

April - June

Year 11

**KNOWLEDGEABLE
AND EXPERT
LEARNERS**



Self
Quizzing

Flash
Cards

Mind
Maps

Brain
Dumps

enjoylearn**succeed**

INDEPENDENT LEARNING BOOKLET

NAME:

TUTOR GROUP:

CONTENTS

- Using Class Charts Instructions
- Accessing SENECA
- Independent Learning log
- Brain-dump instructions
- Subject Knowledge Organisers

You will need an A4 application booklet.

HOMEWORK:

- Your teacher will set specific tasks, with a deadline, on Class Charts
- Instructions for your homework and how to access it are in this booklet
- You must complete and hand in the work by the deadline

INDEPENDENT LEARNING EXPECTATIONS AND REWARDS:

- You should complete 1 task per day, 5 days a week.
- The tasks will be set on Class Charts to help you keep track of what you need to do.
- You must bring your ILB and application book to school every day.
- You can choose the subject/topic you want to work on.
- Your tutor will check your ILB regularly to see how you are getting on.
- You will be rewarded for going above and beyond expectations.

USING CLASS CHARTS



All of your homework will be set by your teachers using the Class Charts System. You should check Class Charts every day to make sure you are up to date, and that you meet all your deadlines. Below, shows you how to log on and track your homework.

Logging in to Class Charts

1. Enter your email address and password into the fields provided

Access code *
Your access code

Please enter the access code supplied by your teacher.

Remember me

2. Click on the Log in button



3. Enter your date of birth if prompted and click on the OK button

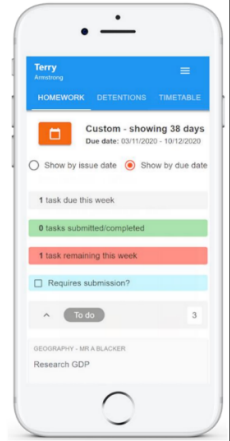
Date of birth

Please enter your date of birth below.

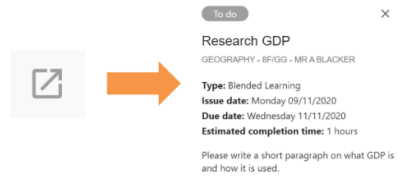
Date of Birth
12/06/2009

Homework

- Select the homework tab on our account.
- This will display a list of the homework tasks which you have been given.
- To change the date range for displayed homework tasks, click on the orange Date button.
- To display tasks in the order they are expected to be handed in, click on the Due date button.
- To mark a homework task as completed, view the homework task of your choice in more detail and tick the Completed checkbox.



To view a homework task in more detail, click on the expand icon in the bottom right hand corner of the homework tile. A popup will appear that contains the a description of the homework task, the estimated completion time and any links or attachments that may have been included.



Keeping track of homework

To track your homework use the three banners above the homework status. This shows the the number of homework tasks that are due that week, how many of those tasks you have completed and how many tasks you still need to complete.

1 task due this week

0 tasks submitted/completed

1 task remaining this week

To only see homework tasks that require an attachment submission, tick the checkbox labelled Requires submission.

Requires submission?

If you are viewing the Homework tab via a desktop or laptop, expanding a homework status category will display a table overview of each homework task for the selected date range.

To do 3								
Homework	Teacher	Lesson	Issued	Due	Estimated time	Type	Feedback	
<input checked="" type="checkbox"/>	Research GDP	Mr A Blacker	8F/Gg	Monday 09/11/2020	Wednesday 11/11/2020	1 hours	Blended Learning	
<input checked="" type="checkbox"/>	Write a soliloquy	Mr J Kato	8y/En2	Tuesday 10/11/2020	Tuesday 17/11/2020	30 minutes	Homework	
<input checked="" type="checkbox"/>	Create a poster on French food	Mrs A Abell	7YEL/Fr	Friday 06/11/2020	Thursday 19/11/2020	45 minutes	Homework	<input type="button" value="Feedback"/>

Homework attachment submissions

For certain homework tasks, you may be asked by your teacher to upload your work as an attachment. When viewing a homework task in more detail, you will see the Upload attachment button if your teacher is expecting your work to be uploaded. To submit a homework attachment, click on the Upload attachment button and select the files of your choice. Successfully uploaded files will then appear above the button

To do X

Write a book review
RECREATION - CBR/RC5 - MRS A ABELL

Type: Homework
Issue date: Friday 20/03/2020
Due date: Friday 27/03/2020
Estimated completion time: 10

Completed?

Write a 500 word review on the book of your choice.

My attachments

My book review.doc

You can upload a maximum of 5 attachments, each up to 250mb in size.

Supported file formats: doc, docx, pdf, xls, xlsx, ppt, pptx, pub, txt, png, jpeg, jpg, gif, rtf, mp3, odt, odp, csv, mp4, mov, m4a, sb3

RECREATION - MRS A ABELL

Write a book review

Issued: Friday 20/03/2020
Due: Friday 27/03/2020

If your teacher leaves feedback on one of your homework attachments, you will see a Feedback icon appear on the associated homework task.

To view the feedback, click on the expand icon in the bottom right hand corner of the homework tile. Your teacher's feedback will appear directly below your homework attachment

To do

Completed

Submitted late

Not submitted

Submitted

To-Do: These are homework tasks that you need to complete. Once you have completed them, tick the checkbox

Completed: These are homework tasks that you have ticked as completed but have not been marked by your teacher

Late: These are homework tasks that have been handed in past the deadline.

Not submitted: These are homework tasks that were not handed in on time.

Submitted: These are homework tasks that have been handed in on time.

HOW TO ACCESS SENECA



Seneca learning is a free online platform that will help you revise for all your subjects.

1.

Go to
<https://senecalearning.com/en-GB/>

2.

Click 'Log In' at the top right hand corner.



Login

Sign up

3.

Select 'Continue with Microsoft'.



Continue with Microsoft

4.

Enter your school email and password.

5.

Select the course(s) you want to work on

If you need any help accessing SENECA please speak to your class teacher, or Miss Holmes.

You can also scan this QR code for a video walkthrough of how to log in as a student

SCAN HERE



INDEPENDENT LEARNING LOG



BRAIN DUMPS

Expectation this ½ term: Brain dumps

Complete 1 brain dump a day

- This should be done once a day , for approximately 20 minutes.
- All your Brain dumps should be evidenced in your application booklet.
- Use this log to track how what subjects you have done (see example)

Week Beginning	Monday	Tuesday	Wednesday	Thursday	Friday
EXAMPLE:	English: KG1 & 2	Science: KG2 & 4	History: KG4 & 5	PSHCE: KG 1 & 2	Drama: KG 1 & 3
13/04/26					
ILB CHECK (10 Brain Dumps) 20/04/2026					
27/04/2026					
04/05/2026					
ILB CHECK (30 Brain Dumps) 11/05/2026					
18/05/2026					

BRAIN DUMPS- INSTRUCTIONS

1.



**Identify
knowledge**

Select a topic you wish to cover.

Do you have the resources you need?

Knowledge organisers

Textbooks

Lesson materials

Set your page up and make sure you have the correct equipment

2.



**Write it
down**

Write down everything you can remember about that topic. (with no prompts)

Give yourself a maximum of 5 minutes. This is Quick recall.

3.



Check it

Once complete and you cannot remember any more use your knowledge organiser to check what you have written down.

Use green pen to tick anything correct, or add any information you have missed.

4.



Review

Use your brain dump to:

1 - Identify your strengths

2 - Identify the areas you need to revise

3 - Write down any key areas you missed

4 - Address how you will move forward on points 2 and 3.

