



Trinity Academy Grammar

Year 9 (B)
Knowledge Organiser
Term 3

Your subjects are in alphabetical order.

1 – Key Vocabulary

stencil: a piece of card, plastic, metal, etc. into which shapes have been cut, used to draw or paint patterns onto a surface

design: a plan or sketch to show the look of an object

leather hard clay: partially dried clay

texture: the way something feels to the touch

mark marking: the different lines, dots, marks, patterns we use to texture in art

2 – Key Vocabulary

slab: a thick flat ‘pancake’ of clay made with your hands or a rolling pin.

Slabs are usually 1cm thick

kiln: special oven that gets super hot to turn the clay into biscuit

decorating slip: coloured pigments mixed with liquid clay used to decorate clay work

glaze: brushed on material that gives clay a shiny finish after being fired in the kiln

leather hard clay: partially dried clay

3 – Key vocabulary

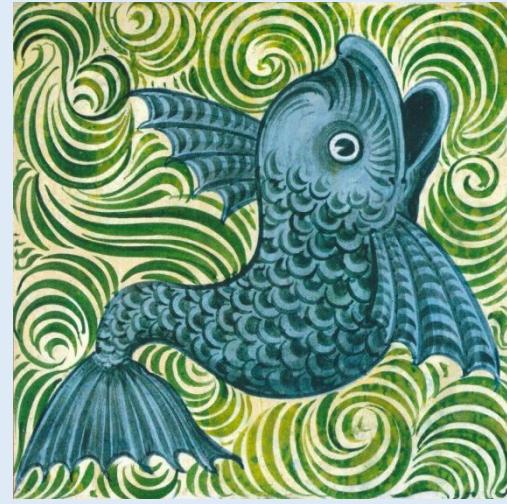
line: mark made by a brush, pen or other tool

sgraffito: clay decorating technique where you apply layers of colour on to leather hard clay and then scratch off parts of the layers to create contrasting images and patterns, revealing the clay colour underneath

pattern: a design in which lines, shapes or form are repeated

contrast: when opposite elements are arranged together (i.e. light and dark, big and small).

3 – Artist Focus – William de Morgan



- Lived from 1839 to 1937
- British tile designer
- Inspired by medieval and Islamic patterns
- Used illustration and intricate patterns on his tile designs
- His work is exhibited in several museums

Computing

Python Programming

Year 9

Term 3

1 – What is Programming?

Key Vocabulary

programming: is the process of designing and building a computer program to accomplish a specific task

print: displays a statement or variable on the shell window

input: allows the user to input information into the program

shell: the place where code is run

syntax: the rules of the programming language that need to be followed in order for it to work

debug: tells us where the error is and what type of error. This allows the programming to fix the error and run the code

algorithm: a set of instructions or code used to solve a problem

2 – Data Types

Key Vocabulary

data types: different types of data are stored in variables as different data types

string: a variable data type that can store a combination of letters, characters and numbers

integer: a variable data type that can store whole numbers e.g. 65

floats/real: a variable data type that can store decimal numbers e.g. 2.5

boolean: a variable data type that stores either TRUE or FALSE

variable: a name given to an item of data so that the data can be stored in memory while your python program is running

operators: special symbols that carry out arithmetic or logical tasks e.g. > ==

3 – Selection

Key Vocabulary

selection: these allow your python program to follow one path in the code if a certain condition is true, or to follow another path of the code if the condition is false

IF: checks if the condition is TRUE, if so the program runs the indented code below it

Elif: if the first IF is not TRUE, then this elif condition is checked, there can be multiple of these

Else: if all the IF and Elif statements are not TRUE, then the code indented below else will run

4 – Iteration

Key Vocabulary

iteration: is used to repeat a set of instructions or commands in a program. It saves having to write them all out over and over again

for loop: runs for a specific amount of times and stops when it reaches the desired number

Example:

```
for l in range (5):  
    movie = input ("what is one of your top 5 movies?")  
  
This would ask the question 5 times then end the loop
```

1 – Greek Tragedy

All Greek tragedies must end with the downfall of the tragic hero (the protagonist). The tragic hero must always have a tragic flaw, which brings about their downfall, ending the performance in a catastrophe

Key Vocabulary

Tragedy – A drama which depicts the downfall of a good person (protagonist) through some fatal error or misjudgement

