Year 10 Knowledge Organisers

Potential Into Reality





Good Provider SPRING TERM 2024



Name: Tutor Group: 10

Homework Principles 2023-2024

Our Homework Principles are based on current, influential research: At John Willmott School we set homework which supports students' understanding of their carefully sequenced curriculum as well as developing their committed and self-disciplined approach to their own academic studies. We know that homework has an impact by enabling pupils to undertake independent learning to practice and consolidate skills, learn key vocabulary, prepare for lessons, or revise for exams.

The Education Endowment Fund suggests that setting homework at Secondary School can accelerate learning by up to 5 months, however it is the quality of tasks set rather than quantity which enhances progress, which is why we are clear in our principles when planning homework against our curriculum implementation.

ACCESSIBLE

- A new Knowledge Organiser will be issued to all students at the start of each term. This will form the basis for most homework so that students have the resources at hand
- Homework tasks should be short and focused ensuring accessibility for all students
- Students will be set homework weekly for most subjects with adequate time for completion
- Students will be taught independent learning strategies as well as explicit teaching of our virtues and school routines to build learning habits

ACCESSIBLE

PRECISE

- Tasks have a defined and exact outcome
- Students will be directed to practise or retrieval or embedding the curriculum
- The way this will be assessed is communicated to students, as well as when this will happen
- Homework is designed to link to classroom learning, with clear signposting to prior, current or future knowledge
- Teachers are asked to plan homework tasks for the term in line with long term plans and summative assessments- this will be shared with students and parents

PRECISE

INFORMATIVE

- Teachers use homework as part of their formative assessment to adapt teaching to better respond to student need in terms of what students know and what they don't know yet
- Teachers will gather data through a variety of quality first teaching routine techniques which may include: Do Now Activities, Exit Tickets, Deliberate Practice; Questioning, Mini Whiteboards
- Student engagement is monitored as well as progress and attainment

INFORMATIVE



Year 10 Knowledge Organisers Contents

Year 10 Subjects

Art and Design Business

Drama

English

French

Geography

History

Hospitality and Catering iMedia

Media Studies Photography Physical Education Physical Education GCSE Religious Education Science Spanish Sports Studies Technology Product Design



Art & Design: Fine Art

1. Proportion in portraiture	2. Graffiti and Street Art	3. Media
Proportion describes the relationship between the dimensions of different elements and an overall composition. Scale refers to an artwork's size and how parts of a composition relate to each other. Proportion, balance and composition - Proportion - GCSE Art and Design Revision - BBC Bitesize	Is there a difference between graffiti and street art? What are the key differences between street art and graffiti? Street art and graffiti overlap in many ways, but the key differences between the two lie in technique and intent. In terms of technique, street art tends to be image-based, whereas graffiti is more commonly word-based.	In art media is a word that describes the material you use to create your work. e.g pen, pencil, crayon, oil pastels, soft pastels, watercolour paint, acrylic paint. Did you know you can use household items to create art work from? e.g coffee, beetroot vinegar, spices
Look on you tube at How to draw a portrait and use the videos to guide you.	Examples of graffiti include tags whereas street art can be murals which are commissioned.	
4. The colour wheel	5. Colour theory	6. The artist Ant Carver
VELLOW primary VELLOW GREEN BLUE GREEN tertiary BLUE VIOLET tertiary BLUE VIOLET tertiary BLUE VIOLET tertiary BLUE VIOLET tertiary BLUE Secondary BLUE COMBAN TERTIARY BLUE COMBAN TERTIARY BLUE COMBAN TERTIARY BLUE COMBAN TERTIARY BLUE COMBAN TERTIARY	A gradient defined as a gradual blending from one colour to another. Warms colours are yellows, oranges, reds, pinks etc Cool colours are yellow green, blues, purples etc	Ant Carver is a London based artist working from a studio in Hackney Wick. He combines the influence of street art with more traditional painting techniques and works predominantly in oil and spray paint. His work often incorporates the use of portraiture, created in a bold, graphic style.



Primary observation is working from a source directly from first-hand experience. Primary sources can be natural objects, artefacts, places, people or events.

Secondary observation is working from a material produced by others. Secondary sources can be reproductions of images and artefacts, photographs, film, video or webbased material.

I can use an artist to inspire my own work. Identify the key features of an artist's work. Explore by gathering information for research and inspiration. Research using books, the internet, magazines and remember to record where the information is taken from. Look at artists that have based their work on similar themes.

What makes a portrait Urban? Consider the elements/components of an image that make it urban. e.g The location, the accessories that a person wear, the colour palette etc



What are the general guidelines for proportion when drawing a portrait?

Why is drawing in proportion important when creating a portrait? What impact does exaggerating different features have on a portrait and why might an artist do this?

Research and analyse the work an urban artist. How can an artist inspire you? How can you link your work to your chosen artist?

Recording of ideas – have you selected appropriate source material? (images, photographs etc) How will you present this in your visual mind map as an introduction for your project?

How have you recorded your ideas?

Have you developed your observational awareness skills? Have you developed your drawing skills From primary observation draw a portrait of a person in front of you. Practice drawing in proportion considering the rules of proportion. Consider how to make them look urban. e.g glasses, wearing a hat or hoodie etc.

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Research an urban artist that inspires you. Create a copy of their work. This will allow you to gain an understanding of the style of the artist.

Research an urban artist and select and image to analyse. Complete a written analysis of their work to show you understanding. When you anaylse the work of an artist you should describe what you see, show understanding of their techniques and processes, explain what the work is about.

Analysing and evaluating - Analysing and evaluating - GCSE Art and Design Revision -BBC Bitesize



Art & Design

Urban Portraiture

Business: Influences in Business

1.Technology

Technology includes:

can use e-commerce.

digital technologies to

customers, suppliers and

How businesses use

communicate with

that can be used.

2. Technology within Business

3. Selling online

Year 10

Technology

Technology plays an increasingly important role in the Different methods of ICT activities of many businesses. This is not only for businesses who sell technology products such as Apple. Ways in which businesses

Technology includes:

- Different methods of ICT (Information Communication Technology) that can be used.
- Ways in which businesses can use e-commerce.
- How businesses use digital technologies to communicate with customers, suppliers and stakeholders.

4. External Enviroment

Legislation

stakeholders.

The law is a framework of rules controlling the way in which society is run. Laws affecting employees attempt to balance the needs of the employee and those of employers

5. Online consumer spending



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Key terms:

- Information Communication Technology (ICT) - the computing and communication systems that a business might use to exchange information with stakeholders.
- Extranets are similar to • intranets but can also be access by other organisations such as suppliers.
- **E-commerce** – is the act of buying or selling a product using an electronic system such as the internet.
- M-Commerce – mobile commerce where handheld devices such as SMART phones or tablets are used to buy and sell products.
- Social Media online communication using websites and apps. Share information and help develop social and professional contacts.



How Businesses use Technology

The meaning of the following terms

•E-commerce

M-Commerce

Social media

To understand the connection between Technology and Business success

The meaning of legislation within Businesses

Explain why Businesses now use more technology

Explain the benefits of each of the following •E-commerce •M-Commerce

Social media

To be able to explain the benefits of Businesses using technology to sell products and market them

Explain the need for legislation to protect consumer

Analyse why Businesses can be more successful with the use of Technology

GR<u>A</u>SP

Analyse the advantages and disadvantages of each of these •E-commerce •M-Commerce •Social media

Analyse the impact of technology on the retail sector and the effect on high street stores.

Analyse different forms of legislation that effect different sectors

Influences in Business



Business

Drama: Devising (Unit 1 & 2)

Devising

Your devising unit is split into 3 different parts. It is worth 30% of your GCSE and will be completed this year.

You start with the list of stimuli which you discuss in your devising groups. You create mind maps which help you focus on what to research and discuss next.

It is important that you spend some time on this first step, because it will help all of your group create an interesting set of ideas which can make the devising process easier.

Research tips

Research the artists, look at their previous work, look at interviews they've done, look at their influences and who they have influenced.

Stimuli

A stimulus or a list of stimuli are used in Drama to help create a performance. They don't have to be the subject or topic of the performance, but have to be the starting point where ideas are suggested and developed. You can develop your ideas through rehearsal techniques, discussion or further research

"A clear vision"

The mark scheme asks for a clear vision for your performance, this means you need to have thought about:

Set Style

Genre

Mood

Atmosphere Intention

Using rhythm and music

Rhythm, beats and music can help develop and grow your piece. Use key words, phrases, or the work of others linked to the artist to find something to listen to in rehearsal. You could use this alongside rehearsal strategies to create scenes or ideas:

Still Images	Role on the Wall
(Naturalistic & Non)	Mime
Diary Entry	Gestus
Thought Track	Tempo Rhythm
Sculpting	Improvisation
Ranking	
Angel & Devil	

Staging

Props Costume Lighting / Sound

Facial Expression Naturalistic Non-Naturalistic Posture Movement Rehearsal Development Stance Set Costume Props Staging Exaggeration Proxemics Clear Symbolism Mirroring Semiotics Sculpting "Yes, and ... " "What if?" Vision

Key words & phrases

Intention

Stvle

Mime

Gesture

Year 10

How to develop a story

There are lots of ways to develop a story, but here are a few which could help you plan and develop something for your group to work with

- Start with Still Images 1)
- 2) **Build in Thought tracks**
- Flashback/Flashforward to create 3) 2 more Still Images
- 4) Bring to life with Mime
- Add Thought tracks 5)
- **Discuss & develop** 6)



- Do I know what I have to do in my 1. **Devising Unit?**
- 2. Do I know what I will start my devising unit with?
- Do I know what I have to create? 3.
- 4. Do I know how I am marked for my devising unit?
- Do I know how to develop my ideas 5. through research?
- Do I know how to develop my ideas 6. through rehearsal techniques?

Your main task this term will be to complete your devised piece. Prepare for this by keeping an accurate and detailed log of your rehearsals and research.

