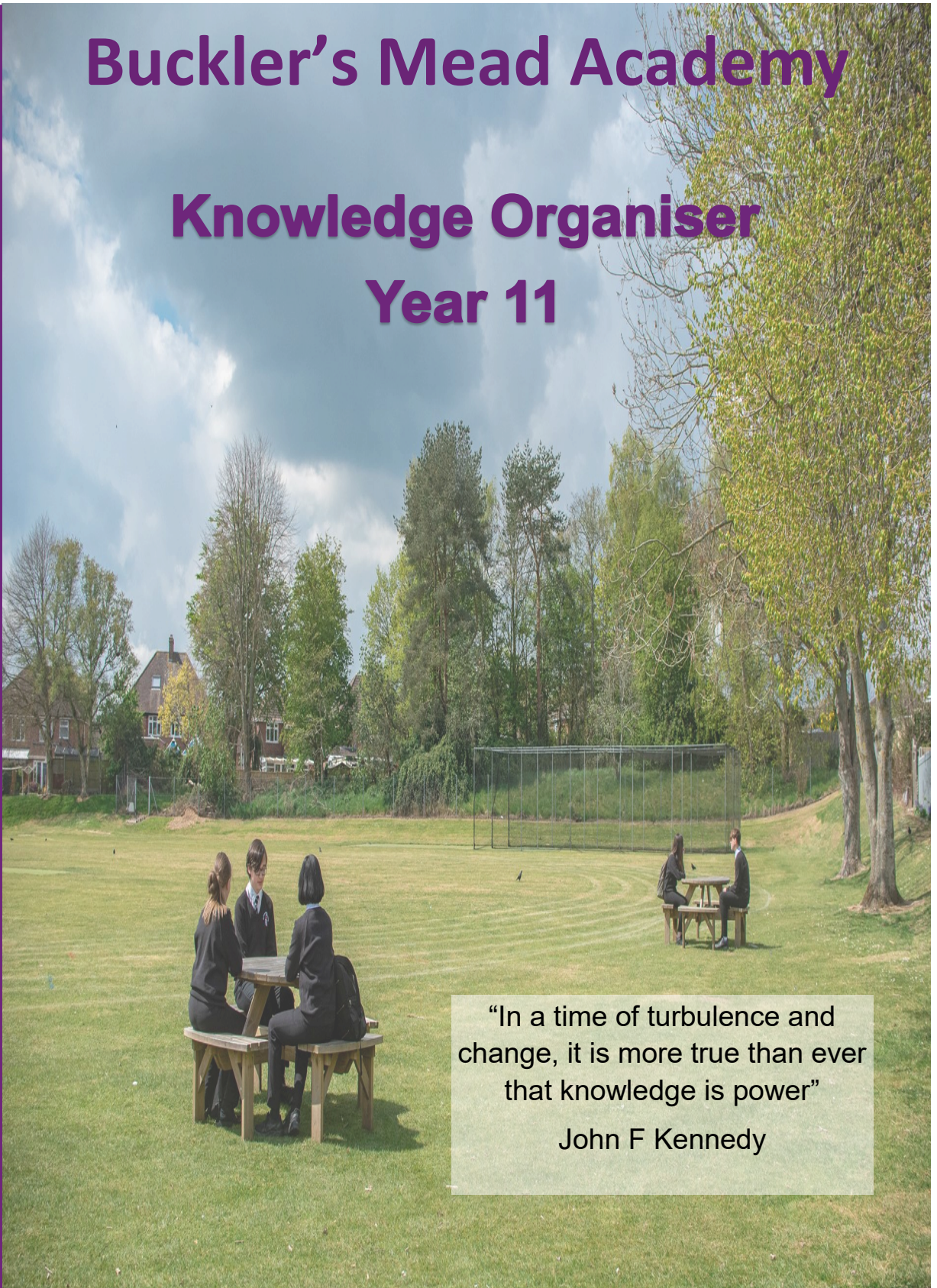


Buckler's Mead Academy

Knowledge Organiser Year 11



“In a time of turbulence and change, it is more true than ever that knowledge is power”

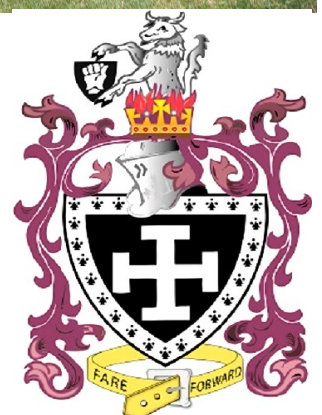
John F Kennedy

Inspiring Education for All

Name:

Tutor:

Ready, Responsible, Respect



Homework Timetable

	Week A	Week B
Monday		
Tuesday		
Wednesday		
Thursday		

Your Knowledge Organiser

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How to Use Your Knowledge Organiser

Self –Quizzing

Your Knowledge Organiser contains all of the key information you need to know for each subject area.

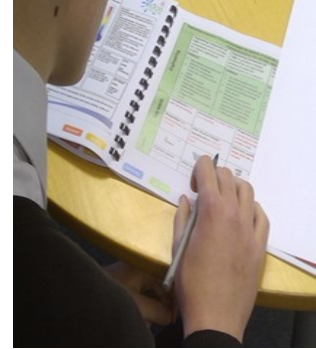
Your Knowledge Organiser will allow you to revise this key information and make sure it is stored in your long-term memory

The best way to use this resource is by self-quizzing.

“look, cover, write and check”

Look, Cover, Write, Check, Correct

First look through and read the information on a section of your knowledge organiser



Then Cover the section so you can no longer see the information

Next Try and **write out** the key definitions or facts that you need to know



Now uncover the section of your Knowledge Organiser and check how correct you were

Finally Correct anything that you wrote down that was incorrect

Knowledge Quiz

You teacher will quiz you on your knowledge organiser during the learning cycle .

Record your score from each quiz in the mark box.

Quiz 1					
Quiz 2					
Quiz 3					

Quiz 1					
Quiz 2					
Quiz 3					

Quiz 1					
Quiz 2					
Quiz 3					

Key Literary Vocabulary:

Media/Medium

The materials and tools used by an artist to create a piece of art.

Technique

The skill in which an artist uses tools and materials to create a piece of art.

Abstract

A piece of art which is not realistic. It uses shapes colours and textures.

Style

The technique an artist uses to expressive their individual character of there work.

Composition

The arrangement and layout of artwork/objects.

Highlight

The bright or reflective area within a drawing/painting where direct light meets the surface of the object or person.

Shadow, shade, shading

The tonal and darker areas within a drawing/painting where there is less light on the object or person.

Texture

The feel, appearance or the tactile quality of the work of art

Mark making

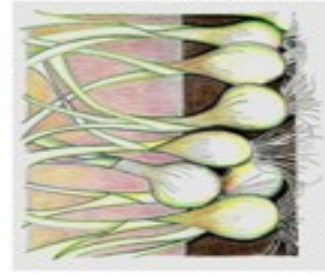
Mark making is used to create texture within a piece of art by drawing lines and patterns.

Collage

A piece of art made by using a variety of materials such as paper/newspaper/photographs which are cut out, rearranged and glued on a surface.

Art Principles

(Principles of the Visual Language)



Rhythm: when elements are repeated in a certain direction.



Proportion: refers to the relationship between the size or scale of objects etc...

Pattern: when you repeat a 'motif' or design many times.



Balance: can be either symmetrical or asymmetrical. Organised in an even way.



Visual Movement: when forms, values or colours seem to create action.

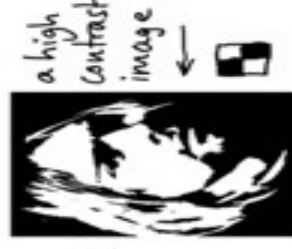
Variety: when there are lots of different shapes, colours, forms, textures patterns lines or values in the work.



Harmony: when the elements work together to create a pleasing arrangement.



Contrast: very different tones shown together.



Emphasis: when one part of an artwork stands out and attracts the eye (the tree on the left).



Unity: when an artwork seems whole, complete together.



Photography



Focus: what areas appear clearest or sharpest in the photograph? What do not? How would you describe the Depth of Field?



