downfall.
- **Tragic Conventions:** Macbeth is one of Shakespeare's Tragedies and follows specific conventions. The climax must end in a tremendous catastrophe involving the death of the main character; the character's death is caused by their own flaw(s) (hamartia); the character has something the audience can identify with which outweighs their flaws so we care about them.
- **The Real Macbeth:** Macbeth is loosely based on true events in feudal Scotland in the 11th Century and would have been known to King James. King James inherited the throne through his ancestors Banquo and Fleance who appear in the play.

Key Things to Remember

- The play was written in 1606 but was set in the 11th century (Medieval period).
- In the play, King Duncan was a benevolent king and loved by all. In real life he was a weak king.
- Banquo is intrigued by the prophecies and does have ambitious thoughts, but he does not choose to act on these thoughts.
- There are many similarities between Banquo and Macbeth. They are both soldiers, they are both very patriotic at the start of the play and they are both considered to be brave and noble.
- Shakespeare believed the human nature is prone to evil and that people are greedy. He illustrates this in the Macbeths' desire to become King and Queen. This greed led them to resort to extreme measures such as regicide. In Macbeth's case, his greed led him to kill others, too.
- Macbeth kills Macdonald, Duncan, Duncan's guards and Young Siward himself.
- Macbeth orders the deaths of Lady Macduff, her family and household and Banquo.
- Macbeth is the only Shakespearean play set in Scotland.
- Macbeth's castle is in Inverness. The Royal Palace is in Dunsinane.
- The Gunpowder Plot occurred in 1605, one year before the play was written.

Characters	
Macbeth	A loyal warrior who becomes duplicitous as he becomes obsessed with the witches' prophecies of power.
Lady Macbeth	Macbeth's wife who drives his ambition in the beginning but loses her control by the end.
Banquo	Macbeth's close friend and ally who also receives prophecies.
Fleance	Banquo's son who represents innocence and justice.
Duncan	King of Scotland at the beginning of the play - a strong, respected leader.
Malcolm	Duncan's oldest son and next in line to the throne. Joins the English army to defeat Macbeth at the end of the play.
Donalbain	Duncan's youngest son disappears (to Ireland) after Duncan's murder.
Macduff	Macbeth's antagonist: A brave warrior who is loyal to Duncan and is consistently suspicious of Macbeth.

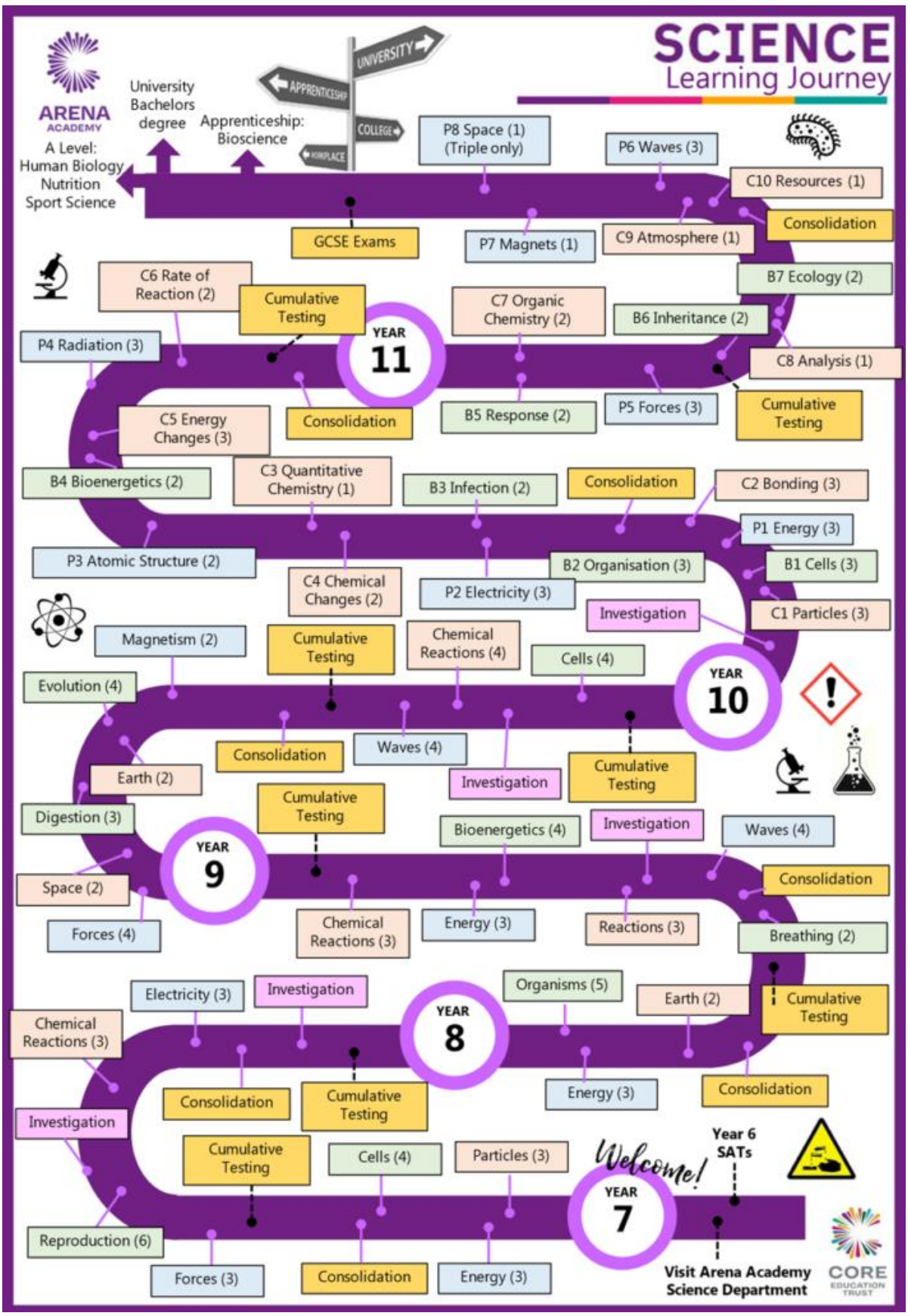
Themes	
Ambition	The witches' prophecies spur Macbeth and Lady Macbeth to fulfil their ambitions, but they never *make* them do anything.
Fate and Free Will	What made it all happen? Fate? The witches? Macbeth's free will?
Good and Evil	Good and evil are hown through contrasts in the play. Evil is illustrated by the witches, Macbeth, Lady Macbeth, the assassins & traitors. Good is shown by Duncan, Malcolm, Banquo, Macduff, Lady Macduff.
The Supernatural	This is shown through the witches & LM calling upon the spirits.
Appearance and Reality	M and LM look innocent but are plotting behind people's backs.
Light and Darkness	Light links to good, life and God. Darkness links to evil and foreboding.
Guilt	Guilt is shown through M (internal conflict) and LM's blood imagery.
Gender	LM challenges and controls M. She subverts the gender stereotypes of the time.

Science

Topics covered from the beginning of the academy year to the end of this half-term.

Summer:

1. Cells


SCIENCE
Learning Journey
ARENA ACADEMY
University Bachelors degree
Apprenticeship: Bioscience
A Level: Human Biology Nutrition Sport Science
UNIVERSITY
APPRENTICESHIP
COLLEGE
WORKPLACE
YEAR 11
P8 Space (1) (Triple only)
P6 Waves (3)
C10 Resources (1)
Consolidation
GCSE Exams
P7 Magnets (1)
C9 Atmosphere (1)
B7 Ecology (2)
C6 Rate of Reaction (2)
Cumulative Testing
C7 Organic Chemistry (2)
B6 Inheritance (2)
P4 Radiation (3)
C8 Analysis (1)
Consolidation
B5 Response (2)
P5 Forces (3)
Cumulative Testing
C5 Energy Changes (3)
B4 Bioenergetics (2)
C3 Quantitative Chemistry (1)
B3 Infection (2)
Consolidation
C2 Bonding (3)
P1 Energy (3)
P3 Atomic Structure (2)
C4 Chemical Changes (2)
P2 Electricity (3)
B2 Organisation (3)
B1 Cells (3)
Investigation
C1 Particles (3)
YEAR 10
Magnetism (2)
Cumulative Testing
Chemical Reactions (4)
Cells (4)
Evolution (4)
Consolidation
Waves (4)
Earth (2)
Investigation
Cumulative Testing
Digestion (3)
Cumulative Testing
Bioenergetics (4)
Investigation
Waves (4)
YEAR 9
Space (2)
Consolidation
Forces (4)
Chemical Reactions (3)
Energy (3)
Reactions (3)
Breathing (2)
Electricity (3)
Investigation
Organisms (5)
Earth (2)
Cumulative Testing
Chemical Reactions (3)
YEAR 8
Consolidation
Cumulative Testing
Energy (3)
Consolidation
Investigation
Year 6 SATs
Cumulative Testing
Cells (4)
Particles (3)
Welcome!
YEAR 7
Reproduction (6)
Forces (3)
Consolidation
Energy (3)
Visit Arena Academy Science Department
CORE EDUCATION TRUST

Cells knowledge organiser

Required Practical

Microscopy Required Practical

- Includes preparing a slide, using a light microscope, drawing any observations – use a pencil and label important observations.

Osmosis and Potato Practical

- Independent variable – concentration.
- Dependent variable – change in mass.
- Control variable – volume of solution, temperature, time, surface area of the potato.

The potato in the sugar solution will lose water and so will have less mass at the end; the potato in the pure water solution will gain water.

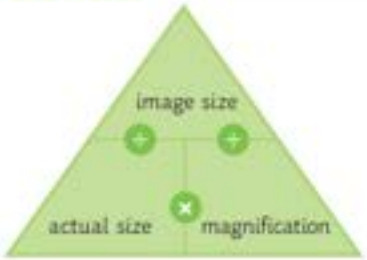
Specialised Cells

When a cell changes to become a specialised cell, it is called differentiation.

Specialised Cell	Function	Adaptation
sperm	To get the male DNA to the female DNA.	Streamlined head, long tail, lots of mitochondria to provide energy.
nerve	To send electrical impulses around the body.	Long to cover more distance. Has branched connections to connect in a network.
muscle	To contract quickly.	Long and contain lots of mitochondria for energy.
root hair	To absorb water from the soil.	A large surface area to absorb more water.
phloem	Transports substances around the plant.	Pores to allow cell sap to flow. Cells are long and joined end-to-end.
xylem	Transports water through the plant.	Hollow in the centre. Tubes are joined end-to-end.

Equations and Maths

Equation



Maths Skills

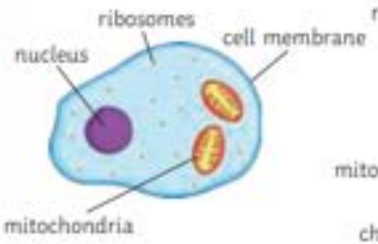
Conversions:
Micrometres to millimetres: divide by 1000.

Standard Form:
$0.003 = 3 \times 10^{-3}$

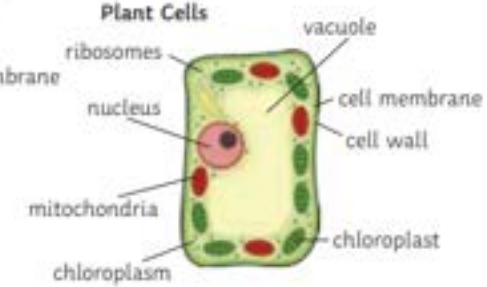
$5.6 \times 10^{-4} = 0.0056$

Prokaryotic and Eukaryotic Cells

Animal Cells



Plant Cells

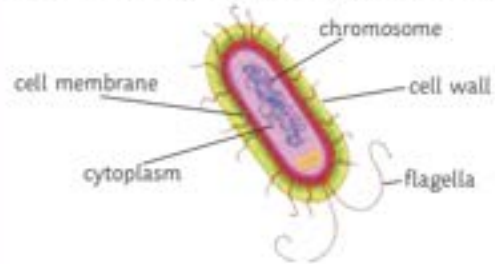


Plant and animal cells have similarities and differences:

	Animal	Plant
nucleus	✓	✓
cytoplasm	✓	✓
chloroplast	X	✓
cell membrane	✓	✓
permanent vacuole	X	✓
mitochondria	✓	✓
ribosomes	✓	✓
cell wall	X	✓

Bacterial Cells

Bacterial cells do not have a true nucleus, they just have a single strand of DNA that floats in the cytoplasm. They contain a plasmid.

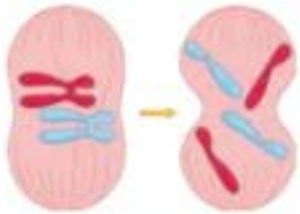


Chromosomes and Mitosis

In the nucleus of a human cell there are 23 pairs of **chromosomes**. Chromosomes contain a double helix of **DNA**. Chromosomes have a large number of genes.

The **cell cycle** makes new cells.

Mitosis: DNA has to be **copied/replicated** before the cell carries out mitosis.



Key Vocabulary

active transport
alveoli
chromosome
diffusion
eukaryotic
gas exchange
mitosis
multicellular
osmosis
prokaryotic
undifferentiated
replicated
specialised
villi

Stem Cells

Embryonic stem cells are **undifferentiated** cells, they have the potential to turn into any kind of cell.

Adult stem cells are found in the bone marrow, they can only turn into some types of cells e.g. blood cells.

Uses of stem cells:

- Replacing faulty blood cells;
- making insulin producing cells;
- making nerve cells.

Some people are against stem cell research.

For Stem Cell Research	Against Stem Cell Research
Curing patients with stem cells - more important than the rights of embryos.	Embryos are human life.
They are just using unwanted embryos from fertility clinics, which would normally be destroyed.	Scientists should find other sources of stem cells.

Stem Cells in Plants

In plants, stem cells are found in the **meristem**. These stem cells are able to produce clones of the plant. They can be used to grow crops with specific features for a farmer, e.g. **disease resistant.**

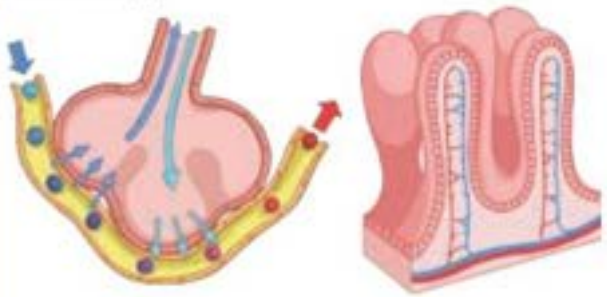
Exchange – Humans

Multicellular organisms have a large surface are to volume ratio so that all the substances can be exchanged.

Gas exchange: Lungs

The alveoli are where gas exchange takes place.

They have a large surface area, moist lining, thin walls and a good blood supply.

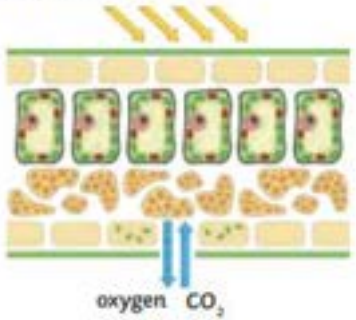


Villi: Small Intestine

Millions of villi line the small intestine increasing the surface area to absorb more digested food.

They are a single layer of cells with a good blood supply.

Exchange in Plants



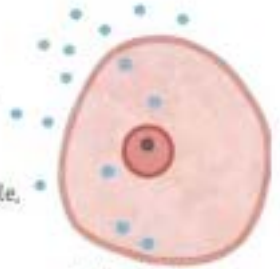
The surface of the leaf is flattened to increase the surface area for more gas exchange by diffusion.

Oxygen and water vapour diffuse out of the stomata. Guard cells open and close the stomata, controlling water loss.

Key Processes

Diffusion is the spreading out of particles from an area of higher concentration to an area of lower concentration.

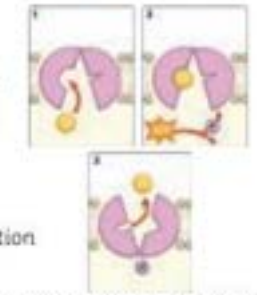
Cell membranes are semi-permeable, only small molecules can get through.



Cell Diffusion

Osmosis is the movement of water molecules across a partially permeable membrane from a region of higher concentration to a region of lower concentration.

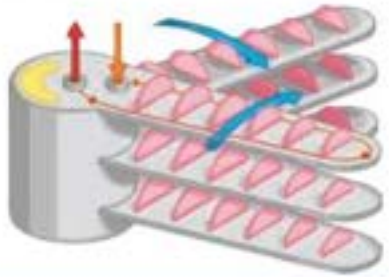
Active transport is the movement of substances against the concentration gradient. This process requires energy from respiration.



Active Transport in Cells

Exchange in Fish

Fish have a large surface area for gas exchange. These are called **gills.** Water enters the fish through the mouth and goes out through the gills. The oxygen is transported from the water to the blood by **diffusion**. Carbon dioxide diffuses from the blood to the water. Each gill has **gill filaments** which give the gills a large surface area. **Lamellae** cover each gill filament to further increase the surface area for more gas exchange. They have a **thin surface layer** and **capillaries** for good blood supply which helps with diffusion.

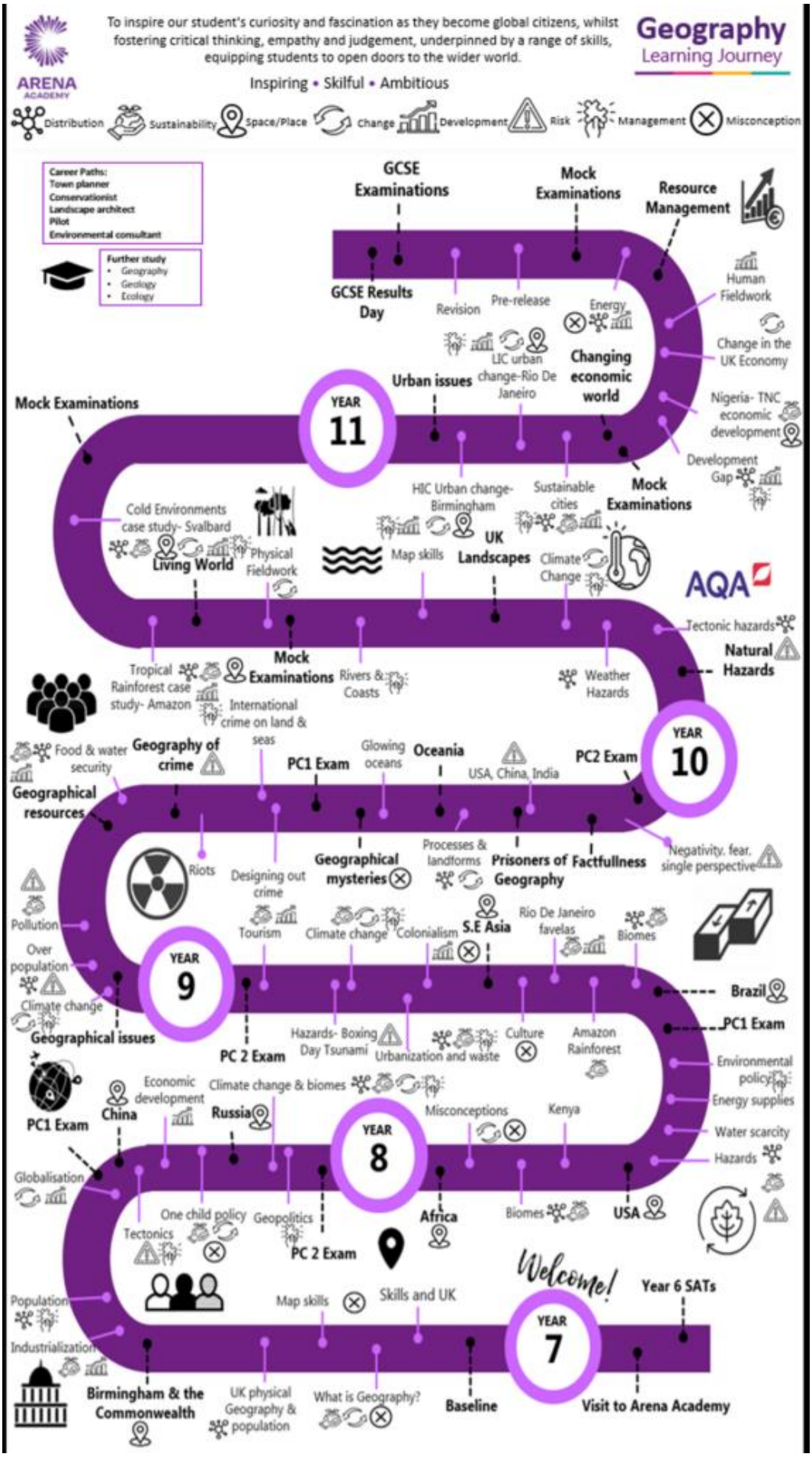


Geography

Topics covered from the beginning of the academy year to the end of this half-term.