Protagonist – the hero of the story

Antagonist – the villain of the story

Tragic Hero (protagonist) – must be at the center of the tragedy, they must be a high ranking character and accept their downfall with dignity

Tragic flaw - Error in judgement; weakness; brings about the hero's downfall

2 – Greek Chorus

- A typical Greek chorus consisted of a group of 12 to 50 players who spoke or sang their lines in unison, wore masks, and functioned as one actor rather than a large group of individual performers
- The purpose of the Greek chorus was to provide background and summary information to the audience to help them understand what was going on in the performance
- They commented on themes, expressed what the main characters couldn't say (like secrets, thoughts, and fears) and provided other characters with information and insights
- Because Amphitheaters theatres were so large, the members of the chorus had to work hard to look and sound like one person

3 – Characterisation Skills

Evaluate your performance:

Key Vocabulary

Non Verbal Communication (NVC) - the way we use our bodies to communicate our character to the audience

facial expression: the appearance, mood or feeling conveyed by a person's face

posture: the position a character holds themselves in when sitting or standing

gesture: a movement made by part of the body (e.g. arms, head) to convey a character's emotions

gait: a person's manner of walking

4 – Evaluation

- Describe how you have used a range of performance skills and techniques in your performance *I have used the skills of... I chose to use these skills because ...*
- Identify one strength of your performance and give a reason why *One strength of my performance was... because...*
- Identify one area for improvement in your performance and give a reason why *I would like to improve my use of... because... I will do this in my next performance by...*

1 – Methods

2 – Vocabulary

3 - Grammar (Sentence Types)

tragedy: a play that usually has a traumatic (sad) ending

soliloquy: a speech performed by a character on stage to the people in the audience. Other characters cannot hear this speech

dramatic Irony: when the audience knows something the characters do not

(an) aside: when a character says something on stage that the other characters can't hear, but the audience can

symbolism: when a bigger idea is being represented

hamartia: a fatal flaw (e.g. greed, ambition) that makes the character fail

hubris: having too much confidence

anagnorisis: when a character suddenly realises something about themselves or another character (e.g. where they realise a mistake or what someone is truly like)

duplicitous: being two faced

jealousy: when you want something someone else has

4 - Understanding a Script

5 - Shakespearean Context

6 – Tragedy Genre

dialogue: when two or more characters speak

stage directions: instructions that tell the actors what to do

acts and scenes: the sections of a play

Some of Shakespeare's plays were performed in the Jacobean Era when King James I was king

Most plays were paid for by The Crown King James I had a strong interest in The supernatural (witches, devils, Satan)

During this time, there was a heavy belief that women were weak, unintelligent and the possessions of men. This is referred to as a patriarchal society

universal themes: themes that can apply to anyone. Usually love, ambition, friendship, jealousy etc. They are popular because everyone can relate to them

During the Jacobean Era, dark skin was often associated with corruption whilst white skin was a sign of purity

1 – Food and Diet

le petit déjeuner	breakfast	je mange/bois
le déjeuner	lunch	I eat/drink
le dîner	dinner	je ne mange/bois pas de
le repas	meal	I don't eat/drink
la nourriture	food	

de l'eau	water	des bonbons	sweets
du fromage	cheese	des boissons gazeuses	fizzy drinks
du fruit	fruit	des céréales	cereal
du gâteau	cake	des frites	chips
du pain	bread	des légumes	vegetables
du poulet	chicken		
du riz	rice		
de la viande	meat		

2 – Sport and Lifestyle

Nouns	Verbs:	
l'alcool	boire	to drink
le sport	faire	to do
l'exercice	fumer	to smoke
le sommeil	rester	to stay
le tabagisme	smoking	to relax
la drogue	drugs	to sleep
la forme	shape	to take drugs
la santé	health	
l'alimentation	nutrition	
la peau	skin	
les poumons	lungs	

l'alcool	alcohol	bio	organic
le sport	sport	dégoûtant/e	disgusting
l'exercice	exercise	délicieux/euse	delicious
le sommeil	sleep	gras/se	fatty
		malsain/e	unhealthy
		sain/e	healthy
		salé/e	greasy
		savoureux/euse	tasty
		sucré/e	sweet

3 – Adjectives

Describing food and drink: Describing lifestyle:	
addicted	addictive
addictive	alcoholic
alcoholic	allergic
allergic	depressed
depressed	drunk
drunk	ill
ill	malade
malade	en bonne santé
en bonne santé	fit/healthy

Adjective endings match whether the noun that they are describing is **masculine**, **feminine**, **singular** or **plural**

e.g. **La viande est dégoûtante.**
Les bombons sont sucrés.