Light: what areas of the photograph are most highlighted? Are there any shadows? Does the photograph allow you to guess the time of day? Is the light natural or artificial? Harsh or soft? Reflected or direct?



Line: are there objects in the photograph that act as lines? Are they straight, curvy, thin, thick? Do the lines create direction in the photograph? Do they outline? Do the lines show movement or energy?



Repetition: are there any objects, shapes or lines which repeat and create a pattern?



Shape: do you see geometric or organic shapes? What are they?



Space: is there depth to the photograph or does it seem shallow? What creates this appearance? Are there important negative spaces in addition to positive spaces? Is there depth created by spatial illusions?



Texture: if you could touch the surface of the photograph how would it feel? How do the objects in the picture look like they would feel?



Value: is there a range of tones from dark to light? Where is the darkest value? Where is the lightest?



Angle: the vantage point from which the photograph was taken; generally used when discussing a photograph taken from an unusual or exaggerated vantage point.



Background: the part of a scene or picture that is or seems to be toward the back.



Balance: the distribution of visual elements in a photograph. Symmetrical balance distributes visual elements evenly in an image. Asymmetrical balance is found when visual elements are not evenly distributed in an image.



Point/s of Interest: the object(s) which appears most prominently and/or most clearly focused in a photograph.



Composition: the arrangement or structure of the formal elements that make up an image.



Contour: the outline of an object or shape.



Contrast: strong visual differences between light and dark, varying textures, sizes, etc.



Framing: what the photographer has placed within the boundaries of the photograph.



Setting: actual physical surroundings or scenery whether real or artificial.



Vantage point: the place from which a photographer takes a photograph.

Computational Thinking

- 1) **What is Computational Thinking?** - Is a way of solving complex problems that are difficult to understand
- Creation of Algorithms to solve a problem.
 - Breaking the problem down into small chunks that can be rebuilt later
 - Looking for patterns in these smaller chunks. Have we solved anything before?
 - Focus only on the important detail

2) Decomposition

Yeovil News:

Armed Robbery at Town jewellery store

To break down the problem (decompose it) the police would think about:

- what crime was committed
- when the crime was committed
- where the crime was committed
- what evidence there is
- if there were any witnesses
- if there have recently been any similar crimes

KEY WORDS:

Abstraction - Taking away unnecessary parts of a problem

Decomposition - Breaking down a problem into smaller chunks

Pattern Recognition - When two or more things have something in common

Algorithms - a process or set of rules to be followed in calculations or other problem-solving operations

3) Pattern Recognition

Finding patterns makes it easier to solve problems. A pattern occurs when two or more things have something in common.

Think:

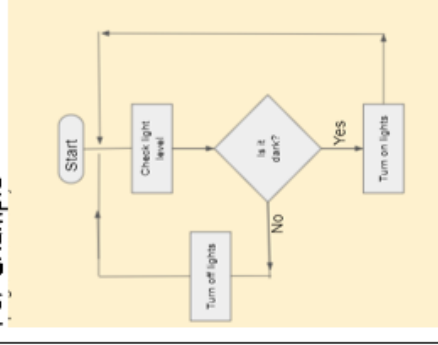
Which of the following contains a pattern and why?

- Buckler's Mead is a school
- Buckler's Mead and Preston are schools

5) Flowcharts

Flowcharts help us to create an Algorithm in a pictorial way that should be easy to follow.

For Example



Symbols:

	Stop / Start
	Process
	Decision
	Flow of Information

4) Abstraction

In computing, abstraction involves taking a complex problem and removing all of the specific detail to try and make the problem a little simpler to understand.

For example, when trying to describe a cat in general terms, you don't need to know exactly how big it is or what colour its fur is.



Computing

Project Life Cycle	Initiation, Planning, Execution, Evaluation
SMART Targets	Specific, Measurable, Achievable, Relevant, Timed
Planning Tools	GANTT Charts, PERT (Project Evaluation and Review Technique), Critical Path, Flowcharts, Mind map.
Risk Mitigation	A strategy to prepare for and reduce the risk of threats.
Feasibility	How practical/realistic a project is.
Interaction/iteration	Each phase of the Project Life cycle interacts with the phases before and after.

Data	raw facts and figures before they have been processed.
Data types	Text, alphanumeric, integer, real, currency, percentage, fraction, decimal, date/time, limited choice, object, logical/Boolean.
Information	The end result of data being processed.
Data collection methods	questionnaires/surveys, email, sensors, interviews, consumer panels.
IT methods of data collection	Barcode readers, QR codes, web based surveys, wearable technology, and mobile technology.
Storage methods	The cloud (virtual), hard disk drive, solid state drive, optical, flash memory device (all physical).
Big data	Large amounts of data collected and processed.

Types of threats	Malware (adware, bot, virus, worm, spyware); Social engineering (phishing, pretexting, baiting); Hacking, DDoS (distributed denial of service)
Vulnerability	A weakness that allows a person to launch a cyber-security attack (environmental, physical, system).
Impacts of cyber-security attack	Identity theft, data destruction, data manipulation, data modification, data theft.
IT legislation	Data Protection 1998; Copyright, design and patents act 1988; Computer Misuse Act 1990; Freedom of information act 2000.
Primary data	data collected directly through surveys/questionnaires
Secondary data	Collected from secondary sources such as journals/magazines.

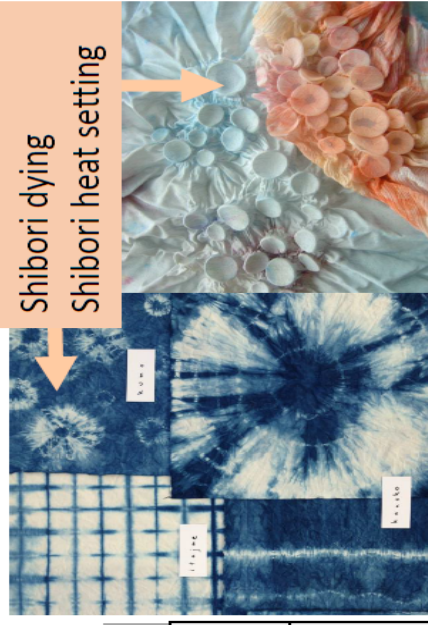
Processing data	Two main tools for this: spreadsheets and database software.
Spreadsheets	Formulas, functions, worksheets.
Databases	Tables, records, queries, validation.
Presenting data	Word processing, desktop publishing, PowerPoint presentation.
Considerations of presenting data	Target audience, content limitations, availability of information.
Distribution Channel	Messaging services, websites, and Multimedia Cloud and Mobile apps.
Presentation Methods/Resources	report, presentation, charts, tables, hardware, software, connectivity

DT - Textiles

Knowledge Organiser: Fabric manipulation

Know what these words mean and learn the spellings

Fabric manipulation	Any technique that reshapes the surface of the material
Shibori	This is usually a Japanese method of dyeing fabric, indigo dyes are normally used. Shibori can also be used to shape a fabric by manipulating and then heat setting the fabric to set the shape
Embroidery	The art of working raised and ornamental designs on fabric with a needle
Pleating	A pleat (older plait) is a type of fold formed by doubling fabric back upon itself and securing it in place.
Suffolk puff	A Suffolk puff is simply a circle of material gathered in on itself to form a smaller, double thickness, puffier circle
Ruching	Ruching is used to describe gathering of fabric
Fabric origami	Fabric folding that replicates the Japanese art of folding paper into decorative shapes and figures.
Layering	One layer of fabric on top of another
Distressing	Making the fabric look old and worn
Design development	The process of developing a design from an initial starting point



Suffolk puff



Ruching



Distressing



Pintucks



Distressing



Folded fabric

DT—Food and Nutrition

Functions of ingredients

Ingredients provide a variety of functions in recipes.

Carbohydrate, protein and fat

Carbohydrate, protein and fat all have a range of properties that make them useful in a variety of food products.

Carbohydrates perform different functions in food.

They can:

- help to cause the colour change of bread, toast and bakery products (dextrinisation);
- contribute to the chewiness, colour and sweet flavour of caramel;
- thicken products such as sauces and custards (gelatinisation).

