DYSON PERRINS CE ACADEMY

LIFE IN ALL ITS FULLNESS

Year 9

Knowledge Organiser

Learning Cycle 1

2024-25

Name: _____ Form: _____

This document should be stored in your Knowledge Organiser folder and taken to every lesson.

What is a Knowledge Organiser?	Why do I have to carry my Knowledge Organiser around with me?
A knowledge organiser is a document that sets out the key information you need to understand, learn and memorise in each of the topics you study in this learning cycle. You will be given 3 Knowledge Organisers over the academic year.	Your teachers may use your Knowledge Organisers in lessons. They are yours forever and you should annotate or highlight them if it helps you remember the information. They will be used in lessons when you have a cover teacher, during form time and as part of homework.
How should I use my Knowledge Organiser?	**What do I do with my Knowledge Organiser at the end of the cycle?**
You should use your Knowledge Organiser to learn this key information and commit it to memory. Your teachers will often quiz you on the information in the Knowledge Organiser and the content will be useful for your exams at the end of the year. The best way of using it is to use the **look, cover, write, check** method.	You need to keep your knowledge organisers your Knowledge Organiser folder and keep taking them to lessons. Your teachers may refer back to key learning earlier in the year and use them for revision. By the end of Year 9 you will have been given 9 Knowledge Organisers.

Why is a Knowledge Organiser important?

New GCSE specifications mean that students have to memorise more facts, equations, quotations and information than ever before and there are things you will learn right from the start of Year 7 that you will need to know in Year 11 when you sit your GCSE exams – the Knowledge Organiser helps you identify the things that you will need to try to commit to your long-term memory and return to over and over again during your time at secondary school. There are also things that we think it is important you learn about and remember that might not be in a GCSE exam but represent useful knowledge for life.

Knowledge Organisers – A User's Guide

Your Knowledge Organiser is a vital document. It contains all the key things from your lessons that you will need to work on committing to your long-term memory.

The best method to use when you are working on memorising things from your Knowledge Organiser is to self-quiz, or quiz with a partner, using the look, cover, write, check technique:

- **Look**. Read the piece of information carefully, two or three times.
- **Cover**. Now cover what you have just read up.
- **Write**. Now try to write down the piece of information you read.
- **Check.** Did you write the information down correctly? If not, correct with a different coloured pen and then repeat!

Table of Contents (Please click the subject title below, to view that section)

1. ART

What is cubism in simple terms?
The definition of **cubism** is a movement in art that began in France in 1907 that is characterized by the use of geometric planes and shapes. Works of Pablo Picasso that consist of interlocking shapes and geometric planes.

CUBISM
Straight lines – curved lines
Simple geometric shapes 2d – square, rectangle, triangle, circle, etc.
Add tone to create 3d geometric shapes cube, tetrahedron, sphere, cylinder etc.
Planes / surfaces exaggerated by adding tone
Limited colour palette

How to analyse
Name the artist the date and the work
Describe how the artist uses materials and techniques to communicate their ideas.
How does the artist use the formal elements in their work?
In what ways did social influences and cultural influences impact on the artwork?
What are your opinions of the artwork and how did they influence you to make your Cubist piece?

Tints and tones

Pencil - paint

Weeping Woman - Picasso

Form: a 3D object

Spheres and ellipses

Make a spider-gram to see what you know about the theme
Research the theme by looking on the internet and in books
Analyse the work - make a power point.

Cubism

YR9 Term 1 Cubism

Pablo Picasso - Carafe, Jug, and Fruit Bowl 1909

Juxtaposition
The nose/eye is seen and painted as is looking from different positions
Making several views in one painting

What is the cubist style?
Cubism was a truly revolutionary **style** of modern art developed by Pablo Picasso and Georges Braque. With the invention of the camera a new style of art could develop. It was the first **style** of abstract art which evolved at the beginning of the 20th century.

Why is it called Cubism?
It is **called Cubism** because the items represented in the artworks look like they are made out of cubes and other geometrical shapes. **Cubism** is a style of art which aims to show all of the possible viewpoints of a person or an object all at once. **Cubism** was first started by Pablo Picasso and Georges Braque.

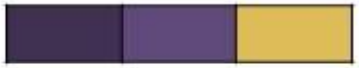
Why cubism was created?
Cubism is an artistic movement, **created** by Pablo Picasso and Georges Braque, which employs geometric shapes in depictions of human and other forms. Over time, the geometric touches grew so intense that they sometimes overtook the represented forms, **creating** a more pure level of visual abstraction.

KS3 Formal Elements

Hue: is the actual colour of something.

Tint: is when a colour is mixed with white to make a lighter colour.

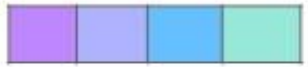
Shade: is when a colour is mixed with black to make a darker colour.



Saturation: is the intensity of a colour.

Analogous: is a group of three colours which set next to each other on the colour wheel. They share a common colour.

Harmonious: is a group of 4 or 5 colours which sit next to each other on the colour wheel.



Neutral: colours with no hue, also known as earth colours.

Activities:

1. Line: Divide a page into 8 sections. In each section, use a range of mark-making techniques to demonstrate the following: the grains of a tree, speckled rain, jagged edges, fish scales, grains of rice, fragments of glass, curly hair and a fade.

2. Shape: Fill a page with simple shapes. Explore with scale, overlapping and composition. Apply warm colours.

3. Texture: Find objects and surfaces with unusual texture. Place a sheet of paper over the top and create a series of rubbings using a range of material such as pencil, charcoal, pastel etc.

4. Tone: Create a tonal chart- gradually shading from light to dark to show a smooth transition of colour.

5. Form: Select an object - draw the outline and add a range of tone to make it look 3D. Use darker tones to emphasise the shadows and use a rubber to demonstrate the highlights (where the light is reflecting).

6. Space: You will need 3 complimentary colour (2 x orange and 1 x blue) pieces of A4 card. On the first sheet (blue), using one half, draw the outline of your image. Cut it out and stick it on the second sheet (orange). The remaining cut (blue) should be stuck on the other orange sheet. You now have a positive and negative space image.

7. Pattern: On a 10x10cm piece of tracing paper, create a design using simple shapes. Cut a piece of paper to 20cmx20cm. Now trace your pattern four times next to one another, reversing as you go. Now you have made your very own repetitive pattern. Add primary colours to the first and third sections and secondary to the second and fourth section.

When white is added to a colour to lighten the hue

When black is added to a colour to darken the hue

When both black and white is added to 'grey' or 'dull' the hue

Colour

Complementary
Colours that are opposite on the colour wheel. The colours create a strong contrast and reinforce each other

Colours evoke a certain feeling or emotion, some examples are:

Red	= anger, passion, power
Orange	= warmth, energetic, fun
Yellow	= cheerful, friendly, happy
Green	= natural, peaceful, safe
Blue	= cold, spirit, trustworthy
Purple	= wise, royal, mysterious
White	= pure, innocent, fresh
Grey	= calm, neutral, balanced
Black	= formal, prestigious, authority

Line: a mark or stroke

Space: the outline of something
+ve the inside of a shape
–ve the area surrounding a shape

Warm colours
Colours that have a warm 'visual temperature'. They may remind us of love, passion, heat, joy and power.

Cold/cool colours
Colours that have a cold 'visual temperature'. They may remind us of water or winter.

2. COMPUTING

Cycle 1

1-CCCS (computer crime and cyber security)
2-Data & Data Representation

Knowledge Organiser for Computer Crime in ICT

Computer crime or alternatively referred to as cyber crime, e-crime, electronic crime, or hi-tech crime. Computer crime is an act performed by a knowledgeable computer user, sometimes referred to as a hacker that illegally browses or steals a company's, or individual's, private information.

Threats to computer systems and networks

Forms of attack:

- Malware
- Social engineering, e.g. phishing, people as the 'weak point'
- Brute-force attacks
- Denial of service attacks
- Data interception and theft
- The concept of SQL injection

You need to be able to understand that computer crime has an impact on society from 6 perspectives:

1) Economical	4) Ethical
2) Political	5) Moral
3) Legal	6) Social

Three Laws to protect against computer crimes

1. Data Protection Act 2018
2. Computer Misuse Act 1990
3. Copyright, Design and Patents act 1988

Consequences of computer crime:
If a computer attack is successful it can have a serious affect on a business or individual.

Denial attack: Stops a user getting access to their own accounts online, such as online banking.

Identity theft: When a person's private information is stolen, such as taking out a loan under someone else's name online.

Data destruction: When a person accesses someone else's account and deletes/edits it. For example , changing newsfeeds in Twitter.

Reputation: a businesses or personal reputation can be destroyed as a result of computer crime.

Creating a good password:
A strong password is:

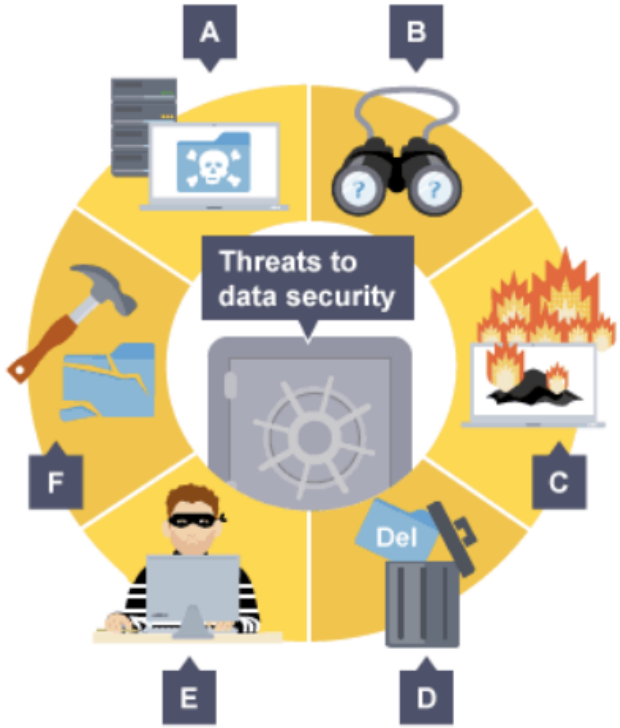
- at least eight characters long
- a mixture of numbers, uppercase and lowercase letters and other symbols, e.g. !@#£$
- not a real word
- impossible to guess

Anti-virus Software:
Used to detect a virus before it enters a computer system.

Firewall:
Makes a barrier between networks and watches what comes in and out of a network. Blocks anything suspicious.

Encryption:
Software that scrambles the saved information/data so that it can not be understood by a virus or hacker.

1 System security – YR9



Key

A	Corrupted	D	Deleted
B	Lost	E	Hacked
C	Destroyed	F	Damaged

- Identifying and preventing vulnerabilities:

- **Penetration testing** – simulates potential attacks to identify weaknesses
- **Network forensics** - investigate to find the cause of attacks
- **Network policies** – regular test for weaknesses, set passwords and access levels
- **Anti-malware software** - find and stop malware from damaging network and devices
- **Firewalls** - monitors and controls incoming and outgoing network traffic based on predetermined security rules
- **User access levels** – control which part of network different groups of uses have e.g staff drives and student drives at school
- **Passwords** – prevent unauthorized users accessing the network
- **Encryption** – data is translated in to code so only someone with correct key can access it.
  - Symmetric - same keys are used to encrypt (cipher text) and decrypt (plain text)
  - A-Symmetric – where the keys come in pairs, uses two keys to encrypt plain text

1 System security – YR9

- Attacks come in different forms

- **Passive Attack –** monitoring data travelling and intercepts sensitive data
- **Active attack –** attacks a system with malware or other such things – they are more easily detected
- **Insider attack –** someone in company exploits their network access to steal info
- **Brute force attack –** used to gain info by cracking passwords through trial and error. These use automated software to produce 100's of likely password combinations
- **DOS (denial of service attack**) where hacker tries to stop users from accessing part of a network or website. They flood the network with useless traffic making it slow or inaccessible for other users

- **Forms of attack**
  - Passive vs. Active
- **Threats posed to networks (how each is carried out // suitable examples):**
  - Malware
  - Phishing
  - Social engineering (people as the weak point in secure systems)
  - Brute force attacks
  - Denial of service attacks
  - Data interception and theft
  - The concept of SQL injection
  - Poor network policy.