THINK

- In your devising Unit you will need to 1. create your own performance with a group, completing a diary of coursework alongside.
- 2. You will start with a list of possible Stimuli, you will choose one as a group
- 3. Your piece should aim to be between 4-10 minutes long
- 4. You are marked practically on your contribution, communication, realisation and reflection of the stimuli. your coursework is marked on your research, vision, development and reflection.
- Your research can involve almost 5. anything, as long as you make the journey from your stimuli really clear
- 6. There are many useful rehearsal techniques, but STILL IMAGE, THOUGHT TRACK, SCULPTING, ROLE SWAP, FLASHBACK and IMPROV could all be useful ways to start

Challenge

Think of what you can produce to help your group clearly understand your vision. There isn't a limit here, but you can use anything that you produce to help evidence your research and development. Below is a list of tasks you may choose to try:

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Diary entry for a character Relationship map Emotions graph Storyboard Mind Map Write a new scene Sketch a stage plan Design a costume Design the set Create a mood board Try to find Write a Role on the Wall Create a Character Profile Write a monologue

Create a timeline Create a rehearsal playlist Research the era Research the artist Research influences Research key dates Research key topic Look for facts and stats practitioners How to Mark a moment? Research performance Styles



Drama

Devising: Units 1 & 2

English: Power & Conflict Poetry



1. Language for Comparison

When poems have similarities Similarly, ... Both poems convey / address... Both poets explore / present... This idea is also explored in... In a similar way, ... Likewise, ... When poems have differences Although... Whereas... Whilst... In contrast, ... Conversely, ... On the other hand, ...

On the contrary, ...

Unlike...

4. Form Techniques

Speaker – the narrator, or person in the poem. Free verse – poetry that doesn't rhyme.

Blank verse – poem in iambic pentameter, but with no rhyme. Sonnet – poem of 14 lines with clear rhyme scheme. Rhyming couplet – a pair of rhyming lines next to each other.

Meter – arrangement of stressed/unstressed syllables.

2. Language Techniques

Metaphor – comparing one thing to another. Simile - comparing two things with 'like' or 'as'. **Personification** – giving human qualities to the nonhuman. **Imagery** – language that makes us imagine a sight (visual), sound (aural), touch (tactile), smell or taste. **Tone** – the mood or feeling created in a poem. Pathetic Fallacy – giving emotion to weather in order to create a mood within a text. **Irony** – language that says one thing but implies the opposite eg. sarcasm. Colloquial Language - informal language, usually creates a conversational tone or authentic voice. **Onomatopoeia** – language that sounds like its meaning. Alliteration – words that are close together start with the same letter or sound. Sibilance – the repetition of s or sh sounds. Assonance – the repetition of similar vowel sounds. **Consonance** – repetition of consonant sounds. **Plosives** – short burst of sound: t, k, p, d, g, or b sound. **Oxymoron** – a phrase that contradicts itself. Repetition – repeated words or phrases.

5. Themes & Connections

3. Structure Techniques

Stanza – a group of lines in a poem.Enjambment – a sentence or phrase that runs onto the next line.

Caesura – using punctuation to create pauses or stops.

Contrast – opposite concepts/feelings in a poem.

Juxtaposition – contrasting things placed side by side.

Anaphora – when the first word/phrase of a line is the same across different lines.

Epiphora – when the final word of a stanza is the same across different stanzas.

Volta – a turning point in a poem.

6. Five Step Method to Analysis – Three Paragraph Essay

Paragraph 1

•Explore the first two or three lines and infer the poet's purpose from this.

•Look at the title of the poem and see how this fits with what you think about the purpose.

Paragraph 2

•Identify figurative language techniques that stand out to you and interpret what it suggests about the meaning.

Paragraph 3

Look at the structure of the poem and think about what this can add to the poet's purpose.
Explore the last few words/last line of the poem and see how the purpose/meaning has changed.



1. Give a definition of each language technique.

2. Give a definition of each structure technique.

3. Give a definition of each form technique.

4. Who is the narrator of each poem?

5.What is the tone of each poem?

English

6.Can you summarise each poem in 20 words?

7.Can you list the most important points in the narration of each poem?

8.Which 5 words would you use to describe the meaning of each poem?

9.What are the main themes in each poem? 10.What are the social and historical links to each poem?

11.What are the names of the critical theories that can be applied to your analysis?

1.Why is the context of a text important?2.How do the main themes link to each text?3.Can you explain what each critical theory is about?

4.Is the author challenging, endorsing, or simply reflecting the dominant ideas and assumptions of the time and place in which they are writing? 1.What is the impact of the opening of the text?

2.What is the impact of figurative language use within each text?

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3.Why are the key themes important for the reader/audience to understand?

4.How does critical theory relate to this text? 5.Why might a modern-day audience or contemporary reader criticise the author's intended message?

Power & Conflict Anthology



French: Holidays

1. Holidays in 3 tenses

l go

l went

I stayed

I travelled by

I used to go

I used to stay

I'm going to go

Je vais

j'allais

Je voyage en

Je suis allé(e)

J'ai voyage en

Je voyageais en

Je vais aller

Je restais / logeais

Je vais voyager en

Je vais rester/loger

Je reste / je loge dans

Je suis resté(e)/j'ai logé

2. Transactional Language

Pouvez-vous m'aider? Je voudrais... I travel by/I stay in Pour jour(s)/nuit(s) Pour semaine(s) Est-ce qu'il y a... J'ai perdu.... On m'a volé... C'est à quelle heure... Où est... I used to travel by Pour aller..... C'est combien? Pouvez-vous recommander...? Le train / avion / bus part/arrive I'm going to travel by à quelle heure? I'm going to stay in C'est quel quai?

Can you help me I would like For day(s) / night(s) For week(s) Is there... I've lost... Someone has stolen... What time.... Where is.... How do I get to.... How much is it? Can you recommend? What time does the train/plane/bus leave/arrive? What platform?

3. Star words

Auiourd'hui

Maintenant

Le lendemain

Demain

Autrefois

Le matin

Le soir

Le lundi

Jusqu'à

Pendant

Premier

Avant

Aprèa

Tout de suite

L'après-midi

Hier

Today
Now
Tomorrow
The next day
Yesterday
In the past
In the morning
In the afternoon
In the evening
On Mondays
Until
During
During
First
Straight away
Before
After

4. PALMO	5. BORDUM	6. Saying 'in,at,to'		
How to describe a photo P eople A ction L ocation M ood O pinion Dans la photo il y a personnes Ils sont en train de + infinitive La scène se déroule Ils ont l'air J'aime/ je n'aime pas parce que	 Asic answer pinion Pinion Casson Development Incommon Incommon<	au + masc countryau Portugalen + fem countryen Angleterreaux + plural countryaux Etats-Unisà + cityà Parisdans + buildingdans un hôtelL'année dernière je suis allé à Paris en France.Normalement je vais aux Etats- Unis où je reste dans un hôtel luxueux.L'année prochaine je vais aller au Portugal et je vais rester dans un camping.		



1. Translate: Last year I went to France

2. Translate: Usually I travel by plane

3. Translate. Next year I am going to stay in a hotel

4. Translate. When I was little I used to go on holiday to Wales

5. Translate. Last year the weather was cold

6. Translate. I would like to visit Paris

7. Translate. I would like a room with a view

8. Translate. Where is the post office please?

9. Translate. Can you recommend a good restaurant?

10. Translate: I have lost my passport.

 Write a short paragraph in French about your holiday last year
 Write a short paragraph in French saying where you are going to go next year and what you are going to do there.
 Translate. I love travelling by plane
 Translate I don't like staying in hotels
 Translate. In my opinion France is more beautiful than England.
 Translate. I have a really bad stomach ache
 Improve sentences 3 - 5 by adding a justified opinion.
 Translate. If I was rich I would travel around the world
 Translate. I halieue that Darie is the

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10. Translate. I believe that Paris is the most beautiful city in the world.

1. Improve paragraph 1 by including some uncommon language 2. Improve paragraph 2 by including some uncommon language 3. Change each of your sentences in paragraph 2 from the 1st person to the 3rd person. I to He / She 4. Give one advantage and one disadvantage of staying in a hotel. 5. Write 2 negative sentences about holidays using ne....jamais and ne.....plus. 6. Imagine you are at the police station reporting a stolen item. Give an account of what happened and describe the missing item. 7. Express an opinion about why you think it is important to go on holiday. 8. Imagine you are in a tourist office – you know nothing about the area you are staying and want to find out as much as you

GR<u>A</u>SP

can. Write down 5 questions you could ask?

Holidays



French

Geography: The Challenge of Resource Management

1. Food in the UK	2. Water in the UK	3. Energy in the UK
 Food in the UK is imported all year. More disposable income and increased demand for greater choice of foods The UK cannot grow all the food needed to feed the people in the UK. Food imported from LICs can help provide Jobs and wages for those in LICs, more tax income leads to a better quality of life The distance food travels to arrive in the UK is called <u>food miles.</u> This causes large amounts of carbon to be emitted into the atmosphere. 	 The average water used per household has risen by 70%. This growing demand is predicted to increase by 5% by 2020. This is due to: A growing UK population. Water-intensive appliances. Showers and baths taken. Industrial and leisure use. Watering greenhouses. The north and west have a water surplus (more water than is required). The south and east have a water deficit (more water needed than is available). 	The UK consumes less energy than compared to the 1970s despite having a higher population. This is due to the decline of industry. The UK government is investing more into low carbon alternatives. The UK government aims to meet targets for reducing emissions. Renewable sources include wind, solar and tidal energy. Although infinite, renewables are still expensive to install. Shale gas deposits may be exploited in the near future . Although the process of <u>fracking</u> is a highly controversial issue.
4. Water Insecurity	5. The impacts of water security	6. Water Management
Pollution caused from human and industrial waste being dumped into people's water sources. Poverty prevents low-income families affording access to clean water. Limited infrastructure such as a lack of water pipes and sewers affects LICs. Over-abstraction from underwater <u>aquifers</u> is when more water is pumped out than be replaced. This is often an issue in large cities	 Food production -The less water available for irrigating crops the less food that will be produced. This could lead to starvation and famines. Inadequate sanitation systems pollutes drinking water causing diseases such as cholera and typhoid. Manufacturing industries depend heavily on water. A severe lack of water can impact economic output 	Water diversion- Involves diverting water to be stored for longer periods. Often water is pumped underground to prevent evaporation.Dams and Reservoirs- Dams control flow and storage of water. Water is released during times of water deficit.Water transfer- includes schemes to move water from areas of surplus to areas of deficit.Desalination- Involves the extraction of salt from sea water to produce fresh drinking water.

<u>Year</u> 10





GRASP

- 1. What does the term 'deficit' mean ?
- 2. What does the term 'surplus' mean ?
- 3. What does the term 'insecurity' mean ?
- 4. What does the term 'food miles' mean ?
- 5. What is an aquifer ?
- 6. What is fracking ?
- 7. Name two water borne diseases.
- 8. Name the three fossil fuels
- 9. Name three types of renewable energy used in the UK ?
- 10. What is an import / export ?

- 1. Why does the south of England have a water deficit ?
- 2. What happens if people over abstract water from aquifers ?
- 3. How do desalinization plants work ?
- 4. Why does the UK import so much food ?
- 5. Why doesn't the UK convert all its energy to renewable power ?