5.



Revisit it

Keep your brain dump safe and revisit it.

Use your brain dump to **RAG** rate your knowledge organiser. This will help you prioritise your revision in the future.

Evaluating a tall structure

Strength	Regular promotion opportunities
Strength	Easier to maintain standards / check everyone's work
Strength	Each person's job role is clear
Weakness	Very hard for lower levels to communicate with the top
Weakness	Decision making may be slow due to many layers
Weakness	Long chain of commands may lead to poor communication
Weakness	Large span of controls may make managing staff difficult/stressful

Evaluating flat structure

Strength	Fewer managers needed
Strength	Workers have more responsibility
Strength	Communication is quicker and more efficient
Weakness	Each manager is responsible for more people
Weakness	Fewer promotion opportunities
Weakness	Spans of control may be large

Exam tips

- When counting a span of control, only include those directly underneath, not all staff
- Delegating work and having more responsibility can make staff more motivated – they feel valued. Don't assume employees want to do as little work as possible
- Consider the level of skills of the workers – more skilled generally need less supervision so flatter structures can work well

Evaluating a centralised structure

Strength	Decisions taken with an overview of whole company
Strength	Consistent policies and decisions
Strength	The whole organisation follows the same goals/objectives
Weakness	Reduces delegation, so local managers can not respond to changes quickly
Weakness	Less job satisfaction
Weakness	Workers may resent having to follow orders from 'head office'
Weakness	Discourages independence

Evaluating a de-centralised structure

Strength	Involvement in decision making by more staff
Strength	Can adapt to local conditions
Strength	Problems can be dealt with quickly at a local level
Weakness	Managers will need more training
Weakness	A mistake in one branch could impact reputation

Wider Business world

Sainsbury's	An example of a centralised business where local branch managers have little power over decision making
NHS, police force	Examples of tall hierarchical structures
Morrison's and Tesco	Each supermarket has a store manager who can make certain decisions concerning areas like staffing, sales promotions.

Key vocabulary

Centralised structure	An organisation where most decisions are made at head office not within the branch
Decentralised structure	An organisation that allows staff to make decisions at a local level
Flat structure	An organisation with few layers of hierarchy
Hierarchical structure	An organisation with many layers of management, therefore creating a tall organisational pyramid
Organisation chart	– a diagram that shows the internal structure of an organisation
Span of control	The number of people a manager is directly responsible for in an organisation
Subordinate	The term for people underneath another in an organisation chart

Communication methods

Key idea 1	Verbal – meetings, telephone, digital methods such as Zoom
Key idea 2	Written – letters, reports, posters
Key idea 3	Digital – email, instant messenger, texting, social media

Communication problems

Key idea 1	Too little communication – can lead to employees being unaware of what is happening, leading to mistakes and inefficiency
Key idea 2	Too much communication so employees are overloaded
Key idea 3	Other information or activities act as barriers to communication

Key vocabulary

Communication	The passing of information from one person or organisation to another
Insufficient communication	Too little communication which may leave some staff under-informed and demotivated
Excessive communication	Too much communication, causing overload for staff; a particular problem with email
Barrier to communication	Something that prevents the flow of communication
Jargon	– technical or obscure words used by a particular group of people that may not be understood by everyone

Links to other topics

Motivation – too little, or too much can lead to poor motivation

Technology – has enabled more methods to be available

Stakeholders – different groups will need to be communicated with in different ways

Globalisation – being able to use electronic communication has helped with globalisation

Barriers to communication

Key idea 1	Written – illegible handwriting, poor spelling and grammar, poor font or presentation
Key idea 2	Verbal – language not understood, accent not understood, speaking too fast or slow, not pausing when speaking
Key idea 3	Receiver – poor attitude, not listening
Key idea 4	General – timeliness, structure of communication not clear, cultural differences, use of jargon, technical issues, no opportunity for feedback

Exam tips

- When counting a span of control, only include those directly underneath, not all staff
- Delegating work and having more responsibility can make staff more motivated – they feel valued. Don't assume employees want to do as little work as possible
- Consider the level of skills of the workers – more skilled generally need less supervision so flatter structures can work well

Wider Business world

Microsoft	Research by Financial Times identified Microsoft as having excellent communication
Volkswagen	VW told all its staff to not check emails on weekend

Types of employment

1	Full time
2	Part time
3	Flexible hours

Types of contract

1	Permanent
2	Temporary
3	freelance

Benefits of part time/full time contracts

Benefit 1	Stable earnings and high degree of job security
Benefit 2	Regular contributions towards pension
Benefit 3	Likely to receive holiday and sick pay, providing more security
Benefit 4	More likely to be sent on training courses to improve skills

Impact of technology on ways of working

Impact 1	Has made it easier to work with people without being physically close to them
Impact 2	Can be used to monitor staff, e.g. productivity, breaks, accuracy
Impact 3	Can be used to improve efficiency by doing repetitive jobs more consistently and accurately
Impact 4	Remote working has pros and cons – a lack of natter and banter could mean good ideas are missed

Links to other topics

Technology – has enabled more remote working and can contribute to improvements in efficiency

Recruitment – the type of contract offered may impact where and how the vacancy is advertised

Training – more likely for permanent staff

Wider Business world

Remote working	due to COVID-19 there has been a huge increase in people working this way
Amazon	– reputation for poor working conditions with excessive monitoring

Exam tips

- Remember not all self employed people are super rich and successful entrepreneurs
- Self-employed workers will not get holiday pay, sick pay or contributions by their employer into their pension
- Flexible working may sound ideal to some, but for others it would not work. Don't assume everyone wants to work as little as possible!

Key vocabulary

Full time work	35-40 hours per week
Part-time	Less than 35 hours and usually predictable hours /days
Flexible hours	Where days and hours vary from week to week
Zero hour contract	A type of flexible working where employees are not guaranteed any work from week to week
Freelance contract	An agreement over one job between a business and a self-employed worker
Permanent contract	An agreement between a business and an employee that work and income will be provided consistently into the long-term future
Remote working	Working away from the office, typically at home
Temporary contract	An agreement between a business and an employee that work and income will be provided for a specific time period, e.g. six months

Documents used in the recruitment process

Job description, person specification	created by the business so they are clear about the job that is needed to be filled and what the ideal candidate would be like
Job advert	this can be placed in various places, such as job centre, recruitment agency, online, internal notice board or email, newspapers or specialist magazines
Application form, CV, letter of application	completed by the candidate to provide all the information required by the business
References	supplied by people who know the candidate to support an application A candidate can be chosen through an interview, assessments, further tests or tasks

Wider Business world

McDonald's	Only recruit online
B&Q	One of many business that no longer accept CV's, only application forms
Merlin entertainments	Require candidates to attend assessment centres.

