Knowledge Organiser

Year 10

Cycle 3 - OPTIONS

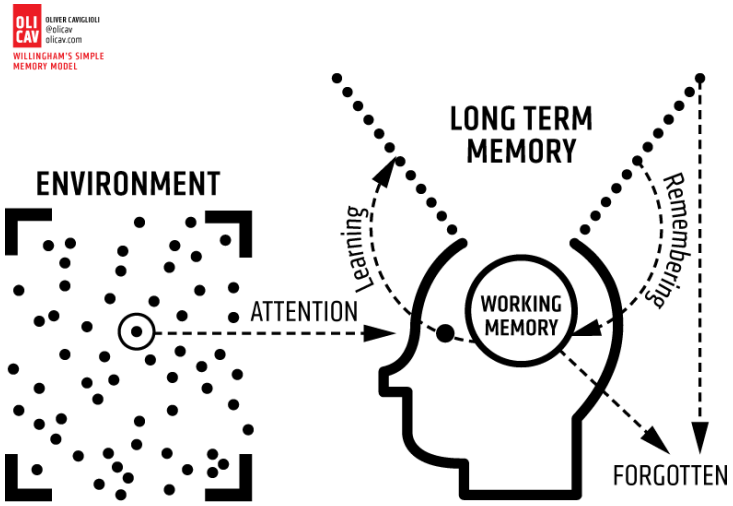
Name:

Inspiring Excellence

Using your Knowledge Organiser for homework

- Your Knowledge Organiser contains the essential knowledge that every student must know.
- Regular use of the Knowledge Organiser helps you to recap, revise and revisit what you have learnt in lessons.
- The aim is to help remember this knowledge in the long term and to help strengthen your memory
- You will use the Knowledge Organiser to help learn during homework.
- You will be assessed on the knowledge from your Knowledge Organiser; the more you revisit information the more likely it will be remembered for lessons, assessments and exams.

- For each homework you will be asked to look at a particular section of your Knowledge Organiser.
- Make sure you follow the homework timetable below so that you do the right homework for the right subjects each day.
- Each day (Monday to Friday) you will study 2 subjects for 30 minutes each.
- All Knowledge Organiser homework is completed in your blue Knowledge Workbooks
- All Maths and English homework is completed on SPARX and must be 100% completed each week.



Homework Timetable Year 10

	Monday	Tuesday	Wednesday	Thursday	Friday
Subject 1	Science	Geog/History	Maths	Option Block F	Maths
Subject 2	English	Option Block E	English	Science	Option Block G

How to use your Knowledge Organiser

In your blue knowledge book you will always write the date, subject heading and ensure that they are underlined with a ruler.

Task 1: Questions

Where a subject includes questions to answer, you must answer these in your blue book. This is the main task to do as a minimum. If you have additional time, or where there are no questions, then do the following Tasks 2-4

Task 2: The Cover – Write – Check method

1. Study the relevant section of your Knowledge Organiser for several minutes.
2. Cover the Knowledge Organiser.
3. In your blue book, write out what you can remember.
4. Check the Knowledge Organiser to see if you got it right.
5. Correct any mistakes in purple pen.
6. Repeat the process – even if you got it 100% correct.
7. Complete sections that you have previously studied using the same process.

Task 3: Free recall

1. Pick a section of the Knowledge Organiser you have studied recently.
2. Without looking at the Knowledge Organiser write down everything you can remember about the topic.
3. Check the Knowledge Organiser to see how much you got right.
4. Correct any mistakes and add any missing parts in purple pen.

Task 4: Elaboration

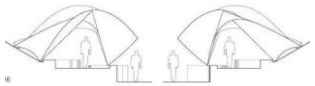
1. Once you have completed the Cover – Write – Check method, add any additional details you can to your notes.
2. Remember your Knowledge Organiser only contains the core knowledge, there is much to learn beyond it so practise adding more detail when you can.

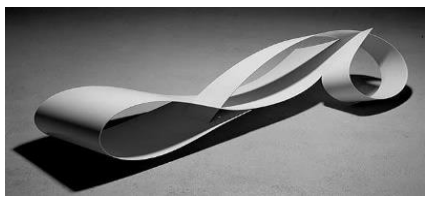
Year 10 Options Cycle 3 Knowledge Organiser Contents Page

YEAR 10 KNOWLEDGE ORGANISER
CYCLE 3: BIOMIMICRY Inspired Design

A. 3D DESIGN KEY WORDS

Prototypes/models
Vice/Gcramps
Jigs
Templates
Glass paper
Dowel
Foam board
Balsa
MDF
Smart materials
Laser cutter
Hegnar Scroll saw
Steel Rule
Thermocentre oven
Wire sculpting
Hand files
Wet and Dry paper
Acrylic
Long nose pliers
Kerfing
Line bender
Laminating
Hot glue/PVA/Super glue
CADCAM





B. KEY KNOWLEDGE 1

Health and Safety in the workshop:

1. Only enter workshop when told to do so.
2. Place your bags in designated area
3. Walk don't run
4. Keep work area and floor clear
5. Follow instructions.
6. Wear eye protection when told to do so.
7. Always wear an apron during practical.
8. Always tie your hair back whilst using tools and machinery.
9. Wear sensible shoes to protect your feet.
10. Remove all jewellery whilst doing practical work.
11. Only use tools and machinery that you have been taught how to use.
12. Report any broken equipment to the teacher.

What do the following symbols mean?

C. KEY KNOWLEDGE 2. CRITICAL STUDIES AND MODELLING

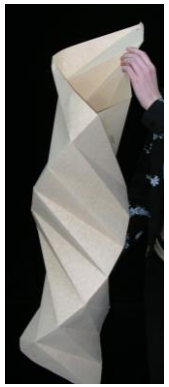
Describe the following words: Kerfing/Laminating / fractals/ sustainability/carbon neutral/ recycled/upcycled
What tools do we use to cut and shape acrylic and ply models.
State 3 ways to stay safe when using coping saws and the Hegnar.
Name 6 different materials suitable for model-making.
Why do architects and designers make models and prototypes ?
What are the advantages of using CADCAM in designing and making architectural models?

D. KEY KNOWLEDGE 3. CUTTING TECHNIQUES AND MODELLING IN CARD, ACRYLIC AND WIRE

Find examples of objects that have been made using the kerfing techniques.. Experiment with this technique using corrugated card.

Use a scalpel and safety ruler to cut intricate shapes.
Experiment with modelling in acrylic, ply, wire, balsa and mdf.

E. EXPERT MODELLING describe 3 characteristics of each piece of work shown.



F. WIDER THINKING Architecture influenced by nature.

https://youtu.be/EWQWjTqHfHo

Art

ART & DESIGN Project – YEAR 11. Groups, types and places.
Threshold Concept -#2 Art communicates, in every sense.
#5 Artists play – with ideas, materials and failures
#6 Art engages heads, hands and heart

A. Visual Elements Keywords

Line	Line is the path left by a moving point. A line can be horizontal, diagonal or curved and can also change length.
Shape	A shape is an area enclosed by a line. Shapes can be geometric or irregular.
Form	Form is a three dimensional shape, such as a cube, sphere or cone.
Tone	This refers to the lightness or darkness of something. This could be a shade, or how dark or light a colour appears.
Texture	This is to do with the surface quality of something. There are two types of texture: Actual texture really exists, so you can feel it or touch it; Visual texture is created using marks to represent actual texture.
Pattern	A design that is created by repeating lines, shapes, tones or colours.
Colour	Red, yellow and blue are primary colours, which means they can't be mixed using any other colours.

B. Key Knowledge 1: AO1 – TICK OFF ONCE DONE

- ❑ I have created a double page mind map and mood board about my theme
- ❑ I have completed two critical studies with in depth annotation using my booklet for guidance
- ❑ I have completed some further research around my theme
- ❑ I have added in further critical studies as my ideas have developed and changed

AO2 – TICK OFF ONCE DONE

- ❑ I have completed one type of collage work
- ❑ I have experimented with drawing in monoprint
- ❑ I have experimented with colour
- ❑ I have experimented with printmaking, textiles or 3D work
- ❑ I have refined two of the above with a further experiment

AO3 – TICK OFF ONCE DONE

- ❑ I have completed a photoshoot
- ❑ I have drawn from life
- ❑ I have drawn from found images and my own photos
- ❑ I have drawn in pencil – tonal, Pen – mark making and tried continual and blind drawing.

AO4 – TICK OFF ONCE DONE

- ❑ I have written a statement of intent
- ❑ I have sketched and annotated thumbnails of final outcome ideas
- ❑ I have refined work and practiced elements of my final piece
- ❑ I have a final outcome that is meaningful, clearly relates to my developments and shows my best skills.

C. Expert Modelling:


Katie Scott


Kurt Jackson


David Hockney


Michael Wolf


Annette Messager


Alexandra Dillon

What Visual Elements can you see in this work?

E. IDENTIFYING SUCCESSES IN YOUR WORK

- Identify three formal elements in your work and explain why they are important
- Explain how you will refine a process further to develop your practical work
- Identify a gap or weakness you would like to improve.

D. Wider thinking, reading and doing:

- Create a conceptual page
- Do a large abstract experimental piece
- Contact an artist or organisation

Year 10 Unit 3: Principles of Early Years Practice In this unit you will look at some of the key principles that are reflected in best practice in early years. You will learn about inclusive practice as a way of valuing children and ensuring that they can benefit from the opportunities within the setting. You will also explore how children are empowered to ensure that children learn to become independent and develop a strong self-image, as well as ways in which this is put into practice. A further principle of working with children is the key person approach, which early years settings use to meet children's emotional and care needs. In this unit, you will learn why the key person approach is important to children's learning and development. If you wish to work in early years, it is important that you have a good understanding of the principles as you will need to incorporate them into your practice.		
Week 1 (Learning Aim A1) How children benefit from inclusive practice	The positive effects of inclusive practice on children's outcomes, including: • development of a positive self-image affecting confidence, motivation and positive attitudes towards others • developmental benefits as any needs are identified and a wide range of opportunities is available and, if necessary, adapted to meet needs • opportunities to play and socialise with other children and thus gain social skills and learn to express feelings and emotions • development of self-efficacy, a 'can do' attitude, that gives children confidence to try out new activities or cope in unfamiliar situations • emotional wellbeing as a result of being accepted and cared about by others • positive benefits to health outcomes as physical needs are met through inclusive practice • development of enduring positive attitudes towards others as a result of observing how to value and support others regardless of their age, disability, race, background, gender or lifestyle.	**Key Words** Inclusive Practice Self-image Self-efficacy
Week 2 (Learning Aim A2) How outcomes for children may be affected by non-inclusive practice:	How outcomes for children may be affected by non-inclusive practice: poor self-image as a result of feeling unwanted, helpless or inferior • low self-efficacy as children may have 'learnt helplessness' or see themselves as victims • delayed development as a result of late identification of needs or needs not being met • poor health outcomes if physical care needs have not been attended to, e.g. individual dietary needs unmet • educational outcomes lower as a result of not being given the same opportunities to develop skills and knowledge because needs were not met.	**Key Words** Learnt helplessness
Week 3 (Learning Aim B) Ways in which early years settings implement inclusive practice	Inclusive practice in early years settings, including: • adopting a non-judgemental attitude, e.g. respecting individual differences, cultures and beliefs, uniqueness of each child • implementing a welcoming environment, e.g. posters in different languages, greeting parents • using or displaying resources that reflect children's lives and celebrate diversity, e.g. home corner, dressing-up clothes • developing strong relationships with children and their families to ensure that children's individual needs are fully understood • adapting provision to meet the individual needs of children • keeping children safe • establishing routines • adults consistently acting as positive role models.	**Key Words** Non-judgemental Implementing Role Models

Week 4 (Learning Aim C1) The importance of empowerment of children in early years settings	Why early years settings seek to empower children: • children have a right to be informed, involved and consulted about all decisions that affect them • to value children as their feelings and opinions are taken into account • to show respect to children • to involve children in decision making, e.g. play opportunities, routines. How empowerment benefits children, including: • benefits to physical development, e.g. children gain confidence to try new challenges, more motivated to practise skills, helps children to make decisions about risk • benefits to emotional development e.g. self-esteem encouraged from being given opportunities to be involved in decision-making processes, more likely to be able to manage own behaviour if they have had some input in decisions about appropriate behaviour, boundaries and expectations • benefits to social development, e.g. children develop self-respect and learn to respect and value others and the feelings of others • benefits to cognitive development, e.g. involvement in decision-making process encourages motivation, perseverance and concentration.	**Key Words** Empowerment Self-esteem Perserverance
Week 5 (Learning Aim C2) How adults in early years settings empower children	Ways adults in early years settings empower children appropriate to their age/stage of development, including: • involving children in physical care routines and encouraging them to be involved in self-care to support independence, e.g. washing, dressing • giving children appropriate control and privacy when dressing, e.g. half closing a door so that toddlers can use the toilet in private • encouraging children to help themselves at meal and snack times • supporting child-initiated play whereby children can make choices as to what and how they play, and with whom • involving children in planning so that children feedback what they have enjoyed doing and can make suggestions as to what they wish to do next • involving children in all aspects of preparing the environment, e.g. choosing equipment to put out, tidying away, preparing snacks.	**Key Words** Physical care routines Self-care Child initiated play
Week 6 (Learning Aim D1) Why the key person approach is used in early years settings	Definition of key person role as someone who develops a strong and consistent relationship with a child and their family to ensure emotional and care needs are met. • Main roles of key person, e.g. developing a special bond with the child, sharing information with parents, supporting transition and observing the child. • Key person approach is a requirement of early years education/care frameworks, e.g. Early Years Foundation Stage (England) • Key person approach helps parents to effectively exchange and share information effectively to support children's physical care and development, e.g. dietary needs, allergies, health conditions, ensuring medical and physical needs are met.	**Key Words** Key person Transition

Section 7 (Learning Aim D2) How the key person approach supports children's development	How the key person approach supports children's development: • emotional development is supported as young children are prevented from becoming distressed when separated from parent/carer, e.g. key person understands children's individual emotional needs and ways to comfort them, children feel more secure • language development is supported, e.g. children communicate more to people with whom they have a strong relationship, key person knows how best to communicate with child • children's learning is supported, e.g. key person knows children's interests, children feel more confident to try new experiences and explore • children's physical development is supported, e.g. key person is aware of the child's stage of development, recognises suitable equipment and resources • children's social development is supported as children learn to make relationships beyond their family circle, e.g. key person approach helps children to develop relationships with others in the setting.