4 – Infinitive Structures

5 – Pour + Infinitive

To express a purpose in French we use the word **pour + infinitive verb**. Pour can mean 'for' or 'in order to'

In English we often ignore the 'in order' part. But if the sentence in English would make sense using 'in order to' you **must** use **pour** in French. e.g.

Il faut... you must/it is necessary to
Il est interdit de... it is forbidden to
Il est nécessaire de... it is necessary to

Il est impossible de... it is impossible to
Il est facile de... it is easy to

These are followed by an **infinitive verb**. e.g.
Il est facile d'éviter la drogue. = It is easy to avoid drugs.

Il est nécessaire de boire de l'eau. = It is necessary to drink water

6 – The Imperfect Tense

The imperfect tense is a **past tense** which is used:
- to **describe** what things were like in the past
- to say what **used to** happen or what you used to do regularly in the past

To form this tense we:
1. Take the 'nous' form of the **present tense** (e.g. nous allons, nous regardons)
2. Remove the 'ons' ending and add:

je	-ais
tu	-ais
il/elle/on	-ait
nous	-ions
vous	-iez
ils/elles	-aient

Il faut boire de l'eau pour rester hydraté
You must drink water (in order) to stay hydrated
Je joue au basket pour être sain
I play basketball (in order) to be healthy

Geography

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1 – Is China Powerful?

Key Vocabulary:

economic: related to money or jobs

superpower: a large country with a strong economy, strong military and great political and cultural influence

- The USA has a greater level of military power with China only being stronger in bombers, submarines and active personnel

In 2013, China overtook the USA as having a higher GDP (average salary per person), and its economy is predicted to grow at a rapid pace

Chinatown is located in 16 different countries

2 – Physical Environment - Asia

Key Vocabulary:

distribution: the location of features of the world

physical: related to nature

environment: the world, including animals and plants

- Asia's physical geography is as diverse as its human geography
 - The Monsoon season runs from June to September
 - This provides $\frac{3}{4}$ of India's total rainfall
 - Himalayan glaciers give water to 1.9 billion people
 - Lake Baikal, Southern Russia, is the deepest lake in the world, reaching a depth of 1,620 meters

3 – One Child Policy

Key Vocabulary:

policy: laws which people must follow

- The policy was introduced in 1979 to combat overpopulation
 - The policy has led to an ageing population, where there are lots of older people living in the country
 - The policy has meant women who raise children do it for a shorter period of time as they want to work
 - The policy led to more families wanting boys, as they had more opportunities, meaning there were lots more boys than girls in families

4 – Migration in China

Key Vocabulary:

migration: the movement of people from place to place

A push factor is something that encourages people to leave their home. These are negative

For example: little education in a rural area, farming is hard work, wooden buildings, lack of money

A pull factor is something that attracts people to an area. These are positive

For example, better employment, better healthcare in cities, better education in cities, better transport links.

5 – Urbanisation in Chongqing

Key Vocabulary:

industrialisation: the process of cities getting wealthier through industries (businesses)

urbanisation: the increasing number of people in a city

6 – COVID and China

Key Vocabulary:

globalisation: countries working together to share money, goods or other materials

The virus started in the city of Wuhan causing symptoms such as a fever and dry cough

Around Chongqing there are different industries, such as steel, cars, textiles, chemicals and computers

Everyday, around 1300 people move from rural areas to the urban areas. That is 500 million per year

Everyday, building work is finished that is the same as 23 football fields. Flats, offices, and factories built