Internal recruitment

Benefit 1	Quicker and cheaper
Benefit 2	Motivational for employees knowing that they could be promoted to other roles within the business
Benefit 3	Business knows the candidate well
Weakness 1	Existing workers may not have necessary skills
Weakness 2	Creates a new vacancy that may not be filled from internal candidates

External recruitment

Benefit 1	Wider range of applicants to choose from
Benefit 2	External applicants will bring new ideas and skills to the business
Weakness 1	Expensive and time consuming process
Weakness 2	Not guaranteed to find a suitable candidate

Links to other topics

- Organisational structures** – HR will need to know where a vacancy fits within the hierarchy
- Legislation** – there are laws regulating how employees can be recruited
- Motivation** – offering internal promotion opportunities can be non-financial motivation

Key vocabulary

Directors	People who make the biggest decisions faced by the business, e.G. Aims and objectives
Managers	The people who organise others to carry out tasks
Supervisors/team leaders	These people ensure that the staff below them do what they are supposed to do
Operational staff	A member of staff who has specific responsibility for meeting for meeting a target set by the business that is focused on achieving the business's aims and objectives
Support staff	Staff who provide help to operational staff, providing assistance with computer networks, administration task etc
Person specification	A description of the type of person who would best fit the job: their character, their experience and skills
Application form	A series of questions a job-seeker must fill in when trying to get an employer interested in interviewing them
Cv	Curriculum vitae. Sets out the person's experience, qualifications and other relevant facts
Job description	A short account of the main features of the job
Internal recruitment	Appointing someone from within an organisation
External recruitment	Appointing a new employee who does not work for the business

Why train staff?**Key idea 1**

Has a motivating effect on staff who will feel appreciated and valued

Key idea 2

Staff will familiarise themselves with working practices and ways of working in the organisation

Key idea 3

Trained staff can better meet the needs of the business's customers

Benefits and drawbacks of providing training for staff**Benefit 1**

Improvements to efficiency and quality

Benefit 2

Wider range of staff skills allows a business to respond to market changes quickly

Benefit 3

Boosts motivation of staff and they feel valued

Drawback 1

Paying to send staff on courses or bringing in external providers can be expensive

Drawback 2

Staff who are training can not do normal work so cover may be required

Drawback 3

Staff may leave for better jobs after receiving training

Wider Business world**New Beckfoot staff**

All staff receive induction training such as SIMs, use of IT, tour of building, etc...

Doctors

an example of on-the-job training as part of their medical degree and after

Aldi

offer a training program for all new branch managers

Key vocabulary**Formal training**

the official training program, e.g. a 2 year graduate training program

Informal training

the unexpected, unplanned extra advice or demonstrations that come from colleagues or occasionally from customers

On-the-job training

training that occurs in the workplace whilst doing the job, e.g. on an apprenticeship

Off-the-job training

training away from the workplace, e.g. in a college

Induction training

training that occurs when you first start a job or join a new business

Self-learning

teaching yourself, perhaps by thinking why a problem occurred and making sure you learn from your mistakes

Ongoing training

regular, perhaps weekly training sessions for all staff

Target setting

when you are set goals by a manager and your job is to achieve them

Performance review

discussion between you and your line manager about how well you are working towards the targets set for you

Retention

calculation of how many staff stay loyal rather than leaving

Types of training**1**

Formal training

2

Informal training

3

On the job training

4

Off the job training

5

Ongoing training throughout your career

Exam tips

- Remember training does need to have a formal qualification linked to it
- Remember to analyse training benefits from the employer's point of view, not the employees

Links to other topics

Motivation – providing training can motivate staff by making them feel valued

Aims – performance targets usually relate to the overall aims of the business

Technology – an investment in new technology will be wasted if staff are not trained to use it

Sales process – effective training leads to better customer service, part of the sales process

Benefits of motivating staff	
Key idea 1	Higher productivity
Key idea 2	Attracts the best employees to apply for vacancies
Key idea 3	Lower staff turnover, so lower recruitment costs
Key idea 4	Better quality production or customer service, leading to repeat customers and less wastage
Key idea 5	More ideas from staff

Costs of demotivated staff	
Cost 1	Unhappy workers – demotivated workers are less satisfied and therefore this will impact their work
Cost 2	Poor customer service because they are likely to take less care when dealing with customers
Cost 3	Low productivity – output per worker will drop as effort levels will be lower
Cost 4	Higher staff turnover because demotivated workers will be looking to leave the business
Cost 5	Low or no profits

Methods of motivation	
Financial methods	Non-financial methods
Wages or salaries	Job rotation involves the movement of employees through a range of jobs in order to increase interest and motivation.
Fringe benefits e.g. company car, free laptop, free gym membership	Job enrichment means giving an employee additional responsibilities previously reserved for his manager or other higher-ranking positions
Bonuses – annual or monthly bonuses based on performance or meeting targets	Autonomy means giving workers greater freedom to make their own decisions
Commission – a % or lump sum received per sale	Job enlargement means increasing the scope of a job through extending the range of its job duties and responsibilities generally within the same level
Promotion – this involves moving into higher roles often at higher pay	

Links to other topics

Costs & revenue – remuneration impacts on fixed costs; commission on variable costs, therefore affecting profit margins

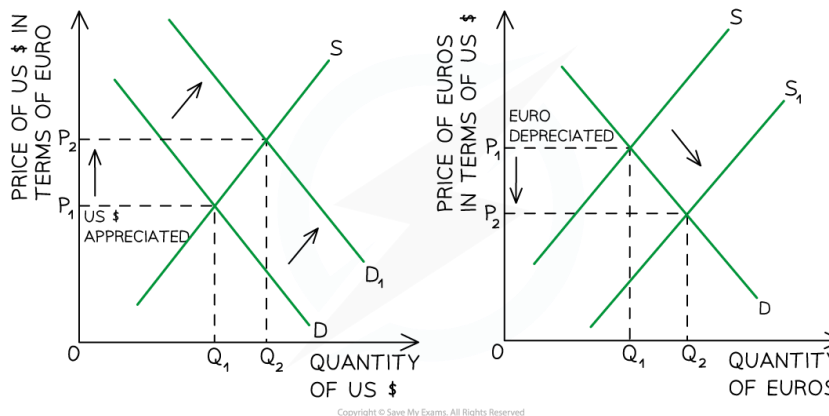
Training – employees who are invested in tend to be more motivated

Business aims – bonuses can be related to targets, which usually relate to the business aims

- Exam tips**
- Remember earning more money does not motivate staff to work harder – they may be pleased but won't do any more
 - Financial rewards cost the business, so can affect profit margins, unless greater sales and revenue can be generated or cost savings
 - Don't confuse job rotation and job enrichment
 - Don't assume that staff want to do the littlest amount of work

Key vocabulary	
Motivation	The desire to do the best you can
Remuneration	All the financial rewards received from work, both direct and indirect
Fringe benefits	Rewards you get from work that are non-financial such as a company car or free membership of a club
Salary	An annual amount paid to employees, usually divided into 12 equal payments
Wage	An hourly rate
Overtime	Working more than your contracted hours. Sometimes paid at a rate above your usual pay
Bonus	Extra payments over and above your basic wage, often related to a target
Commission	Being paid a percentage of the value of a sale you made
Promotion	Being given a more important job in the organisational structure
Job rotation	Having several tasks to do at work to remove the boredom of doing the same thing all the time
Job enrichment	Being given a range of activities and responsibilities, some more complex than others
Autonomy	The independent power to decide what you are going to do at work

Keyword	Definition
Exchange Rate	The price of one currency in terms of another.
Appreciation	An increase in the value of a currency relative to another.
Depreciation	A decrease in the value of a currency relative to another.
Supply of Currency	The amount of a currency that is available to be bought or sold on the foreign exchange market.
Demand for Currency	The desire to buy a currency due to factors like exports, interest rates, or investment opportunities.