Maillard reaction

Foods which are baked, grilled or roasted undergo colour, odour and flavour changes. This is primarily due to a group of reactions involving amino acids (from protein) and reducing sugars.

Dextrinisation

When foods containing starch are heated they can also produce brown compounds due to dextrinisation. Dextrinisation occurs when the heat breaks the large starch polysaccharides into smaller molecules known as dextrins which produce a brown colour.

Caramelisation

When sucrose (table sugar) is heated above its melting point it undergoes physical and chemical changes to produce caramel.

Gelatinisation

When starch is mixed with water and heated, the starch granules swell and eventually rupture, absorbing liquid, which thickens the mixture. On cooling, if enough starch is used, a gel forms.

Proteins perform different functions in food products.

They:

- aerate foods, e.g. whisking egg whites;
- thicken sauces, e.g. egg custard;
- bind ingredients together, e.g. fishcakes;
- form structures, e.g. gluten formation in bread;
- gel, e.g. lime jelly.

Gluten formation

Two proteins, gliadin and glutenin, found in wheat flour, form gluten when mixed with water. Gluten is strong, elastic and forms a 3D network in dough. In the production of bread, kneading helps untangle the gluten strands and align them. Gluten helps give structure to the bread and keeps in the gases that expand during cooking.

Gelation

Gelatin is a protein which is extracted from collagen, present in animal connective tissue. When it is mixed with warm water, the gelatine protein molecules start to unwind. On cooling, a stable, solid network is formed, trapping the liquid.

Denaturation

Denaturation is the change in structure of protein molecules. The process results in the unfolding of the protein's structure. Factors which contribute to denaturation are heat, salts, pH and mechanical action.

Coagulation

Coagulation follows denaturation. For example, when egg white is cooked it changes colour and becomes firmer (sets). The heat causes egg proteins to unfold from their coiled state and form a solid, stable network.

Aeration

Products such as creamed cakes need air incorporated into the mixture in order to give a well-risen texture. This is achieved by creaming a fat, such as butter or baking spread, with sugar. Small bubbles of air are incorporated and form a stable foam.

Fats perform different functions in food.

They help to:

- add 'shortness' or 'flakiness' to foods, e.g. shortbread, pastry;
- provide a range of textures and cooking mediums;
- glaze foods, e.g. butter on carrots;
- aerate mixtures, e.g. a creamed cake mix;
- add a range of flavours.

Plasticity

Fats do not melt at fixed temperatures, but over a range. This property is called plasticity.

Raising agents

Raising agents include anything that causes rising within foods, and are usually used in baked goods. Raising agents can be:

- biological, e.g. yeast;
- chemical, e.g. baking powder;
- Mechanical, e.g. adding air through beating or folding.

Functional ingredients

These are ingredients that are specifically included in food for additional health benefits. They include:

- probiotics – 'good' bacteria that may have a positive impact on human health;
- prebiotics – food ingredients that promote the growth of beneficial microorganisms in the gut;
- sterols/steranols – compounds that can lower cholesterol;
- healthy fats (e.g. omega-3);
- added vitamins and minerals (more than in the original food).

Food is prepared and cooked to:

- make the food more palatable – improves flavour, texture and appearance;
- reduce the bulk of the food;
- Provide variety and interest to meals.

Methods of cooking food

The methods of cooking are divided up into groups. These are based on the cooking medium used. They are:

- moist/liquid methods, e.g. boiling;
- dry methods, e.g. grilling;
- Fat-based, e.g. frying.

Selecting the most appropriate way of preparing and cooking certain foods is important to maintain or enhance their nutritional value.

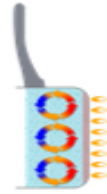
- Vitamins can be lost due to oxidation during preparation or leaching into the cooking liquid.
- Fat-based methods of cooking increase the energy (calories) of the food.
- The use of different cooking methods affects the sensory qualities of the food.

Tenderisation

- Mechanical tenderising – a meat cleaver or meat hammer may be used to beat the meat. Cutting into small cubes or mincing can also help.
- Chemical tenderisation (marinating) – the addition of any liquid to flavour or soften meat before cooking.

There are three ways that heat is transferred to food.

- Conduction – the exchange of heat by direct contact with foods on a surface.
- Radiation – energy in the form of rays.
- Convection – currents of hot air or hot liquid transfer the heat energy to the food.



Tasks

- Choose a recipe that you enjoy or have made recently and explain in detail the functions of the ingredients.
- Explain the function of raising agents, giving examples of recipes.

Colloidal systems give structure, texture and mouthfeel to many different products.

System	Disperse phase	Continuous phase	Food
Sol	Solid	Liquid	Unset jelly
Gel	Liquid	Solid	Jelly
Emulsion	Liquid	Liquid	Mayonnaise
Solid emulsion	Liquid	Solid	Butter
Foam	Gas	Liquid	Whipped cream
Solid foam	Gas	Solid	Meringue

DT—Food and Nutrition

Good food hygiene practices are necessary in order to produce, make and supply food that is safe to eat. This involves more than just being clean. A simple way to remember is the 4Cs:

- cleaning;
- cooking;
- chilling;
- Cross-contamination.

give bacteria no chance



Cleaning
Cleaning the kitchen is important to keep food safe and prevent bacteria from spreading. 'Clean as you go' means people make sure that they clean the area and utensils they have been working in or with, as they prepare food. This avoids build-up of mess and leads to better hygienic conditions. Areas which need particular attention are:

- surfaces that come into contact with food, e.g. chopping boards, utensils;
- surfaces that come into contact with hands, e.g. cupboard and fridge doors.

Cleaning – personal hygiene and getting ready to cook
Good personal hygiene is essential to reduce the risk of food poisoning.

- **Hands:** Thoroughly wash and dry hands before and after touching food and regularly throughout cooking.
- **Clothing:** Clean clothing should be worn. Long sleeves should be rolled up and a clean apron or chef's jacket worn over outside clothes. Enclosed, non-slip, shoes should be worn in the kitchen.
- **Jewellery:** All jewellery, including a watch, should be removed (piercings should be covered if they cannot be removed).
- **Skin:** Cuts and wounds should be covered with a coloured, waterproof dressing. The plasters are often blue in colour so they can be easily identified if they fall into food.
- **Face:** Do not cough or spit near or over food, taste food with fingers, bite nails, eat, chew or smoke, touch nose, or remove earrings.

For more information, go to: <https://bit.ly/3nE9tDE>

Cooking
To reduce the risk of food poisoning, hot food must be served steaming hot, that is above 63°C.

- Bacteria will begin to die when the temperature rises above 60°C.
- Some foods change colour when they are cooked.
- Cooking food thoroughly to a minimum core temperature of 75°C will ensure most bacteria is destroyed.
- When cooking burgers, sausages, portions of pork and chicken, there should be no pink meat they should also be steaming hot inside. The juices should run clear when cooked.
- Steak or other cuts of beef or lamb can be eaten less well done as long as they have been properly sealed. Sealing the meat will kill any bacteria on the outside.
- Leftovers should be cooled as quickly as possible within two hours and then stored in the fridge below 5°C. When leftovers are re-heated, they need to be steaming hot. Leftovers should not be re-heated more than once and should be used within 48 hours from when it was made (24 hours for rice dishes).

Chilling
The temperature between 5°C–63°C is known as the 'danger-zone'. Bacteria will multiply most rapidly within this temperature range. Reducing the temperature below 5°C slows the reproduction of micro-organisms. Cold temperatures do not kill bacteria.

High-risk food, such as such as meat, fish and dairy products plus opened bottles, jars or tubes, should be stored below 5°C. Eggs should be stored in a cool, dry place. Ideally, eggs should be stored in the fridge.

Cross-contamination
The process by which bacteria are transferred from one area to another is known as cross-contamination. The main carriers of bacteria and causes of cross contamination are:

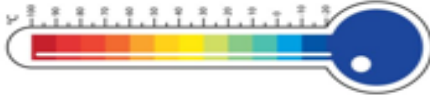
- humans;
- rubbish;
- pets and other animals;
- Food, e.g. raw meat or poultry.