Early-Modern History

The Holocaust

Year 9

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1 – The Holocaust	2 – The Origins of Anti-Semitism	3 – Pre-War Jewish Life
<p>Key Vocabulary</p> <p>Holocaust: The murder of 6 million Jews</p> <ul style="list-style-type: none"> The word 'Holocaust' comes from Ancient Greek: 'holos' means 'completely' and 'kaustos' means 'burnt' Many Jews prefer 'Shoah' – the Hebrew word for 'catastrophe' – to describe what happened to them The Holocaust was the genocide of 6 million Jews under Nazi rule Some historians believe the holocaust took place in the years 1933 – 1945. Other historians argue it began in 1941 The term 'holocaust refers to the Jewish experience of persecution under the Nazis 	<p>Key Vocabulary</p> <p>anti-Semitism: the fear or hatred of Jews</p> <ul style="list-style-type: none"> Anti-Semitism can be traced back to Romans. Jews were accused of killing Christ In the medieval period they were accused of poisoning wells, causing the Plague and murdering children The Nazis adapted longstanding unfair beliefs about Jews and intertwined them with race studies to spread the idea that Jews were a separate 'race' 	<p>Key Vocabulary</p> <p>community: a group of people living together</p> <ul style="list-style-type: none"> The largest community of Jews before the war lived in Eastern Europe There was a community of 3 million Jews living in Poland and 2.5 million Jews living in Russia In most countries, Jews had settled in well and were part of the country's community and culture. E.G. Jewish football teams played in the top divisions in Austria and Poland Less than 1% of Germany's population was Jewish and most had assimilated to German life
<p>4 – The Rise of Jewish Persecution</p>	<p>5 – Case Study: Kristallnacht</p>	<p>6 – Persecution of non-Jewish Groups</p>
<p>Key Vocabulary</p> <p>persecution: treating someone badly because of your beliefs about them</p> <ul style="list-style-type: none"> In 1933, Hitler became the Chancellor of Germany. Anti-Jewish laws are immediately enforced e.g. Their German citizenship is revoked In 1935, the Nuremberg Laws were passed which removed Jews' rights in Germany. E. G. Jews could no longer marry a non-Jew In 1938, 17,000 Polish Jews living in Germany were expelled – Poland wouldn't allow them in the country 	<p>Kristallnacht: 'the night of the broken glass'</p> <p>pogrom: violence by non-Jewish groups</p> <ul style="list-style-type: none"> Kristallnacht took place from 9th-10th November 1938 in Germany, Austria and the Sudetenland The night was a series of pogroms against Jews, secretly organised by the Nazis Jewish homes, shops and synagogues were smashed - some were set on fire Firefighters were banned from putting the fires out. 30,000 Jewish men were sent to concentration camps 	<p>Key Vocabulary</p> <p>minority: an ethnic or religious group that makes up a small percentage of the population</p> <ul style="list-style-type: none"> The Nazis did not only target Jews. They targeted many other ethnic and minority groups such as homosexuals, black people, Roma and Sinti gypsy, disabled people and political opponents These groups were persecuted in similar ways to the Jews. E.g. Black people faced forced sterilisation, disabled people were euthanised and Gypsy people were deported to death camps

Literacy B	Spelling Rules – Adverbs/Split Digraphs	Year 9	Term 3
Week 1 – Just add ly	Week 2 – Double Consonants	Week 3 – Adjectives that end	
If you want to turn an adjective in to an adverb and it ends in a consonant (not a vowel), just add ‘ ly ’ frequent > frequently	If you add ‘ ly ’ and accidentally create a split digraph, you must add another ‘ t ’ to protect your vowel’s short sound actual > actually	If your adverb ends in a ‘magic’ that changes the sound of another ‘ t ’ leave it alone and add ‘ ly ’ appropriate > appropriately	
high > high ly	general > generally	extreme > extremely	
important > important ly	careful > carefully		
particular > particular ly	gradual > gradually		
Week 4 – Adjectives that end in ‘e’	Week 5 – Split Digraph a/ay/a-e/ai e/i/e'/y	Week 6 – Split Digraph ‘igh’ e'/ie'/y	
If your adverb ends in a non-magic ‘e’ (it doesn’t change the other vowels), then remove it and add ‘ ly ’ gentle > gently	‘ a’/’ay’/’a-e’/’ai’ all make the same sound	‘ igh’/’i – e’/’ie’/’y’ all make the same sound	
simple > simply	lady: a woman	right: something could happen	
	say: speech said aloud	time: how we measure minutes	
	made: when you create something	seconds	
	wait: when something hasn’t happened yet	try: when you attempt to do something	

1 – Prime Numbers

2	17
3	19
5	23
7	29
11	31
13	37

2 – Directed Number

Key Vocabulary
ascending: ordering numbers from smallest to largest
descending: ordering numbers from largest to smallest
increase: getting bigger
decrease: getting smaller
Positive numbers are greater than zero
Examples: 1, 2, 3
Negative numbers are less than zero
Examples: -1,-2, -3