Remember SPICED

S – Strong

P – Pound

I - Imports

C – Cheaper

E – Exports

D - Dearer

Situation	Effect on Exchange Rate
UK interest rates increase compared to the Eurozone	Increased demand for the pound to gain higher returns → Pound appreciates
UK imports rise significantly compared to exports	Greater supply of pounds on foreign exchange as UK buys more foreign goods → Pound depreciates
Increased foreign investment into the UK	Higher demand for pounds to invest in UK assets → Pound appreciates
UK inflation rises more than in trading partner countries	UK goods become less competitive → lower demand for pounds → Pound depreciates

Demand for £'s	Supply for £'s
Foreign investment	British investment overseas
Foreign tourists	British residents going abroad
Foreign demand for UK exports	British citizens/producers buying foreign goods

Keyword	Definition
Free Trade	The movement of goods and services between countries without tariffs, quotas or other restrictions.
Tariff	A tax imposed on imported goods to make them more expensive, protecting domestic industries.
Trade Agreement	A formal arrangement between countries that governs trade policies, often aiming to reduce barriers to trade.
European Union (EU)	An economic and political union of 27 European countries that allows for free movement of goods, services, capital, and people.
Single Market	A system in which goods, services and capital move freely with minimal border controls and consistent regulations across member countries.
Trade bloc	a group of countries join together to reduce barriers to trade

Example Type	Examples
Free Trade Agreements	<ul style="list-style-type: none"> •European Union (EU) •North American Free Trade Agreement (NAFTA, now USMCA)
Trade Barriers Removed by Agreements	<ul style="list-style-type: none"> •Elimination of tariffs between EU countries •Standardised regulations for goods sold within the EU

Advantages	Disadvantages
<p>Trade creation Trade is encouraged within member states because there are no barriers, so additional trade is created within the free trade area.</p>	<p>Trade diversion The existence of a common external tariff, diverts trade away from the EU. Goods within the SEM may be more expensive, and this could damage consumer welfare.</p>
<p>Competition Stronger competitive forces within the free trade area can drive efficiency, which will benefit consumers.</p>	<p>Monopolies In some markets e.g. gas and electricity, tariffs have seen significant merger activity and the creation of large monopolies seeking to exploit the available economies of scale.</p>
<p>Access to markets For example, the SEM creates a market of 28 countries and a population of over 500m, offering significant scope for businesses to expand.</p>	<p>Unemployment In some countries, workers may lose their jobs as production is transferred to member states with lower labour costs e.g. Eastern Europe</p>
<p>Freedom of movement There is the right to live and work anywhere within the SEM without restriction, which boosts labour mobility. This is not the case for all free trade agreements e.g. NAFTA.</p>	<p>Costs For example, membership of the SEM costs the UK around £15b per year.</p>

What is money?

A broad definition of money would be anything that is widely accepted as a medium of exchange for goods and services

A narrower definition is anything that is seen as fiat money, declared legal tender by the government of a country e.g. notes and coins in circulation

Function	Example 1	Example 2
Medium of Exchange	Using cash to buy groceries	Paying for a haircut with a debit card
Store of Value	Saving £100 in a bank account for future use	Keeping £20 in your wallet for emergencies
Unit of Account	Comparing the prices of two smartphones	Judging whether a £5 sandwich is good value
Standard of Deferred Payment	Agreeing to pay for a car on monthly instalments	Paying a loan back over 5 years

The financial system consists of

The main agents in the financial sector such as the Bank of England, commercial banks and building societies

Keyword	Definition
Medium of Exchange	Money is used to trade goods and services without the complications of a barter system.
Store of Value	Money retains its value over time, allowing people to save and spend in the future.
Unit of Account	Money allows the value of different goods and services to be compared.
Standard of Deferred Payment	Money is used to settle debt and agree payment in the future.
Barter	An exchange of goods and services without using money.

Type	Example
Role of Bank of England	Setting the base interest rate to control inflation
Role of Bank of England	Issuing banknotes and ensuring confidence in the UK currency
Commercial Bank Service	Providing personal loans for consumers to finance purchases
Commercial Bank Service	Offering business accounts and credit facilities for small businesses

Keyword	Definition
Bank of England	The central bank of the UK responsible for monetary policy, issuing currency, and maintaining financial stability.
Commercial Bank	A financial institution that offers services to the public, such as savings accounts, loans, and mortgages.
Financial Sector	The part of the economy that provides financial services, such as banking, insurance, and investment management.
Liquidity	The availability of liquid assets to a market or company; how easily assets can be converted into cash.
Interest Rate	The cost of borrowing money or the return on savings, usually expressed as a percentage.

Role of commercial banks

Accepting deposits in order provide security and to facilitate saving

Lending money to different economic agents who wish to borrow

Providing an efficient means of payment and transferring funds between different economic agents

Services offered by commercial banks

Issue loans

Accept deposits/savings accounts

Issue credit cards

Lend money – loans and mortgages

Financial advice

Sell foreign currency

Inventory Management - Inventory (often referred to as stock) refers to goods and/or materials held by a business for the purpose of resale or production. Inventory management simply means methods of controlling stock through the manufacturing process or release of materials/products.

Just in time (JIT) manufacturing

JIT production is a method of organising the manufacture of products so they are made to order – they arrive 'just in time' for the assembly or manufacture of a product.

Benefits include:

- Smaller manufacturing facilities due to no need to store materials/products.
- Products/components never become obsolete
- No risk of unsold stock

Disadvantages:

- Reliance on transport networks
- Reliance on reliable suppliers

Material requirements planning (MRP)

Material requirements planning (MRP) is a system for calculating the materials and components needed to manufacture a product. It consists of three primary steps:

1. Taking inventory of the materials and components in stock
2. Identifying which additional ones are needed
3. Scheduling their production or purchase

MRP is done primarily through specialised software.

Benefits include:

- Inventory is available right when it's needed and at the lowest possible cost.
- Improves the efficiency, flexibility and profitability of manufacturing operations.
- It can make factory workers more productive, improve product quality and minimise material and labour costs.
- helps manufacturers respond more quickly to increased demand for their products and avoid production delays.

Disadvantages:

- Software can be expensive
- Cost of training staff
- Still room for human error which can have huge cost implications.

Lean Manufacture - is a production method which is aimed at reducing times within the production system as well as response times from suppliers and customers. T.I.M.W.O.O.D identifies where waste can occur.

Transportation	... is the process of moving something from one place to another. It does not add any value to the customer, so it should be minimised as much as possible.
Inventory	... is the waste that is associated with unprocessed inventory. This includes the waste capital tied up in excess stock, wasted transport used moving the inventory.
Movement	... any movement made that could have been used for another purpose. Anything from staff bending over to pick something up to CNC machines running inefficient programs.
Waiting	... is any form of waiting that must be done by either a member of staff or machinery to complete a task.
Over processing	...unnecessarily manufacturing a product where it may not need to be manufactured. For example the underside of a worktop.
Over production	... the production of more product/stock than is actually required or expected to be required.
Defects	... is any characteristic of a product which hinders its usability for the purpose for which it was designed and manufactured

Globalisation - is the process of interaction and integration among people, companies, and governments worldwide. Globalisation has accelerated since the 18th century due to advances in transportation and communications technology.

Requirement for transportation	Selling to as many markets as possible requires materials and products to be transported all over the world via air, sea and land. Globalisation places a huge demand on transportation, and subsequent impact on the environment.
International standards	Manufacturing to international standards is vital if you hope to sell your products or materials globally. International standards help ensure that materials and products meet a specification which helps keep customers safe.
Influence on employment opportunities	Manufacturing and selling goods globally has led to many job opportunities around the world, including developing countries.
Differences in employment conditions	Terms and conditions of employment relate to the requirements set out in an employee's contract. These outline the rights for both the employee and the business. Employment terms and conditions of businesses can include rights, responsibilities and duties.
Influence on product cost	Where in the world a product, material or service is sold, can have a huge impact on the cost. This can range from how much the raw materials cost, to how much the product can be sold for based on the economic standing of the country.
Implications for sustainability	Many manufacturers move their manufacturing facilities to be closer to a source of raw materials. Great care must be taken when doing this so that materials are used in a responsible way.
Consideration of economic, social, ethical and environmental implications	We must consider how globalisation can impact the economy of the country we operate from – it can greatly improve developing economies and severely negatively impact others when manufacturing plants move overseas.