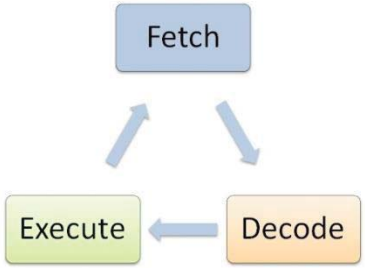
1.1 SYSTEMS ARCHITECTURE

KEY CONCEPTS

- Computer systems take data (input), process it and then output it.
- **Embedded systems** are computers built in to other devices like washing machines. They are dedicated to a single task so they are efficient.
- **Clock speed:** the number of instructions a processor can carry out per/second. Higher clockspeed = faster CPU.
- Number of **Cores:** The more cores a CPU has the more instructions it can carry out at once (multitasking). More cores = faster processing.
- **Cache size:** A larger cache gives the CPU faster access to more data

FETCH – DECODE – EXECUTE CYCLE

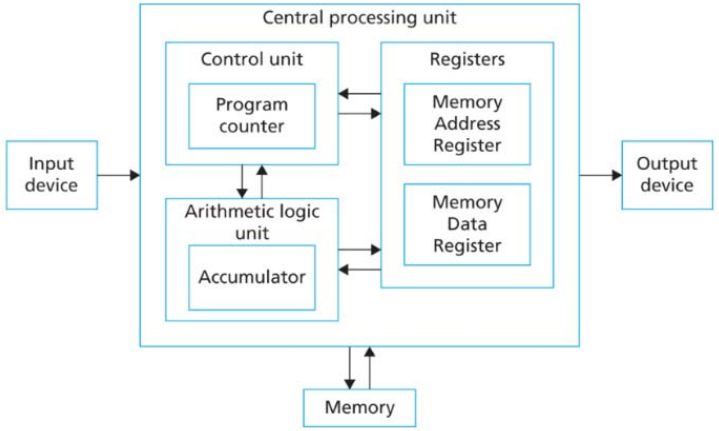
CPU **fetches** instruction from the RAM
(copies memory address to MAR, copies instruction to MDR & adds 1 to PC.
CU **decodes** the instruction from the MDR
Instruction is **executed** by the CU
The next instructions is fetched and
The cycle repeats.



EXAM QUESTIONS

1. Explain how cache size, cores and clockspeed affect the performance of the CPU.
2. Define what is meant by an embedded system
3. What is the purpose of the ALU?
4. Explain the role of the CPU registers (MAR and MDR)
5. Explain how the fetch decode execute cycle works

THE CENTRAL PROCESSING UNIT (CPU)



Control Unit (CU): executes instructions and controls the flow of data in the CPU.

Program counter: holds the memory address for the instruction of each cycle.

Arithmetic Logic Unit (ALU): does all of the calculations and logic operations.

Accumulator: holds the result of any calculations in the ALU.

Cache: very fast memory that stores regularly used data so that the CPU can access it quickly.

MAR (Memory Address Register): holds the address about to be used by the CPU.

MDR (Memory Data Register:) holds the actual data or instruction being processed by the CPU.

1.2 MEMORY and 1.3 STORAGE

RANDOM ACCESS MEMORY (RAM)

- RAM is the computer's main memory that holds the data, programs and files while they are being used.
- RAM is volatile (power off = the data is lost)
- The CPU will fetch instructions from the RAM in the fetch – decode – execute cycle.
- When the RAM is full the computer uses **VIRTUAL MEMORY**. It uses the secondary storage as temporary RAM so that the computer can continue running (but slowly).

READ ONLY MEMORY (ROM)

- The ROM is on a chip build into the motherboard
- It contains the BIOS (boot up sequence for the computer)
- ROM is non-volatile (data still stored after power is off)

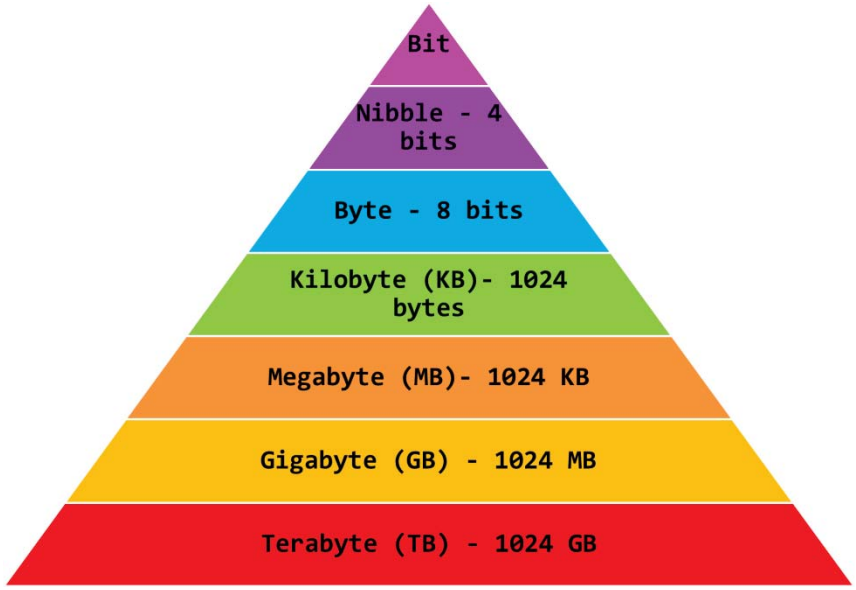
TYPES OF STORAGE

- Secondary Storage: where all data including the programs are stored when they are not being used.

Storage	Key Information
Hard Disk Drive (HDD)	Magnetic, has moving parts, large capacity, lower cost than SSD
Solid State Drive (SSD)	Flash memory, no moving parts, more robust than HDD, faster and more expensive than HDD
Flash memory	Eg: USB memory sticks, memory cards.
Optical Storage	Eg: CDs, DVDs. Cheap, portable and fairly robust.
Magnetic tape	Used for archive storage (back ups). Very large capacity, low cost, slow.

STORAGE CAPACITY

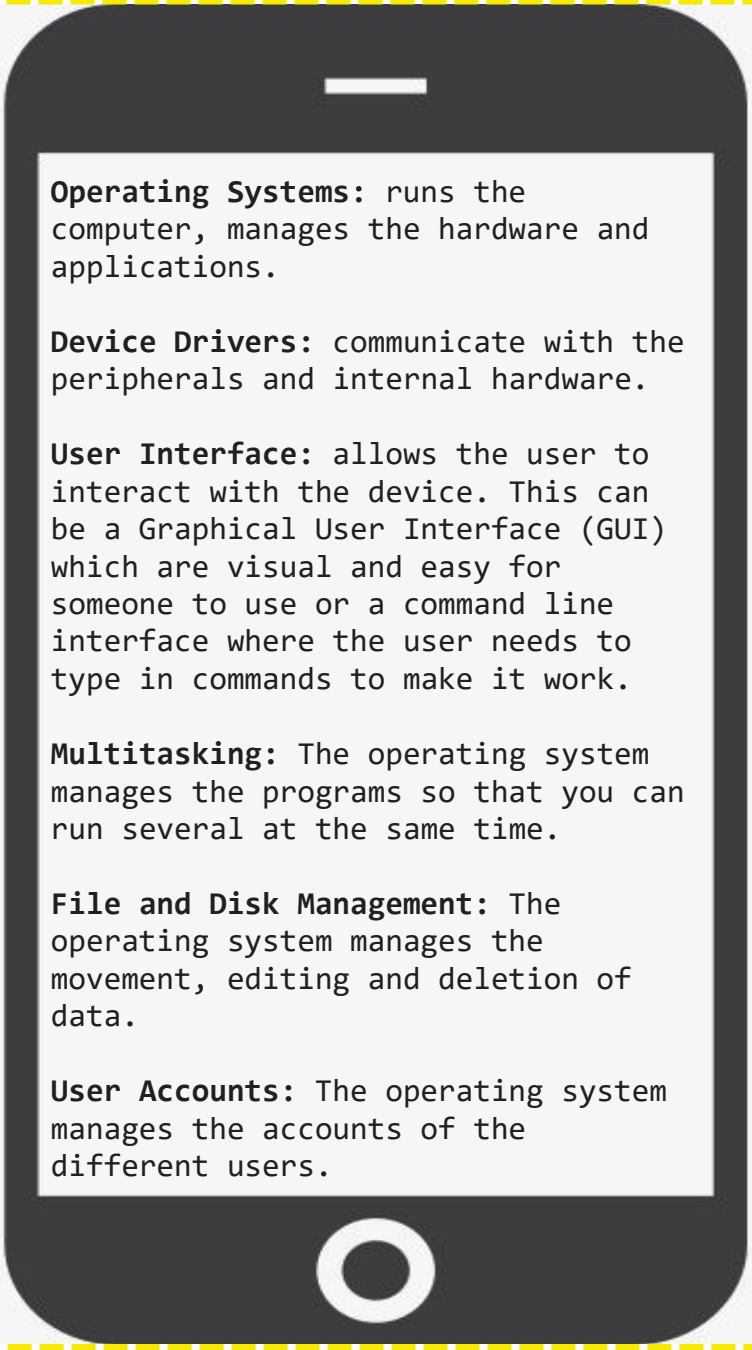
Some storage methods such as a HDD or SSD have a large capacity (they can store lots of data. Other devices such as CDs and SD cards have smaller capacity. Measurements of capacity are shown below:



EXAM QUESTIONS

1. Explain how the RAM works with the CPU in the fetch –decode – execute cycle
2. Explain the difference between volatile and non-volatile memory giving an example of each
3. Tom is buying a new laptop, he is not sure whether to get a magnetic HDD or SSD. Discuss the benefits and drawbacks of each.

1.7 SYSTEMS SOFTWARE



Operating Systems: runs the computer, manages the hardware and applications.

Device Drivers: communicate with the peripherals and internal hardware.

User Interface: allows the user to interact with the device. This can be a Graphical User Interface (GUI) which are visual and easy for someone to use or a command line interface where the user needs to type in commands to make it work.

Multitasking: The operating system manages the programs so that you can run several at the same time.

File and Disk Management: The operating system manages the movement, editing and deletion of data.

User Accounts: The operating system manages the accounts of the different users.

Utility Software

Utilities are the programs that help maintain and configure a program. Most utility software is installed with the Operating system.

Defragmentation: Defragging a magnetic hard drive groups all of the files for each program together and all of the free space together. This makes it read and write quicker.

Back Up Utilities: Schedules and manages back ups. Full back ups = all data is backed up. Incremental = only files since the last back up are copied.

Compression: reduces the size of large files so that they take up less space. Files then need to be extracted before they are used.

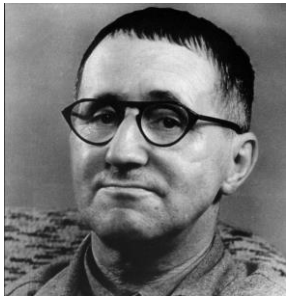
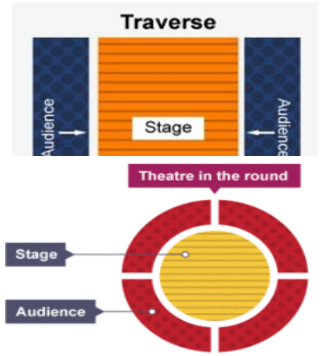
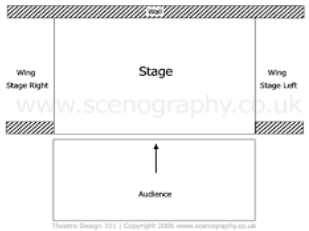
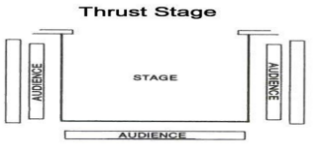
Encryption: scrambles the data to protect it so that if someone else gets hold of it they cannot access it.

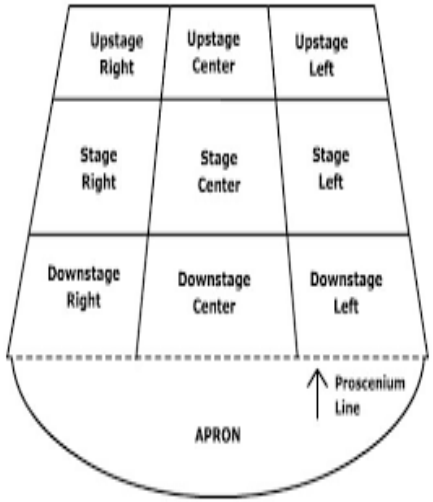
Open Source and Proprietary Software

Open Source	Proprietary
It's usually free and the source code is available so it can be adapted for individual needs	Usually has to be paid for
Others can improve the code	Only the compiled code is released so it cannot be edited
Strong online support communities	Good customer support
	May not fit the users exact needs

EXAM QUESTIONS

1. Evaluate the benefits and drawbacks of releasing a piece of software as open source rather than proprietary.
2. Explain three functions of the operating system in a computer
3. Evaluate the difference between doing an incremental back up and a full back up.

