ARENA ACADEMY

Knowledge Organiser Booklet

Year 9

2024-25

1st Half- Term (Spring 1)

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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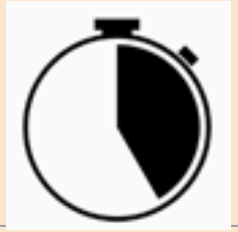
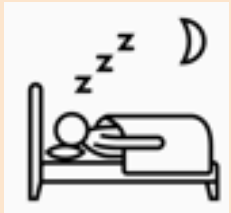
Practice makes Permanent

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** 

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Subject: ..... & Topic: .....

Section 1:	

Section 2:	

Section 3:	

Section 4:

Section 5:	

Mathematics

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

SPR 1:

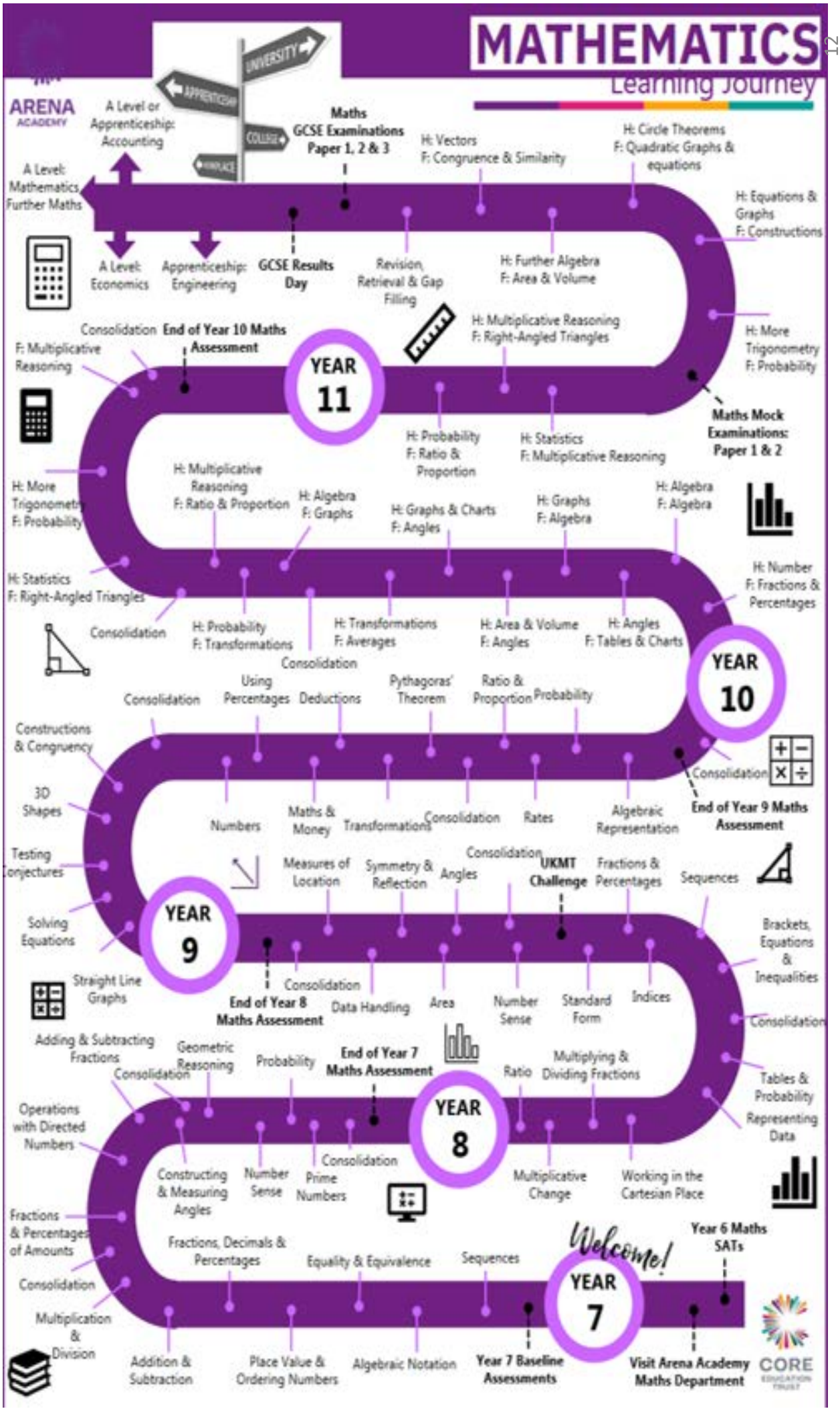
1. Numbers
2. Using percentages
3. Maths and money

SPR 2:

4. Deduction
5. Rotation and translation
6. Pythagoras Theorem

MATHEMATICS

Learning Journey



Maths: Topic 1 Numbers

Integers, real and rational numbers

Rational – root word: ratio

Real numbers: $\frac{2}{3}$ stems from 2 ($\frac{2}{3}$ of the whole)

Irrational numbers: $\sqrt{2}$ the solution is a decimal that never ends and does not repeat

The square root of a negative is not a real number and cannot be found

HCF/LCM (R)

1 is a common factor of all numbers

Common factors are factors two or more numbers share

HCF – Highest common factor

HCF of 18 and 30

18: 1, 2, 3, 6, 9, 18

30: 1, 2, 3, 5, 6, 10, 15, 30

HCF = 6

LCM – Lowest common multiple

LCM of 9 and 12

9: 9, 18, 27, 36, 45, 54

12: 12, 24, 36, 48, 60

LCM = 36

The first time their multiples match

Standard form (R)

Any number between 1 and less than 10 × 10^{n} ← Any integer

$6 \times 10^{5} + 8 \times 10^{5}$

$= 600000 + 800000$

$= 1400000$

$= 1.4 \times 10^{6}$

$(1.5 \times 10^{5}) \div (0.3 \times 10^{3})$

$15 \div 0.3 \times 10^{5} \div 10^{3}$

$= 5 \times 10^{2}$

Directed number (R)

Addition

2 + -4 = -2

Zero pair (-1 + 1 = 0)

Two "-1" left, = -2

Generalisation: + − = −

Subtraction

2 − 1 = 3

Take away one

Start with the representation of 2

Representation for calculation

"Subtract" – means take away or remove

Generalisation: − − = +

Multiplication

-2 × -3 = 6

The act of making counters into their negative is turning them over

Divisions are the inverse operations

= −1, = 1

a = 5, b = -4

Brackets around negative substitutions helps remove calculation errors

$2a - b = 2 \times 5 - (-4) = 10 + 4 = 14$

Addition/ Subtraction of fractions (R)

$\frac{4}{5} - \frac{2}{3} = \frac{12}{15} - \frac{10}{15} = \frac{2}{15}$

Use equivalent fractions to find a common multiple for both denominators

Multiplication/ Division of fractions (R)

$\frac{3}{4} \times \frac{2}{3}$

Shade in 3 parts

Repeat it on this many rows

This many columns

This many rows

$\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$ ← Parts shaded

Total number of parts in the diagram

Modelled:

3

4

Remember to use reciprocals

$\frac{2}{5} \div \frac{3}{4}$

$\frac{2}{5} \times \frac{4}{3}$

Multiplying by a reciprocal gives the same outcome

Represented

$= \frac{8}{15}$

Keywords

Integer: a whole number that is positive or negative

Rational: a number that can be made by dividing two integers

Irrational: a number that cannot be made by dividing two integers

Inverse operation: the operation that reverses the action

Quotient: the result of a division

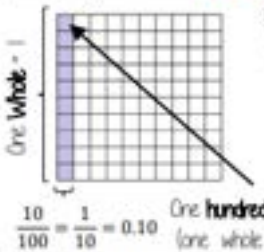
Product: the result of a multiplication

Multiples: found by multiplying any number by positive integers

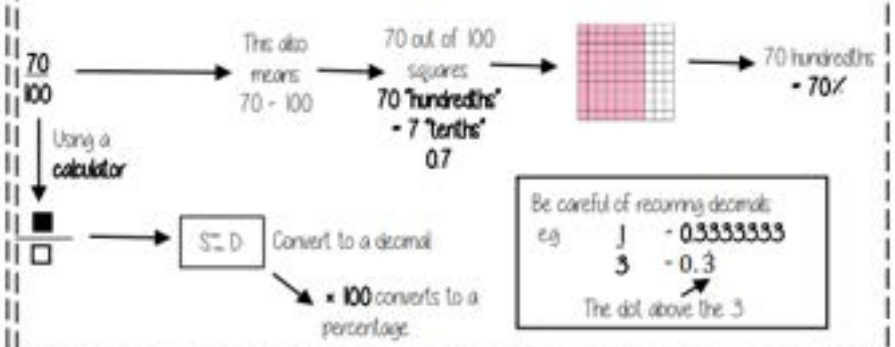
Factor: integers that multiply together to get another number

Maths: Topic 2 Using percentages

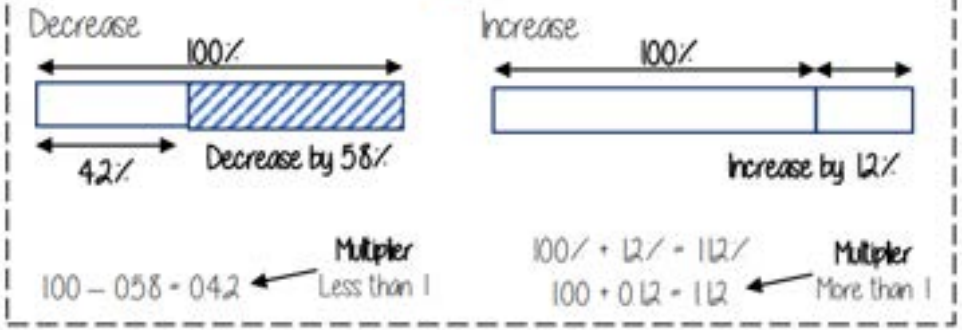
FDP Equivalence



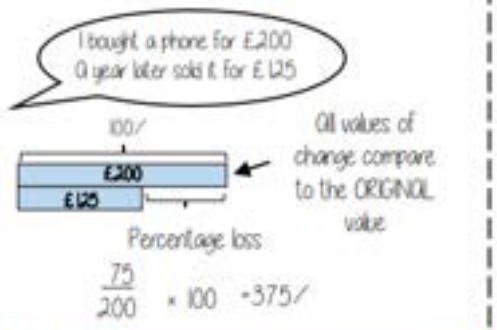
Converting FDP



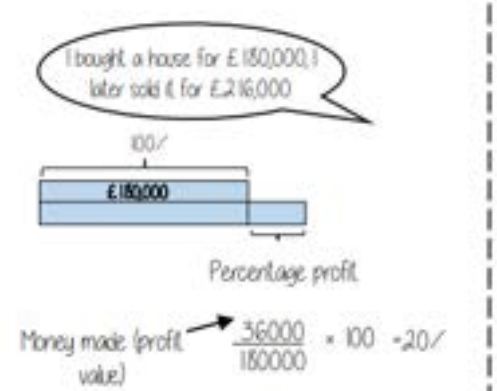
Percentage Increase/ Decrease



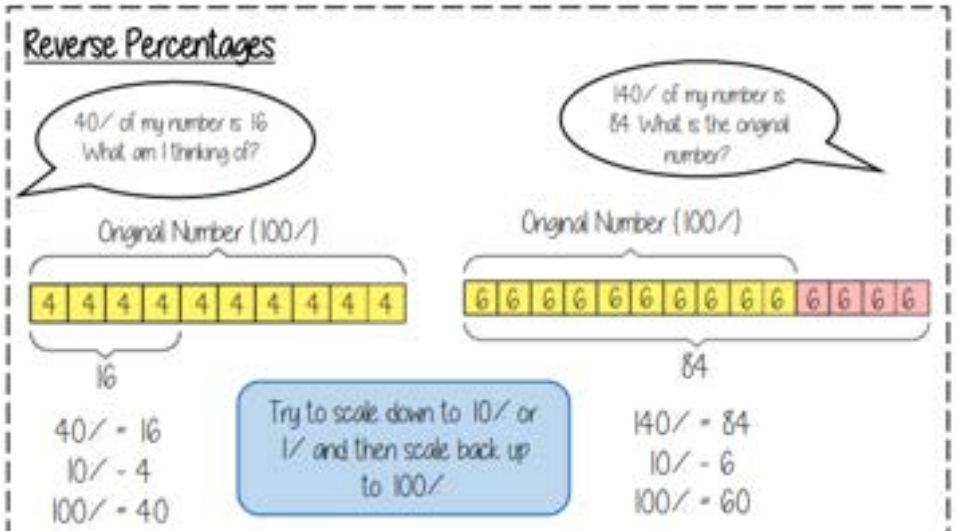
Percentage change



$$\frac{\text{Difference in values}}{\text{Original value}} \times 100$$



Reverse Percentages



Keywords

Percent: parts per 100 – written using the % symbol

Decimal: a number in our base 10 number system. Numbers to the right of the decimal place are called decimals

Fraction: a fraction represents how many parts of a whole value you have

Equivalent: of equal value

Reduce: to make smaller in value

Growth: to increase/ to grow

Integer: whole number, can be positive, negative or zero

Invest: use money with the goal of it increasing in value over time (usually in a bank)

Multiplier: the number you are multiplying by

Profit: the income take away any expenses/ costs

Maths: Topic 3 Maths and money

Bills and Bank Statements

Bills – tell you the amount items cost and can show how much money you need to pay

Some can include a total

Look for different units (is it in pence or pounds)

Menu	Price
Milk	89p
Tea	£1.50

Bank Statements

Bank statement can have negative balances if the money spent is higher than the money coming into the account

Date	Description	Credit	Debit	Balance
1st Sept	Salary	£1500		£1500
1st Sept	Mortgage		£600	£900
25th Sept	Bday Money	£15		£915

Simple Interest

For each year of investment the interest remains the same

$$\frac{\text{Principal amount} \times \text{Interest Rate} \times \text{Years}}{100}$$

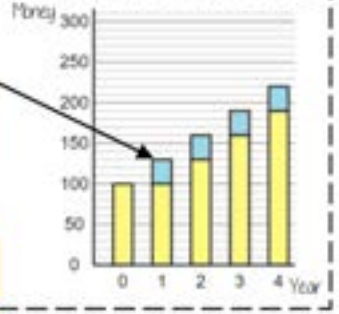
Principal amount is the amount invested in the account

e.g Invest £100 at 3% simple interest for 4 years

$\frac{100 \times 3 \times 4}{100} = £120$

This account earned **£120** interest

At the end of year 4 they have **£220**



Compound Interest

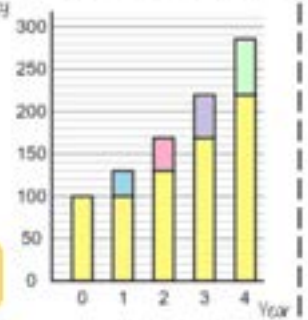
Interest is added to the current value of investment at the end of each year so the next year's interest is greater

$$\text{Principal amount} \times \text{Multiplier}^{\text{Years}}$$

e.g Invest £100 at 3% compound interest for 4 years

$100 \times 1.3^4 = £285.61$

This account has **£285.61** in total at the end of the 4 years



Value Added Tax (VAT)

VAT is payable to the government by a business in the UK VAT is 20% and added to items that are bought

Essential items such as food do not include VAT

Wages and Taxes

Salaries fall into tax brackets – which means they pay this much each month from their salary

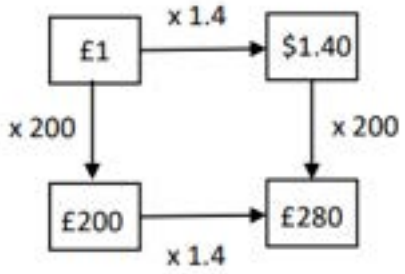
Taxable Income	Tax Rate
£12 501 to £50 000	20%
£50 001 to £150 000	40%
over £150 000	45%

Over time

Time and a half – means 1.5 times their hourly rate

Double – 2 times their hourly rate

Exchange Rates



When making estimates it is also useful to use estimates to check if our solution is reasonable

Use inverse operations to reverse the exchange process

Common Currencies

United Kingdom	£	Pounds
United States of America	$	Dollars
Europe	€	Euros

Unit Pricing

4 Oranges	5 cupcakes
£1	£1.20

4 = £1.00 ÷ 2 → 2 = £0.50 ÷ 2 → 1 = £0.25

5 = £1.20 ÷ 5 → 1 = £0.20

Cost per Unit

To calculate unit per cost you divide by the cost

Cupcakes are the best value as one item has the cheapest value

There is a directly proportional relationship between the cost and number of units

Keywords

Credit: money being placed into a bank account

Debit: money that leaves a bank account

Balance: the amount of money in a bank account

Expense: a cost/ outgoing

Deposit: an initial payment (often a way of securing an item you will later pay for)

Multiplier: a number you are multiplying by (Multiplier more than 1 = increasing, less than 1 = decreasing)

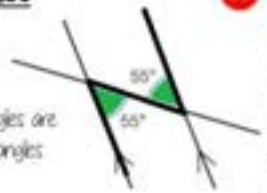
Per Annum: each year

Currency: the type of money a country uses

Unitary: one – the cost of one

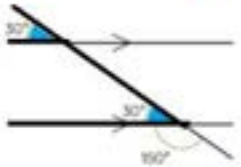
Maths: Topic 4 Deduction

Alternate angles



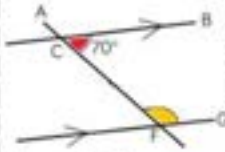
Because alternate angles are equal the highlighted angles are the same size

Corresponding angles



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

Co-interior angles



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

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

Solving angle problems

Angles on a straight Line
180°

Link angle facts to algebra

Form an equation

$2x + 4x = 180°$

State the reason

The sum of angles on a straight line is 180°

Solve

$2x + 4x = 180°$
$6x = 180°$
$x = 30°$

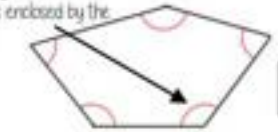
Vertically opposite angles
Equal

Angles around a point
360°

Triangles
Sum of angles is 180°

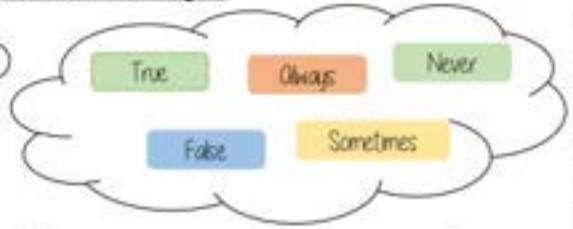
Isosceles have the same base angles

Interior Angles
The angles enclosed by the polygon



(number of sides – 2) x 180

Making conjectures with angles



Proving a conjecture
A pattern is noticed for many cases

Disproving a conjecture
Only one counterexample is needed to disprove a conjecture