- 1. Explain the impacts of water insecurity for people in LICs
- Evaluate the costs and benefits of large water transfer schemes to
- 3. Explain how the UKs demand is changing
- 4. Assess the costs / benefits of importing food from LICs
- 5. Explain how household water consumption can be reduced.

Geography

The Challenge of Resource Management



History: Germany and the Depression

<u>Year</u> 10

1. Impact of the Depression	2. The Growth of the Nazi Party	З. Кеу	Events
Economic: German factories shut down and millions lost their jobs. German banks tried to reclaim money from German businesses, many went bankrupt. Political:	 The Nazi's promised to create jobs, solving the mass unemployment in Germany. The appeal of Hitler and his powerful speeches filled his audiences with hope and their support. Discontent with the Weimar government meant that many Germans did not think the current system 	Bruning is Chancellor Franz von Papen is Chancellor	Sept - 1930 July - 1932
People started to listen to extreme, political parties that promised radical solutions to Germany's problems and ways of improving their lives. Social: Many people were soon living on the streets and were angry at the leaders.	was working. 4. Fear of communism such as the Spartacists, alarmed the middle class and wealthy Germans who didn't want to lose their power. 5. Hitler changed his tactics after the Munich Putsch and took part in rallies and propaganda.	Von Schliecher is Chancellor Hitler is Chancellor	Nov - 1932 Jan - 1933
		Reichstag Fire	Feb - 1933
4. Who voted for the Nazis?	5. Elimination of Opposition	Enabling Act	Mar - 1933
Chancellor: a senior state or legal official of Germany. Enabling Act: a statute empowering a	Hitler eliminated political opposition through the following steps:Used control of the police to beat up opponents	Trade Unions banned	Mar - 1933
person to take certain action, especially to make regulations, rules, or orders. Communism: a system of social	 Blamed Reichstag Fire on the Communists Passed the 'Protection Law' giving Hitler more power 	Night of the Long Knives	Jun - 1934
organization in which all property is owned by the community and each person contributes and receives	 Passed the 'Enabling Act' allowing Hitler to pass laws without approval from the Reichstag. Gestapo and concentration camps formed 	Hindenburg dies	Aug - 1934
according to their ability and needs.	Night of the Long Knives	Hitler is Fuhrer	Aug - 1934



- 1. What is an economic impact of the Great Depression?
- 2. How were people affected by the Great Depression socially?
- 3. Why did extreme parties become more popular?
- 4. How did the Nazi's promise to fix unemployment?
- 5. Who was afraid of the communists and why?
- 6. How did Hitler change his tactics after the Munich Putsch?

Give at least one example of how each of the following factors allowed Hitler to tighten his grip on power between January 1933 and August 1934:

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- The use of law
- Political scheming
- Bullying and aggression
- Chance and opportunism

Describe two reasons why the Nazi Party became popular. 4 marks.

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In what ways were the lives of Hitler's opponents affected by his moves to become dictator of Germany? 8 marks.

History





Hospitality and Catering: Types of Provision

1. Hotel and Guest House Standards

Hotels and guest houses standards are awarded and given star ratings. You should know what criteria is needed to be met for an establishment to receive each star rating.

Ratings between one and five rosettes could be

awarded based on the following:

- different types and variety of foods offered
- . quality of the ingredients used
- . where the ingredients are sourced
- how the food is cooked, presented and tastes
- ٠ skill level and techniques used as well as the creativity of the chef.



Good Food Guide

A rating between one and 10 could be awarded based on the following:

- cooking skills
- quality of ingredients
- techniques and cooking skills shown.

2. Commercial and Non-Commercial

Commercial (non-residential) catering establishment that aim to make a profit from their service, but no accommodation is provided.

Non-commercial (residential): the hospitality and catering provision offers accommodation but does not aim to make a profit from the service they provide.

Commercial (non-residential)catering establishments that aim to make a profit from their service, but no accommodation is provided.

Non-commercial (non-residential): catering establishments with no accommodation provided and don't aim to make a profit from their service.

3. Types of Service

The different types of food services in the catering sector. You should know the meaning of each one and be able to provide examples. For instance; Table service • Plate: the food is put on plates in the kitchen and served by waiting staff. Good portion control and food presentation consistent. Sliver service is when the food is served to you using a spoon and fork.

Different types of residential types of service in the hospitality and catering sector. You should know the different types of service offered in various hospitality provisions.

Rooms: • single/ double/ king/ family

- suite (en-suite bath/ shower room, shared facilities). Refreshments: • breakfast/ lunch/ evening meal
- 24-hour room service/ restaurant available.

4. Food Poisoning Bacteria

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The main causes of food poisoning bacteria are:

- Bacillus cereus: found in reheated rice and other starchy foods.
- Campylobacter: found in raw and undercooked poultry and meat and
- unpasteurised milk.
- Clostridium perfringens: found in human and animal intestines and raw

poultry and meat.

- E-coli: found in raw meat, especially mince.
- Listeria: found in polluted water and unwashed fruit and vegetables.
- Salmonella: found in raw meat, poultry and eggs.
- Staphylococcus aureus: found in human nose and mouth. Food can cause ill-health if it is stored, prepared and/or cooked incorrectly or if a person unknowingly eats a food that they are allergic or intolerant to. All hospitality and catering provision need to follow laws that ensure food is safe to eat.

You need to know the following types of employment contacts and working hours.

- ٠ Casual: Zero contract, there is no sick pay or holiday entitlement with this type of employment.
- Full time (permanent): Works 5 days, a contact of this nature allows the employee to have sick pay and holiday entitlement.
- Part-time (permanent): Works 3 days, has sick pay and holiday entitlement in this type of contact.
- **Seasonal:** this type of contract is used when a business needs more staff due to busy times throughout the year, such as the Christmas period.
- Zero hours contract: Work only when business requires, no sick pay or holiday entitlement is offered for this type of contract.



Hospitality and Catering: Health and Safety

<u>Year</u> 10

5. Food Hazards

A food hazard is something that makes food unfit or unsafe to eat that could cause harm or illness to the consumer. There are three main types of food safety hazards: • Chemical – from substances or chemical contamination e.g. cleaning products. • Physical – objects in food e.g. metal or plastic. • Microbiological – harmful bacteria e.g. bacterial food poisoning such as Salmonella.

7. Environmental Health Officer (EHO)

The EHO can carry out an inspection of any hospitality and catering premise at any time during business hours – they do not need to make an appointment. During an inspection, the EHO will check to make sure that: • the premises are clean • equipment is safe to use • pest control measures are in place • waste is disposed properly • all food handlers have had food hygiene and safety training • all food is stored and cooked correctly • all food has best-before and use-by dates • there is a HACCP plan to control food hazards and risks.

6. Environmental Issues

The 3 R's

The chef will need to think about environmental issues when planning a menu. Can the chef reduce the amount of ingredients bought as well as reducing food waste? Can the chef reuse ingredients to create new dishes for example stale bread made into bread-andbutter pudding? Can the kitchen recycle waste wherever possible? Running the kitchen sustainably will save money. The above will also need to be considered for front of house how to reduce plastic and waste.

8. HACCP- Hazard Analysis Critical Control Point

Every food business lawfully needs to ensure the health and safety of customers whilst visiting their establishment. To ensure this, they need to take reasonable measures to avoid risks to health. HACCP is a food safety management system which is used in businesses to ensure dangers and risks are noted and how to avoid them.

Hazard		Critical control Point
Receipt of food	Food items damaged when delivered / perishable food items are at room temperature / frozen food that is thawed on delivery.	Check that the temperature of high-risk foods are between 0°C and 5°C and frozen are between -18°C and -22°C. Refuse any items that are not up to standard.
Food storage (dried/chilled/fr ozen)	Food poisoning / cross contamination / named food hazards / stored incorrectly or incorrect temperature / out of date foods.	Keep high-risk foods on correct shelf in fridge. Stock rotation – FIFO. Log temperatures regularly.
Food preparation	Growth of food poisoning in food preparation area / cross contamination of ready to eat and high-risk foods / using out of date food.	Use colour coded chopping boards. Wash hands to prevent cross- contamination. Check dates of food regularly. Mark dates on containers.
Cooking foods	Contamination of physical / microbiological and chemical such as hair, bleach, blood etc. High risk foods may not be cooked properly.	Good personal hygiene and wearing no jewellery. Use a food probe to check core temperature is 75°C. Surface area & equipment cleaned properly.
Serving food	Hot foods not being held at correct temperature / foods being held too long and risk of food poisoning. Physical / cross-contamination from servers.	Keep food hot at 63°C for no more than 2 hours. Make sure staff serve with colour coded tongs or different spoons to handle food. Cold food served at 5°C or below. Food



THINK THINK

- 1. Define how hotels and B & B's are rated
- 2. Define the term food service.
- 3. What are the different job roles within the hospitality and catering industry?
- 4. What is the difference between commercial and non commercial?
- 5. What is the difference between commercial residential and non commercial non residential?
- 6. What are the 3 R's?
- 7. What types of contracts are available in the hospitality and catering sector?
- 8. What hazards need to be considered when preparing food?
- 9. What rating does the Environmental Health Officer give to food premises?
- 10.Define food poisoning.
- 11.Define HACCP.

- 1. Explain what the ratings are and what would you expect in a 5* hotel.
- 2. Explain the different food services that are available and what factors need to be considered.
- Explain the different roles within hospitality and catering establishments.
- 4. Explain what establishments come under commercial and non-commercial.
- 5. Explain how establishments can reduce waste.
- 6. Give examples of what type of contract to have depending on your age.
- 7. Give examples of good food hygiene practices.
- 8. Explain why it is important that food premises are inspected.
- 9. Explain what the EHO will look for when they inspect premises.
- 10. Give examples of different types of food poisoning.
- 11. Complete a HACCP table for safe preparation for spaghetti bolognaise

 Make a list of the items that you would expect to find in a room when staying in a hotel. What else can be added to make it 5*.

GR<u>A</u>SP

- 2. Consider a café in your local area, how do the staff speak to you, what are they wearing, can you identify the staff easily, what type of service do they operate.
- 3. Consider the environment and how establishments can reduce the carbon footprint.
- 4. Why is it important that employees are given a contract?
- 5. Explain what hospitality and catering means .
- 6. Why should chefs use foods that are in season.
- 7. Explain what powers the EHO have.
- 8. How can premises improve their hygiene rating?



Hospitality and Catering

Provision. Health and Safety

iMedia: The media Industry

1. Research Methods, Sources and types of data

2. Media Codes

<u>Year</u> 10

Primary research methods - focus groups - interviews - online surveys - questionnaires.