Network security threats

Malware – Malicious software installed on someone's device without their knowledge or consent.

Typical actions of malware:

Delete/modify files
Scareware – tells user PC is infected with lots of viruses – to pay for problem to be fixed
Locking files – ransomware – pay to get files back
Spyware – secretly monitors actions and sends info to hacker
Rootkits - alter permissions given hackers admin level access to devices
Backdoor – holes in someone's security leaving them open to future attacks

Malware can access your device in different ways

Viruses – in attachments, or .exe files activated when opened
Worms – self replicating viruses - spread quickly
Trojans – malware disguised as legitimate software users install them not realizing they have hidden purpose

1

IM10: Intellectual Property

Purpose

Intellectual property is legislation designed stop your work from being copied and distributed without your permission and there are three types of intellectual property: Copyright, Trademarks and Patents.

Patents

A patent registers your invention and lets you take legal action against anyone who makes, uses, sells or imports your invention without your permission.

Trademarks

A trademark is sign or logo that identifies a brand or company as a unique entity. This is represented by the TM symbol. The R symbol protects words and phrases.

Copyright

Copyright is the legal right to protect the original work of the people whom it may belong to.

Copyright can protect….

- Books
- Music
- Art
- Images
- Sound
- Software

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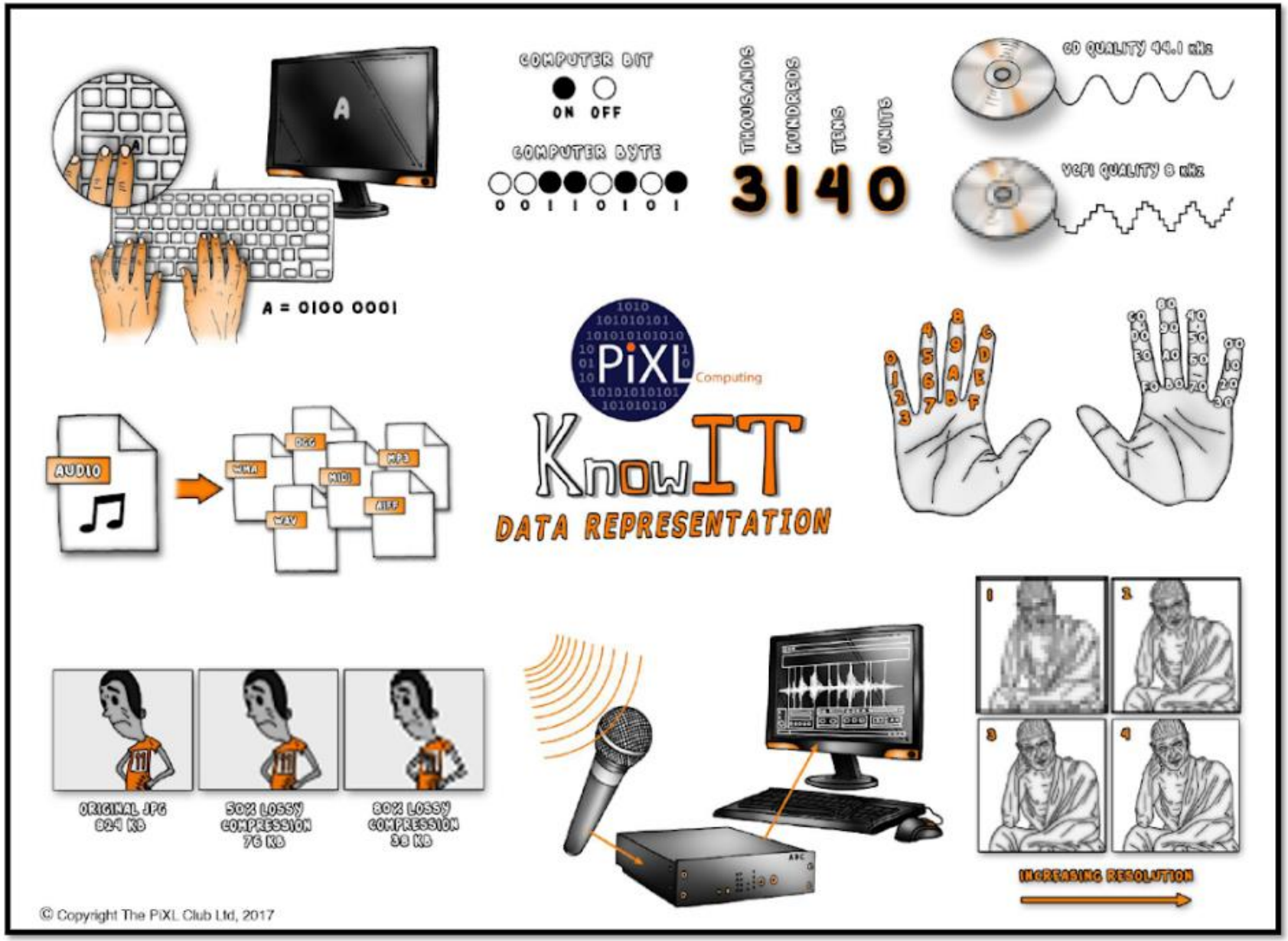
2


A
A = 0100 0001
COMPUTER BIT
ON OFF
COMPUTER BYTE
0 0 1 1 0 1 0 1
THOUSANDS
HUNDREDS
TENS
UNITS
3140
CD QUALITY 44.1 kHz
VCPI QUALITY 8 kHz
PiXL Computing
KnowIT
DATA REPRESENTATION
AUDIO
WMA
OGG
MP3
MIDI
AIFF
WAV
ORIGINAL JPG
824 KB
50% LOSSY
COMPRESSION
76 KB
80% LOSSY
COMPRESSION
38 KB
INCREASING RESOLUTION
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2

Units

- Analyse the difference between a bit and a byte
- Specify how many megabytes are contained within a gigabyte of data
- Examine some of the reasons as to why some organisations will eventually need more than a yottabyte of data storage
- **Specify the amount of storage required to store 1 hour of film compressed in the MPEG4 file format**

Numbers

- Examine how and why most computers use two's complement to represent signed numbers
- Outline each of the stages involved in converting a denary number to hexadecimal and vice versa
- Analyse how computers represent and manipulate numbers
- **Add the two following binary numbers together: 00001011 and 00010010**

Characters

- Distinguish the difference between ASCII and extended ASCII
- Examine how character codes are commonly stored in encoding tables
- Compare how ASCII and Unicode are similar to each other
- **State the range of bits which are used to store characters within the Unicode character set**

PiXL Computing

KnowIT

DATA REPRESENTATION

Images

- Specify how the resolution of an image can be calculated
- Illustrate the difference between an image which has a 2-bit colour depth and one which has an 8-bit colour depth
- Analyse some of the problems that can arise from using a high image resolution to create and manipulate images
- **State the number of pixels contained within a 1 inch grid that measures 72 pixels by 72 pixels in size**

Sound

- Examine some of the reasons why VoIP services often use a lower sampling rate than the rate used to digitalise audio
- Produce a graph to demonstrate how you would sample an analogue audio signal
- Specify how to calculate the size of an audio file
- **Explain how the number of channels available can affect the size of an audio file**

Compression

- Specify with an example of when lossy file compression would be appropriate to use on an image
- Examine with an analogy how lossless file compression works
- Outline how to calculate the compression ratio of an image which has been compressed
- **Specify the file compression technique a photographer should use if he is getting his users to upload and download images from his website to print**

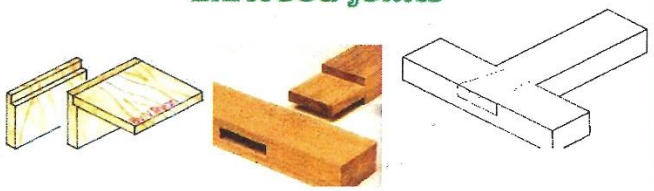
DESIGN & TECHNOLOGY

1: Joining Methods

Wood joints can be either permanent of temporary depending on the type and if glue is used.

Permanent:	Temporary:
When we do not want to take the pieces apart again	When we will, or might need to take pieces apart again
Glues, welding, rivets	Screws, bolts, nails

1.1Wood joints



Lap Joint | Mortise + Tennon Joint | Dovetail Joint

2. Scales of Production

One off: when you make a unique item

Batch: when you make a few/set amount

Mass: when you make thousands

Continuous: open ended production

3. Adhesives

P.V.A. – Poly Vinyl Acetate – best for joining 2 pieces of wood together

Epoxy – a *thermosetting* resin that can be used to bond most types of material

Contact Adhesive – a glue type that creates a tacky bond on both surfaces to be joined. It can be used with most materials.

4: Materials

4.1 Woods:

Hardwoods:	Softwoods:
Beech Oak Ash	**Scots Pine** Cedar Spruce

4.2 Engineered Boards

Engineered boards are manmade materials usually made by mixing wood chips and glues to make wooden sheets.

Examples:
Medium Density Fibreboard (MDF)
Chipboard, Plywood and **Hardboard**

4.3 Plastics

Plastics are made of polymers, and are mostly refined from oil. There are 2 main categories:

Thermoplastics	Thermosetting plastics
Acrylic	Urea Formaldehyde
Polypropylene (PP)	Melamine Formaldehyde
High Impact Polystyrene (HIPS)	Epoxy Resin

4.4 Metals

Metals are hard and usually shiny, containing one or more elements dug and refined from the ground

Ferrous metals are any metal that contains iron and will rust	Non-Ferrous metals do not contain iron and will not rust

Alloys are metals made from a mix of 2 metals – brass is made of copper and zinc.

***Composite** materials* are a mix of 2 different types of material to get the best qualities from each – eg: GRP (Glass Reinforced Plastic)

5: TOOLS

6: Surface Finishes

Finishing is usually one of the last stages of making a project. It will usually involve sanding and applying a surface coating to **protect** your material and **improve its visual appearance.**

Some examples:
Paint, Stain, Varnish, Oil, **Danish Oil**, Wax, Polish & Dip Coating.

7: KEY WORD FOCUS

You should be able to explain the meaning of each of these words by the end of this rotation.

CAD	Computer Aided Design
CAM	Computer Aided Manufacture
CNC	Computer Numerical Control

4. DRAMA

Drama

Year 9 Learning Cycle 1

Physical Theatre

What is Physical Theatre?

This is a type of performance that uses the body and movement as the main method of storytelling.

Body as a prop:

This is where an actor/actors use their bodies as a prop. A prop is an object that is used by the actor on stage. In this case, you replace the object with a person/persons.

For example, here an actor is sitting on another actor who is using his body as a chair.

Note: The mood of a physical theatre performance is primarily influenced by the PACE of movement (how fast or slow) and/or music choice.

Round, by, through:

A method of creating a physical theatre performance. You experiment with moving 'around' your partner, 'by' your partner and 'through' your partner.

YouTube: Frantic Assembly | Masterclass: Building Blocks for Devising | National Theatre

Chair Duets:

A method of creating a physical theatre performance. You sit next to a partner on a chair and you will take it in turns to complete 2-4 moves each. Each move must have contact with your partner. E.g. move 1 = hand on knee, move 2 = arm around shoulder. You then rehearse your originally improvised movements until they are a well-rehearsed routine.