Apply the angle rules

The sum of angles in a triangle is 180°

Test the theory

$180 - 70 - 20 = 90$
$180 - 85 - 5 = 90$
$180 - 45 - 45 = 90$

Make conjecture

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

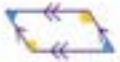
Making conjectures with shapes

Keywords and facts to recall with shape

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

Quadrilateral Facts

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



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

Rectangle
All angles 90°
Opposite sides are parallel

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

Rhombus
All sides equal size
Opposite angles are equal

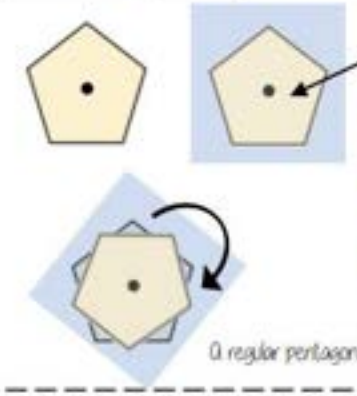
Keywords

Parallel: two straight lines that never meet with the same gradient
Perpendicular: two straight lines that meet at 90°
Transversal: a line that crosses at least two other lines
Sum: the result of adding two or more numbers
Conjecture: a statement that might be true but is not proven
Equation: a statement that says two things are equal
Polygon: a 2D shape made from straight edges
Counterexample: an example that disproves a statement

Maths: Topic 5 Rotation and translation

Rotational Symmetry

Tracing paper helps check rotational symmetry



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

A regular pentagon has rotational symmetry of order 5

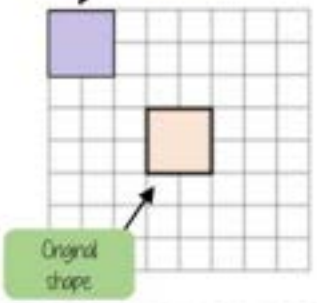
Translation and vector notation

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

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

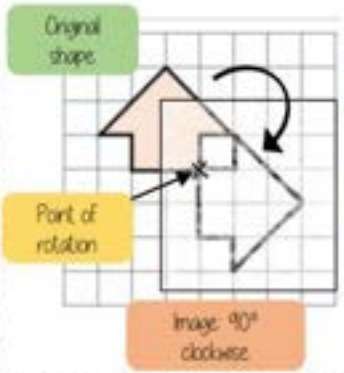
How far up or down to move
Negative value (down)
Postive value (up)

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



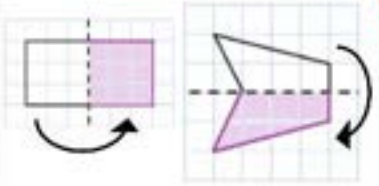
Every vertex has been translated by the same amount

Rotate from a point (in a shape)



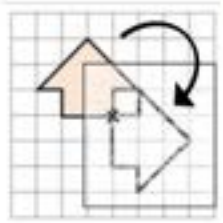
1. Trace the original shape (mark the point of rotation)
2. Keep the point in the same place and turn the tracing paper
3. Draw the new shape

Compare rotations and reflections



R Reflections are a mirror image of the original shape

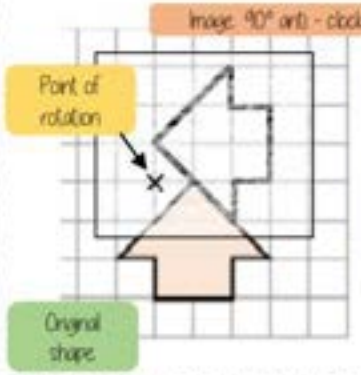
Information needed to perform a reflection
- Line of reflection (Mirror line)



Rotations are the movement of a shape in a circular motion

Information needed to perform a rotation
- Point of rotation
- Direction of rotation
- Degrees of rotation

Rotate from a point (outside a shape)



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

Keywords

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

Maths: Topic 6 Pythagoras' Theorem

Keywords

Square number: the output of a number multiplied by itself

Square root: a value that can be multiplied by itself to give a square number

Hypotenuse: the largest side on a right angled triangle. Always opposite the right angle.

Opposite: the side opposite the angle of interest

Adjacent: the side next to the angle of interest

Squares and square roots (R)

$\sqrt{\ }$ is the square root symbol

e.g. $\sqrt{64} = 8$

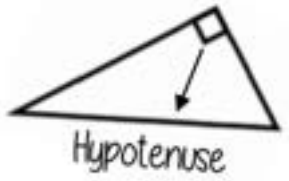
Because $8 \times 8 = 64$

This can also be written as 6^2

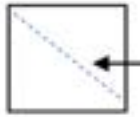
1×1	2×2	3×3	4×4	5×5	6×6	7×7	8×8	9×9	10×10
1	4	9	16	25	36	49	64	81	100

Square numbers

Identify the hypotenuse

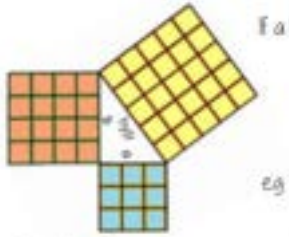


The hypotenuse is always the longest side on a triangle because it is opposite the biggest angle



Polygons can still have a hypotenuse if it is split up into triangles and opposite a right angle

Determine if a triangle is right-angled



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

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

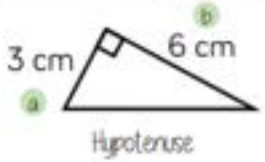
e.g. $a^2 + b^2 = \text{hypotenuse}^2$

$3^2 + 4^2 = 5^2$

$9 + 16 = 25$

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

Calculate the hypotenuse



Either of the short sides can be labeled a or b

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

1. Substitute in the values for a and b

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

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

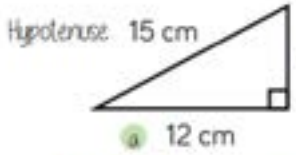
$45 = \text{hypotenuse}^2$

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

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

$6.71cm = \text{hypotenuse}$

Calculate missing sides



Either of the short sides can be labeled a or b

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

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

1. Substitute in the values you are given

$144 + b^2 = 225$

$-144 \quad -144$

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

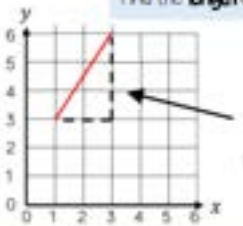
Square root to find the length of the side

$b^2 = 111$

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

Pythagoras' theorem on a coordinate axis

Find the **length** of the line segment



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

The line segment is the **hypotenuse**

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

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

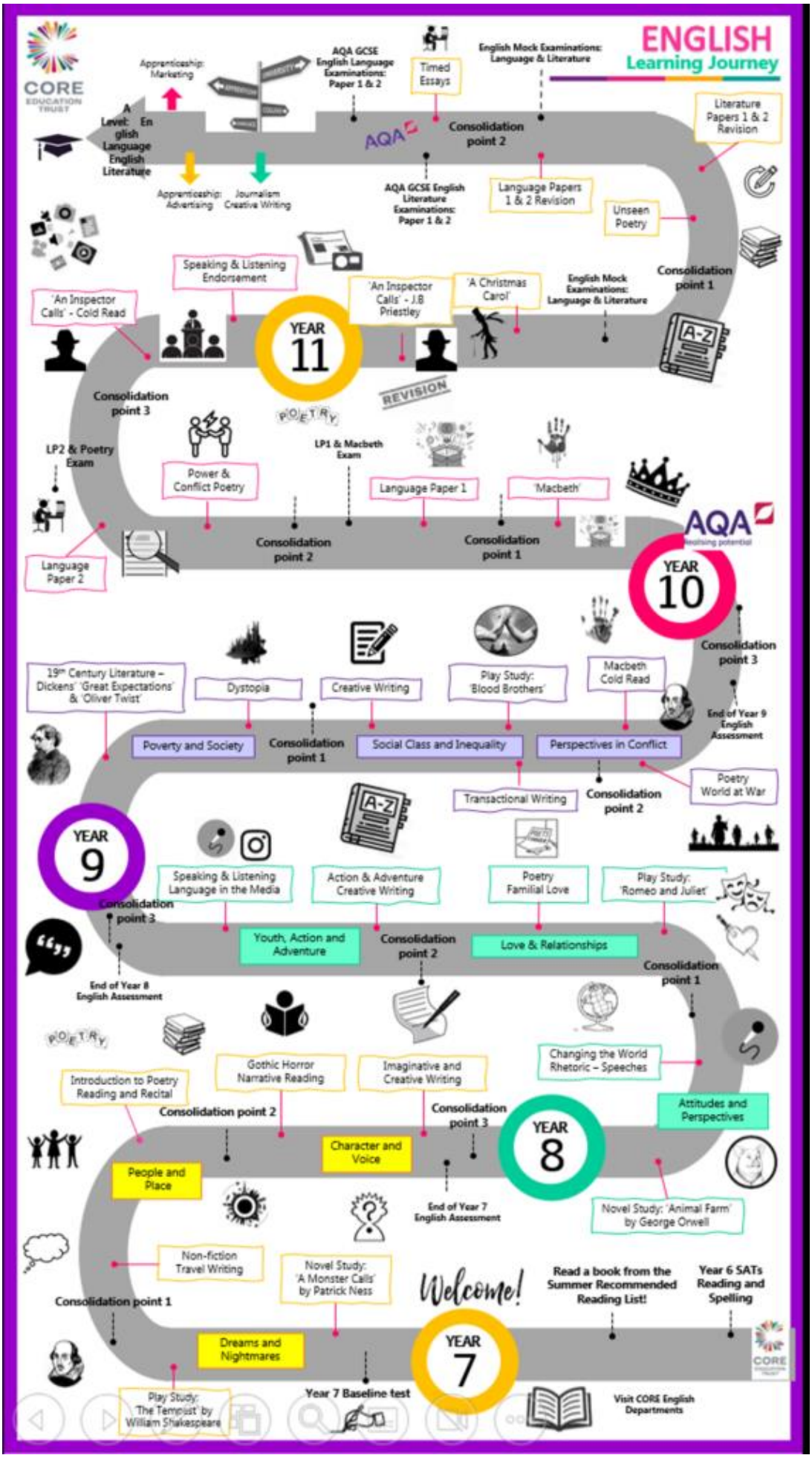
Be careful to check the scale on the axes

English

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

SPRING:

1. Writing Prose


ENGLISH
Learning Journey
CORE EDUCATION TRUST
YEAR 7
Welcome!
Dreams and Nightmares
Non-fiction Travel Writing
Introduction to Poetry Reading and Recital
People and Place
Gothic Horror Narrative Reading
Character and Voice
Imaginative and Creative Writing
Changing the World Rhetoric – Speeches
Attitudes and Perspectives
Novel Study: 'Animal Farm' by George Orwell
Play Study: 'The Tempest' by William Shakespeare
Year 7 Baseline test
Novel Study: 'A Monster Calls' by Patrick Ness
Read a book from the Summer Recommended Reading List!
Year 6 SATs Reading and Spelling
Visit CORE English Departments
YEAR 8
YEAR 9
Youth, Action and Adventure
Speaking & Listening Language in the Media
Action & Adventure Creative Writing
Poetry Familial Love
Play Study: 'Romeo and Juliet'
Love & Relationships
Poetry World at War
Transactional Writing
Poverty and Society
19th Century Literature – Dickens' 'Great Expectations' & 'Oliver Twist'
Dystopia
Creative Writing
Social Class and Inequality
Play Study: 'Blood Brothers'
Macbeth Cold Read
Perspectives in Conflict
End of Year 7 English Assessment
End of Year 8 English Assessment
End of Year 9 English Assessment
YEAR 10
YEAR 11
Power & Conflict Poetry
LP2 & Poetry Exam
LP1 & Macbeth Exam
Language Paper 1
'Macbeth'
Language Paper 2
Speaking & Listening Endorsement
'An Inspector Calls' - Cold Read
'An Inspector Calls' - J.B Priestley
'A Christmas Carol'
English Mock Examinations: Language & Literature
Literature Papers 1 & 2 Revision
Unseen Poetry
Language Papers 1 & 2 Revision
AQA GCSE English Literature Examinations: Paper 1 & 2
AQA GCSE English Language Examinations: Paper 1 & 2
Timed Essays
English Mock Examinations: Language & Literature
Consolidation point 1
Consolidation point 2
Consolidation point 3
REVISION
POETRY
A Level: English Language English Literature
Apprenticeship: Marketing
Apprenticeship: Advertising
Journalism Creative Writing

WRITING PROSE

Example question and how to get top marks

You are going to enter a creative writing competition.
Your entry will be judged by a panel of people of your own age.
Either:
Write a description suggested by this picture:
Or:
Write the opening part of a story about a place that is severely affected by the weather.

24 marks for content and organization
16 marks for technical accuracy (Total 40 marks = 25% of GCSE)

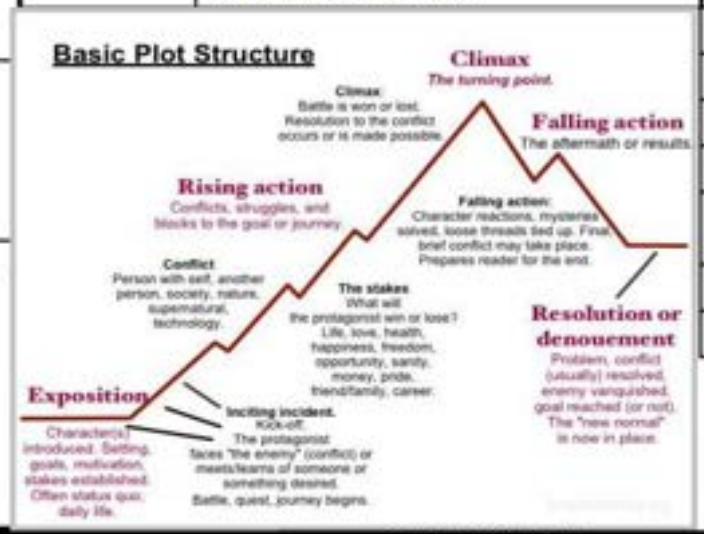
Content	❑ ***Register** is convincing and compelling for audience* ❑ *Assuredly matched to **purpose*** ❑ *Extensive and ambitious **vocabulary** with sustained crafting of **linguistic devices***
Organisation	❑ *Varied and inventive use of **structural** features* ❑ *Writing is compelling, incorporating a range of convincing and **complex ideas*** ❑ *Fluently linked **paragraphs** with seamlessly integrated **discourse markers***
Technical accuracy	❑ Wide range of **punctuation** is used with a high level of accuracy ❑ Uses a full range of appropriate **sentence forms** for effect ❑ Uses **Standard English** consistently and appropriately with secure control of complex grammatical **structures** ❑ High level of accuracy in **spelling**, including ambitious vocabulary ❑ Extensive and ambitious use of **vocabulary**

What to expect…

As a stimulus for students' writing, there will be a choice of scenario, written prompt or visual image that is related to the topic of the reading text in section A. The scenario sets out a context for writing with a designated audience, purpose and form that will differ to those specified on Paper 2.

Assessment Objectives

AO5 Content and Organisation	Communicate clearly, effectively and imaginatively, selecting and adapting tone, style and register for different forms, purposes and audiences. Organise information and ideas, using structural and grammatical features to support coherence and cohesion of texts.
AO6 Technical Accuracy	Candidates must use a range of vocabulary and sentence structures for clarity, purpose and effect, with accurate spelling and punctuation. (This requirement must constitute 20% of the marks for each specification as a whole.)



The basics

- Capital letters
- Full stops
- Question marks
- Commas
- Apostrophes
- Consistent tense
- Paragraphs
- Homophone spellings
- Connectives
- Semi-colons
- Colons
- Vary sentence starts/lengths
- Vary paragraph lengths
- Topic sentences

Stretch yourself

- Use the senses
- Use effective vocabulary – not just impressive vocabulary for the sake of it
- Zooming in on details
- Reveal slowly/quickly
- Dialogue
- Onomatopoeia
- Use an extended metaphor
- Avoid describing unrealistic situations
- Write a lot about a little
- Cyclical/non-linear structure
- Vary the pace through your sentences structures

The Exam

45 minutes – 1 task – A choice of 2 tasks (1 descriptive **or** 1 narrative…. but could be two narrative or two descriptive.)

Step one: Read & highlight key words in question

Step two: Study the stimulus (picture) then choose one of the two questions

Step three: Plan your paragraphs/ideas

Step four: Write it
Keep going back to your plan to ensure you haven't missed anything out.

Step five: Check

Sentence Starters	How could I use this?
Suddenly…	Use an adverb
I couldn't believe what…	Tell me about what you could see, hear, smell, taste or touch
The room was…	Describe a setting
Every morning I…	Tell me about a specific time
BOOM! CRASH!	Open with sounds
The memories flooded back as I…	Use a flashback
In the distance was…	Create mystery by hinting at what could be there
Frustrated and fed up was…	Tell me how a character feels
Why did…	Use a question
Cold, lonely and frightened…	Use a list of three emotions

Language devices

- Simile
- Metaphor
- Personification
- Onomatopoeia
- Alliteration
- Imagery
- Symbolism
- Oxymoron
- Juxtaposition
- Pathetic Fallacy

Science

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

SPR 1:

1. Magnetism
2. Waves

SPR 2:

1. Chemical reactions
4. Cells

Magnetism

Poles of a Magnet

A magnet has two ends called **poles**: the **north pole** and the **south pole**. The magnetic forces of the magnet are strongest at the poles.

When two magnets are brought close together, they will **attract** or **repel**, depending on which poles are brought together:

- **Like poles** will **repel** one another e.g. N-N or S-S.
- **Opposite poles** will **attract** e.g. N-S.

The forces exerted between the poles of two magnets are a type of **non-contact force**: the magnets do not have to be touching for the effect to be observed.

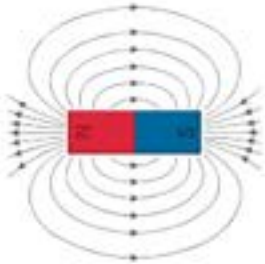
Remember that only **iron**, **cobalt** and **nickel** (or alloys containing these metals) are magnetic.

A **permanent magnet** is one with its own magnetic field. The magnetism cannot be turned on or off e.g. a bar magnet or a horseshoe magnet.

An **induced magnet** is a material which becomes magnetic only when placed within a magnetic field. Induced magnets only attract other materials and lose most (if not all) of their magnetism when removed from the magnetic field e.g. iron filings.

Magnetic Fields

The **magnetic field** is the area surrounding a magnet where the force is acting on another magnet or magnetic material. It can be observed using a compass placed at different points around a bar magnet. The field lines can be drawn by using the compass to mark the direction at a range of points.



A magnet always causes a magnetic material to be **attracted**. The strength of the magnetic field is determined by the proximity to the magnet.

When looking at a diagram of magnetic field lines, the force is strongest where the lines are closest together. The magnetic field of the magnet is strongest at the poles. The direction of the magnetic field shows the direction the force would act on another north pole.
As a result, magnetic field lines always come away from the north pole (like poles repel) and towards the south pole (unlike poles attract).

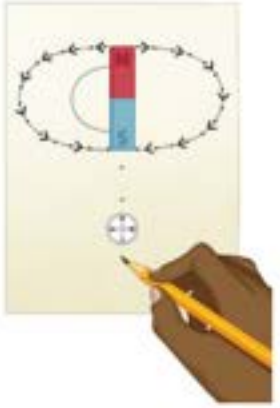
The earth produces a magnetic field and a magnetic compass uses this to help aid navigation. The core of the earth is made of iron (a magnetic material). A compass contains a small bar magnet shaped as a needle, which points in the direction of the earth's magnetic field.

Plotting Magnetic Field Lines

A magnetic compass can be used to plot and draw the magnetic field lines around a magnet.

You should be able to describe this method for a bar magnet.