Cross contamination – raw meat

- Keep raw meat separate from ready-to-eat food.
- Do not let raw meat drip onto other food.
- Never use the same chopping board for raw meat and ready-to-eat food without washing the board (and knife) thoroughly in between. Ideally use a red board.
- Do not wash meat before cooking it.

Temperatures to remember
To reduce the risk of food poisoning, good temperature control is vital:

- 5-63°C – the danger zone where bacteria grow most readily.
- 37°C – body temperature, optimum temperature for bacterial growth.
- 8°C – maximum legal temperature for cold food, i.e. your fridge.
- 5°C (or below) – the ideal temperature your fridge should be.
- 75°C – if cooking food, the core temperature, middle or thickest part should reach at least this temperature.
- 75°C – if reheating food, it should reach at least this temperature. In Scotland food should reach at least 82°C.



Safe use of a food probe
Digital probes can be used to check the temperature of food. To use a food probe:

- clean with a disinfectant wipe before and after use;
- insert the probe into the core (center) or the thickest part of the food;
- do not touch the bottom of the pan or cooking dish.

Food labelling
Food labels help consumers make healthier choices. Some information also helps to reduce the risk of food poisoning or other adverse reactions to food:

- date marks;
- list of ingredients with allergens in bold, highlighted, underlined or in italics;
- Storage and preparation conditions.

Tasks

- Write a detailed explanation of the 4Cs, demonstrating how they can help to reduce the risk of food poisoning.
- Explain, giving detailed reasons, the food hygiene controls when buying, preparing, cooking and serving fresh poultry.

Key terms
Best-before-date: Relates to the quality of the food. Food may still be eaten beyond this date.
Cross-contamination: The transfer of bacteria from one source to another. Usually raw food to ready to eat food but can also be the transfer of bacteria from unclean hands, equipment, cloths or pests. Can also relate to allergens.
Danger zone: Bacteria will multiply most rapidly between 5-63°C.
Optimum temperature: Bacteria that cause food poisoning reproduce around body temperature (37°C).
The 4Cs: Cleaning, cooking, chilling and cross-contamination.
Use-by-date: Relates to the safety of the food. Food must be eaten by this date.

Use by date
You have until the end of this date to use or freeze the food before it comes too risky to eat.

USE BY:
25/08/20
KEEP REFRIGERATED

Best before date
You can eat food past this date but it might not be at its best quality.

BEST BEFORE:
25/08/21
STORE IN A COOL DRY PLACE

Write a detailed explanation of the 4Cs, demonstrating how they can help to reduce the risk of food poisoning.

Explain, giving detailed reasons, the food hygiene controls when buying, preparing, cooking and serving fresh poultry.

Drama

Key concepts, skills, questions or processes	
What will I learn?	You will develop your understanding of the performing arts by examining practitioners' work and the processes used to create performance.
What is a practitioner?	A practitioner is an individual or company who has a distinct style of performance, e.g. Brecht (Epic theatre), Stanislavski (Naturalism), Kneehigh, Frantic Assembly (Physical Theatre), 1927, Artaud (Theatre of Cruelty), Boal (Theatre of the Oppressed), Berkoff, Lecoq.
How will I do this?	You will watch a range of performances by professional rep in a range of styles. You will investigate how they created the pieces, and what influenced them, stylistically and contextually. You will also engage in workshops (lessons) where you will try out these styles for yourselves, and explore how different roles within the companies are linked together – e.g. director and actor/ puppeteer, set designer and choreographer, etc. You will keep a record of everything you are learning along the way.
What is expected of me?	It is vital that you keep an ongoing record, using your rehearsal logs, of everything we do in lessons, writing analytically (WWW/EB) rather than just recounting the events of the lesson. You need to become critics as well as participants, showing an understanding of the processes behind the performance. You will have a number of assignments to submit, both practical and online/ written. You MUST keep on top of these assignments, as they all count towards your final grade.
What is an Assignment Brief?	This document explains exactly what you are expected to do, and how you will evidence it. The brief will also contain all your deadlines for submitting work. It details all the success criteria, so you should look at it often to ensure you are on track.

Key Vocabulary	Definitions & Explanations	Examples
Creative Intentions	What was the director/ writer/ creator thinking about? Themes / issues / response to stimulus / style/genre / contextual influences / collaboration with other practitioners / influences by other practitioners.	FUP – look at your creative intentions sheet – have you been able to complete all the boxes?
Purpose	Why was it made? to educate / to inform / to entertain to provoke/ to challenge viewpoints / to raise awareness / to celebrate...	This is not a complete list – what other purposes can you think of?
Practitioners' roles, responsibilities and skills	Performance roles e.g., actor / dancer / singer/ puppeteer, etc & Non-performance roles e.g.: choreographer /set designer / director / writer etc. Responsibilities: rehearsing /performing /contributing to the creation and development of performance material, e.g., devising, designing, choreographing, directing, writing / refining performance material / managing self and others. Skills: physical, vocal and music skills, managing and directing skills, communication skills used to liaise, direct and perform, creative skills, such as designing set, costume, lighting or sound, writing scripts and composing songs, organisational skills used to put on a performance by a director or choreographer.	You will be expected to research several roles within the Performing Arts business, and explore how they work with each other to create a piece, e.g. How does the musical director of Kneehigh work with the director/ writer/ actors when creating a piece like FUP? Music is integral to the piece – look at how their creative process unfolds – it's all on the website. How do roles differ, depending on the company and the performance piece itself?
Processes used in development, rehearsal and performance	Responding to stimulus to generate ideas for performance material / exploring and developing ideas to develop material / discussion with performers / setting tasks for performers / sharing ideas and intentions / teaching material to performers / developing performance material / organising and running rehearsals / refining and adjusting material to make improvements / providing notes and/or feedback on improvements.	What does a good rehearsal look like? Can you use your rehearsal time productively? How do you do this? Do you assign roles? Do you keep track of decisions made? Are you asking other people to feedback their opinions?

Key Terminology & Definitions

Imperative	An imperative verb can be used to give instructions. It can work on its own, for example: Stop! Go! It comes from the infinite form of the verb. They can be in first person or third person.
Active voice	This is where the <u>subject of the sentence</u> is also the <u>agent</u> (the thing doing the verb) ex: John's dad fixed the car.
Passive voice	This is where the <u>agent</u> (the thing doing the verb) appears after the verb. For example: My car is being repaired by John's dad.
Main clause	A group of words with a subject, object and verb. All sentences must contain a main clause
Simple sentence	A sentence made up of a main clause and nothing else
Subject	The part of a sentence that contains the person/thing doing the verb
Object	The thing or person involved in the verb
Verb	A doing word
Noun	A person, place or thing. Nouns are either concrete or abstract.
Adjective	A describing word
Comparative discourse markers	Words that introduce a comparison: however, whilst, similarly, whereas etc.
Symbols	Something that stands for or represents an abstract concept
Emotive vocabulary	Words that cause a strong emotional reaction in a reader
Repetition	Repeated words, phrases or sentence structures
Anecdote	A short personal story
Metaphor	A description of something by saying it is something else
Semantic field	A set of words grouped together that relate to a specific subject
Overview	A statement that explains an opinion without using the word agree/disagree
Topic sentence	A sentence at the start of a paragraph that indicates what the paragraph will be about
Compound sentence	Two simple sentences joined with a conjunction
Subordinate clauses	Extra information contained within two commas that need the rest of a main clause to make sense
Anaphora	is the repetition of a word or a phrase at the beginning of successive clauses or sentences.
Conjunction	Words used to connect clauses: and, but, yet, though, if etc.
Pronouns	A word that refers to the participants in the discourse
Statistics	Numerical data

Spellings (the most commonly misspelt words on language P2)

Disgust, beginning, specific, precise, apprehensive, definitely, necessary, disappear, disappoint, appearance, completely, a lot, happened, received, really, tomorrow, weird, tired, normal, interrupt, exaggerate, braking, satisfied, decided, probably, interested, relief, possibly, his/he's, says

Success

Enjoyment

“Inspiring Education for All”

Opportunity

Community

English

Geography



Option 1: FOOD

Food Security is when people at all times need to have physical & economic access to food to meet their dietary needs for an active & healthy life. This is the opposite to Food Insecurity which is when someone is unsure when they might next eat.