YouTube: Frantic Assembly Chair Duets Step-by-Step Instructions

5. ENGLISH

Learning Cycle 1

Year 9 The Uncanny

Subject terminology	Definition
counterargument	Presenting the opposite point of view and then giving reasons why it is wrong
emotive word	Language that causes the reader to feel strong emotions
ending (speech)	Here you restate your main argument and why the reader/ audience should agree
hyperbole	Exaggerating the seriousness of something for emphasis
opening (speech)	Here you state your main argument in a clear and effective way
rule of three	Repeating similar words three times for emphasis
signpost	A word that guides the reader through a shift in thought, place, manner or time
Supernatural	A force beyond scientific understanding or the laws of nature
The Uncanny	Strange or mysterious, especially in an unsettling way

Key Ideas

The idea of ghosts has been **around for thousands of years** and is thought to pre-date modern humans. This is often evidenced by the ancestor worship of many ancient and pre-literate cultures – many of whom believed their **ancestors had the power to help them from beyond the grave.**

Many anthropologists believe that the early idea of ghosts was developed when it was determined that humans must have a 'spirit' in addition to a physical body. Ancient cultures believed this spirit form – that supposedly makes us human – is confined to our physical body during life, but could sometimes be made visible through our breath. This was often evidenced as being fact because of the way warm breath interacts with cold air. In fact, the word 'spirit comes from the Latin word 'spiritus' which meant 'breath' or 'blast.'

The word 'ghost', however, has a very different origin. It comes from the word 'ghoisdo-s' and means 'fury' or 'rage.' This is very telling of the ancient perceptions of ghosts. While '***ghost'*** is commonly used interchangeably with the word 'spirit', it **is much more likely to be used to describe a distressed or malevolent apparition.**

There are also cultures that believe the dead come back to walk among the living during a certain part of the year. They welcome the spirits of the dead, whom **they perceive to be benevolent**, and offer them many gifts in the hopes that they will be rewarded by the spirits of their ancestors.

Don't Be Afraid...

Well, Maybe a Little...

Just a few years ago a poll revealed that 45 percent of Americans believe in ghosts or that people's spirits can return in certain places and situations. And that number is probably much higher once you take into consideration the people who either weren't surveyed or didn't want to admit they believe. The reality is, many folks have had experiences they just can't explain or have witnessed mysterious, eerie sights, sounds and sensations that could only be a paranormal encounter. If you're one who would answer yes when asked if ghosts are real, what's your reason? Before you answer, take a look at what researchers have found as to why people believe in ghosts.

Many people not only believe there's life after death, they also believe that humans have led past lives. This is actually a common belief among many cultures and religions. This belief gives many people comfort when they lose a loved one or are faced with their own mortality. So for those who believe in the afterlife (and previous ones), it only makes sense that there are spirits lingering around.

In the same way people are drawn to scary movies and terrifying roller coasters, believing that there are spirits of the dead looming around is just plain thrilling. Ghost hunters will tell you that they not only believe in ghosts, but they also don't see them as evil spirits attempting to do harm. On the contrary, hunters believe ghosts are simply lost souls, searching for closure or are trapped and are trying to cross over to the afterlife.

Some people say that ghosts are just the product of a wild imagination. Ridiculous, what else could explain sudden cold spots, disembodied voices and footsteps, floating orbs appearing in photographs and the sensation that someone is touching your shoulder when no one is there?

If ghosts weren't real, it's unlikely that so many ghost hunters and paranormal experts would even exist, not to mention the many TV shows, websites and attractions that are dedicated to ghosts.

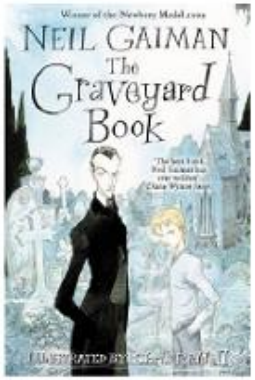
So, the next time you feel that you aren't alone – you're probably right. There's a whole world out there that we don't understand, but that doesn't mean it doesn't exist. Who knows, one day you may be part of it.

Toolkit

- ☐ Use an engaging opening to 'hook' the audience
- ☐ Clearly give your main argument
- ☐ Give two more supporting arguments
- ☐ Include a counterargument
- ☐ Summarise with a conclusion
- ☐ Use signposts to guide the reader
- ☐ Include methods: emotive language, hyperbole, rule of three

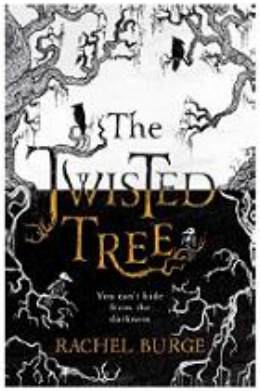
Learning Cycle 1 **Year 9**

Did you enjoy the topic? Try reading these books…



The Graveyard Book

When a baby escapes a murderer intent on killing the entire family, who would have thought it would find safety and security in the local graveyard? Brought up by the resident ghosts, ghouls and spectres, Bod has an eccentric childhood learning about life from the dead. But for Bod there is also the danger of the murderer still looking for him - after all, he is the last remaining member of the family.



The Twisted Tree

Part ghost story, part Nordic mystery - a creepy and chilling tale steeped in Norse myth. Martha can tell things about a person just by touching their clothes, as if their emotions and memories have been absorbed into the material. It started the day she fell from the tree at her grandma's cabin and became blind in one eye. Determined to understand her strange ability, Martha sets off to visit her grandmother, Mormor - only to discover Mormor is dead, a peculiar boy is in her cabin and a terrifying creature is on the loose.
Then the spinning wheel starts creaking, books move around and terror creeps in . . .

The Turn of The Screw

A young governess arrives at Bly, a country home in Essex, England, to care for Miles and Flora, two precocious and pure children. But as ghostly visions take shape, the obsessively protective governess soon fears for the safety of her wards—only to wonder if these hauntings are a conjuring of her own imagination.

In challenging what we see—and what we believe we see—in the dark of the night, The Turn of the Screw stands as one of the boldest and most chilling ghost stories ever told..

The Complete Ghost Stories

Montague Rhodes James (1862-1936) was an English author, medievalist scholar and provost of King's College, Cambridge, and of Eton College. Though James's work as a medievalist is still highly regarded, he is best remembered for his ghost stories, which are regarded as among the best in the genre. He redefined the ghost story for the new century by abandoning many of the formal Gothic clichés of his predecessors and using more realistic contemporary settings. H. P. Lovecraft and Clark Ashton Smith were admirers of James's work. Michael Sadleir described him as "the best ghost-story writer England has ever produced".

6. FOOD AND NUTRITION

Macronutrient	Role	Sources	Excess	Deficiency
Carbohydrates 	Energy	Starchy and sugary foods	Weight gain	Weight loss & lack of energy
Fat 	Energy & insulation	Butter, lard, oils, spreads	Weight gain	Weight loss and feel cold
Protein 	Growth & repair	Beans, fish, eggs, meat	Stored as fat	Poor growth

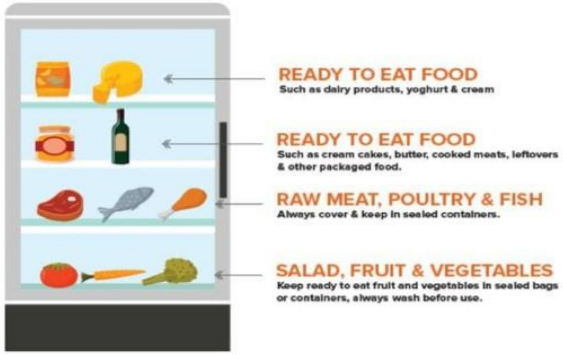
Micronutrients	Role	Sources	Excess	Deficiency
Vitamin A 	Healthy immune system & eyes	Cheese, fish, eggs, carrots, green veg	Can be poi-sonous	Poor eyesight. Slow growth in children
Vitamin B 	Release energy from our food	Cereals, fish, meat, dairy, green veg.	No side effects	Slow growth in children. Beri-beri
Vitamin C 	Fifths infec-tion. Helps wounds heal	Citrus fruits, blackcurrants, kiwi fruit, broccoli, cab-bage	Can cause stomach pain	Poor skin, slow healing wounds, scur-vy
Vitamin D 	Strong bones & teeth	SUNLIGHT, Milk, fish, egg yolk, liver, ce-reals	Unlikely	Rickets and osteoporosis
Iron 	Helps carry oxygen around body	Red meat, eggs, beans, dark green veg	Constipation, feel sick, stomach pain	Anaemia
Calcium 	Strong bones & teeth	Bread, dairy, tinned fish, green veg	Stomach pain and diarrhoea	Rickets and osteoporosis

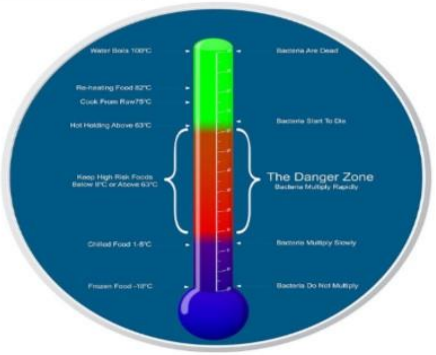


Y9 Food Knowledge Organiser

Working with high risks foods

High-risk foods are foods, which help support the growth of bacteria. They are therefore more likely to cause food poisoning. Examples are meat, eggs, shellfish, cooked rice, fish, dairy, sauces.
Always keep high risk foods in the fridge, below 5°C
Always check use by dates before use
Ensure high risk foods are cooked to a core temperature of 75°C
Always prepare high-risk foods on correct chopping board.
Always wash hands after handling high-risk foods.





Non-Nutrients	Role	Source	Excess	Deficiency
Water 	Hydration	Water, drinks, fruit, veg, meat	Water intoxi-cation	Dehydration, headaches, death
Fibre 	Healthy digestive system	Wholegrain cereals, veg, fruit, brown rice & pasta	Can reduce ability to ab-sorb iron and calcium	Constipation, bowel cancer

7. FRENCH

Dynamo 3 Rouge Module 1 **Mon Monde à Moi** Knowledge Organiser

Likes & Dislikes with nouns infinitives

Quand je suis seul (e) = When I am alone
Quand je suis avec mes amis = When I am with my friends
Le weekend = At the weekend / Comme sports = As for sports
Sur mon portable = On my phone
J'adore = I love / J'aime = I like / J'aime beaucoup = I really like
Je n'aime pas tellement = I don't particularly like / Je déteste = I hate
le sport / le college / la lecture / la danse = sport / school / reading / dance
les animaux / les mangas = animals / mangas
lire des BD / faire des promenades = reading comics / going for walks
nager / prendre des selfies = swimming / taking selfies
faire du velo / aller à la pêche = going cycling / going fishing
aller au cinéma / écouter de la musique = going to the cinema / listening to music
bloguer / surfer = blogging / surfing
faire de la cuisine / faire du footing = cooking / jogging
faire des randonnées / jouer au rugby = going hiking / playing rugby
manger du popcorn = eating popcorn
regarder des clips video avec mon frère = watching video clips with my brother

Des Activities Extrascolaires = Extra-Curricular Activities

Qu'est-ce que tu fais comme activités extrascolaires?
What after-school activities do you do?
Tous les lundis / une fois par semaine = Every Monday / Once a week
Deux fois par semaine / Après les cours = Twice a week / After lessons
Pendant l'heure du déjeuner = During lunchtime
Je joue au badminton = I play badminton
Je fais de la gymnastique = I do gymnastics
Je vais au club (de photographie) = I go to (photography) club
Je participe au club de (danse) = I participate in the (dance) club
Je joue dans l'orchestre = I play in the orchestra
Je chante dans la chorale = I sing in the choir / Je ne chante pas = I don't sing
Je ne danse jamais = I never dance / Je ne fais rien = I do nothing
Je fais du theatre = I do drama

Amis pour toujours! = Friends Forever!