1. Place the bar magnet in the centre of a sheet of plain paper.
2. Using a magnetic compass, position it on the paper somewhere around the magnet.
3. Observe the direction of the needle and carefully draw a dot at the circumference of the magnet, in line with each end of the needle. Make sure you include an arrow to indicate the direction of north.
4. Repeat steps 2 and 3 for several positions around the magnet.
5. Join the arrows to complete the magnetic field lines and whole pattern.



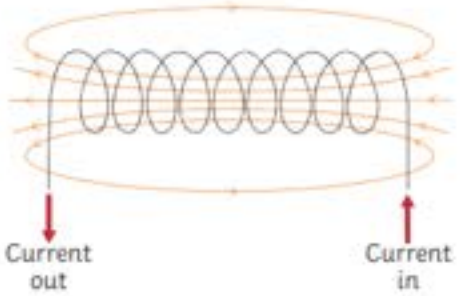
Electromagnetism

A circular **magnetic field** is produced when a current is passed through a conducting wire. This produces an **induced magnet**.

Switching off the current causes the magnetism to be lost.

The strength of the magnetic field can be increased by increasing the current flowing through the wire. The strength of the magnetic field is stronger closer to the wire.

Coiling the wire to form a **solenoid** will also increase the strength of the magnetic field. The strength of the magnetic field created by a solenoid is strong and uniform throughout.



To increase the strength of the magnetic field around a solenoid you can...

- add an iron core;
- increase the number of coils in the wire;
- increase the current passing through the wire.

An **electromagnet** is a solenoid with an iron core. Electromagnets are **induced magnets** and can be turned on and off.

Electric motors, loudspeakers, electric bells and remotely controlled door locks all use **electromagnets**.

Waves

Transverse and Longitudinal Waves

Waves can be either **transverse** or **longitudinal**.

In a **transverse** wave, the vibrations of the particles are **perpendicular** (at right angles) to the direction of energy transfer. The wave has **peaks** (or crests) and **troughs**. Examples of transverse waves include **water waves** and **electromagnetic waves**.

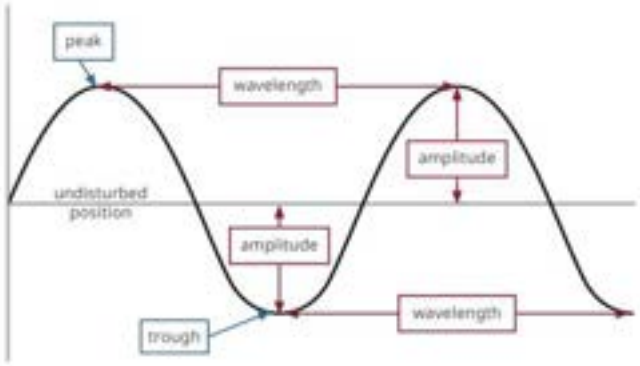
In a **longitudinal** wave, the vibrations of the particles are **parallel** to (in the same direction as) the direction of energy transfer. A longitudinal wave has areas of **compression** and **rarefaction**. **Sound waves** travelling through air are an example of this type of wave.

When a wave travels through a medium, energy is transferred by the particles but the matter itself does not move.

This can be shown by placing a cork in a tank of water and generating ripples across the surface. The cork will move up and down on the oscillations of the wave, but it will not travel across the tank.

Similarly, when sound waves move from a speaker towards the ear, the air particles next to the speaker do not move towards the ear; they vibrate around their original position.

Wave Properties



The **amplitude** of a wave is the distance from the undisturbed position to the peak or trough of the wave.

The **wavelength** is the distance from a point on one wave to the same point on the next wave, measured in **metres** (m).

The **frequency** of a wave is the number of waves that pass a given point every second, measured in **hertz** (Hz).

The **period** of a wave is the time taken for a full wave to pass a given point, measured in **seconds** (s).

$$\text{period} = \frac{1}{\text{frequency}} \quad \text{or} \quad T = \frac{1}{f}$$

Wave speed is how quickly energy is transferred through a medium (or how quickly the wave travels), measured in **metres per second** (m/s).

$$\text{wave speed} = \text{frequency} \times \text{wavelength} \quad \text{or} \quad v = f\lambda$$

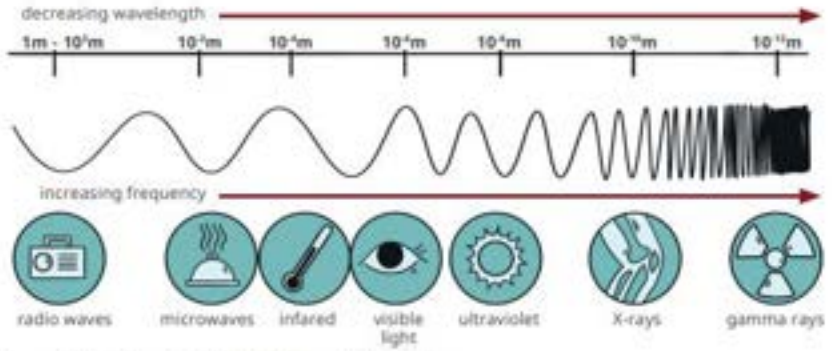
The speed of a **sound wave** travelling through the air can be measured using a simple method. A person stands a measured distance from a large flat wall, e.g. 100m. The person then claps their hands and the time taken to hear the echo is measured. The speed of sound can be calculated using the equation:

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

Remember, the distance that the sound wave has travelled will be double the distance between the person and the wall because the wave has travelled to the wall and back again. It is important to take several measurements and calculate the mean to reduce the effect of human error in your measurements.

The Electromagnetic Spectrum

Electromagnetic waves are transverse waves. They transfer energy from a source to an absorber. All electromagnetic waves travel at the same speed through a vacuum or air. They are grouped by their wavelength and frequency to form a continuous spectrum.



Remember: **R**oman **M**en **I**nvented **V**ery **U**nusual **X**-ray **G**uns

Electromagnetic Wave	Uses and Applications
radio waves	terrestrial television and radio communications
microwaves	satellite communication, satellite television, heating food
infrared	cooking, thermal imaging camera, electric heaters, short-range communications (remote controls)
visible light	vision, fibre optic communication
ultraviolet	energy efficient lamps, sun tanning, detecting forged bank notes, sterilising water
X-rays	medical imaging, airport security
gamma rays	sterilising medical equipment, sterilising food, radiotherapy for cancer treatment

Chemical reactions

Keyword	Definition
Acid	Corrosive substance which has a pH lower than 7. Acidity is caused by a high concentration of hydrogen ions.
Acidic	Having a pH lower than 7.
Alkali	A base which is soluble in water.
Alkaline	Having a pH greater than 7.
Base	A substance that reacts with an acid to neutralize it and produce a salt.
Neutralise	To be make neutral by removing any acidic or alkaline nature.
Neutral	When a substance is neither acidic nor alkaline, and has a pH of 7.
Litmus Paper	An indicator that can be red or blue. Red litmus paper turns blue in alkalis, while blue litmus turns red in acids.
pH	A scale of acidity or alkalinity. A pH value below 7 is acidic, a pH value above 7 is alkaline.
Universal Indicator Paper	Paper stained with universal indicator, a chemical solution that produces many different colour changes corresponding to different pH levels.

Further Reading:

Acids

If you look around your kitchen, you may find some acids to eat or drink.

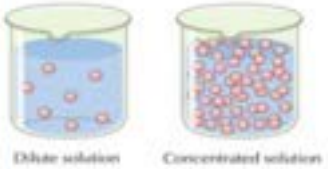
Vitamin C – Ascorbic Acid

Lemons – Citric Acid

Vinegar – Ethanoic Acid

Fizzy Drink – Carbonic Acid

Some acids are more dangerous. Hydrochloric Acid (HCl), Sulfuric Acid (H_2SO_4) and Nitric Acid (HNO_3) are acids which we use in the Science Lab. These acids can come as dilute or more concentrated.



Dilute solution Concentrated solution

Dilute acids are not as dangerous as concentrated acids. This is because there are fewer acid particles in the same volume.

Irritant hazard sign, used for substances that are not corrosive but are irritants. Usually found on more dilute acids and alkali.

Corrosive hazard sign. Usually found on more concentrated acids and alkali.

Bases

A base is a substance that can react with acids and neutralise them.
Metal oxides, metal hydroxides and metal carbonates are examples of bases.
Many bases are insoluble – they don't dissolve in water. However, if a base does dissolve in water, we also call it an alkali.

Some alkalis are harmful. However, many are harmless and useful. Many cleaning products such as bleach, washing powder and oven cleaner contain alkalis.
The most dangerous alkalis in our homes are oven cleaners and caustic soda (used to unblock drains).

Soap and washing up liquid are safe alkalis.

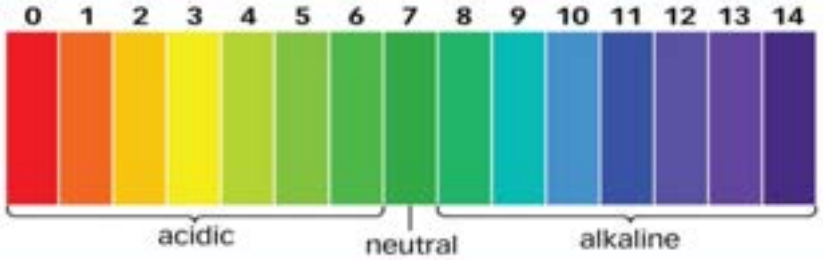
Oven cleaner is a very strong alkali which is very corrosive.

Indicators

Blue litmus paper turns red when it is put into an acid.
If the substance was an alkali or neutral, the blue litmus paper would stay blue.

Red litmus paper turns blue when it is put into an alkali.
If the substance was an acid or neutral the red litmus paper would stay red.

pH Scale



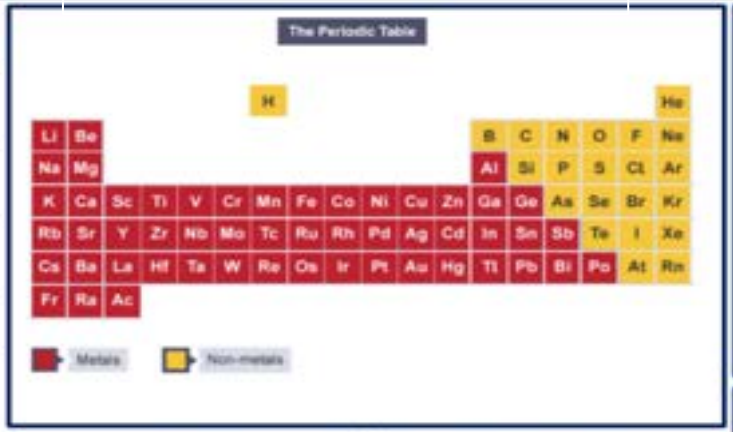
Chemical reactions

Keyword	Definition
Periodic Table	A table of all the known elements in order of their atomic number.
Group	Vertical columns on the periodic table
Period	Horizontal rows on the periodic table
Atom	The smallest piece of an element.
Element	A substance containing only one type of atom.
Compound	Two or more different elements which are chemically joined together.
Mixture	Two or more different elements or compounds which are not chemically joined together.
Chemical Reaction	A process in which one or more substances are changed into others, by their atoms being rearranged. Also known as irreversible reactions.
Physical Reaction	A process in which the physical properties are changed, but no new substances are made. Also known as reversible reactions.
Reactant	A substance that reacts together with another substance to form products during a chemical reaction.
Product	A substance formed in a chemical reaction.
Conservation of Mass	The total mass of the products in a chemical reaction will be the same as the total mass of the reactant.

Further Reading:

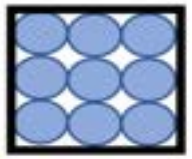
https://www.bbc.co.uk/bitesize/guides/zt2hpv4/revision/1

https://www.bbc.co.uk/bitesize/guides/z84wjxs/revision/1

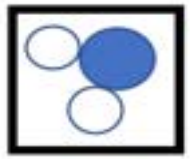


Metals	Non-Metals
Shiny in colour, solids at room temperature (except mercury), high density, strong, malleable, good conductor of heat and electricity.	Dull in colour, can be solids, liquids or gases at room temperature, low density, brittle, poor conductors of heat and electricity.

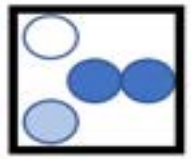
Atoms, Elements, Compounds & Mixtures



This models an element. There is only one type of atom.



This models a compound. There are two different elements chemically combined together.



This models a mixture. There are two or more different elements which are not chemically combined.

Chemical & Physical Reaction

Chemical changes happen when chemical reactions occur. They involve the formation of new chemical elements or compounds.
E.g. Iron will react with oxygen to form Iron Oxide (rust).

Physical changes do not lead to new chemical substances forming. In a physical change, a substance simply changes physical state. E.g. A solid to a liquid.

Chemical Reactions & Equations

The changes in a chemical reaction can be modelled using equations. In general we write:

Reactants → Product

The reactants are shown the left of the arrow, and the products are shown on the right of the arrow. The arrow tells us a chemical reaction has taken place.

E.g.

Iron + Oxygen → Iron Oxide

The iron and oxygen react together (reactants) to produce Iron Oxide (product).

Naming Compounds

Metal + Non-Metal (which contain two elements)

1. The metal always goes first.
2. The ending of the non-metal changes to 'ide'.

E.g.

Copper + Oxygen → Copper Oxide
Lithium + Fluorine → Lithium Fluoride

To name compounds which have a metal, non-metal and oxygen (three or more elements)

1. The metal always goes first.
2. The ending of the non-metal changes to 'ate'.

E.g.

Copper, Sulfur, Oxygen
Copper Sulfate

Conservation of Mass

No atoms are created or destroyed in a chemical reaction. Instead, they just joint together in a different way than they were before the reaction, and form products. This means that the total mass of the products in a chemical reaction will be the same as the total mass of the reactants.

Copper + Oxygen → Copper Oxide
10g 0.5g 10.5g

Balancing Equations

A balanced equation gives more information about a chemical reaction because it gives the symbols and formulae of the substances involved.

$Cu + O_2 \rightarrow CuO$

The above equation is not balanced because there is one copper atom on both sides of the arrow, but two oxygen atoms on the left hand side, and only one on the right.
You need to adjust the number of units of some substances until you have equal numbers of atoms on both sides of the arrow. You cannot change the formulae of a substance (you can't change the small number).

$2Cu + O_2 \rightarrow 2CuO$

Chemical reactions

Keyword	Definition
Periodic Table	A tabular representation of all known elements in order based on atomic number.
Atomic Number	The number of protons in the nucleus of an atom. Also called the proton number.
Periods	A horizontal row in the periodic table.
Groups	A vertical column in the periodic table containing elements with similar chemical properties.
Element	A substance made of only one type of atom.
Compound	A Substance where two or more elements have chemically joined together.
Mixture	Two or more substances that are not joined together. The substances can be elements, compounds or both.
Reactive	The tendency of a substance to undergo a chemical reaction.

Further Reading:
https://www.bbc.com/bitesize/guides/z3vwxnb/revision/5
https://www.bbc.com/bitesize/guides/z84wjxs/revision/1

The periodic table is arranged in rows called periods and columns called groups. Groups contain elements with similar chemical properties.

Group 1 – Alkali Metals

Group 1 metals are very soft metals which can be cut with a knife. They have very low melting and boiling points and are very reactive compared to other metals. The elements become more reactive as you go down group 1.

When the group 1 metals react in water they produce a metal hydroxide and hydrogen gas.
E.g.
Lithium + Water → Lithium Hydroxide + Hydrogen

Group 2 – Alkali Earth Metals

Group 2 metals are reactive, but less reactive than group 1 elements.
Group 2 metals react with acids to produce a salt and hydrogen. The name of the salt depends on the acid used.
Hydrochloric Acid – Chloride
Sulfuric Acid – Sulfate
Nitric Acid - Nitrate
E.g.
Magnesium + Hydrochloric Acid → Magnesium Chloride + Hydrogen
Magnesium + Sulfuric Acid → Magnesium Sulfate + Hydrogen
Magnesium + Nitric Acid → Magnesium Nitrate + Hydrogen

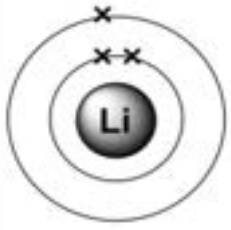
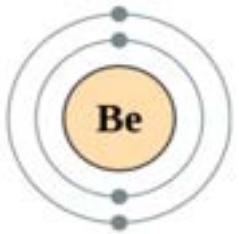
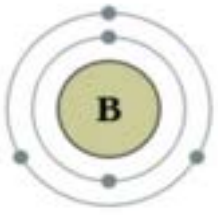
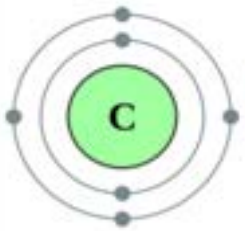
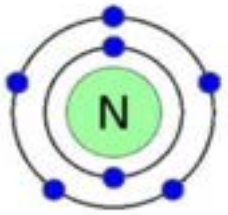
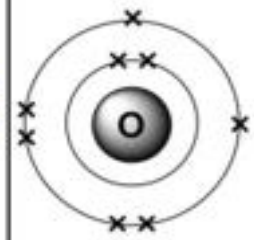
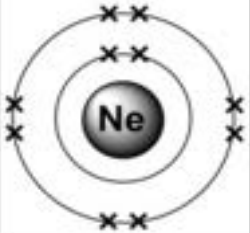
Group 2 metals become more reactive when you go down group 2.

Group 7 – The Halogens

Group 7 elements become less reactive when you move down the group. This can be shown as a displacement reaction.

Group 0 – The Noble Gases

Group 0 elements are not reactive. This is because the atoms have full outer shells.

Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Lithium - Li Sodium - Na Potassium - K	Beryllium – Be Magnesium – Mg Calcium - Ca	Boron – B Aluminium – Al Gallium – Ga	Carbon – C Silicon – Si Germanium – Ge	Nitrogen – N Phosphorus – P Arsenic – As	Oxygen – O Sulfur – S Selenium - S	Fluorine – F Chlorine – Cl Bromine - Br	Helium – He Neon – Ne Argon - Ar
							

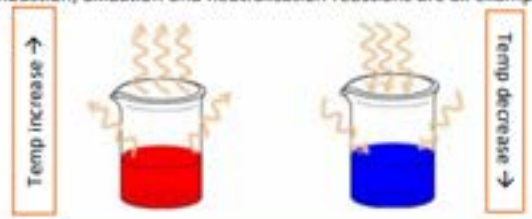
Chemical Reactions

Keyword	Definition
Endothermic	Reactions that take in heat
Exothermic	Reactions that give out heat
Oxidation	Reaction of other elements with oxygen
Combustion	Burning fuel in oxygen
Thermal Decomposition	When a substance is broken down into 2 or more products by heat
Reactivity series	List of metals in order of reactivity
Displacement	A more reactive metal will displace a less reactive metal from its compound
Catalyst	A substance that increases the rate of a reaction but is not itself used up.
Polymer	Long chain molecules made up of many monomers.
Fuel	Contain hydrocarbons – compounds containing hydrogen and carbon atoms only.
Activation Energy	The minimum amount of energy that colliding particles must have for them to react

Further Reading:
https://www.bbc.com/bitesize/guides/zqd2mp3/revision/3
https://www.bbc.com/bitesize/articles/zcwxcj6
https://www.bbc.com/bitesize/guides/zqd2mp3/revision/5
https://www.bbc.com/bitesize/guides/zqd2mp3/revision/6

Endothermic Reactions
In an endothermic reaction, thermal energy is taken in from the surroundings, therefore there is a temperature decrease. Thermal decomposition is an example.