Question Summary

Q.	Skill(s) assessed	Marks, timings and question stems
1	Retrieval and inference	4 marks (10 minutes inc. reading source) "List four things..."
2	Language	8 marks (15 minutes) "How does the writer use language here to..." (2-3 PEA)
3	Structure	8 marks (15 minutes) "How has the writer structured the text to interest you as a reader?" (3 PEA)
4	Evaluation	20 marks (20 minutes) "Statement on an aspect of the text." To what extent do you agree? (3 PEA)
5	Creative Writing	40 marks <i>24 marks for content and organisation</i> <i>16 marks for technical accuracy</i> (45 minutes) Choice between writing based on a visual prompt or a written one. (Drop, Zoom, Zoom, Shift)

Useful Approaches to Creative Writing (Q5)

1	Use an unreliable narrator	Give your reader reason to doubt the accuracy of the story told e.g. write as someone old or young
2	Choose an unexpected perspective	Obvious isn't always best. Find interesting perspectives!
3	Give your characters inner conflict	A difficult decision or social situation is just as interesting as a fight!
4	Use a cyclical structure	Can really help contain a story and give a powerful ending
5	Make your characters vulnerable	Weaknesses make your characters interesting!
6	Avoid using dialogue	Summarise conversations rather than write every word
7	Start at the end (and then flash back)	Confuse your reader to start with, then clear up the confusion bit by bit
8	Use a short timeline	Covering a single hour is usually better than a lifetime
9	Show, don't tell	"Tears streamed down her cheeks" is better than "she was crying"

Key Language Terminology (Q2 and Q4)

1	Atmosphere	The feeling associated with a piece of writing e.g. dark or oppressive	6	Connotation	What a word or phrase implies or suggests
2	Figurative language	Any language not meant literally e.g. metaphor and simile	7	Hyperbole	Strong exaggeration, not meant to be taken literally
3	Imagery	Visually descriptive language	8	Juxtaposition	Placing two things together to highlight their contrast
4	Lexis	Word choices – words chosen with specific effects in mind	9	Narrative Perspective	The viewpoint from which a text is written
5	Semantic field	Words and phrases with related meanings	10	Short sentences	Used for dramatic impact, often in moments or action

Key Structural Terminology (Q3 and Q4)

1	Ambiguity	Intentional withholding of information to keep a reader guessing	6	Analepsis	Flashback – moving to an earlier point in a narrative's chronology
2	Climax	The peak of tension within a story – it's most thrilling point	7	Cyclical	A structure that returns to where it started
3	Focus shift	Changes of location, character or subject as a story progresses	8	Foreshadowing	Hints of later events used to build tension and guide readers
4	Fragment	An incomplete sentence, usually missing a key part	9	Listing	Numerous similar items are ideas one after the other
5	Motif	A repeated image, words, phrase or idea in a text	10	Repetition	A word or phrase used multiple times throughout a text

Question Summary

	Skill(s) assessed	Marks, timings and question stems	Paragraph structure
1	Retrieval and inference	<ul style="list-style-type: none"> 4 marks (10 minutes including reading source A) "Choose four statements..." 	Shade the circles in the four boxes of the ones that you think are true.
2	Summarise and Compare	<ul style="list-style-type: none"> 8 marks (10 minutes including reading source B) "Use details from both sources to write a summary of ..." 2 paragraphs 	Point Evidence Inference Compare Point Evidence Inference
3	Analysis	<ul style="list-style-type: none"> 12 marks (15 minutes) "How does the writer use language to describe..." 3 paragraphs 	Point Evidence Analysis
4	Compare Writers' Perspectives	<ul style="list-style-type: none"> 16 marks (25 minutes) "Compare how the writers convey their different perspectives on..." 3-4 paragraphs 	Perspective Opinion Method Compare Perspective Opinion Method
5	Transactional writing	<ul style="list-style-type: none"> 40 marks 24 marks for content and organisation 16 marks for technical accuracy (45 minutes) You will be asked to write either an article, leaflet, speech, essay or letter 	Purpose laid out in an interesting way- <i>Picture this:</i> , imagery, alliteration, repetition Like it- your reason for your view Evidence- <i>Don't just take my word for it...</i> Alternative view- <i>Some people believe...</i> Shut it down- <i>But you are wrong!..</i> Emotive plea- <i>Now, picture this,</i> imagery, emotive language

Useful paragraph ideas for (Q5)

1	Plan	Consider Purpose, audience and form. Consider which language and structural choices will be appropriate.
2	Introduction	An interesting introduction that grabs the examiners attention not "I'm writing to you because"
3	Comparison	Make a comparison to a different place, time, group of people, idea, situation
4	Counter Argument	Recognise and appreciate how your intended reader may counter argue your points and explain why they're wrong.
5	Descriptions	Spend at least three sentences describing the quality, condition feeling etc. Lots of marks for imagery available here!
6	Examples	Give an example from your own knowledge or historical understanding. Don't make up statistics.
7	Metaphors	Think of a metaphor that could be used to represent this situation
8	Use a short paragraph	Don't forget one sentence paragraphs for impact

Types of Transactional Writing (Q5)

1	Article	Attention grabbing headline, strapline, subheadings An overview paragraph Effectively sequenced paragraphs
2	Leaflet	Title, subheadings Effective paragraphs/sections
3	Speech	Clear address to audience and clear sign off Rhetorical indicators that the audience is being addressed throughout Effective paragraphing
4	Essay	Effective introduction and conclusion Effectively sequenced ideas and paragraphs
5	Letter	Formal mode of address and an appropriate mode of signing off Effective paragraphing

Key Language Terminology (Q3, 4 and 5)

1	Hyperbole	Exaggeration
2	Alliteration	Using the same sound at the starts of words and placing them close together.
3	Facts and opinions	We need to be able to differentiate between facts and opinions. Both are used to support arguments.
4	Repetition	Repeating something for impact.
5	Rhetorical questions	A question that the writer already knows the answer to.
6	Emotive language	Causing an emotional response from the reader
7	Statistics	Facts which use numbers. Recognise how these are persuasive but it's best to avoid making statistics up.
8	Rule of three	Listing three adjectives or ideas.
9	Inclusive pronouns	Makes the reader feel as though they are a community working towards something together E.g. We, us, our
10	Direct address	Makes the reader feel as though it is their responsibility E.g. you
11	Metaphor	Suggesting something is something it isn't as a means of comparison
12	Imperative	Command

Plot Summary

1	Prologue	Sets up main themes of the play. Provides an overview of the action.
2	Act 1	Montagues and Capulets brawl. Romeo depressed about Rosaline. Paris wants to marry Capulet's young daughter Juliet. Juliet's mother and Nurse encourage Juliet to marry Paris. Romeo attends Capulet party, sees Juliet and falls in love.
3	Act 2	Balcony Scene – R&J decide to get married. Romeo asks Friar Lawrence to conduct ceremony. Friar Lawrence hopes marriage will end feud. Nurse visits Romeo to check his commitment. Friar Lawrence marries R&J.
4	Act 3	Romeo refuses to fight Tybalt. Mercutio killed by Tybalt and Tybalt by Romeo. Romeo is banished. Juliet told she is to be married to Paris. Capulet flies into a rage after Juliet refuses.
5	Act 4	Juliet asks Friar Lawrence for help. Friar Lawrence supplies a potion and a plan. Juliet agrees to marry Paris. Wedding plans are underway but Juliet found 'dead' by the Nurse.
6	Act 5	Romeo thinks Juliet is dead. He returns to Verona with a poison. Friar Lawrence discovers Romeo did not get his letter. Romeo kills Paris at Juliet's tomb, takes poison and dies. Juliet wakes and finds Romeo, stabs herself. The feud is over.