3 – Percentages

Key Vocabulary
percentage: A fraction out of 100 % is the symbol used to represent a percentage
increase: To make an amount bigger. The new amount will be greater than 100%
decreasing: To make an amount smaller. The new amount will be less than 100%
multiplier: A number used to calculate a percentage
e.g. Calculating 50×0.46 will find 46% 0.46 is the multiplier

4-Equations and Inequalities (recap)

formula: a mathematical rule expressed with symbols e.g. $f = ma$
The plural of formula is formulae
substitute: where we replace a letter with a number.
evaluate: to calculate the value of.
e.g. if $y = 7$ evaluate $5y$. Answer $5 \times 7 = 35$

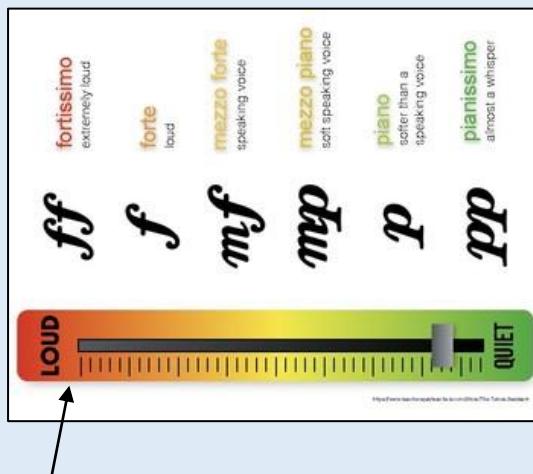
5 – Linear Graphs (recap)

y-intercept: Where a line crosses the y – axis
linear graph: produces a continuous straight line
non-linear graph: does not produce a continuous straight line
gradient: how steep a line is
parallel lines have the same gradient

6 – 9 Times Table

$1 \times 9 = 9$
$2 \times 9 = 18$
$3 \times 9 = 27$
$4 \times 9 = 36$
$5 \times 9 = 45$
$6 \times 9 = 54$
$7 \times 9 = 63$
$8 \times 9 = 72$
$9 \times 9 = 81$
$10 \times 9 = 90$
$11 \times 9 = 99$
$12 \times 9 = 108$

1 – The Elements



Dynamics: the term used for the volume

Rhythm: a group of different note lengths

Texture: the different layers of sound

Structure: how music is put together

Melody: the main tune

Instrumentation: the instruments used

Tempo: the speed

Harmony: several notes played together

2 – Structure

Genre: a style of music

Syncopation: a disturbance or interruption of the regular flow of rhythm

Chord: Two or more notes played at the same time

Off-Beat: playing notes or chords on 'and' beats of the bar, rather than on the numbered beats



Major chord: contains the 1st, 3rd, and 5th notes of the major scale

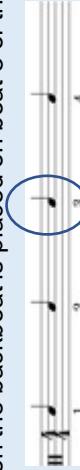
Minor chord: contains the 1st, flattened (lowered) 3rd, and 5th notes of the major scale that it's named for

3 – Cover Songs

Feel: The way the music sounds when the backbeat is moved around

Backbeat: The beat that is emphasised by the snare drum

Half Time: When the backbeat is placed on beat 3 of the bar



Double Time: When the backbeat is placed on beats 1, 2, 3 and 4 of the bar



Standard Time: When the backbeat is placed on beats 2 and 4 of the bar



4 – Changing the 'Feel' of music

1 – Safety and Warm up

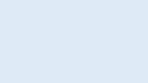
2 – Bounce

spotting- when you are not on the trampoline, you must ensure that you are tracking the performer on the trampoline at all times. If the performer is not central on the trampoline, put your arms out to support the performer if required

How to get on and off the trampoline:

- on – two hands on trampoline, put weight onto it, lift one leg up then the other
- off – sit on bum, legs off trampoline twist and bend knees on landing

- Make sure you always jump from two feet
- Use your arms to gain more height on your jump
- Bend from the knees to gain power
- Make a stretched shape in the air extending both the arms and the legs
- Keep toes pointed to make it more aesthetically pleasing
- Keep focus on one area of the wall to spot whilst jumping



3 – Basic Shapes

- tuck-** Straight back, knees into chest, toes pointed, arms above head
- straddle-** back straight, arms to toes, toes pointed, legs straight out to the side
- pike-** back straight, legs in front of body, legs together, toes pointed and legs straight