Exothermic Reactions
In an exothermic reaction, thermal energy is given out to the surroundings, therefore there is a temperature increase.
Combustion, oxidation and neutralisation reactions are all examples.



Combustion
Combustion is another name for burning. It is an example of an exothermic reaction. There are two types of combustion – complete combustion and incomplete combustion.

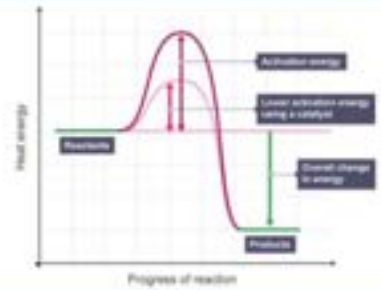
Complete Combustion
Coal, oil and gas are furls. They contain hydrocarbons (compounds of hydrogen and carbon atoms only). When these fuels burn, it reacts with oxygen in the air to produce carbon dioxide and water vapour.
Fuel + Oxygen → Carbon Dioxide + Water

Incomplete Combustion
If there is not enough oxygen in the air for complete combustion, incomplete combustion will happen instead.
This time either carbon monoxide is produced (a toxic gas which can lead to death) or carbon is produced (appears as soot and smoke which can cause breathing problems).
Fuel + Oxygen → Carbon Monoxide + Water
Fuel + Oxygen → Carbon + Water

Catalysts

A catalyst is a substance that:
- Speeds up the rate of a chemical reaction
- Does not alter the products of the reaction
- Is unchanged chemically and in mass at the end of the reaction.

Catalysts provide an alternative reaction pathway that has a lower activation energy than the uncatalysed reaction.



Oxidation Reactions
In an oxidation reaction, a substance gains oxygen. Metals and non-metals can take part in oxidation reactions.

Metals react with oxygen in the air to produce metal oxides. For example, copper reacts with oxygen to produce copper oxide when it is heated in the air.

Copper + Oxygen → Copper Oxide
$2Cu + O_2 \rightarrow 2CuO$

Thermal Decomposition
Some compounds break down when heated, forming two or more products from one reactants.
Many metal carbonates can break down easily when it is heated:
Copper Carbonate → Copper Oxide + Carbon Dioxide

Copper carbonate is green, copper oxide is black. We can test for carbon dioxide using limewater. Limewater is colourless, but turns cloudy when carbon dioxide is bubbled through it.

Reactivity Series

Some metals are very unreactive. This means they don't take part in chemical reactions. For example platinum. Some metals are very reactive and they take part in chemical reactions easily to form new substances.

Displacement Reactions
Displacement reactions involve a metal and a compound of a different metal. In displacement reactions, a more reactive metal will displace a less reactive metal from its compound.
Magnesium + Copper Sulfate → Magnesium Sulfate + Copper

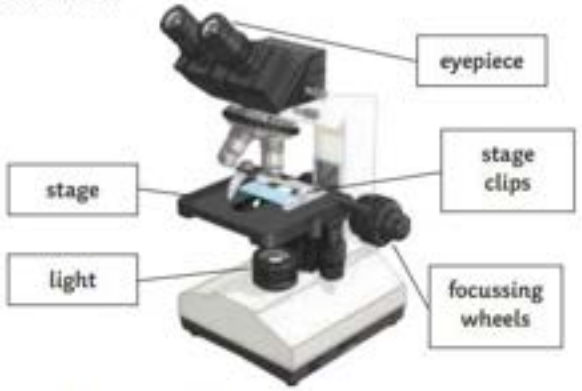
Magnesium is more reactive than copper, so it displaces (pushes out) the copper within the compound.

Cells

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.

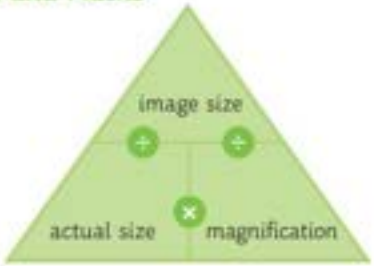
Specialised Cells

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

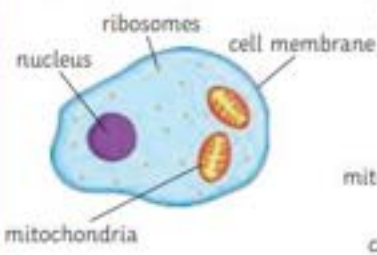
Conversions:
Micrometres to millimetres: divide by 1000.

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

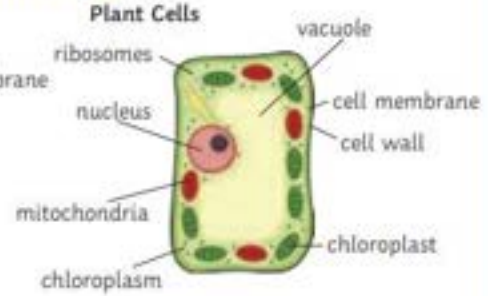
$5.6 \times 10^{-3} = 0.0056$

Prokaryotic and Eukaryotic Cells

Animal Cells



Plant Cells

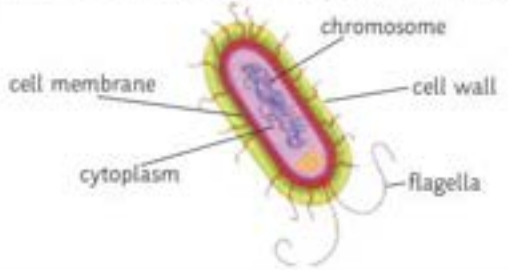


Plant and animal cells have similarities and differences:

	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.



Cells

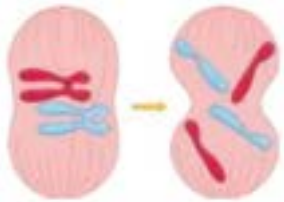
Cell Biology Knowledge Organiser - Foundation and Higher

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.**

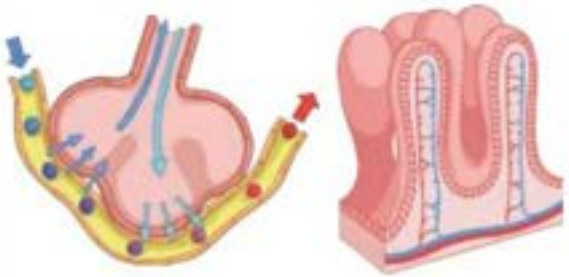
Exchange – Humans

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.

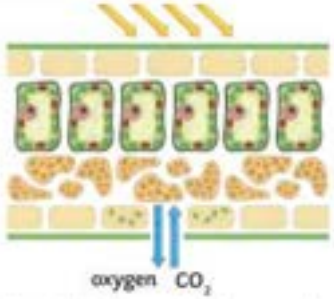


Villi: Small Intestine

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



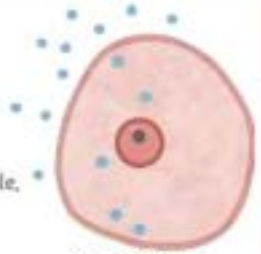
The surface of the leaf is flattened to increase the surface area for more gas exchange by diffusion.

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.

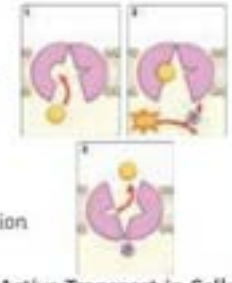
Cell membranes are semi-permeable, only small molecules can get through.



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.

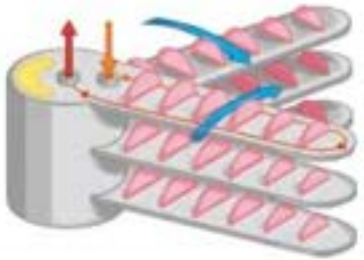
Active transport is the movement of substances against the concentration gradient. This process requires energy from respiration.

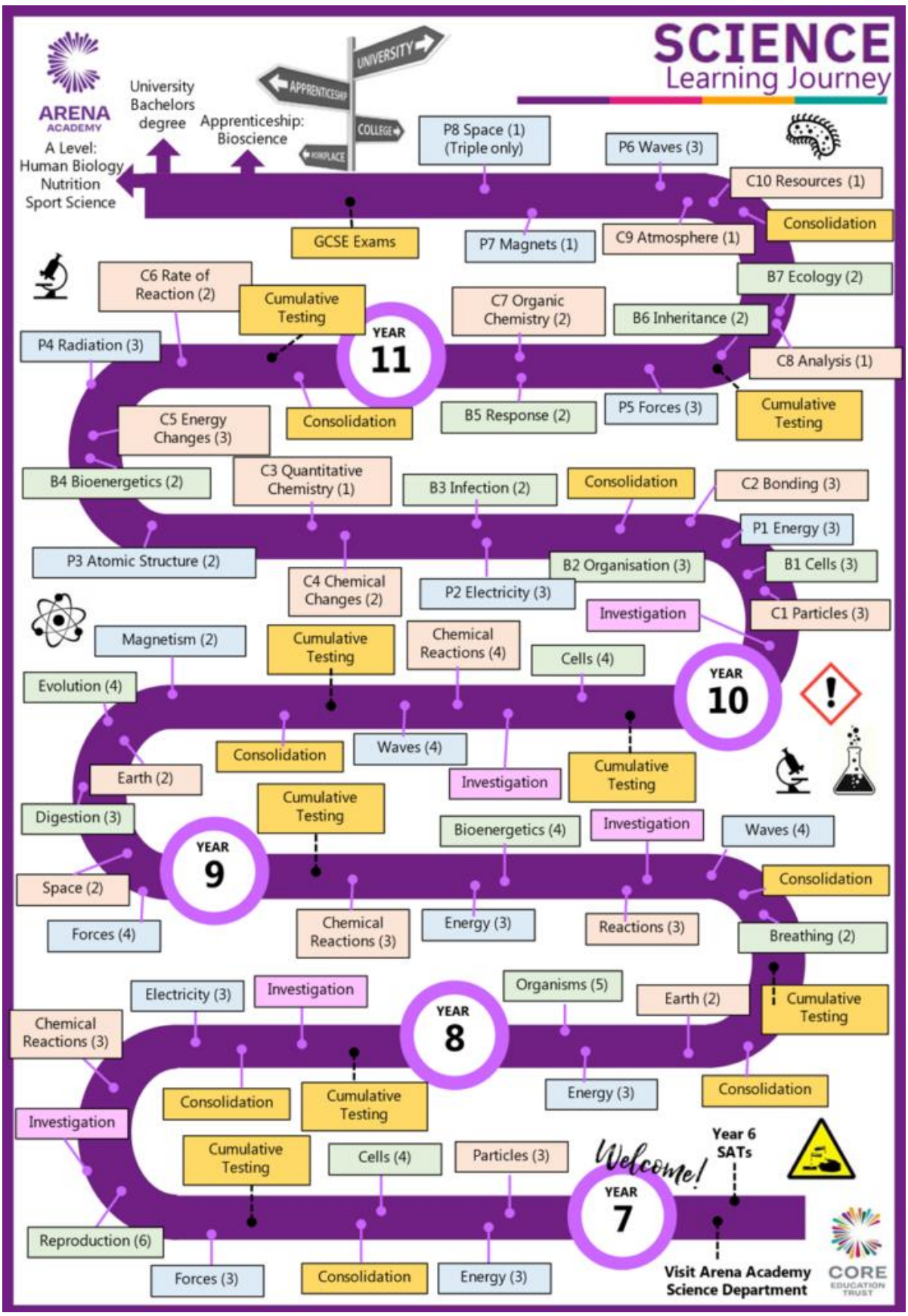


Active Transport in Cells

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.




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
Cumulative Testing
Cells (4)
Particles (3)
Year 6 SATs
Welcome!
YEAR 7
Reproduction (6)
Forces (3)
Consolidation
Energy (3)
Visit Arena Academy Science Department
CORE EDUCATION TRUST

Geography

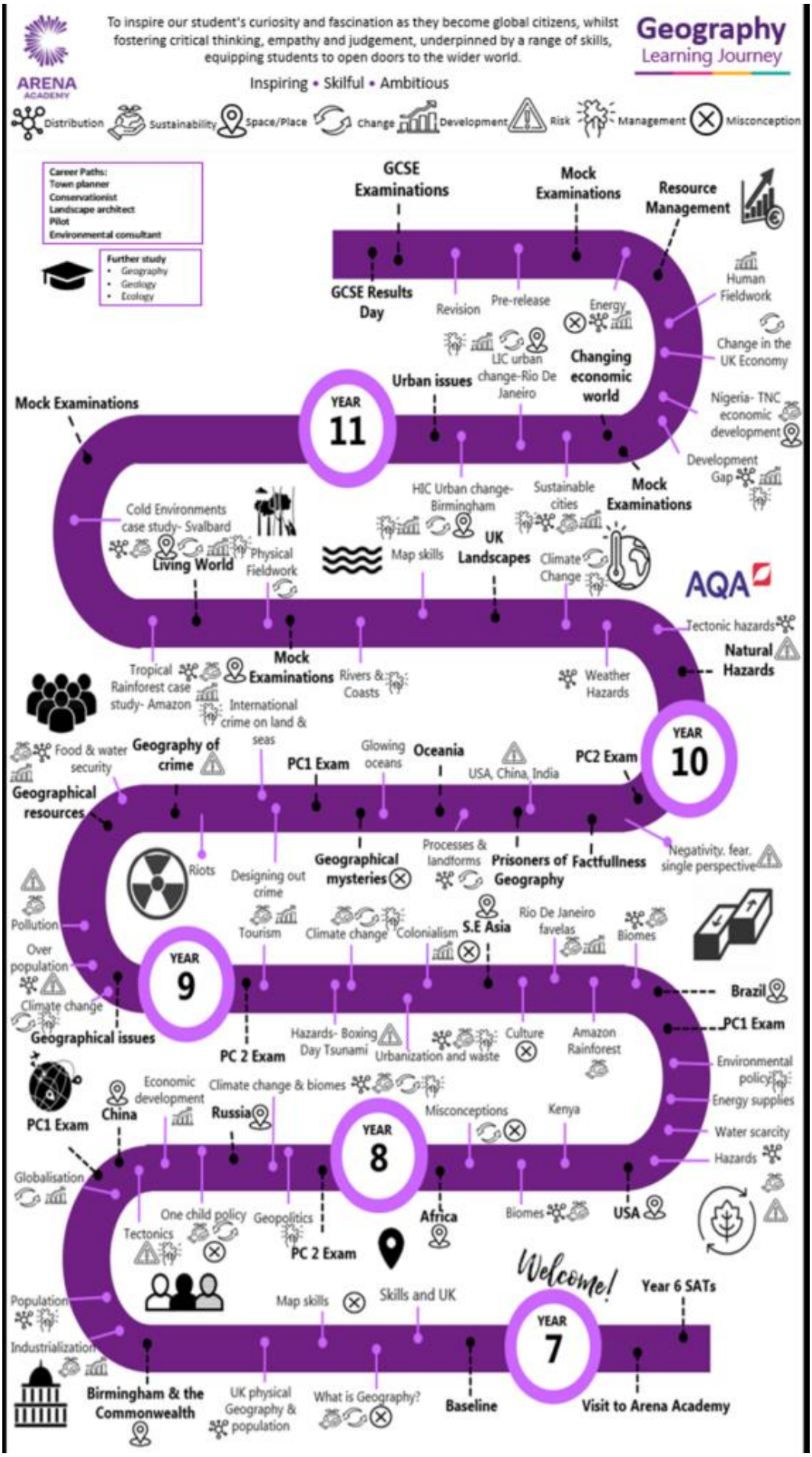
Topics covered from the beginning of the academy year to the end of this half-term.

SPR 1: Geographical issues

1. Climate change
2. Overpopulation
3. Fast fashion
4. Gender inequality

SPR 2: Geographical resources

5. Geography of food
6. Geography of water


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
LIC urban change-Rio De Janeiro
Urban issues
Nigeria- TNC economic development
Development Gap
Mock Examinations
Sustainable cities
HIC Urban change- Birmingham
Mock Examinations
Cold Environments case study- Svalbard
Living World
Physical Fieldwork
Map skills
UK Landscapes
Climate Change
AQA
Tectonic hazards
Natural Hazards
Tropical Rainforest case study- Amazon
Mock Examinations
Rivers & Coasts
Weather Hazards
International crime on land & seas
YEAR 10
Food & water security
Geography of crime
PC1 Exam
Glowing oceans
Oceania
USA, China, India
PC2 Exam
Geographical resources
Processes & landforms
Prisoners of Geography
Factfullness
Negativity, fear, single perspective
Riots
Designing out crime
Geographical mysteries
Pollution
Tourism
Climate change
Colonialism
S.E Asia
Rio De Janeiro favelas
Biomes
Over population
YEAR 9
Brazil
Climate change
Geographical issues
PC 2 Exam
Hazards- Boxing Day Tsunami
Urbanization and waste
Culture
Amazon Rainforest
PC1 Exam
Environmental policy
Energy supplies
Economic development
Climate change & biomes
China
Russia
Misconceptions
Kenya
Water scarcity
Hazards
YEAR 8
Globalisation
One child policy
Geopolitics
Tectonics
PC 2 Exam
Africa
Biomes
USA
Welcome!
Year 6 SATs
Population
Map skills
Skills and UK
YEAR 7
Industrialization
Birmingham & the Commonwealth
UK physical Geography & population
What is Geography?
Baseline
Visit to Arena Academy

Year 9 Half Term 1

Units covered: Geographical issues

Key concepts:

Environment	Interconnection	Development
Place	Sustainability	
Space	Change	

Half-term targets:

- Can I describe the impacts of plastic pollution and strategies to manage plastic usage?
- Can I describe the difference between the natural and enhanced greenhouse effect?
- Can I describe the impacts of climate change?
- Can I describe the causes and impacts of overpopulation?
- Can I explain why companies have sweatshops and the impacts of their usage?
- Can I explain how homophobia in a country can influence wider global views?
- Can I describe the similarities and differences between gender inequality in HICs and LICs?
- Can I explain what environmental racism is and how it has caused a socio-environmental crisis?

Key definitions:

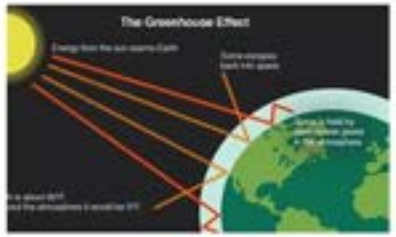
- Greenhouse effect – The process where heat is trapped in the Earth's atmosphere by greenhouse gases which affects Earth's temperature.
- Climate change – The long-term change in average temperature and precipitation in a location.
- Overpopulation – The rapid growth of a population risking numbers that cannot be supported by available resources.
- Sweatshop – A factory or workshop where workers experience poor and illegal working conditions.
- Homophobia – The discrimination and mistreatment of members of the LGBTQ+ community.
- Gender inequality – The discrimination and mistreatment of members of society based on their gender (e.g. sexism against women).
- Environmental racism - A form of systemic racism whereby communities of color are disproportionately burdened with health hazards through policies and practices.