Summer:

- Oceania
(Australia and New Zealand)


ARENA ACADEMY
To inspire our student's curiosity and fascination as they become global citizens, whilst fostering critical thinking, empathy and judgement, underpinned by a range of skills, equipping students to open doors to the wider world.
Inspiring • Skilful • Ambitious
Geography
Learning Journey
Distribution
Sustainability
Space/Place
Change
Development
Risk
Management
Misconception
Career Paths:
Town planner
Conservationist
Landscape architect
Pilot
Environmental consultant
Further study
Geography
Geology
Ecology
YEAR 11
GCSE Examinations
Mock Examinations
Resource Management
GCSE Results Day
Revision
Pre-release
Energy
Human Fieldwork
Change in the UK Economy
Changing economic world
Urban issues
LIC urban change-Rio De Janeiro
Nigeria- TNC economic development
Development Gap
Mock Examinations
HIC Urban change-Birmingham
Sustainable cities
Mock Examinations
Cold Environments case study- Svalbard
Living World
Physical Fieldwork
Map skills
UK Landscapes
Climate Change
AQA
YEAR 10
Tectonic hazards
Natural Hazards
Tropical Rainforest case study- Amazon
Mock Examinations
Rivers & Coasts
Weather Hazards
International crime on land & seas
Food & water security
Geography of crime
PC1 Exam
Glowing oceans
Oceania
USA, China, India
PC2 Exam
Geographical resources
Riots
Designing out crime
Geographical mysteries
Processes & landforms
Prisoners of Geography
Factfullness
Negativity, fear, single perspective
YEAR 9
Pollution
Tourism
Climate change
Colonialism
S.E Asia
Rio De Janeiro favelas
Biomes
Over population
Climate change
Geographical issues
PC 2 Exam
Hazards- Boxing Day Tsunami
Urbanization and waste
Culture
Amazon Rainforest
Brazil
PC1 Exam
Environmental policy
Energy supplies
Water scarcity
Hazards
YEAR 8
PC1 Exam
China
Economic development
Russia
Climate change & biomes
Misconceptions
Kenya
Globalisation
One child policy
Tectonics
Geopolitics
PC 2 Exam
Africa
Biomes
USA
Welcome!
YEAR 7
Population
Industrialization
Map skills
Skills and UK
Year 6 SATs
Birmingham & the Commonwealth
UK physical Geography & population
What is Geography?
Baseline
Visit to Arena Academy

Year 9

Units covered: Oceania

Key concepts:

Change	Risk
Tectonics	Climate
Culture	Migration

Key definitions:

- Sustainability - An integrated approach to an action that considers environmental and economic implications of the present and the future.
- Migration- Moving from one place to another
- Culture- encompasses the shared beliefs, values, customs, behaviors, and artifacts of a group of people, shaping their way of life and distinguishing them from others
- Tectonics- Large scale processes affecting the structure of the earth's crust
- Risk- A situation involving exposure to danger
- Change- To alter or modify over time through a range of processes

Example exam questions:

1. Describe the location of Australia
2. State 2 push and 2 pull factors of migration in Australia
3. Discuss Māori culture and compare it to Australian culture
4. Discuss the impacts and responses to an earthquake case study you have studied
5. Define the term coral reef
6. Suggest how coral reefs can be protected from their threats
7. Describe the formation of waterfalls in New Zealand

Half-term targets:

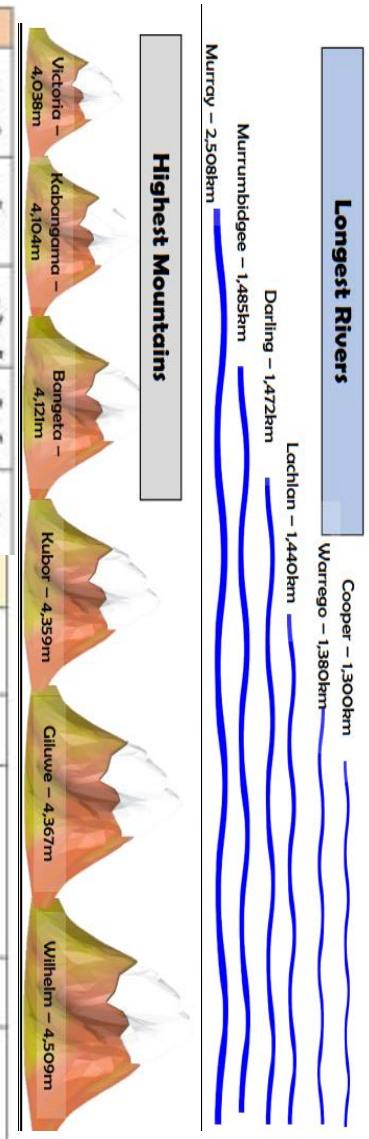
- Can I describe the location of Australia and New Zealand?
- Can I list different types of migration?
- Can I explain the different aspects of Māori culture?
- Can I describe the various threats to the Great Barrier Reef?
- Can I explain the various methods of protecting the coral reef?
- Can I correctly explain which communities are indigenous to Australia and New Zealand?
- Can I explain the different opinions of stakeholders in climbing Uluru?
- Can I explain how erosion creates different landforms across Australia?

Human Geography Features

Threats to Great Barrier Reef		Many factors caused/ worsened by humans are causing coral to disappear from the reef. Amongst these are climate change and overfishing in the area. Human activities are worsening water quality, speeding the decline.	**What?** It is estimated about half of the reef has been lost since 1900.	**Key Fact:** The Great Barrier Reef Marine Park was established in 1975, to protect the coral reef.
Indigenous Peoples		Most Oceanic places contained indigenous people long before European settlers arrived- many for several thousand years. Many were exploited by early settlers, and have struggled to adapt to modern ways of life.	**Who?** In Australia, Aborigines account for about 3% of the population.	**Key Fact:** Some indigenous peoples lived in the region for 60,000 years before the settlers came.
Sydney Harbour		Sydney Harbour is one of the most famous Australian attractions. Although the harbour itself is natural, human developments, such as the Harbour Bridge and the Sydney Opera House, have become cultural icons.	**What?** The natural area including Sydney Harbour is known as Port Jackson.	**Key Fact:** The first European discovery of Sydney Harbour was in 1770 by James Cook
Sports		The region performs exceptionally well in many sports, when considering its size. The New Zealand rugby union team (The All Blacks) and the Australian cricket team are amongst the most successful sporting teams in the world.	**What?** Most sports were developed by European settlers.	**Key Fact:** The All Blacks have won more rugby world cups (3) than any other nation.
Land Diving		Land Diving is a ritual performed by men in Vanuatu. It involves men jumping off 20-30 metre wooden towers towards the floor with vines around their ankles.	**Where?** On the southern part of Pentecost Island, Vanuatu.	**Key Fact:** The villagers believe that the jump brings good health and a strong harvest.

Physical Geography Features

Australian Outback		The Outback is the large, remote desert wilderness of Australia. It is dry and arid, with few people, and difficult living conditions. Venomous snakes and spiders live here.	**Where?** Most of the country apart from areas around the coast.	**Key Fact:** Many of the outback animals are nocturnal.
Uluru (Ayers Rock)		Uluru is a large sandstone rock formation in the centre of Australia. It is sacred to the Aboriginal people of the area. It is 863m tall at its peak.	**Where?** 335km from the nearest town - Alice Springs.	**Key Fact:** Uluru changes colour depending upon weather/time of day.
Animals		Due to its remoteness from the rest of the world, and the relatively late arrival of modern human settlers, Oceania's flora and fauna is unique. Many animals (named marsupials) are found nowhere else in the world. Examples include kangaroos, koala bears and dingoes. Many animals are extremely dangerous, e.g. poisonous snakes, spiders and also saltwater crocodiles.	**What?** Some animals (e.g. rabbits) were introduced by local settlers and have destroyed marsupial populations.	**Key Fact:** At certain points in the year, the seas off the north coast of Australia contain saltwater crocodiles, great white sharks, and box jellyfish!
Atolls		Atolls are a ring shaped coral reef that encircles a lagoon. In the Oceanian continent, tiny sovereign nations are based on atolls.	**Who?** Tuvalu and Vanuatu contain atoll islands.	**Key Fact:** Rising sea levels threaten atoll nations.
The Great Barrier Reef		The Great Barrier Reef is the world's largest coral reef system, made of over 2,900 individual reefs. They extend for over 2,300km. It is the world's largest living organism, and contains a vast array of marine life.	**What?** It is made of billions of tiny living organisms - coral polyps.	**Key Fact:** The Great Barrier Reef was made a World Heritage Site in 1981.



History

Topics covered from the beginning of the academy year to the end of this half-term.

Summer:

1. Civil rights movement

2. Ancient Medicine

Segregation in the USA in the 1950s and 1960s Knowledge Organiser

Key Words

segregation	The separation of Black and White people in transport, education, housing and facilities.
Jim Crow	A set of laws that made segregation a legal requirement.
lynching	The mob killing of a person outside of the law, but often overlooked by the authorities.
discrimination	Treating one group more unfairly than another.
NAACP	The National Association for the Advancement of Colored People
integration	The opposite of segregation; combining different groups of people fairly.

Brown vs Board of Education

In 1954, the NAACP took the Board of Education in Topeka, Kansas to court to allow an African-American schoolgirl, Linda Brown, to attend a white school. Linda had to travel several kilometres and cross a dangerous railway track to attend her nearest blacks-only school. There was a whites-only school nearby.

The NAACP won the case, leading to the Chief Justice ordering that segregated schools were unfair and integrated schools should be established across the southern states.

Jim Crow

Although slavery had been abolished in 1865, laws in many southern American states enshrined segregation between Black and White people. Public transport and facilities were divided between those suitable for Whites and those suitable for Blacks. Black Americans were supposed to use separate train carriages, drinking fountains, public toilets and schools. The facilities provided for Black people were almost always inferior to those for the White people. These laws only existed in the south but the northern states were still rife with inequality, even if this was not put enshrined in law. These laws gained their nickname from a minstrel song called 'Jump Jim Crow'.

Little Rock

Despite the NAACP victory in 1954, by 1957 many states had refused to create integrated schools. At the Little Rock school in Arkansas, nine Black students were stopped by state troops from entering the school. The official reason for this was that the Governor of Arkansas was concerned for their safety, but a direct order from President Eisenhower stood the troops down, allowing the students to attend their lessons.

The Ku Klux Klan

A racist, anti-Semitic, Protestant group that carried out intimidation and lynching in the USA. At its height, the Klan boasted 4 million members across the USA. Their distinctive face masks and their practice of burning crosses was designed to intimidate Black Americans.

Ku Klux Klan members, 1948

Civil Rights Timeline

1954	Brown vs Board of Education
1955-6	Montgomery Bus Boycott; Rosa Parks refuses to give up her seat on the bus
1957	Little Rock
1960	Greensboro sit-in
1961	Freedom Rides begin
1963	Assassination of JFK MLK speaks at the Washington March, ('I have a dream...') Nashville sit-ins Publication of The Feminine Mystique
1964	Civil Rights Act – housing and employment MLK receives the Nobel Peace Prize Malcolm X completes the Hajj pilgrimage
1965	Voting Rights Act Assassination of Malcolm X Los Angeles race riot Selma march President Johnson outlines his Great Society
1966	Founding of the Black Panthers Founding of the National Organisation for Women, (NOW)
1967	Detroit race riot
1968	Civil Rights Act – housing Assassination of Martin Luther King Jr.
1969	Inspired by the Black Power movement, indigenous Americans take over Alcatraz Island in the name of Red Power
1970	Women's Strike for Equality
1972	Contraception made legal for unmarried couples to use
1973	Roe vs Wade

Assassination of JFK - 1963

Greensboro sit-in - 1960

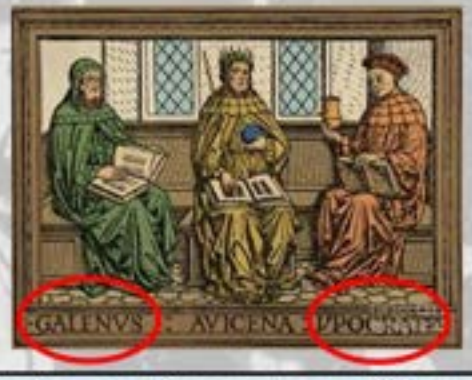
Selma march - 1965

Who Were Hippocrates and Galen?

I know our course starts in the **Middle Ages**, but it will be useful to just travel back a bit earlier to give us some idea just how far we have progressed even by 1250!!

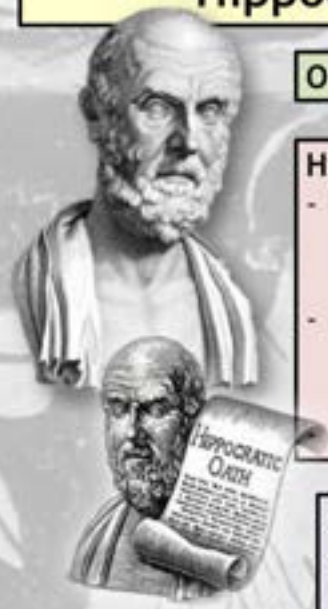
Medieval ideas on medicine were still based on ancient ideas.

Hippocrates and **Galen** were central to ideas on and the treatment of disease in the Middle Ages.



But who were **Hippocrates** and **Galen**, and why were they so important?

Hippocrates - Ideas on Medical Practice



Okay, let's go through it!

Hippocratic Oath
- A promise by doctors to keep high standards of treatment and behaviour.
- Doctors work for patients, not for own benefit.
- Still used today.

Observation
- Observing and recording symptoms was important.
- It helped doctors find the right cure and help with future patients.

Books
- Wrote the Hippocratic Collection which detailed symptoms and treatments which helped future generations.

Natural Treatments
- Find cures in nature, not relying on the Gods.

The Theory of the Four Humours

Hippocrates said that through digestion, we create four 'humours' (chemicals) in our bodies. He said **we get sick when these humours are not in balance**. We can add these to our fact files.

Blood: the red life force of our body essential for life.

Phlegm: the water substance we cough or sneeze up, or cry in tears.

Yellow Bile: Appears in the body as pus or light coloured vomit.

Black Bile: Could be the causes of depression or mental illness

Each humour was linked to the symptoms.

They were also linked to the seasons and to the basic elements of life.

The Theory of the Four Humours

"Man's body has blood, phlegm, yellow bile and black bile. These make up his body and through them he feels illness or enjoys health. When all the humours are properly balanced and mingled, he feels the most perfect health. Illness occurs when one of the humours is in excess, or is reduced in amount, or is entirely missing from the body."

Seems logical right?

Using the above sources, summarise the Theory of the Four Humours and why it said we got sick.

Galen - Background

Galen was born in the year 129 AD in Pergamum, Turkey, which was part of the Roman Empire.

He studied in Alexandria, Egypt and was a doctor to **gladiators**, which gave him great knowledge of the body and wounds. He was boastful and a **showman** and later became the **Emperor Commodus'** personal doctor.

Galen - Ideas on Medical Practice

Observation
- Built on Hippocrates methods by observing and recording will using past experiences to help patients.

Books
- Galen wrote 60 books combining Greek and Roman knowledge.
- Very convincing that they lasted 1500 years and were not contradicted.

Okay, let's go through it!

Dissection
- Dissected body to increase knowledge.
- Proved brain controlled speech and arteries pumped blood.
- Worked on animals so some of his work wrong.

Perfect Design
- Parts of the body fitted together perfectly. This fitted with later ideas of the Medieval Church that God created humans.

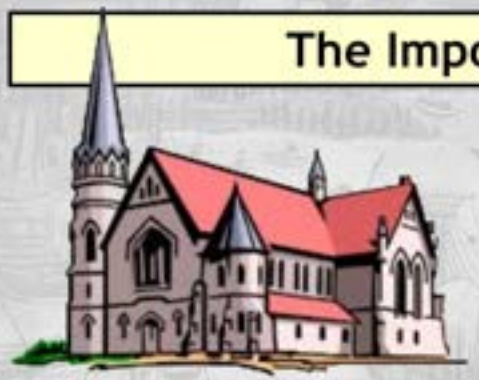
The Theory of Opposites

Galen used the ideas of the Four Humours to make his own theory. ***The Theory of Opposites*** meant that once you had diagnosed the problem, the Humours could be balanced by **treating it with the opposite remedy**. Use this to complete the fact file.