Secondary research sources - books and journals - internet sites/research - magazines and newspapers - television - Research data - qualitative information - quantitative information

Quantitative data is data that can be measured (think quantity) for example: 93% of customers are happy; The average number of goals in a game was 3.18

Qualitative data describes the quality of something

for example: Many customers were unhappy with the quality of food saying it seemed bland, tasteless and underwhelming. Customers loved the new ride calling it incredible, scary and a real rush.

3. What does a workplan contain?

Workflow – this is the order in which tasks are carried out – they can be indicated by an arrow

Resources – Tasks will always need resources. Resources can be either people, hardware or software. It is possible for two tasks to be done at once if there is more than one person and enough equipment.

Contingencies – If something goes wrong then there needs to be a way to fix the problem. A workplan will contain either extra time or alternatives in case of a problem, such as bad weather.

4. Workplan terms

Tasks - the main parts of a project that need to be completed

Activities – These are what needs to be done to complete a task – they are also known as sub-tasks

Durations – how long a task or activity will take to complete

Timescales – How long a project will take to complete

Milestones – A significant achievement in a project – these take no time to complete but are achieved when other activities or tasks have been completed

5. Mise-en-scène

Symbolic codes are not a part of the media product itself, but are part

of our culture and experience. E.g rings are used in the image below to

codes within film and television include lighting, camera movement, tra

Written codes apply to written text or dialogue in a script. Handwritten

indicate that the image refers to a wedding.

font could be used to show writing by a child or a more

Technical

rustic feel.

nsitions and sound.

Mise-en-scène comes from the French meaning 'setting on the stage'. It covers anything the camera sees to create an overall feel, such as: The arrangement of the set and props Framing of the scene in the camera, lighting and colour Costumes and position (blocking)



Know the reasons for, and benefits of, conducting research

Know the advantages and disadvantages of primary and secondary research and data How research is carried out using different methods and/or sources

The advantages and disadvantages of each primary research method and secondary research source

The differences between qualitative and quantitative data/information.

iMedia



Understand the different technical, symbolic and written codes used to convey meaning, create impact and/ or engage audiences

How codes are used to convey meaning, create impact and/or engage audiences

How the codes used relate to audience, purpose and context

How the combination of content and codes work together to convey meaning, create impact and engagement Apply the research necessary for the brief

GR<u>A</u>SP

Apply the components and conventions of each type of research

Use mind-maps and mood-boards as part of grasping the understand of the brief

What makes the mind map and mood board effective.

How to improve the effectiveness of the documents for users in given contexts

iMedia- The Media Industry



Media Studies: Key Theories. Audiences

1. Uses & Gratification Theory

- The theory suggests that consumers use media products for at least one of these reasons: Identity – , share similar values
- to, etc.
- Educate to learn new things.
- Entertain to be entertained a
- form of 'escapism' Social Interaction –allows for

conversation between other people

<u>4.Hypodermic Needle Theory</u>

The media injects ideas and views into the brains of the audience therefore controlling the way that people think and behave. People are often seen as passive.

2. Propp's Character Theory

Propp suggested that every narrative has eight different character types, these character types are:

- •The hero— Main charact on the quest.
- •The villain fights the hero in some way.
- •The dispatcher send hero on mission.
- •**The helper** helps the hero in the quest.
- •The princess or prize —object of the quest.
- •The father gives the task to the hero.
- •The donor prepares the hero or gives the hero some.
- •The false hero takes credit for the hero's actions





3. WOW WORDS

Year 10

Denotations = what you can see

Connotations = What is suggested or implied

Representation = People, Places & Idea

Intertexuality = When one type of media reference another

Camera Angles & types of shots = Refer to your book for the full list

Enigma Code = A question posed which encourages people to watch.

6. Stuard Hall's ReceptionTheory



Preferred reading

The audience responds in exactly the way the media producer wants them to.

Negotiated reading



Where the audience compromises between the producers intended reading and their own opinions and preferred reading of media text.

Oppositional or resistant readings

The audience rejects the meaning or intended reading of the media product.

KNOW T	THINK	GRASP
 1.Why an audience consumes a product? (Gratification Theory) 2.The different types of characters (Propp's) 3.The 5 parts of Gratification Theory 4.Audience Reception Theory – Preferred reading, Negotiated reading and oppositional reading 	 1.Why do some audiences consume products for different reasons? (An adult might go to the cinema to socially interact with others, rather than a child that would go for entertainment.) 2. My might a 'hero' character be different when considered over a series to an individual episode? 3. Why might there be several 'disruptions' in a storyline? 	 What are the pleasures and rewards for music video audiences? (Gratification Theory) How has technology enabled self- production of music? Explain how camerawork, sound and editing make meanings in the extract from His Dark Materials, The City of Magpies. How does Kim Kardashian Hollywood converge various parts of the Kardashian brand and why?
Magazines : Front cover of <i>Tatler</i> , January 2022 Advertising & marketing: Galaxy TV ad (2014), Newspapers: <i>Daily Mirror</i> – Newspaper Edition Edition: Friday 5 March 2021 Online, social and participatory media: Product Video Games: Kim Kardashian – <i>Hollywood</i> / La Radio: Radio 1 Launch Day / Kiss Breakfast on k Music video: Arctic Monkeys – <i>Bet you look goo</i> Film: Black Widow / I, Daniel Blake Television* Section A Media 2: His Dark Mater <i>An Unearthly Child (1963)</i>	L / Front cover of <i>Heat,</i> 21-27 November 2020 Y NHS Blood online / OMO Print ad n: Friday 5 March 2021 / <i>The Times</i> - Newspaper t: Marcus Rashford / Kim Kardashian ara Croft – <i>Go</i> XISS Radio <i>bd on the dance floor</i> (2005) / Blackpink – <i>How You Like That</i> rials (2020) BBC TV Series. Series 2, Episode 1: <i>The City of</i> Ma	(2020) agpies / Dr Who, Series 1, Episode 1

Media Studies

Audiences



Photography: NEA



1: Develop ideas through investigations



Photographer / Artist research pages.

• Visits to exhibitions and galleries.

• Your own responses in the style of the artist.

• Interviews with artists/ photographers.

• Annotate and analyse what you have found out.



- Experimenting with a range of different materials and techniques.
 - Photo-shoots exploring different techniques.
 - Selecting best photographs from Photo-shoots.
 - Using Photoshop to edit

photographs further in a creative way.

Creating hand edits

5. Photoshop

• Create photograms/ cyanotypes/ Double exposures.

3. Record ideas, observations and insights relevant to their intentions in visual and/or other forms.



IDEAS

OBSERVATION

PLANNING

PRIMARY RESEARCH

RELEVANT

- Title page
- Mind Map.
- Mood-boards.
- Planning Photo-shoots.
- Photographs.
- Contact sheets of Photoshoots.

<u>Year</u> 10



4. Present a personal, informed and meaningful response. Completing a relevant and intentional final piece.



• Plans and drawings of final piece ideas.

 Mini mock-ups and experiments for final piece.

• Creating an original final piece, that is clearly inspired by your research and creative journey.

• Evaluation of final piece (how does your piece link to the project theme?).



REFINE

XPERIMEN

PHOTOGRAPHS

IDE

SELECT

EXPLAIN



Photoshop: Used to enhance and creatively edit digital photographs. - Always take screenshots using the "Snipping Tool" to evidence what you have done while editing. Only use specific features and effects if there is a link to research. Not every Photograph needs to be edited.

6. Helpful Websites

https://digital-photography-school.com/digitalphotography-tips-for-beginners/

Really informative website with lots of easy to follow tutorials for beginners in photography.

https://www.tate.org.uk/

The Tate website is a fantastic resource for finding out about exhibitions you could visit for primary research (AO1).



Pattern - Pattern photography utilizes elements that are repeated. The repetition of lines, shapes, tones or colour can create interesting images. Composition - Composition is the manner in which elements are positioned within a photo Juxtaposition – Juxtaposition is where the photographer puts two objects close to each other and tries to attract the viewer's attention to their differences

Brightness - Brightness refers to the overall lightness or darkness of the image.

Contrast - Contrast defines the range of tonal difference between the shadows and lights of an image.

Hue - Photographers generally think of hue as referring simply to a specific colour.

Saturation - Saturation refers to the colour intensity of an image.

Monochrome – In monochrome photography, tones of a single colour are used to represent all the different colours within an image, usually tones of grey.

Leading Lines - Leading lines are lines that appear in a photograph that have been framed and positioned by the photographer to draw the viewer's eye towards a specific point of interest.

1. Can you provide background information to the photographer's work?

TH<u>IN</u>K

- 2. What do you see, what is the style, what is in the image? Can you describe the photograph?
- 3. What does it make you think of, feel or realise?
- 4. What do you think the photographer is trying to communicate?
- 5. How does the image communicate this message?
- 6. What emotions are represented?
- 7. What would you like to know about the photograph?
- 8. What do you like and dislike about the photograph and why?
- 9. How do you think the photograph has been created?
- 10. What ideas can you take from the photograph? Which ideas can you use in your own work?

1. Select one of your own photographs and use the following visual language to talk about your photograph.

GR<u>A</u>SP

<u>10 things to talk about.</u> <u>Depth</u>

<u>Colour</u> <u>Composition</u> Contrast

Perspective

<u>Light</u> Line

Movement

<u>Space</u>

<u>Colour</u>

Colour	Composition	Feeling	Style	Light
Blend	Background	Alive	Abstract	Artificial
Bright	Blurred	Atmospheric	Derivative	Dark
Clashing	Complex	Delicate	Distorted	Evening
Cold	Confused	Depressing	Emotional	Fierce
Deep	Distance	Dignified	Exaggerated	Gentle
Dull	Eye line	Disturbing	Exterior	Harsh
Glowing	Focus	Fresh	Fake	Hazy
Harmonious	Foreground	Expressive	Fantasy	Intense
Intense	Form	Humorous	Figurative	Natural
Luminous	Middle	Imposing	Impressionistic	Shady
Mixed	ground	Nostalgic	Religion	Shadowy
Opaque	Near	Sad	Representation	Warm
Pale	Perspective	Landscape	al	
Pastel	Proportion	Sentimental	Still life	
Pure	Scale		Sketch	
Secondary	Shape		Surreal	
Translucent	Symmetry		Symbolic	
Transparent				
Vibrant	-			
Warm				





<u>Year</u> 10

Photography

Physical Education: Coordination activities



Year 10





1. Identify the different types of serve you can play.

State two attacking shots you can play in order to win a point.
 What spaces on court should you look to hit shots into?
 Which components of fitness apply to these sports?
 What are the 4 stages of a warm-up?