Aim to execute the shape at the highest point of the bounce

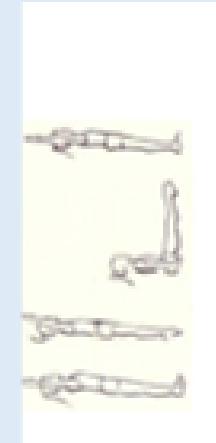


4 – Turns/Twists

5 – Basic Landings

6 – Routine/Performance

seat landing-



trampolining routines- to create an aesthetically pleasing trampolining routine you must include

- elements of all the different skills. Keep your body tight and make sure all moves are fluent from one to the next. Ensure arms and legs are straight and toes are always pointed

front landing-



back landing-



aesthetically pleasing – beautiful to watch routine by holding a shape

Twists should always be completed in the **same** direction.

Table Tennis

PE

Year 9 | Term 3

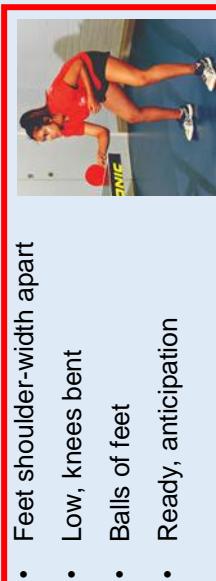
1 – Set up, grip, stance and rally

Key Vocabulary

reaction time: the length of time a person takes to respond

Having the wrong stance to lead to slower reaction times

stance: the position you stand in ready to rally



2 – Backhand

Key Vocabulary

Adding spin to the shot:

top spin: hitting back and upper part of the ball, causing it to move faster through the air

backspin: hitting the back and underneath of the ball, causing the ball to slow down and not reach your opponent as quick

sidespin: hitting around the side of the ball, causing deception and altered flight pathway

3 – Serve

Key Vocabulary

backhand serve:

- Stand with knees slightly bent
- Slightly side on to the table (to allow for backswing)
- As the ball drops strike the ball with the bat angled towards the table

forehand serve:

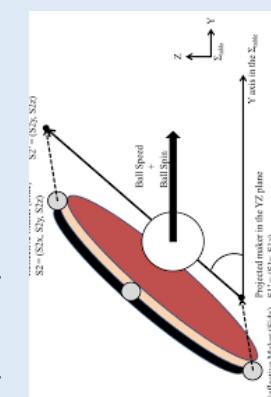
- Face sideways with shoulder pointing towards target
- As the ball drops strike the ball with the bat angled towards the table
- Finish with bat pointed towards opponent

4 – Forehand

Key Vocabulary

top spin: hitting back and upper part of the ball, causing it to move faster through the air

To generate topspin on a forehand shot: Skim the ball upwards, pocket to chin



5 – Tactics to Overcome an Opponent

Key Vocabulary

chop: playing a backspin shot into the middle of the table to prevent your opponent attacking, as the ball slows down

crossover: playing the ball into the point where your opponent has to decide to play either a backhand or forehand shot

amalgamating: combining different shots together within a rally to overcome an opponent

6 – Rules and Regulations

Key Vocabulary

let: when serving, if the ball hits the net and goes over, hitting the opponents side, the serve must be repeated

volley rule:
The ball cannot be hit before it has bounced, would result in a point lost

If the game is 10-10: win by 2 clear points i.e. 13-11

If the game is 20-20: next point wins

1 – Nature of God

omnipotent: all powerful
omnbenevolent: all loving
omniscient: all knowing
just: fair

transcendent: above and beyond human understanding
monotheistic: belief in only one God

- Christians is the belief in the Trinity - Father, Son and Holy Spirit
- God the father: creator of the world and judges all actions
- God the Son: saviour, teacher and role model
- God the Holy Spirit: comforter and guide

2 – Evil and Suffering

moral evil: caused by humans e.g. murder, robbery
natural evil: caused by nature/not something humans can control e.g. hurricanes, earthquakes, flooding

Christians believe that suffering happens for a number of reasons:

- A test of faith
- To create balance in life
- As punishment from God for wrong doing/sin

The Story of Job in the Bible tells of a man who faced a suffering but despite all that happened to him he refused to give up his faith in God

3 – Incarnation and Crucifixion

incarnation: God in human form (Jesus)
crucifixion: a Roman method of execution normally reserved for criminals
atonement: to make up for something