E.g. Too much phlegm? That's a cold symptom. **So eat a pepper!**

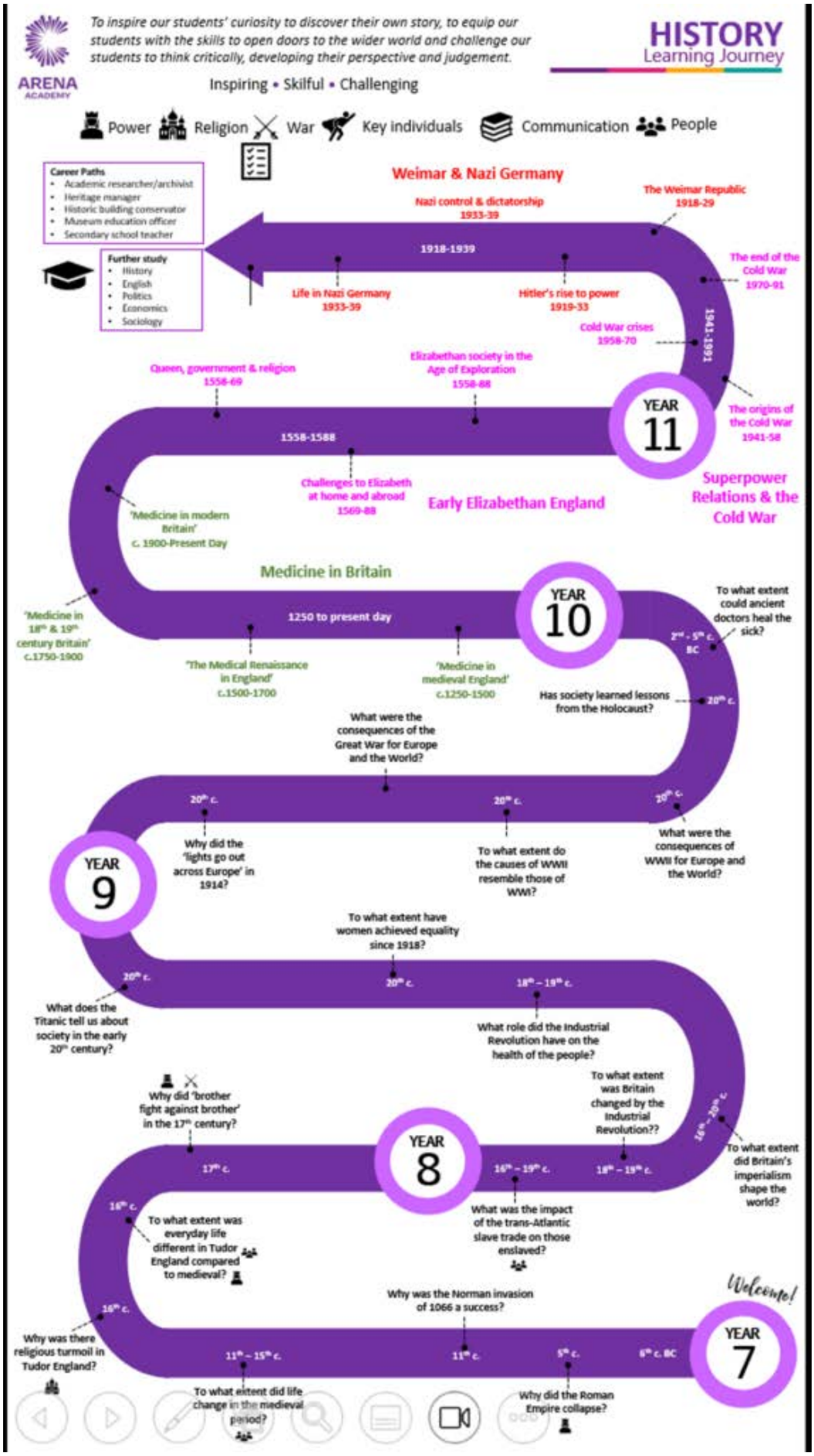
E.g. Have a fever? You must be hot! **So eat a cucumber to cool you down!**

The Importance of the Church



Task: Use the below gap fill to find out about the influence of the Church in 1250 AD

Life in Medieval England was hard.
- 90% worked in the fields in **hard conditions**.
- Towns were dirty with no drainage, so **diseases spread**.
- Wars were frequent and destroyed many Roman health systems.
- Travel became less so **ideas spread less.**
- Many rulers focuses on building kingdoms **rather than medical knowledge**.
- For many years, the works of Galen were lost so the Church promoted more **superstition into medicine**, rather than rational thought.

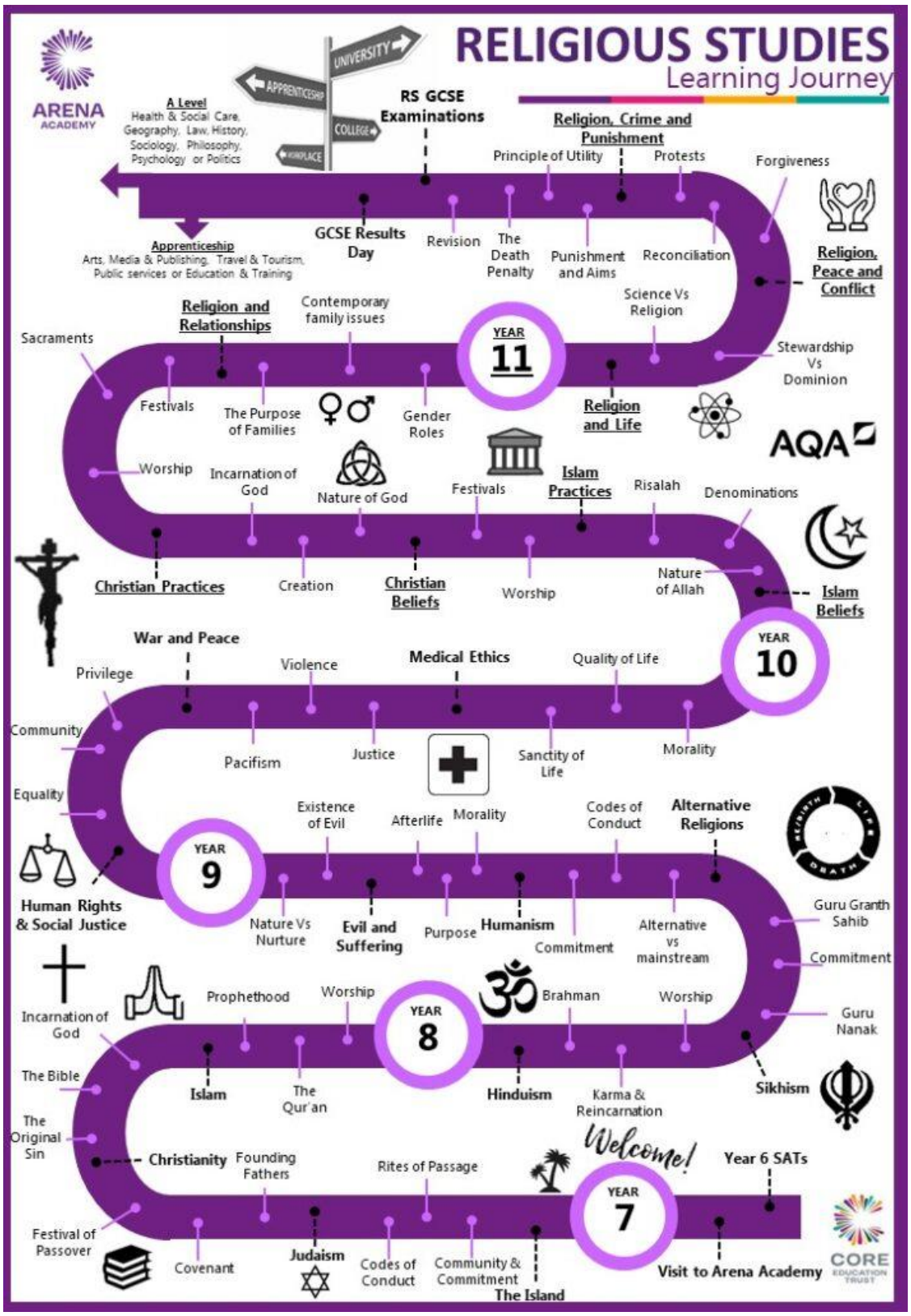

ARENA ACADEMY
To inspire our students' curiosity to discover their own story, to equip our students with the skills to open doors to the wider world and challenge our students to think critically, developing their perspective and judgement.
Inspiring • Skilful • Challenging
HISTORY Learning Journey
Power
Religion
War
Key individuals
Communication
People
Career Paths
Academic researcher/archivist
Heritage manager
Historic building conservator
Museum education officer
Secondary school teacher
Further study
History
English
Politics
Economics
Sociology
Weimar & Nazi Germany
Nazi control & dictatorship 1933-39
The Weimar Republic 1918-29
1918-1939
Life in Nazi Germany 1933-39
Hitler's rise to power 1919-33
The end of the Cold War 1970-91
Cold War crises 1958-70
1941-1991
Queen, government & religion 1558-69
Elizabethan society in the Age of Exploration 1558-88
YEAR 11
The origins of the Cold War 1941-58
1558-1588
Challenges to Elizabeth at home and abroad 1569-88
Early Elizabethan England
Superpower Relations & the Cold War
'Medicine in modern Britain' c. 1900-Present Day
Medicine in Britain
YEAR 10
To what extent could ancient doctors heal the sick?
'Medicine in 18th & 19th century Britain' c.1750-1900
1250 to present day
'The Medical Renaissance in England' c.1500-1700
'Medicine in medieval England' c.1250-1500
Has society learned lessons from the Holocaust?
What were the consequences of the Great War for Europe and the World?
What were the consequences of WWII for Europe and the World?
To what extent do the causes of WWII resemble those of WWI?
Why did the 'lights go out across Europe' in 1914?
YEAR 9
To what extent have women achieved equality since 1918?
What does the Titanic tell us about society in the early 20th century?
What role did the Industrial Revolution have on the health of the people?
Why did 'brother fight against brother' in the 17th century?
To what extent was Britain changed by the Industrial Revolution??
To what extent did Britain's imperialism shape the world?
YEAR 8
What was the impact of the trans-Atlantic slave trade on those enslaved?
To what extent was everyday life different in Tudor England compared to medieval?
Why was the Norman invasion of 1066 a success?
Welcome!
Why was there religious turmoil in Tudor England?
YEAR 7
To what extent did life change in the medieval period?
Why did the Roman Empire collapse?

Religious Education

Topics covered from the beginning of the academy year to the end of this half-term.

<u>Summer:</u>

- Medical Ethics
- Relationships and Families


RELIGIOUS STUDIES
Learning Journey
ARENA ACADEMY
UNIVERSITY
APPRENTICESHIP
COLLEGE
WORKPLACE
A Level
Health & Social Care, Geography, Law, History, Sociology, Philosophy, Psychology or Politics
Apprenticeship
Arts, Media & Publishing, Travel & Tourism, Public services or Education & Training
RS GCSE Examinations
GCSE Results Day
Revision
The Death Penalty
Religion, Crime and Punishment
Principle of Utility
Punishment and Aims
Protests
Reconciliation
Forgiveness
Religion, Peace and Conflict
Science Vs Religion
Stewardship Vs Dominion
YEAR 11
Religion and Life
AQA
Religion and Relationships
Contemporary family issues
Sacraments
Festivals
The Purpose of Families
Gender Roles
Worship
Incarnation of God
Nature of God
Festivals
Islam Practices
Risalah
Denominations
Christian Practices
Creation
Christian Beliefs
Worship
Nature of Allah
Islam Beliefs
YEAR 10
War and Peace
Medical Ethics
Quality of Life
Privilege
Violence
Community
Pacifism
Justice
Sanctity of Life
Morality
Equality
Existence of Evil
Afterlife
Morality
Codes of Conduct
Alternative Religions
YEAR 9
Human Rights & Social Justice
Nature Vs Nurture
Evil and Suffering
Purpose
Humanism
Commitment
Alternative vs mainstream
Guru Granth Sahib
Commitment
Incarnation of God
Prophethood
Worship
YEAR 8
Brahman
Worship
Guru Nanak
The Bible
Islam
The Qur'an
Hinduism
Karma & Reincarnation
Sikhism
The Original Sin
Christianity
Founding Fathers
Rites of Passage
Welcome!
Year 6 SATs
YEAR 7
Festival of Passover
Covenant
Judaism
Codes of Conduct
Community & Commitment
The Island
Visit to Arena Academy
CORE EDUCATION TRUST

Medical Ethics

1) IVF

This is a way to have a baby, but with scientific help. It involves growing the egg and sperm cells in a test tube, and the inserting it into the mother. It involves throwing many fertilised eggs away, and many religions feel it is not right, like Islam and Christianity

2)Adoption

When a couple cannot have a child, they may choose to look after a child that they do not share their DNA with. They would not be biological parents. In Islam, everyone has the right to know their parents and so adoption is not allowed unless children are aware of their biological parents. Christians think it is the most loving thing to do.

3) Surrogacy

If mothers find it hard to go through a pregnancy another woman can look after the foetus for the duration of the pregnancy. Islam is against this because it makes it hard to distinguish who is the real mother, but Christians think it is the most loving thing to do.

4)Organ donation

5) Saviour siblings

This involves giving blood and or organs for those who have failing organs. Some religions, like Islam, feel that someone needs to be whole to enter heaven, but some religions, like Christianity, feel that it should be done to help those unwell or those who are suffering

Keywords

Sanctity of life	**The belief that all life is sacred and created by God**
Fertility Treatment	A way to have a baby using science
IVF	When a sperm and egg are fertilised in a test tube and inserted back into be mother for a natural birth.
Surrogacy	When another lady agrees to hold the baby (pregnancy) for nine months because the biological mother is too ill.
Adoption	Looking after someone else's child as your own because a couple cannot have a baby naturally.
Organ donation	Giving organs to help another person once dead, or alive
Saviour sibling	When parents have an additional baby to help an existing child to stay alive
Blood transfusion	Giving blood to help someone else
Foetus	An unborn baby
Sperm and egg	Cells used to generate a baby

Useful quotes

Love thy neighbour- Christianity

Do not kill your children for fear or want
(Islam)

Call on me and I shall answer you
(Islam)

Be fruitful and multiply
(Christianity)

Medical Ethics (2)

1) Abortion

Sometimes couples do not want to have a baby. If they fall pregnant, and want to terminate the pregnancy, it is called an abortion.
Both Islam and Christianity allow for abortion, but only in some circumstances: if the mother or baby's life is at risk.

2)Euthanasia

Sometimes life is not worth living for patients who are suffering from terminal illnesses. They may wish to end their life so that they do not need to suffer anymore but they cannot do this themselves. They may need a doctor to help them. This is called euthanasia.

Islam and Christianity allow for euthanasia in some circumstances.

3) Animal testing

Most of our products, especially medicines, are tested beforehand on animals for possible side effects.

There is a big debate about whether humans should do this because animals also feel pain and could even do die from this.

Some religions allow for animal testing because they believe that humans should have control over animals

4) Drugs and Alcohol

Drugs and alcohol both have an affect on the body by slowing movements or making them increase.

Religions feel differently towards drugs and alcohol because of how it can make people behave. Some religions rely on the consumption of alcohol.

Keywords

Sanctity of life	**The belief that all life is sacred and created by God**
Euthanasia	An easy and painless death
Abortion	Removal of a foetus
Animal testing	Testing products on animals to look for side effects
drugs	Substances that alter how humans behave
Alcohol	A substance that alters how humans behave
Pro-life	The idea that all life is important and must be

Useful quotes

Love thy neighbour- Christianity

Do not kill your children for fear or want
(Islam)

Call on me and I shall answer you
(Islam)

Be fruitful and multiply
(Christianity)

Relationships & families

Contraception

Artificial – man made e.g. condom
Natural – a type of practice or behaviour aimed at preventing pregnancy e.g. NFP (natural family planning)

Christianity teaches that sex should be open to the possibility of **procreation.** Therefore, by using contraception, you are preventing procreation from happening. ***The Roman Catholic Church*** teaches that the use of contraception is a sin. ***The Church of England*** teaches that sex should open to procreation, however, it accepts that sex is also an ***expression of love*** and promotes ***responsible parenthood***. Therefore, the use of contraception is encouraged if you cannot properly look after an raise a child. You should wait until you're ready.

Islam teaches that children are a blessing from God, if a couple wishes to have them. Muhammad taught that parents should only have as many children as they can properly look after – ***responsible parenthood.*** So Muslims can and should use contraception.

Families

- **Nuclear** – mum & dad + children
- **Extended** – Nuclear family + other relatives
- **Single-parent** – mum or dad + children
- **Polygamy** – illegal in the UK. Man + more than 1 wife

Many people would argue that the best place for raising children is within a family environment/ Religious families also provide a basis for a religious upbringing, enabling parents to educate their child in a faith.

Sexual relationships

Roman Catholics believe that sex should have 2 purposes: to **UNITE** a couple in married love and to **CREATE** new life. **Pre-marital** sex is a sin, as is masturbation (as it cannot lead to procreation). Some other Christians accept sex before marriage in a committed and loving relationship, as it is an ***expression of love***. The Bible says "Do not commit **adultery**", so having sex with someone other than your marriage partner is committing a **sin**.

Islam teaches that it is a religious duty to marry & have children. Every person should be a virgin before marriage, and observe **chastity** before and during marriage.

♀ Gender equality ♂

Traditionally, men have held positions of authority in most religions. However, there is a debate about what the role of women should be. In the **RC Church** women cannot become priests. Many argue this because: Jesus had male disciples; Jesus chose a man to lead his Church after his ascension (Peter); A woman cannot completely represent Christ during the Eucharist. In the **C of E** women can become both vicars and bishops.

Some of the earliest converts to Christianity were women, for example Priscilla at Ephesus.

"There is neither Jew nor gentile, neither slave nor free, nor is there male and females, for you are all one in Christ" (Galatians 3:28)

"So God created mankind in His own image, in the image of God he created them; male and female he created them" (Genesis 1:27)

Homosexual relationships

For some Christians, **homosexual** sex is thought to be unnatural and cannot lead to pregnancy, so it is a sin and it is wrong. In places, the Bible also says it is wrong for a man to sleep with another man, which has also been used to show that homosexuality is wrong.

The **Qur'an** sets out specific punishments for those who have homosexual relationships. It calls these people fornicators, and **punishment** is severe e.g. flogging or execution.

"Mutual respect for and tolerance of those with different faiths and beliefs and for those without faith"

Marriage & divorce

Marriage is a sacrament in some Christian traditions; it brings a blessing from god. In marriage, a couple promise to each other through **vows**/promises, to be good to each other, to be faithful, to love and cherish each other, until the marriage is ended by death. The rings represent the eternal bond the couple are entering into, in front of God.

For **RC** Christians, divorce is always wrong. Marriage is a sacrament which cannot be broken. The vows state *"until death do us part"* and these promises are binding.

It is possible to have an **annulment**, which is where the marriage is set aside, as if it were never real.

For most other Christians, divorce is discouraged but acceptable as a last resort. It is sometimes the *lesser of two evils*, and also a *necessary* evil.

Christianity teaches:

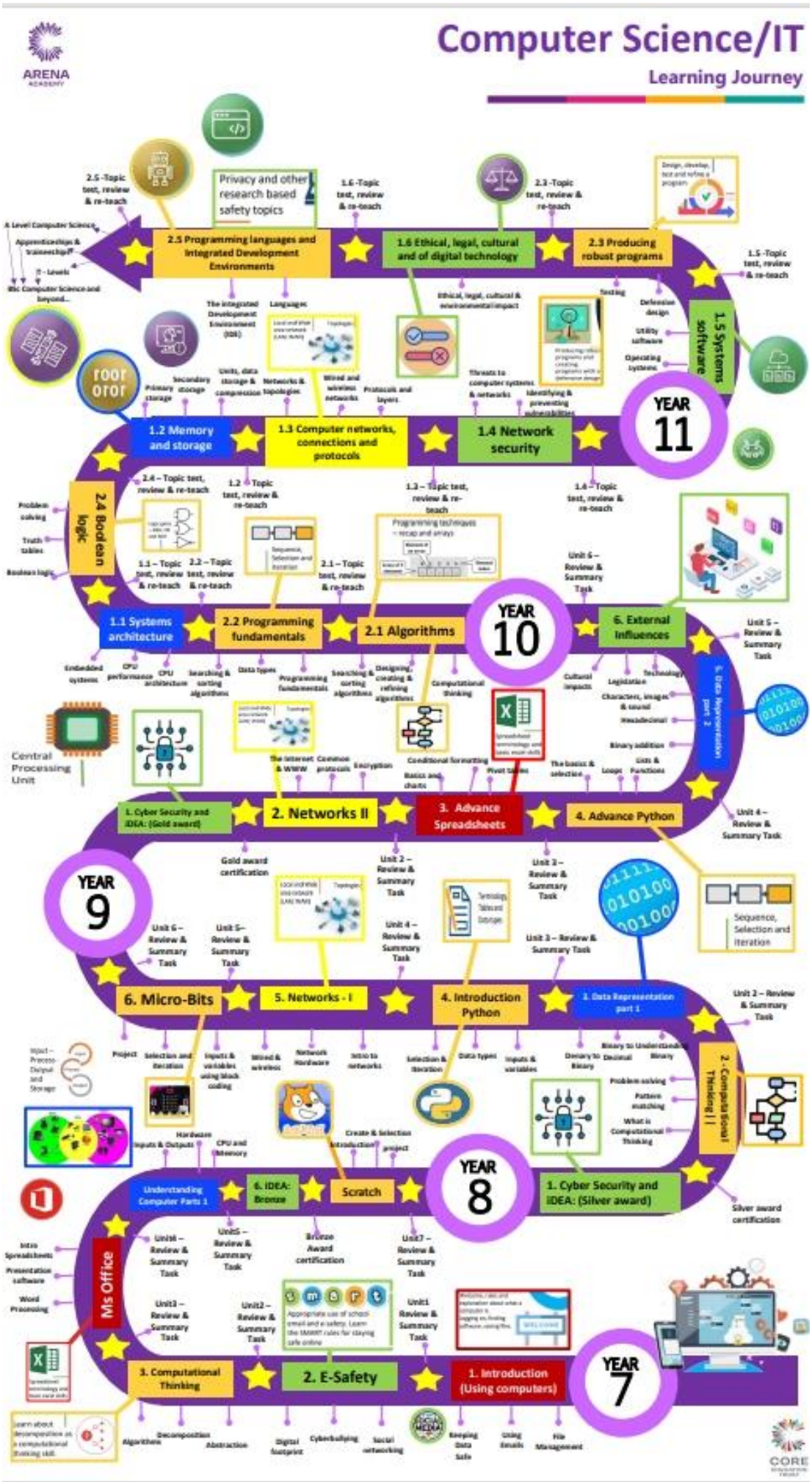
- God hates divorce (OT)
- "Whoever divorces… then marries another; it as if he committed adultery" (Jesus)
- We should forgive those who wrong us and show love to all (Jesus)

Computer Science

Topics covered from the beginning of the academy year to the end of this half-term.