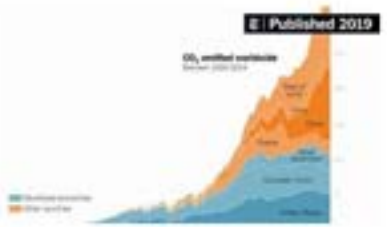
Key information:

1. Plastic pollution is the purposeful littering and dumping of plastic materials. These plastics degrade slowly and provide further challenges when microplastics are left behind which can be damaging for animals and can end up in the food chain through consumption. Reducing reliance on plastics, increasing education and increasing recycling and reusing plastics will be key for decreasing plastic pollution.
2. There is a clear distinction between the natural and enhanced greenhouse effect – the natural greenhouse effect is important for survival on Earth since it regulates planet temperature whereas the enhanced greenhouse effect is activities releasing too many greenhouse gases that are trapping too much heat in the atmosphere that is causing global warming and contributing to climate change. Impacts of climate change include ice caps melting, increased extreme temperatures, increased severe weather events and resource security issues.
3. Overpopulation is caused when people are pushed out of areas for reasons such as lack of services, bad transport and lack of job opportunities. They are then pulled into areas that are better suited for reasons such as cleaner environment, lower crime rate and better healthcare. Overpopulation has impacted such as deforestation, decreased resource availability, increased unemployment and overcrowded transport.
4. Sweatshops are used by big TNC's such as Nike and Shein because they are cheaper to run, therefore the company headquarters can maintain the mot profit possible. Sweatshops have poor conditions such as long work hours, pay below a minimum wage and overcrowded conditions that are unsanitary. Companies place these sweatshops in LIC's to further reduce costs but also minimise publication of the issue.
5. Homophobia has been an issue that is covered more in the media due to recent events such as the 2022 Qatar World Cup (Rainbow laces/armband campaign) and Pride. Homophobia in Russia has been hitting the headlines due to its severity, with Russia having a long complex history of dislike towards the gay community. It is now extreme where people face arrest and punishment for stating that they are part of the community and laws have been passed to make it illegal.
6. Gender inequality in countries like Afghanistan are caused to restrictive and religious leadership with women being assigned gender specific roles such as creating and cleaning the family home and having babies. Since the Taliban are back in power, Afghan women are restricted in their job opportunities, the way they dress and where they can go in public without a man or his permission.
7. Saudi Arabia is a HIC with many restrictions for women such as not being able to open their own bank account, file a divorce or go out without male permission. Since Saudi Arabia lifted the ban on women driving in 2018 to modernise, it has given more women independence and is a step in the right direction towards equality.
8. Environmental racism was seen in Flint, Michigan when there was a change in water supply from bringing the water from Detroit to using the local river. However, this largely black community experienced a large-scale healthcare crisis caused by drinking the contaminated water which was not effectively challenged or resolved by the government. This community has raised the concern that this issue was dealt with in a way that would not be seen if the area had lower crime rates and more socio-economic opportunity.

Example exam questions:

1. Explain the impacts and responses of plastic pollution.
2. Describe the difference between the natural and enhanced greenhouse effect.
3. Define the term "overpopulation" and state an example of a location that is becoming overpopulated.
4. State an impact of companies using sweatshops for manufacturing their goods.
5. "Gender inequality does not exist in HIC's." To what extent do you agree with this statement?
6. Explain the impact of environmental racism in Flint, Michigan.





Year 9 Half Term 2

Units covered: Geographical Resources

Key concepts:

Space	Place
Change	Distribution
Environment	Sustainability

Half-term targets:

- Can I state examples of key geographical resources?
- Can I explain the factors that can affect food miles and food waste?
- Can I analyse the arguments for and against GM foods?
- Can I describe the difference between malnutrition and overnutrition?
- Can I describe the geography of chocolate?
- Can I explain the current issues with global water security?
- Can I explain the impacts of water conflict?
- Can I suggest ways of improving water security?

Key definitions:

- Geographical resource - All types of resources of the earth that are extracted, harvested or utilized by society; including understanding their characteristics, production, patterns of areal distribution, and conservation.
- Food miles – The distance a food source travels to get to your plate.
- Food security - The availability of food in a country and the state of having reliable access to enough affordable, nutritious food.
- GM foods - Foods produced from organisms that have had changes introduced into their DNA.
- Malnutrition – A physical condition that results from an imbalance between the nutrients in your body that it needs to function and the nutrients it gets.
- Overnutrition – Where the intake of nutrients exceeds the amount required for normal growth, development and metabolism and can lead to conditions such as obesity.
- Water security – The reliable availability of an acceptable quantity and quality of water for health, livelihood, ecosystems and production.
- Water conflict - Violence or disputes associated with access to, or control of, water resources, or the use of water or water systems as weapons or casualties of conflicts.

Example exam questions:

1. Define the term "GM food."
2. Suggest 2 factors that can affect food security.
3. State 2 impacts of water insecurity.
4. Describe the difference between malnutrition and overnutrition.
5. Discuss the arguments for and against GM foods.
6. Explain methods that can be used to improve water security.

Key information:

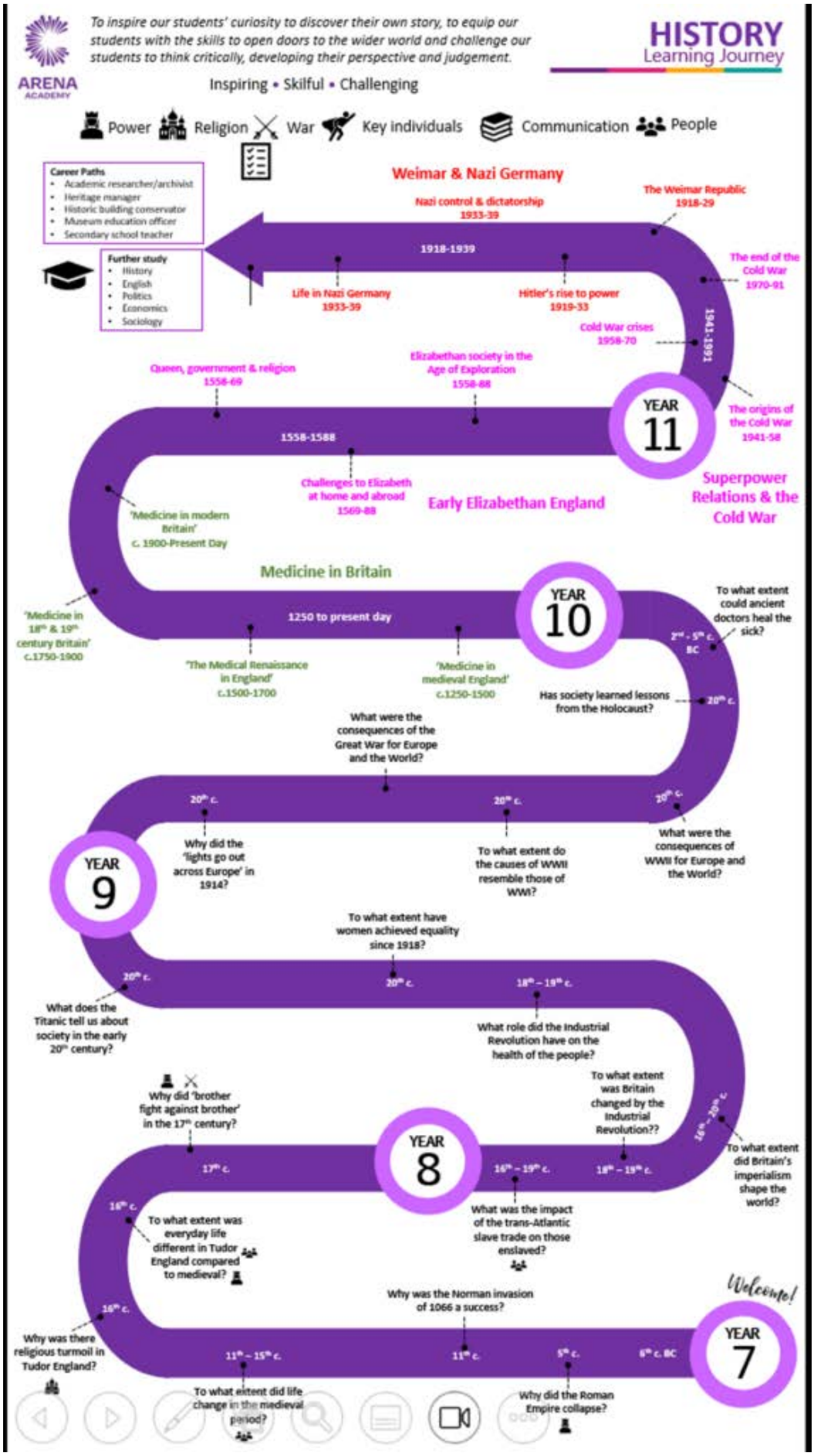
1. Resources are all the materials available in our environment which are technologically accessible, economically feasible and culturally sustainable and help us to satisfy our needs and wants. Food is one of these resources and we get ours in the UK from all over the world due to what we are able to produce here and not wanting to stick to foods that are in season. The food we eat makes up about 30% of our carbon footprint. Impacts include increased air pollution, increased health issues such as asthma, congestion and noise. Ways you can reduce food miles include shopping more locally, buying in bulk, using alternative transport to get to shops such as bikes or walking and growing more of your own to decrease how much is bought.
2. Food loss is food that is not eaten. The causes of food waste or loss are numerous and occur throughout the food system, during production, processing, distribution, retail and food service sales, and consumption. Overall, about one-third of the world's food is thrown away. Food demand is growing due to an increasing population, increasing household incomes and increased extreme weather conditions.
3. A genetically modified organism (GMO) is any organism whose genetic material has been altered using genetic engineering techniques/technology. A wide variety of organisms have been genetically modified including animals, plants, and microorganisms. For example, scientists are trying to develop frost-resistant strawberries by inserting DNA from the Arctic flounder fish (which can survive at very low temperatures) into strawberries. Pros and cons of GM foods include allergic reactions, increasing attraction to consumers, more resilient foods and less waste and decreased antibacterial resistance.
4. Health geography is the application of geographical information, perspectives, and methods to the study of health, disease, and health care. Symptoms of malnutrition includes low energy, weight loss, dry skin and longer healing times for wounds. The causes of malnutrition are different depending on where you are in the world and what resources are available. For example, lack of food is the biggest cause of malnutrition in the poorer and developing countries, however in more developed countries one of the main causes is imbalanced nutrient and vitamin intake. Overnutrition symptoms can include large appetite, irritability and confusion and mobility issues.
5. Cacao trees are found in limited geographical zones. Cacao trees only grown in tropical areas where they are hot and there is high precipitation. They thrive when it rains daily and when the average temperature is 27 degrees. Cacao trees grow in the understory layer of tropical rainforests under the shadows of taller trees because they are protected from large amounts of sun exposure whilst still getting the necessary nutrients and moisture to thrive. Fairtrade is a global organisation that works with farmers in less developed countries to get fair working conditions and fair prices for their crops. Fairtrade works with people who produce a range of goods across over 70 countries. Fairtrade works to give farming communities money to run local projects that helps with improving housing, education, healthcare and farming equipment. The farmers are also supported to farm in an environmentally friendly way.
6. Only 3% of the world's water is freshwater, and two-thirds of that is tucked away in frozen glaciers or otherwise unavailable for our use. Places which are arid will often have more problems with water supply. This is due to the features of the climate. An arid climate is known for being hot and dry, often receiving less than 25cm of rain per year. These areas are also called deserts. This affects global water security and can cause conflicts.
7. Water wars are conflicts between countries, states, or groups over access to water resources. There are many reasons why people fight over water supplies including agriculture, overpopulation, overuse and political clashes. A water war has raged on for many years between Egypt and Ethiopia over the allocation of the waters of the River Nile, an invaluable resource to the area.
8. Humans have tried to improve access to water supplies by creating reservoirs which provide a store for the areas that need it. Humans can also improve carbon storage, harvesting wastewater, reusing wastewater and adopting climate smart agriculture.
9. Water aid is an example of an organisation that are helping support water security issues in developing countries – "Clean water, decent toilets and good hygiene are basic human rights. They should be a normal part of daily life for everyone, everywhere – but they aren't. That's why we're here...We convince governments to change laws, link policy makers with people on the ground, pool knowledge and resources and rally support from people and organizations around the world, making lasting change happen on a massive scale.

History

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

Spring 1:

World War II


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?
Why did the 'lights go out across Europe' in 1914?
To what extent do the causes of WWII resemble those of WWI?
What were the consequences of WWII for Europe and the World?
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?

KEY VOCABULARY AND SPELLINGS

Nazi – a German fighter

Evacuated – being moved from your city to the countryside in order to be safer

Allies – countries which fought on the British side

Black out – the turning off of lights in a city so that bombers can't see their target

Rationing – food and essentials were given out fairly

Air raid shelter – a structure made to provide protection during air raids.

Air raids – military planes sent to bomb an area

Trenches – a long narrow ditch used for troops to shelter from enemy fire or attack

Holocaust – the mass murder of Jews and other groups by the Nazis

Enigma – a machine used by the Nazis to send coded messages

Blitz – a huge air strike on cities in England over 57 nights

CHRONOLOGY

1st September 1939	Germany invades Poland
3rd September 1939	Great Britain, France and their Allies declare war on Germany
April 1940 – June 1940	Germany invades European countries
10th May 1940	Winston Churchill elected Prime Minister of Great Britain
10th July – 31st October 1940	The Battle of Britain is fought in the air above the south coast of England and the English channel. The London Blitz begins.
7th -11th December 1940	Japan bomb Pearl Harbour, Hawaii and USA declare war on Japan. USA declares war on Japan, Germany and Italy.
6th June 1944	D Day – British, Canadian and US troops land in Normandy, France
8th May 1945	Britain celebrates Victory in Europe (VE Day)
6th August 1945	First atomic bomb dropped on Hiroshima, Japan by the USA
1st September 1945	Japan surrenders. World War 2 officially ends

BACKGROUND

BACKGROUND - World War II was a war fought between the Allied powers (the main ones being Britain, France, Russia, China and the United States) and the Axis powers (the main ones being Germany, Italy and Japan).

Hitler wanted Germany to rule Europe and so invaded Poland, when we refused to stop the invasion, Britain and France declared war on Germany and World War II began.

KEY PEOPLE

Adolf Hitler – leader of the Nazi party, referred to as Fuhrer.

Winston Churchill

UK Prime

1940 - 1945 (and again from 1951 – 1955).

Neville Chamberlain – UK Prime Minister 1937 – 1940.

Franklin D. Roosevelt – US President, 1933 – 1945.

Joseph Stalin – General Secretary of the Communist party and leader of the USSR, 1929-1953

SOCIETY

FAMILY LIFE – The war changed things drastically for families. Children who lived in cities were evacuated to the countryside to live with other families therefore not seeing their own for a long time. Food and essentials were rationed, houses and buildings were destroyed by bombs, men who were of age were enlisted to fight in the war, families would spend time in air raid shelters or underground areas during bombing for safety and carry gas masks in case there was a gas bomb attack.

WARFARE – World War II was the most widespread and considered the most destructive war in history. Battles were fought in Europe, Asia and Africa. Battles were fought on the ground with tanks and guns and also fought from the air using planes.

LEGACY

LEGACY - Many things changed after World War II was over:

- Many countries borders needed to be set and governments re-established where Germany and Japan had taken over.
- Leaders who were involved in war crimes were bought to trial.
- The allies formed the United Nations to try to prevent World War III happening.

Religious Education

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

AUT 1:

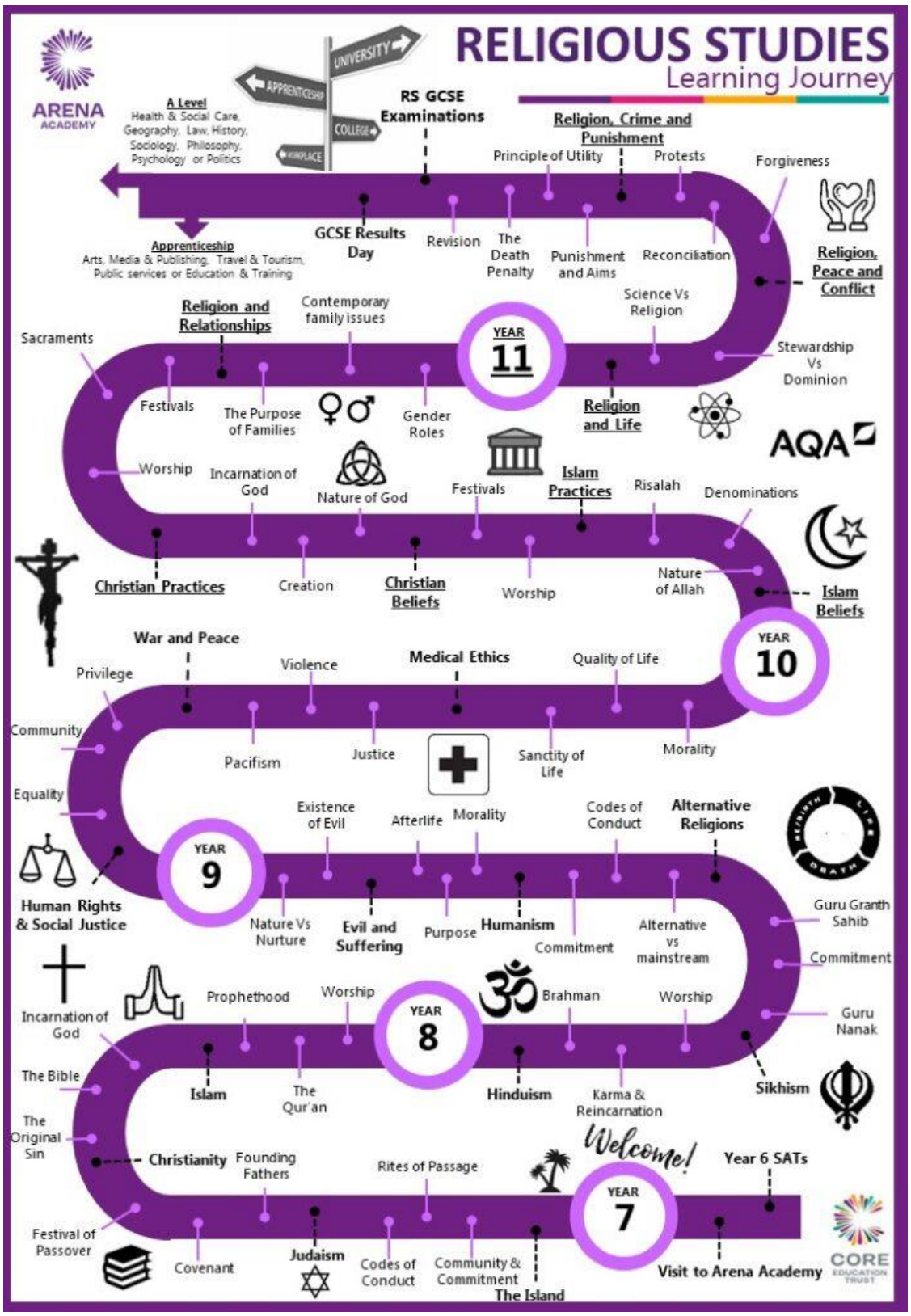
1. Medical Ethics

AUT 2:

2. War and Peace

Later in the Year:

3. Human Rights
4. Social Justice


RELIGIOUS STUDIES
Learning Journey
ARENA ACADEMY
A Level
Health & Social Care, Geography, Law, History, Sociology, Philosophy, Psychology or Politics
Apprenticeship
Arts, Media & Publishing, Travel & Tourism, Public services or Education & Training
UNIVERSITY
APPRENTICESHIP
COLLEGE
WORKPLACE
RS GCSE Examinations
GCSE Results Day
Revision
The Death Penalty
Punishment and Aims
Principle of Utility
Religion, Crime and Punishment
Protests
Reconciliation
Forgiveness
Religion, Peace and Conflict
Science Vs Religion
Stewardship Vs Dominion
Religion and Life
AQA
YEAR 11
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
Privilege
Violence
Medical Ethics
Quality of Life
Community
Pacifism
Justice
Sanctity of Life
Morality
Equality
YEAR 9
Existence of Evil
Afterlife
Morality
Codes of Conduct
Alternative Religions
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

War and Peace Knowledge Organiser

1) War

Why do people go to war or have a conflict?
- Greed
- Revenge
- Power
- Mental illness

2) Just War

This is the idea that war can be able to be waged if, and only if, it can meet certain criteria. These are:
1) Has a just cause
2) Doesn't harm religious buildings
3) Does not target women and children
4) Is a last resort
5) Does not cause uneccessary harm
This is supported by Christianity, Islam and Buddhism

3) Christianity and Buddhism on war

Christians believe that Jesus taught peace. Jesus taught that God has a plan for all and that we should all 'love thy neighbour'. War can be waged, but only as a last resort. Peace if always a better response.