Human Causes

- **Poverty** prevents people affording food and buying equipment.
- **Conflict** disrupts farming and prevents supplies.
- **Food waste** due to poor transport and storage.
- **Climate Change** is affecting rainfall patterns making food production difficult.

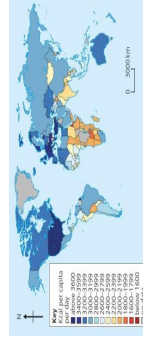


Physical Causes

- The **quality of soil** is important to ensure crops have key nutrients.
- **Water supply** needs to be reliable to allow food to grow.
- **Pest, diseases and parasites** can destroy vast amounts of crops that are necessary to populations.
- **Extreme weather** events can damage crops (i.e. floods).

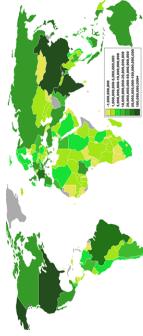


Daily Calorie Intake



This map shows how many **calories per person** that are consumed on average for each country. This can indicate the global distribution of **available food and food inequality**.

Food Supply



This map shows the amount of **food produced** in different countries. Whilst **Asia and North America** have **high** production outputs, **Africa and Central America** have **low** production outputs.

Sustainable Food Supply

This ensures that **fertile soil, water and environmental resources are available for future generations**.

- **Organic Farming** - The banned use of chemicals and ensuring animals are raised naturally.
- **Permaculture** - People growing their own food and changing eating habits. Fewer resources are required.
- **Urban Farming** - Planting crops in urban areas. i.e. roundabouts.
- **Managed Fishing** - Includes setting catch limits, banning trawling and promoting pole and line methods.



C.S. LIC - Indus Basin Irrigation System (Large Scale Scheme)

Largest irrigation scheme in the world. Involves large and small dams. Thousands of channels provides water to supports Pakistan's rich farmlands.

Advantages

- Improves food security by adding 40% more land for farming.
- Increased yield & range of foods.
- Irrigation increased so did crop yield
- Diets have improved as a greater range of food products available
- HEP is generated by the large dams

Disadvantages

- Some farmers take an unfair share of water.
- Poor irrigation techniques mean water is wasted.
- Salinisation (increased saltiness) can damage the soil
- Population growth will increase the demand for water
- High cost to maintain reservoirs.

C.S. The Makeni Food and Water Security Programmes, Kenya (Small Scale Scheme)

The programme provided direct help to two small villages and a primary school in the Makeni County in Kenya.



Programme included:

- Improving water supply by building sand dams for each village
- Providing reliable source of water for crops and livestock
- A training programme to support local farmers
- Growing trees to reduce soil erosion

Was it successful?

- Crop yields and food security have increased
- Water borne diseases have been reduced
- Less time waster fetching water.

Impacts of Food Insecurity

Famine- is widespread shortage of food often causing malnutrition, starvation and death. Example Somalia (201-2012) over 250000 people died due to famine- main cause lack of rain and militant group blocked aid.

Rising Prices- Food prices are rising, mainly due to increased cost of fertilisers, food shortage and transportation.

Soil Erosion- involves the removal of fertile top soil layers by wind and rain as no crops to protect due to either overgrazing/ over cultivating, deforestation.

Undernutrition- is the lack of a balanced diet and a deficiency in minerals and vitamins- can cause death.

Social Unrest- food riots happen due to prices of food rising. E.g. Algeria 2011. cooking oil price rose and lead to five days of riots and 4 deaths.

Increasing Food Supply

Hydroponics - A method of growing plants without soil. Instead they use nutrient solution.

New Green Revolution - Aims to improve yields in a more sustainable way. Involves using both GM varieties and traditional and organic farming.

Biotechnology - Genetically modified (GM) crops changes the DNA of foods to enhance productivity and properties.

Irrigation - Artificially watering the land so crops can grow. Useful in dry areas to make crops more productive.

Appropriate Technology - means using skills or materials that are cheap and easily available to increase the output without outting people out of work.



Community

Opportunity

“Inspiring Education for All”

Enjoyment

Success

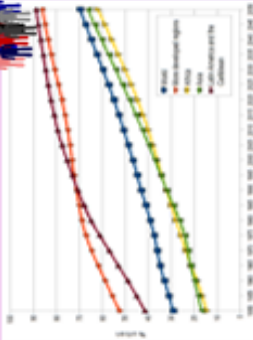
Geography

What is Urbanisation?

This is an increase in the amount of people living in urban areas such as towns or cities. In 2007, the UN announced that for the first time, more than 50 % of the world's population live in urban areas.

Where is Urbanisation happening?

Urbanisation is happening all over the world but in LICs and NEES rates are much faster than HICs. This is mostly because of the rapid economic growth they are experiencing.



Causes of Urbanisation

The movement of people from rural to urban areas.

Push	Pull
<ul style="list-style-type: none"> Natural disasters War and Conflict Mechanisation Drought Lack of employment 	<ul style="list-style-type: none"> More Jobs Better education & healthcare Increased quality of life. Following family members.

When the birth rate exceeds the death rate.

Natural increase (2)	Lower death rate (DR)
<ul style="list-style-type: none"> Increase in birth rate (BR) High percentage of population are child-bearing age which leads to high fertility rate. Lack of contraception or education about family planning. 	<ul style="list-style-type: none"> Higher life expectancy due to better living conditions and diet. Improved medical facilities helps lower infant mortality rate.

Types of Cities

Megacity An urban area with over 10 million people living there.



More than two thirds of current megacities are located in either NEES (Brazil) and LICs (Nigeria). The amount of megacities are predicted to increase from 28 to 41 by 2030.

Sustainable Urban Living

Sustainable urban living means being able to live in cities in ways that do not pollute the environment and using resources in ways that ensure future generations also can use them.

Water Conservation	Energy Conservation
<p>This is about reducing the amount of water used.</p> <ul style="list-style-type: none"> Collecting rainwater for gardens and flushing toilets. Installing water meters and toilets that flush less water. Educating people on using less water. 	<p>Using less fossil fuels can reduce the rate of climate change.</p> <ul style="list-style-type: none"> Promoting renewable energy sources. Making homes more energy efficient. Encouraging people to use energy.

Creating Green Space	Waste Recycling
<p>Creating green spaces in urban areas can improve places for people who want to live there.</p> <ul style="list-style-type: none"> Provide natural cooler areas for people to relax in. Encourages people to exercise. Reduces the risk of flooding from surface runoff. 	<p>More recycling means fewer resources are used. Less waste eventually goes to landfill.</p> <ul style="list-style-type: none"> Collection of household waste. More local recycling facilities. Greater awareness of the benefits in recycling.

Urban Issues & Challenges

Sustainable Urban Living Example: Freiburg

Background & Location	Sustainable Strategies
<p>Freiburg is in west Germany. The city has a population of about 220,000. In 1970 it set the goal of focusing on social, economic and environmental sustainability.</p>	<ul style="list-style-type: none"> The city's waste water allows for rainwater to be retained. The use of sustainable energy such as solar and wind is becoming more important. 40% of the city is forested with many open spaces for recreation, clean air and reducing flood risk.

Integrated Transport System

This is the linking of different forms of public and private transport within a city and the surrounding area.

Brownfield Site

Brownfield sites is an area of land or premises that has been previously used, but has subsequently become vacant, derelict or contaminated.

Traffic Management

Urban areas are busy places with many people travelling by different modes of transport. This has caused urban areas to experience different traffic congestion that can lead to various problems.

Environmental problems	Economic problems	Social Problems
<ul style="list-style-type: none"> Traffic increases air pollution which releases greenhouse gases that is leading to climate change. 	<ul style="list-style-type: none"> Congestion can make people late for work and business deliveries take longer. This can cause companies to lose money. 	<ul style="list-style-type: none"> There is a greater risk of accidents and congestion is a cause of frustration. Traffic can also lead to health issues for pedestrians.

Congestion Solutions

- Widen roads to allow more traffic to flow easily.
- Build ring roads and bypasses to keep through traffic out of city centres.
- Introduce park and ride schemes to reduce car use.
- Encourage car-sharing schemes in work places.
- Have public transport, cycle lanes & cycle hire schemes.
- Having congestion charges discourages drivers from entering the busy city centres.