<u>Summer:</u>

- Data Representation and External Influences


Computer Science/IT
Learning Journey
ARENA ACADEMY
Privacy and other research based safety topics
2.5 -Topic test, review & re-teach
1.6 -Topic test, review & re-teach
2.3 -Topic test, review & re-teach
1.5 -Topic test, review & re-teach
2.5 Programming languages and Integrated Development Environments
1.6 Ethical, legal, cultural and of digital technology
2.3 Producing robust programs
1.5 Systems software
YEAR 11
1.2 Memory and storage
1.3 Computer networks, connections and protocols
1.4 Network security
2.4 Boolean logic
YEAR 10
1.1 Systems architecture
2.2 Programming fundamentals
2.1 Algorithms
6. External Influences
Central Processing Unit
YEAR 9
1. Cyber Security and IDEA: (Gold award)
2. Networks II
3. Advance Spreadsheets
4. Advance Python
6. Micro-Bits
5. Networks - I
4. Introduction Python
1. Data Representation part 1
2 - Computational Thinking | |
YEAR 8
Understanding Computer Parts 1
6. IDEA: Bronze
Scratch
1. Cyber Security and IDEA: (Silver award)
Ms Office
3. Computational Thinking
2. E-Safety
1. Introduction (Using computers)
YEAR 7
CORE

What is Binary?

Binary is a number system that only uses two digits: 1 and 0. All information that is processed by a computer is in the form of a sequence of 1s and 0s. Therefore, all data that we want a computer to process needs to be converted into binary.

Base 2 and Base 10 Number Systems

Denary / Decimal number system: Uses the digits 0,1,2,3,4,5,6,7,8 and 9. The value of each **place value** is calculated by multiplying by 10. The Denary or Decimal system is also known as a **base 10** system.

Binary: Binary is a number system used by computers that only uses two digits: 1 and 0. The binary system is known as a **base 2** system.

Convert 8 bit Binary to Denary

Example: convert the Binary number **01000110** into Denary.

1. Create a binary table:

128	64	32	16	8	4	2	1	Answer

2. Add the binary number:

128	64	32	16	8	4	2	1	Answer
0	1	0	0	0	1	1	0	

3. Add up all the numbers with a 1 underneath them to get the answer!

128	64	32	16	8	4	2	1	Answer
0	1	0	0	0	1	1	0	70

Convert Denary to 8 bit Binary

Example: convert the Denary number **45** into binary .

1. Create a binary table:

128	64	32	16	8	4	2	1	Answer
								45

2. Place the number 1 under each number you need to make up 45

128	64	32	16	8	4	2	1	Answer
		1		1	1		1	45

3. Add a 0 for the unused numbers. The binary number is: **00101101**

128	64	32	16	8	4	2	1	Answer
0	0	1	0	1	1	0	1	45

Memory	Number of bytes
Bit	1/8 (a byte is made up of 8 bits)
Nibble	1/2 (a nibble is 4 bits)
Byte	1 byte
Kilobyte (KB)	1 000 bytes
Megabyte (MB)	1 000 000 bytes
Gigabyte (GB)	1 000 000 000 bytes
Terabyte (TB)	1 000 000 000 000 bytes

ASCII

ASCII stands for **American Standard Code for Information Interchange**. ASCII uses **seven-bit binary number** which means it can create a possible 128 distinct characters. Use the table opposite to create ASCII character code by combining the first half of the code with the second.

Explanation

1. Find the character you are looking for in the ASCII table.
2. Locate the **first half** binary number at the top of the **column.**
3. Add the **second half** binary number at the start of the **row** that your character is in.

ASCII Table

First half

Second half	000	001	010	011	100	101	110	111
0000	NULL	DLE		0	@	P	`	p
0001	SOH	DC1	!	1	A	Q	a	q
0010	STX	DC2	"	2	B	R	b	r
0011	ETX	DC3	#	3	C	S	c	s
0100	EOT	DC4	$	4	D	T	d	t
0101	ENQ	NAK	%	5	E	U	e	u
0110	ACK	SYN	&	6	F	V	f	v
0111	BEL	ETB	'	7	G	W	g	w
1000	BS	CAN	(	8	H	X	h	x
1001	HT	EM	)	9	I	Y	i	y
1010	LF	SUB	*	:	J	Z	j	z
1011	VT	ESC	+	;	K	[	k	{
1100	FF	FS	,	<	L	\	l	|
1101	CR	GS	-	=	M	]	m	}
1110	SO	RS	.	>	N	^	n	~
1111	SI	US	/	?	O	_	o	DEL

4. Join them together to form your binary code. For example: **A = 100 0001**

What is Binary?

Binary is a number system that only uses two digits: 1 and 0. All information that is processed by a computer is in the form of a sequence of 1s and 0s. Therefore, all data that we want a computer to process needs to be converted into binary.

Hexadecimal: Hexadecimal (or **hex**) is a **base 16** system used to simplify how binary is represented. A hex digit can be any of the following **16 digits**:
0 1 2 3 4 5 6 7 8 9 A B C D E F. Each hex digit reflects a 4-bit binary sequence.

Hexadecimal	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Denary	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Convert Denary and 8 bit Binary into Hexadecimal

Example: convert the Denary number **165** into hexadecimal.

1. Create a binary table:

128	64	32	16	8	4	2	1	Answer
								165

2. Place the number 1 under each number you need to make up 165 and a 0 under those not used.

128	64	32	16	8	4	2	1	Answer
1	0	1	0	0	1	0	1	165

3. Split the number into two nibbles:

8	4	2	1	8	4	2	1	Answer
128	64	32	16	8	4	2	1	165
1	0	1	0	0	1	0	1	

4. Add up the nibbles separately. In this example, the first nibble adds up to 10, which in Hex is represented by the character **A** and the second adds up to **5** which means that **165 in Hex is A5**.

8	4	2	1	8	4	2	1	Answer
128	64	32	16	8	4	2	1	165
1	0	1	0	0	1	0	1	A5
A				5				

ASCII vs Unicode

	Advantages	Disadvantages
ASCII	Only uses 7 bits to store a character, meaning less memory is used.	Limited to 128 different characters.
Unicode	Uses up to 32 bits per character meaning it can store a wider range of language characters.	More bits per character means more memory is used.

Binary Addition

Binary addition involves adding two or more binary numbers together.
When adding two numbers, you will have the following possible outcomes:
0+0 = 0
0+1 = 1
1+1 = 11
When adding binary numbers, do so right to left. ←

Example: add **0100** and **0101**

1st num	0	1	0	0	+
2nd num	0	1	0	1	
Carried	1				
Answer	1	1	0	1	=

START ←

0 + 1 = 1
0 + 0 = 0
1 + 1 = 11, so the one is carried
0 + 0 + 1 = 1
Therefore, the answer is **1101**

Overflow Error: An overflow error occurs when the largest number that a CPU register can hold is exceeded.

Images

Pixel: A single point in an image.
Resolution: The number of pixels that make up an image e.g. 800 x 600
Colour Depth: The number of bits used for each colour. E.g. 8 bit colour and 24 bit 'True Colour'.

Spanish

Topics covered from the beginning of the academy year to the end of this half-term.

<u>Summer:</u>

- My family and friends
- My free time

Viva 1
Module 4 - Mi familia y mis amigos

Spanish

¿Cuántas personas hay en tu familia?
How many people are there in your family?

En mi familia hay...	*In my family, there are...*
personas.	*people.*
mis padres	*my parents*
mi madre	*my mother*
mi padre	*my father*
mi abuelo	*my grandfather*
mi abuela	*my grandmother*
mi bisabuela	*my great-grandmother*
mi tío	*my uncle*
mi tía	*my aunt*
mis primos	*my cousins*
¿Cómo se llama tu madre?	*What is your mother called?*
Mi madre se llama...	*My mother is called...*
¿Cómo se llaman tus primos?	*What are your cousins called?*
Mis primos se llaman... y...	*My cousins are called... and...*
su hermano	*his/her brother*
sus hermanos	*his/her brothers and sisters*

¿Cómo tienes el pelo?
What's your hair like?

Tengo el pelo...	*I have... hair.*
castaño	*brown*
negro	*black*
rubio	*blond*
azul	*blue*
liso	*straight*
rizado	*curly*
largo	*long*
corto	*short*
Soy pelirrojo/a.	*I am a redhead.*
Soy calvo.	*I am bald.*

¿Cómo es?
What is he/she like?

Es...	*He/She is...*
No es muy...	*He/She isn't very...*
alto/a	*tall*
bajo/a	*short*
delgado/a	*slim*
gordo/a	*fat*
guapo/a	*good-looking*
inteligente	*intelligent*
joven	*young*
viejo/a	*old*
Tiene pecas.	*He/She has freckles.*
Tiene barba.	*He has a beard.*
mis amigos	*my friends*
mi mejor amigo/a	*my best friend*
su mejor amigo/a	*his/her best friend*

Adjectives

In Spanish most adjectives come after the word they are describing.

tengo el pelo rubio, corto y liso.

I have short, straight, blond hair.

¿De qué color tienes los ojos?
What colour are your eyes?

Tengo los ojos...	*I have... eyes.*
azules	*blue*
grises	*grey*
marrones	*brown*
verdes	*green*
Llevo gafas.	*I wear glasses.*

Culture!

Families are getting smaller in Spain and latin Ameria, and people are waiting longer to have children.

The estimated average number of children per family in four spanish speaking countries is:

Spain	1.4
Mexico	2.4
Bolivia	3.5
Chile	1.9

Grammar

The words for 'my' and 'your' are different depending on whether the noun is singular or plural.

My: mi (singlar) / mis (plural)

Your: tu (singluar) / tus (plural)

his / her: su (singluar / sus (plural)

Did you know?

It is a common stereotype that all Spanish people have dark hair and eyes, but many Spanish people have blond or red hair and blue grey eyes.

Practise online

Use this QR code to find all of the vocab online where you can listen to pronunciation and practise using games and vocab lists.

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Viva 1
Module 4 - Mi familia y mis amigos

Spanish

¿Cómo es tu casa o tu piso?
What is your house or flat look like?

Vivo en...	*I live in...*
una casa	*a house*
un piso	*a flat*
antiguo/a	*old*
bonito/a	*nice*
cómodo/a	*comfortable*
grande	*big*
moderno/a	*modern*
pequeño/a	*small*

Los números 20 – 100
Numbers 20 – 100

veinte	*20*
treinta	*30*
cuarenta	*40*
cincuenta	*50*
sesenta	*60*
setenta	*70*
ochenta	*80*
noventa	*90*
cien	*100*

Palabras muy frecuentes
High-frequency words

además	*also, in addition*
bastante	*quite*
porque	*because*
muy	*very*
¿Quien...?	*Who?*
un poco	*a bit*
mi/mis	*my*
tu/tus	*your*
su/sus	*his/her*

Carnival of Cadiz

The Carnival of Cádiz is one of the best-known carnivals in Spain. Its main characteristic is humor. Through sarcasm, mockery and irony, the main groups and the people of the street "purge" the most pressing problems of today.

The whole city participates in the carnival for more than two weeks each year, and the presence of this fiesta is almost constant in the city because of the recitals and contests held throughout the year.

Remember!

Adjectives must agree with the noun they describe.

Manuel et Cruel es alto.
Daniela es guapa.

¿Dónde está?
Where is it?

Vivo en...	*It is in...*
el campo	*the countryside*
la costa	*the coast*
una ciudad	*a town*
el desierto	*the desert*
la montaña	*the mountains*
un pueblo	*a village*
el norte	*the north*
el sur	*the south*
el este	*the east*
el oeste	*the west*
el centro	*the centre*

Culture!

In most major Spanish cities, you will see many more flats than houses.

Houses in the north of Spain can look very different from the houses in the south.

The north is green, lush and rains alot.

The south is sunny and can be very hot, so houses are often painted white to reflect the heat.

Grammar

When you are talking about location (Where something is), you use the verb estar for 'to be'. This verb is irregular.

Estoy - I am
estás = you are
está - he, she, it is
estamos - we are
estáis- you (plural) are
están - They are

Did you know?

Spain is twice as big as the UK, but only about three- quarters of the population?

Culture focus!

Diego Velazquez (1599-1660) was a Spanish painter. He was made the official royal painter by King Felipe IV.

In 1656 he painted 'La familia de Felipe IV', more commonly known as 'Las Meninas' ('The Maids of Honour'). The small girl in the painting is the Infanta Margarita (the Princess Margarita).

Many other artists have been inspired by 'Las Meninas'. One of them was the famous Spanish painter Pablo Picasso (1881-1973).

Picasso liked to experiment with shape and colour. In 1957 he painted 58 versions of 'Las Meninas'!

Practise online

Use this QR code to find all of the vocab online where you can listen to pronunciation and practise using games and vocab lists.

Viva 1
Module 2 - Mi tiempo libre

Spanish

¿Qué te gusta hacer?
What do you like to do?

Me gusta...	*I like...*
Me gusta mucho...	*I really like...*
No me gusta...	*I don't like...*
No me gusta nada...	*I don't like at all...*
chatear	*to chat online*
escribir correos	*to write emails*
escuchar música	*to listen to music*
jugar a los videojuegos	*to play videogames*
leer	*to read*
mandar SMS	*to send text messages*
navegar por Internet	*to surf the net*
salir con mis amigos	*to go out with friends*
ver la televisión	*to watch TV*
porque es...	*because it is...*
porque no es...	*because it is not...*
interesante	*interesting*
guay	*cool*
divertido/a	*amusing, funny*
estúpido/a	*stupid*
aburrido/a	*boring*

¿Qué haces en tu tiempo libre?
What do you do in your spare time?

bailo	*I dance*
canto karaoke	*I sing karaoke*
hablo con mis amigos	*I talk with my friends*
monto en bici	*I ride my bike*
saco fotos	*I take photos*
toco la guitarra	*I play the guitar*

Expresiones de frecuencia
Expressions of frequency

a veces	*sometimes*
de vez en cuando	*from time to time*
nunca	*never*
todos los días	*every day*

Las estaciones
The seasons

la primavera	*spring*
el verano	*summer*
el otoño	*autumn*
el invierno	*winter*

¿Qué tiempo hace?
What's the weather like?

hace calor	*it's hot*
hace frío	*it's cold*
hace sol	*it's sunny*
hace buen tiempo	*it's nice weather*
llueve	*it's raining*
nieva	*it's snowing*
¿Qué haces cuando llueve?	*What do you do when it's raining?*

Present tense -ar verbs

You use the present tense to talk about what usually happens: I surf the net, I send texts.
To form the present tense of **-ar** verbs, you take off the -ar and add a different ending for each person.

hab**lar** to speak

hab**lo**	I speak	hab**lamos**	we speak
hab**las**	you speak	hab**láis**	you speak (pl)
hab**la**	he/she speaks	hab**lan**	they speak

Stem-changing verbs

Stem-changing verbs like **jugar** (to play) have regular endings, but some parts of the verb change the vowel in the 'stem'.

j**ue**go	I play	jugamos	we play
j**ue**gas	you play	jugáis	you play (pl)
j**ue**ga	he/she plays	j**ue**gan	they play

Football in Spain

The Spain national football team (Spanish: Selección de fútbol de España) is the national football team of Spain. The current head coach is Luis Enrique. The team is often called La Roja (The Red One), La Furia Roja (The Red Fury), La Furia Española (The Spanish Fury) or just La Furia (The Fury). The Spanish team became a member of FIFA in 1904, even though the team was made in 1909. Spain had their first match on the 8th of August 1920 against Denmark. Since the team's creation in 1909, they have been in 13 FIFA World Cups, and 9 UEFA European Football Championships.

Love **football**? Find out why Gary loves **Spain**!

Practise online

Use this QR code to find all of the vocab online where you can listen to pronunciation and practise using games and vocab lists.

AVOCADOS Foundation

Spanish

Adjectives

bueno	*good*
malo	*bad*
aburrido	*boring*
divertido	*fun*
estupendo	*great*
práctico	*practical*
cómodo	*comfortable*
incómodo	*uncomfortable*
barato	*cheap*
caro	*expensive*
simpático	*nice*
antipático	*awful*
bonito	*pretty*
feo	*ugly*

Verbs

Voy	*I go*
Hago	*I do/make*
Escucho	*I listen*
Como	*I eat*
Bebo	*I drink*
Compro	*I buy*
Juego	*I play*
Veo	*I see*
Hice	*I did/made*
Vi	*I watched/saw*
Fue + adjective	*It was + adjective*
Voy a (verb)	*I am going to...*
Será	*It will be*
Me gustaría	*I would like*

Opinions

me encanta /adoro	*I love*
me gusta	*I like*
no me gusta	*I don't like*
me gusta bastante	*I quite like*
me gusta mucho	*I really like*
prefiero	*I prefer*
no me gusta nada	*I don't like at all*
detesto/odio	*I hate*
En mi opinión	*In my opinion*
creo que	*I think that*
pienso que	*I think that*
opino que	*I think that*

Connectives

y	*and*
sin embargo	*however*
pero	*but*
aunque	*although*
también	*also*
porque	*because*
o	*or*
quizás	*perhaps*

Adverbs

normalmente	*normally*
generalmente	*generally*
usualmente	*usually*
especialmente	*especially*
completamente	*completely*
totalmente	*totally*
rápidamente	*quickly*
lentamente	*slowly*
finalmente	*finally*
inmediatamente	*immediately*
frecuentamente	*frequently*

Detail

muy	*very*
más	*more*
bastante	*quite*
menos	*less*
un poco	*a bit*
mucho/a/os/as	*many/a lot*
demasiado	*too*

OMG! phrases

lo bueno es que	*the good thing is that*
lo malo es que	*the bad thing is that*
lo peor es que	*the worst thing is that*
lo mejor es que	*the best thing is that*
¡Qué bien!	*Great!*
¡Qué mal!	*How awful!*

Sequencers

primero	*first*
segundo	*second*
luego	*then*
antes	*before*
después	*after*
por la mañana	*in the morning*
por la tarde	*in the afternoon*
por la noche	*in the evening*
ayer	*yesterday*
hoy	*today*
mañana	*tomorrow*
ahora	*now*
la semana próxima	*next week*
la semana pasada	*last week*

French

Topics covered from the beginning of the academy year to the end of this half-term.