Buddhists are pacifists. This means that they believe that violence, including war, can never help achieve anything good. War must never be entered into by anyone and if there are any issues it should be solved in a peaceful manner

Keywords

War	Conflict between two or more different countries
Peace	Absence of war and conflict
Just war	Conditions for War to be allowed in religion
Sanctity of life	All life is sacred because it is created by God
United nations	A worldwide organisation that aims to minimise war and conflict
Reconcile	Trying to get people to work together to resolve conflict
Non-violent protest	Peaceful ways to create change

4) Sanctity of life

The sanctity of life is the belief that all life is sacred because it was created by God. Therefore no one has the right to take it away.
Christians agree with the idea of sanctity of life. They believe that life is created by God and that all life should be preserved. Buddhists also believe in the sanctity of life, even though they do not believe that life was created by God. They insist that everyone should have a fair opportunity to achieve good karma.

5) United Nations

The United Nations is an international organisation that works to help minimise war and conflict in the world. They sometimes act as a third party to help negotiate between two countries that are not getting on and often help to supply aid to those people who need it most during war.

5) Examples of non violence

- Martin Luther King, Ghandi

Human Rights Knowledge Organiser

1) Human Rights

Human rights are rights that human beings have regardless of their gender, nationality, place of residency, sex, ethnicity, religion, color. Every human has these rights no matter what. There are 30 human rights in a document called the 'Universal Declaration of Human Rights.' Human rights are important because they protect humans from any type of harm.

2) Rights in our Community

According to the Universal Declaration of Human Rights, every community should have all human rights being respected. However, this is not the practice in all communities. Some rights may be respected while others are being denied.

3) Asylum and Refugee

An asylum seeker is someone who seeks asylum (safety) in a foreign country and has applied to the government for refugee status. A refugee who is forced to leave their country because they are afraid of being mistreated because of their religion, political beliefs or social behavior.

4) Dalai Lama

The Dalai Lama is the head monk of Tibetan Buddhism. There have been only 14 Dalai Lamas in the history of Buddhism. According to Buddhist belief, the current Dalai Lama, Tenzin Gyatso, is a reincarnation of a past Lama. He fights for people's freedom and human rights. In 1989, he won the Nobel Peace Prize for the work that he has done.

Keywords

Human Right	Rights that all humans should have e.g. right to shelter
Asylum Seeker	Someone who seeks safety on a foreign country
Refugee	Someone who is forced to leave a country due to abuse
Dalai Lama	Monks who fought for peace and human rights
Immigrant	A person who comes to live permanently in a foreign country
Universal Declaration of Human Rights	A document which outlined the rights and freedoms everyone is entitled to.
Missionaries	People who are sent on a mission to do religious or charity work in a foreign country.

5) Martin Luther King

Throughout his life Martin Luther King was confronted by violence. None of this made him respond with violence. His Christian beliefs told him that violence and hatred could only be conquered by love and forgiveness. MLK arranged the Montgomery Bus Boycott to put an end to segregation and discrimination. In 1964 Martin Luther King was awarded the Nobel Peace Prize.

6) Ghandi

Ghandi used non-violence in an attempt to get equal rights for the people in India and to gain independence for India. So he changed his clothes and lifestyle and lived a simple life to help him understand his people better. Gandhi was imprisoned many times but still continued his work. India were finally given independence on 15th August 1947.

7) Mother Teresa

Religion was very important to Mother Teresa and her family, she was a Roman Catholic. She remembers her mother always telling her, to love God and her neighbours. Mother Teresa and her sisters helped the people of Calcutta by teaching, and caring for them. In 1979, Mother Teresa was awarded the Nobel Peace Prize.

Religion, Human Rights and Social Justice Knowledge Organiser

Keywords

Prejudice	Unfair and unreasonable opinion or feeling formed without enough thought or knowledge
Race	A group human beings can be divided into based on distinctive physical traits
Discrimination	Unfair treatment of different categories of people, especially on the grounds of race, age, sex or disability
Religious freedom	Religious freedom means people have the freedom to hold different religious beliefs and to express those beliefs without restrictions.
Wealth	An abundance of valuable possessions or money
Poverty	The state of being extremely poor
Exploitation	Exploitation: The action of treating someone unfairly in order to benefit from their work.

1) Prejudice, race and discrimination

All Muslims must understand the true spirit of Islam and aspire to follow the Prophet (PBUH) and be more like him. That means to reject all forms of racism, discrimination and prejudice. People must not be judged by their background/race. Christians believe that all humans are made in the image of God - they are created with souls that never die and are very special. Therefore any action that offends a person is an insult to God who created and loves that person. The Church does not agree with any form of discrimination such as racial or gender discrimination. All men and women are equals and both are children of God.

2) Religious Freedom

Religious freedom means people have the freedom to hold different religious beliefs and to express those beliefs without restrictions. It also includes the freedom to change one's religion or beliefs. Bible quote: 'Now accept the one who is weak in faith, but not for the purpose of passing judgement on his opinions' (Roman 14:1) Quran quote 'There is no compulsion where the religion is concerned' (2: 256)

3) Wealth and Poverty

Muslims believe Allah will put them through much hardship & ease. It has always existed - even in time of prophet P.B.U.H. There wealthy will be tested on how much wealth they have and how they spent it in the way of Allah. The poor will be rewarded for their patience. Allah will never put Muslims in an unfavourable situation. Christians are asked to looking after all given by God and to share their wealth properly for those who have less. Wealth is a blessing from God especially for Monks and nuns who have dedication to their faith and a promise to God

Natural circumstances / caused by human beings. Jesus healed people and taught mankind to care for the poor and spend time with the poor. People can do this through charity, social support or practical assistance for basic needs.

4) Exploitation

Islam does not allow exploitation. In pre-Islamic Arabia, slavery was an established practice the prophet P.B.U.H tried to put an end to this and righteous Muslims follow this and try to put an end to exploitation. Allah greatly rewards the one that frees a slave as mentioned in the Quraan. Islam is also very respectful of the rights of workers as Muslims are commanded to pay for work immediately. Jesus was consistently on the side of the poor as God created all of mankind in His image. God teaches love for your neighbor and those in need so Jesus taught people speak up for those who cannot speak for themselves and for their rights. Christians are expected to pray for others and God will immensely reward people who are generous to the poor and help others

Computer Science

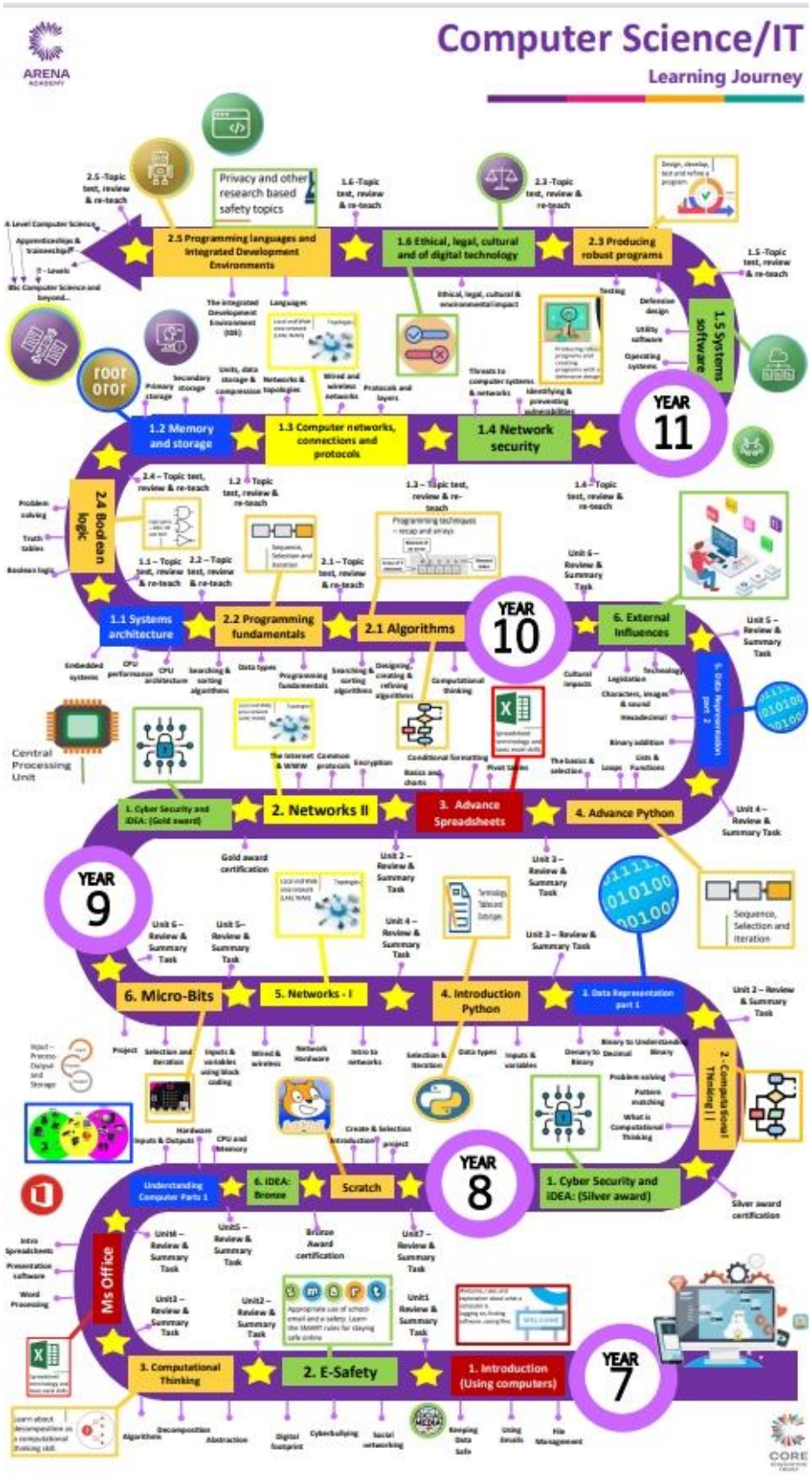
Topics covered from the beginning of the academy year to the end of this half-term.

SPR 1:

1. Advanced Spreadsheets

SPR 2:

2. Advanced Python

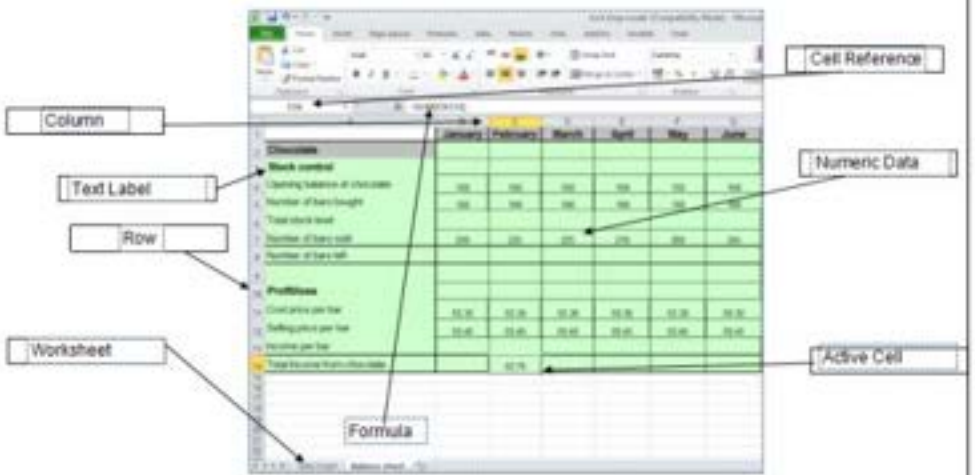

ARENA ACADEMY
Computer Science/IT
Learning Journey
Privacy and other research based safety topics
2.5 Programming languages and Integrated Development Environments
1.6 Ethical, legal, cultural and of digital technology
2.3 Producing robust programs
1.5 Systems software
YEAR 11
1.2 Memory and storage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

Y9 Knowledge Organiser - Spreadsheets

Spreadsheets are used to store information and data. Once we have our information in a spreadsheet we can run powerful calculations, make graphs and charts and analyse patterns.

Other uses for spreadsheets –

- Modelling and Planning
- Home/Business Finance and Budgeting
- Wages/Invoices
- Predictions / Simulations / Calculations
- Creating charts and graphs

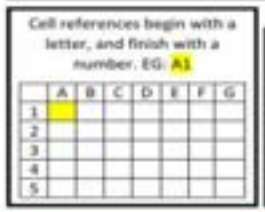


What is a Function?	A **function** is a standard routine used to perform common tasks. It represents a complex formula that uses reserved words e.g. VLOOKUP, IF. A **function** performs a specific set of operations on its input values to produce a single output value.
What is a Formula?	Using **formulas** in **spreadsheets** can allow you to quickly make **calculations** and get totals of multiple cells, rows, or columns in a **spreadsheet**.
Conditional Formatting	is a tool that allows you to apply **formats** to a cell or range of cells, and have that **formatting** change depending on the value of the cell or the value of a formula. For example, you can have a cell appear bold only when the value of the cell is greater than 100.

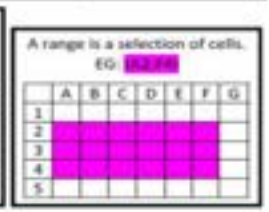
Common Formulas/Functions	
= SUM	Adds a range of cells together
= AVERAGE	Finds an average for a range of cells
= MIN	Returns the smallest value in range
= MAX	Returns the highest value in a range
= COUNT	Counts cells if they meet a condition

Golden rule: every formula always starts with an =

Cell references begin with a letter, and finish with a number. EG: A1



A range is a selection of cells. EG: B2:F4



Operators	
+	Adds two numbers / cells
-	Subtracts one cell or number from another
*	Multiplies two numbers/cells
/	Divides one number / cell from another one
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

IF	one of the logical **functions**, to return one value **if** a condition is true and another value **if** it's false. For example: =**IF**(A2>B2,"Over Budget","OK") =**IF**(A2=B2,B4-A4,"")
Count IF	=COUNTIF (Where do you want to look?, What do you want to look for?)
Auto SUM	**Excel automatically** enters a formula (that uses the **SUM**function) to **sum** the numbers
= COUNT	Counts cells if they meet a condition

Extra Reading

http://www.bbc.co.uk/education/guides/zdydmp3/revision

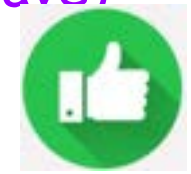
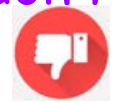
http://www.bbc.co.uk/schools/gcsebitesize/ict/modelling/0spreadsheetsrev1.shtml

Spanish

Unit 2a - ¿Cómo eres? (What are you like?)

Tengo (I have) 	el pelo (hair)	negro (black) rubio (blonde) ⚠ castaño (brown) ⚠ rizado (curly) liso (straight) 
	los ojos (eyes)	azules (blue)
No tengo (I don't have) 	el pelo (hair)	largo (long) corto (short) blanco (white) gris (grey) pelirrojo (ginger)
	los ojos (eyes)	verdes (green) marrones (brown) 

Unit 2b - ¿Puedes describirte? (Can you describe yourself?)

Soy (I am) 	calvo (bald) gordo (fat) atlético (athletic) alta (tall) delgada (thin) bonita (pretty)
No soy (I am 	feo (ugly) hermoso (beautiful)
Tengo (I have) 	pecas freckles) gafas (glasses)
No tengo (I don't have) 	bigote (moustache) barba (beard)

These words can be used with 'No soy'

These words can be used with 'No tengo"

Unit 2c - ¿Cómo es tu mejor amigo? (How is your best friend?)

Mi mejor amigo (Mi best friend) 	es (is) 	gordo (fat) atlético (athletic) alto (tall) delgado (thin) hermoso (beautiful)	 These words can be used with 'no es'
	no es (is not) 	feo (ugly) calvo (bald)	
Mi mejor amiga (My best friend) 	es (is) 	atlética (athletic) alto (tall) delgada (thin) bonita (pretty) hermosa (beautiful)	 These words can be used with 'es'
	no es (is not) 	fea (ugly) calva (bald)	

Unit 2d - ¿Puedes describir a tu mejor amigo? (Can you describe your best friend?)

Mi mejor amigo (My best friend)

Mi mejor amiga (My best friend)

tiene (has)

no tiene (doesn't have)

el pelo (hair)

negro (black)
rubio (blonde)
castaño (brown)
rizado (curly)
liso (straight)
pelirrojo (ginger)

pecas (freckles)
gafas (glasses)
bigote (moustache)
barba (beard)

los ojos (eyes)

verdes (green)
marrones (brown)
azules (blue)

pero (but)

y (and)

tiene (has)

no tiene (doesn't have)

el pelo (hair)

negro (black)
rubio (blonde)
castaño (brown)
rizado (curly)
liso (straight)
pelirrojo (ginger)

pecas (freckles)
gafas (glasses)
bigote (moustache)
barba (beard)

los ojos (eyes)

verdes (green)
marrones (brown)
azules (blue)

Unit 2e - ¿Tienes una mascota? (Do you have a pet?)

Tengo (I have) 	un perro (a dog) un gato (a cat) un conejo (a rabbit) un caballo (a horse) un pez (a fish) un pájaro (a bird) un ratón (a mouse)		blanco (white) pelirrojo (ginger) verde (green) marrón (brown) naranja (orange) amarillo (yellow) gris (grey) azul (blue)
No tengo (I don't have) 	una serpiente (a snake) una tortuga (a tortoise) una rata (a rat) una araña (a spider) una iguana (a iguana)		blanca (white) roja (red) negra (black) gris (grey) verde (green)

Unit 3a -¿Quién hay en tu familia?

(Who is in your family?)

https://quizlet.com/gb/604264437/year-7-unit-3a-quien-hay-en-tu-familia-flash-cards/

En mi familia
(In my family)

hay
(There is/are)

tres/cinco/siete personas (three/five/seven people)

mi madre (my mother)
mi padre (my father)
mi madrastra (my stepmother)
mi padrastro (my stepfather)
mi hermanastra (stepsister)
mi hermanastro (my stepbrother)
mi sobrina (my niece)
mi sobrino (my nephew)
mi tia (my aunt)
mi tio (my uncle)
mi primo/a (my cousin)
mi abuela (my grandmother)
mi abuelo (my grandfather)

que se llama
(who is called…)

mis padres (my parents)
mis abuelos (my grandparents)
mis hermanos (my brothers)
mis hermanas (my sisters)
mis hermanos gemelos (my twin brothers)

que se llaman…y…
(who are called…and…)

y yo (and me)

Soy
(I am)

hija única (an only daughter)
hijo único (an only son)

Unit 3b - ¿Que hay en la foto?