1. After playing a shot on court where should you look to return to?

тн<u>і</u>мк

 2. Describe the trajectory and target area for each type of serve.
 3. Describe the difference between both attacking shots including trajectory and targeted landing area.

4. Why do we need to attack space?

5. What happens at each stage of a warm-up?

 Explain what shot could you play after each type of serve to attack space on court and why.?
 Explain when you should perform each type of attacking shot and why?

GR<u>A</u>SP

3. Explain why it is important to not return the shuttle/ball if it is heading off the court.

4. Explain how we can link shots together to attack space at the front and back of the court.5. Provide 3 specific drill rehearsal practices

Physical Education

Coordination activities







1. What defines a skill? 2.What makes a skill open or closed? 3.What is meant by the term gross/fine? 4.What are the four stages of the information processing model? 5.What are the four types of guidance? 6.What are the 6 types of feedback a performer can be given? 7.What does the acronym SMART stand for? 8.What are the social factors affecting participation? 9.What are the 7 groups of PEDs athletes may use? 10.What is a sedentary lifestyle? 11.What is a balanced diet made up of?

1. Pick a skill and place it on a continuum to cover all factors. 2.Explain each stage of the information processing model. 3. How can a coach use mechanical guidance in swimming? 4.Explain the best type of feedback for a beginner. 5.What factors can be measured in an invasion game? 6.Describe one disability for which sport is adapted. 7. How is blood doping carried out? 8. Explain one negative lifestyle factor.

TH<u>IN</u>K

1.On a continuum describe where a rugby conversion would sit, give reasons for your answer.
2.Using a sport of your choice give an example of what Input might be during a competitive match.
3.Evaluate the use of guidance for an elite performer.
4.Explain the difference between

GR<u>A</u>SP

4.Explain the difference betwee health, fitness & well-being

GCSE Physical Education





Religious Education: Islamic beliefs

<u>Year</u> 10

1. The nature of Allah

TAWHID is arguably the most important belief in Islam. This is the belief in Islam that there is only one God and this God has no equal, partner or children (e.g. a 'son', as Christians believe). He created everything. Only he should be worshipped; worshipping other gods is a major sin called **shirk**. It is a shared belief between all Muslims. It is demonstrated in the wording of the **Shadahah**, the declaration of faith:

"There is no God but Allah and Muhammad is his messenger".

4. The five roots of Usul ad-Din

In Shi'a Islam, there are five key beliefs, known as the 'foundation of faith' or the 5 roots...

- 1. Tawhid: Oneness of God
- 2. Adl/Adalah: Justice of God
- 3. Nubuwwah: Prophethood
- 4. Imamat: Leadership
- 5. Qayamat: Resurrection

2. The Sunni-Shi'a divide

After the Prophet Muhammad died there was conflict over who should succeed him as the leader of Islam. Essentially from this disagreement, the divide between Sunni and Shi'a Islam formed.

Sunni	Shi'a
Believe that the first four caliphs were "rightly guided"	Believe that Ali, the Prophets Son- in-law should have succeeded Muhammad.
Believe that Muslim rulers should	Believe that all Muslim rulers
follow the Sunna or The	should be descendants of the
Prophet Muhammad's example	Prophet Muhammad.
Claim that the Shi'a have	Claim the Sunni have distorted
distorted many the meaning of	the meaning of many passages of
passages of the Qur'an.	the Qur'an

5. Risalah (Prophethood)

Muslims believe that there have been 124,000 prophets (messengers) sent by Allah to humankind (25 are named in the Qur'an). The first of these messengers was Adam, and the last was Muhammad (The seal of the Prophets). In Muslim belief, every Islamic prophet preached Islam. The beliefs of charity, prayer, pilgrimage, worship of God and fasting are believed to have been taught by every prophet who has ever lived.

3. The six articles of faith

In Sunni Islam, there are six main articles of faith:

- **1. Tawhid**: means having absolute faith in the oneness of God.
- Malaikah: Muslims believe that God passed messages on to humans via malaikah, angels.
- **3. Kutub**: The holy books of Islam should be respected. Especially the Qur'an, which is the direct and unchanged word of God.
- **4.** Nubuwwah: Muslims believe the prophets should be respected but never worshipped.
- 5. Akirah: All Muslims believe that when they die, they will be judged by God and sent to either Jannah or Jahannam.
- 6. Al-Qadr: Muslims believe that everything in the universe is following a divine masterplan and Allah knows or decides everything that will happen.

6.WOW WORDS

<u>Allah</u>: the Arabic language equivalent to the English word "God" with a capital "G". The word "Allah" cannot be made plural, a fact which goes hand-in-hand with the Islamic concept of God.

<u>Shi'a</u>: A Muslim denomination totaling approx. 11% of Muslims

<u>Sunni</u>: A Muslim denomination totaling approx. 85% of Muslims



- 1. What Muslims believe in the 6 articles of faith?
- 2. What is Tawhid ?
- 3. What is **Malaikah**
- 4. What is **Kutub**
- 5. What is **Nubuwwah** ?
- 6. What is Akirah ?
- 7. What is Al Qadr ?
- 8. What are the 5 roots of (Usul ad-Din) Shi'a Islam ?
- 9. What is most important belief for all Muslims?
- 10.Sunni Muslims make up around what percentage of Muslims from around the world.?
- 11.What is the key difference between Sunni and Shi'a Muslims?



- Muslims belief that God is omnipotent. What does this mean ?
- 2. What are the five roots in Usul ad-Din in Shi'a Islam ?
- 3. What are the six articles of faith in Suni Islam ?
- 4. How does the belief in Kutub (Holy Books) affect Muslims today?
- Explain the importance of the six articles of faith to Sunni Muslims.

 Evaluate why Tawhid is believed to be the most important of all beliefs within Islam?

GR<u>A</u>SP

- 2. How does the belief in Akirah affect how a Muslim lives their life today?
- Write a report outlining the importance of the Prophet Muhammad to Muslims.



Religious Education

Islamic beliefs

Science: Biology – Homeostasis

1. Homeostasis

Homeostasis is the fancy word for keeping conditions in your body and cells at the right level. This is really important because your cells need the right conditions to work properly - this includes having the right conditions for enzymes to work.

You have loads of control systems in your body that keep conditions in your body steady such as **body temperature**, **blood glucose leve**l and **water level**. They can control conditions in the body using the **nervous system** or **hormones**.

Control systems are made up of three parts: receptors; coordination centres (including the brain, spinal cord and pancreas) and effectors.

4. The Endocrine System

Hormones are chemical molecules released directly into the blood. They are carried in the blood to target organs and control things in organs and cells that need constant adjustment.

Hormones are produced and secreted by various glands, called **endocrine glands**. These glands make up your endocrine system (see figure 3) Hormones and nerve have differences .

Nervous System	Hormonal System			
Short term	Long term			
Very fast response	Slower response			
Electrical impulses via neurones	Chemical messengers via blood			

2. The Nervous System

Organisms need to respond to **stimuli** (changes in the environment) in order to survive. The nervous system means that humans can react to their surroundings and coordinate their behaviour. The nervous system is made up of different parts: **central nervous system**; **sensory neurones**; **motor neurones** and **effectors** (see figure 1)

The central nervous system (CNS) is a coordination centre. It receives information from the receptors, which are cells that detect stimuli. Sensory neurones carry the information to the CNS which coordinates a response (decides what to do about it). The CNS sends information along motor neurones to the effector which carries out a response. The effector can be a muscle or a gland.

5. Controlling Blood Glucose

Blood glucose is controlled as part of homeostasis – **insulin** is an important hormone in this. Changes in blood glucose concentration are monitored and controlled by the **pancreas**.

- 1. Eating carbohydrates puts glucose into the blood
- 2. If glucose concentration gets too high, the pancreas releases the hormone insulin
- 3. Insulin causes glucose to move into cells (so it removes glucose from the blood)
- 4. Glucose is converted to **glycogen** in liver and muscle cells

3. Synapses and Reflexes

Yea

The connection between two neurones is called a **synapse.** The nerve signal is transferred by chemicals which diffuse across the gap. These chemicals then set off a new electrical signal in the next neurone.



Reflexes are rapid, automatic responses to certain stimuli that reduce the chances of being injured. The passage of information in a reflex (from receptor to effector) is called a reflex arc. (see figure 2) The neurones in reflex arcs go through the spinal cord or unconscious part of the brain.

6. Puberty and Menstrual Cycle

At puberty, your body starts releasing sex hormones that trigger off secondary sexual characteristics. In men the main reproductive hormone is **testosterone** which is produced by the testes and stimulates sperm production.

In women, the main reproductive hormone is **oestrogen**, which is produced by the ovaries and brings about physical changes such as breast growth and it is also involved in the menstrual cycle.

The menstrual cycle has four stages which is controlled by the hormones **oestrogen**, **progesterone**, **FSH** and **LH**.

Science: Biology - Homeostasis

7. The Menstrual Cycle -continued



8. Controlling Fertility

Hormones can be used to reduce fertility. Oestrogen can be used to prevent the release of an egg so it can be used as a method of hormonal contraception. Progesterone also reduces fertility by stimulating the production of thick mucus which prevents any sperm getting through and reaching the egg. The pill is an oral contraceptive containing oestrogen and progesterone which is 99% effective as preventing pregnancy but can cause side effects and doesn't protect against STDs.

Hormones can also be used to increase fertility. The hormones FSH and LH can be given to women in a fertility drug to stimulate ovulation. Fertility drugs can also be used in **IVF** which involves collecting the eggs from a woman and fertilising them in a lab, growing them into embryos and then transferring them to the woman's uterus.

11. Figure 2 – Reflex Arc

9. Required Practical: Ruler Drop



Reaction time is the time it takes to respond to a stimulus. It can be affected by factors such as age, gender and drugs. In this experiment, control variables are: same person; same hand; and same height.

Yea

12. Figure 3 – Endocrine System



10. Figure 1 – Nervous System





1. What is homeostasis

- 2. What is the role of the nervous system?
- 3. What is a synapse?

4. What are hormones?

- 5. What hormones controls blood glucose levels?
- 6. What are the sex hormones?