<u>Summer:</u>

- Festivals and celebrations

Dynamo 2 Vert
Module 2 - J'adore les fêtes!

French

Point de départ
Getting started

le premier avril	*the first of April*	**la Saint-Valentin.**	*Valentine's Day.*
le deux / trois / dix avril	*the second / third / tenth of April*	**l'Aïd.**	*Eid.*
Quelle est ta fête préférée?	*What's your favourite festival?*	**mon anniversaire.**	*my birthday.*
J'adore ...	*I love ...*	**manger du chocolat.**	*to eat / eating chocolate.*
J'aime ...	*I like ...*	**acheter des cadeaux.**	*to buy / buying presents.*
Je préfère ...	*I prefer ...*	**danser.**	*to dance / dancing.*
Je n'aime pas ...	*I don't like ...*	**faire une soirée pyjama.**	*to have / having a sleepover.*
Je déteste ...	*I hate ...*	**aller chez mes cousins.**	*to go / going to my cousins' house.*
Noël.	*Christmas.*	**C'est amusant.**	*It is fun.*
Pâques.	*Easter.*	**C'est commercial.**	*It is commercialised.*
le 14 juillet.	*Bastille Day.*	**C'est nul.**	*It is rubbish.*
le Nouvel An.	*New Year.*	**C'est sympa.**	*It is nice.*
la Chandeleur.	*Pancake Day.*		

Culture

The **Musée du Louvre** or Grand Louvre is a national museum and art gallery in Paris. It is located in a large palace that was built on the right-bank site of the 12th-century fortress of Philip Augustus. It is the world's **most-visited art museum**. Its collection spans work from ancient civilisations to the mid-19th century. You can go on an online visit at: louvre.fr/en/visites-en-ligne (source: Encyclopedia Britannica)

C'est carnaval!
It's the carnaval!

Ma fête préférée, c'est le carnaval.	*My favourite festival is carnival.*	**Il / Elle est dans un parc.**	*He / She is in a park.*
Je retrouve mes copains.	*I meet my friends.*	**Il / Elle danse.**	*He/ She is dancing.*
Je porte un masque et un déguisement.	*I wear a mask and a costume.*	**Il / Elle regarde la parade.**	*He / She is watching the parade.*
Je regarde la parade.	*I watch the parade.*	**Il / Elle mange une glace.**	*He / She is eating an ice cream.*
J'écoute la musique.	*I listen to the music.*	**Il / Elle chante.**	*He / She is singing.*
Je mange une crêpe.	*I eat a pancake*	**Il / Elle porte un déguisement.**	*He / She is wearing a costume.*
Je partage des photos.	*I share photos.*	**Il / Elle porte un masque.**	*He / She is wearing a mask.*
Sur la photo, il y a un homme.	*In the photo there is a man.*	**Je pense qu' ...**	*I think that ...*
Sur la photo, il y a un garçon.	*In the photo there is a boy.*	**il fait beau.**	*the weather is fine.*
Sur la photo, il y a une femme.	*In the photo there is a woman.*	**il fait mauvais.**	*the weather is bad.*
Sur la photo, il y a une fille.	*In the photo there is a girl.*	**il fait chaud.**	*it is hot.*
Il / Elle est dans une parade.	*He / She is in a parade.*	**il fait froid.**	*it is cold*

Practise online

Use this QR code to find all of the vocab online where you can listen to pronunciation and practise using games and vocab lists.

Dynamo 2 Vert
Module 2 - J'adore les fêtes!

French

La fête de la musique
Music day

J'attends la fête avec impatience.	*I am looking forward to the festival.*
Je vends des disques vinyles.	*I sell records.*
Je finis à midi.	*I finish at lunchtime.*
Je choisis un groupe de rock.	*I choose a rock group.*
J'écoute un rappeur.	*I listen to a rapper.*
Je préfère la fanfare.	*I prefer the brass band*
Ma mère chante dans la chorale.	*My mother sings in the choir.*
Mon frère choisit un groupe folk.	*My brother chooses a folk group.*
le matin	*(in) the morning*
l'après-midi	*(in) the afternoon*
le soir	*(in) the evening*

Et avec ça?
Anything else?

le fromage	*cheese*
un chou-fleur	*a cauliflower*
un haricot vert	*a green bean*
un melon	*a melon*
un œuf	*an egg*
un oignon	*an onion*
une banane	*a banana*
une pomme	*an apple*
une pomme de terre	*a potato*
une tomate	*a tomato*
le jambon	*ham*

un kilo de ...	*a kilo of ...*
un demi-kilo de ...	*half a kilo of ...*
une tranche de ...	*a slice of ...*
Vous désirez?	*What would you like?*
Je voudrais des tomates, s'il vous plaît.	*I'd like some tomatoes, please.*
C'est tout?	*Is that all?*
Ça fait combien?	*How much is it?*
Ça fait 3€50.	*That's 3 euros fifty.*
Voilà.	*Here you are.*
Merci, bonne journée!	*Thanks, have a nice day!*

Le marché de Noël
The Christmas market

Qu'est-ce que tu vas faire?	*What are you going to do?*
Je vais ...	*I am going ...*
visiter le marché de Noël.	*to visit the Christmas market.*
acheter un cadeau.	*to buy a present.*
admirer les maisons illuminées.	*to admire the illuminated houses.*
écouter des chorales.	*to listen to some choirs.*
manger une tarte flambée.	*to eat a pizza-like tart.*
boire un jus de pomme chaud.	*to drink a hot apple juice*

Culture

France has many **national celebrations** and shares some of these with the rest of the world. Holidays like Christmas, Easter, Halloween and Eid are celebrated. However, France has its own twist on these celebrations and has its own national festivals such as **Bastille Day and May Day**. There are also many regional festivals. Most towns in France celebrate with **fireworks** on July 14th (source: BBC bitesize)

Qu'est ce que tu vas manger?
What are you going to eat?

pour la fête?	*for the festival?*
Je vais manger ...	*I am going to eat ...*
une salade niçoise.	*a tuna and olive salad.*
une tarte flambée.	*a pizza-like tart.*
un couscous aux légumes.	*a vegetable couscous.*
une crêpe	*a pancake*
des moules-frites	*mussels and chips*
une quiche lorraine	*a bacon quiche*
du thon	*tuna*
du fromage blanc	*soft white cheese*
de la pâte	*pastry*
des olives	*olives*
des pois chiches	*chickpeas*
des carottes	*carrots*
C'est comment?	*What is it like?*
C'est très bon.	*It is very good.*
C'est délicieux.	*It is delicious.*
C'est savoureux.	*It is tasty.*
C'est un plat typique ...	*It's a typical dish ...*
C'est une spécialité ...	*It's a speciality ...*
du nord de la France.	*of the north of France.*
du sud de la France.	*of the south of France.*
de l'est de la France.	*of the east of France.*
de l'ouest de la France.	*of the west of France.*

Dynamo 2 Rouge
Module 2 - J'adore les fêtes!

French

Tu vas faire un voyage scolaire?
Are you going on the school trip?

je vais ...	*I am going ...*
aller en Alsace	*to go to Alsace*
visiter les marchés de Noël	*to visit the Christmas markets*
choisir des cadeaux	*to choose presents*
admirer les maisons illuminées	*to admire the illuminated houses*
écouter des chorales	*to listen to some choirs*
goûter du pain d'épices	*to try gingerbread*
acheter une boule de Noël	*to buy a Christmas bauble*
manger une tarte flambée / de la choucroute	*to eat a pizza-like tart / sauerkraut*
boire un jus de pomme chaud	*to drink a hot apple juice*

Culture

Colmar is in *Alsace, a region in the* east of France. Since 1871, Alsace has sometimes been part of France sometimes been part of France and and sometimes been part of Germany. Many older people there speak French, German and Alsatian Alsace keeps some German traditions such as Christmas markets and **la choucroute** (sauerkraut)

Grammaire

Use the present tense to talk about what is happening **at the moment** or what **usually happens**

Je **finis** mes devoirs I **finish** my homework

Use the near future tense to say what is **going** to happen **in the future**

Je **vais finir** mes devoirs I **am going to finish** my homework

Bonne année!
Happy new year!

Quelles sont tes bonnes résolutions pour l'année prochaine?	*What are your new year's resolutions?*
Je joue sur mon portable.	*I play on my phone.*
Je finis mes devoirs à la récré.	*I finish my homework at break.*
Je n'aide pas mes parents.	*I don't help my parents.*
Je fais la grasse matinée.	*I have a lie-in.*
Je ne suis pas sympa avec ...	*I am not kind to ...*
Je vais ...	*I am going ...*
aller au marché.	*to go to the market.*
aider dans le jardin.	*to help in the garden.*
être patient(e) avec ...	*to be patient with ...*
faire du sport.	*to do sport.*
laisser mon smartphone dans ma chambre.	*to leave my smartphone in my room*
finir mes devoirs le soir.	*to finish my homework in the evening*

Grammaire

When buying food, you can use:

- the indefinite article: **une banane**
- a number: **six** bananes
- a quantity followed by **de**: deux kilos **de** bananes

Remember that **de** shortens to **d'** before a vowel or silent **h**, e.g. 300 grammes **d'**olives

Stratégie

Spelling and accents

Accents are not optional extras - make sure you remember them.

- The acute accent goes uphill ´ and occurs on the letter e (e.g. **préférée)**
- The grave accent goes downhill ` and can occur on a, e or u (e.g. l'**après-midi**)
- The circumflex is like a little hat ^ and can occur on any vowel **(e.g. Pâques)**

Dynamo 2 Rouge
Module 2 - J'adore les fêtes!

French

Culture

The **fête des Rois** is a festival marking Epiphany. Over 30 million **galettes des Rois** are sold every year, with a charm (**une fève**) hidden inside. Whoever finds la fève wears a gold or silver cardboard crown and is queen or king for the day.

Grammaire

You know how to conjugate the present tense of **-er** verbs.
There are two more groups of regular verbs: **-ir** and **-re** verbs.

	-er verbs	**-ir verbs**	**-re verbs**
	danser	finir	attendre
je / j'	dans**e**	fin**is**	attend**s**
tu	dans**es**	fin**is**	attend**s**
il / elle / on	dans**e**	fin**it**	attend
nous	dans**ons**	fin**issons**	attend**ons**
vous	dans**ez**	fin**issez**	attend**ez**
ils / elles	dans**ent**	fin**issent**	attend**ent**

Useful -ir verbs: *finir* (to finish), *choisir* (to finish)
Useful -re verbs: *attendre* (to wait for), *entendre* (to hear)

Grammaire

masculine	du thon
feminine	**de la** salade
vowel or h	**de l'**ail
plural	**des** oignons

Translate the partitive article as 'some', or don't translate it at all.
Il y a **du** thon et **de la** salade.
There is **some** tuna and **some** lettuce/
There is tuna and lettuce

Les mots essentiels
High frequency words

Question words	
qu'est-ce que?	*what?*
comment?	*how?*
avec qui?	*with whom?*
pourquoi?	*why?*
où?	*where?*
quand?	*when?*

Grammaire

vouloir	**to want (to)**
je veux	I want
tu veux	you want
il/elle/on veut	he/she wants / we want
nous voulons	we want
vous voulez	you want
ils/elles veulent	they want

Grammaire

To talk about what is going to happen in the future, use part of the verb **aller** followed by the infinitive
aller (to go) + infinitive
je **vais écouter**
tu **vas écouter**
il/elle/on **va écouter**
nous **allons écouter**
vous **allez écouter**
ils/elles **vont écouter**

je **vais choisir** I **am going to choose**
To say that you are **also** going to do something, put **aussi** between the part of aller and the **infinitive**
je vais **aussi regarder**... I am **also** going to watch...

AVOCADOS Foundation

French

Adjectives

bon	*good*
mauvais	*bad*
ennuyeux	*boring*
amusant	*fun*
formidable	*great*
utile	*practical*
confortable	*comfortable*
inconfortable	*uncomfortable*
pas cher	*cheap*
cher	*expensive*
aimable	*nice*
affreux	*awful*
joli	*pretty*
laid	*ugly*

Verbs

je vais	*I go*
je fais	*I do/make*
j'écoute	*I listen*
je mange	*I eat*
je bois	*I drink*
j'achète	*I buy*
je joue	*I play*
je suis allé	*I went*
j'ai fait	*I did/made*
j'ai vu	*I watched*
c'était + adjective	*It was + adjective*
je vais (+ inf)	*I am going to + inf*
ce sera	*It will be*
je voudrais	*I would like*

Opinions

j'adore	*I love*
j'aime	*I like*
je n'aime pas	*I don't like*
j'aime assez	*I quite like*
j'aime vraiment	*I really like*
je préfère	*I prefer*
je déteste	*I hate*
Je crois que	*I believe that*
Je pense que	*I think that*
je trouve que	*I find that*
À mon avis	*In my opinion*
Selon moi	*In my opinion*
D'après moi	*In my opinion*

Connectives

et	*and*
cependant	*however*
neanmoins	*however*
par contre	*however*
aussi	*also*
même si	*even if*
car	*because*
parce que	*because*
puisque	*because*
donc	*therefore*
mais	*but*
sans doute	*no doubt*
ou	*or*
peut-être	*perhaps*

Adverbs

normalement	*normally*
généralement	*generally*
d'habitude	*usually*
spécialement	*especially*
complètement	*completely*
totalement	*totally*
rapidement	*quickly*
lentement	*slowly*
finalement	*finally*
immédiatement	*immediately*
fréquemment	*frequently*

Detail

très	*very*
plus	*more*
assez	*quite*
moins	*less*
un peu	*a bit*
beaucoup	*many/a lot*
trop	*too*
aussi	*also*

OMG! phrases

ce qui est bien c'est que	*the good thing is that*
ce qui est mauvais c'est que	*the bad thing is that*
le meilleur c'est que	*the best thing is that*
le pire c'est que	*the worst thing is that*

Sequencers

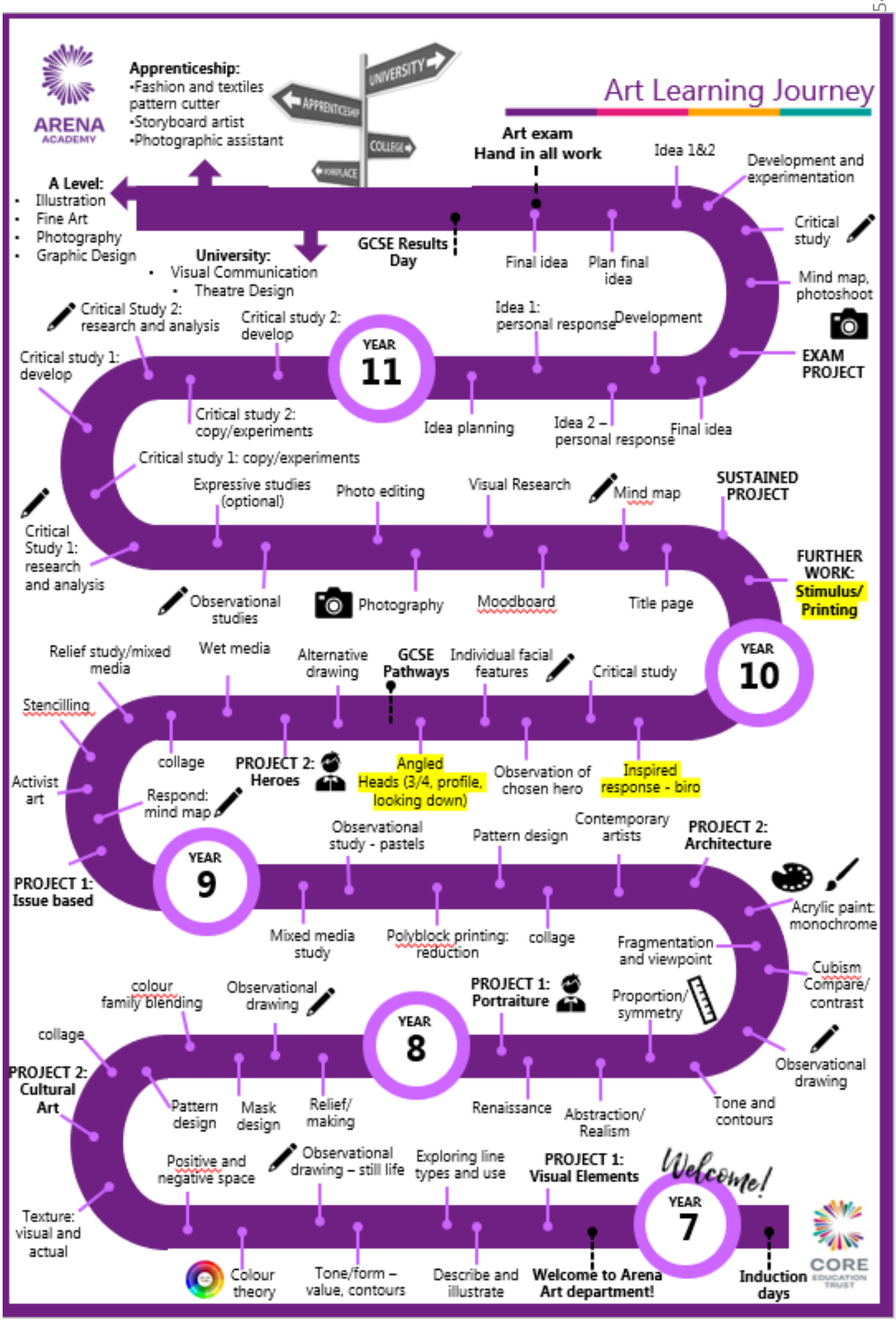
premièrement	*first*
puis	*then*
avant	*before*
après	*after*
le matin	*in the morning*
l'après-midi	*in the afternoon*
le soir	*in the evening*
hier	*yesterday*
aujourd'hui	*today*
demain	*tomorrow*
maintenant	*now*
plus tard	*later*
la semaine prochaine	*next week*
la semaine dernière	*last week*

Art

Topics covered from February half term to end of academy year.

Summer

1. Alternative drawing techniques – continuous line
2. Gridded portrait
3. Observation in pencil
4. Artist study – Mark Powell and Agnes Cecile
5. Biro mark making
6. Watercolour application


ARENA ACADEMY
Apprenticeship:
•Fashion and textiles pattern cutter
•Storyboard artist
•Photographic assistant
UNIVERSITY
APPRENTICESHIP
COLLEGE
WORKPLACE
Art Learning Journey
Art exam
Hand in all work
Idea 1&2
Development and experimentation
A Level:
• Illustration
• Fine Art
• Photography
• Graphic Design
University:
• Visual Communication
• Theatre Design
GCSE Results Day
Final idea
Plan final idea
Critical study
Mind map, photoshoot
Critical Study 2: research and analysis
Critical study 2: develop
Idea 1: personal response
Development
EXAM PROJECT
YEAR 11
Critical study 1: develop
Critical study 2: copy/experiments
Idea planning
Idea 2 – personal response
Final idea
Critical study 1: copy/experiments
Expressive studies (optional)
Photo editing
Visual Research
Mind map
SUSTAINED PROJECT
Critical Study 1: research and analysis
Observational studies
Photography
Moodboard
Title page
FURTHER WORK: Stimulus/ Printing
YEAR 10
Relief study/mixed media
Wet media
Alternative drawing
GCSE Pathways
Individual facial features
Critical study
Stencilling
collage
PROJECT 2: Heroes
Angled Heads (3/4, profile, looking down)
Observation of chosen hero
Inspired response - biro
Activist art
Respond: mind map
Observational study - pastels
Pattern design
Contemporary artists
PROJECT 2: Architecture
YEAR 9
PROJECT 1: Issue based
Acrylic paint: monochrome
Mixed media study
Polyblock printing: reduction
collage
Fragmentation and viewpoint
Cubism Compare/ contrast
colour family blending
Observational drawing
PROJECT 1: Portraiture
Proportion/ symmetry
YEAR 8
collage
Observational drawing
PROJECT 2: Cultural Art
Pattern design
Mask design
Relief/ making
Renaissance
Abstraction/ Realism
Tone and contours
Positive and negative space
Observational drawing – still life
Exploring line types and use
PROJECT 1: Visual Elements
Welcome!
YEAR 7
Texture: visual and actual
Colour theory
Tone/form – value, contours
Describe and illustrate
Welcome to Arena Art department!
Induction days
CORE EDUCATION TRUST

Year 9: Heroes

1. Key concepts:

Portraiture – depiction of a person, usually face, head and shoulders. Students will explore recording the head and facial features at new angles and in new media.