(What is there in the photo?)

https://quizlet.com/gb/604264761/year-7-unit-3b-que-hay-en-la-foto-flash-cards/

En la foto

(In the photo)

hay

(there is)

no hay

(there is not)

puedo ver

(I can see)

no puedo ver

(I cannot see)

un hermano y una hermana (a brother and a sister)
un abuelo y una tía (a grandad and a aunt)

un teatro (a theater)
un restaurante (a restaurant)
un laboratorio de ciencias (a science laboratory)

moderno (modern)
bonito (pretty)
nuevo (new)
muy grade (very big)

un aula (a classroom this is a feminine word but uses 'un')
dos/tres/cuatro aulas (two/three/four classrooms)
una sala de ordenadores (a computer room)
una piscina (a swimming pool)

moderna (modern)
bonita (pretty)
nueva (new)
muy grade (very big)

unas tijeras azules (some blue scissors)
tres cuadernos (three notebooks)
una regla negra (a black ruler)
unos lápices de colores (some colored pencils)

Unit 3c - ¿De dónde eres?

(What nationality are you?)

https://quizlet.com/gb/604265056/year-7-unit-3c-de-donde-eres-flash-cards/

Soy (I am) Mi madre es (My mum is) Mi padre es (My dad is)	irlandés (Irish) griego (Greek) alemán (German) inglés (English) latinoamericano (Latin-American) británico (British) europeo (European) escocés (Scottish) español (Spanish) francés (French) gáles (Welsh) norteamericano (North American)		irlandésa (Irish) griega (Greek) alemána (German) inglésa (English) latinoamericana (Latin-American) británica (British) europea (European) escocésa (Scottish) español a (Spanish) francésa (French) gálesa (Welsh) norteamericana (North American)		Vengo de (I come from) El/Ella viene de (He/she comes)	Irlanda (Ireland) Grecia (Greece) Alemania (Germany) Inglaterra (England) Europa (Europe) Gran Bretaña (Great Britain) Los Estados Unidos (The United States) Escocia (Scotland) España (Spain) Francia (France) Gales (Wales) Chile (Chile)

Unit 3d - ¿Puedes describir un miembro de tu familia?

(Can you describe a member of your family?)

https://quizlet.com/gb/604265251/year-7-unit-3d-puedes-describir-un-miembro-de-tu-familia-flash-cards/

Mi madre (my mother) Mi padre (my father) Mi madrastra (my stepmother) Mi padrastro (my stepfather) Mi hermanastra (stepsister) Mi hermanastro (my stepbrother) Mi sobrina (my niece) Mi sobrino (my nephew) Mi tia (my aunt) Mi tio (my uncle) Mi primo/a (my cousin) Mi abuela (my grandmother) Mi abuelo (my grandfather)	se llama … y (is called … and)	es baja (is short) es alto (is tall) tiene el pelo gris (has grey hair) tiene los ojos azules (has blue eyes) es bonita (is pretty) es atlético (is athletic) tiene una barba (has a beard) tiene el pelo rizado (has curly hair) es feo y calvo (is ugly and bald) no es alta y tiene gafas (is not tall and she has glasses) no es bajo y tiene un bigote (is not short and he has a moustache)

Unit 3e - ¿Cómo es tu familia?

(What is your family like?)

https://quizlet.com/gb/604265560/year-7-unit-3e-como-es-tu-familia-flash-cards/

Pienso que (I think that) Encuentro que (I find that)	mi madre (my mother) mi padre (my father) mi madrastra (my stepmother) mi padrastro (my stepfather) mi hermanastra (stepsister) mi hermanastro (my stepbrother) mi sobrina (my niece) mi sobrino (my nephew) mi tia (my aunt) mi tio (my uncle) mi primo/a (my cousin) mi abuela (my grandmother) mi abuelo (my grandfather)	es amable (is nice) es amistoso/a (is friendly) es educado/a (is educated) es antipático/a (unfriendly) es cariñoso/a (is caring) es comprensivo/a (is understanding) es egoísta (is selfish) es travieso/a (is naughty) es honrado/a (is honest) es maleducado/a (rude) es hablador/a (is talkative) es gracioso/a (is funny)

Unit 3f - ¿Te llevas bien con tu familia?

(Do you get along well with your family?)

https://quizlet.com/gb/651891223/year-7-unit-3f-te-llevas-bien-con-tu-familia-flash-cards/

Me llevo bien (I get along well) Me llevo muy bien (I get along very well) Me llevo mal (I get along badly) Me llevo muy mal (I get along very badly)	con (with)	mi madre (my mother) mi padre (my father) mi madrastra (my stepmother) mi padrastro (my stepfather) mi hermanastra (stepsister) mi hermanastro (my stepbrother) mi sobrina (my niece) mi sobrino (my nephew) mi tia (my aunt) mi tio (my uncle) mi primo/a (my cousin) mi abuela (my grandmother) mi abuelo (my grandfather)	porque (because he/she)	es amable (is nice) es amistoso/a (is friendly) es educado/a (is educated) es antipático/a (unfriendly) es cariñoso/a (is caring) es comprensivo/a (is understanding) es egoísta (is selfish) es travieso/a (is naughty) es honrado/a (is honest) es maleducado/a (rude) es hablador/a (is talkative) es gracioso/a (is funny)

French

Quizlet Year 9, Unit 15a - Que fais-tu normalement le weekend?

(What do you normally do at the weekend?)

https://quizlet.com/gb/607686798/year-9-unit-15a-deja-vu-que-fais-tu-normalement-le-weekend-flash-cards/

Normalement (Normally) Quelquefois (Sometimes) Le weekend (At the weekend)	je joue (I play)	au basket (basketball) au volley (volleyball) aux échecs (chess)	mais le weekend prochain je vais (but next weekend I am going)	faire du patin à glace (to do ice skating) faire de la planche à voile (to do windsurfing) faire une promenade (to go for a walk) faire du skate (to do skateboarding) faire du ski (to do skiing)
	je fais (I do)	de l'escalade (rock climbing) de l'équitation (horse riding) de la natation (swimming)		aller à la pêche avec mon père (go fishing with my dad)
				jouer au basket (to play basketball) jouer au volley (to play volleyball) jouer aux échecs (to play chess)

'faire' can be translated as 'to do' or 'to make' but sometimes it makes more sense when translating into English to translate it as 'to go'

Quizlet Year 9, Unit 15b - Quels sont tes projets pour le weekend?

(What are your plans for the weekend?)

https://quizlet.com/gb/607687344/year-9-unit-15b-quels-sont-tes-projets-pour-le-weekend-flash-cards/

Ce weekend, je vais (This weekend, I am going to)	aller (go)	au concert en plein air (to an outdoor concert) au parc d'attractions (to a theme park) à la fête de mon meilleur ami (to my best friend's party) à la foire (to the fun-fair) chez ma grand-mère (to my grandma's house)
	voir (see)	la séance du film (to the showing of a film) le spectacle de ma chanteuse préférée (my favourite singer's show)
	faire (do/have)	la grasse matinée (a lie-in) des achats en ligne (some online shopping)
	courir (run)	dans la course (in the race)
	chanter (to sing)	dans la chorale (in a choir)
	participer (participate)	dans le tournoi de tennis (in a tennis tournament)

à treize heures (at one o'clock)
à quatorze heures (at two o'clock)
à quinze heures (at three o'clock)
à seize heures (at four o'clock)
à dix-sept heures (at five o'clock)
à dix-huit heures (at six o'clock)
à dix-neuf heures (at seven o'clock)
à vingt heures (at eight o'clock)
à vingt-et-un heures (at nine o'clock)
à vingt-deux heures (at ten o'clock)

'faire' can be translated as 'to do', 'to make' or 'to have' but sometimes it makes more sense when translating into English to translate it as 'to go'

Quizlet Year 9, Unit 15c - Est-ce que tu reçois de l'argent de poche?

(Do you get pocket money?)

https://quizlet.com/gb/607687543/year-9-unit-15c-est-ce-que-tu-recois-de-largent-de-poche-flash-cards/

Quand
(When)

Si
(If)

je mets la table
(I set the table)
je range ma chambre
(I tidy my bedroom)
je lave la voiture
(I wash the car)
j'aide avec les tâches ménagères
(I help with the house work)
j'aide avec le bricolage
(I help with the DIY)
je sors les poubelles
(I take out the bins)
je fais la vaisselle
(I do the washing up)
je fais le jardinage
(I do the gardening)
je tonds la pelouse
(I mow the lawn)
je garde ma petite soeur
(I look after my little sister)
je nettoie la cuisine
(I clean the kitchen)
je nettoie la salle de bains
(I clean the bathroom)

je reçois
(I get/receive)

mes parents me donnent
(my parents give me)

mes grand-parents me donnent
(my parents give me)

ma mère me donne
(my mum gives me)

je ne reçois rien
(I get nothing)

cinq livres
(five pounds)
dix livres
(ten pounds)
quinze livres
(fifteen pounds)
deux euros
(two euros)
dix euros
(ten euros)
trois euros
(three euros)

Quizlet Year 9, Unit 15d - Qu'est-ce que tu as fait le weekend dernier?

(What did you do last weekend?)

https://quizlet.com/gb/607687764/year-9-unit-15d-quest-ce-que-tu-as-fait-le-weekend-dernier-flash-cards/

Le weekend dernier
(Last weekend)

Samedi dernier
(Last Saturday)

Dimanche dernier
(Last Sunday)

Hier
(Yesterday)

Hier soir
(Yesterday evening)

je suis resté à la maison
(I stayed at home)
je suis resté chez moi
(I stayed at home)
je suis allé au cinéma
(I went to the cinema)
je suis allé à un concert
(I went to a concert)
je suis allé en ville
(I went to town)

et (and)

regular 'er' verbs = é

j'ai regardé la télé réalité
(I watched reality TV)
j'ai regardé mon feuilleton favori
(I watched my favourite soap)
j'ai rencontré mes amis chez McDo
(I met my friends at McDonalds)
j'ai fêté mon anniversaire et j'ai dansé beaucoup
(I celebrated my birthday and I danced lots)
j'ai chanté très fort
(I sang very loudly)
j'ai joué un match de foot et j'ai marqué un but
(I played a football match and I scored a goal)
j'ai joué un match de rugby et j'ai marqué un essai
(I played a rugby match and I scored a try)
j'ai acheté un nouveau portable
(I bought a new mobile phone)
j'ai participé dans un tournoi et j'ai gagné
(I participated in a tournament and I won)

regular 'ir' verbs = i

j'ai fini mes devoirs
(I finished my homework)

Irregular verbs

j'ai fait le ménage et j'ai reçu dix euros
(I did the housework and I received ten euros)
j'ai vu un film policier
(I saw a detective film)

Quizlet Year 9, Unit 15f - Tu aimes faire du shopping?

(Do you like shopping?)

https://quizlet.com/gb/607688159/year-9-unit-15f-tu-aimes-faire-du-shopping-flash-cards/

Oui, j'aime faire du shopping!
(Yes I like shopping)

Ce weekend je vais acheter
(This weekend I am going to buy)

un nouveau portable dans les soldes
(a new mobile in the sales)
des baskets de marque pour mes vacances
(some branded trainers for my holidays)
des lunettes de soleil pour les grandes vacances
(some sunglasses for the summer holidays)
un cadeau pour l'anniversaire de ma mère
(a birthday present for my mum)
une nouvelle ceinture comme cadeau de noël pour mon père
(a new belt as a Christmas present for my dad)
des vêtements à la mode pour ma fête d'anniversaire
(some fashionable clothes for my birthday party)
des billets de cinéma pour le nouveau film de Gérard Depardieu
(some cinema tickets for the new Gerard Depardieu film)
des billets pour la fête de la musique à Paris
(some tickets for the festival of music in Paris)
le dernier album de mon chanteur favori
(the latest album of my favourite singer)
une belle robe pour le mariage de ma soeur
(a beautiful dress for my sister's wedding)
du logiciel pour mon ordinateur portable
(some software for my laptop)
une veste élégante pour mon entretien
(a stylish jacket for my interview)

Quizlet Year 9, Unit 15g - Qu'est-ce que tu aimes manger et boire normalement?

(What do you normally eat and drink?)

https://quizlet.com/gb/607688393/year-9-unit-15g-quest-ce-que-tu-aimes-manger-et-boire-normalement-flash-cards/

Pour le petit déjeuner (For breakfast) Pour le déjeuner (For lunch) Pour le dîner (For dinner) Comme casse-croûte (As a snack) Normalement) (Normally)	je mange (I eat)	des céréales avec du lait (cereal with milk) une tartine avec de la confiture (a slice of bread with jam) un sandwich au fromage et une pomme (a cheese sandwich and an apple) du poisson avec des légumes (fish with vegetables) un sandwich au thon avec des crudités (a tuna sandwich with raw vegetables) du boeuf avec du riz (beef with rice) un steak haché avec des pommes de terre (a beef burger with potatoes) du poulet avec des champignons et des haricots verts (chicken with mushrooms and green beans) du chocolat (chocolate) un morceau de gâteaux (a slice of cake)	car (because) même si (even if)	j'aime le goût (I like the taste) c'est bon pour la santé (it's good for your health) c'est sucré (it's sweet) c'est délicieux (it's delicious) c'est équilibré (it's balanced) c'est sain (it's healthy) c'est épicé (it's spicy) c'est savoureux (it's tasty) c'est malsain (it's unhealthy) ce n'est pas gras (it's not fatty) ce n'est pas amer (it's not bitter) ça contient beaucoup de sucre (it contains lots of sugar)
	je bois (I drink)	une tasse de thé avec du lait (a cup of tea with milk) du vin rouge (red wine)		

Quizlet Year 9, Unit 15h - Décris-moi ta dernière visite au restaurant

(Describe to me your last visit to a restaurant)

https://quizlet.com/gb/607688559/year-9-unit-15h-decris-moi-ta-derniere-visite-au-restaurant-flash-cards/

Je suis allé(e) au restaurant et
(I went to a restaurant and)

J'ai mangé dans un restaurant et
(I ate in a restaurant and)

il n'y avait plus de truites ou de saumon au menu.
(there was no trout or salmon on the menu.)
il n'y avait pas d'assiette végétarienne.
(there was no vegetarian dish.)
il n'y avait pas grand choix de desserts.
(there was not a big choice of desserts.)
la carte de boissons était variée.
(the drinks menu was varied.)
le serveur/la serveuse s'était trompé(e) en prenant la commande.
(the waiter/waitress got the order wrong.)
le patron était chaleureuse.
(the owner was friendly.)
la cuisine était bien préparée avec des produits locaux.
(the food was well prepared with local produce.)
mon plat n'avait aucun goût.
(my meal had no flavour.)
le prix était trop cher.
(the price was too expensive.)
le prix était raisonnable.
(the price was reasonable.)
le service était rapide.
(the service was fast.)
le service était trop lent.
(the service was too slow.)

quel désastre!
(what a disaster!)

quel dommage!
(what a pity!)

c'était affreux
(it was awful)

c'était incroyable
(it was incredible)

c'était sensass
(it was sensational)

Art

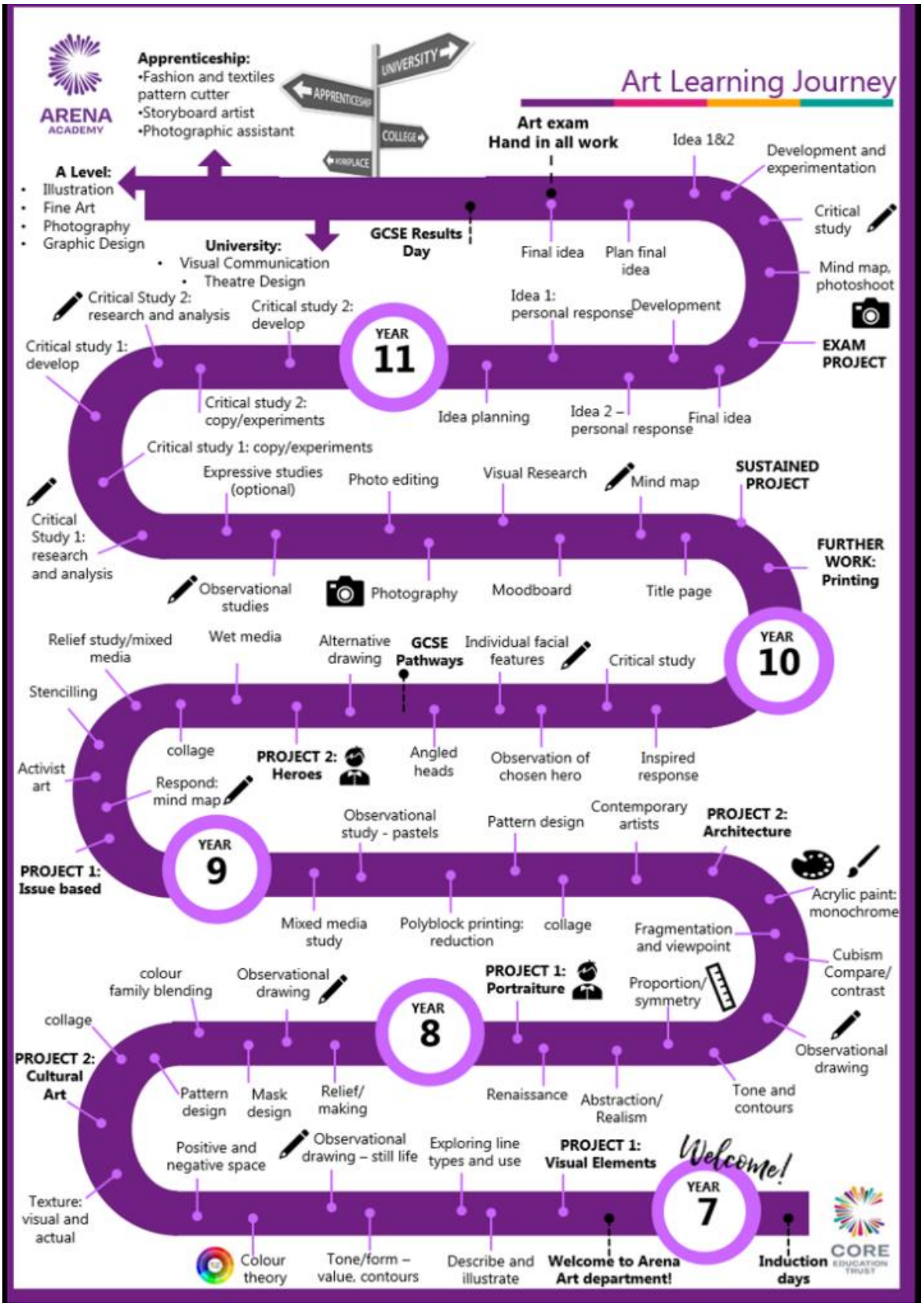
Topics covered from the beginning of the academy year to the end of this half-term.