Characters

1	Romeo Montague	Initially a typical Petrarchan lover, his love for Juliet is incredibly romantic, impulsive and passionate.	6	Lady Capulet	Juliet's mother. Cold and distant for most of the play, she expects Juliet to follow in her own footsteps.
2	Juliet Capulet	Young and innocent, not yet 14. Her love for Romeo matures her and makes her bolder in her defiance.	7	Nurse	Juliet's nursemaid, they have a close relationship. She acts as confidante and messenger for Romeo and Juliet.
3	Lord Capulet	Juliet's father. Shows concern for Juliet's welfare, but can be aggressive and tyrannical when disobeyed.	8	Tybalt	Juliet's ruthless, hot-tempered and vengeful cousin. Has a deep, violent hatred of the Montagues.
4	Mercutio	A relative of the Prince and a high-ranking man. Mixes well with both families and is Romeo's loyal best friend.	9	Benvolio	Cares about his cousin Romeo and tries to keep peace between the families.
5	Paris	A rich and highly-regarded young man, kinsman to the Prince, who is determined to marry Juliet.	10	Friar Lawrence	A caring, trusted, kind man of the Church who is optimistic about the possibility of peace.

Themes

1	Love	Romantic, sexual, superficial and platonic forms of love are present in the play.
2	Death	The certainty, fear, acceptance and welcoming of death is portrayed in the play.
3	Fate versus Free Will	This is the idea of an inevitable destiny that cannot be escaped.
4	Honour and loyalty	The importance of family & friendship.
5	Masculinity and femininity	The play explores traditional views of masculinity and the role of women: Juliet chooses to control her own destiny.

Context

1	Queen Elizabeth	Reigned from 1558-1603. Her reign saw England prosper and become a major player in Europe. She chose not to marry, defying the expectations of a patriarchal society.
2	Astrology	In both 14th-century Italy and Elizabethan England stars linked to fate and fortune, were believed to predict and influence the course of human events.
3	The role of women	Society was ' <u>patriarchal</u> ' (led by men). Women were said to be lower than men in The Great Chain of Being. Women were expected to marry, to bear children and be subservient to men.

Key Vocabulary

1	Foreshadowing	R&J's deaths are hinted at throughout the play, creating suspense for the audience.
2	Hamartia	Both protagonists can be considered to be tragic heroes: high status, sympathetic characters whose fatal flaws (their impulsiveness) contribute to their inevitable deaths
4	Sonnet	A poem of 14 lines with a strict rhyme scheme, usually associated with love and romance. R&J speak in a shared sonnet when they first meet.
5	Dramatic Irony	Some things are revealed to the audience before the characters, increasing tension.
6	Juxtaposition	Opposites that are placed next to each other. Each idea is being emphasised.
7	Motif	Image, sound, action or other figure that has symbolic significance. Some motifs in R&J include light + dark and poison.

Plot Summary

1	Stave 1	Scrooge is introduced; he refuses to warm the office up for Bob Cratchit; he refuses to make a charity donation; refuses to eat Christmas dinner with Fred; is irritated by Christmas as it is interrupting his business; sees Marley's ghost who warns him he will be visited by three spirits to make him change his miserly ways.
2	Stave 2	The Ghost of Christmas Past takes Scrooge back in time to show him: his village; him alone at school; his sister collecting him from school; a party at Fezziwig's; Belle breaking off their engagement and Belle with her husband. Unable to take any more, Scrooge begs the spirit to take him back home. When he is back home, he falls asleep almost instantly.
3	Stave 3	The Ghost of Christmas Present shows Scrooge how the Cratchit family celebrate Christmas; Scrooge becomes worried about Tiny Tim not surviving in the future. The spirit then takes Scrooge to see how others celebrate Christmas including Fred's Christmas party. The spirit begins to age and under its robe Scrooge sees two children: Ignorance and Want.
4	Stave 4	The Ghost of Christmas Yet to Come arrives and Scrooge is terrified of him. It shows Scrooge a group of businessmen discussing someone's death. He is taken to a pawn shop where the possessions of the dead man are being sold. He is next taken to the Cratchit household where the family are grieving for Tiny Tim. Scrooge is then taken to a graveyard and sees his name on a gravestone. He begs the spirit and says he will change his ways.
5	Stave 5	Scrooge wakes up in his own bed and is now transformed! He sends a prize Turkey to the Cratchit family and even promises to give a huge charity donation to the poor. Scrooge then goes to Fred's to attend the party and is welcomed in. He also gives Bob Cratchit a raise and becomes a second father to Tiny Tim who does not die.

Characters

1	Scrooge	The protagonist, a mean old loner who hates Christmas.	6	Bob Cratchit	Scrooge's hardworking and unpaid clerk.
2	Marley	Scrooge's deceased business partner who appears as a ghost to warn Scrooge to change his ways.	7	Tiny Tim	Bob Cratchit's ill and vulnerable son.
3	Ghost of Christmas Past	A shape changing spirit that represents memory and has light/a flame at the top of its head.	8	Fred	Scrooge's patient, jovial nephew. The son of his beloved sister, Fan.
4	Ghost of Christmas Present	A jolly spirit (resembles Father Christmas) that represents generosity and Christmas spirit.	9	Fezziwig	Scrooge's generous former employer.
5	Ghost of Christmas Yet to Come	A silent, sinister spirit in a black, hooded cloak who represents death.	10	Belle	Scrooge's former fiancée who breaks off their engagement because he valued money more than their relationship.

Themes

1	Greed and selfishness	Characters such as Scrooge represent the middle classes who sought to hoard rather than share their wealth.
2	Poverty	Scrooge despises the poor and thinks they are lazy at first. At the end, he realizes he can share his wealth with the poor.
3	Transformation	The spirits show Scrooge scenes that prompt his transformation. At the end of the novella, Scrooge's transformation into a kinder human being is complete.
4	Christmas	Scrooge learns the true meaning of Christmas is to spend time with your family and loved ones.
5	Social responsibility	Ignorance and Want remind Scrooge that turning a blind eye to the plight of the poor creates desperate people that turn to crime to support themselves.

Key Vocabulary

1	Simile	Comparing two things using 'like' or 'as', e.g. "hard and sharp as a flint"
2	Motif	Repeated image or symbol, e.g. light being used several times in the novella
4	Allegory	Characters/events represent ideas about religion, morals or politics.
5	Novella	A short novel or long short story.
6	Resolution	The Point where conflict is solved, e.g. Scrooge's redemption.
7	Redemption	Being saved from sin, error or evil, e.g. Scrooge realising he needs to change his miserly ways and then does in stave 5.

Context

1	Charles Dickens	Born in 1812 to a middle class family. His dad was imprisoned for debt leading to poverty for the family. Dickens began working difficult jobs at a young age.
2	Poverty	In 1834, the Poor Amendment reduced the amount of help available to the poor, forcing them to seek help from workhouses. Conditions were incredibly harsh in the Victorian era.
3	Christmas	Christmas was fairly a low key celebration. During Queen Victoria's reign, workers were given two days holiday for Christmas. Turkey was only eaten by the rich, goose was a cheaper option.