Personal response – students will create work which has personal meaning to them. This is an important way of working for GCSE Art.

Hero – someone that inspires you, that you admire, someone who has achieved impressive things and made a difference to the world.

2. Exemplar work from this unit

3. Techniques/skills:

Continuous line:

An alternative line drawing technique where the pen is not lifted off the page at all. Creates a fluid expressive drawing style. This example is by artist Ruth Allen.

Grid portrait:

A grid can be used to support accurate scale and proportions when recording a challenging image. The grid makes it easier to position each feature and judge spaces.

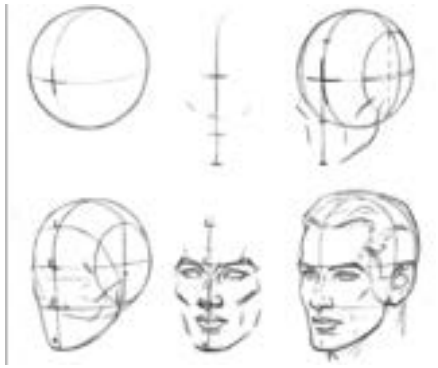
Watercolour:

Watercolour paints can be activated with water and easily blended together. Can create expressive and accidental effects. Can be combined with other media such as salt, clingfilm and bleach to create effects.

Biro:

Biro pens are a highly adaptable media to work with. They can record fine detail and tonal observation and can be used on top of many surfaces. Style of marks can be varied to create different expressions.

Angled viewpoint: Loomis method



Loomis method of drawing angled heads.

Practice drawing heads from a range of viewpoints.

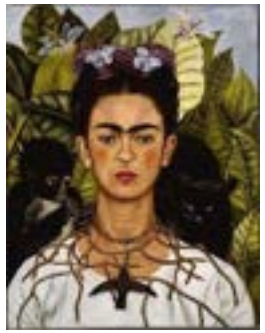
4. Critical references:

Mark Powell

Mark Powell is a British artist renowned for his detailed pen drawings created on vintage materials such as old maps, envelopes, and antique documents. Using a simple biro (ballpoint pen), Powell creates highly realistic portraits and scenes, often focusing on aged faces and expressive features.

Agnes Cecile

Silvia Pelissero, a painter best known as Agnes Cecile, was born in Rome, Italy. She has become a successful self-taught artist known for her layered, gorgeous watercolor work. Agnes Cecile creates rich, emotional human portraits using humble images coupled with abstract color and detail.



Frida Kahlo

Frida Kahlo's portrait work is known for its deeply personal and symbolic nature. She painted numerous self-portraits that feature surreal and folk-art elements, using bold colors and symbolic imagery. Her work frequently includes references to Mexican culture, nature, and her own experiences with illness and trauma.

Loui Jover

Loui Jover is an Australian artist known for his expressive ink drawings on vintage book pages. His work often features silhouette portraits, particularly of women, created using bold black ink lines. Jover's art blends emotion and nostalgia, with themes of love, longing, and melancholy.

5. Key Vocabulary

- portraiture
- proportion
- symmetry
- angle
- viewpoint
- scale
- blending
- mark making
- personal
- symbolism
- identity
- personality
- narrative
- silhouette
- expressive

6. Questions to ask yourself

What makes a portrait engaging to look at?

What can we learn about the sitter and artist from a portrait?

How does viewpoint affect the position and scale of facial features?

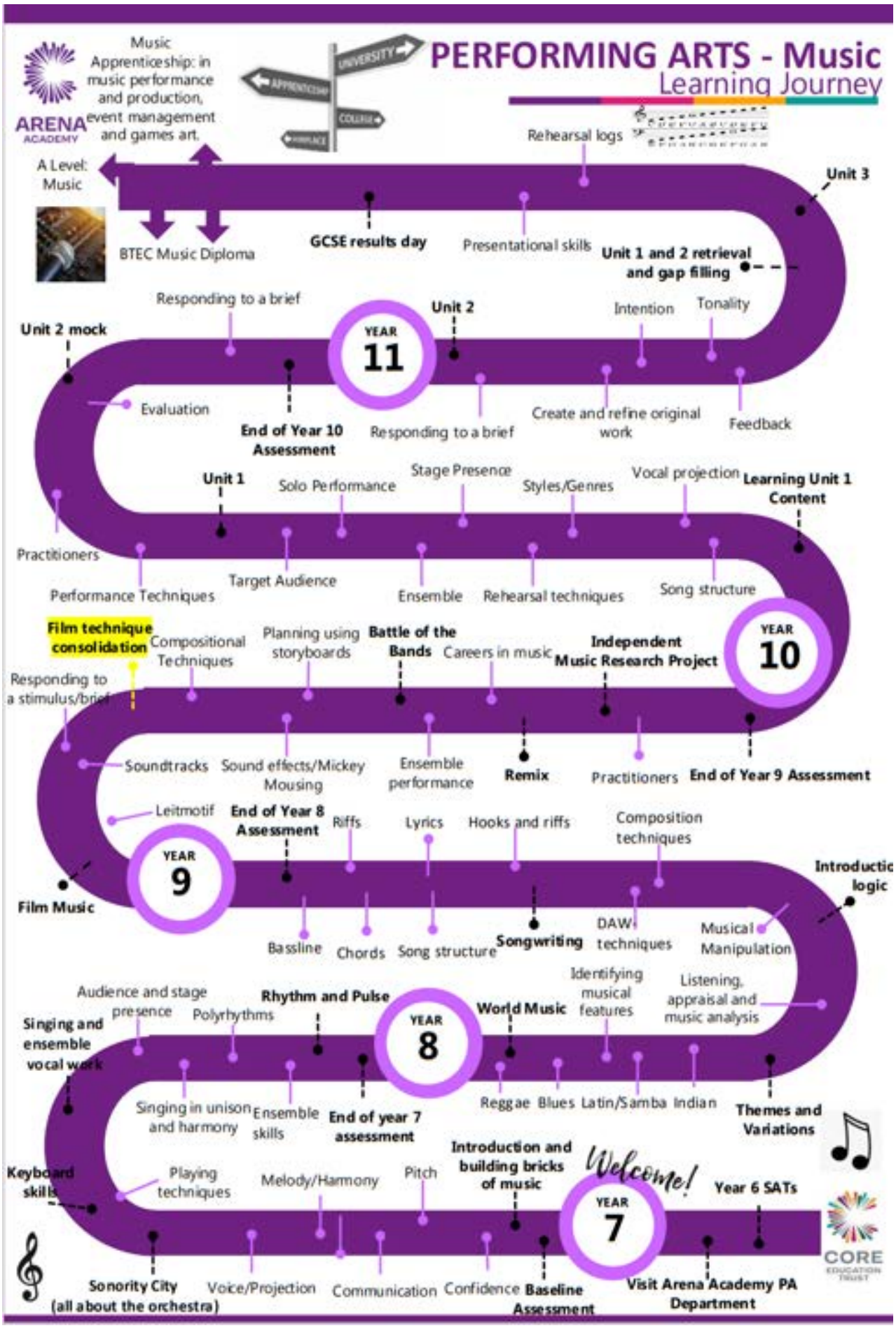
How can you use visual language to express the identity or personality of the sitter?

Performing Arts: Music

Topics covered during Year 9 Music carousel.

Summer

1. Film Music
2. Leitmotif
3. Soundtracks
4. Responding to a stimulus/brief
5. Compositional techniques
6. Sound effects/Mickey Mousing
7. Storyboard planning


PERFORMING ARTS - Music
Learning Journey
ARENA ACADEMY
Music Apprenticeship: in music performance and production, event management and games art.
UNIVERSITY
APPRENTICESHIP
COLLEGE
WORKPLACE
A Level: Music
BTEC Music Diploma
GCSE results day
Rehearsal logs
Presentational skills
Unit 3
Unit 1 and 2 retrieval and gap filling
Intention
Tonality
Feedback
Create and refine original work
Responding to a brief
Unit 2
YEAR 11
Unit 2 mock
Evaluation
End of Year 10 Assessment
Responding to a brief
Unit 1
Solo Performance
Stage Presence
Styles/Genres
Vocal projection
Learning Unit 1 Content
Practitioners
Performance Techniques
Target Audience
Ensemble
Rehearsal techniques
Song structure
Film technique consolidation
Compositional Techniques
Planning using storyboards
Battle of the Bands
Careers in music
Independent Music Research Project
YEAR 10
Responding to a stimulus/brief
Soundtracks
Sound effects/Mickey Mousing
Ensemble performance
Remix
Practitioners
End of Year 9 Assessment
Leitmotif
End of Year 8 Assessment
Riffs
Lyrics
Hooks and riffs
Composition techniques
YEAR 9
Film Music
Bassline
Chords
Song structure
Songwriting
DAW techniques
Musical Manipulation
Introductio logic
Audience and stage presence
Polyrhythms
Rhythm and Pulse
World Music
Identifying musical features
Listening, appraisal and music analysis
Singing and ensemble vocal work
YEAR 8
Singing in unison and harmony
Ensemble skills
End of year 7 assessment
Reggae
Blues
Latin/Samba
Indian
Themes and Variations
Keyboard skills
Playing techniques
Melody/Harmony
Pitch
Introduction and building bricks of music
Welcome!
Year 6 SATs
YEAR 7
Sonority City (all about the orchestra)
Voice/Projection
Communication
Confidence
Baseline Assessment
Visit Arena Academy PA Department
CORE EDUCATION TRUST

SOUNDTRACKS

Exploring Film Music

A. The Purpose of Music in Film

Film Music is a type of **DESCRIPTIVE MUSIC** that represents a **MOOD, STORY, SCENE** or **CHARACTER** through music, it is designed to **SUPPORT THE ACTION AND EMOTIONS OF THE FILM ON SCREEN**. Film Music can be used to:

- Create or enhance a mood (though the **ELEMENTS OF MUSIC**) ->
- Function as a **LEITMOTIF** (see D)
- To emphasise a gesture (**MICKEY-MOUSING –** when the music fits precisely with a specific part of the action in a film e.g. cartoons)
- Provide unexpected juxtaposition/irony (using music the listener wouldn't expect to hear giving a sense of uneasiness or humour!)
- Link one scene to another providing continuity
- Influence the pacing of a scene making it appear faster/slower
- Give added commercial impetus (released as a **SOUNDTRACK**) – sometimes a song, usually a pop song is used as a **THEME SONG** for a film.
- Illustrate the geographic location (using instruments associated with a particular country) or historical period (using music 'of the time').

D. Leitmotifs

LEITMOTIF – A frequently recurring short melodic or harmonic idea which is associated with a character, event, concept, idea, object or situation which can be used directly or indirectly to remind us of one not actually present on screen. Leitmotifs can be changed through **SEQUENCING, REPETITION** or **MODULATION** giving a hint as to what may happen later in the film or may be heard in the background giving a "subtle hint" to the listener *e.g. the "Jaws" Leitmotif*

B. How the Elements of Music are used in Film Music

PITCH AND MELODY – **RISING MELODIES** are often used for increasing tension, **FALLING MELODIES** for defeat. Westerns often feature a **BIG THEME**. **Q&A PHRASES** can represent good versus evil. The **INTERVAL OF A FIFTH** is often used to represent outer space with its sparse sound.
DYNAMICS – **FORTE (LOUD)** dynamics to represent power; **PIANO (SOFT)** dynamics to represent weakness/calm/resolve. **CRESCENDOS** used for increasing threat, triumph or proximity and **DECRESCENDOS** or **DIMINUENDOS** used for things going away into the distance. Horro Film soundtracks often use **EXTREME DYNAMICS** or **SUDDEN DYNAMIC CHANGES** to 'shock the listener'.
HARMONY – **MAJOR** – happy; **MINOR** – sad. **CONSONANT HARMONY OR CHORDS** for "good" and **DISSONANT HARMONY OR CHARDS** for "evil". **SEVENTH CHORDS** often used in Westerns soundtracks.
DURATION – **LONG** notes often used in Westerns to describe vast open spaces and in Sci-Fi soundtracks to depict outer space; **SHORT** notes often used to depict busy, chaotic or hectic scenes. **PEDAL NOTES** – long held notes in the **BASS LINE** used to create tension and suspense.
TEXTURE – **THIN/SPARE** textures used for bleak or lonely scenes; **THICK/FULL** textures used for active scenes or battles.
ARTICULATION – **LEGATO** for flowing or happy scenes, **STACCATO** for 'frozen' or 'icy' wintery scenes. **ACCENTS (>)** for violence or shock.
RHYTHM & METRE – 2/4 or 4/4 for Marches (battles), 3/4 for Waltzes, 4/4 for "Big Themes" in Westerns. **IRREGULAR TIME SIGNATURES** used for tension. **OSTINATO** rhythms for repeated sounds *e.g. horses.*

C. Film Music Key Words

SOUNDTRACK – The music and sound recorded on a motion-picture film. The word can also mean a commercial recording of a collection of music and songs from a film sold individually as a CD or collection for digital download.
MUSIC SPOTTING – A meeting/session where the composer meets with the director and decides when and where music and sound effects are to feature in the finished film.
STORYBOARD – A graphic organiser in the form of illustrations and images displayed in sequence to help the composer plan their soundtrack.
CUESHEET – A detailed listing of **MUSICAL CUES** matching the visual action of a film so that composers can time their music accurately.
CLICK TRACKS – An electronic **METRONOME** which helps film composers accurately time their music to on-screen action through a series of 'clicks' (often heard through headphones) – used extensively in cartoons and animated films.
DIEGETIC FILM MUSIC – Music within the film for both the characters and audience to hear *e.g. a car radio, a band in a nightclub or sound effects.*
NON-DIEGETIC FILM MUSIC – Music which is put "over the top" of the action of a film for the audience's benefit and which the characters within a film can't hear – also known as **UNDERSCORE** or **INCIDENTAL MUSIC**.

E. History of Film Music

Early films had no soundtrack **("SILENT CINEMA")** and music was provided live, usually **IMPROVISED** by a pianist or organist. The first **SOUNDTRACKS** appeared in the 1920's and used existing music **(BORROWED MUSIC** – music composed for other (non-film) purposes) from composers such as Wagner and Verdi's operas and ballets. In the 1930's and 1940's Hollywood hired composers to write huge Romantic-style soundtracks. **JAZZ** and **EXPERIEMENTAL MUSIC** was sometimes used in the 1960's and 1970's. Today, film music often blends **POPULAR, ELECTRONIC** and **CLASSICAL** music together in a flexible way that suits the needs of a particular film.

F. Film Music Composers and their Soundtracks

Jerry Goldsmith
Planet of the Apes
Star Trek: The Motion Picture
The Omen
Alien

John Williams
Star Wars
Jaws
Harry Potter
Indiana Jones
Superman, E.T.

James Horner
Titanic
Apollo 13
Braveheart
Star Trek II
Aliens

Ennio Morricone
The Good, The Bad and The Ugly
For a Few Dollars More
The Mission

Danny Elfman
Mission Impossible
Batman Returns
Men in Black
Spider Man

Hans Zimmer
The Lion King
Gladiator
Dunkirk
Blade Runner 2049
No Time to Die

Bernard Hermann
Psycho
Vertigo
Taxi Driver

Performing Arts: Drama

Topics covered during Year 9 Drama carousel.

Summer

1. Team building
2. Staying in character (revisit)
3. Theatre types
4. Theatre of cruelty
5. Epic theatre
6. Naturalism
7. Use of props and space
8. Stimulus workshops

PERFORMING ARTS -DRAMA
Learning Journey

A Level or Apprenticeship: Theatre Performance

A Level: Musical theatre

A Level: Drama

Apprenticeship: Theatre performance

GCSE Results Day

End of Year 11 PA

Revision, Retrieval & Gap Filling

Evaluating

Unit 3

Theatre responsibilities

Production disciplines

Unit 2

Physical Theatre

Exploring the brief

YEAR 11

Unit 2 Mock

End of Year 10 PA

Theatrical techniques

Rehearsal techniques

Unit 1

Intentions

Structure

Staging

Character Building

Evaluating

Practitioners

Styles

Genre/Styles

Target Audience

Rehearsal Plans

YEAR 10

End of Year 9 Drama Exam

Character depth

Exploring stimuli

Use of props & space

Naturalism

Epic Theatre

Physical Theatre

Performance meaning

Stimulus Workshops

Theatre of Cruelty

Focus & Staying character

YEAR 9

End of Year 8 PA Exam

Commedia Del'Arte

Roles in the industry

Monologues

Drama techniques (advanced)

Status

Stage Types

Team Building

Improvisation

Atmosphere & Tension

Scornbury Manor

Soundscapes

YEAR 8

Characterisation

Blocking

End of Year 7 PA Exam

Year 6 SATs

Welcome!

Acting skills (Basic)

Collaboration

Communication

Theatrical techniques (Basic)

YEAR 7

The Terrible Fate of Humpty Dumpty

Confidence

Introduction to Performing Arts

Visit Arena Academy PA Department

ARENA ACADEMY

CORE EDUCATION TRUST

ARENA ACADEMY

Subject: PERFORMING ARTS – DRAMA YEAR 9 Topic: DEVISING

Devised Drama

For this type of drama, there is no script needed. You are given a stimulus, and you will need to create a performance based on the themes.

Stage Types – Stage types can have impact on whether the performance's intentions are met at the end of the show. If audiences are close to the action, this creates an intimate atmosphere that enables sympathy and empathy for the characters. It is always best to consider advantages and disadvantages of each stage type before choosing.

Proscenium Arch

Thrust

End-On

In-the-round

Traverse

What is a stimulus?

A stimulus is a starting point which can be either a photo, object, painting, song, poem, or book etc. A stimulus can pretty much be anything as long as it is what you want the performance to be based on.

Performance Techniques –

1. **Tableaux –** When you highlight something significant in a scene through acting skills.
2. **Thought-Track –** When you speak your characters thoughts/feelings out loud to an audience.
3. **Soundscape** – A series of sounds created by actors that create a setting or suggest a scene.
4. **Choral Speech –** A group of performers say lines at the same time.
5. **Flashback –** scenes that show the past - seconds, minutes, days or years before a dramatic moment.
6. **Flashforward –** scenes where the action jumps ahead to the future of the narrative.
7. **Proxemics –** The space between characters on stage that shows their relationship.

Acting Skills	
Body Language	How an actor uses their body to communicate meaning. For example, crossing your arms could mean you are fed up.
Facial Expressions	A form of non-verbal communication that expresses the way you are feeling, using your face.
Gestures	A movement of part of the body, especially a hand or the head, to express an emotion or meaning.
Posture	The position .an actor holds their body when sitting or standing. For example, an upright posture
Gait	The way an actor walks.
Stance	The way you position yourself when standing to communicate your role. An elderly person would have a different stance to a child.
Tone	The way you say something in order to communicate emotions (Eg, Angry, worried, shocked)
Pause	Moments of pause can create tension or show that you are thinking.
Emphasis	Changing the way a word or part of a sentence is said, to emphasise it/make it stand out. Example – "How could YOU do that?" Or "How could you do THAT?"