	Week 1	Week 2	Week 3	Week 4	Week 5
YEAR 10 DRAMA– CYCLE 3	 **Bertolt Brecht** Bertolt Brecht was born February 10th 1898 in Germany, and died 14th August 1956, aged 58. He believed that while the audience believed in the action onstage they became emotionally involved and lost the ability to think and to judge. He wanted his audiences to remain objective and distant from emotional involvement. His performances were **non-naturalistic**, as he wanted the audience to remember that they were watching a performance and that it was not real life. All his performances follow themes of **politics**, with **social** and **cultural** references. He always wanted the audience to **question his performances**, and used **Verfremdungseffekt** (v effect), which translates to 'making it strange'.	**Konstantin Stanislavski** Konstantin Stanislavski was born 17th January 1863 in Russia, and died 7th August 1938, aged 75.  Konstantin Stanislavski was a Russian stage actor and director who developed the **naturalistic** performance technique known as the "**Stanislavski Method**" or **method acting**. Stanislavski believed in creating **naturalism** in Theatre. He wanted the audience to become emotionally involved in the play and completely believe the characters and their emotions. Stanislavski created a rehearsal system for the actor and created different ways that the **actor would become the character.**	**Design Skills of Staging** **Staging** This plays a very importance role and the performer needs to consider how and why the characters moves in a particular way and how they use the stage effectively in order for the audience to understand the aims and intentions of the play extract. **Types of Staging** **Traverse** This type of staging is when the audience is on two opposite sides of the stage facing towards each other. **Theatre-in-the-round**  Is a form of theatrical staging in which the acting area may be raised or at floor level, is surrounded by the audience.	**Design Element of Staging** **Proscenium Arch**  A stage where the audience sits on one side only is called a proscenium stage. The audience faces one side of the stage directly, and may sit at a lower height or in tiered seating. The frame around the stage is called the proscenium arch. **Thrust Staging** This type of staging is one that extends into the audience on three sides and is connected to the backstage area by its upstage end. A thrust has the benefit of greater intimacy between performers and the audience than a proscenium. 	**Design Skills of Costume** **Costume** What a performer wears to evoke the appearance of a particular character. Costumes may be realistic or stylised. They may be 'period' (appropriate to the historical setting of the play) or deliberately modern in look. Costumes are often changed on stage in full view of the audience. This is a Brechtian technique; Brecht wants to ensure that his audience is reminded that they are watching a performance and not real life. Changing costumes on stage shows this to the audience as they are reminded that they are watching someone play the character; making it harder for the audience to emotionally relate to this person. **Stage Furniture** These are large items that are not background scenery, for example chairs, tables or a piano. Therefore, they can be moved throughout the production, but they are not hand held. **Props** within a performance help to indicate character, time period and location or symbolic meaning, for example, mobile phones, bags or glasses. An item handled by performers during a production.

	Week 6	Week 7	Week 8	Week 9	Week 10
YEAR 10 DRAMA – CYCLE 3	**Design Skills of Lighting** **Lighting** **The Importance of lighting** Lighting can be used throughout a performance to show location, time of day, time period, atmosphere and even relationships. Colour is used extensively to show all of these things. An example of this would be if you wanted to represent a fire; you could have a profile lantern in the area of the fire, and this lamp could have a warm orange glow to it, signifying to the audience that there is a fire. **Stage Directions** Are important as they give directions for the actors to use on stage. They give clues on when people should enter and exit and in turn give some understanding as to the motivations and actions of the character.	**Stage Directions** **Stage directions**  **Stage Left** The left side of the stage for an actor standing facing the audience. **Stage Right** The right side of the stage for an actor standing facing the audience. **Wings** Areas that are part of a stage but offstage (out of sight of the audience). The **wing** space is used for performers preparing to enter, storage of sets for scenery changes and as a stagehand work area.	**Component One Portfolio Quetsions DNA questions.** **Question 1** **What** was your **initial response** to the **stimuli** and what were the **intentions** of the piece? **Question 2** **What** work did your group do in order to **explore** the **stimuli** and start to **create ideas** for performance? **Protest and Resistance** **The White Rose** In the early summer of 1942, a group of young people formed a non-violent resistance group in Nazi Germany, consisting of a number of students from the University of Munich and their philosophy professor. The group became known for an anonymous leaflet campaign, lasting from June 1942 until February 1943,that called for active opposition to the Nazis regime. Calling themselves the White Rose, they instructed Germans to passively resist the Nazis.	**Component One Portfolio Quetsions DNA questions.** **Question 3** What were some of the **significant moments** during the **development** process and when **rehearsing** and **refining** your work? **Question 4** How did you consider **genre, structure, character, form, style and language** throughout the process. **Question 5** How **effective** was your contribution to the **final** performance? **Question 6** **Were** you **successful** in what you set out to **achieve**?	**Health and safety in the Devised Drama** Each member of the production also needs to be aware of all **health and safety considerations** to ensure that everyone, including the audience, is kept safe. **Revision for Knowledge Organiser test:** Revise areas on Brecht and Stanislavski. You need to revise the Design Elements of Staging, Costume, Lighting, Stage Furniture and Props. Ensure you understand the use of Stage Directions. Use the following to support you with your revision: LOOK COVER WRITE CHECK

GCSE Food Preparation and nutrition

Cycle 3: Week 25 **Food choice**	**Week 26** Labelling and marketing

There are several factors that might influence the food choices that you make. Below is a mind map of the key influences. Here you need to ensure you understand each section of the mind map and be able to explain how they would affect your food choices.

Alongside all the factors that might affect food choice there are also other reasons too. These include

- Cultural reasons – The culture describes laws, morals, customs and habits and these influences why we choose to eat the foods we do.
- Moral and ethical beliefs - Some ethical reasons may include animal welfare, farming methods, how the food as been produced, and how the food as been transported are some examples
- Religious reasons – Many religions have specific rules relating to foods.
- Medical reasons – Intolerances, allergies and specific medical conditions such as diabetes

Importance of food labelling

The information on a food label is important to a consumer because:

1. They may want to maintain weight, so are looking for the fat and sugar content in the food
2. They may have a health condition, such as diabetes or high blood pressure, so they may want to check the carbohydrate content or the salt content of the food.
3. They may have a severe allergy to an ingredient so need to check the ingredients list.
4. If they need to complain about the food, they will need the manufacturers address.
5. They may have limited knowledge and experience on how to store and cook the product so will look to the packaging for information.
6. They may want to buy local or be environmentally aware and will want to know where the food comes from.
7. The information educates them about the food that they are buying
8. They can make informed choices.

Marketing is identifying consumers' needs and wants and using that information to supply consumers with products that match their needs and wants. There are a few ways that this is done well:

- Media influence
- Buy one get one free offer
- Free samples
- Price reductions and special offers
- Loyalty cards and meal deals
- Product placement

Week 27
Environmental impacts of food

The environment includes air, water and land on which people, animals and plants live.

To sustain our environment, we need to maintain and look after it by:

- Using less energy
- Reducing water consumption
- Avoiding waste
- Recycling and reusing as much as possible.
- Reducing our carbon footprint as much as possible

The 6 Rs

- Rethink – how much of the ingredient do we need to buy? Think about the most energy efficient cooking methods and think about reducing air miles – buying locally.
- Refuse – Don't use material that is bad for the environment or cannot be recycled.
- Reduce – Cut down the amount of packaging material on food, and conserve energy and water when you cook
- Reuse – Use leftover food to create another dish. Reuse packaging such as jars
- Recycle – Always recycle packaging
- Repair – Fix equipment before buying new ones.

Environmental impacts of food production

- Seasonal foods
- Packaging
- Food waste
- Local Produce
- Organic foods
- Transportation
- Sustainability

Week 28
Food provenance and production methods

Sustainable farming methods

Free range production

- This is a method of farming where animals have access to outdoor spaces for at least part of the day.
- Animals farmed this way include pigs, grass-fed beef, laying hens, chickens and turkeys.

Intensive farming

- This is a farming system that aims to produce as much yield as possible, usually with the use of chemical and in a restricted space.
- Intensive farming can be used with both crops and animals
- Intensive production means that animals can suffer from isolation or overcrowding, and cannot move around of behave naturally.
- Animals can be restrained from natural behaviours like grazing, foraging, running and nesting.

Genetically modified food

Genetically modified foods are food produced from plants or animals that have had their information changed by scientists. The generic information controls the features that are passed on from one generation to the next. Scientists can change a plant or animal by adding genetic information from another plan or animal to it. By doing this, they are able to precisely select characteristics that they want in the generations of foods.

Genetically modified foods could have:

- Better resistance to insects, pests or disease
- Increased storage life when harvested
- Resistance to low rainfall
- Faster growth

Week 29
Food production and processing

The process of food production

- Most food undergoes some processing before appearing at the table. The whole process is referred to as 'field to fork'.
- Field to fork describes all the stages in the production of food from its source to the consumer.

The two stages of food production are primary and secondary food processing.

- Primary processing is changing of raw food materials into food that can be eaten immediately or can be processed further into other food products. Primary processing covers the transporting, sorting, cleaning, blending, cooking, preserving, packing and storage of the raw food.
- Secondary processing is when primary products are changed into other types of food products.

Steps	Process	Why
1 Sieving and checking	Flour arrives at the bakery from the flour mill. It is stored in large silos.	It is checked for metals or any other impurities.
2 Mixing and kneading	The ingredients are pumped into a giant mixer. The ingredients are mixed at high speed for 5 minutes.	Simply blending the ingredients is not enough to start gluten development; the dough needs to be worked.
3 Dividing	The dough is removed and divided into individual pieces by a machine.	All batches must be identical.
4 First rising	Dough circulates along a conveyor belt and the yeast becomes active. This is rising.	**Rising** is when the yeast fills the dough with gas (carbon dioxide), causing it to rise.
5 Knocking back	The dough is kneaded for about 2 minutes by a machine. The kneaded dough passes along another conveyor belt until it is dropped into pre-greased tins.	This stage ensures that the gas is distributed throughout the dough in small bubbles.
6 Proving	The tins pass along the conveyor belt into a warm area. The dough is placed at 45°C for about 50 minutes to allow the yeast to work.	The dough will be three times its original size. The dough has a fine texture.
7 Baking	The tins move slowly on a conveyor belt through a huge oven for about 20 minutes. Basic bread doughs are usually baked at about 200°C.	The dough rises rapidly as the gas (carbon dioxide) is produced. The yeast dies and rising stops. The dough sets and browns.
8 Cooling	The bread loaves are mechanically sucked out of their tins and cooled.	Long, slow cooling allows crust formation.
9 Slicing	The bread is sliced mechanically and bagged.	The label gives the weight and best before dates.

Week 30 Sustainability of food – Food security	Week 31 Food processing methods	Week 32 Technological developments associated with better health
Food security is when all people, at all times, have access to enough safe and nutritious food for them to lead an active healthy life. The world is facing a possible crisis in terms of food security. It is all about meeting the challenge to provide the worlds growing population with a sustainable, secure supply of safe, nutritious and affordable high quality food, without having a negative affect on the environment. There are 4 features of food security 1. Availability of food 2. Access to food 3. Use of food 4. Stability of the supply Food security requires all four features to be met at the same time.  	**<u>Blanching</u>** Before food is canned or frozen, it is usually heated very quickly with steam or water. The water-soluble vitamins, including vitamin C and B are sensitive to heat and are reduced by blanching. Blanching is boiling fruit or vegetables for a short time to destroy enzymes, before plunging them into iced water to stop the cooking process **<u>Canning</u>** Sealed food inside a metal can and then subject to high temperature pressure cooking (at least 115 degrees) to destroy the microbes, and form a vacuum so no other microbes can enter the can until it is opened **<u>Pasteurisation</u>** Fresh food is heated very quickly in a heat exchanger to 72 degrees for 15 seconds, then very rapidly cooled to below 10 degrees Fresh milk is heat treated to kill pathogenic bacteria and make it safer to drink for several days as long as it is stored correctly **<u>Sterilisation - Ultra heat treatment</u>** Ultra-heat treatment (UHT) involves heating food very quickly in a heat exchanger to 132-135 degrees for 1-2 seconds, then rapidly cooling and packing it inside special multi-layered storage packs. These are completely sealed so that the food can be stored, un-opened and at ambient temperature for several months. Once opened, UHT foods must be stored in a fridge and consumed within a few days.	**Fortification of foods** Fortification of foods means to strengthen the food by the addition of nutrients. This can be done by increasing the original nutrients found in the food or adding other nutrients to the food that don't naturally occur. This is sometimes also called supplementation Some foods fortified by law include: • Vegetable fat spreads and low-fat spreads – Vitamins A and D • All types of flours, expect wholemeal – Iron, thiamine, niacin, calcium **Voluntary fortification** As the processing of some foods can result in nutrient losses, there are also several ways in which nutrients can be added to foods to compensate for these variations: 1. Enrichment – the addition of nutrients that would naturally occur in a specific food 2. Restoration – the addition of a nutrient to a specific food in order to restore lost nutrients 3. Standardisation – as the nutrient levels in foods vary, standardisation is the addition of nutrients to a consistent level to compensate for variations. **Cholesterol lowering food products** Natural substances called sterols and stanols that are found in plants are added to food products such as cholesterol-lowering vegetable fat spreads, yoghurts **<u>Food additives</u>** Food additives are added to foods to improve:. 1. Shelf life – Preservatives 2. Wider range of products – instant gravy, mash, custards etc.. 3. Improve flavour 4. promote benefits such as increased vitamin