Traffic Management Example: Bristol

In 2012 Bristol was the most congested city in the UK. Now the city aims to develop it's integrated transport system to encourage more people to use the public transport. The city has also invested in cycle routes and hiring schemes.

Greenbelt Area

This is a zone of land surrounding a city where new building is strictly controlled to try to prevent cities growing too much and too fast.

Urban Regeneration

The investment in the revival of old, urban areas by either improving what is there or clearing it away and rebuilding.

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Enjoyment

Success

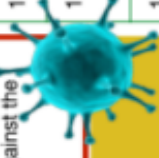
History

Key individuals

Louis Pasteur, Robert Koch, John Tyndall, William Cheyne, Paul Ehrlich, Humphrey Davy, Horace Wells, William Clark, Dr Crawford Long, William Morton, Robert Liston, Queen Victoria, James Simpson, Joseph Lister, Edwin Chadwick, Dr John Snow, Joseph Bazzalgette.

Treatment of disease

1861 - Louis Pasteur discovered Germ Theory proving the theory of Spontaneous Generation wrong but it was not accepted immediately. Robert Koch applied Pasteur's theory to human diseases. He was the founder of bacteriology and proved that specific bacteria caused specific diseases. In 1876 he discovered the microbe responsible for anthrax, 1884 - cholera and 1882 - tuberculosis. He also discovered stains to dye microbes under a microscope. Pasteur and Koch were rivals and sponsored by their governments which motivated their work. Pasteur and his team created a vaccine for rabies and anthrax. This work was accepted in Britain due to John Tyndall and William Cheyne. Paul Ehrlich (Koch's assistant) found chemicals that would not only stain but kill specific types of bacteria. In 1909 he discovered a chemical cure for syphilis. These cures became known as 'magic bullets'. Prontosil worked against the germs that caused blood poisoning and 'sulpha drugs' were developed for meningitis, pneumonia and scarlet fever.



Improvements in surgery

The key problems of surgery were pain, infection and blood loss. Anaesthetics - nitrous oxide was identified by Humphrey Davy and used by Horace Wells in 1844 to extract teeth. Ether was also used by the dentist William Clark in 1842 and Dr Crawford Long removed a neck growth with it. In 1846 William Morton gave a public demonstration and in December Robert Liston amputated a leg with it. It was difficult to inhale though and was also flammable. Chloroform was the alternative and discovered by James Simpson. Surgeons could now take more time over operations but this had initial problems such as dosage. Hanner Greener died of an overdose during a toenail operation in 1848. In 1853 Queen Victoria used chloroform in childbirth making it more acceptable.



Antiseptics - Joseph Lister had read about Germ Theory and applied it to the problem of infection. He used carbolic acid to stop the spread of germ spraying it on hands, wounds, equipment and in the room. This dramatically reduced death from infection but they were still wearing outdoor clothing and it was not pleasant to use. The next step was aseptic surgery where germs were removed from the room. Facemasks, rubber gloves, gowns and sterilised instruments replaced public operating theatres and dramatically reduced infections.

Public Health

The Industrial Revolution led to a population explosion and a movement of people into the rapidly expanding towns. The government attitude was laissez-faire meaning they did not believe it was their job to deal with domestic matters. The back to back houses and lack of sanitation led to cholera (a waterborne disease) epidemics in 1837, 1838, 1848, 1853-5 and 1865-6. In 1832 Edwin Chadwick collected information about the conditions on towns in the Report on the Sanitary Condition of the Labouring Population. This identified problems in the towns and cities leading to the 1848 Public Health Act. However this was voluntary and many councils did nothing. In 1854 Dr John Snow discovered the cause of Cholera adding more evidence that something needed to be done. This was followed by the Great Stink of 1858 where the sewage in the Thames led the government to leave the city. As a result Joseph Bazzalgette was given the job of building the sewers under London. He was given £3 million. He used 318 million bricks and built 83 miles of sewers removing 420 million gallons of sewage a day. Once fully operational cholera never returned. Louis Pasteur discovered germs in 1861 adding more evidence that something must be done. After working class men gained the vote in 1867 the government brought in more laws to improve people's lives. 1866 - Sanitary Act. 1875 - Artisans Dwelling Act, Sale of Food and Drugs Act. The Second Public Health Act of 1875 was compulsory and made councils responsible for public health. They had to provide clean water, build sewers, keep the streets clean and light them. Laissez-faire was now at an end.



KEY VOCABULARY/TERMS - tier 3

Spontaneous generation, germ theory, bacteria, bacteriology, microscope, government, vaccine, rabies, cholera, syphilis, chemical, prontosil, magic bullets, blood poisoning, meningitis, pneumonia, scarlet fever, anaesthetics, antiseptics, ether, chloroform, nitrous oxide, aseptic, surgery, sterilised, operating theatre, pain, infection, blood loss, sanitation, laissez-faire, sanitation, sewers, artisan, dwelling, Public Health Act, water, voluntary, compulsory.

Key dates

1832	Edwin Chadwick Public Health Report
1837	Cholera outbreak
1842	Ether used
1844	Nitrous oxide used
1846	Ether used in public demonstration
1848	First Public Health Act, Hannah Greener died
1853	Queen Victoria uses chloroform
1854	Dr Snow discovers cause of cholera
1858	Great stink and Bazzalgette starts building sewers
1861	Germ theory
1866	Sanitary Act
1875	Second Public Health Act, Artisan's Dwelling Act, Sale of Food and drugs
1909	Chemical cure for syphilis

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Maths

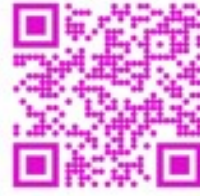
USEFUL WEBSITES:

My Login:
 Password:

My Login:
 Password:

My Login:
 Password:

www.bbc.co.uk/bitesize
www.khanacademy.org
<https://corbettmaths.com>



<- KEY WORDS DICTIONARY

Maths Equipment you must have every lesson:

Pen, pencil, rubber, ruler, protractor, compasses, scientific calculator

Areas		Volumes	
Rectangle = $l \times w$		Cuboid = $l \times w \times h$	
Parallelogram = $b \times h$		Prism = area of cross section \times length	
Triangle = $\frac{1}{2} b \times h$		Cylinder = $\pi r^2 h$	
Trapezium = $\frac{1}{2} (a + b)h$		Volume of pyramid = $\frac{1}{3} \times$ area of base $\times h$	

Compound measures	
Speed $\text{speed} = \frac{\text{distance}}{\text{time}}$	
Density $\text{density} = \frac{\text{mass}}{\text{volume}}$	
Pressure The formula for pressure does not need to be learnt, and will be given within the relevant examination questions.	

Trigonometric formulae	
Sine Rule $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$	
Cosine Rule $a^2 = b^2 + c^2 - 2bc \cos A$	
Area of triangle = $\frac{1}{2} ab \sin C$	
Foundation for formulae	Higher for formulae

Circles	
Circumference = $\pi \times \text{diameter}$, $C = \pi d$	
Circumference = $2 \times \pi \times \text{radius}$, $C = 2\pi r$	
Area of a circle = $\pi \times \text{radius squared}$, $A = \pi r^2$	

Pythagoras	
Pythagoras' Theorem For a right-angled triangle, $a^2 + b^2 = c^2$	
Trigonometric ratios (new to A) $\sin x = \frac{\text{opp}}{\text{hyp}}$, $\cos x = \frac{\text{adj}}{\text{hyp}}$, $\tan x = \frac{\text{opp}}{\text{adj}}$	

Quadratic equations	
The Quadratic Equation The solutions of $ax^2 + bx + c = 0$, where $a \neq 0$, are given by $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	

YEAR 11 - KNOWLEDGE- ORGANISER



Opinions

J'aadore I love
 J'aime beaucoup I like a lot
 J'aime I like
 J'aime assez I quite like
 Je n'aime pas beaucoup I don't like much
 Je n'aime pas I don't like
 Je n'aime pas du tout I don't like at all
 Je déteste I hate
 Je préfère I prefer
 Je préférerais I would prefer
 Je voudrais I would like