Ton ami (e) est comment? = What is your friend like?
Mon ami(e) s'appelle = My friend is calles
Il / Elle est = He / she is
assez grand (e) = quite tall
très petit (e) = very short
de taille Moyenne = medium height
Il /Elle a les cheveux = He / She has … hair
blonds / bruns = blonde / brown
noirs / roux = black / red
courts / longs = short / long
mi-longs / raides = mid-length / straight
bouclés / frisés = curly / very curly
Il / Elle a les yeux … = He / She has … eyes
bleus / gris = blue / grey
marron / verts = brown / green
Il a des taches de rousseur = He has freckles
Elle porte des lunettes = She wears glasses

Adjectives

sympa = nice
drôle = funny
impatient (e) = impatient
bête = stupid
arrogant (e) = arrogant
égoïste = selfish

Bitesize Friends

Comment tu t'entends avec ton meilleur ami / ta meilleure amie?

Je m'entends bien avec lui/ elle = I get along well with him / her
Je me dispute avec lui / elle = I argue with him / her
Je me fâche contre lui / elle = I get angry with him / her
Il / Elle se fâche contre moi = He / She gets angry with my
Il / Elle a un bon sens de l'humour = He / She has a good sense of humour

Sur la photo

Sur la photo il y a un groupe d'amis = In the photo there is a group of friends
Ils sont au parc = They are at the park
Ils ont l'air heureux = They look happy
Ils prennent une selfie = They are taking a selfie
A droite / A gauche = On the right / On the left
Au cente / Au fond = In the centre / At the back

Quand / Comment as-tu fêté ton anniversaire? =
When / How did you celebrate your birthday?

J'ai fêté mon anniversaire le dix mai = I celebrated my birthday on 10th of May
J'ai ouvert mes cadeaux = I opened my presents
J'ai reçu un tee-shirt = I received a tee-shirt
J'ai regardé mes cartes virtuelles = I looked at my e-cards
J'ai lu mes messages = I read my messages
Je suis allé(e) en ville = I went to town
Nous avons fait du bowling = we went bowling
J'ai mangé du gâteau = I ate some cake
J'ai bu du coca = I drank some cola
Je suis resté(e) au lit = I stayed in bed
J'ai dormi = I slept
J'ai invité mes ami (e)s = I invited my friends
Nous avons dansé = we danced
Nous avons pris des selfies = We took selfies
C'était … = It was …
rigolo = a laugh
délicieux = delicious

Connectives

et = and
mais = but
aussi = also
ou = or
cependant = however
parce que = because
alors / donc = so / therefore

Qualifiers
assez = quite
très = very
un peu = a bit

Sequencers
d'abord = first of all
ensuite / puis = then
après = afterwards
finalement = finally / last of all

The Perfect Tense

The Near Future Tense

Qu'est-ce que tu vas porter pour ta fête d'anniversaire? = What are you going to wear for your birthday party?

Je pense que je vais = I think that I am going
porter = to wear
acheter = to buy
emprunter = to borrow
mettre = to put on

un chapeau = a hat
un costume = a suit
un jean / un pantalon = jeans / trousers
un tee-shirt = a tee-shirt
un blouson = a jacket
un jogging = a tracksuit
un pull = a jumper
un sweat à capuche = a hoodie
une casquette = a cap
une chemise = a shirt
une jupe = a skirt
une cravate = a tie
une robe = a dress
une veste = a blazer
des baskets = trainers
des bottes = boots
des chaussettes = socks
des chaussures = shoes

Colours
bleu (e) / noir (e) = blue / black
vert (e) / gris (e) = green / grey
blanc (he) / violet (te) = white / purple
rouge / jaune / rose = red / yellow / pink
orange / marron = orange / brown

Opinions
Je trouve ça = I find it
un peu / assez / très = a bit / quite / very
vraiment / trop = really / too
complètment = completely
beau / cool = beautiful / cool
joli / super = pretty / super
démodé / ennuyeux = old-fashioned / boring
moche/ nul = ugly /rubbish

Jobs at Home / Spending Money

Pour gagner de l'argent = (In order) to earn money
On peut / je dois = You can / I have to
travailler dans le jardin = work in the garden
aider à la maison = help at home
aider les voisins = help the neighbours
trouver un petit boulot = find a part time job
nourrir les animaux = feed the animals
faire du baby-sitting = do babysitting

Qu'est-ce que tu achètes avec ton argent?
What do you buy with your money?
J'achète = I buy
Je fais des économies pour acheter… = I am saving up to buy…
du maquillage = make-up / de la musique = music
du crédit téléphonique = phone credit / des fournitures scolaires = school supplies
des trucs à manger = things to eat
des billets de cinema = cinema tickets
des jeux video = video games
des vêtements = clothes

Qu'est-ce que tu veux faire plus tard? = What do you want to do later?
Je veux être = I want to be
Je ne veux pas être = I do not want to be
A l'âge de 16 ans je veux … = At the age of 16 I want…
rester à l'école = stay at school
étudier les sciences / les maths / le dessin / les langues = study science / maths / art / languages
trouver un petit boulot = find a part-time job
aller au lycée = go to sixth form
faire un apprentissage = to do an apprenticeship
faire du travail bénévole – to do voluntary work
travailler en équipe / avec les personnes âgées = work in a team / with elderly people

C'est une bonne idée =
It's a good idea
C'est une mauvaise idée =
It's a bad idea
C'est facile = It's easy
C'est difficile = it's difficult
C'est cool = It's cool
C'est ennuyeux = It's boring

Il / Elle est… = He / she is…
scientifique = scientist
pilote = pilot
ingénieur (e) = engineer
danseur / danseuse = dancer
instituteur / institutrice = primary school teacher
policier / policière = police officer
mécanicien / mécanicienne = mechanic
musicien / musicienne = musician
architecte = architect
vétérinaire - vet

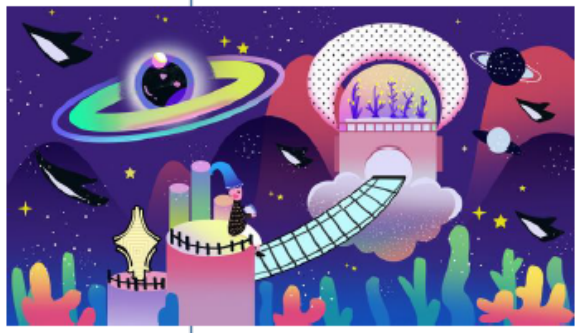
c'est créatif = It is creative
facile / utile = easy / useful
dangereux / varié = dangerous / varied
fatigant / passionnant = tiring / exciting
J'aime aider les autres = I like helping others
J'adore les enfants / les animaux = I love children / animals
J'adore les voitures = I love cars

Qu'est-ce que tu feras à l'avenir? =What will you do in the future?

J'habiterai… = I will live …
en Europe / en Afrique / à l'étranger = in Europe / Africa / abroad
Je travaillerai = I will work…
avec des enfants / chez Google = with children / at Google
J'achèterai… = I will buy…
une belle maison = a beautiful house
une Ferrari rouge = a red Ferrari
J'aurai… = I will have
une Mobylette / cinq enfants = a moped / 5 children
un petit copain / une petite copine = a boyfriend / a girlfriend
J'irai… = I will go…
à New York / en Chine / en Amérique du Sud = to New York / to China / to South America
Je ferai.. = I will do
du travail bénévole / du snowboard = voluntary work / snowboarding
Je serai.. = I will be…
célèbre / marié / heureux / heureuse = famous / married / happy
Je gagnerai beaucoup d'argent = I will earn lots of money
J'aiderai les autres = I will help others

The Simple Future Tense

A l'avenir le monde sera comment? = What will the world be like in the future?
On portera des vêtements intelligents = we will wear smart clothes
On mangera des insects = we will eat insects
On voyagera en voiture sans conducteur = we will travel by driverless car
On achètera tout en ligne = we will buy everything online
On ira en vacances sur la Lune = we will go on holiday to the moon
Il y aura… = There will be
Un robot dans chaque maison = a robot in every house
Des collèges virtuels pour les élèves = virtual schools for pupils
Des drones dans chaque entreprise = drones in every business
Ce sera… = it will be
très different / passionant / effrayant = very different /exciting / frightening
dangereux / utile = dangerous / useful



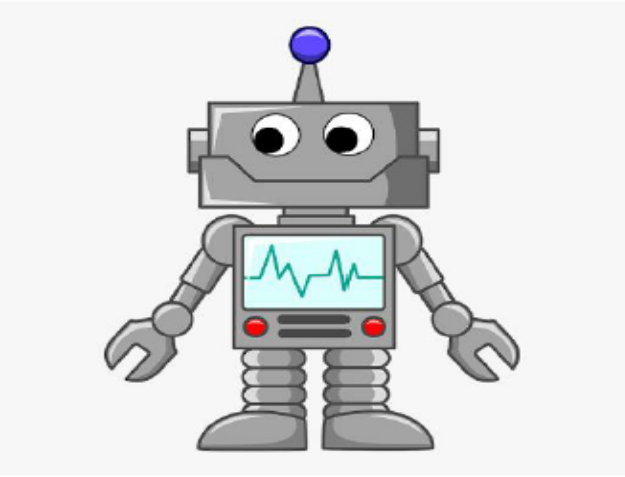
Profil d'un inventeur ou d'une inventrice

Il est inventeur = He is an inventor
Il est né =He was born
Il a immigré = He immigrated
Il a fait des études = He studied
Il a développé = He developed
Il a inventé = He invented
un robot pour aider les personnes handicappées = a robot to help people with disabilities
des lunettes pour traduire en anglaise = glasses to translate into English

Questions

Qu'est-ce que tu fais comme métier? = What is your job?
Où est-ce que tu travailles pour gagner de l'argent? = Where do your work to earn money?
Pourquoi est-ce que tu veux être inventeur / inventrice professionel (le)? =
Why do you want to be a professional inventor?
Qu'est-ce que tu as inventé récemment et quand? = What did you invent recently and when?
Avec qui est-ce que tu as travaillé sur ton invention? =
Who did you work with on your invention?
J'ai travaillé seul (e) = I worked alone
J'ai travaillé en équipe = I worked in a team
Qu'est ce que tu inventeras a l'avenir? = What will you invent in the future?
A mon avis ce sera utile = In my opinion it will be useful.

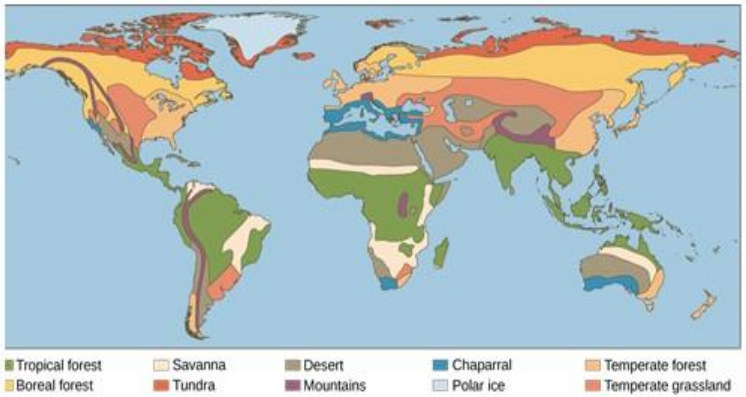
Il y aura un robot = There will be a robot
pour aider / travailler = to help / work
Il organisera = He will organise
Il fera = He will do
Il ira = He will go
Il jouera = he will play
Il coupera (les cheveux) = he will cut hair
Il appliquera du maquillage = he will apply makeup
Il rapportera = he will bring back
Il examinera = he will examine
Il décidera = he will decide
Il donnera = he will give



8. GEOGRAPHY

Dyson Perrins C of E Academy

Where are the world's ecosystems?