Constantin Stanislavski
1863 - 1938

'The actor must use his imagination to be able to answer all questions (when, where, why, how).'

Believed that the audience should emotionally connect with the characters.

Actors should use their own experience to make their characters as believable as possible.

Terminology and techniques:
- The fourth wall
- Emotional memory
- The magic 'if'
- Sense memory
- Objectives
- Given circumstances
- Subtext
- Method of physical actions

Naturalism

Bertolt Brecht
1898 – 1956

'Art is not a mirror to reflect reality, but a hammer with which to shape it.'

Believed that theatre should be used to spread a message and comment on society.

The audience should always be aware they are watching a play and constantly questioning what they see.

Terminology and techniques:
- Breaking the fourth wall
- Alienation (Verfremdungseffekt)
- Gestus
- Use of placards
- Narration
- Multi-role
- Minimal set/costume/props
- Masks

Epic theatre

Augusto Boal
1931 – 2009

'The theatre is a weapon, and it is the people who should wield it.'

Believed that theatre gave people the ability to take control and make changes.

Well known for Forum Theatre, in which the audience can stop a piece of drama and step in to change the outcome.

Terminology and techniques:
- Forum theatre
- Improvisation
- Public theatre
- Audience participation
- 'Spect-actor'
- Exploring social issues

Theatre of the Oppressed

Jacques Lecoq
1921 - 1999

'The body knows things about which the mind is ignorant.'

Believed theatre was about using the body to tell stories.

Focus on physical theatre, movement and mime.

Movement generates the emotion (muscle memory)

Levels:
1. Catatonic (jellyfish)
2. Relaxed (Californian)
3. Neutral (no story)
4. Curious/alert (Mr Bean)
5. Reactive/Suspense (melodrama)
6. Passionate (opera)
7. Tragic (petrified)

Seven levels of Tension

Frantic Assembly
1994 – Present

FRANTIC ASSEMBLY

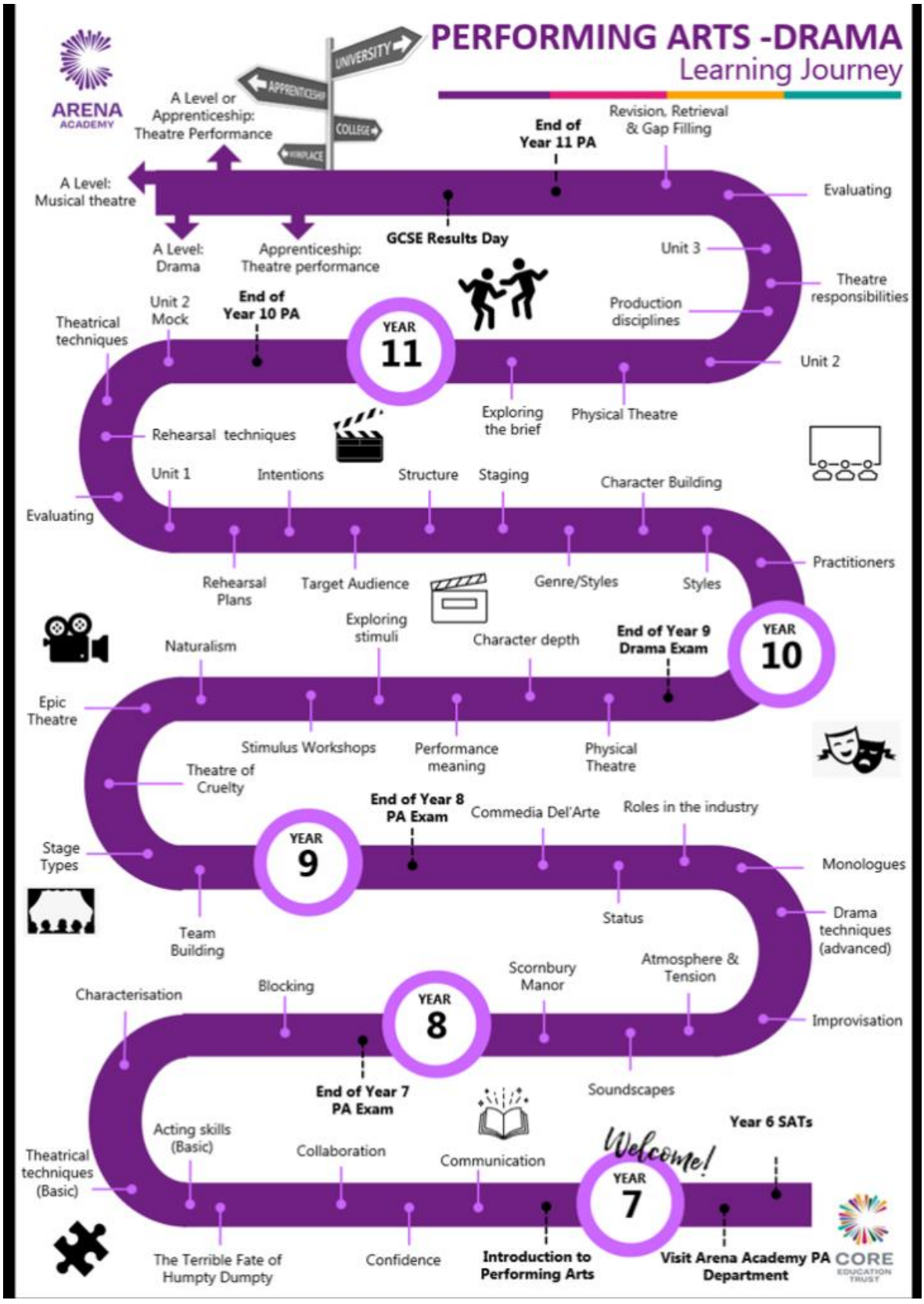
'We began with little more than a fierce work ethic and a desire to do something different and to do it differently.'

World-renowned theatre company who use physical theatre to devise performance.

Wanted to create non-realistic pieces of theatre through the use of movement and music.

Terminology and techniques:
- Chair duet
- Hymn hands
- Lifts
- Walk the grid
- Mirroring
- Round-By-Through

Physical theatre

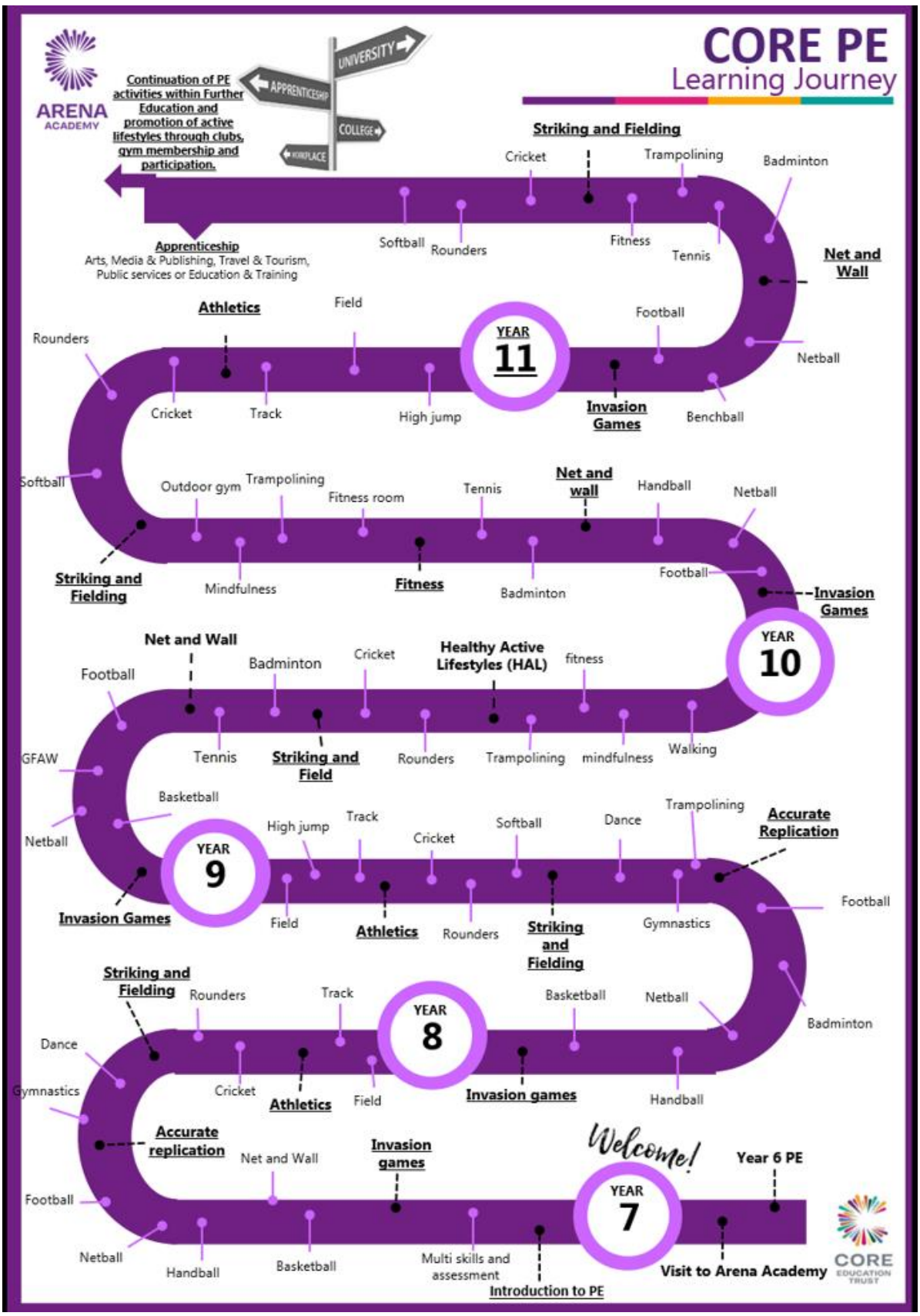

PERFORMING ARTS -DRAMA
Learning Journey
ARENA ACADEMY
UNIVERSITY
APPRENTICESHIP
COLLEGE
WORKPLACE
A Level or Apprenticeship: Theatre Performance
A Level: Musical theatre
A Level: Drama
Apprenticeship: Theatre performance
GCSE Results Day
End of Year 11 PA
Revision, Retrieval & Gap Filling
Evaluating
Unit 3
Theatre responsibilities
Production disciplines
Unit 2
Physical Theatre
Exploring the brief
YEAR 11
End of Year 10 PA
Unit 2 Mock
Theatrical techniques
Rehearsal techniques
Unit 1
Intentions
Structure
Staging
Character Building
Evaluating
Practitioners
Styles
Genre/Styles
Target Audience
Rehearsal Plans
End of Year 9 Drama Exam
YEAR 10
Character depth
Exploring stimuli
Naturalism
Epic Theatre
Physical Theatre
Performance meaning
Stimulus Workshops
Theatre of Cruelty
Roles in the industry
Commedia Del'Arte
End of Year 8 PA Exam
YEAR 9
Stage Types
Monologues
Drama techniques (advanced)
Status
Team Building
Atmosphere & Tension
Scornbury Manor
Blocking
Characterisation
Improvisation
YEAR 8
End of Year 7 PA Exam
Soundscapes
Year 6 SATs
Acting skills (Basic)
Collaboration
Communication
Welcome!
Theatrical techniques (Basic)
YEAR 7
The Terrible Fate of Humpty Dumpty
Confidence
Introduction to Performing Arts
Visit Arena Academy PA Department
CORE EDUCATION TRUST

Physical Education

Topics covered from the beginning of the academy year to the end of this half-term.

<u>Summer:</u>

- Athletics
- Rounders
- Cricket


CORE PE
Learning Journey
ARENA ACADEMY
Continuation of PE activities within Further Education and promotion of active lifestyles through clubs, gym membership and participation.
UNIVERSITY
APPRENTICESHIP
COLLEGE
WORKPLACE
Striking and Fielding
Cricket
Trampolining
Badminton
Softball
Rounders
Fitness
Tennis
Net and Wall
Apprenticeship
Arts, Media & Publishing, Travel & Tourism, Public services or Education & Training
Athletics
Field
Football
YEAR 11
Rounders
Netball
Cricket
Track
High jump
Invasion Games
Benchball
Softball
Outdoor gym
Trampolining
Fitness room
Tennis
Net and wall
Handball
Netball
Striking and Fielding
Mindfulness
Fitness
Badminton
Football
Invasion Games
Net and Wall
Football
Badminton
Cricket
Healthy Active Lifestyles (HAL)
fitness
YEAR 10
Tennis
Striking and Field
Rounders
Trampolining
mindfulness
Walking
GFAW
Basketball
Netball
High jump
Track
Cricket
Softball
Dance
Trampolining
Accurate Replication
YEAR 9
Invasion Games
Field
Athletics
Rounders
Striking and Fielding
Gymnastics
Football
Striking and Fielding
Rounders
Track
Basketball
Netball
Badminton
YEAR 8
Dance
Gymnastics
Cricket
Athletics
Field
Invasion games
Handball
Accurate replication
Net and Wall
Invasion games
Welcome!
Year 6 PE
Football
YEAR 7
Netball
Handball
Basketball
Multi skills and assessment
Introduction to PE
Visit to Arena Academy
CORE EDUCATION TRUST

ROUNDERS KNOWLEDGE ORGANISER

LKS2

Overview

-Rounders is a bat and ball game played between two teams. It is a striking and fielding game.

It involves batting, (hitting a ball with a bat) and running around a circuit of bases.

-Opponents use fielding to prevent the batter running around the circuit. This involves catching, tracking and stopping the ball, and throwing it to others.

-When fielding, it is important to work as a team, thinking about our position & the position of others.
-We should always follow the rules and correct techniques of striking and fielding to stay safe.

Physical

Skill	Definition	How do I do this?
Batting 	To strike the ball away from you with the surface of the bat.	-Stand slightly sideways from the person bowling/ throwing. Watch the ball carefully. Strike by moving your bat away from you. Use the centre of the bat to strike it. Look to strike the ball in space between fielders.
Fielding 	To stop a ball so that it is no longer moving. To return it to teammates to prevent runs.	-Move feet to get in line with the ball. Use two hands to stop it. Make sure that your palms are facing the ball, with wide fingers. To throw, start with throwing arm behind body. Put opposite foot to throwing arm forwards, weight on back foot. Point throwing arm in direction of target.
Bowling 	To send the ball through the air from your hand.	-The ball should be bowled underarm. Step forward with opposite foot to throwing arm to stay balanced. Use your non-throwing arm to point in the direction that you want the ball to go. Point fingers at the target as you release.
Catching 	To take hold of the ball in your hands before it bounces.	-Watch the ball carefully. Hands out as the ball approaches. Bend your knees as you prepare to catch it. Use wide fingers, eyes on the ball, soft hands to catch. Close your hands around the ball and pull it in to your body.
Running Between Bases 	To hit the ball with your hand or equipment.	-After striking, look carefully at where the ball has gone, and the fielders who are close to it. Run around the outside of the bases. Stay close to the cones, keeping them on the left-hand side. Stop at a cone if you can see that a fielder could stump you out at the next cone.

Social and Emotional

Cooperation
Cooperating is about working together and helping others. Strong teams need each individual to cooperate with teammates. Make sure your fielding is appropriately organised so there are few gaps.

Communication
We need to communicate to give and receive information from our teammates. We can do this through speaking, listening and body language. For example, communicate with batters when they should run.

Supporting and Encouraging
Encouraging and supporting others can help them to feel good and perform well. Try to help everyone stay positive.

Respect and Kindness
Respect is the act of giving attention and showing care to others. It is important to be respectful to teammates, opponents, referees and coaches. It is important to be inclusive of others, respecting people of all abilities and experience levels.

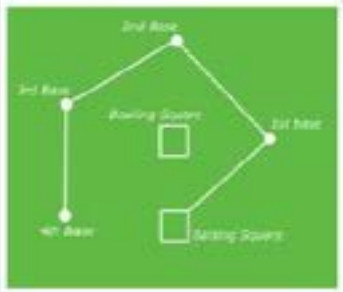
Honesty and Fair Play
Fair play is about learning the rules of the game and putting them into practice honestly. Winning only feels as good as it should when you know that you have won fairly. E.g. be honest if you are stumped out.

Managing Emotions
Whilst it is important try your hardest, you should remember that games and sports should be fun. Be considerate to others in victory and be respectful and gracious in defeat.

Key Vocabulary

Rounders
Fielding
Throwing
Stumping
Striking
Tracking
Bowler
Batter
Backstop
Collaboration
Honesty
Fair Play
Persevering

Thinking/ Strategic



Field and Positions
Bowlers bowl from the bowling square. Batters from the batting square. The backstop should be (a safe distance) behind the batter. Fielders should be positioned near bases and in spaces around the field.

-Success in rounders is about working successfully as a team. Batters cannot overtake each other on the circuit, and so all batters need to know when to run. Additionally, fielders should be organised to cover all bases and as many spaces as possible. Call so that other fielders know you are chasing a ball. This prevents collisions.
-When fielding, don't switch off! You never know when you are going to be needed to stop/catch/return the ball!

Health and Safety

Always try to follow the rules of the game.	Be aware of the people and space around you.	Store equipment safely when it is not in use.	Unused balls should be put in bags or trolleys.	Hard objects, like rounders bats and cricket balls, should be used very carefully, to avoid injury.	Make sure that you warm up properly.	Stretch your muscles before exercising.	Warm down when exercising.	Remove jewellery and wear suitable clothing/ equipment.

ATHLETICS KNOWLEDGE ORGANISER

KS1

Overview

-Athletics is the name for a number of different sports that require strength, endurance and skill. Athletics includes track and field events.

-Track events involve running and sprinting. Examples are the 100 metre sprint and hurdles.

-Field events often use skills like jumping and throwing. Examples include the shotput throw and the long jump.

-Someone competing in athletics is known as an athlete. They should learn how to perform movements safely, build our confidence and respond to feedback given by others.

Physical

Skill	Definition	How do I do this?
Sprinting 	To run a short distance at top speed.	-Keep looking straight ahead, and take big strides. -Run on the balls of your feet and lift your knees high and fast. Use your arms for balance (alternate to legs) moving from pockets to mouth.
Hurdling 	To leap over obstacles whilst running.	-Look straight ahead when running and hurdling so that you don't over-rotate. Bend your knees on take-off and landing. Count the number of strides between each obstacle and try to keep this even. Keep a rhythm between the obstacles.
Jumping 	To launch both legs off the floor at the same time	-Bend your knees on take-off and landing. -For distance, swing your arms up for momentum. -Where appropriate, take off from two feet.
Throwing 	To launch something with force from the hand.	-Begin with a high elbow in line with shoulder and back of head. Point your non-throwing arm in direction of target. Foot of non-throwing side forward. Push throwing arm forward and release.
Using multiple skills	To use the above skills together.	-Many events involve running and jumping or running and throwing. Make sure that you are still keeping the correct technique, for skill & strength.

Social and Emotional

Supporting and Encouraging
Encouraging and supporting others can help them to feel good and perform well.

Honesty and Fair Play
Fair play is about learning the rules of the game and putting them into practice honestly. We should not try to gain an unfair advantage over others.

Keeping Safe
Follow the rules and listen to the coach/ referees instructions. Store and handle apparatus properly.

Building Confidence
Some athletic moves can be difficult or dangerous. It is important that we believe in ourselves and build confidence before attempting moves.