7. What hormones can be used to control fertility?

8. What is IVF?

9. What is the aim of the ruler drop test

С ТНІМК

1. Describe two examples of homeostatic control mechanisms

- 2. What parts make up the nervous system
- 3. Describe what happens at the synapse
- 4. Describe the role of the endocrine system

5. What gland produces the hormone that controls blood glucose levels

6. What is the function of the sex hormones in both males and females?

7. Compare a barrier method and hormonal method of contraception

8. Explain the first stage of IVF

9. Write a short method for the ruler drop test

1. Explain why homeostasis is important

GR<u>A</u>SP

2. Describe the function of the different parts that make up the nervous system

3. Explain how the reflex arc works

4. Describe the functions of the glands that make up the endocrine system

5. Describe how our body responds to an increase in blood glucose levels

6. What are the hormones that control the menstrual cycle and what is their function?

7. Explain how hormonal drugs can be used to prevent conception

8. Describe the IVF process

Homeostasis

9. What is the independent, dependent and control variables in the ruler drop test



Science: Biology

Science: Chemistry – Chemical Analysis

1. Testing for gases

CI



2. Purity and Formulations

A **pure substance** is something that only contains one compound or element throughout – not mixed with anything else

Pure substances In chemistry, we refer to a substance as being pure if nothing has been added to it. A pure substance is a compound or element that is not mixed with anything else.





Impure substances

Impure substances are usually

el and water Oxygen and Helium

Formulations are useful mixtures with a precise purpose that are made by following a formula. Each component in a formulation is present in measured quantity and contributes to the properties of the formulation so that it meets its required function e.g. formulations are important in the pharmaceutical industry when altering the formulation of a pill/drug

5. Chromatography Required Practical



The result of chromatography analysis is called a **chromatogram.**

An **Rf value** is the ratio between the distance travelled by the dissolved substance (solute) and the distance travelled by the solvent.

You calculate Rf values using the formula:

Rf = Distance travelled by substance

Distance travelled by solvent

3. Wow Words

<u>Yea</u> 10

*Chromatography– An analytic method to separate a mixture that has different colours.

*Chromatogram – shows the results of a chromatography experiment.

***Stationary phase** - A phase in chromatography where the molecules can't move

*Mobile phase - A phase in chromatography where the molecules can move

***Solute** – a substance dissolved in a solvent to make a solution

*Solvent – a liquid in which another substance (solute) can be dissolved

***Solvent front** – the point the solvent has reached up the filter paper

* **Rf value** – the ratio between the distance travelled by a dissolved substance and the distance travelled by a solvent

6. Rf Values

The further through the stationary phase a substance moves, the larger the Rf value.

Chromatography is often carried out to see if a certain substance is present in a mixture. To do this, you run a pure sample of that substance (a reference) alongside the unknown mixture. If the Rf values of the reference and one of the spots in the mixture match, the substance may be present.

The Rf value of a substance is dependent on the solvent you use - if you change the solvent the Rf value for the substance will change.

4. Chromatography

Chromatography is an analytical method used to separate the substances in a mixture. In paper chromatography, the **stationary phase** is the chromatography paper and the **mobile phase** is the **solvent** (ethanol or water). In an experiment, the mobile phase moves through the stationary phase. How quickly it moves depends on how **soluble** the molecules are in the solvent, and how attracted they are to the paper.

Molecules with higher solubility and which are less attracted to the paper will be carried further up the paper.

Science: Chemistry – Chemical Analysis

<u>Year</u> 10

7.1	Testing fo	r anions	9. Flame Emission Spectroscopy	11. Wow Words			
Tests for anions often give precipitates. You can test for carbonate ions by adding a few drops of dilute acid. If carbonate ions are present, this will release carbon dioxide which will turn limewater cloudy. You can test for sulfate ions by adding a couple of drops of dilute HCI followed by a couple of drops of barium chloride solution. If sulfate ions are present, a white precipitate of barium sulfate will form. You can test for halide ions by adding a couple of drops of dilute nitric acid followed by a couple of drops of silver nitrate solution.		precipitates. ons by adding a few nate ions are present, ide which will turn by adding a couple of by a couple of drops of sulfate ions are present, n sulfate will form. by adding a couple of lowed by a couple of on.	During flame emission spectroscopy a sample is placed in a flame. As the ions heat up, their electrons become excited (they move to higher energy levels). When the electrons drop back to their original energy levels, they release energy as light. The light passes through a spectroscope which can detect different wavelengths of light to produce a line spectrum. A line spectrum for an ion could look like this: The combination of wavelengths emitted by an ion depends on its charge and its electronic arrangement. Since no two ions have the same charge and the same electron arrangement, different ions emit different wavelengths, and has a different line spectrum. The intensity of the spectrum indicates the concentration of that ion in solution so line spectra can be used to identify ions in a solution and calculate their concentrations.	 *Diatomic – molecules that are found in pairs. *Properties. Describes how a substance behaves or what it looks like. *Ion – a charged particle formed when one of more electrons are lost or gained from an atom or molecule *Cation – positive ion. *Anion – negative ion. *Precipitate – a solid that is formed in a solution during chemical reaction *Flame emission spectroscopy - an analytical technique which can be used to identify and find the concentration of metal ions in a solution 		what le ring a ique ition	
8. 1	Testing for	r cations	10. Flame Emission Spectroscopy		12. Testin	g metals with NAOH	
Compounds of some metals produce a characteristic colour when heated in a flame so you can test for various metal ions by heating		produce	Flame emission spectroscopy can also be used to identify different ions in mixtures. This makes it more useful than flame tests, which only work for substances that contain a single metal		Metal Cation	Effect of adding NaOH	
		heated in a flame so al ions by heating			Aluminium (Al ³⁺)	White precipitate, dissolves in excess NaOH to form a colourless solution	
turns a distinct	ive colour.		Machines can analyse unknown substances. Chemists often		Magnesium (Mg ²⁺)	White precipitate, incoluble so remains in excess NaOH	
Element	lon Li+	Flame test colour Crimson	use instrumental analysis (tests that use machines) such as flame		Calcium (Ca ²⁺)	White precipitate, insoluble so remains in excess NaOH	
Sodium	Na+	Yellow	Advantages of using machines:		Copper (II) (Cu ²⁺)	Light blue precipitate, insoluble in excess	
Calcium	Ca ²⁺	Orange-red	Very fast and tests can be automated Hydrogen Emission Spectrum		Iron (II) (Fe ²⁺)	Green precipitate, insoluble in excess	
Copper	Cu ²⁺	Green	• very accurate		Iron (III) (Fe ³⁺)	Red-brown precipitate, insoluble in excess	
				-		Conscients & Cours Machine Market Research	

wavelength, λ (nm



1. Write a definition for a pure substance.

2. Write a definition a definition for an impure substance.

3. Write a definition for a formulation.

4. List 3 examples of a pure substance.

5. List 3 examples of impure substances.

6. List 3 examples of what a formulation is.

7. Identify the gas if lime water turns cloudy.

8. Identify the gas if damp litmus paper turns whit.

9. Give the name of two solvents.

10. Identify the gas if a glowing splint relights?



1. Write a method to carry out the required practical for chromatography.

2. Describe a method for testing for hydrogen.

3. Describe a method for testing for oxygen.

4. Describe a method for testing carbon dioxide.

5. What is the difference between the mobile phase and the stationary phase during chromatography.

6. What effect will impurities have on the melting point of a substance.

7.What conditions affect how long molecules are in the mobile phase.

8. If you were testing the same substance with different solvents, what would happen?

9. Calculate the rf value when the spot sample travelled 3.5 and the solvent line travelled 8.3.

10. Compare the difference in gradients for a pure and impure substance.

GRASP

1. Describe how you would can determine if a

substance is pure. 2. How can you tell if a substance was impure by

analysing a chromatogram.

3. Calculate the distance travelled by a substance if it has a rf value of 1.6 and the solvent travelled 8.3 cm .

4. thermal decomposition of calcium carbonate forms CO_2 and calcium oxide. Describe how you could test that this reaction is occurring.

5.During electrolysis, chlorine gas and oxygen gas is formed at the electrodes. How could you test this?

6. **Chem Only:** What colour flames are produced when compounds containing metal ions, copper, potassium and sodium are held in a Bunsen burner.

7. **Chem Only:** Describe a test to determine if it is iron (II) chloride?

8. **Chem Only:** Explain the advantages between flame tests and flame emission spectroscopy

9. **Chem Only:** Draw a flow chart to carry out a flame test.

10. **Chem Only:** In the test for halide ions, why is nitric acid added before silver nitrate is added.



Science: Chemistry

Chemical Analysis

Science: Waves

Yea

1. Waves

Waves travel through a medium (substance). The particles oscillate (vibrate) and transfer energy. The particles stay in the same place.

Peak

Wavelength - the distance between adjacent waves (ie. from peak to peak or trough to trough)

Amplitude - the maximum displacement from a waves undisturbed position (the horizontal mid-line) -Trough

 $T = \frac{1}{4}$

Frequency - the number of complete waves that pass a point every second. 1 wave per second has a frequency of 1Hz (hertz).

Time period - the time for a complete cycle of a wave:



Transverse Waves The **oscillations** (vibrations causing the wave) are perpendicular (90°) to the direction of energy transfer. Examples are: Oscillation Transfer of energy

- All EM waves
- Waves on water

•

A wave on a string



The oscillations are parallel to the direction of energy transfer. Sound waves travel as a longitudinal wave in air.



3. Electromagnetic Spectrum

EM waves such as light can be absorbed, transmitted or reflected by different surfaces. In a plane mirror the angle of incidence = angle of reflection



You need to know the properties, uses and dangers of EM waves.

4. Wave experiments

To measure the speed of sound two microphones held by a speaker (plugged into to a signal generator) can be connected to an oscilloscope. One microphone is moved away from the speaker until the waves line up on the oscilloscope. The distance between the microphones is the wavelength. Use $V = f\lambda$ to find the speed of sound (f = whatever frequency the signal generator is set to). The speed of sound in air is 330 m/s.

The speed of water ripples and waves on a string can also be investigated and calculated using the waves speed equation.

5. Refraction (HT only)

Waves change speed when they cross a boundary between two materials of different density. If the wave enters a medium of higher **density** at an **angle** the ray bends towards the normal (diagram to left).

If it enters a medium **along the normal** then the wave does not change direction but the wavelength and speed decrease.



6.

Sound waves can travel through solids causing vibrations in the solid.

Within the ear, sound waves cause the ear drum and other parts to vibrate which causes the sensation of sound.

The conversion of sound waves to vibrations of works over a limited frequency range. This restricts the limits of human hearing to between20Hz and 20kHz



Science: Waves

1. Seismic (Physics only)

Seismic waves are produced by earthquakes. P-waves are longitudinal seismic waves that travel at different speeds

through solids and liquids. S-waves are transverse, seismic waves that cannot travel through a liquid. P-waves and Swaves provide evidence for the structure and size of the Earth's core.