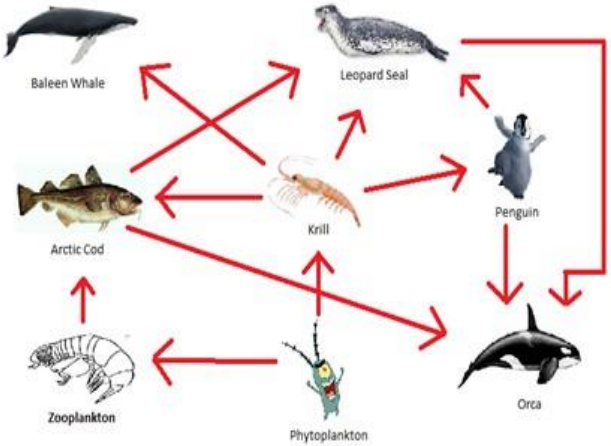


World ecosystems

1. Tropical rainforest- found near the Equator. The climate is hot and humid and many different species can be found here.
2. Desert-found near the Tropics of Cancer and Capricorn. Conditions here are very hot and dry. Plants and animals are specially adapted to survive in the harsh conditions.
3. Polar- Arctic and Antarctic, very low temperature and dry conditions. Temperature can fall below -50°C.
4. Deciduous and coniferous forests- roughly 50-60° north of the Equator. Deciduous trees shed their leaves in winter. Coniferous trees are cone-bearing evergreens. The UK's natural vegetation is deciduous forest.
5. Temperate grassland- found in Hungary, South Africa, Argentina and the USA. Consists of grass and trees that thrive in a temperate continental climate of moderate rainfall and mild conditions.
6. Mediterranean-roughly 40-45° north of the Equator, Hot, sunny and dry summers with mild winters. Other part of the world have similar climate, California (USA), South Africa and part of Australia
7. Tropical grassland (savannah)- between 15-30° north and south of the Equator, wet and dry seasons. Often with wild fires and violent thunderstorms.
8. Tundra- found near the North and South poles. Very few plants and animals can survive here.

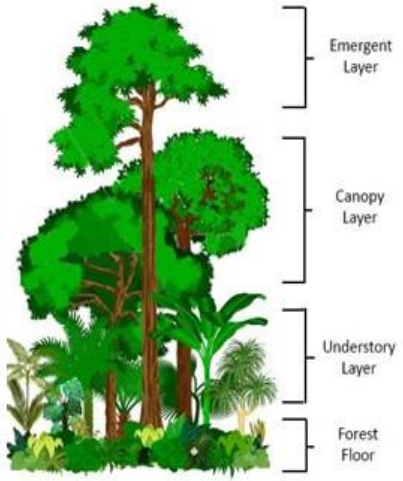
Year 9 Knowledge organiser
Year 9 Ecosystems

Challenges facing Rainforests	Challenges facing Polar ecosystems
Deforestation and habitat loss	Global warming and sea level rise
Mining	Over fishing – damages food webs
Pollution of rivers and lakes	Hunting seals and whales
Cattle ranching	Oil mining and pollution
Large scale plantations for crops such as Palm Oil	Melting ice and increased sea temperature affects wildlife such as polar bears



The Arctic has a complex hierarchy of plants and animals which rely on each other for food.

An ecosystem is a natural system made up of plants, animals and the environment.
2. They contain Abiotic and Biotic components
3. Abiotic – Non-Living e.g. climate, water temperature, soil and light
4. Biotic – Living – plants, mammals, fish, fungi Ecosystems can be identified at different scales:
- A local small-scale ecosystem can be a pond, hedgerow or woodland.
- A global-scale ecosystem can be a tropical rainforest or deciduous woodland. These global ecosystems are called biomes.



Rainforests can be organised into 4 layers. Each layer has different levels of sunlight and moisture/ rainfall which affects the plants and animals that have adapted to living there.

9. HISTORY

Year 9 History LC 1.1 USA in the 1920s Timeline	
1917	President Woodrow Wilson led the United States in to World War I
1917	The Immigration Law: Foreigners must take a literacy test to enter the USA
Nov 11th 1918	Germany signs an Armistice to end WWI
Jan 1919	18th Amendment to the US constitution is ratified which stops the sale of alcohol anywhere in the USA
Dec 1919	The Seattle Strike: Trade unions organise a general strike for 5 days.
June 1919	Treaty of Versailles promises peace through the creation of the League of Nations but also punishes Germany for WWI with reparations
Jan 1920	The fear of Communism in America known as the Red Scare leads to the Palmer Raids which resulted in over 3000 arrests based on limited evidence.
Nov 1920	Warren G Harding is elected President using the slogan 'America First' and promising a return to 'normalcy'
1921	Immigration Quota Act: This system favoured allowing people from Western and Northern Europe. These were mostly WASPs.
1922	Fordney-McCumber Tariff: Makes foreign goods more expensive than American goods and so 'protected' American industry. This made it hard for European countries to recover their economies
1923	Warren G Harding dies and Calvin Coolidge becomes President of the USA
May 1927	Charles Lindenbergh completes the first solo transatlantic flight taking 33 hours
Aug 1927	Sacco and Vanzetti are executed by electric chair
Nov 1928	Herbert Hoover is elected President on the slogan 'a chicken in every pot, a car in every garage'
Dec 1929	St Valentine's Day Massacre: Al Capone's gang murders six followers of rival Bugs Moran
Oct 1st 1929	The Wall Street Crash: Leads to the onset of the Great Depression
Dec 1932	21st Amendment to the constitution repeals prohibition making alcohol legal again

Key Vocabulary	
Red Scare	Widespread fear of Communism or anarchism by society and the state. Red is associated with the Red flags used by Communists
President	The elected head of a republican state
Protectionism	Defending a country's economy and industry by taxing foreign goods.
Ratify	Making something official and valid
Depression	Long and severe recession in an economy – high unemployment and poverty
Socialism	The idea that workers and communities should have more control over industry and businesses
State	A territory with its own government and borders within a larger country.
Tariff	A tax or duty added to a product that is being imported or exported.
Terrorism	Illegal use of violence against civilians in order to achieve a political goal.
Trade	Buying or selling goods or services
Trade Union	Groups of workers in a trade or profession who work together to protect and further their rights and interests.
Anarchism	The idea of getting rid of government and then organising society on a voluntary and cooperative basis
Communism	A society that is organised in a classless system where there is no private property and the community own the means of production.
Xenophobia	Dislike or prejudice against people from other countries
Laissez-faire	Where governments to no interfere instead they 'leave alone'
Isolationism	A policy of staying out of political affairs with other countries
Consumerism	The idea that increasing the amount of goods and material possessions you buy is a good thing and that a persons happiness depends on this
Amendment	Something that is changed or added such as an article added to the US constitution
Conservative	Does not like change and holds traditional values
WASPs	White Anglo Saxon Protestants
General strike	When large amounts of workers in a city or region refuse to work due to unfair conditions.

10. MATHEMATICS

Year 9

Mathematics

Learning Cycle 1

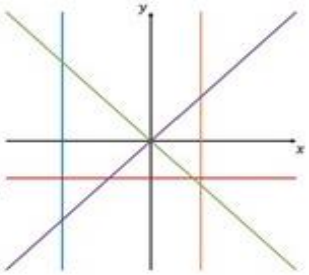
Straight Line Graphs

Key terms:

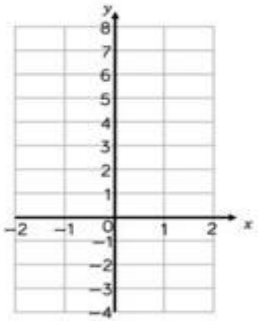
parallel	horizontal	vertical	axis
equation	intercept	linear	function
gradient	parallel	direct proportion	inverse

Here are the equations of 6 lines.

- $y = x$
- $y = -2$
- $y = -x$
- $x = 3$
- $y = 5$
- $x = -5$



Five of the lines have been drawn on the grid.
Label each line and explain how you know.
Sketch the graph of the sixth line.

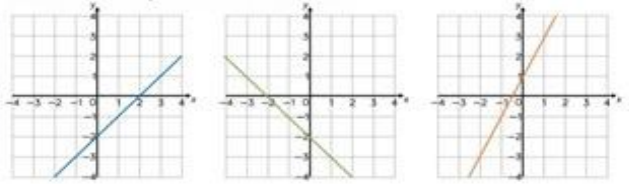


Complete the table of values for $y = 2x + 3$

x	−2	−1	0	1	2
y					

On the grid, draw the graph of $y = 2x + 3$ for values of x from −2 to 2

What is the equation of each line?



Forming and Solving Equations

Key terms:

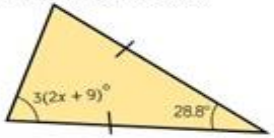
equation	inequality	inverse
solve	expand	satisfy
reverse	balance	coefficient
substitute	form	subject
variable	formula	rearrange

Amir is solving some equations.
What mistakes has he made?

$$36 = 10x + 2$$
$$3.6 = x + 2$$
$$1.6 = x$$

$$\frac{x-3}{2} = 10$$
$$\frac{x}{2} = 13$$
$$x = 26$$

Mo is working out value of x. Comment on the mistake he has made, and work out the value of x.



$$3(2x + 9) = 28.8$$
$$6x + 27 = 28.8$$
$$6x = 1.8$$
$$x = 0.3$$

Fill in the blanks.

$20 \geq 6 - 5x$
$+5x \quad +5x$
$5x + 20 \geq 6$
-20
$5x \geq -14$
$x \geq$

$-3x < 16$
$0 < 16 + 3x$
$< 3x$
$< x$

Which of these formulae have A as the subject?

$p = \frac{F}{A}$ $\quad A = bh$ $\quad A = \frac{1}{2}bh$ $\quad V = Ax$

Testing Conjectures

Key terms:

factor	multiple	prime	common
odd	even	express	conjecture
counterexample		demonstrate	prove
verify	expand	factorise	binomial
term	quadratic		

Are the statements on the cards always, sometimes or never true?
If always true or never true, can you explain or prove why?
If sometimes true, give examples of when and when not.

- Multiples of 3 are also multiples of 6
- Multiples of 6 are also multiples of 3
- Factors of 6 are also factors of 60
- Square numbers have an odd number of factors
- Cube numbers have an even number of factors
- The sum of two odd numbers is odd
- Multiples of 5 are odd
- The square of a negative number is positive

The Goldbach conjecture is a famous unproved problem in mathematics. Investigate!

"Every even number greater than 2 is the sum of two primes."

m is an even number, n is an odd number and p is a prime number.
Test the conjectures.

- n^2 is odd
- $m + p$ is odd
- mn is odd
- n^m is odd

3D Shapes

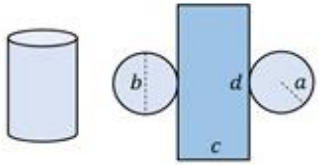
Key terms:

dimensions	cube/cuboid	cylinder	cone
sphere	pyramid	tetrahedron	face
edge	vertex	polygon	prism
cross-section	net	area	plan
elevation	face	perspective	isometric
solid	perpendicular height	compound	circumference

Which of the following shapes are prisms?

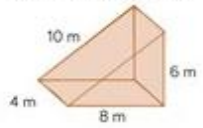
What are the common features of the shapes that are prisms?

Here is a cylinder and its net.
Which of the statements are true?



- a is the radius of the cross-section
- b is the width of the prism
- c is the height of the prism
- d is the circumference of the circular cross-section

Here is a triangular prism.
Explain the two methods used to find its volume.



Volume of cuboid = $8 \times 6 \times 4 = 192$ m^3
Volume of prism = $192 \div 2 = 96$ m^3

Area of cross-section = $\frac{6 \times 8}{2} = 24$ m^2
Volume of prism = $24 \times 4 = 96$ m^3

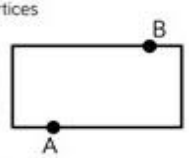
Constructions and Congruency

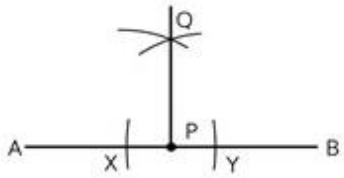
Key terms:

acute	obtuse	reflex	right angle	vertex	line segment	perpendicular
estimate	protractor	scale	ratio	prism	equilateral	isosceles
multiplier	conversion	locus	path			
equidistant	vertex	discorectangle	arc			
bisector	construction lines		point			
scalene	congruent	invariant	reflection	included angle	corresponding side	hypotenuse

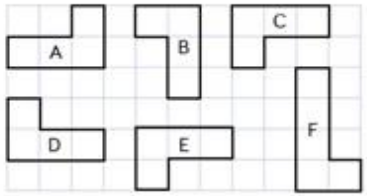
The rectangle is 6 cm by 4 cm.
A and B are both 1 cm away from the vertices of the rectangle.