À mon avis In my opinion
 D'après-moi In my opinion
 Je pense que I think that
 Je crois que I believe that
 Je trouve que I find that
 Je dois admettre que I must admit that
 Il me parait que It seems to me that
 J'estime que I reckon that
 Je considère que I consider that
 Pour moi For me
 Je (ne) suis (pas) d'accord avec I (do not) agree with
 Je (ne) suis (pas) opposé(e) à I am (not) opposed to

J'ai adoré I loved
 J'ai beaucoup aimé I liked a lot
 J'ai aimé I liked
 J'ai aimé assez I quite liked
 Je n'ai pas aimé beaucoup I didn't like much
 Je n'ai pas aimé I didn't like
 Je n'ai pas aimé du tout I didn't like at all
 J'ai détesté I hated
 J'ai préféré I preferred

J'ai pensé que I thought that
 J'ai cru que I believed that
 J'ai trouvé que I found that
 Il me paraissait que It seemed to me that
 J'ai estimé que I reckoned that
 J'ai considéré que I considered that
 Je (n')étais (pas) d'accord avec I did(n't) agree with
 Je (n')étais (pas) opposé(e) à I was(n't) opposed to

Useful adverbs

absolument absolutely
 d'habitude usually
 fréquemment frequently
 généralement generally
 heureusement fortunately
 naturellement of course
 normalement normally
 personnellement personally
 petit à petit gradually
 pratiquement practically
 rapidement quickly
 suffisamment sufficiently
 vraiment truly/really

School day

Le français – French
 L'allemand – German
 L'espagnol – Spanish
 L'anglais – English
 Les maths – Maths
 La géographie – Geography
 L'histoire – History
 Les sciences – science
 Le sport – sport
 L'EPS – PE
 La technologie – Technology
 L'informatique – IT
 La musique – music
 Le dessin – art
 Le théâtre – drama
 La danse – dance
 Les devoirs – homework
 L'appel – registration
 L'éducation civique – PHSE
 La récréation – break
 L'heure du déjeuner – lunch hour

Linking words

parce que / car because
 mais but
 et and
 pourtant however
 donc therefore
 malgrè is spite of

moreover
 because of
 in short
 that/which
 although
 when

si
 comme
 puisque
 aussitôt que
 surtout

if
 as
 since
 as soon as
 especially

Au collège

La bibliothèque – library le bureau – office
 La cantine – canteen la cour – playground
 Les labos – science labs les toilettes – toilets
 La salle de classe – classroom
 La salle des profs – staffroom
 Un court de tennis – tennis court

Adjectives

Affreux – awful bien – good
 Compliqué – complicated difficile – difficult
 Ennuyeux – boring facile – easy
 Génial – good fun intéressant – interesting
 Passionnant – fascinating pénible – hard work
 Sensass – fantastic nul – rubbish

Le trimestre – term
 La rentrée scolaire – return to school in September



Opinions

Ich liebe I love
 ...gefällt mir gut I like a lot
 Ich mag I like
 ...gefällt mir ganz gut I quite like
 ...gefällt mir nicht so gut I don't like much
 Ich mag nicht I don't like
 ...gefällt mir gar nicht I don't like at all
 Ich hasse I hate
 Ich habe eine Schwäche für I have a weakness for
 Ich mag lieber I prefer
 Ich ziehe vor I would prefer
 Ich möchte I would like
 Meiner Meinung nach In my opinion
 Meiner Ansicht nach In my opinion
 Ich denke, dass I think that
 Ich meine, dass I believe that
 Ich finde, dass I find that
 Ich bin davon überzeugt, dass I am convinced that
 Ich muss zugeben, dass I must admit that
 Mir schient, for me
 Für mich I agree with
 Ich bin mit einverstanden I am (not) opposed to
 Ich bin (nicht) gegen

ich habe geliebt I loved
 ich habe sehr geliebt I liked a lot
 ...hat mir gefallen I liked
 ...hat mir ganz gut gefallen I quite liked
 ...hat mir nicht so gut gefallen I didn't like much
 Ich mochte nicht I didn't like
 ...hat mir gar nicht gefallen I didn't like at all
 Ich habe gehasst I hated

einige sagen, dass - some people think that
 es gibt das Für und Wider - There are pros and cons
 ich habe gedacht, dass I thought that
 ich habe geglaubt, dass I believed that
 ich habe gefunden, dass I found that

ich war mit einverstanden I agreed with
 ich war (nicht) gegen I was(n't) opposed to

Useful adverbs

völlig absolutely
 normalerweise usually
 oft frequently
 im Allgemeinen generally
 glücklicherweise fortunately
 natürlich of course
 gewöhnlich normally
 persönlich personally
 nach und nach gradually
 praktisch practically
 schnell quickly
 genug sufficiently
 ehrlich truly/really

School day

Französisch - French
 Deutsch - German
 Spanisch - Spanish
 Englisch - English
 Mathematik - Maths
 Erdkunde - Geography
 Geschichte - History
 Naturwissenschaften - science
 Sport - sport
 Technik - Technology
 Informatik - IT
 Musik - music
 Kunst - art
 Theater - drama
 Tanz - dance
 Hausaufgaben - homework
 Sozialkunde - PHSE
 die Pause - break
 die Mittagspause - lunch hour

Linking words

weil because
 aber but
 und and
 jedoch however
 deshalb therefore
 trotz (+ gen) is spite of

außerdem außerdem
 wegen (+ gen) wegen
 kurz gesagt kurz gesagt
 der, die/das da
 obwohl obwohl
 wenn wenn

moreover moreover
 because of because of
 in short in short
 that/which that/which
 although although
 when (fores) when (fores)

if if
 as as
 since since
 as soon as as soon as
 especially especially
 when (foast) when (foast)

In der Schule

die Bibliothek - library das Büro - office
 die Kantine - canteen der Schulhof - playground
 die Labors - science labs Toiletten - toilets
 Die Klassenzimmer - classroom
 das Lehrerzimmer - staffroom
 der Tennisplatz - tennis court

Adjectives

ich bin zu blöd dazu - I'm rubbish at it
 furchtbar - awful gut - good
 kompliziert - complicated schwierig - difficult
 langweilig - boring einfach - easy
 es macht viel Spaß - it's good fun interessant - interesting
 faszinierend - fascinating schwer - hard work
 fantastisch - fantastic nützlich - useful

Qualifiers

sehr - very
 ganz - quite
 ein Bisschen - a little
 zu - too
 immer - always
 nie - never
 manchmal - sometimes

nützlich - useless

nützlich - useless

Music

Job Roles	
Musician	Plays the musical instruments
Composer/songwriter	Writes the music/lyrics
Record producer	Manages the recording of an artist's music
Conductor	Guides the orchestra/choir
Live Sound Technician	Manages equipment and operates sound desk during live performance
Roadie	Sets up/packs away equipment
Instrument Technician	Looks after/fixes instruments
Artistic Manager	Organises tours and gigs, manages marketing of artist, negotiates fees and contracts
Venue Manager	Books artists, venue health and safety, supervises running of venue ensuring high standard of service for artists and audience
Studio Manager	Book sessions, maintains equipment and facilities, promotes the studio, recruits and pays staff.
Promoter	Identify performance opportunities, promotes/publicises artists, events and venues
Marketer	Develop strategies and tactics to market and sell the record label's albums.
A&R	Responsible for talent scouting and overseeing the artistic development
Sound Engineer	Setting up required equipment, editing and mixing recorded tracks, enhancing the sound to achieve a high quality recording.
Session Musician	Musicians hired to perform in recording sessions/live performances
Mastering Engineer	Prepares recorded music for use in distribution such as CD/vinyl record or streaming quality.
Manufacturer	
Music Journalist/blogger	Attend shows/concerts, listen to artists/new talent and Write reviews.
Broadcaster	Interviews artists and present music shows/discusses trends.
Software Programmer	Creates apps, musical programmes/software and music games.
DJ	Plays recorded music and creatively mixes tracks.
Retailer	Shops/online stores that sell the artists music/albums.
Distributor	The middleman between the artist/record labels and the store.