Seneca completion list	
Week 25: **5.1.1 Factors Which Influence Food Choice** **5.1.2 Food Choices** **5.1.3 Religious Food Choices** **Week 26:** **5.1.4 Food Labels** **5.1.5 Mandatory Food Labels** **5.1.6 Optional Food Labels** **5.1.7 Marketing Influences** **5.1.8 End of Topic Test - Food Choice** **Week27:** **6.1.5 Food & The Environment** **6.1.6 Food & The Environment 2** **Week 28:** **6.1.1 Food Sources - Intensive & Organic Farming** **6.1.2 Food Sources - Genetically Modified Crops** **6.1.3 Food Sources - Reared Food** **6.1.4 Food Sources - Caught Food** **Week 29:** **6.2.1 Primary Food Processing** **6.2.2 Primary Food Processing 2** **Week 30:** **6.1.7 Sustainability of Food** **6.1.8 Sustainability of Food 2**	**Week: 31** **6.1.9 End of Topic Test - Environmental Impacts** **6.2.6 End of Topic Test - Food Processing & Production** **Week32:** **6.2.4 Fortification** **6.2.5 Additives** **Week 33:** **5.3.1 Taste Receptors & Olfactory Systems** **5.3.2 Sensory Testing Methods** **5.3.3 Sensory Testing Methods 2** **5.3.4 End of Topic Test - Cuisines & Senses** **Week34:** **5.2.1 British Cuisine** **5.2.2 Japanese Cuisine** **5.2.3 Japanese Ingredients & Dishes** **5.2.4 Spanish Cuisine** **5.2.5 Spanish Ingredients & Dishes** **Week35:** **Consolidation of Seneca – ensure all Seneca is complete.** **Week 36- NEA1 and NEA2 focus. Ensure you understand how to complete each piece of coursework.**

Cycle 1 super teaching week resource:

Carbohydrates	**Gelatinisation, dextrinization and caramelisation**	**Aeration**	**Fats**
Shortening and plasticity	**<u>Knowledge blocks</u> <u>Recall as much as you can from the topics we have covered in cycle 1</u>**		**Coagulation and Denaturation**
Foam formation and gluten formation	**Micronutrients**	**Water in the diet**	**Protein**

Cycle 2 super teaching week resource:

Different dietary requirements	**Diet related diseases**	**Heat transfer**	**Cooking methods**
Fermentation	**Knowledge blocks** **Recall as much as you can from the topics we have covered in cycle 2**		**Raising agents**
Lifestages	**Food safety**	**Food poisoning**	**Micro-organisms**

Cycle 3 super teaching week resource:

Food choice	**Labelling food**	**Marketing food**	**Sustainability**
Bread making process	**Knowledge blocks** **Recall as much as you can from the topics we have covered in cycle 3**		**Primary processing**
Cheese and yoghurt making	**Food provenance**	**Technological developments in food**	**Secondary processing**

Year 10 French Knowledge Organiser cycle 3

Extension tasks:

- Create revision cards for each of the main tenses studied to help you remember how to form them.
- Find a picture in a magazine/online and write a photo description using PALME and Chatty Mat structures
- Do 15 minutes of Duolingo every day to build your vocabulary
- Write a glossary of vocabulary we see in class – memorise it and test yourself at home.

Week 1: Le grand large	
Je vais au bord de la mer	I go to the seaside
je vais en Italie	I go to Italy
Je voyage en train	I travel by train
je voyage en avion	I travel by plane
je fais du camping	I go camping
je loge dans un hotel	I stay in a hotel
je pars avec ma famille	I go with my family
Je passe mes vacances...	I spend the holidays...
J'aime passer mes vacances...	I like to spend the holidays...

Week 2: Les hôtels	
un parking	a car park
le petit-déjeuner est inclus	breakfast is included
une salle de bains	a bathroom
une vue sur la mer	a sea view
je voudrais réserver une chambre	I would like to book a room
pour deux nuits	for two nights
la climatization	air conditioning
l'hotel est situé…	the hotel is located…
est-ce que vous avez une piscine?	do you have a swimming pool?

Week3: Mes vacances	
on peut faire	One can do... / you can do…
on peut visiter	one can visi. / you can visit
on peut aller à la plage	One can go to the beach / you can…
je me lève	I get up
je me couche	I go to bed
je me repose	I relax
je m'habille	I get dressed
Je me baigne	I swim
je vais au restaurant	I go to a restaurant

Week 4: Des vacances de rêve	
je logerais dans une caravane	I would stay in a caravan
je voyagerais avec mes copains	I would travel with my friends
je regarderais le coucher du soleil	I would watch the sunset
je ferais des randonnées	I would go for walks
je me reposerais	I would relax
je m'amuserais	I would have fun
il y aurait un café	There would be a café
ce serait passionnant	It would be exciting
on irait en été	We would go in the summer
on voyagerait en train	we would travel by train

Week 5: C'était catastrophique	
Je visite	I visit
J'ai visité	I visited
je vais visiter	I'm going to visit
je fais	I do
j'ai fait	I did
je vais faire	I'm going to do
je vois	I see
J'ai vu	I saw
Je vais voir	I'm going to see
Ce sera génial	It will be great

Week 6: aller	
Tous les jours	Every day
hier	yesterday
demain	tomorrow
je suis allé(e)	I went
je vais aller	I'm going to go
je vais	I go
Je voudrais aller	I'd like to go
mes amis vont aller	My friends are going to go

Week 7: Les matières	
ma matière préférée, c'est...	My favourite subject is...
j'aime le dessin car c'est...	I like art because it is...
je déteste la musique parce que...	I hate music because...
Je trouve la chimie intéressante	I find Chemistry interesting
je pense que l'anglais est...	I think English is...
Je dirais que les maths sont...	I would say that Maths is...
Je suis fort(e) en...	I am good at...
je suis faible en...	I am weak in...

Week 8: C’est comment ton école?	
C’est un collège mixte	It is a mixed school
Les cours commencent à...	Lessons start at...
Les cours finissent à...	Lessons finish at...
La récré est à...	Break is at...
il n’y a pas de cours	There are no lessons
il y a un cours de..	There is a .... Lesson
Les matières sont obligatoires	The subjects are obligatory
Les matières sont facultatives	The subjects are optional
les journées sont trop longues	The days are too long
on a trop de contrôles	we have too many tests

Week 9: Le règlement	
Il faut	you must
être à l’heure	be on time
faire ses devoirs	do your homework
porter l’uniforme scolaire	wear school uniform
il ne faut pas...	You mustn’t...
manquer les cours	miss lessons
tricher pendant un contrôle	cheat in a test
il est interdit de..	It is forbidden to...
mâcher du chewing-gum	chew chewing gum
utiliser son portable	use your phone

Week 10: En pleine forme	
pour être en bonne santé	To be healthy
je mange sainement	I eat healthily
je me couche tôt	I go to bed early
je bois uniquement de l’eau	I only drink water
je m’inquiète	I worry
il fume	he smokes
c’est mauvais pour la santé	it’s bad for your health
à mon avis c’est dangereux	in my opinion it’s dangerous

Week 11: La vie extra scolaire	
j’ai beaucoup d’amis	I have a lot of friends
je vais à la piscine	I go to the swimming pool
j’allais au club d’échecs	I used to go to chess club
je chante dans la chorale	I sing in the choir
j’étais membre de l’équipe de basket	I used to be a member of the basketball team
je fais du judo	I do judo
je faisais du karate	I used to do karate
je jouais dans l’orchestre	I used to play in the orchestra

Start with Week 1. Each week, complete the next colour block. Write each word out 3 times and each definition once. Check it all with a purple pen. Tick what is correct, fix what is wrong. For the 'Digging Deeper' task, follow the instructions in the box.

Coombeshead Academy *Inspiring Excellence*		GCSE Media Studies			*Year 10 Cycle 3*
wk	**keyword**	definition	example		
Week 1	**Medium shot**	Most common type of camera-shot in TV- from around the waist and up to the head of a character.	Most shots of Rachel in the 'Friends' set product are **medium shots.**		**Digging Deeper:** How do the characters in 'Modern Family' seek to subvert* archetypes? In your answer, use the terms: 'stereotype' and 'gender expectation'. *Subvert = go against
	Emotive Language	Words that are particularly positive or negative.	Love, hate, disgust.		
	Archetype	A typical example of a person or thing.	Joey and Chandler are the **archetypes** of young men in the 90s.		
Week 2	**Industry**	A particular form or branch of commercial activity.	The media **industry** includes TV and film.	**Week2**	**Digging Deeper:** When we discussed newspaper regulation, we said that newspapers were responsible for regulating themselves in the first instance. If a consumer then wishes to complain regardless, then they can go the IPSO. Research a time when a newspaper was referred to the IPSO. What happened and what was the outcome?
	Controversial	Where something prompts public disagreement.	The boys discussing Ross' lesbian ex-wife is seen as quite **controversial** now.		
	Regulation	Rules made by an authority in order to maintain order.	The IPSO is the body that regulates newspapers.		
Week 3	**Long-shot**	Shows the full length of the subject and a large amount of the surrounding area.	**Long-shots** are often also used as establishing shots.	**Week 3**	**Digging Deeper:** Watch 'Luther' (Series 1, episode 1). What do you notice about how Luther is presented through the camera angles used to present him? What kind of character is he being portrayed as?
	Pan	Where the camera moves across a scene from side to side.	**Pan shots** might be used to help establish a setting.		
	Tilt	Where the camera moves through the shot, up and down.	**Tilting** might be used to assert a character's dominance over the audience.		

Week 4	**Distribution**	The act of sharing something out amongst the audience.	'Friends' was originally **distributed** by Warner Bros.		Week 4	**Digging Deeper:** Find 3 specific examples of stereotypically masculine attitudes or behaviours in 'Friends'. 1. How do you know these are stereotypically masculine? 2. Have these changed at all (by 2023)?
	Pilot	An initial version of a product that tests whether it would be popular with an audience.	The 'Friends' set product was a **pilot** episode.			
	Masculinity	What is means to be stereotypically male in terms of attitude and behaviour.	Joey is stereotypically **masculine**; interested in the sexual side of relationships, parties and drinking. Many characters in 'Modern Family' subvert this.			
Week 5	**Contemporary**	Where something exists in, or belongs to the present.	**Contemporary** attitudes are very different to those shown in the older set products.		Week 5	**Digging Deeper:** Create a profile of the target audience of 'Modern Family'. Decide who the show is for and how it appeals to them. Use your class notes to help you. Create a poster to display your findings.
	Codes	Tools that have come to be accepted by audiences as having certain meaning.	An example of a **code** would be a camera shot fading to black indicating that time has passed.			
	Nuclear Family	A family unit consisting of two parents and one or more children.	Taylor Swift mentioning 'Romeo and Juliet' in her song 'Love Story'.			
Week 6	**Matriarch**	A strong female who has a lot of power and control, usually within a family.	Claire and Monica are **matriarchs** in each of the set products.		Week 6	**Digging Deeper:** Read the FAQs on 'The Archers' website. Summarise the planning and production process of the programme. Find some responses from the audience. What uses and gratifications do these responses fulfil for the consumers?
	Iconography	The visual images and symbols used in a medium.	The 'Central Perk' sign is a piece of iconography from 'Friends'.			
	Multi-stranded narrative	A narrative that contains lots of different sub-plots.	'The Archers' and 'Modern Family' are examples of mediums with **multi-stranded narratives.**			

Week 7	**Omnibus**	A broadcast of a programme that usually contains all of the episodes from a particular week.	Television **omnibuses** usually air every weekend.		Week 7	**Digging Deeper:** Study the website for 'The Archers'. 1. How does it reflect the content of the radio programme? 2. How does it entice audiences in? 3. What opportunities does it afford audiences?
	Opinion Leader	A well-known, respected person who has the potential to influence people's opinions about a topic.	Stephen Fry introduces 'The Archers' on the official website. He could be seen as an **opinion leader.**			
	Turnover	Business term for the amount of money a company takes from the sale of products.	Conglomerate companies have huge **turnovers.**			
Week 8	**In- Game purchase**	Where players buy content from within the game.	**In-Game purchases** allow gamers to access extra features that encourage them to keep interacting with the product.		Week 8	**Digging Deeper:** 1. Research some vertically and horizontally integrated companies. Make a list of who they are and what they own. 2. How might the success of films like 'The Hunger Games' influence video games? 3. How might the different modes of 'Fortnite' appeal to gamers of different levels of experience?
	Augmented reality	Technology that allows pictures of virtual objects to be overlaid onto real-world images.	Mobile phone screens use **augmented reality.**			
	Horizontal Integration	Where one organisation buys other companies in the same sector that produce similar products.	'Epic Games' owns several game developer companies- this allows it to produce huge numbers of a variety of products.			
Week 9	**PEGI**	The ratings used to regulate video games.	The ratings are awarded according to the levels of violence etc present in the game.		Week 9	**Digging Deeper:** Rewatch the Sitcom set products. 1. Write down specific examples of verbal comedy. 2. Write down specific examples of visual comedy. 3. Why do you think 'Friends' is now shown on Comedy Central rather than Channel 4?
	Watercooler topic	A topic of discussion that most people have heard about.	Big events that happen in the media often become **watercooler topics.**			
	Montage Editing	Editing where different types of image are put together. These are usually linked.	Many TV trailers use **montage editing** to give an audience an idea of the various storylines coming up.			
Week 10	**Climax**	A point of high tension or action.	The hero confronting the villain is usually a point of **climax.**		Week 10	**Digging Deeper:**

	Dialect	Language specific to a particular area of the country.	The names we give to things are influenced by where we come from.			Conduct a survey of the radio listening habits of your family: 1. Do they listen to it? What channels? How often? When? 2. Why do they listen to that? 3. Link your findings to Uses and Gratifications theory.
	Mockumentary	A fictional show filmed in the style of a serious documentary.	'Modern Family' is filmed in the **mockumentary** style.			