- Construct the locus of the points equidistant from points A and B.
- Shade the points that are closer to A than B.
- Draw more rectangles and vary the positions of A and B. What do you notice? Can you predict where the region will be?





Which shapes are congruent to shape A?
How do you know?



11. MUSIC

What Makes a Good Song?

Exploring Popular Songs and Musical Arrangements

A. Popular Song Structure

SONG STRUCTURE – How a song is made up of or divided into different sections (see below) and the order in which these sections occur. To work out the structure of a song, it's helpful to analyse the **LYRICS** and listen to a recording for the song (for instrumental sections).

INTRO – often shortened to 'intro', the first section of a song which sets the mood of the song and is sometimes, but not always, an instrumental section using the song's chord pattern.

VERSES – songs normally have several verses. Verses introduce the song's theme and have the same melody but different lyrics for each verse which helps develop the song's narrative and story. Songs made up entirely of verses are called **STROPHIC**.

LINK – a optional short section often used to join different parts of a song together, often instrumental, and sometimes joins verses together or appears at other points within a song.

PRE-CHORUS – an optional section of music that occurs before the **CHORUS** which helps the music move forward and "prepare" for what is to come.

CHORUS – occurs several times within a song and contains the most memorable **HOOK/RIFF**. The chorus relays the message of the song and is repeated with the same melody and lyrics each time it is heard. In popular songs, the chorus is often repeated several times towards the end of the song.

MIDDLE 8/BRIDGE – a section (often 8 bars in length) that provides contrasting musical material often featuring an instrumental or vocal solo using new musical material allowing the performer to display their technical skill on their instrument or voice.

CODA/OUTRO – The final section of a popular song which brings it to an end (Coda is Italian for "tail"!)

B. Key Words

LYRICS – The words of a song, usually consisting of **VERSES** and a **CHORUS**.

HOOK – A 'musical hook' is usually the 'catchy bit' of the song that you will remember. It is often short and used and repeated in different places throughout the piece. Hooks can be either **MELODIC, RHYTHMIC** or **VERBAL/LYRICAL**.

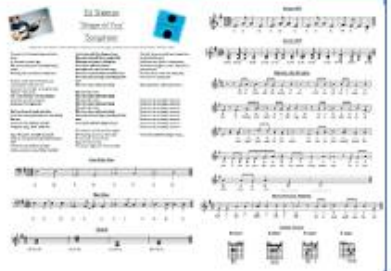
RIFF – A repeated musical pattern often used in the introduction and instrumental breaks in a song or piece of music. Riffs can be rhythmic, melodic or lyrical, short and repeated.

MELODY – The main tune of the song often sung by the **LEAD SINGER**.

COUNTER-MELODY – An 'extra' melody often performed 'on top of' the main melody that 'fits' with it a **DESCANT** or **INSTRUMENTAL SOLO**.

TEXTURE – The layers that make up a song *e.g., Melody, Counter-Melody, Hooks/Riffs, Chords, Accompaniment, Bass Line.*

C. Lead Sheet Notation and Arrangements



A **LEAD SHEET** is a form of musical **NOTATION** that contains only the essential elements of a popular song such as the **MELODY, LYRICS, RIFFS, CHORDS** (often as guitar chord symbols) and **BASS LINE**; it is not as developed as a ***FULL SCORE ARRANGEMENT*** and is open to interpretation by performers who need to use and adapt the given elements to create their own musical **ARRANGEMENT**: their "version" of an existing song.

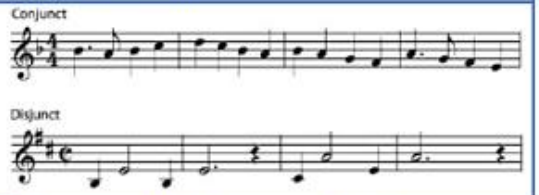
COVER (VERSION) – A new performance, remake or recording by someone other than the original artist or composer of the song.

D. Conjunct and Disjunct Melodic Motion

CONJUNCT MELODIC MOTION – Melodies which move mainly by step or use notes which are next to or close to one another.

DISJUNCT MELODIC MOTION – Melodies which move mainly by leap or use notes which are not next to or close to one another.

MELODIC RANGE – The distance between the lowest and highest pitched notes in a melody.



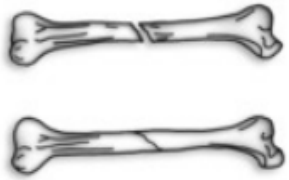
E. Song Timbre and Sonority (Instruments that are used to Accompany Songs)

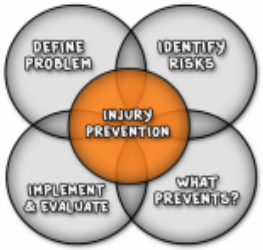
Pop Bands often feature a **DRUM KIT** and **PERCUSSION** to provide the rhythm along with **ELECTRIC GUITARS (LEAD GUITAR, RHYTHM GUITAR** and **BASS GUITAR)** and **KEYBOARDS**. Sometimes **ACOUSTIC INSTRUMENTS** are used such as the **PIANO** or **ACOUSTIC GUITAR**. **ORCHESTRAL INSTRUMENTS** are often found in pop songs such as the **STRINGS, SAXOPHONE, TROMBONE** and **TRUMPET**.

Singers are essential to a pop song - **LEAD SINGER** – Often the "frontline" member of the band (most famous) who sings most of the melody line to the song. **BACKING SINGERS** support the lead singer providing **HARMONY** or a **COUNTER-MELODY** (a melody that is often higher in pitch and different, but still 'fits with' the main melody) and do not sing all the time but just at certain points within a pop song e.g. in the chorus.

PiXL SPINE

Injury in Sport





PiXL PE

Types of Injury

During sports, lots of injuries can occur due to many different factors. Fractures and dislocations occur due to impact upon the bone or joint, causing a deformity. Sprains and strains are when ligaments, tendons and muscles tear, causing severe pain.
Head injuries such as concussion occur within sport due to collisions within contact sports or bad falls. Although not as common, spinal injuries can also happen within sport and can lead to lasting damage to a person's health.

Minimising the risk of injury in sport

When we play sport, there are a lots of ways we can try to prevent injury, although it can never be stopped altogether. Personal protective equipment, such as shin pads, can be worn to reduce the chance of injury. A warm up and cool down prior to exercising will prevent common injuries such as strains.
Making sure people compete at an appropriate level is crucial. In boxing, for instance, they use the weight of the performer to group the competition. Using good techniques for lifting and carrying equipment is essential to reducing the chances of muscle strains and also preventing injury due to equipment being put up incorrectly.

Risk Assessments

This is the technique used to measure the chance of an accident happening, anticipate the consequences and plan actions to prevent it occurring.
The risk assessment looks at health and safety hazards within the situation; the level of risk to participants within the activities; the risks that are involved within the activity and procedures for monitoring and checking the risks.

Task

Pick a sports facility within your school. Design a risk assessment template (use the internet for ideas) and complete the risk assessment for the facility you have chosen.

Task

Write down as many pieces of personal protective equipment from sport you can think of.
Write down as many different ways you can think of how Sport is split into appropriate levels.

*PE KS3 **Injury in Sport***

PE KS3 Injury in Sport

Warm Up

There are 5 stages of a warm up.

1. Pulse raiser, which involves getting the heart rate to increase and prepare for exercise.
2. Mobility exercises to increase the range of movement at the joints.
3. Stretching to prevent injury within the ligaments, tendons and muscles.
4. Dynamic movements to prepare for the match play.
5. Skill rehearsal involving movement patterns that could occur in the game.

When exercising, it is also really important to complete a cool down.

Task

Design a warm up you could complete before competing in a basketball game.
How could you make it specific to basketball?
What areas of the body are really important to warm up?

Task

Design an instruction sheet to explain how to use D.R.A.B, followed by both the recovery position and CPR.

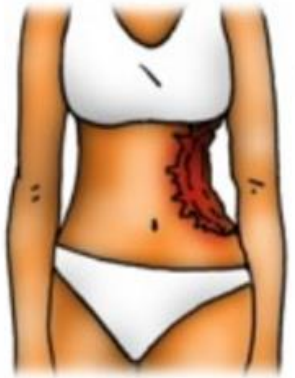
When a person gets injured during sport, it is important that you do not move them until you know how severe the injury is.
A common method of injury treatment is rest, ice, compression and elevation. This can help to reduce swelling and bruising. However, it cannot be used on more serious injuries initially.

D.R.A.B

When a person becomes unconscious, it is really important that they are treated immediately following D.R.A.B.

- D stands for danger - check the danger around the casualty and remove anything that can be moved.
- R stands for response - ask them key questions and check to see whether they can hear you.
- A stands for airways - make sure the airways are open and clear from any objects.
- B stands for breathing - check to see whether your casualty is breathing.

If a person is breathing, you would put them in the recovery position. If a person is not breathing, you would perform CPR.



13. RELIGIOUS EDUCATION

Christianity - Beliefs and Teachings - Key Beliefs

There are different beliefs about God's nature. Many Christians believe he is **omnipotent, loving** and **just**, although this highlights the **problem of evil and suffering.** Many Christians also believe in the **Trinity;** that God is one being made up of three persons – God the Father, God the Son and God the Spirit.

The Nature of God

1 God's Qualities and the Problem of Evil and Suffering

God Qualities:
- God is believed to be **omnipotent** or all-powerful. The Bible teaches of his power, shown especially in his **creation** of the world, and his **salvation** of humanity.
- God is believed to be **loving**. In the Bible he sends Jesus to pay the price for humanity's **sin**.
- God is believed to be **just** – righteous and fair. He rewards the good and punishes the bad. In the Bible he does not abandon his people; he saves them from slavery in Egypt and leads them to a Promised Land.

The Problem of Evil and Suffering:
If God is **omnipotent, loving and just** by **nature**, the **problem** arises: why does he allow **evil** and **suffering**?

Problems for Christians:
- If God *is not* **omnipotent, loving and just**, this seems to undermine Christianity, which is based on belief in a loving God, holds that God was powerful enough to create the universe and defeat death, and that God is fair and good.
- If God *is* **omnipotent, loving and just**, it does not make sense for him to allow **evil** and **suffering**, or allow the innocent to suffer when the wicked often succeed – the existence of **evil and suffering** may lead people to question their **faith**.

There are various solutions to the **problem of evil and suffering**. Some Christians believe that it is **loving** to allow humans free will, giving them the capacity to commit evil, and/or that suffering is **just**. Some believe that God is powerful, but that some things are not possible; e.g. creating a world without suffering.

Types of Suffering

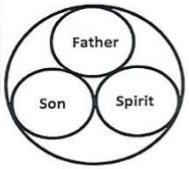
Natural suffering is pain which is not caused by a person, but by natural events – e.g. pain caused by a tsunami or earthquake, or by disease

Evil is morally bad intention or action, often resulting in
- **Moral suffering** – pain which is caused by a deliberate action – e.g. murder, theft, exploitation...

2 The Oneness of God and the Trinity

The ***Father*** created the world and sent Jesus (the Son) to **save** humanity.

Most Christians believe in the **oneness** of God, but also believe he is three persons: Father, Son and Spirit (a **Trinity**).



The ***Son*** was present at, and helped with, **creation**. He became the human being Jesus, born of a human mother, Mary. He died to **save** humanity, before rising from the dead and **ascending** to heaven. He will **judge** the living and the dead.