4. Visible light (physics only)

2. Ultrasound (Physics only)

Ultrasound waves have a frequency higher than the upper limit of hearing for humans. They are partially reflected when they meet a boundary between two different media. The time taken for the reflections to reach a detector can be used to determine how far away the boundary is (because distance = speed x time). This allows ultrasound waves to be used for both medical and industrial imaging. Echo sounding (which is used to detect objects in deep water and measure water depth) works in a similar way.



3. Lenses (Physics only)

Lens forms an image by refracting light.

In a convex lens, parallel rays of light are brought to a focus at the principal focus. The distance from the lens to the principal focus is called the focal length.

The image produced by a convex lens can be either real or virtual.

The image produced by a concave lens is always virtual. magnification = image height

object height



5. Black body radiation (Physics only)

All bodies (objects) emit and absorb IR radiation. The hotter the body, the more IR radiation it radiates in a given time.

A perfect black body is an object that absorbs all of the radiation incident on it. A black body does not reflect or transmit any

radiation. Since a good absorber is also a good emitter, a perfect black body would be the best possible emitter.



White light is a mixture of different colours (red, orange, yellow, green, blue, indigo and violet) with slightly different wavelengths and frequencies.

Reflection from a smooth surface in a single direction is called specular reflection.

Reflection from a rough surface causes scattering: this is called diffuse reflection.

Colour filters work by absorbing certain wavelengths (and colour) and transmitting other wavelengths (and colour).

If all wavelengths are reflected equally the object appears white. If all wavelengths are absorbed the objects appears black. Objects that transmit light are either transparent or translucent





1. Define the term Wave?

2. Draw a wave a label it?

3. Describe the difference between frequency and period

4. Describe the difference between

transverse and longitudinal waves?

5. What is reflection?

6. Describe the laws of reflection

7. What is the electromagnetic spectrum made up of

8. Describe the order of the waves on the EMS

9. Describe a use of radio waves, x-rays and microwaves

10. Describe the difference between reflection and refraction

 Draw and label a wave describe the structures of a wave?
 Explain the difference between a longitudinal wave and a transverse wave?

тн<u>і</u>мк

3. Explain the difference between

reflection and refraction?

4. Describe the two equations for

calculating speed of a wave?

5. Explain how light waves are different to sound waves?

6. Draw a wave with a large amplitude and short wavelength?

7. A seismic wave is detected 100m away,5s after an explosion. Calculate the wave speed

8. Explain the difference between specular reflection and diffuse scattering

9. Give 1 similarity and 1 difference

between gamma rays and visible light. 10. Explain a use and a danger of infrared waves? 1. Explain the difference between S waves and P waves?

GR<u>A</u>SP

2. Describe some uses of ultrasound?

3. Compare the advantages and

disadvantages of using ultrasound?

4. Explain what Sonar is and how it is used?

5. A ship detects a sonar pulse 3 seconds after it was emitted. The speed of the sound in the sea water is 1500 m/s. How far has the sound wave travelled How deep is the water

6. Explain why we can't hear sound in space?

7. Explain in terms of properties how a gamma ray is different to a infrared wave?8. Explain the difference between emitters and absorbers of infrared radiation?

9. Compare the dangers and the uses of a x-ray and radio wave?

10. Explain why Earthquakes happen?



Science:



Spanish: Holidays

2. Transactional Language

Is there?

Voy	lgo	¿Hay?
Viaio en	I travel by	Quisiera
Me quedo /me alojo en	I stay in	Para día(s)/noche(s) Para semana(s)
Fui	I went	¿Cuáántas personas?
Viajé	I travelled by	He perdido
Me quedé/ me alojé en	, I stayed	Me han volado
Iba	I used to go	¿Dónde está?
Viajaba	I used to travel by	¿Por dónde se va a
Me quedaba	I used to stay	¿C'uánto es?
Voy a ir	I'm going to go	¿Es posible recomendar?
Voy a viajar	I'm going to travel by	a qué hora?
Voy a quedarme	I'm going to stay in	
<i>·</i> ·		¿En qué andén?

iHav2

I would like For day(s) / night(s) For week(s) How many people? I've lost... Someone has stolen... What time.... Where is....? How do I get to....? How much is it? Can vou recommend? What time does the train/plane/bus leave/arrive?

What platform?

3. Star words

Year 10

Ноу	Todav
Ahora	Now
Mañana	Tomorrow
Hace + time	ago
Ayer	Yesterday
En el pasado	In the past
Por la mañana	In the morning
Por la tarde	In the afternoon
Por la noche	In the evening
Los lunes	On Mondays
Hasta	Until
Durante	During
Primero	First
Ahora mismo	Straight away
Antes	Before
Después	After

4. PALMO

1. Holidays in 3 tenses

Vov

How to describe a photo		
P eople		
A ction		
L ocation		
M ood		
O pinion		
En la foto hay personas		
Está/ están habl ando/ com iendo		
La escena toma lugar en		
Parece(n)		
Me chifla/ odio que		



Normalmente voy a España

5. BORDUM

JMe encanta España porque hace sol

Creo que es muy animado

Me quedo en un hotel lujoso para descansar

6. Using Uncommon Language

•Lo + adjective: lo bueno / lo malo / lo mejor / lo peor / lo fascinante •Comparative: ... es más interesante que ... / es menos interesante que...

• Superlative: ...es el más interesante / es la más interesante

•Using para (in order to) + infinitive: me encanta ir al cine para ver películas •Negatives: No / nunca / nada / nadie



- 1. Translate: Last year I went to Spain
- 2. Translate: Usually I travel by plane
- 3. Translate. Next year I am going to stay in a hotel
- 4. Translate. When I was little I used to go on holiday to Wales
- 5. Translate. Last year the weather was cold 6. Translate. I would like to visit Barcelona
- 7. Translate. I would like a room with a view
- 8. Translate. Where is the post office please?
- 9. Translate. Can you recommend
- a good restaurant?

Spanish

10. Translate: I have lost my passport.

1. Write a short paragraph in Spanish about your holiday last year 2. Write a short paragraph in Spanish saying where you are going to go next year and what you are going to do there. 3. Translate. I love travelling by plane 4. Translate I don't like staying in hotels 5. Translate. In my opinion France is more beautiful than England. 6. Translate. I have a really bad stomach ache 7. Improve sentences 3 - 5 by adding a justified opinion. 8. Translate. How do I get to the pharmacy? 9. Translate. If I was rich I would travel around the world 10. Translate. I believe that Barcelona is the most beautiful city in the world.

TH<u>IN</u>K

1. Improve paragraph 1 by including some uncommon language 2. Improve paragraph 2 by including some uncommon language 3. Change each of your sentences in paragraph 2 from the 1st person to the 3rd person. I to He / She 4. Give one advantage and one disadvantage of staying in a hotel. 5. Write 2 negative sentences about holidays using nunca and nada. 6. Imagine you are at the police station reporting a stolen item. Give an account of what happened and describe the missing item. 7. Express an opinion about why you think it is important to go on holiday. 8. Imagine you are in a tourist office you know nothing about the area you are staying and want to find out as much as you can. Write down 5 questions you could ask?

GR<u>A</u>SP





Sports Studies R185- Performance & Leadership in sport activities

Year 10

 Topic Area 1: Key components of performance 	2. Topic Area 2: Applying practice methods to support improvement in a sporting activity	3. Topic Area 3: Organising and planning a sports activity session	
 Performance and techniques of skills Appropriate use of tactics / strategies / compositional idea Decision making during performance Ability to manage / maintain own performance Awareness of role and contribution to the team 	 Key components for assessing strengths and weaknesses in an activity Different types of practice and progressive drills Altering the context of performance Use of tools to aid evaluation 	 Appropriate venues Equipment Timing Supervision Contingency plan Introduction and conclusion Basic warm up and cool down Skill and technique development 	
 4. Topic Area 4: Delivering a sports activity session Safe practice 	5. Topic Area 5: Reviewing your own performance in planning and leading a sport activity session		
 Timing Adaptability Reliability Leading a sports activity 	 Planning Leading Improvements that could be made Opportunities to develop leadership skills for the future 		



THINK IT

GR<u>A</u>SP

1)What are your two selected sporting activities?

2) What is a skill?

3) Name a skill used in each activity?

4) What is a technique?

5) Name a technique used in each activity?

6) What is a strategy?

- 7) What is a tactic?
- 8) What is arousal?

9) What is mental rehearsal?

10) How can you adapt to different roles?

 What are your strengths in an individual sport?
 What are your strengths in a team sport?
 What are your weaknesses in an individual sport?
 What are your weaknesses in a team sport?
 What different practices can you use to help you improve?
 How might changing the setting of your practice help?

1)What methods of feedback tell you this is a strength of yours? 2)What feedback methods allow you to know this is an area of development? 3)How can your understanding of strategies and tactics improve your performances? 4)How can you manage arousal levels during a practice situation? 5)How can playing in different positions help improve your game understanding? 6) How can you vary practice for more experienced players? 7)What tools can you use to analyse performance?



Cambridge National in Sports Studies

Design & Technology Core Technical Principles

1. New and Emerging Technologies

Automation: Automated machines are programmed to carry out a procedure multiple times, e.g. repeatedly creating the shape of a car door using a press, to improve production time. Robotics: Robots are one part of automation but robots use AI to collect information and improve the performance of a procedure.

4. Energy Generation and Storage

Fossil fuels are a finite resource, meaning that they cannot be replaced once extracted from the ground. Examples of fossil fuels are coal, oil and natural gas. **Nuclear Power:** A huge amount of energy can be produced through the nuclear process using a relatively small amount of **uranium**. The energy is produced as heat through the **fission process**. It is more efficient than fossil fuels and no harmful gasses are released however disposal of uranium is difficult and costly.

Renewable energy: Solar – uses sunlight to generate energy, huge source of free source to create power, the panels can be expensive and will produce less energy in winter. Wind – uses the wind to generate energy through wind turbines, does not pollute the air, has expensive set-up costs, some people do not like their appearance. Batteries: The two main types of batteries that are commonly used are 'single-use' and 'rechargeable'. Alternatively a wind-up mechanism allows the user to generate energy by using muscle power to turn a hand crank. This provides kinetic energy to power the device, requires no additional batteries and is ready to be used whenever the user needs it.

2. Developments in New Materials

A <u>modern material</u> is a material that has been developed through the invention of new or improved processes to improve the **properties** of the **material**, e.g. to make them **stronger**, **faster**, **lighter** and **tougher**. Examples are **graphene**, **LCD's** and **nanomaterials**.

<u>Smart</u> <u>Materials</u>: exhibit a physical change in response to some external stimuli.