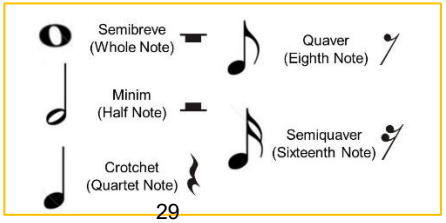
Music Composition Knowledge Organiser

Steps to create your own composition	
Be able to generate musical ideas from starting points	
Generating material	Pitches, rhythms, chords, harmonic systems, themes, texts, images.
Musical starting points	Hooks and riffs, melodic ideas, rhythmic pattern, chord progressions, sound pallets.
Working to a brief	Interpreting a brief and devising appropriate musical ideas.
Know how to extend, develop and manipulate musical material	
Extending and developing an idea	Repetition, decoration, variation, sequence and contrast.
Manipulating techniques	Transposition, transformations (inversion, retrograde, retrograde inversion) and processes (canon, phrasing, addition, subtraction, augmentation, diminution, displacement).
Working with layers	Instrumentation, textures, contrasts.
Be able to form musical material into completed compositions	
Form and structure	Binary, ternary, rondo, arch, ground bass, introductions, codas, song structures, 12-bar blues, effective use of repetition and contrast.
Pace	Maintaining momentum, contrasts, balancing repetition and change.
Be able to present compositions appropriately	
Appropriate presentation methods	Conventions of particular styles, genres and scores
Type of score	Full score, lead sheet, chord chart, relevant computer software.

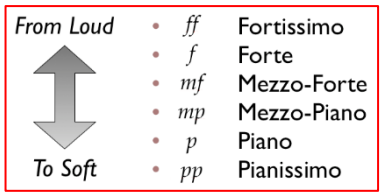
Musical Element	Definition	Examples
Dynamics	The volume of a piece of music.	piano, forte, crescendo and diminuendo.
Rhythm	The pattern of beats.	Semibreve, minim, crotchet, quaver, semiquaver, rests, broken chords, triplets.
Pitch	The intervals between different notes.	High, low, ascending, descending, stepwise
Structure	The sections that make up the music.	Binary, ternary, rondo, arch, ground bass, introduction, codas, 12-bar blues,
Melody	The main tune	Scalic, passing note, repetition, phrases, ostinato
Instrumentation	The different instruments used within the music.	Orchestra, pop band, chamber band, choir, duet, trio.
Texture	The different layers within the music.	Monophonic, homophonic, polyphonic, melody and accompaniment.
Tonality	The key the music is in	Major, minor, modal, chromatic.
Tempo	The speed of the music.	Allegro, Adagio, Andante, Largo, Presto
Timbre	The sound quality of each instrument.	Deep, light, clear, dark
Harmony	The way the notes sound together.	Chords, added note chords, inversions, transpositions.

Musical Symbols

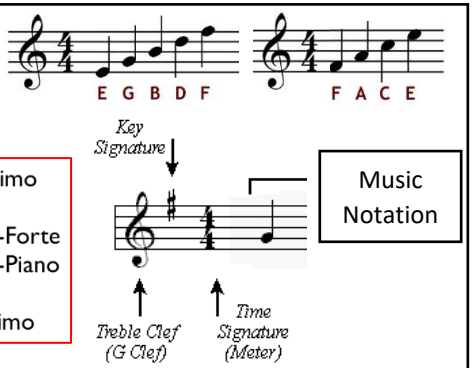
Rhythmic Notation



Dynamics



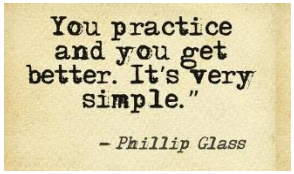
Music Notation



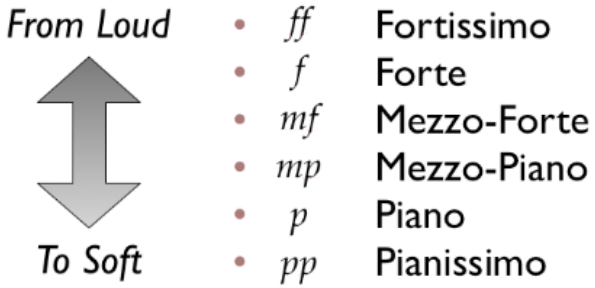
KNOWLEDGE ORGANISER – Instrumental Practice

KEY CONCEPTS

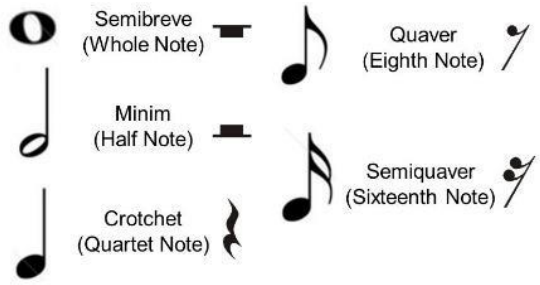
Reviewing your performance	Watching a video of your performance and using it to amend or set new targets
Solo performance skills	Understanding the techniques needed when performing as a soloist and being able to demonstrate them
Preparing for performance	Using rehearsal time and peer/self-assessment to prepare for a performance to a wider audience
Stage Presence	Researching what stage presence is and how to achieve it

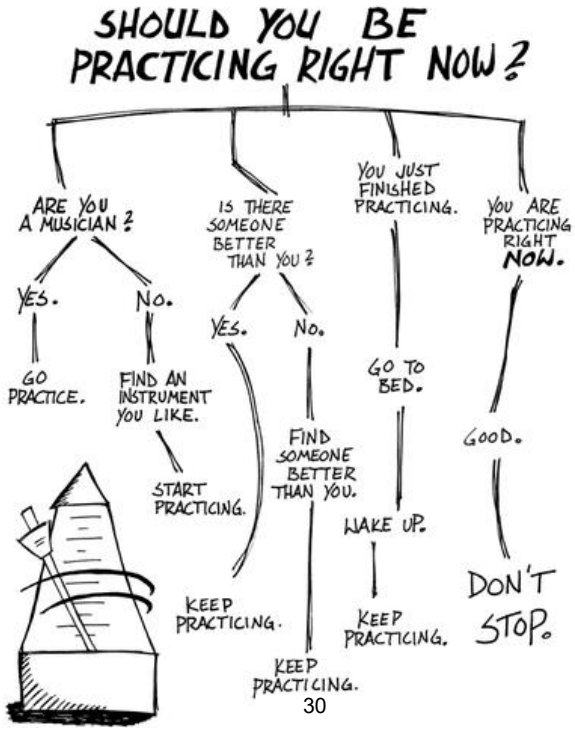


DYNAMICS



NOTE VALUES





KEYWORDS

Technique	ability and control of an instrument
Pitch	high or low sound
Timing	the ability to stay in time accurately
Rhythm	A repeated pattern of sound
Phrasing	the shape of a sequence of notes
Confidence	a belief in your ability to succeed
Repertoire	a collection of pieces
Musical Interaction	the relationship between performers
Practice	developing skills to aid performance
Strength	something you are good at
Weakness	something you need to develop
Time Management	planning and using your time sensibly and profitably – not wasting it
Consistency	always doing something
Focus	keeping your attention on one thing
Fluent	performing with no gaps or hesitations
Accurate	making no mistakes

Year 10 GSCE PE Cycle three

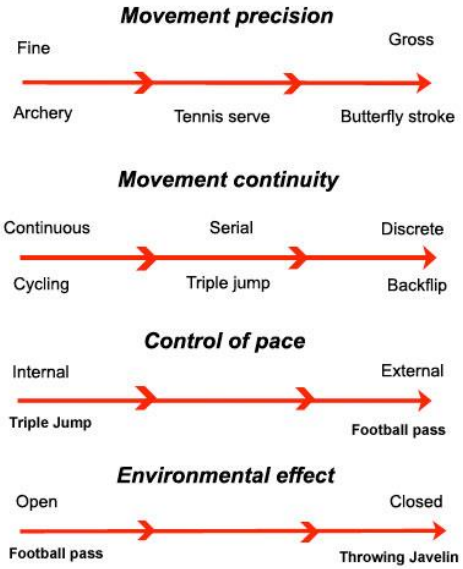
Week 1

Skill vs Ability

Skill: A learned action or behaviour, with the intention of bringing about pre-determined results, with maximum certainty and minimum outlay of the time and energy. Once learned a skill can be performed easily and efficiently again and again with a similar outcome.

Ability: Something that somebody is born with. An inherited, stable trait that determines an individual's potential to learn or acquire a skill.

Trait: Distinguishing qualities or characteristics belonging to a person.



Week 2

Classification of Skill

Basic | Complex

Basic = Simple things such as throwing and catching. Require less concentration and coordination for complex skills.
Complex = Take a long time to learn because they involve a high level of coordination and concentration.

Open | Closed

Open= Affected by the environment, where the performer must react and adjust to the changing situation.
Closed=Not affected by the environment or the performers within it.

Self paced | Externally paced

Self-paced=Started when the performer decides to start them.
Externally paced= Started in response to an external factor. The speed, rate or pace of the skill is controlled by your opponent/environment.

Gross | Fine

Gross= Involve large muscle movements combining to perform big powerful movements.
Fine= Small and precise movements that require accuracy and coordination.

Week 3

Goals and Target setting

There are 2 basic types of goals: **Performance goals** and **Outcome goals.**
Performance Goals – These are personal goals that an individual wants to achieve. A performance sets a performance goal on something they want to achieve in the future. An example would be setting a personal best in a sprint or endurance race.

Outcome Goals – These goals focus on the end result, on come 1st, 2nd or 3rd. Winning a tournament or placing second in a swimming race are outcome goals.

SMART targets
Setting SMART targets are one way to ensure goals are appropriate.
A SMART target is:
S **– SPECIFIC –** The target must meet the demands of the sport specifically.
M **– MEASURABLE –** It must be possible to measure whether the target has been met.
A **– ACCEPTED -** The target must be accepted by the performer and other involved in training the individual.
R **– REALISTIC –** The target must be possible to complete and attain.
T **– TIME-BOUND –** The target covers a set period of time so the performer knows whether they have achieved it or not.

Week 4

Information Processing

Input:
Data received from the display. Information is received via the senses (sight, sound, touch or intuition) They use the selective attention to choose what to focus on.

Decision making:
The selected data is analysed and an appropriate response is selected. They will access the memories of similar experiences. The information is stored in the SHORT-TERM MEMORY (7 pieces of information for up to 60 seconds) or the LONG-TERM MEMORY (well learned past experiences)

Output:
The decision is then acted upon.

Feedback:
Data is received in response to the output. This can then become the Input for future decisions. The performer will then receive feedback either INTRINSICALLY or EXTRINSICALLY.

Year 10 GSCE PE Cycle three

Week 5

Feedback and Guidance

Feedback:

Feedback is the information the performer receives about their performance. It helps performers to develop and improve their skills and technique. Feedback can be given during and/or after a performance.

- **Positive feedback**
- **Negative feedback**
- **Knowledge of results**
- **Knowledge of performance**
- **Extrinsic feedback**
- **Intrinsic feedback**

Guidance:

Visual

Verbal

Manual

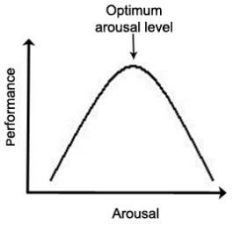
Mechanical

Week 6

Arousal

Arousal: A physical and mental state of alertness/readiness varying from deep sleep to intense excitement or alertness.

Inverted 'U' Theory states that optimal performance occurs when a performer reaches an optimal level of arousal.



Linking Skills to optimal levels of arousal:

- Gross movement skills – High levels of arousal
- Fine movement skills – Low levels of arousal

Managing Arousal:

- **Deep breathing –** Taking slow deeper breaths, this increases the supply of oxygen to the brain helping to limit arousal caused by anxiety or stress.
- **Positive Self talk-** Reframing your thoughts turning negative thoughts into positive thoughts.
- **Mental rehearsal, visualisation and imagery –** Changing the ways that people think. It involves rehearsing a successful performance in your mind or imagining a positive outcome. This takes place immediately before a performance.

Week 7

Aggression

Aggression:

Often defined as a deliberate intent to harm or injure another person, but in sport it can be more controlled. It can be physical or mental.

Direct Aggression:

Aimed directly at other players or participants. It is an aggressive act that involves physical contact with others. Direct aggression needs to be done within the rules of the game then it can be used to improve performance and to be successful. An example of this is the punch in boxing that wins the point or the tackle in rugby that wins possession of the ball.

Indirect Aggression:

It's an aggressive act that does not involve direct physical contact with a player/participant. It is taken out on an object in order to gain an advantage. Examples are hitting a tennis ball very hard during a rally to win a point or a bowler in cricket bowling a fast bouncer to intimidate the batsman.

Week 8

Personality and Motivation

Personality:

There are two main personality types.

Introverts – Introverts tend to be quiet, passive and reserved, and usually like taking part in individual sports. Individual sports include: Athletics, golf, gymnastics, dance and swimming.

Extroverts – Extroverts tend to be sociable, talkative, outgoing individuals, who usually tend to like team sports. They have high level of enthusiasm. Team sports include: football, rugby, hockey, netball and water polo.

Motivation:

'The drive to succeed or the desire to achieve or be inspired to do something.'

Intrinsic Motivation:

This is where the drive comes from the individual. A performer with intrinsic motivation wants to succeed because it gives them a sense of personal pride and accomplishment.

Extrinsic motivation:

This is where the drive comes from winning external rewards, such as trophies, prizes, praise or even money.

A. Visual Elements Keywords

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Shape	A shape is an area enclosed by a line. Shapes can be geometric or irregular.
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Pattern	A design that is created by repeating lines, shapes, tones or colours.
Colour	Red, yellow and blue are primary colours, which means they can't be mixed using any other colours.