Present Tense		
1	Je suis	I am
2	J'ai	I have
3	Je fais	I do/make
4	Je vais	I go
5	J'aime	I like
6	Je déteste	I hate
7	Je joue	I play
8	Je mange	I eat
9	Je bois	I drink
10	Je lis	I read
11	J'achète	I buy
12	Je trouve	I find
13	Je travaille	I work
14	Je pense	I think
15	c'est	it's

Perfect Tense		
1	Je suis allé(e)	I went
2	Je suis parti(e)	I left
3	J'ai fait	I did/made
4	J'ai aimé	I liked
5	J'ai détesté	I hated
6	J'ai joué	I played
7	J'ai mangé	I ate
8	J'ai acheté	I bought
9	J'ai trouvé	I found
10	J'ai travaillé	I worked
11	J'ai regardé	I watched
12	J'ai vu	I saw
13	J'ai bu	I drank
14	J'ai lu	I read

Near Future Tense – I am going to...		
1	Je vais être	be
2	Je vais avoir	have
3	Je vais aller	go
4	Je vais faire	do
5	Je vais jouer	play
6	Je vais regarder	watch
7	Je vais manger	eat
8	Je vais acheter	buy
9	Je vais travailler	work
10	Je vais voir	see
11	Je vais boire	drink
12	Je vais devenir	become
13	Je vais voyager	travel
14	ce sera	it will be

Conditional Tense – I would like to...		
1	Je voudrais être	be
2	Je voudrais avoir	have
3	Je voudrais aller	go
4	Je voudrais faire	do
5	Je voudrais jouer	play
6	Je voudrais regarder	watch
7	Je voudrais manger	eat
8	Je voudrais acheter	buy
9	Je voudrais travailler	work
10	Je voudrais voir	see
11	Je voudrais boire	drink
12	Je voudrais devenir	become
13	Je voudrais voyager	travel
14	ce serait	it would be

Il y a		
1	Il y a	There is/are
2	Il y avait	There was/were
3	Il y aura	There will be
4	Il y aurait	There would be

Structures with infinitives		
1	J'aime aller/faire	I like going/doing
2	Je n'aime pas aller/faire	I don't like going/doing
3	il faut aller/jouer	you have to go/play
4	on peut/doit aller	you can/must go

Imperfect Tense		
1	J'étais	I was/I used to be
2	J'avais	I had/I used to have
3	C'était	It was
4	il y avait	there was/were

Sentence Starters		
1	je pense que	I think that
2	je crois que	I believe that
3	à mon avis	in my opinion
4	selon moi	in my opinion
5	je dirais que	I would say that

Connectives		
1	et	and
2	ou	or
3	où	where
4	parce que	because
5	car	as
6	mais	but
7	pourtant	however
8	aussi	also

Intensifiers		
1	un peu	a bit
2	assez	quite
3	très	very
4	vraiment	really
5	beaucoup	much/ a lot
6	trop	too

Adjectives		
1	amusant	fun
2	intéressant	interesting
3	passionnant	exciting
4	utile	useful
5	beau	beautiful
6	fantastique	fantastic
7	incroyable	incredible
8	ennuyeux/ barbant	boring
9	fatigant	tiring
10	difficile	difficult
11	cher	expensive

Signposting Time Frames		
1	l'année dernière	last year
2	la semaine dernière	last week
3	hier	yesterday
4	normalement	normally
5	d'habitude	usually
6	ce soir	this evening
7	la semaine prochaine	next week
8	l'année prochaine	next year
9	dans l'avenir	in the future

Frequency		
1	tous les jours	every day
2	de temps en temps	from time to time
3	une fois par semaine	once a week
4	deux fois par mois	twice a month
5	ne...jamais	never
6	toujours	always
7	souvent	often
8	quelquefois	sometimes

Exclamations!!!		
1	Quel dommage!	What a shame!
2	Quel plaisir!	What a pleasure!

Perfect Phrases For Any Essay		
1	Hier je suis allé au cinéma/au stade/au restaurant/au parc/au café/à la piscine et c'était...	Yesterday I went to the cinema/stadium/restaurant/park/café/swimming pool and it was...
2	J'ai mangé une pizza/des frites/un hamburger/du jambon/du poisson/une glace et c'était...	I ate a pizza/fries/a hamburger/some ham/fish/an ice-cream and it was...
3	J'ai joué au foot/au tennis/au rugby/au golf et c'était...	I played football/tennis/rugby/golf and it was...
4	J'ai bu un coca/un jus d'orange et c'était...	I drank a coke/an orange juice and it was...

Fancy Phrases		
1	je l'ai trouvé génial	I found it great
2	je me suis bien amusé(e)	I really enjoyed myself
3	j'ai tellement hâte	I'm really looking forward to it

Present Tense - I		
1	Je suis	I am
2	J'ai	I have
3	Je fais	I do/make
4	Je vais	I go
5	Je bois	I drink
6	Je lis	I read
7	Je vois	I see
8	J'achète	I buy
9	Je trouve	I find
10	Je travaille	I work
11	Je pense	I think
12	Je crois	I believe
13	Je dois	I have to
14	Je peux	I can
15	Je veux	I want to

Perfect Tense (past)- I		
1	Je suis allé(e)	I went
2	Je suis parti(e)	I left
3	J'ai fait	I did/made
4	J'ai aimé	I liked
5	J'ai détesté	I hated
6	J'ai joué	I played
7	J'ai mangé	I ate
8	J'ai acheté	I bought
9	J'ai trouvé	I found
10	J'ai travaillé	I worked
11	J'ai regardé	I watched
12	J'ai vu	I saw
13	J'ai bu	I drank
14	J'ai lu	I read

Imperfect Tense - I used to		
1	J'étais	... be
2	J'allais	... go
3	J'avais	... have
4	Je faisais	... do
5	Je jouais	... play
6	Je regardais	... watch
7	J'écoutais	... listen
8	Je mangeais	... eat
9	Je buvais	... drink
10	J'achetais	... buy
11	J'aimais	... like
12	Je lisais	... read
13	Je travaillais	... work
14	Je détestais	... hate

Future Tense – I will		
1	Je serai	...be
2	J'aurai	...have
3	J'irai	...go
4	Je ferai	...do
5	Je jouerai	...play
6	Je regarderai	...watch
7	Je mangerai	...eat
8	J'achèterai	...buy
9	Je travaillerai	... work
10	Je verrai	...see
11	Je boirai	...drink
12	Je lirai	...read
13	Je partagerai	... share
14	J'écouterai	... listen

Conditional – I would		
1	Je serais	...be
2	J'aurais	...have
3	J'irais	...go
4	Je ferais	...do
5	Je jouerais	...play
6	Je regarderais	...watch
7	Je mangerais	...eat
8	J'achèterais	...buy
9	Je travaillerais	...work
10	Je verrais	...see
11	Je boirais	...drink
12	Je lirais	...read
13	Je partagerais	...share
14	J'écouterais	...listen

Present Tense – We/they		
1	On va	We go
2	On joue	We play
3	On peut	We/you can
4	On fait	We do
5	Ils sont	They are

Past Tense – We/they		
1	On a vu	We saw
2	On a fait	We did
3	On a joué	We played
4	On est allés	We went
5	On est partis	We left

Imperfect – We /they		
1	On était	We used to be
2	On avait	We used to have
3	On allait	We used to go
4	Ils étaient	They were
5	Ils avaient	They had