The incarnation shows that Jesus was fully God and fully human. It is an essential part of belief in the Trinity

Through the incarnation humans were able to start repairing their relationship with God

Jesus dies so that humanity's relationship with God can be restored

Jesus' death is seen as an act of atonement

6 – Creation

creation: to bring something into being
Genesis: the Greek word for origin. This is the first book in the Bible

The creation story takes place over 7 days with specific events happening on each day:

- Light and dark
- Sky and the sea
- Land and plants
- Sun, moon and stars
- Fish and birds
- Animals and humans (Adam and Eve)
- God rests

5 – Sin and Salvation

sin: an act of disobeying or rebellion against God
salvation: to be saved from sin
Original Sin: the original sin is the first sin that is committed in the Bible

Adam and Eve disobey God and eat fruit from the tree of knowledge. As a result of this they are thrown out of the Garden of Eden

Salvation can be achieved in one of two ways:

- God's grace: this is freely given through God's love for humanity and does not have to be earned
- good works: this is achieved through following God's laws (the 10 Commandments), believing in Jesus and following Jesus' teachings

4 – Life after Death

resurrection: coming back from the dead

ascension: when Jesus went up to heaven 40 days after his resurrection

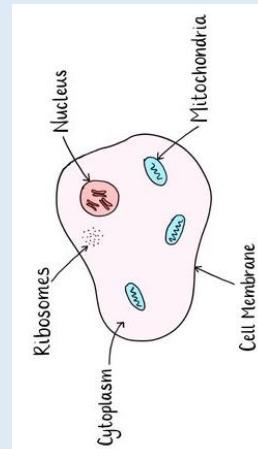
Judgement Day: when everyone will be judged based on their good and bad actions

heaven: heaven is described as eternity in the presence of God. Heaven is the ultimate aim for all Christians

hell: hell has traditionally been depicted as a place of eternal fire that symbolises pain and suffering. Hell is eternity in the absence of God

Humans are created last as this shows that they are special and are put on the earth to look after it

Biology 1 – Animal Cells (Eukaryotic)



eukaryotic cells: contains a nucleus and other membrane bound organelles (e.g. mitochondria)

prokaryotic cells: does not contain a nucleus or any other membrane bound organelles

This bacterium is a prokaryotic cell

nucleus: contains genetic material

mitochondria: site of aerobic respiration

cytoplasm: where chemical reactions happen

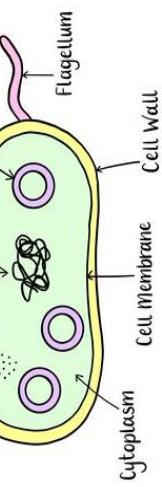
cell membrane: controls what enters and exits the cell

ribosomes: site of protein synthesis

Biology 3 – Eukaryotic and Prokaryotic Cells

	state	arrangement	movement
solid	regular	vibrate in a fixed position	
liquid	random	move randomly whilst still touching	
gas	random	move freely	

Chemistry – The Particle Model



Limitations of the Particle Model:

- no forces shown on diagram
- particles are not solid spheres
- different particles have different sizes

Physics - Mass and Density

	Light microscope	Electron microscope
low magnification	high magnification	
low resolution	High resolution	
can view living specimens	can only view dead specimens	
displays 2D images	displays 3D images	
displays colour images	displays black and white images	

Key Vocabulary

mass: the amount of matter in a given volume
volume: the quantity of three-dimensional space taken up by a substance

density: the mass per unit volume of a substance
density of regular objects: calculate the volume, volume = width x height x length, then find the mass using a mass balance

density of an irregular shape: find the volume using a Eureka can and the displacement of water and find the mass using a mass balance

image size = actual size x magnification size
total magnification = eye piece lens magnification x objective lens magnification

Eureka can and the displacement of water and find the mass using a mass balance

1 – Architecture and Design

Key Vocabulary

architecture: the art or practice of designing and constructing buildings.
Zaha Hadid designed the Al Wakrah Stadium for the 2022 Qatar World Cup.