AUT 1:

1. What is activist art?
2. What is issue based art?
3. Expressive watercolour
4. Pattern and detail (Tamara Phillips)
5. Collage techniques (Brian Hubble)

AUT 2:

4. Text and image
5. Stencil art (Banksy)
6. Relief art
7. Acrylic painting


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
Critical study
Mind map, photoshoot
EXAM PROJECT
A Level:
• Illustration
• Fine Art
• Photography
• Graphic Design
University:
• Visual Communication
• Theatre Design
GCSE Results Day
Final idea
Plan final idea
Idea 1: personal response
Development
Critical Study 2: research and analysis
Critical study 2: develop
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: Printing
Relief study/mixed media
Wet media
Alternative drawing
GCSE Pathways
Individual facial features
Critical study
YEAR 10
Stencilling
collage
PROJECT 2: Heroes
Angled heads
Observation of chosen hero
Inspired response
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

Performing Arts: Music

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

AUT 1:

Music

1. Film Music
2. Leitmotif
3. Soundtracks
4. Responding to a stimulus/brief

AUT 2:

Music

4. Compositional techniques
5. Sound effects/Mickey Mousing
6. 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
Rehearsal logs
Unit 3
GCSE results day
Presentational skills
Unit 1 and 2 retrieval and gap filling
YEAR 11
Responding to a brief
Unit 2
Intention
Tonality
Unit 2 mock
End of Year 10 Assessment
Responding to a brief
Create and refine original work
Feedback
Evaluation
Unit 1
Solo Performance
Stage Presence
Styles/Genres
Vocal projection
Learning Unit 1 Content
Practitioners
Performance Techniques
Target Audience
Ensemble
Rehearsal techniques
Song structure
YEAR 10
Responding to a stimulus/brief
Compositional Techniques
Planning using storyboards
Battle of the Bands
Careers in music
Independent Music Research Project
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
Introduction to logic (DAW)
YEAR 9
Film Music
Bassline
Chords
Song structure
Songwriting
DAW techniques
Musical Manipulation
Audience and stage presence
Rhythm and Pulse
Polyrhythms
Identifying musical features
Listening, appraisal and music analysis
Singing and ensemble vocal work
YEAR 8
World Music
Singing in unison and harmony
Ensemble skills
End of year 7 assessment
Reggae
Blues
Latin/Samba
Indian
Themes and Variations
Introduction and building bricks of music
Welcome!
Keyboard skills
Playing techniques
Melody/Harmony
Pitch
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

Performing Arts: Drama

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

AUT 1:

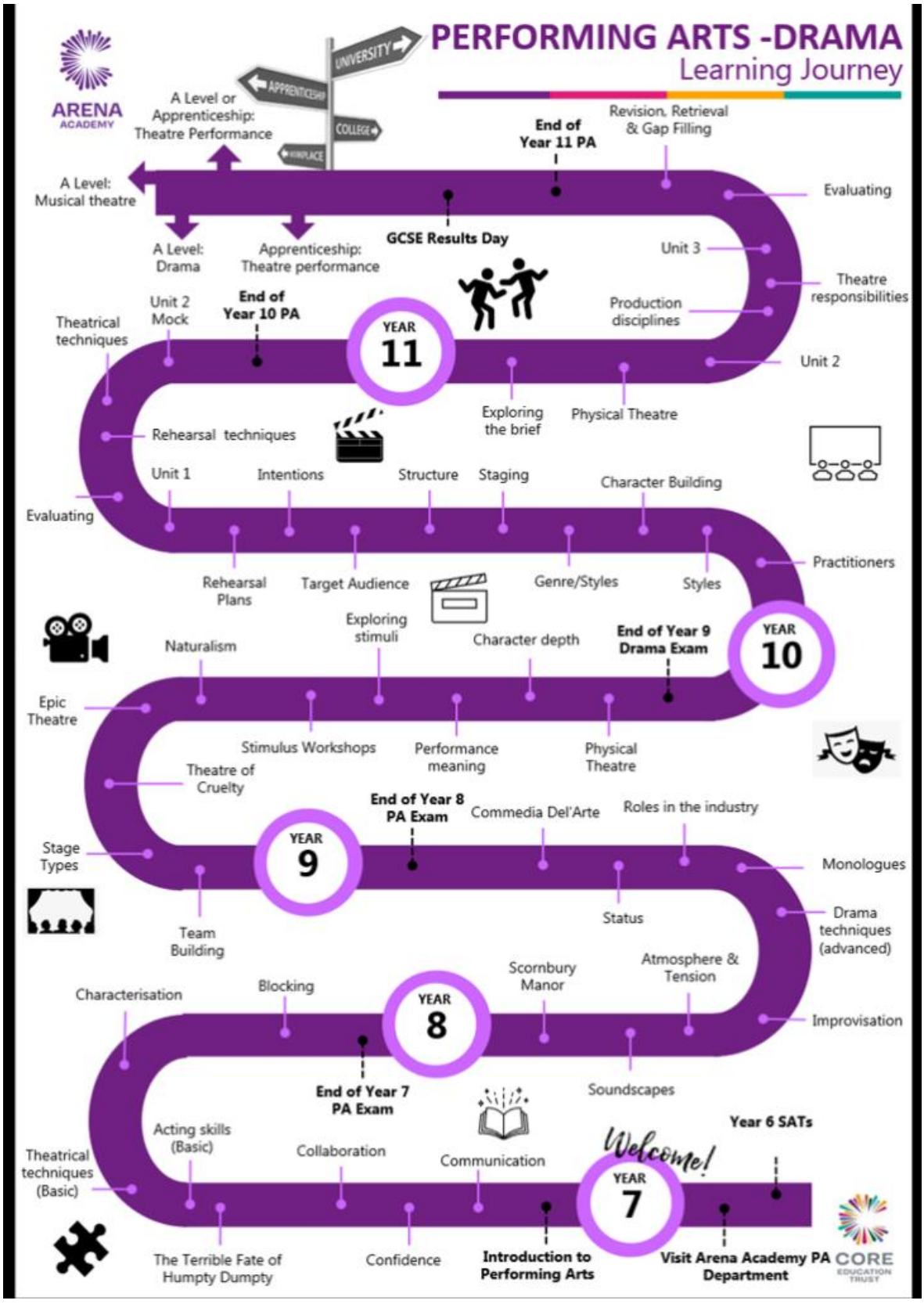
Drama

1. Team building
2. Staying in character (revisit)
3. Theatre types
4. Theatre of cruelty

AUT 2:

Drama

1. Epic theatre
2. Naturalism
3. Use of props and space
4. Stimulus workshops


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
Rehearsal Plans
Target Audience
Genre/Styles
Styles
Practitioners
Exploring stimuli
Character depth
End of Year 9 Drama Exam
YEAR 10
Naturalism
Epic Theatre
Stimulus Workshops
Performance meaning
Physical Theatre
Theatre of Cruelty
End of Year 8 PA Exam
Commedia Del'Arte
Roles in the industry
YEAR 9
Stage Types
Monologues
Status
Drama techniques (advanced)
Team Building
Scornbury Manor
Atmosphere & Tension
Characterisation
Blocking
YEAR 8
Improvisation
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

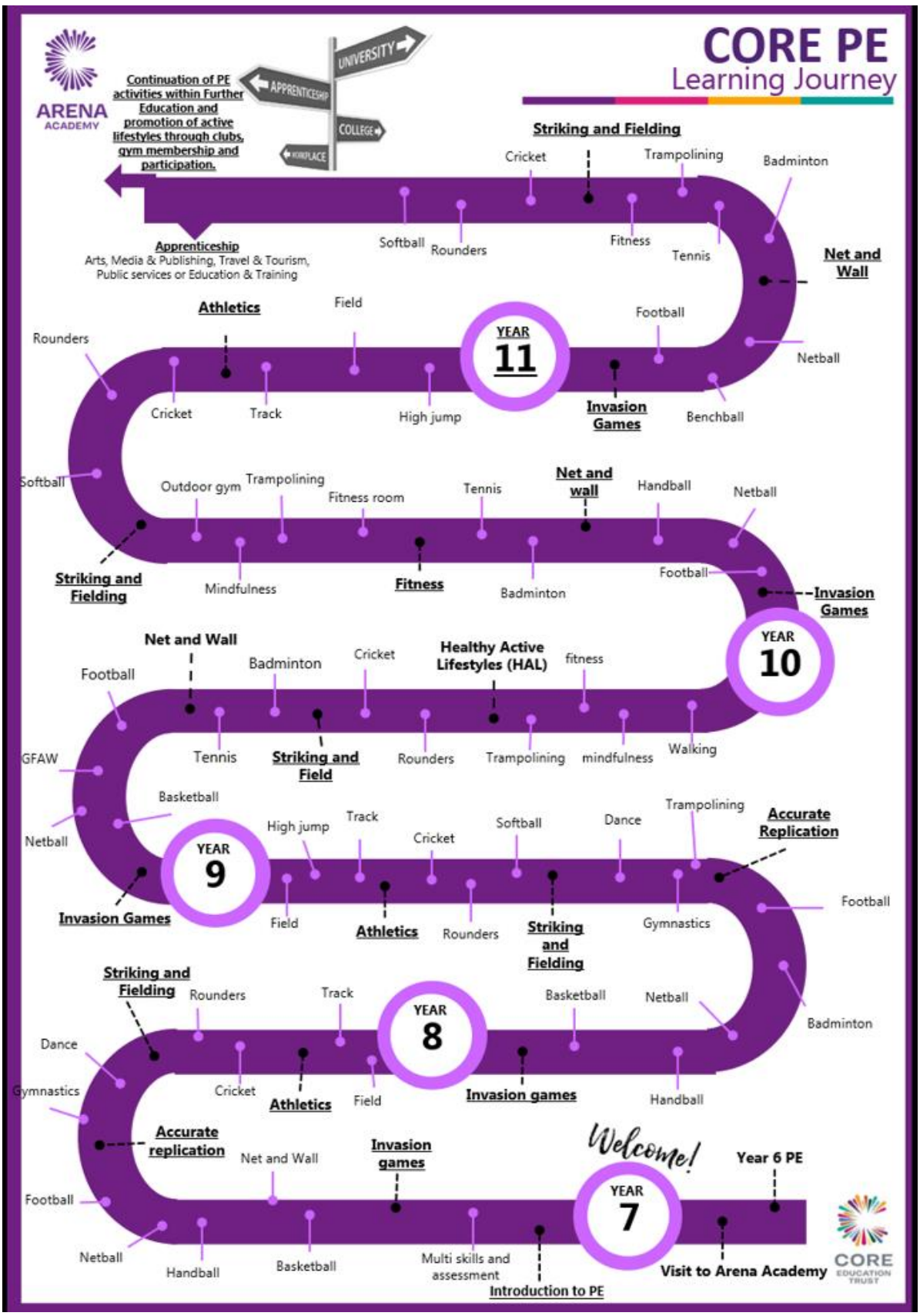
Topics covered from the beginning of the academy year to the end of this half-term.

SPR 1:

1. Invasion games
2. Basketball

SPR 2:

4. Net and Wall
5. Handball


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
Apprenticeship
Arts, Media & Publishing, Travel & Tourism, Public services or Education & Training
YEAR 11
Striking and Fielding
Cricket
Trampolining
Badminton
Softball
Rounders
Fitness
Tennis
Net and Wall
Athletics
Field
Football
Rounders
Netball
Cricket
Track
High jump
Invasion Games
Benchball
YEAR 10
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
Tennis
Striking and Field
Rounders
Trampolining
mindfulness
Walking
YEAR 9
GFAW
Basketball
Netball
High jump
Track
Cricket
Softball
Dance
Trampolining
Accurate Replication
Invasion Games
Field
Athletics
Rounders
Striking and Fielding
Gymnastics
Football
YEAR 8
Striking and Fielding
Rounders
Track
Basketball
Netball
Badminton
Dance
Gymnastics
Cricket
Athletics
Field
Invasion games
Handball
YEAR 7
Accurate replication
Net and Wall
Invasion games
Welcome!
Year 6 PE
Football
Netball
Handball
Basketball
Multi skills and assessment
Introduction to PE
Visit to Arena Academy
CORE EDUCATION TRUST

Physical Education Department – Knowledge organiser – FOOTBALL

Volley – The volley involves striking a ball that is still in the air. Focus eyes upon the ball. Arms out for balance. Keep eyes focused on the ball as you get into the line of flight. Head still. Non kicking foot on the floor and lead with the kicking leg forward.

Turning with the ball

Cruyff - Great skill for losing your opponent.
Named after the brilliant Dutchman Johan Cruyff.
Shape as if to pass or cross but then drag the ball behind your standing leg with the inside of foot. Turn your shoulders and your hips so that you are back in line with the ball and then race away.

Step over – Skill for sending an opponent in the opposite direction.
Lift your foot over the top of ball to use a 'step over' and this should immediately create you time and space. Then hook the ball away with the outside of the foot and race away.

Inside Hook - You need to keep your body between the ball and your opponent.
Reach round the outside of the ball with your foot so that you can change its direction. Bend your knees so that you can transfer your weight quickly and turn your hips to change your own direction. Then get a positive first touch on the ball that puts it into an area that is comfortable for you to move on to and accelerate away from your opponent .

Outside Hook – This tricks your opponent
Use the outside of the foot to hook the ball back in the direction that you are going to go.

Drag Back - The drag back is a great turn to use when you haven't got a lot of space to work.
Place one foot on top of the ball and staying in contact with it throughout, roll it back and move off in the opposite direction.

Team formation

4-4-2 (4 defenders, 4 midfielders and 2 strikers) a traditional team set up
5-4-1 (5 defenders, 4 midfielders and 1 striker) A more defensive set up.
3-5-1-1 (3 defenders, 5 midfielders, and 2 strikers one in front of each other). A more attacking set up.

Counter attacking – The team withdraws players into their own half but ensuring that one or two players are committed to the attack

Direct long ball football – Often used to deride 'boring' teams, the long-ball style of play is genuine route one football. Rather than spending time on the ball picking up the pass, exploiting small gaps in the opposition's defence or utilising the flanks, the long-ball is employed as an opportunistic method of attack.

Wide/Wing plays – The ball is played to the wings. By spreading the ball wide, you allow a different angle of attack and offer a number of opportunities for the winger; take on the fullback and drag central defenders out of position, cut inside and drive forward at an angle, or whip in a cross from deep for the strikers to attack.

Off side - An attacking player is flagged offside by the assistant referee if there is only one defending player between the player and the goal line at the time the ball is struck. The player should be in active play if the offside offense is to be called.

Throw in - A method of restarting play during the game, when the ball has exited the side of the field of play. Throw in is taken from where it went out. At the moment of delivering the ball, the thrower must face the field of play. The thrower must have part of each foot on the touchline or on the ground outside the touchline, and use both hands to deliver the ball from behind and over the head.

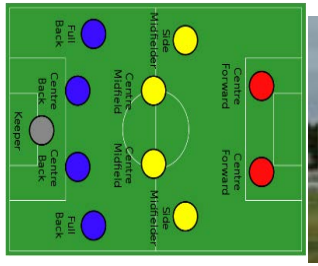
Cruyff Turn

Inside Hook

Step over

Free Kick

4-4-2 example



Throw in

PE: Badminton

Physical Education Department – Knowledge organiser – BADMINTON year 7, 8 and 9

Skills and Techniques

Forehand- A forehand shot is where the racket is away from the body, for example if you are right handed the racket will be towards the right side of your body.

Backhand- A backhand shot is where the racket is across the body and towards the opposite side to your strong hand. For example if you are right handed it will be across your body and hitting from the left side.

Serving- There are 4 types of serve: Low, High, Flick and Drive. The low is gently placed over the net to land at the front of the court. The high is opposite, a powerful serve which lands at the back of the court. The flick serve is similar to the high but lands more mid court. The drive serve is a flat, low and powerful serve which is aimed towards the back of the court.

Grip- The grip of the racket is very similar to a hand shake. To test you have the correct grip hold the racket head in your hand, then carefully slide your hand down the racket. Then, wrap your fingers around the handle. You will slightly change your grip when you play a backhand shot as your wrist will turn towards the net.

Footwork- Side stepping will be the majority of the footwork you do, it allows you to move around the court efficiently while still maintaining proper hitting form. Your legs should be square with your body and move side-to-side. Regardless of the direction you are moving, your head should always be facing the net.

Skills and Techniques

Drop shot – A drop shot is a front of court shot, similar to a net shot but from mid court. It travels a long distance but aims to drop to the floor as soon as it goes over the net. The shuttle needs to be hit with a high elbow at the highest point possible to ensure it reaches the opponents court side.

Smash shot – This is a powerful shot which most of the time will win you the point. It is a mid-court shot which moves in a downwards motion very powerfully so it is almost impossible for your opponent to return the shuttle. This is in a downwards motion and power is needed from your shoulder and arm.

Net shot – This is where the shuttle glides just over the net, almost in touching distance. This is a hard shot to return as it is very low to the floor when it goes over the net so the player must be quick to get low and return this. You must lean over the net ensuring you do not touch it and hit the shuttle gently in a downwards motion.

Clear shot – This is a long shot which aims to land in the back tram line of the court. This is helpful if your opposition tends to play close t the net as they will not have much time to get to the back of the court to return the shuttle. To ensure this is successful you must ensure your elbow is high and you make contact with the racket and shuttle at its highest point with a lot of power.

Singles court – short and wide

Doubles court – Long and narrow

Glossary

Shot Serve Net Rally Smash Drop Drive

Forehand Backhand Grip Footwork Underarm

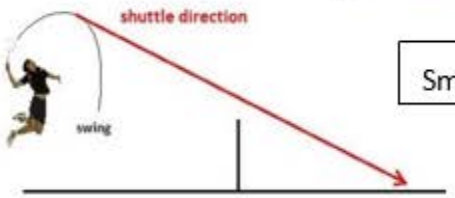
Shuttlecock Racket Overarm Tramline Flick

Singles doubles High Low Short Long

Pictures

Forehand

Backhand



Smash shot

Physical Education Department – Knowledge organiser - Gymnastics

Teacher Glossary

Word	Definition	How do I do this?
Balance	an even distribution of weight enabling someone or something to remain upright and steady.	Engage your core muscles. Focus on a spot and use your arms to steady yourself.
Jump	push oneself off a surface and into the air by using the muscles in one's legs and feet.	Bend your knees as you take off and land. Use your arms to get a higher jump. In gymnastics, finish nicely.
Turn	move in a circular direction wholly or partly round an axis or point.	Use your arms to get momentum in your body. Spot as you turn.
Roll	move in a particular direction by turning over and over on an axis.	There are different types of rolls. For a forward roll, you need to tuck your chin uner so it's touching your chest. You don't use your head to roll onto.

Key Skills – S.E.T

Social: Co-operation
Social: Communication
Social: Coming to decisions with a partner and team
Social: Respect
Emotional: Acceptance
Thinking: Interesting movement
Thinking: Observing and providing feedback
Thinking: Selecting and applying actions

Key Skills - Physical

Travelling
Balancing
Jumping
Rolling
Turning

Inspiring Athlete

Simone Biles

Links to the National Curriculum

- Develop flexibility, strength, technique, control and balance [for example, through athletics and gymnastics]
- Perform dances using a range of movement patterns
- Compare their performances with previous ones and demonstrate improvement to achieve their personal best.

Key Vocabulary for children

Forward roll
Backward roll
Straight roll
Barrel roll
Finish
Jump (quarter, half and full)
Turn (quarter, half and full)
Straddle roll
Balance

ARENA ACADEMY

Design Technology

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