Perseverance
Perseverance is about keeping going even when something is difficult or tiring.

Challenging Myself
Whenever we learn anything, we have to start somewhere! Improving ourselves is all about putting in hard work and practice, challenging ourselves to be better than we were before!

Key Vocabulary

Athletics
Strength
Speed
Endurance
Running
Jumping
Throwing
Sprinting
Obstacle
Equipment
Persevere
Hurdling
Distance

Thinking/ Strategic

Obstacle – Something that needs to be avoided (e.g. jumped over or moved around).

Track – The name given to events that take place on a running track. The tracks are often made of rubber for more bounce and speed. Full-sized athletics tracks are often 400 metres around.

Field –Events that do not take place on the running track, e.g. jumping and throwing events. They often take place inside the oval track.

-In athletics, it is important to try and reflect on your strengths and weaknesses in order to beat your personal bests. When things do not go well consider which parts of your technique were not quite right, and take steps to improve them. You should also try to help others to improve through offering clear and fair feedback.

Health and Safety

Exercise in safe spaces. Be mindful of others.	Keep your head up and know what is around you.	Warm up properly including stretching your muscles.	Bend your knees when you land jumps.	When using obstacles, make sure that they are a safe height and are not fixed in the ground.	Make sure that equipment is in working order.	Make sure that equipment is put away properly.	Warm down after exercising.	Remove jewellery and wear suitable clothing/ equipment.

CRICKET KNOWLEDGE ORGANISER

LKS2

Overview

-Cricket is a bat and ball game played between two teams. It is a striking and fielding game.

It involves batting. Batters try to protect their wicket and score runs. They can score runs either by striking the ball past the boundary, or by running between the creases without being stumped.

-Opponents use bowling and fielding to try to get the batter out, and to try and prevent runs. This involves catching, tracking and stopping the ball, and throwing it to others.

-Cricket involves working as a team, thinking about our position & the position of others.

Physical

Skill	Definition	How do I do this?
Batting 	To strike the ball away from you with the surface of the bat.	-Fingers and thumbs wrapped around the bat handle. Make a 'V' using thumb and forefinger. Dominant hand at the bottom. Feet parallel, shoulder-width apart. Push the bat straight, swinging arms away from the body. Keep head and the rest of the body still. Keep eye on the ball.
Fielding 	To stop a ball so that it is no longer moving. To return it to teammates to prevent runs.	-Move feet to get in line with the ball. Use two hands to stop it. Make sure that your palms are facing the ball, with wide fingers. To throw, start with throwing arm behind body. Put opposite foot to throwing arm forwards, weight on back foot. Point throwing arm in direction of target.
Throwing 	To send the ball through the air from your hand.	-You should now be developing overarm throwing. Step forward with opposite foot to throwing arm to stay balanced. Use non-throwing arm to point in direction that the ball should go. Point fingers at target as you release.
Catching 	To take hold of the ball in your hands before it bounces.	-Watch the ball carefully. Hands out as the ball approaches. Bend your knees as you prepare to catch it. Use wide fingers, eyes on the ball, soft hands to catch. Close your hands around the ball and pull it in to your body.
Underarm Bowling 	To send the ball underarm towards the wicket from your hand.	-Step forward with the opposite foot to your bowling arm in order to stay balanced. Keep your bowling arm straight so that the ball travels straight. Release the ball with fingertips pointing towards the target.

Social and Emotional

Cooperation
Cooperating is about working together and helping others. Strong teams need each individual to cooperate with teammates. Make sure your fielding is appropriately organised so there are few gaps.

Communication
We need to communicate to give and receive information from our teammates. We can do this through speaking, listening and body language. For example, communicate with batters when they should run.

Supporting and Encouraging
Encouraging and supporting others can help them to feel good and perform well. Try to help everyone stay positive.

Respect and Kindness
Respect is the act of giving attention and showing care to others. It is important to be respectful to teammates, opponents, referees and coaches. It is important to be inclusive of others, respecting people of all abilities and experience levels.

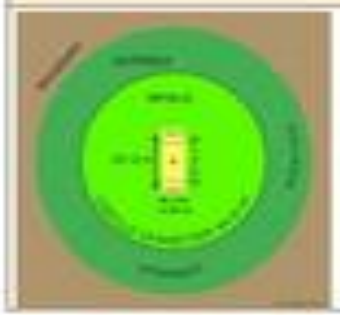
Honesty and Fair Play
Fair play is about learning the rules of the game and putting them into practice honestly. Winning only feels as good as it should when you know that you have won fairly. E.g. be honest if you are run out.

Managing Emotions
Whilst it is important try your hardest, you should remember that games and sports should be fun. Be considerate to others in victory and be respectful and gracious in defeat.

Key Vocabulary

- Cricket
- Fielding
- Throwing
- Stumping
- Striking
- Batting
- Bowler
- Batter
- Wicket
- Crease
- Pitch
- Stumps
- Runs

Thinking/ Strategic



Scoring Runs

-1 run for each time running between the wickets.

-4 runs for hitting the ball past the boundary (hitting the ground first).

-6 runs for hitting the ball past the boundary without bouncing.

Ways to get a batter out

-Bowled: Bowling the ball at the stumps, past the batter, and knocking off the wicket.

-Caught: Catching the ball after it has been struck by the batter's bat (without it bouncing).

-Run-out: The ball knocks the wicket down whilst the batter is not in the batting crease (e.g. if they are trying to run between the creases).

Health and Safety

Always try to follow the rules of the game.	Be aware of the people and space around you.	Store equipment safely when it is not in use.	Unused balls should be put in bags or trolleys.	Hard objects, like rounders bats and cricket balls, should be used very carefully, to avoid injury.	Make sure that you warm up properly.	Stretch your muscles before exercising.	Warm down when exercising.	Remove jewellery and wear suitable clothing/ equipment.

Design Technology

Topics covered from the beginning of the academy year to the end of this half-term.

<u>Summer:</u>

- Materials

Modern materials

- **These are materials that are relatively new and have specific working properties and performance characteristics.**

Carbon fibre is a material that has several advantages including high stiffness, high tensile strength, low weight, high temperature tolerance, high chemical resistance, low thermal expansion and resistance to corrosion. Carbon fibre is created when carbon atoms are bonded together in crystals and can be woven into fabric. Carbon fibres are usually combined with other materials to form a composite. Commonly, fabrics or matting made from woven carbon is bonded in layers to create complex shapes for performance products like racing bicycles, Formula One cars, aerospace vehicles and many sporting products where strength, lightweight properties and speed are essential.

Kevlar is another newer material with special performance characteristics. Kevlar is a heat resistant and strong synthetic fibre with the ability to stop bullets and knives form penetrating it. Kevlar is often described as being five times stronger than steel for its weight. It can be woven into different shapes and remains lightweight and flexible, which is ideal for protective vests.

GRP or Glass Reinforced Polymer is also called fibreglass. Fibre strands are embedded into a polymer resin matrix, resulting in high compressive and tensile strengths in the finished products. Many products are made from fibreglass including fun water slides, jacuzzis, car body panels, boats and roofing products.

Smart materials

- **Smart materials can display a physical change due to external stimuli.**

A smart material is a category of materials that react when something triggers them. It can be a change in temperature or light for example.

QTC or **Quantum Tunnelling Composite** is a black rubbery material which is an electrical insulator, but when placed under compression, it becomes a conductor. It is used in clothing, smart phones and outdoor equipment, normally as a material to make an electrical switch.

Photochromic pigments or film are used to change colour in ultraviolet (UV) light. This is used in spectacles that automatically darken as the sunlight gets brighter. It is useful in high-rise buildings and office blocks to prevent strong sunlight penetrating inside.

Thermochromic pigments are useful when used in baby products like spoons, bottles and bath toys. This allows the product to change colour to indicate temperature.

Shape memory alloys or **SMAs** are materials that change their shape when heated. Spectacle frames made from Nitinol can be returned to their original shape easily. Also, dental braces made from Nitinol can help straighten teeth.

Polymorph is a polymer that becomes malleable at 62°C.

Differences between modern and smart materials

Modern materials are designed to have specific properties and characteristics, so that they can be used to improve existing materials used in products. Smart materials have unique changes that occur in response to external stimuli, making the smart material react in a clever way.

Styrofoam

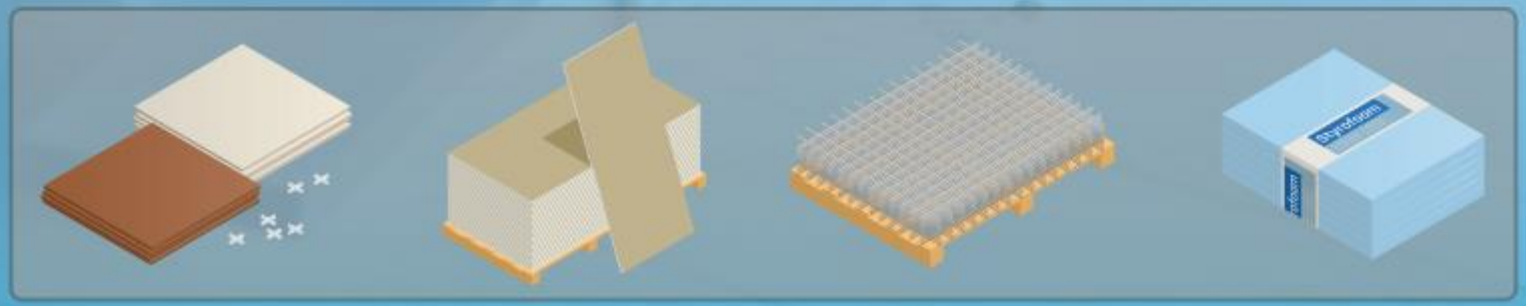
Styrofoam is a trade name for expanded polystyrene foam also called blue modelling foam. It can be purchased in a variety of sheet sizes and thicknesses. It is easy to cut, shape and work, and has excellent insulation properties.

Modelling foam board

Modelling foam board or white foam board is an eco-friendly versatile material used for framing, mounting design work and creating scale architectural models.

Available in different thicknesses, foam board is a dense layer of foam sandwiched between two thin card faces. It will take ink, print, paint and toppers. It is completely non-toxic and acid free, with anti UV finishing to resist yellowing over time.

Modelling foam board is easy to cut, leaving a clean finish in this sturdy material. It can also be laser cut.



Metals

- **Ferrous metals contain iron.**
- **Non-ferrous metals do not contain iron.**
- **Alloys are combinations of a base metal with other metals or non-metals.**
- **Metals are sourced from ores, which are a natural resource and will run out.**

Metals can be conditioned and finished using heat treatments. These include:

Annealing – heating then slowly cooling the metal to remove stress, make softer and refine structure.

Normalising – heating and then cooling the metal at room temperature, reducing hardness and increasing ductility.

Case hardening – This hardens an alloy's surface by adding carbon, heating and quenching.

Tempering – applied to steel and cast iron, increasing toughness and reducing hardness and brittleness. Tempering involves heating to a high temperature and air-cooling.

Hardening – heating and then cooling the metal rapidly by submerging into a liquid or oil.

Ferrous metal	**Melting point**
Mild steel	1300˚C
Cast iron	1200˚C
Non-ferrous metal	**Melting point**
Aluminium	660˚C
Brass	900˚C
Copper	1100˚C

Natural and manufactured timber

- **Natural timber is grown on trees!**
- **Manufactured timbers are man-made.**
- **Timbers are categorised into hardwoods and softwoods.**

Hardwoods come from trees that shed their leaves in colder months. These trees take longer to grow, and these woods are more expensive. Common hardwoods are oak, beech, balsa and jelutong.

Softwoods come from coniferous trees that are green all year round and often have pinecones and needles. They are faster-growing than hardwoods and more easily available, which makes them less expensive. Scots pine, western red cedar and Parana pine are all common softwoods.

Manufactured boards are normally made from recycled wooded waste, mixed with additives including adhesive. Popular man-made boards are MDF (Medium Density Fibreboard), chipboard, hardboard and plywood.

Hardwoods and softwoods must be **seasoned** before use. This could be by kiln drying or air drying, to ensure all moisture is removed to **prevent shrinkage**.

Hardwoods tend to have close grain and are normally polished to enhance their natural aesthetic. Beech has a pink tint, and oak light-mid brown. Balsa is pale with widely spaced grain as it is a fast-growing hardwood (even though it is soft and lightweight).

Softwoods tend to be yellow/pale with contrasting grain, and sometimes knots.

Polymers

- **Polymers that can be heated and shaped repeatedly are called thermoplastics/ thermoforming.**
- **Thermosetting polymers (or thermosets) can only be heated and shaped once.**
- **Some polymers are natural, some are synthetic.**

Common thermoplastics include acrylic, polythene, polypropylene, Styrofoam, polystyrene and nylon.

Common thermosets include melamine, urea formaldehyde and epoxy resins.

Papers and boards

- **Paper is made from wood pulp.**
- **Paper is fully recyclable, reducing the need for wood fibres from trees.**

Paper is used for sketching, printing, and newspapers. It is measured in **gsm** (grams per square metre).

Card is thicker and is measured in **microns**. Card can be reinforced by adding a 'wavy' layer between two flat layers, to make **corrugated card**. It is brilliant for packaging. Paper and card need to be scored before bending.

Papers and boards can be textured, embossed, and have specialist coatings and finishes applied for specific purposes. Most papers and boards are printed on, some are laminated to ensure they retain a liquid and are not absorbent.

Changing society's views

There are many ways in which society is encouraged to reduce waste and recycle more, because:

- 90% of waste is dumped or burned, mostly in low income countries
- lots of poorly managed waste contaminates the world's oceans
- waste causes clogging of drains, flooding, the spread of disease and harm to wildlife.

Recycling – with economic development and population growth, the generation of waste will also increase. High income countries provide nearly universal waste collection, and more than one third of waste in high income countries is recovered through recycling and composting.

Low income countries collect about 48% of waste in cities, but only 26% in rural areas, and only 4% is recycled.

Overall, only 13.5% of global waste is recycled, and 5.5% is composted.

The circular economy refers to society putting waste back into a good use and continuing this cycle. This means that once a material, component or product comes to the end of its useful life with the owner, it is disposed of and becomes re-usable in some way. This prevents new materials being required, saving resources and reducing waste.

Designers need to build this kind of thinking into products!

Living in a greener world

Being kinder to the planet should be on everyone's minds, but especially designers who are producing products for users in today's world.

- Waste food is a problem in most households, so portion control and re-using leftovers will help.
- Cutting down on packaging is a great way of reducing unnecessary waste that is not really an essential part of the product we purchase.
- Reducing plastics where possible will be a massive gain. Plastics can be difficult to recycle and biodegrade, so finding an alternative would be very helpful.
- Recycling waste correctly is another area for improvement.
- Repairing products or choosing not to upgrade when a newer version becomes available can be beneficial.
- Green energy should be used where possible.
- Greener travel options, car sharing, or cycling should be chosen instead of driving, where possible.
- Economise your home – optimise your 'white goods' to operate correctly. Set your fridge and freezer to eco settings if possible, turn off lights when not needed, and try to lower the central heating thermostat – wear another layer instead.

Before purchasing a product, think about its Life Cycle Analysis (LCA). Consider where the material comes from, how the product has been made, running costs and eventual disposal.

Opt for sustainable design

Whether you are a designer or consumer, making the right choice is critical. Sustainable, eco or greener alternatives are much better for the environment. They have been designed and manufactured with minimising damage and promoting sustainability at the core.

Average life of a mobile phone

Research reveals that the average life of a mobile phone is two and a half years, and 15 to 18 months for a smart phone. Often, this short life is because the user has damaged the device, dropping or breaking the screen for example, which requires replacement. Using a protective cover is one option to improve the life of the phone. Mobile phone manufacturers often release new models frequently to replace previous versions. This is known as 'incremental' development and can help ensure consistent sales.

Products using 'greener' power supplies

Solar power can often improve energy consumption for users and also makes the product more flexible and less reliant on 'plugging in'. Photovoltaic (PV) cells can be used as power supplies and 'trickle chargers', converting free sunlight into electricity.

Wind-up technology offers far more opportunities for designers. A wind-up torch uses the mechanical movement provided by turning the handle of the device. This can then operate without the need for batteries.

ARENA ACADEMY

Personal Development

1	**Why do you need to Know British Values?** Understanding British values is an important way to enable you to embrace the key values that you need to be equipped for life in modern British society. There are 5 fundamental British Values. **Through understanding the British values of Democracy, the Rule of Law, Individual Liberty, Mutual Respect, and Acceptance for those with different faiths and beliefs**, you will develop self-knowledge, be better able to make the right choices and make contributions to the school and the wider community.		
Democracy			
2	**Democracy**	8	Examples of Political Parties: Liberal Democrats, Labour, Green Party, Conservatives
3	In the United Kingdom we vote (age 18 +) for the people we want to run our councils and Government.		
4	We vote for Members of Parliament (MP's). Elections take place at least once every 5 years.		
5	In our democracy there are political parties. At the time of writing the political party who has the majority of MP's in Parliament is the Conservative Party. Labour are currently the opposition Party.	9	When elections take place for Members of Parliament, the public go to vote. Traditionally this happens on a Thursday, and people vote in a secret ballot. People only know who you vote for if you decide to tell them – it is rude to ask!
6	The Leader of the Conservatives and our current Prime Minister is Theresa May. The Leader of the Opposition is Jeremy Corbyn.	10	Where can I see British Values at School? Democracy – School Council / Form Representatives / Student Executive. We hold mock elections and in PSHE you will learn more about politics. We participate in the MAT debating competition, held in the council chamber at the Town Hall.
7	MP's debate in the Palace of Westminster, in the House of Commons. On the opposite side of the Building is the House of Lords. The House of Lords (unelected members) ratify law and policies put forward by parliament.		
The rule of law			
11	In the UK, we have laws which determine what is legal and illegal. You are expected to know the difference between right and wrong.	14	There are consequences for making the wrong choice or taking illegal actions. We all take responsibility for our actions.
12	The rule of law is a principle that individuals and institutions are subject and accountable to, which is fairly applied and enforced.	15	Where can I see British Values at School? Rule of Law – Our Behaviour Systems and Behaviour Policy. We have agreed rules and expectations so that our school is a safe and happy place where all differences are reconciled peacefully. We have a PCSO that comes into school to educate you in the law.
13	Those who commit crimes will ultimately be brought to justice through the legal system including Police officers, courts and lawyers. The rule of law acts as a deterrent, to deter people from criminal acts.		
Individual liberty			
16	In the UK you are free to have an opinion (unless it is extremist) and believe in what you want without discrimination.	18	Where can I see British Values at School? Mutual Respect – Our academy ethos, antibullying and assemblies. Boundaries are used to ensure you are safe.
17	You have the freedom to make choices and decisions without being judged.		
Mutual **respect** for and **tolerance** of those with different faiths and beliefs and for those without faith.			
19	Mutual Respect and Tolerance are the proper regard for an individuals' dignity, which is reciprocated, and a fair, respectful and polite attitude is shown to those who may be different to ourselves.	21	We should all actively challenge students, staff or parents expressing opinions contrary to the values we hold in society and as a school and those that underpin the fabric of a democratic Britain. This is crucial to us to protect one another and to tackle 'extremist' views and prevent people from being radicalised.
20	Differences in terms of faith, ethnicity, gender, sexuality, age, young carers and disability, are differences that should be respected, tolerated and celebrated.	22	Where can I see British Values at School? Acceptance of Faith – RE Lessons and Assemblies. We give you messages of tolerance and respect for others no matter what their ethnicity, beliefs, sexuality, gender or disability.

Democracy	Rule of Law	Individual Liberty	Mutual Respect	Tolerance