contemporary: represents the present period of time (modern)

design brief: short statement given to the designer that outlines what the product should be like

design specification: a list of criteria that the product needs to address

research: detailed study of a subject

client: a person or organisation that wants a product manufactured

consumer: a person who uses a product and may also buy it

target market: the group of people a product is made for

2 – CAD 1

Key Vocabulary

computer aided design (CAD): the process of creating a 2D or 3D design using computer software

computer aided manufacture (CAM): the manufacture of a part or product from a computer aided design (CAD) using computer-controlled machinery

TinkerCad: a CAD software that allows the user to design in 3 dimensions on a computer

rendering: add colour or texture to a design in order to create life-like images

3D Printer: a machine allowing the creation of a physical object from a 3D digital model

3 – CAD 2

Key Vocabulary

computer aided design (CAD): the process of creating a 2D or 3D design using computer software

computer aided manufacture (CAM): the manufacture of a part or product from a computer aided design (CAD) using computer-controlled machinery

2D Design: a CAD software that allows the user to draw designs that can be printed out or laser cut (CAM)

copy and paste: to reproduce or replicate the same content elsewhere, eg. to copy a photo or a line of text

laser cutter: a computer-controlled machine that uses a focused, laser beam to cut and etch materials

4 – Engineering Drawings

Key Vocabulary

engineering drawing: a type of drawing that details the geometry, dimensions and features of a product or part

geometry: shape of an object

third angle orthographic drawing: drawing that shows an object drawn from the front, right-hand side and top

scale: amount by which a drawing is reduced or enlarged from the size of the actual object, shown as a ratio

dimensions: numerical values added to drawings to communicate size, usually shown in millimetres (mm)

annotations: notes or comments added to a sketch or diagram that provide explanation and give meaning

1 – Employability Skills

Key Vocabulary

employer: a person or organisation that employs someone (pays them to work)
employee: a person who is employed and is paid for their work

- Although every job is different, there are a number of skills that most employers look for when recruiting people to work for them
- Communication: it is important that you are able to explain what you mean in a clear and concise way through written and spoken means
 - Problem solving: this means you are able to break a problem down into smaller parts and come up with meaningful and successful ways to solve it
 - Organisation: this means being able to meet deadlines, and plan to meet targets
 - Team work: the ability to work well with other people

2 – Post-16 Options

Key Vocabulary

options: something that can be chosen
college: a place of education that often specialises in vocational courses
sixth form: a place of education that often specialises in A Levels
vocational course: a qualification linked to a specific skill or job

- A Level:** an academic qualification that is a level above GCSE
- It is a legal requirement in the UK to stay in education until you are 18. This means that you must plan to do something after you leave Year 11
 - You can go to a local college to study a vocational course, such as a BTEC
 - You can go to a local sixth form to study A Levels. There are A Levels available in many subjects, including those that you have studied at GCSE but also some new subjects.
 - You could also go into a form of employment, as long as it involved training

3 – University Finance

Key Vocabulary

university: the a place of education where you work towards a degree
finance: the management of money

- It does cost money to go to university. All universities charge **tuition fees** which covers your education each year. The average charge for this in the UK is £9,250 a year.
- If you live away from home during university, you will also need to pay for your rent, and living expenses (such as bills and food)
 - **The Student Loans Company** is a government organisation which lends money to students to support them going to university. It can cover all of your tuition fees and part of your living expenses. You have to repay back this money when you start earning over a certain amount of money

4 – Our Options Process

Key Vocabulary

career: a job undertaken for a long period of time

- Over the coming weeks, you will be learning about our different GCSE options and having to make some big decisions. Some hints / tips to help you make your decision include:
- Think about what you might want to do as a career – are there any subjects which will help you?
 - Don't pick what your friends are doing – make this decision for yourself
 - Pick the subject, not the teacher
 - The next couple of years are going to be tough and you need to enjoy what you are studying



Look

Look at the information carefully.

Read it three times.

It may help to say it as you read it.



Cover

Cover it with your hand or a piece of paper.



Write

Write it out, from memory.



Check

Check what you have written matches the information exactly.

Have you got it correct?

If so, tick your work to show it is correct.



Correct



Scan the QR code to access a short video on how to use your flashcards more effectively.



If you choose to make flashcards to help you revise, don't forget our top tips.

1. On one side of the card, write the question clearly
2. On the other side of the card, write the answer you want to remember
3. Only put one question on each flashcard
4. Test yourself regularly, until you can't get the answers wrong

If it doesn't match exactly, use your purple pen to correct it.
Repeat the steps above.
If you get 100% correct, move on to the next piece of information.