Employment types
Full Time
Part Time
Freelance
Self-Employed
Permanent
Casual

Venues



Health and Safety



Security



Major Labels



AGENCIES



UNIONS



TRADE BODIES



Community

Opportunity

“Inspiring Education for All”

Enjoyment

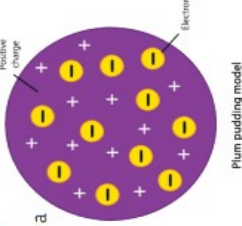
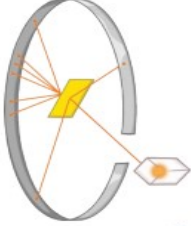
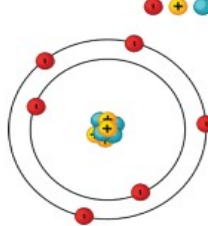
Success

BTEC SPORT UNIT 2 (COURSEWORK) - KNOWLEDGE ORGANISER PRACTICAL PERFORMANCE IN SPORT - LEARNING AIM A

RULES/LAWS	Rules and laws of a sport regulated by the national or international governing body for the sport. For e.g. Football Association (FA) or FIFA.
APPLICATION OF THE RULES/LAWS	When a goal is scored when a player is in an offside position in football or a forward pass in rugby, the official will apply a consequence according to the rules/laws of the sport.
REGULATIONS	Laws relating to players, equipment, playing surface, facilities, health and safety, time, officials (referee, umpire, judge, starter, timekeeper).
SCORING SYSTEMS	The method of scoring goals or points, method and/or requirements of victory.
ROLES OF THE OFFICIAL	The roles of umpires, referees, referees' assistants, judges, timekeeper, starters, table officials, third umpire, fourth official.
RESPONSIBILITIES OF THE OFFICIALS	The appearance, equipment, fitness, qualifications, interpretation and application of rules, control of players, accountability to spectators, health and safety (equipment, facilities, players), fair play, use of technology, effective communication (voice, whistle, signals).
TECHNICAL DEMANDS	These are the skills and techniques required to meet the demands of the sport.
TACTICAL DEMANDS	Decision making and strategies (attacking/defensive) to overcome an opponent, including using personal strengths.
SAFETY	Controlled environments that adhere to 'rules', health and safety guidelines, and consider appropriate risk management strategies in physical activity and sport.
ISOLATED PRACTICES	Skills and techniques demonstrated independently without any pressure or external forces, completed successfully and without fault.
CONDITIONED GAMES	Small-sided games with a condition set for e.g. a limited number of touches, a set number of defenders or attackers.
COMPETITIVE PRACTICES	Full-sided games. Appropriate opposition with match officials.
BODY COMPOSITION	Ratio of fat mass to fat free mass. Percentage of fat, bone and muscle in bod
SPEED	Distance divided by the time taken
AEROBIC ENDURANCE	Cardiorespiratory system working for long periods of time supplying oxygen and nutrients to working muscles.
MUSCULAR ENDURANCE	Muscle is able to contract over period time against a light to moderate resistance.
FLEXIBILITY	Range of motion in all joints of body, moving fluidly allowing complete range of movement
MUSCULAR STRENGTH	Maximum force that can be generated by a muscle or muscle group

Atomic Structure Knowledge Organiser – Foundation and Higher

Developing the Model of the Atom

Scientist	Time	Contribution
John Dalton	Start of 19th century	Atoms were first described as solid spheres.
JJ Thomson	1897	Thomson suggested the plum pudding model – the atom is a ball of charge with electrons scattered within it. <div style="text-align: center;">  <p>Plum pudding model</p> </div>
Ernest Rutherford	1909	Alpha Scattering experiment – Rutherford discovered that the mass is concentrated at the centre and the nucleus is charged. Most of the mass is in the nucleus. Most atoms are empty space. <div style="text-align: center;">  </div>
Niels Bohr	Around 1911	Bohr theorised that the electrons were in shells orbiting the nucleus. <div style="text-align: center;">  </div>
James Chadwick	Around 1940	Chadwick discovered neutrons in the nucleus.

Isotopes

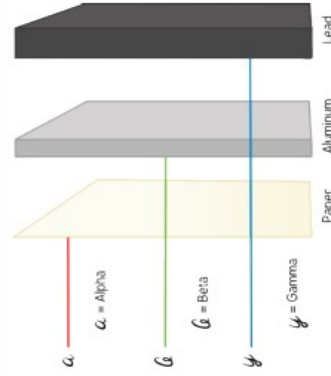
An isotope is an element with the same number of protons but a different number of neutrons. They have the same atomic number, but different mass numbers.

Isotope	Protons	Electrons	Neutrons
^1_1H	1	1	0
^2_1H	1	1	1
^3_1H	1	1	2

Some isotopes are unstable and, as a result, decay and give out radiation. Ionising radiation is radiation that can knock electrons off atoms. Just how ionising this radiation is, depends on how readily it can do that.

Beta

Beta radiation is a fast moving electron that can be stopped by a piece of aluminium. Beta radiation is emitted by an atom when a neutron splits into a proton and an electron.



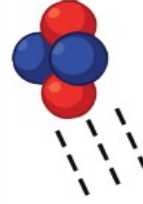
Gamma

A gamma wave is a wave of radiation and is the most penetrating – stopped by thick lead and concrete.



Alpha

Alpha radiation is an alpha particle emitted from the nucleus of a radioactive nuclei. It is made from two protons and two neutrons. They can't travel too far in the air and are the least penetrating – stopped by skin and paper. However, they are highly ionising because of their size.

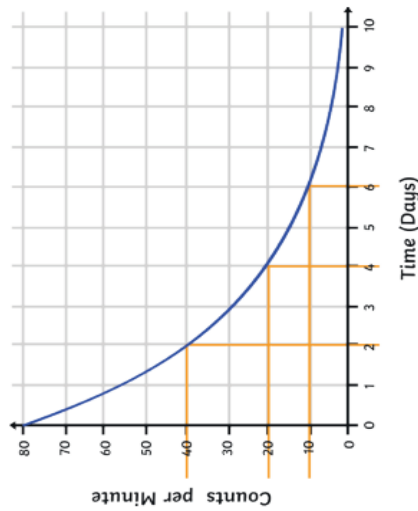


Half-life

The half-life is the time taken for the number of radioactive nuclei in an isotope to halve.
Radioactivity is a random process – you will not know which nuclei will decay.
Radioactive decay is measured in becquerels Bq. 1 Bq is one decay per second.

Radioactive substances give out radiation from their nucleus.

A graph of half-life can be used to calculate the half-life of a material and will always have this shape:



Judging from the graph, the radioactive material has a half-life of two days.

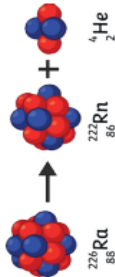
Irradiation

Irradiation occurs when materials are near a radioactive source. The source is sometimes placed inside a lead-lined box to avoid this.

People who work with radioactive sources will sometimes stand behind a lead barrier, be in a different room or use a remote-controlled arm when handling radioactive substances.

Alpha Decay Equations

An alpha particle is made of two protons and two neutrons. The atomic number goes down by two and its mass number decreases by four.



Gamma rays

There is no change to the nucleus when a radioactive source emits gamma radiation. It is the nucleus getting rid of excess energy.



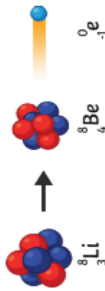
Contamination

When unwanted radioactive atoms get onto an object, it is possible for the radioactive particles to get inside the body.

Protective clothing should be worn when handling radioactive material.

Beta Decay Equations

A neutron turns into a proton and releases a beta electron. The mass of the nucleus does not change but the number of protons increases.



Alpha radiation is more dangerous inside the body. It is highly ionising and able to cause a lot of damage. Outside the body it is less dangerous because it cannot penetrate the skin.

Beta radiation is less dangerous inside the body as some of the radiation is able to escape. Outside the body it is more dangerous as it can penetrate the skin.

Gamma radiation is the least dangerous inside the body as most will pass out and it is the least ionising. Gamma is more dangerous outside the body as it can penetrate the skin.