The ***Holy Spirit*** guides Christians and helps them in their lives, living in their hearts. He was present at **creation**, has spoken through **prophets**, descended at Jesus' **baptism**, and came at **Pentecost**. Catholics believe that he proceeds from the Father and the Son, but Orthodox Christians disagree and think he proceeds from the Father only.

'In my Father's house there are many dwelling places. If it were not so, would I have told you that I go to prepare a place for you?' (John 14:2 NRSV)

In the **parable** of the sheep and the goats, Jesus teaches that he will **judge** people at the end of time depending on their actions – the good will go to **heaven** and the bad to **hell**.

Many Christians believe that good people will go to **heaven**, a realm inhabited by God and angels, when they die. Jesus told his **disciples** that he would prepare a place for them (John 14:2–4). Some Christians believe only Christians will go to **heaven**, because Jesus said that he was the 'way' to '[God the] Father' (John 14:6).

In the **parable** of the bridesmaids, Jesus teaches that people should be ready for the **Kingdom of God** / the end of the world and **judgement** to come at any time.

Many Christians believe in **hell**, a horrible realm where bad people go when they die, separated from God.

The Catholic Church teaches that many people go to **purgatory**, a realm where they must do penance for their **sins** before entering **heaven**.

Judgement

Realms after death

The Afterlife 4

The Afterlife is what Christians believe comes after death. Christians have various beliefs about what happens when they die, where they will go, and what will happen at the end of time.

How life after death works:

Some Christians believe in **resurrection of the body**; the dead will be raised in their bodies at the end of time. Jesus taught that the dead would be raised from their graves (John 5:28–29).

Some Christians believe in **immortality of the soul**; souls will go to **heaven/purgatory/hell** immediately after death. Jesus told the thief on the cross that he would be in paradise that day (Luke 23:43).

Some Christians believe in both **resurrection of the body** and **immortality of the soul**; people will live on immediately after death, but will be reunited with their bodies and **judged** at the end of time.

Importance and Influence for Christians today:
- Christians may feel grateful to God for dying to bring them *eternal life*.
- Christians may feel motivated to live good lives so they can go to **heaven**.
- Some Christians may believe they should **evangelise** others so they can also go to **heaven**.

'In the beginning was the Word, and the Word was with God, and the Word was God. He was in the beginning with God. All things came into being through him, and without him not one thing came into being...' (John 1:1–3 NRSV)

Role of the Word and the Spirit:
- Genesis 1:1–3 says that the spirit of God was present at **creation**.
- John 1:1–3 says that the **Word** (Jesus) was present at **creation**, was God, and that everything was created through him.

The story of **creation** is discussed in the Bible in Genesis 1–3 and John 1. Different Christians **interpret** it differently.

Creation 3

Genesis records the **creation** of the universe and of life. There are two different accounts.

In the first, God creates the universe and its inhabitants in six days, and then rests a day. Plants and animals are created before humans.

The second varies slightly; after God has created Earth, he creates man. He then creates plants and animals, and then creates woman, out of one of man's ribs.

The woman is tempted by a serpent and the couple eat the fruit of the tree of knowledge of good and evil. God casts them out of their garden paradise.

Interpretations:
- Some Christians **interpret** the Bible **literally**; they believe that the world was created in seven days and that God created humans as they are now.
- Some Christians **interpret** the Bible **symbolically**. They believe that God created the world and humanity, but that the biblical account of creation is not **literally** true – God may have created the world through the **Big Bang**, and humans through **evolution**.

Importance and Influence of creation for Christians today:
- Many Christians believe that God gave them **dominion** over the Earth – that he has let them rule over it.
- Many Christians believe that God charged them with **stewardship** – looking after the world and the environment, so they believe they

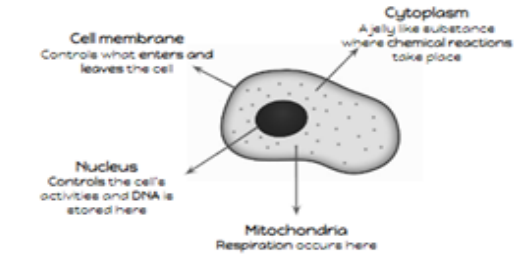
Y9 Big Idea: Cell Biology

Cells are the basic unit of all forms of life. All cells have a cell membrane, cytoplasm and ribosomes. In addition animal cells also contain a nucleus, mitochondria. Plant cells also have a cell wall, nucleus, mitochondria, chloroplasts and vacuole. Bacterial cells have plasmids and a cell wall, but no nucleus.

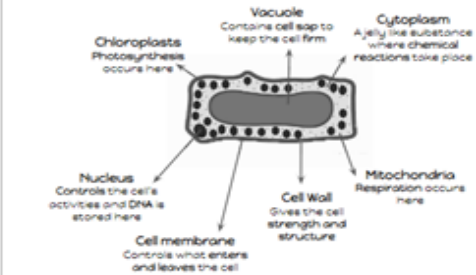
The process of differentiation give rise to specialised differences between types of cells enables them to perform specific functions within the organism. These differences are controlled by genes in the nucleus. For an organism to grow, cells must divide by mitosis producing two new identical cells. Microscopes allow us to view and measure cells at high magnification, which is used to calculate real size of cells/cell parts.

Science KS3 **Cells 1**

Animal Cells



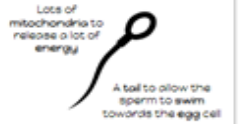
Plant Cells



Specialised Cells

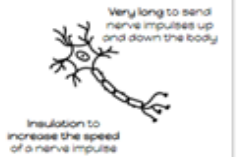
A specialised cell is a cell which is suited to do a particular job.

Sperm Cells
A sperm cell is adapted so that it can fertilise an egg cell.

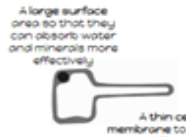


Red Blood Cells
A red blood cell is designed to carry oxygen around the body.

Nerve Cells
A nerve cell is designed to carry nerve impulses to different parts of the body.

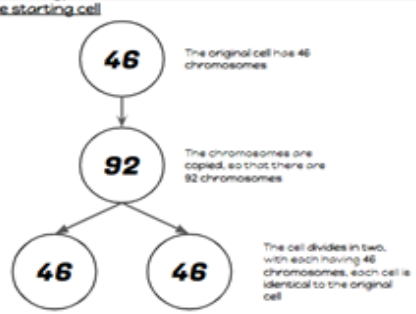


Root Hair Cells
A root hair cell is designed to absorb water and nutrients for a plant.



The process of mitosis

Mitosis is a type of cell division in which the cells made are identical to the starting cell



Uses of mitosis
Mitosis produces identical cells, it can be used for:

Growth

Replacing dead cells

Asexual reproduction (creating offspring with only one parent, e.g. in plants)

Where mitosis occurs
Mitosis happens everywhere in the body apart from the sex cells (gametes)

Stem Cells

Stem cells are undifferentiated cells, they can divide into many other types of cells.

Embryonic Stem Cells
Embryonic stem cells are found in an embryo (developing baby) and can develop into a wide range of other cells.

Adult Stem Cells
Adult stem cells are found in bone marrow, they can divide into other types of cells, but not as many types as embryonic stem cells.

Uses of Stem Cells
Stem Cells can be used for:

Treating Cancers | Treating Paralysis | Repairing Injuries

Potential growth of Organs

Science KS3 Atoms and the Periodic Table

Y9 Big Idea:

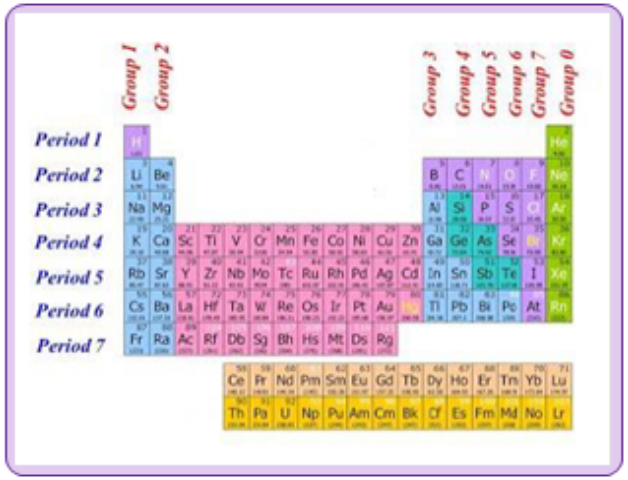
The periodic table provides chemists with a structured organisation of the known chemical elements from which they can make sense of their physical and chemical properties. For example metals vs. non-metals.

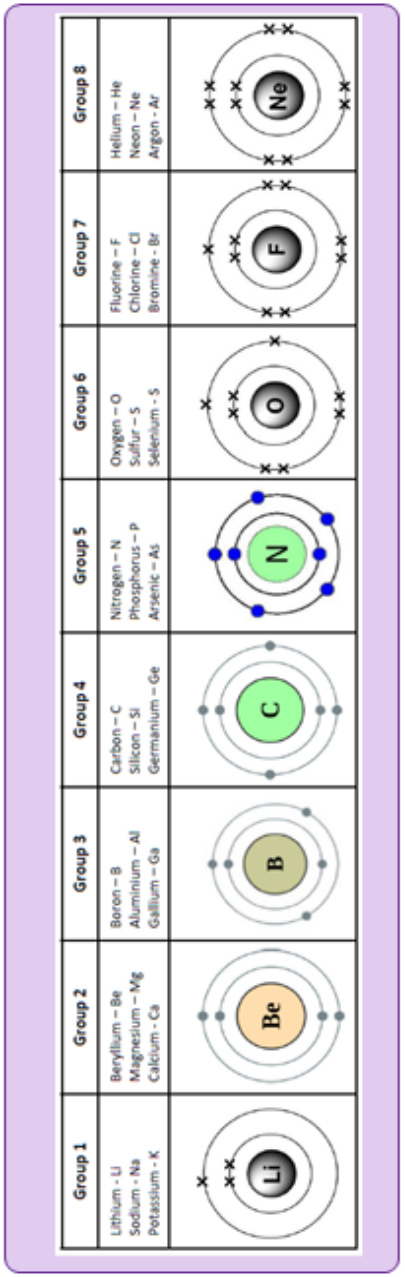
The periodic table gives the name, atomic symbol, proton number and mass number – these can be used to determine how many protons, neutrons and electrons the atoms have.

Explain why the new evidence from the scattering experiment led to a change in the atomic model and the difference between the plum pudding model of the atom and the nuclear model of the atom.

Use the nuclear model to describe atoms.

Explain the differences between metals and non-metals on the basis of their characteristic physical and chemical properties.





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.

Science KS3 **Energy 1**

Y9 Big Idea:

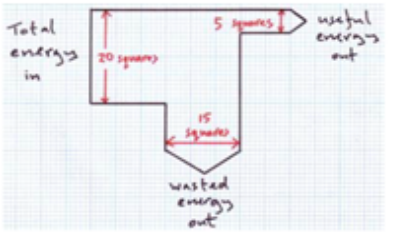
A system is an object or group of objects. The Law of **Conservation** of energy states that energy cannot be created or destroyed, so when a system changes the way the energy is stored changes, but the total energy remains constant.

Power (measured in Watts) is defined as the rate at which energy is transferred or the rate at which work is done. An energy transfer of one **joule** per second is equal to a power of one **Watt**.

Calculating Power

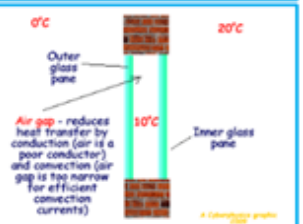
Word Equation	Power	=	Work Done / Time Taken	
Dimensions	P	=	W	/ t
Units	Watt	=	Joule	/ second

The diagram on the right shows an important point to remember. If you draw a Sankey diagram, the size of the arrow should represent the value of the energy. So in this diagram if 1 square represents 1 Joule of energy then there is a 5J useful energy transfer and the other 15J of energy are 'wasted'.