B. Key Knowledge 1: RULES of COMPOSITION

- ❑ **Rule of Thirds**
- ❑ **Balancing Elements**
- ❑ **Leading Lines**
- ❑ **Symmetry & Patterns**
- ❑ **Viewpoint**
- ❑ **Background**
- ❑ **Depth**
- ❑ **Framing**
- ❑ **Cropping**
- ❑ **Experimentation**

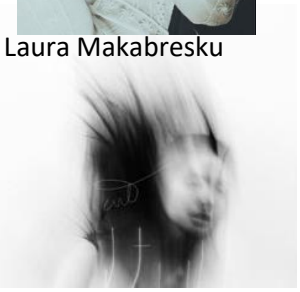
Tick once you have shown evidence of these in your photo shoots and edits

E. Expert Modelling:


Laura Makabresku


Sten Lex

Pommel Lane


Nadia Wicker


Kayla Varley


Mads Perch

What Visual Elements / Rules of Composition can you see in this work?

GCSE PHOTOGRAPHY YEAR 10 – EXPERIMENTAL WORKSHOPS

Threshold Concepts:

1. Artists make marks, drawing our attention

2. Art communicates, in every sense

6. Art engages head, hands and heart

C. Key Knowledge 2: tick once you have used these Photoshoot techniques & Photoshop Tutorials

- ❑ Combined two or more images together manually and digitally
- ❑ Drawn on an image manually and digitally – text, geometric shapes, line, images
- ❑ Used a combination of photographs to make one image
- ❑ Used a projector / lighting to create an experimental technique

D. Key Knowledge 3

How can Photography be used in different ways?

Why do we Photograph things / people / places?

How has Photoshop changed Photography?

What different jobs can you do as a Photographer?

F. Wider thinking / further reading:

https://www.youtube.com/watch?v=PDWqZgiICGY

Year 10 Spanish Knowledge Organiser cycle 3

Extension tasks:

- Create Revision Cards for each of the main tenses studied to help you remember how to form them.
- Find a picture in a magazine/online and write a photo description using PALMS and Chatty Mat structures
- Do 15 minutes of Duolingo every day to build your vocabulary
- Write a glossary of vocabulary we see in class – memorize it and test yourself at home.

Week 2: ¿Cómo es tu zona? (What is your region like?)	
Está situado/a al lado del/de la …	It is located next to the …..
Está rodeado de lagos	It is surrounded by lakes
Tiene un paisaje impresionante	It is an impressive landscape
El clima es soleado/variable	The climate is sunny/changeable
Hay mucha marcha	There is lots going on
Es mi lugar favorito	It's my favourite place
Se puede disfrutar de las vistas	You can enjoy the views
Se puede prácticar los deportes acuáticos	You can practise water sports
¿Cuánto cuesta una entrada?	How much is an entrance ticket?
¿A qué hora sale el autobús?	What time does the bus leave?

Week 1: En mi ciudad (in my city)	
Hay un ayuntamiento	There is a town hall
Hay una iglesia	There is a church
(No) hay mucho que hacer	There is not much to do
Vivo en un pueblo tuístico	I live in a tourist town
¿Dónde está el../la…?	Where is the ….?
Gira a la izquierda/la derecha	Turn to the left/right
Toma la primera calle a la derecha	Take the first street on the right
Pasa el puente/los semáforos	Go over the bridge/pass the traffic lights

Week 3: ¿Qué harás mañana? (What will you do tomorrow?)	
Si hace frío visitaré la cathedral	If it is cold, I will visit the cathedral
Si llueve, sacaré muchas fotos	If it rains, I will take a lot of photos
Si hace sol, haré una excursion	If it is sunny, I will go on a trip
Si llueve, compraré recuerdos	If it rains, I will buy souvenirs
Iré de compras	I will go shopping
El primer day veré delfines	The first day I will see dolphins
El segundo día descansaré en le playa	The second day I will relax on the beach
E ultimo día nadaré en el mar	The last day I will swim in the sea
İQué guay!	How cool!
De acuerdo	Ok

Week 4: Las tiendas (shops)	
El banco está cerca	The bank is close by
La carnicería esté lejos	The Butchers is far away
La pescadería esté cerrado	The fishmongers is closed
Abierto todos los días	Open every day
Suelo ir al centro commercial	I usually go to the shopping centre
Prefiero comprar en tiendas de moda	I prefer to shop in fashion shops
Porque es divertido/hay más variedad	Because it's fun/there is more choice
Se puede comprar de todo	You can buy everything
No hay que hacer cola	You don't have to queue

Week 5: Las tiendas 2	
Abre a las nueve de la mañana	It opens at 9 in the morning
No cierra a mediodía	It doesn't close at midday
Cerrado domingos y festivos	Closed Sundays and Public holidays
Abierto tods los días	Open every day
La pastelería está cerrado	The cake shop is closed
Quiero comprar sellos	I want to buy stamps
¿Está abierto la panadería?	Is the bakery open?
¿Dónde está la estación de trenes?	Where is the train station?

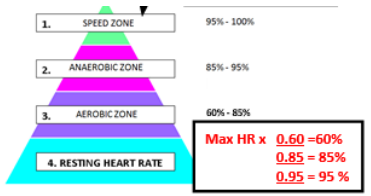
Week 6: Recuerdos y regalos (souvenirs and presents)	
¿Usted me puede ayudar?	Can you help me? (polite)
Quiero comprar el abanico	I would like to buy the fan
Es demasiado largo/a ***/*** estrecho/a	It is too long/tight
¿Puede reembolsarme?	Can you reimburse me?
Podemos hacer un cambio	We can exchange it
Tiene un agujero/una mancha	It has a hole/a stain
Aquí tiene el recibo	Here is the receipt
¿Tiene uno/una más barato/a?	Do you have a cheaper one?
¿Cuánto es/son?	How much is it/are they?
Quisiera comprar la gorra	I would like to buy the cap

Week 7: Quejas (complaints)	
Quiero devolver el llavero	I would like to return the keyring
¿Me puedo probar la camiseta?	Can I try on the t-shirt?
¿Hay una talla más grande/pequeño/a?	Is there one is a bigger/smaller size?
¿Qué me recomienda?	What do you recommend?
Me lo/la/los/las llevo	I 'll take it/them
¿Qué tal los pantalones?	How are the trousers?
Está roto/a	It is broken
Me llevo/llevan bien	It fits/they fit well
Quiero comprar el oso de peluche	I want to buy the teddy bear
¿Cuántos valen los pendientes?	How much are the earrings?

Week 8: ¿Te gusta ir de compras?	
(No) me gusta ir de compras	I don't like going shopping
Suelo ir al centro commercial	I usually go to the shopping centre
Odio comprar en grandes almacenes	I hate shopping in department stores
Normalmente prefiero comprar en…	Normally I prefer to shop in ….
Suelo ir en línea para comprar	I usually go online to buy
Puedes encontrar gangas	You can find bargains
No hay ropa de marca	There is no designer clothing
Es mucho más cómodo	It's much more convenient
Se puede comprar de todo	You can buy everything

Week 9: Los pros y los contras de mi ciudad	
Lo mejor de la ciudad es que….	The best thing about the city is that…
Lo malo de la ciudad es que…	The bad thing about the city is that …
Las tiendas están tan cerca	The shops are so close
Hay pocos espacios verdes	There are few green spaces
La red de transporte no es fiable	The transport network is not reliable
Necesitamos más rutas para bicis	We need more bike routes
Hay bastante desempleo	There is quite a lot of unemployment
No hay tantos atascos	There are not as many traffic jams
La vida es más relajada	Life is more relaxed
Hay tantas diversions	There are so many things to do

Week 10: Destino Arequipa	
Hicimos una visita guidada	We did a guided tour
Alquilé una bici de montaña	I hired a mountain bike
Había vistas maravillosas	There were amazing views
La ciudad era muy acogedora	The city was very welcoming
Me gustó el clima	I liked the climate
No me gustaron los taxis	I did not like the taxis
İQué miedo!	How scary!
Vistaré otras ciudades	I will visit other cities
Volveré algún día	I will return one day
Vi sitios de interés	I saw some sights

	Week 1	Week 2	Week 3	Week 4	Week 5
BTEC SPORT UNIT 1	**Components of Fitness Learning aim A** **Physical Fitness** 1. Body Composition 2. Aerobic Endurance 3. Strength (Muscular) 4. Speed 5. Flexibility 6. Muscular Endurance **Skill - related Fitness** 1. Co-ordination 2. Reaction time 3. Agility 4. Balance 5. Power Can you link these components to different sports?	**Exercise Intensity Learning aim A** 220-Age=Max HR Training Pyramid  BORG Scale – Rating of Perceived Exertion (RPE) 6 No exertion 7 8 9 10 11 Light 12 13 Somewhat hard 14 15 Hard (heavy) 16 17 Very hard 18 19 20 Maximal exertion RPE x 10 = Heart rate bpm E.g Level 13 x 10 =130bpm	**Principles of Training Learning aim A** **FITT Principle** Frequency – How often do you train? (How many times a week) Intensity – How hard do you train? (Heart rate/pyramid, BPM, BORG scale RPE) Time – How long you train for? (min. 30mins) Type – What type of training method (e.g. weight, circuit, interval…?) **SPARRV Principle** Specificity – training specific to the individual needs of athlete (Sport, Position, Component of fitness, Age, Gender) Progressive Overload – Make training gradually harder so body gradually improves and adapts (increase *FREQUENCY/INTENSITY/TIME)* Adaptation – Body adapts in response to training (gets stronger because of strength training etc.) Rest and Recovery –Allows adaptation to take place and to avoid injuries due to fatigue/tiredness (have rest days) Reversibility – Body will reverse back if training is stopped for a prolonged time (illness, injury, and motivation) Variation – Training must be varied to avoid boredom (use different *TYPEs* of training methods)	MID CYCLE ASSESSMENT OF LEARNING AIM A List 3 areas you need to improve on from Learning aim A 1 2 3 **Learning aim B** Warm up - Pulse raiser, stretches, joint mobilisation Cool down – Pulse lowering, Static stretches, Developmental stretches (PNF)	**Flexibility training** **1. Static Stretching – Active (you), Passive (someone/thing else)** **2. Ballistic Stretching – bouncing, actions** **3. PNF Stretching – stretch, hold, tension, stretch further** **Strength, muscular endurance and power training** **1. Free weights – Sets, reps, barbell, dumbbell** **2. Circuit Training – stations** **3. Plyometric – bouncing, throwing, jumping**

	Week 6	Week 7	Week 8	Week 9	Week 10
BTEC SPORT UNIT 1	**Aerobic Endurance Training** 1. **Continuous training – non-stop 30 mins** 2. **Fartlek Training – 'Speed play', slow, medium, fast/different terrain** 3. **Interval Training – work, rest, work, rest** **Speed Training** **1. Hollow Sprint - broken up by 'hollow' lower level work** **2. Acceleration Sprints - jogging to striding and finally to sprinting at maximum speed.** **3. Interval Training -– work, rest, work, rest**	MID CYCLE ASSESSMENT OF LEARNING AIM A List 3 areas you need to improve on from Learning aim A 1 2 3 **Learning aim C** Why are tests important? Pre-test procedures: • Consent • Calibration of equipment Accurate measurements and recording results Reliability, validity and practicality	**Muscular Endurance** **Sit up and press up tests** Count how many sit ups or press-ups completed in 1 minute ✓ Quick and easy ✓ Little equipment ✓ Large groups at once ➢ Arguments of correct technique can affect results **Power** **Vertical Jump test** Stand side on to wall reach up and mark/set the measure. Standing jump as high as possible touching wall. Measure between two marks/measures ✓ Quick and easy ➢ Technique can affect result as need to jump and mark wall **Strength** **Grip dynamometer** 3 attempts, squeeze grip dynamometer measure result in Kg or KgW. ✓ Simple and easy test ✓ Lots of normative data ➢ Must be adjusted for hand size which may affect results **Flexibility** **Sit and Reach test** Both feet against the **sit and reach box**, reach forward and measure result in centimetres ✓ Well known test ✓ Quick and easy to perform ➢ measures lower back & hamstrings only ➢ length of arms and legs affect results	**Agility** **Illinois Agility test** Cones set up as in the image, lie face down on the floor at the start, measure time to complete course in seconds ✓ Cheap and easy to conduct ➢ Human error with timing can affect results ➢ Weather or surface conditions can affect results **Speed** **35m sprint test** Sprint from one line/cone to another in a straight line over 35m. Record time and compare to normative data ✓ Little equipment so cheap to run ➢ Human error when timing can affect results **Aerobic Endurance** **Multi Stage Fitness Test (MST/Bleep test)** Cones/Lines **20m apart**, run in-between to the sound of a beep. **Gradually gets faster**. Longer you can keep up the higher the level ✓ Can test a large group at once ✓ Tests to maximum effort ➢ Practice can affect score ➢ If outside environment may affect ➢ Scores can be subjective **Forestry Step Test** Step/ bench- 33cm for females and 40cm for males. Step up and down for 5 minutes to a metronome. **(90bpm/22.5steps a min)**. Record pulse and compare to table ✓ Low cost ✓ Can be performed inside or outside ✓ Can test on your own ➢ People may struggle to keep with the stepping pace on metronome	**Body Composition** **Body Mass Index (BMI)** $BMI = \frac{\text{Weight (kg)}}{\text{Height (m)} \times \text{Height (m)}}$ ➢ Easy to carry out ➢ Results can be misleading as muscles weighs more than fat **Bioelectrical Impedance Analysis (BIA)** BIA = electricity passed through body from **WRIST** to **ANKLE.** Measures the resistance from muscle and fat ✓ Quick and gives instant results ✓ Can be repeated over time with no bad effects ➢ Needs expensive equipment **Sum of Skinfolds** Use **CALLIPERS** to measure skin on the **BICEP, TRICEP, SHOULDER BLADE** and **HIP.** Add measurements together and use to the **JACKSON-POLLOCK** nomogram (4 lines) • Provides accurate percentages of body fat ➢ Needs specialist equipment ➢ Problems with people revealing bare skin

A. Visual Elements Keywords

Line	Line is the path left by a moving point. A line can be horizontal, diagonal or curved and can also change length.
Shape	A shape is an area enclosed by a line. Shapes can be geometric or irregular.
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Pattern	A design that is created by repeating lines, shapes, tones or colours.
Colour	Red, yellow and blue are primary colours, which means they can't be mixed using any other colours.