<u>Shape-memory</u> <u>alloys</u> are metal <u>alloys</u> that can remember their shape when heated,e.g. Nitinol used in dental braces and glasses.

<u>Thermochromic pigments</u> change colour when their temperature changes.

<u>Photochromic pigments</u> change their properties when exposed to **ultraviolet (UV) light,** e.g. glasses that turn into sunglasses.

Technical textiles have been developed e.g.

<u>Conductive</u> <u>fabrics</u> allow a small electrical current to safely pass through them. This technology is used for touch-screen gloves

5. Mechanical Devices

Most products rely on **movement** to work, eg in a pair of scissors the blades need to move together to cut. This movement is called a **motion**, and the motion of a product may be hidden or visible. The 4 types of **motion**:

Linear Rotary Oscillating Reciprocating

3. WOW WORDS

<u>Year</u> 10

Fair Trade = Trade in which fair prices are paid to the farmers and workers who create products. Finite Resources = Resource that can only be used once and is in limited supply. For example, oil is a finite

resource.

Fossil Fuels = Natural, finite fuel formed from the remains of living organisms, eg oil, coal and natural gas. **Renewable energy** = Power that is generated using natural resources that will not run out, eg wind and wave power.

Nomex = a technical textile which is flame-resistant material used for firefighters.

Kevlar = a technical textile tightly woven fabric that has great impact resistance.

6. Material Categories

Paper and Board: Papers are made from **wood pulp**. They are measured by **weight**, in grams per square metre (gsm).

Timber comes from trees, they can be categorised in two groups softwoods and hardwoods.

<u>Metals</u> are found naturally and are **mined** from the **earth** and can be categorised as **ferrous**, **non-ferrous** or **alloys**.

<u>Polymers</u> are formed by processing **crude oil** but they can be made from both **natural** and **synthetic** resources. They can be **thermoforming** or **thermosetting**.

<u>Textiles</u> can be either natural(from plants and animals) or synthetic(man made) fibres.



How to describe a product: What is it made from? Who is it for? When would it be used? Where is it used? How much does it cost? How has it been made? **Core technical Principles:** State what a smart material is. State what a modern material is. State what a technical textile is. What biomimicry is. The main source of energy used in the world is currently fossil fuels. Know what fossil fuels are and where they come from. The impact of new technologies on society. A range of renewable energy sources: solar, wind, tidal, biomass. Analysis is reflecting on your designs/ product and assessing its strengths and weaknesses. Ergonomics is how comfortable/ easy a design is to use and how well it meets the users needs. Maths and design and technology: How to calculate percentages. How to calculate area. How to calculate volume. How to read graphs and tables.



How to interpret products that are new: What is my reaction to this product? Who might the user or owner be? Why might they want to buy it? Is it designed well, if so, why/why not? Is it easy to use? How well is it made? Is it well finished (polished, sanded, varnished)? Is the cost appropriate? What happens at the end of its product life? (recycled, landfill, can it be repaired/reused) Consider the environmental impact of designs: When designing and manufacturing a product, it is important to consider its life cycle. Life cycle is the time from a products manufacture, to its recycling or disposal, at the end of its useful life. We need to consider the 6 R's: Reduce, reuse, recycle, refuse, repair and rethink. **Core technical Principles:** Give an example of how a smart material can be used in a product. Give an example of a modern material. Give examples of technical textiles. Give an example of how biomimicry has been used in development and innovation in engineering/ design. Calculate the surface area of a product. Calculate the volume of a product.

Synthesis:

Would I want to own or use this product? What influenced the appearance of a product and the way it works?

GR<u>A</u>SP

How might the design have been developed? How would you test this to see..?

Could you redesign to improve a part of the design?

What innovation techniques could you use to improve it? Biomimicry? Divergent thinking? **Evaluation – according to criteria and state:**

What is wrong with the product?

Why is this product more or less popular than other similar products?

What difficulties would manufactures have making this product?

Why have these materials been chosen? Could you analyse the lifecycle of an existing product and advise opportunities where designers could make it more sustainable by using the 6 r's? Could you explain how you could improve a product through the use of smart materials? Could you find out how modern materials have improved the performance of products?



D & T: Product Design

Core Technical Principals

Design & Technology: Timbers

<u>1. Preparing Timber</u>

The tree is 'felled' (cut down). The tree trunks (logs) are stored in the forest before going to the sawmill. This allows some of the water content to evaporate. The logs are then transported to the sawmill. At the sawmill, the logs are cut into 'boards' using equipment such as circular saws and bandsaws. This is called 'conversion'. The first stage of conversion is a process called 'breaking down', which means rough sawing. The second stage is called 'resawing' and refers to more accurate / precise cutting and finishing, such as planing and further machining. The timber is then 'seasoned' either by air drying or by kiln.

4. Manufactured Boards

Usually made from **waste wood** and **adhesive**. Used in **construction** for **interior furniture**. They are more **stable** than natural woods and are less likely to **warp** and **twist**. They are available in many **sheet sizes** and **thicknesses**. **Plywood** - Layered in odd numbered sheets. Strong due to layers glued at 90° angles. Susceptible to splintering **Used** in sheds and cladding, furniture, flooring, boats. **MDF** - will swell if exposed to moisture. Sheets can be heavy. Smooth finish. No grain.

<u>Chipboard</u> - Large chips of wood glued together under pressure, brittle, difficult to shape and finishes poorly, absorbent and low in cost.

2. Softwoods and Hardwoods

<u>**Timber**</u> comes from trees, which have to grow to full maturity before they can be cut down for wood. Timbers can be split into two categories: **softwoods** and **hardwoods**. **Softwood**

Softwoods come from **coniferous** trees. These often have pines or needles, and they stay evergreen all year round - they do not lose leaves in the autumn. They are faster growing than hardwoods, making them cheaper to buy, and are considered a **sustainable** material. Examples of softwoods are: Paraná pine, Scots pine and Western red cedar.

Hardwood

Hardwoods come from **deciduous** trees, which have large flat leaves that fall in the autumn. Hardwoods take longer to grow, are not easily sourced and are expensive to buy. Examples of hardwoods are: Balsa, Beech, Jelutong, Mahogany and Oak.

5. Finishes

Some physical properties of timbers can be changed, such as colour and texture, by applying a surface **finish** to the wood. The way a timber looks can be altered through several methods: **staining**, **varnishing**, **oiling**, **waxing**, **painting**.

This can also **increase** the **durability** of the product, **weather protect** and **prevent defects**.

3. WOW WORDS

Year 10

Source = where a material comes from.
Hardwood = Timber from a deciduous tree. Slow growing and expensive.
Softwood = Timber from an evergreen or coniferous tree. Fast growing and cheap.
Deciduous = a tree that loses its leaves.

Seasoned = the process through which excess water / moisture is removed,

Tight-grained = Timber with a high ring count, slower growing and denser.

Loose-grained = Timber with a low ring count- faster growing.

Knot = where a branch would have been. Weather resistant = A tight-grained timber has good water and heat resistance.

Stiff = A timber that does not bend easily. **Easy to work** = easy to cut and shape.

<u>6. Processes</u>

<u>Steaming</u>: soaking thin lengths of wood or plywood in a steamer box makes the timber flexible enough to twist and bend.

Laminating: thin sheets of wood can be pressed together in a mould to form a three-dimensional structure. CAD/CAM:

Laser cutters: cut and engrave thin sheet timber quickly and accurately including complex shapes.

CNC routers and milling machines:

uses a rotating cutting tool. This tool is able to move along multiple axes to create a range of shapes and designs.



The categorisation and properties of hardwoods and softwoods.

Natural timber is harvested from deciduous (hardwoods) and coniferous (softwood) trees Natural timber can be identified using a range of discriminators: weight, colour, grain, texture, durability and ease of working.

Natural timber is protected and aesthetically enhanced using different finishes.

Manufactured timbers are made from natural timbers and made from particles/fibres or laminates.

The stock forms of timber are: plank, board, strip, square, and dowel.

Timber defects include: shrinkage, splits, shakes, knots, fungal attack.

Hardwoods: beech, oak, mahogany, balsa and jelutong.

Softwoods: scots pine, western red cedar and parana pine.

Strengths, weaknesses of the following manufactured boards: plywood, MDF - medium density fibreboard, chipboard and hardboard. The impact on the environment of deforestation. Designers should be changing society's view on waste and encouraging recycling. How to undertake a life-cycle analysis of a material or product. THINK THINK

Explain the physical and working properties of hardwoods, softwoods and man-made boards: toughness, flexibility, grain structure, strength, absorbency, surface finish, colour and hardness.

Give examples of what manufactured timbers are used for: plywood, MDF

(Medium Density Fibreboard), chipboard and veneered boards.

Give examples of material finishes for timber.

Give examples of what different softwoods and hardwoods are used for.

Explain the benefit of choosing timbers over non-renewable materials.

Explain the process of getting a timber from source to sale.

Explain which parts of products would use which stock forms for example dowel can be used in the axel of a toy car.

Explain how you could reduce the cost of a timber product by using veneers or material finishes on a cheaper timber.

Name the organisation who plant a tree for every tree they chop down.

Explain what sustainable forestry management is.

Explain why materials are used for what products relating to their material properties e.g. oak is often used in wooden flooring because it is durable and has an attractive wood grain finish.

GR<u>A</u>SP

Consider if there are exceptions to the general rules e.g. Balsa wood is a hardwood but is not dense and is extremely lightweight and can be cut and shaped using a knife.

Explain how to apply finishes to natural and manufactured timber and how they can be used to improve the aesthetic appeal. Evaluate the environmental impacts at each stage of producing a timber product. Explain the impacts of felling trees on wildlife, habitat and the environment. Consider the carbon footprint of transporting timber. Explain the difference between air drying and kiln seasoning. Explain the process of conversion.



D & T: Product Design

Timbers

Mathematics

Hegarty Maths Home Support Guide

Homework Guidance

One task is set per class using www.hegartymaths.com

The homework task is always set at the start of the week and due in at the start of the following week.

Student expectations:

- •Watch the video for the set task
- •Make clear notes from the video
- •Complete the task, aiming for 80% as a minimum
- •If a student is struggling with the task, use the building blocks to aid prior learning
- •When completing the quiz, use the video given for the task. Find the part of the video that answers a similar question and use this to help by following the methods used.



Learning maths is like learning anything. You need to practise and always put in effort. Trying your best and always putting in effort is crucial to the process. HegartyMaths is totally committed to helping students improve at maths.



Yea

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Happy Student @ Heston Community School

HegartyMaths is a amazing place to learn new things it shown me the best videos on how to work out the hardest questions

Happy Student @ Harris Academy Morden