Practical skills activity: investigate the effectiveness of different materials as thermal insulators and the factors that may affect the thermal insulation properties of a material.

Insulation (if a material is a poor conductor we say it is an insulator) is used to reduce energy transfers by heating. You will have some insulation in your own home e.g. double glazed windows or cavity wall insulation. This acts to stop conduction and convection through the walls and roof of your house.



Kinetic Energy

Kinetic energy is the energy of movement, it is measured in joules

Kinetic Energy = 0.5 x mass x speed x speed
(kg) (m/s) (m/s)

Example

A car is moving with a **speed of 10 m/s** and has a **mass of 2500 kg**. What is the **kinetic energy** of the car?

Kinetic energy = 0.5 x mass x speed x speed
Kinetic energy = 0.5 x 2500 x 10 x 10
Kinetic energy = 125 000 J

Kinetic energy and mass
The greater the mass, the greater the kinetic energy

Kinetic energy and mass
The greater the speed, the greater the kinetic energy

Gravitational Potential Energy

Gravitational potential energy is the energy because of the position of an object, it is measured in joules

Gravitational Potential Energy = Mass x Gravity x Height
(kg) (N/kg) (m)

Example

A book with a **mass of 0.25 kg** is placed on a shelf with a **height of 1.7 m**. If the value of **gravity on Earth is 9.81 N/kg**, what is the gravitational potential energy of the book?

Gravitational potential energy = mass x gravity x height
Gravitational potential energy = 0.25 x 9.81 x 1.7
Gravitational potential energy = 4.17 J

Gravitational Potential energy and mass
The greater the mass, the greater the gravitational potential energy

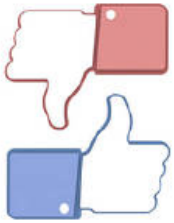
Gravitational Potential energy and gravity
The value of gravity is different on different planets, the greater the value of gravity, the greater the gravitational potential energy

Gravitational Potential energy and height
The greater the height, the greater the gravitational potential energy

15. SPANISH

Viva 3 **Modulo 1 Somos así** Knowledge Organiser

¿Qué cosas te gustan? = What things do you like?
¿Qué cosas te encantan / te chiflan / te flipan / te molan? = What things do you love?
Me gusta (n) = I like
Me encanta (n) = I love
Me chifla (n) = I love
Me flipa (n) = I love
Me mola (n) = I love
No me gusta (n) nada = I really don't like



El baile = dance
El cine = cinema
El deporte = sport
El dibujo = drawing / art
El racismo = racism
El teatro = theatre / drama
La moda = fashion
La música = Music
La naturaleza = nature
La pesca = fishing
La violencia = violence
Los cómics = comics
Los insectos = insects
Los lunes = Mondays
Las artes marciales = martial arts
Las injusticias = injustice
Las taréas domésticas = household chores

Scan these codes to practise the present and preterite tenses

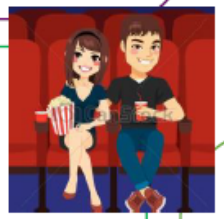
En mi tiempo libre = In my Free Time
Hago judo = I do judo
Hago natación = I go swimming
Voy al parque = I go to the park
Voy al polideportivo = I go to the sports centre
Voy de pesca = I go fishing
Soy miembro de un club = I'm a member of a club
Soy miembro de un equipo = I'm a member of a team

Expresiones de frecuencia = Expressions of frequency
a veces = sometimes
de vez en cuando = from time to time
dos veces a la semana = twice a week
a menudo = often
muy a menudo =very often
todos los días = everyday
casi todos los días = almost every day
todo el tiempo = all the time
siempre = always

¿Cómo organizas tu semana?
Bailo Zumba = I dance Zumba
Cocino para mi familia = I cook for my family
Escribo canciones = I write songs
Juego en mi consola = I play on my games console
Leo revistas / libros = I read magazines / books
Monto en bici = I ride my bike
Navego por internet = I surf the internet
Preparo la cena = I prepare dinner
Saco fotos = I take photos
Toco el teclado = I play the keyboard
Veo un partido de fútbol = I watch a football match

Viva 3 **Modulo 1 Somos así** Knowledge Organiser

¿Cuándo? = When?
después del insti =after school
este fin de semana = this weekend
los fines de semana = at the weekends
los lunes / martes = on Mondays / Tuesdays
los jueves por la tarde = on Thursday afternoons
mañana por la mañana = tomorrow morning
mañana por la tarde = tomorrow afternoon



En el Cine = At the Cinema
Voy a ver… = I'm going to see…
Una comedia= a comedy
Una película de acción = an action film
Una película de animación = an animation
Una película de aventuras = an adventure film
Una película de ciencia-ficción = a science-fiction film
Una película de fantasía = a fantasy film
Una película de superhéroes = a super-hero film
Una película de terror = a horror film
¿Vas a venir? = Are you going to come?
¿Vamos a ver? = Are we going to see?

Reacciones = Reactions
Claro que sí = Of course
De acuerdo = ok
Voy a ir = I'm going to go
No voy a ir = I'm not going to go
No, gracias = No thank you
¿Estás loco/a? = Are you crazy?
¡Ni en sueños! = Not in your dreams
¡Que rollo! = How boring!

¿Qué tipo de películas te gustan?
What type of films do you like?
Me encantan las comedias = I love comedies
No me gustan las películas de terror = I don't like horror films
Mi película favorita es… = My favourite film is…
¿Qué tipo de película es? = What type of film is it?
Es una comedia =It is a comedy
En mi opinión… = In my opinion…
Creo / Pienso que = I think that

¿Cómo fue tu cumpleaños? = How was your birthday?
Celebré mi cumpleaños = I celebrated my family
con mi familia / mis amigos = with my family / friends
¿Qué hiciste? = What did you do?
Fui / Fuimos al parque de atracciones = I went / we went to the theme park
Invité a mis amigos a pasar la noche en mi casa = I invited my friends to sleep over at my house
Bebí / Bebimos refrescos = I/we drank fizzy drinks
Comí / comimos tarta de cumpleaños = I/we ate birthday cake
Recebí muchos regalos = I received lots of presents
Fue alucinante / increíble = It was amazing /incredible

High Frequency Words

así que = so	más tarde = later
casi = nearly / almost	o = or
primero = first of all	por supuesto = of course
luego = then	quizás = maybe
después = afterwards	también = also

Los empleos / Los trabajos = Jobs

Soy = I am
camarero/a = waiter / waitress
cocinero / a = chef
dependiente /a = shop assistant
esteticista = beautician
jardinero /a = gardener
limpiador /a = cleaner
peluquero /a = hair dresser
recepcionista = receptionist

¿Cómo es tu jefe? = What is your boss like?

Mi jefe es muy educado / a = my boss is polite
Mi jefe es mal educado/a = my boss is rude
¿Cómo son los clientes? = What are the customers like?
Los clientes son exigentes = the customers are demanding
Los clientes son mal educados = the customers are rude
Mis compañeros son simpáticos = my colleagues are nice

Tasks at Work

Tengo que… = I have to…
contestar al teléfono = answer the telephone
ayudar a los clientes = help customers
cortar el pelo a los clients = cut customers' hair
cuidar las plantas = look after the plants
hacer manicuras = do manicures
limpiar habitaciones = clean rooms
preparar comida = prepare food
servir la comida en el restaurante = serve food in the restaurant
vender productos en la tienda = sell products in the shop

¿Cómo eres? = What are you like?

En mi opinion soy… = In my opinion I am…
Creo que soy … = I believe I am…
Pienso que soy … = I think I am …
muy = very
bastante = quite
ambicioso/a = ambitious
creativo /a = creative
independiente = independent
inteligente = intelligent
organizado/a = organised
paciente = patient
práctico / a = practical
serio /a = serious
sociable = sociable

Me gusta / no me gusta mi trabajo porque es..
I like / don't like my job because it is….

difícil = difficult
estimulante = stimulating
monótono = monotonous
duro = hard
estresante = stressful
repetitivo = repetitive

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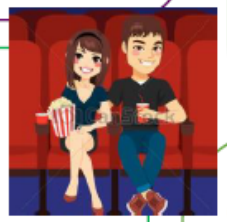

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16. TEXTILES

Textiles

WEEK 1: Safety Rules in Textiles

To work safely in Textiles and to prevent accidents from occurring, safety rules must be followed at all times:

- Walk around the classroom, do not run
- Keep bags and chairs out of the walk ways
- Hold scissors with the blades closed if not in use
- Be careful when using needles and pins
- Always put equipment away in the correct place
- Wear goggles when using the sewing machine
- Only 1 person at a machine at one time
- Concentrate at all times, especially when using the machine
- Be careful with the hot iron
- Turn off electrical equipment when finished
- Sensible behaviour at all times

WEEK 2: Risk/hazards assessment

- Identify the risks of each practical lesson and safety rules that you will need to follow.
- Produce a table with the following headings:
  Process Risks/Hazards Safety rule

WEEK 3: Design specification

Aesthetics: What would you like it to look like?
Consumer: Who could the product be designed for?
Cost: How much will it cost to make and sell?
Environment: What environmental impact would the product have?
Safety: How can you make sure the product is safe to use?
Size: What size could you make it?
Function: How and where could it be used ?
Materials/Manufacture: What could it be made from and how will it be made?

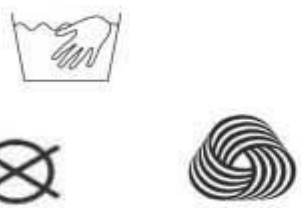
WEEK 4: The 6 R's

Rethink: Design in a way that considers people and the environment
Refuse: Choose not to buy a material or product if you don't really need it
Reduce: Cut down the amount of material and energy that you use
Recycle: Reprocess a material or product and make something else
Repair: When a product breaks down or doesn't work properly repair it

Extension Task: Research different recycling symbols. Draw and label 3 different ones and name the products they can be found on

Extension Task: Labels on clothing

The labels on clothes use a variety of symbols to explain how to care for them. Copy out the symbols and explain what they mean:



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Textiles

WEEK 5: Decorative Techniques

Applique - A piece of fabric that is sewn or ironed on to another piece of fabric.

Reverse Applique - Two pieces of fabric with the top fabric having a shape cut into it showing the second piece of fabric.

Couching – zig zag stitch encasing a piece of thread

Ribbon Applique – Sewing on a piece of ribbon for decorative purposes

Extension Task: Research and find images of textiles products that have been decorated. Produce an information page with images of decorative techniques and explain how they have been created.

Machine Stitching

Straight Stitch
This is where you the sewing machine produces a straight line stitch. Through the fabric in one line. It is the simplest machine stitch.

Decorative Stitch
These are stitches combination of **stitch** and thread produces quite a **variety of textural effects.**

WEEK 7: Key Terms

Natural Fabrics Cloth made from natural substances, such as; Cotton and linen from plants, wool from goats and sheep and leather from cows' skin.
Man-made Fabrics Cloth made from man made chemicals, usually different forms of plastic, such as Polyester, Nylon, Viscose and Lycra. All these are made from oil.
Recycled Fabrics – fabrics that have been made from recycled materials
Thread Thin strands of fabric wound tightly together. Used with a needle to hold two pieces of fabric together permanently.
Sample A collection of small pieces of fabric machining styles used to try out different ideas on.

Extension Task:
Identify the different fabrics used for the clothing that you wear. Produce a chart that shows the item of clothing, the fabric and whether it is made using natural fibres or man-made fibres.

WEEK 6: Equipment and Materials

Sewing machine - A machine using electricity to sew together fabrics. It can use a straight stitch or decorative stitch to sew fabric together.
Fabric Scissors - Special sharp scissors used for cutting fabric only.
Pins – to secure 2 pieces of fabric together temporarily
Poly Cotton – Man Made material
Unpicker - To unpick stitching
Elastic – stretchy material
Ribbon – Material used to add decoration and/or tie the room tidy together