B. Key Knowledge 1: Tick once mastered

- ❑ Threading up a sewing machine
- ❑ Confidently using the sewing machine to stitch
- ❑ Applique
- ❑ Reverse Applique
- ❑ Pinning and cutting fabric safely
- ❑ Threading a needle by hand

D. Expert Modelling:

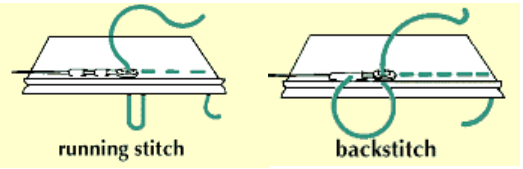
Jean Paul Gaultier

Alexander McQueen

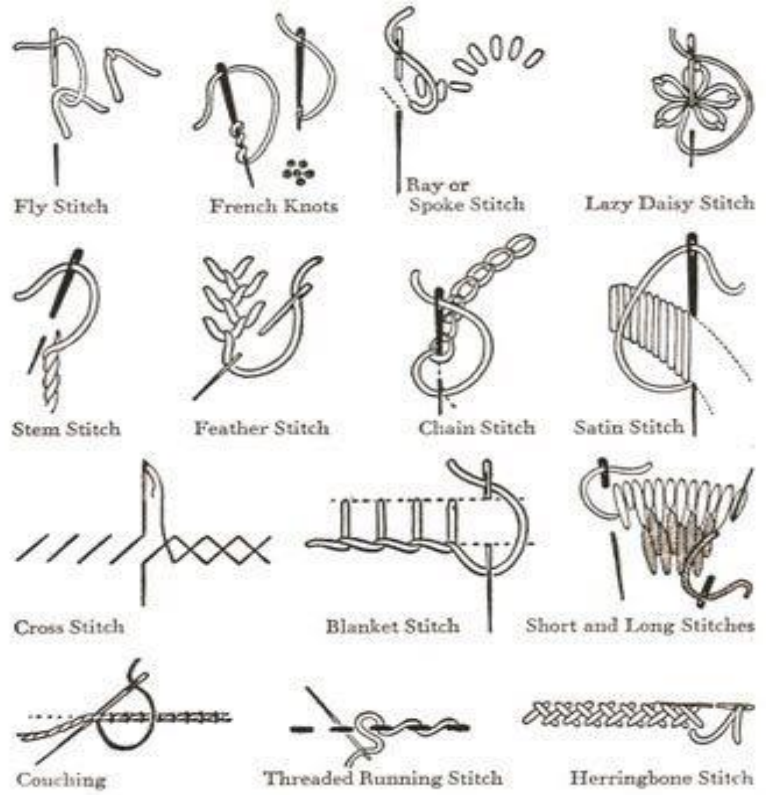
ART & DESIGN
Project – YEAR 10 TEXTURE & THE NATURAL ENVIRONMENT

C. Key Knowledge 3: Tick once mastered:

- ❑ Running stitch
- ❑ Back stitch



E. Key Knowledge 2: Decorative stitches



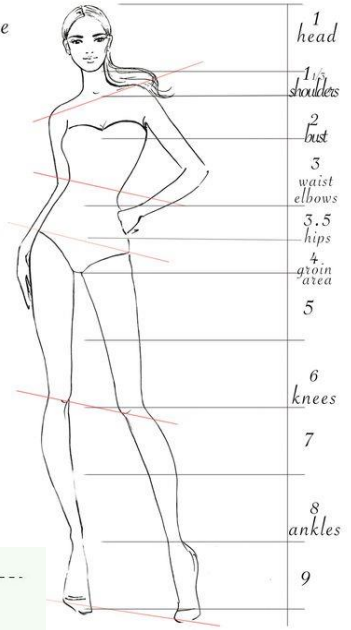
ART & DESIGN
Project – YEAR 10 TEXTURE & THE NATURAL ENVIRONMENT

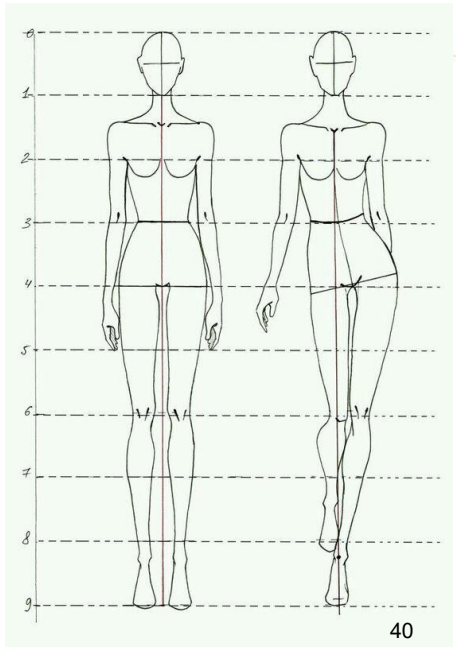
F. Decorative Techniques

Appliqué	When one shape of fabric is sewn on top of another piece of fabric, it can be attached using hand stitching or zig-zag machine stitch.
Transfer print	An image from the computer is printed onto paper and then transferred to fabric using a heat press.
Tie dye	A resist dye technique-elastic bands are put around fabric and then placed in dye to create interesting patterns where the elastic bands have been.
Reverse appliqué	Fabric is layered and then a design or pattern is cut into the top layers to reveal the fabrics underneath
Hand embroidery	Using a needle and thread to create patterns or pictures or word with stitches
Batik	Another resist dye method, hot wax is used to draw onto fabric, then dye is painted onto the fabric. Where the wax is the dye will not soak in, and when the wax is removed, white lines remain.
Fabric pens/paints/ crayons	Dye can be applied straight to fabric by pens, paints or crayons, often they need "fixing" (setting of the dye so it won't come out) this is done with heat.
CAD CAM machine embroidery	This is using an automated sewing machine to create words or pictures onto fabric. The machine have some pre programmed designs but your own designs can be up loaded to the machine too if you have he correct software.

G. Fashion Design Proportions

Design Pages should include links to research (AO1) reference to materials/ processes/ fabric (AO2) and clear sketches and annotations (AO3)

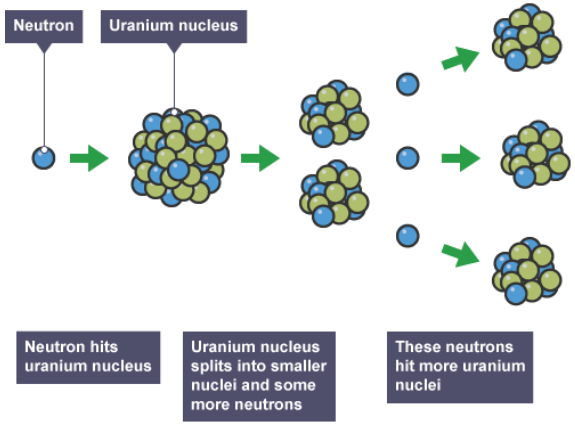
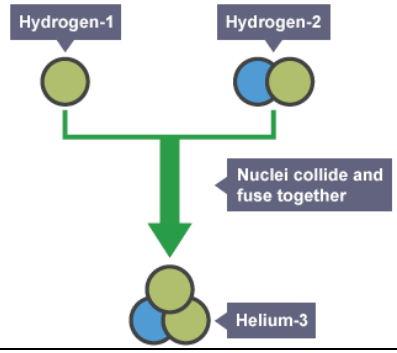




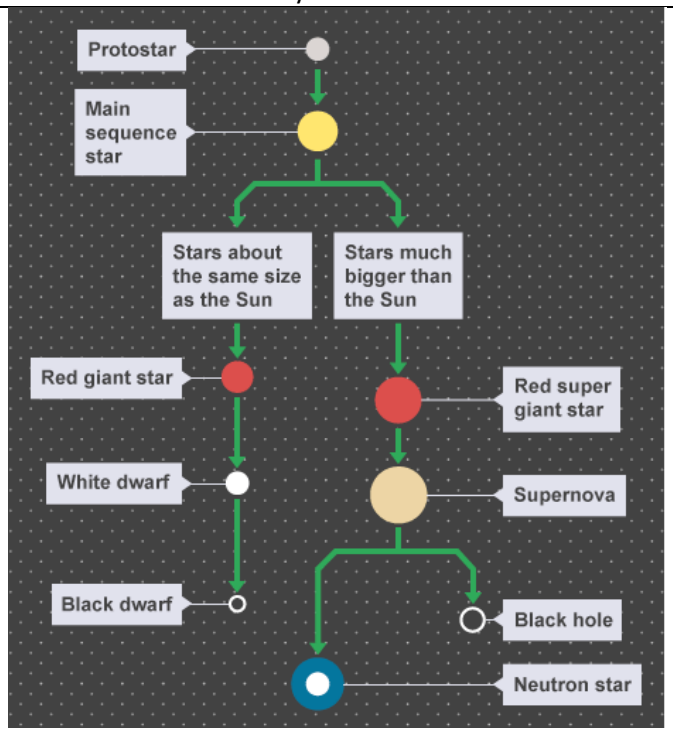
H. Exemplars

I. Common key words used in annotation

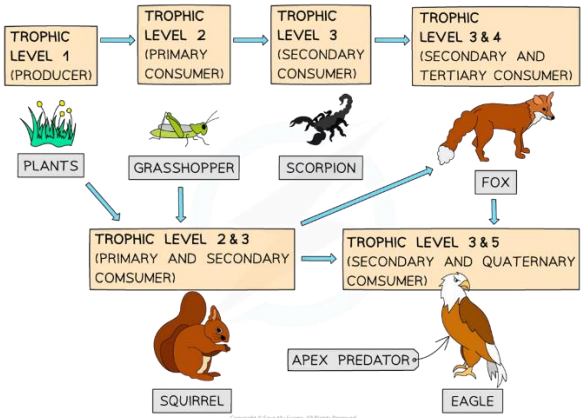
Contrasting	Fastenings
Composition	Interesting
Details	Intricate
Developed	Manipulated
Embroidery	Piece
Experimented	Textures
Evaluation	Unusual

Lesson 1 Uses of radioactivity	**Lesson 2** Activity and half-life	**Lesson 3** Fission and Fusion
Background radiation is the low-level constant exposure to radiation that occurs naturally. That majority of background radiation is from natural sources including rocks and cosmic rays. Around 12% of background radiation is due to artificial sources, largely from medical applications. Exposure to radiation, called dose, is measured in Sievert (Sv). 1 Sv is the amount of damage caused by absorbing 1 joule of energy in each kg of body mass. Doses are usually given in mSv (1000 mSv = 1Sv). Radioactive isotopes can be used in a number of ways: • Sterilising food and surgical equipment • Treatment of cancers • Medical tracers and medical imaging (gamma camera) • Inspecting underground pipes for leaks • Smoke detectors The choice of source used will depend on: • The type of radiation emitted (and how far/through what it must travel) • The half-life • Whether it is toxic/poisonous	Radioactive isotopes have a very wide range of half-life values. Sources containing nuclei that are most unstable have the shortest half-lives. The decay is rapid with a lot of radiation emitted in a short time. A radioactive isotope with a short half-life will have a high activity as a result. Sources with nuclei that are least unstable have the longest half-lives. These sources emit little radiation each second but emit radiation for a long time. Nuclei with short half-lives are still found on Earth because radioactive decays occur in long “chains” where one isotope decays into another. The decay of an isotope with a long half-life can produce one with a short half-life.	Nuclear fission is the splitting of a large atomic nucleus in to smaller nuclei.  All of the fission products have kinetic energy. The neutrons may go on to start a chain reaction. The chain reaction is controlled in a nuclear reactor to control the energy released. The explosion caused by a nuclear weapon is caused by an uncontrolled chain reaction Nuclear fusion wis when two small, light nuclei join together to make one heavy nucleus. 

Lesson 1 The solar system and beyond	**Lesson 2** Life Cycles of Stars	**Lesson 3** Satellites

The **Sun** is a star, one of billions in our Galaxy. The sun is the most massive object in the solar system and is at the centre of it, orbited by a number of objects:
• 8 planets
  ○ As distance from the sun increases, surface temperature decreases and time to orbit the sun increases
  ○ The various planets have natural satellites called moons.
• Dwarf planets
  ○ The gravitational field of a dwarf planet is not strong enough to clear the neighbourhood, so there may be other objects in its orbit around the Sun.
• Asteroids and comets
  ○ Highly elliptical orbits. There are many asteroids in the asteroid belt between mars and Jupiter and in the Kuiper belt beyond Neptune.
 	
Light from distant galaxies exhibits **redshift** which shows that they are receding from us.
 	
Together with the cosmic microwave background radiation, this is evidence that the Universe has been expanding since the Big Bang.
		Artificial satellites travel in one of two different orbits:
		
		• polar orbits
		• geostationary orbits
		
		Polar orbits take the satellites over the Earth's poles. The satellites travel very close to the Earth (as low as 200 km above sea level), so they must travel at very high speeds (nearly 8,000 m/s).
		
		Geostationary satellites take 24 hours to orbit the Earth, so the satellite appears to remain in the same part of the sky when viewed from the ground. These orbits are much higher than polar orbits (typically 36,000 km) so the satellites travel more slowly (around 3 km/s).

Revision Guide: Foundation pages 57-60, Higher pages 58-61

Lessons 1 & 2 Tropic levels and biomass	Lessons 3 & 4 Transfer of biomass	Lessons 5 & 6 Factors affecting food security Farming techniques
The position of organisms within a food chain are known as trophic levels. Trophic levels are represented by numbers, starting with producers at level 1.  Biomass: Mass of living tissues (or recently dead tissues that have not yet decomposed) that a plant or animal is made up of. It is the dry mass of the organism Biomass decreases as you move up the tropic levels of a food chain. Pyramid of biomass show relative biomass at each tropic level, always pyramid shaped.	Producers transfer ~1% of the incident energy from light for photosynthesis. Approximately 10% of the biomass from each tropic level is transferred to the level above. Biomass is lost: -Through energy from respiration transferred by heating the surroundings -Faeces -Urine -providing energy for movement and keeping warm **Figure 1** shows: • A food chain with four trophic levels • The total biomass of the organisms at each trophic level **Figure 1** Clover → Snail → Thrush → Sparrowhawk Biomass in kg: 1450 138 14.1 1.18 Calculate the efficiency of biomass transfer from the first to the second trophic level. Give your answer to 3 significant figures. Use the equation: $\text{Percentage efficiency transfer} = \frac{\text{biomass in higher trophic level}}{\text{biomass in lower trophic level}} \times 100$	**Food security:** having enough food to feed a population ***Food security*** *exists when all people, at all times, have physical, social, and economic access to sufficient, safe, and nutritious food which meets their dietary needs and food preferences for an active and healthy life.* **Malnutrition** is a condition that results from eating a diet in which one or more nutrients are either not enough or are too much such that the diet causes health problems. **Sustainable food production:** Producing food in ways that will supply the whole human population and can continue for many years. **Methods of sustainable food production:** -Maintaining soil quality -Looking after fish stocks -Using more efficient ways of producing food -Urban farming initiatives The efficiency of food production can be improved by restricting energy transfer from food animals to the environment. -Limit their movement -Control the temperature of their surroundings. Some animals are fed high proteins foods: -Increased growth, animals have greater mass, so sell for more money. Sustainable fisheries: Fish being caught faster than they can reproduce, lots of bi-catch Solutions: line & hoot, spear and harpooning and traps, control net size, fishing quotas.

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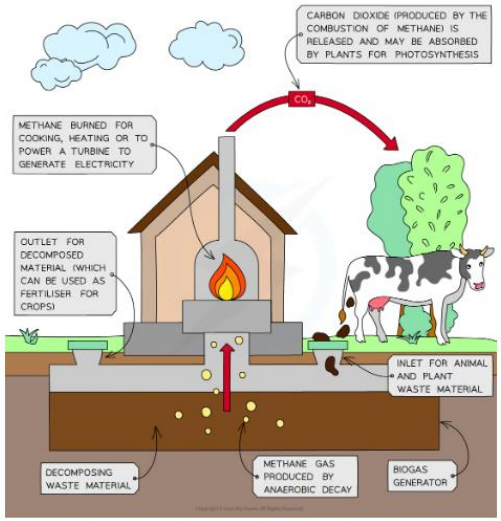
Lessons 7 & 8 Decomposition

Decomposer: organisms that carry out the process of decomposition
Conditions for decay: Temperature, moisture, oxygen and microorganisms.

Anaerobic decomposition: produces methane gas, burned for cooking, heating or to power a turbine to generate electricity.
Negatives of anaerobic decomposition: combustion of methane releases CO2 a greenhouse gas.



The process of biogas generation

Lessons 9 & 10 Calculating rate change in the decay of biological material

TO CALCULATE THE RATE OF CHANGE WE FIRST NEED TO WORK OUT HOW MUCH THE pH VALUE CHANGED OVER EACH 24 HOUR PERIOD. THIS IS CALCULATED BY FINDING THE DIFFERENCE BETWEEN THE CURRENT pH VALUE AND THE PREVIOUS pH VALUE:

NO CHANGE AT 0 HOURS AS NO TIME HAS PASSED SO THE pH HAS NOT CHANGED

PREVIOUS pH VALUE

CURRENT pH VALUE

CHANGE IN pH VALUE

	0 hours	24 hours	48 hours	72 hours
10 °C		6.5 – 6.3 = 0.2	6.3 – 6.2 = 0.1	6.2 – 5.9 = 0.3
20 °C		6.5 – 6.0 = 0.5	6.0 – 5.4 = 0.6	5.4 – 4.7 = 0.7
30 °C		6.5 – 5.0 = 1.5	5.0 – 4.7 = 0.3	4.7 – 4.7 = 0

YOU CAN NOW CALCULATE THE RATE OF CHANGE FOR EACH 24 HOUR PERIOD BY DIVIDING EACH CHANGE IN pH BY THE TIME TAKEN FOR THIS CHANGE TO OCCUR:

RATE OF CHANGE = CHANGE IN VALUE ÷ CHANGE IN TIME

CHANGE IN pH VALUE

TIME TAKEN FOR CHANGE TO OCCUR

	24 hours	48 hours	72 hours
10 °C	0.2 ÷ 24 = 0.0083	0.1 ÷ 24 = 0.0042	0.3 ÷ 24 = 0.013
20 °C	0.5 ÷ 24 = 0.021	0.6 ÷ 24 = 0.025	0.7 ÷ 24 = 0.029
30 °C	1.5 ÷ 24 = 0.063	0.3 ÷ 24 = 0.013	0 ÷ 24 = 0

RATE OF CHANGE IN pH

Lessons 11 & 12 Impact of environmental change

Changes in the environment affect the distribution of species.

Environmental changes can affect the distribution of organisms:
Water availability
Temperature
Atmospheric gases

The seasons, geographic position and human interaction affect water availability, temperature and atmospheric gases.

Lessons 1 & 2 Rusting and Corrosion

Rusting is an example of corrosion.

Iron needs air and water to rust.
You need to be able to describe an experiment to show the conditions needed for rusting.

Preventing rusting

1.**Barriers** which prevent oxygen or water getting in contact with iron. Paint, grease, electroplating. Aluminium is covered with a layer of aluminium oxide which prevents further corrosion.

2**. Sacrificial protection** – using a more reactive metal to coat or attach to an object. Eg Zn used to galvanise iron or a lump of magnesium attached to a steel ship. Water or oxygen reacts with the more reactive metal rather than the iron. The more reactive metal loses electrons so it is oxidised. This protects the iron from being oxidised.

Lessons 3 & 4 Alloys

Alloys	Metals	Uses
Bronze	Copper and tin	statues
Brass	Copper and zinc	Musical instruments
Gold alloys	Gold with Ag, Cu, Zn 24 carat is pure gold, 18 carat is 75% gold	jewellery
Steels	Iron with carbon and other metals. High C steel is strong and brittle, Low C steel is softer and more easily shaped. Stainless steels contain Ni and Cr are hard and resist corrosion.	Construction of buildings, bridges, cars etc
Aluminium alloys	Al can be mixed with lots of different elements. Al alloys are low density	aircraft

Lessons 5 & 6 Composite materials

Most glass is soda lime glass which is made by heating a mixture of sand, sodium carbonate and limestone.

Borosilicate glass is made from sand and boron trioxide. It melts at higher temperatures than soda lime glass.

Clay ceramics eg pottery and bricks are made by shaping wet clay then heating in a furnace.

Most composites are made of 2 materials – a matrix or binder which surrounds and binds together fibres or fragments of the other material. This is called reinforcement.

Examples -
Concrete is made from cement, sand and gravel.

MDF is made from woodchips held together by a polymer resin

Fibreglass was made from a polymer as a binder and fine threads of glass. More advanced composites now use carbon fibres or nanotubes.

Lessons 7 & 8
Testing for Cations ions

Flame tests for metal ions

Different metal ions produce different flame colours when they are heated strongly. This is the basis of a flame test. In order to confidently identify which ion is present, the result for a test should be unique, and not caused by another ion.

To carry out a flame test:

1. dip a clean wire loop into a solid sample of the compound being tested
2. put the loop into the edge of the blue flame from a Bunsen burner
3. observe and record the flame colour produced

Ion present	Flame test colour
Lithium, Li^+	Crimson
Sodium, Na^+	Yellow
Potassium, K^+	Lilac
Calcium, Ca^{2+}	Orange-red
Copper, Cu^{2+}	Green

If a mixture of ions is present, some of the flame colours may not be clearly visible. For example, the yellow colour from sodium ions is very intense and tends to hide the paler lilac colour from potassium ions.

Metal hydroxide precipitate tests

Dilute sodium hydroxide solution is used in tests for some metal ions, which form metal hydroxides that are insoluble. This means that the metal hydroxides appear as precipitates. For example, copper sulfate solution reacts with a few drops of sodium hydroxide solution:

copper sulfate + sodium hydroxide → sodium sulfate + copper hydroxide

$CuSO_4(aq) + 2NaOH(aq) \rightarrow Na_2SO_4(aq) + Cu(OH)_2(s)$

Copper hydroxide forms a blue precipitate.

Metal ion	Precipitate colour
Aluminium, Al^{3+}	White
Calcium, Ca^{2+}	White
Magnesium, Mg^{2+}	White
Copper(II), Cu^{2+}	Blue
Iron(II), Fe^{2+}	Green
Iron(III), Fe^{3+}	Brown

Distinguishing between aluminium ions, calcium ions and magnesium ions

A few drops of dilute sodium hydroxide solution react to form a white precipitate with aluminium ions, calcium ions and magnesium ions. However, if excess sodium hydroxide solution is added:

- the aluminium hydroxide precipitate dissolves to form a colourless solution
- the calcium hydroxide precipitate is unchanged
- the magnesium hydroxide solution is unchanged

This means that using sodium hydroxide can give a positive result for aluminium ions, but it cannot distinguish between calcium and magnesium ions.

Lessons 9 & 10
Testing for Anions

Testing for negatively charged ions

The formation of different precipitates allows us to identify different negatively charged ions in solution.

Testing for carbonate ions

Carbonate ions, CO_3^{2-}, are detected using a dilute acid. Bubbles are given off when an acid, usually dilute hydrochloric acid, is added to the test compound.

The bubbles are caused by carbon dioxide. Limewater is used to confirm that the gas is carbon dioxide. It turns milky/cloudy when carbon dioxide is bubbled through it.

Unlike the other tests described on this page, the test for carbonate ions works whatever acid is added.

Testing for sulfate ions

Barium ions react with sulfate ions, SO_4^{2-} to form insoluble white barium sulfate:

$Ba^{2+}(aq) + SO_4^{2-}(aq) \rightarrow BaSO_4(s)$

To test for sulfate ions:

- add a few drops of dilute hydrochloric acid to the sample
- add a few drop of dilute barium chloride solution

A white precipitate forms if sulfate ions are present.

Testing for halide ions

Silver ions react with halide ions (Cl^-, Br^- or I^- ions) to form insoluble precipitates. The table shows the colours of these silver halide precipitates.

Halide ion	Precipitate colour
Chloride, Cl^-	White
Bromide, Br^-	Cream
Iodide, I^-	Yellow

For example, when silver nitrate is added to a solution containing chloride ions:

$Ag^+(aq) + Cl^-(aq) \rightarrow AgCl(s)$

To test for halide ions:

- add a few drops of dilute nitric acid to the sample
- add a few drop of dilute silver nitrate solution

Observe and record the colour of any precipitate that forms.

Lessons 11-12 Required Practical Testing unknowns	Lessons 13-14 Instrumental Analysis
Required practical Using chemical tests It is important in this core practical to use the appropriate apparatus and substances carefully and safely, and to observe chemical changes. This guide includes a summary of all the tests needed to carry out the practical. The tests can be carried out in any order, and you may not need to carry them all out on a particular substance. Eye protection must be worn. **Aims** To identify the ions in unknown salts, using the tests for the specified positive and negative anions. **Method** 1. Carry out one or more tests on each salt. You may need to dissolve a sample of salt in a little distilled water if you are given solids, rather than solutions. 2. Record your observations carefully. Repeat any tests that do not get clear results. **Flame tests** Carry out a flame test as described earlier. **Hydroxide precipitates tests** Add a few drops of dilute sodium hydroxide solution. Observe and record the colour of any precipitate formed. **Test for carbonate ions** Add a few drops of dilute hydrochloric acid. Bubbles are produced if carbonate ions are present. Confirm that the gas is carbon dioxide - limewater turns milky/cloudy. **Test for sulfate ions** Add a few drops of dilute hydrochloric acid, then a few drops of barium chloride solution. A white precipitate forms if sulfate ions are present. **Test for halide ions** Add a few drops of dilute nitric acid, then a few drops of silver nitrate solution. Observe and record the colour of any precipitate formed.	**instrumental methods of analysis** Instrumental methods of analysis rely on machines. There are several different types of instrumental analysis. Some are suitable for detecting and identifying elements, while others are better suited to compounds. Compared to simple laboratory tests, instrumental methods of analysis may give improved: • speed • accuracy • sensitivity (they can detect very small amounts of a substance in a small amount of sample) **Flame emission spectroscopy** The flame emission spectroscope is a scientific instrument based on flame testing. Data from a spectroscope can be used to: 1. Identify metal ions in a sample. 2. Determine the concentration of metal ions in dilute solutions. **Identifying metal ions** In the flame emission spectroscope, the coloured light from a vaporised sample can be split to produce an emission spectrum. The different lines in an emission spectrum look like a coloured barcode. Each metal ion produces a unique emission spectrum. The metal present in a sample is identified by comparing its spectrum with reference spectra. These are emission spectra from known metal ions. If two spectra match, they must be from the same metal ion. **Determining concentrations** A reading is taken from the flame spectroscope for different concentrations of a metal ion in solution. These readings are used to plot a calibration curve.