Future – We /they		
1	On sera	We will be
2	On aura	We will have
3	On ira	We will go
4	Ils seront	They will be
5	Ils auront	They will have

Conditional – We/they		
1	On serait	We would be
2	On aurait	We would have
3	On irait	We would go
4	Ils seraient	They would be

Sentence Starters

1	je pense que	I think that
2	je crois que	I believe that
3	à mon avis/selon moi	in my opinion
5	je dirais que	I would say that
6	il me semble que	it seems to me that
7	d'un point de vue personnel	from a personal point of view
8	bien que je sache que	although I know that
9	à cause du fait que	due to the fact that
10	Je considérerais que	I would consider that
11	il faut que je dise que	I have to say that

Frequency

1	tous les jours	every day
2	de temps en temps	from time to time
3	une fois par semaine	once a week
4	deux fois par mois	twice a month
5	ne...jamais	never
6	toujours	always
7	souvent	often
8	quelquefois/ parfois	sometimes

Connectives

1	mais	but
2	pourtant	however
3	en revanche	however
4	néanmoins	nevertheless
5	certes	admittedly
6	aussi	also
7	donc	therefore
8	d'ailleurs	besides

Exclamations!!

1	Quel dommage!	What a shame!
2	Quel plaisir!	What a pleasure!

Signposting Time Frames

1	l'année dernière	last year
2	la semaine dernière	last week
3	hier	yesterday
4	normalement	normally
5	d'habitude	usually
6	ce soir	this evening
7	la semaine prochaine	next week
8	l'année prochaine	next year
9	dans l'avenir	in the future

Intensifiers

1	un peu	a bit
2	assez	quite
3	très	very
4	vraiment	really
5	beaucoup de	Lots of
6	trop	too
7	tellement	so
8	extrêmement	extremely

Pronouns

1	Mon/ma/me s	My
2	Son/sa/ses	His/her
3	Notre/nos	Our
4	Leur/leurs	Their
5	Lui/Elle/eux	Him/her/the m

Avoir/Etre/Faire

1	C'est	It is
2	Ce sera	It will be
3	C'était	It was
4	Ce serait	It would be
5	Il y a	There is
6	Il y aura	There will be
7	Il y avait	There was
8	Il y aurait	There would be
9	Il fait beau	It's nice
10	Il fera froid	It will be cold
11	Il faisait chaud	It was hot
12	Il ferait orageux	It would be stormy

Fancy Phrases

1	après avoir mangé	after having eaten
2	je l'ai trouvé génial	I found it great
3	je me suis bien amusé(e)	I really enjoyed myself
4	ça m'a vraiment plu	I really enjoyed it
5	ça en valait la peine	It was worth it
6	je n'aurais jamais pensé	I would never have thought
7	j'ai tellement hâte	I'm really looking forward to it
8	le jeu en vaudra la chandelle	it will be worth it



Subject: Geography

Topic: Familiar Fieldwork

Year Group: 11

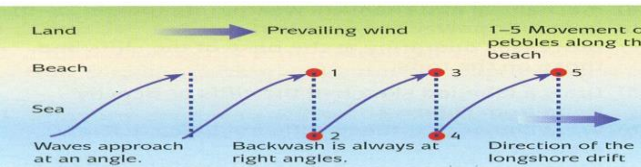
enjoy
learn
succeed

A. Suitable question for geographical enquiry

1	Choosing a suitable enquiry	The factors that need to be considered when selecting suitable questions/hypotheses for geographical enquiry. The geographical theory/concept underpinning the enquiry.
2	Data sources	Appropriate sources of primary and secondary evidence, including locations for fieldwork.
3	Risk assessment	The potential risks of both human and physical fieldwork and how these risks might be reduced.

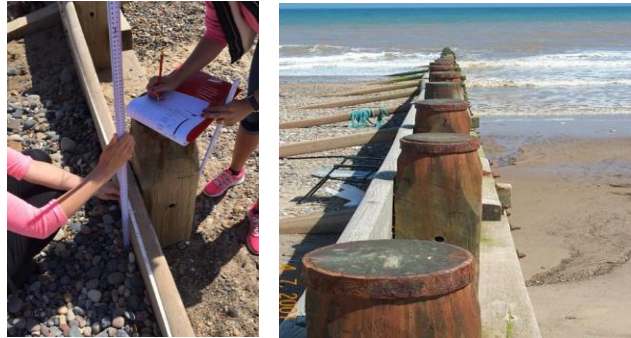
B. Selecting, measuring and recording data appropriate to the chosen enquiry

1	Choosing suitable data	Difference between primary and secondary data. Identification and selection of appropriate physical and human data.
2	Sampling methods	Measuring and recording data using different sampling methods.
3	Justification of enquiry	Description and justification of data collection methods.



C. Selecting appropriate ways of processing and presenting fieldwork data

1	Method	Appreciation that a range of visual, graphical and cartographic methods is available.
2	Presentation of data	Selection and accurate use of appropriate presentation methods.
3	Presentation of data	Description, explanation and adaptation of presentation methods



D. Describing, analysing and explaining fieldwork data

1	Interpretation of results	Description, analysis and explanation of the results of fieldwork data.
2	Use of statistics	Establish links between data sets. Use appropriate statistical techniques.
3	Anomalies in data	Identification of anomalies in fieldwork data.

E. Reaching conclusions

1	conclusion	Draw evidenced conclusions in relation to original aims of the enquiry.
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F. Evaluation of geographical enquiry

1	Issues with enquiry	Identification of problems of data collection methods.
2	Limitations of enquiry	Identification of limitations of data collected.
3	Additional data collection	Suggestions for other data that might be useful.
4	Reliability of conclusions	Extent to which conclusions were reliable.



1. Primary Data	data that you have personally collected
2. Secondary Data	data that has been collected from someone else
3. Sample	refers to a small part of a whole study area, or study population which are representative of the area being investigated.
4. Pilot study	A trail run of your investigation in order to identify and rectify errors before the main data collection.
5. Random Sampling	choosing sites or people without bias, where every person or site has an equal chance of being selected.
6. Systematic Sampling	taking a sample in a structured way which can be repeated
7. Stratified sampling	choosing sample sites or people based on shared characteristics, or differences
8. Risk Assessment	looking at likelihood of possible harm to people whilst undertaking a fieldwork investigation, and taking steps to reduce the risk of injury

9. Data presentation	how you display your data in a visual format
10. Data Analysis	how you break down the different data sets and compare them to identify trends or findings relevant to your aim.
11. Evaluation	you critically appraise the usefulness and accuracy of your methods and the certainty of your findings in your investigation.
12. Quantitative data	data collected in numbered form
13. Qualitative data	data that is written or visual (non numerical)
14. Conclusion	Do you accept or reject your initial hypothesis based on the evidence you have collected?
15. Hypothesis	an enquiry question, or statement that underpins your investigation.

16. Transect	A line along which you take regular measurements
17. Clinometer	A device that measures the beach incline in degrees from one point to another
18. Ranging Pole	Large poles used to mark out set distances, or locations during fieldwork.
19. Environmental Quality Survey	a subjective method of measuring the quality of the built or natural environment.
20. Methods/ Methodology	The steps you took in order to successfully carry out the collection of primary data (where, when, how, who, why)

Geography Fieldwork Knowledge Organiser – Enquiry question and risk

	Tier 3	Meaning
1	Enquiry question	An enquiry is a question that you set out to prove or disprove .
2	Hypothesis	Is a statement that you set out to prove or disprove.
3	Risk Assessment	All fieldwork has risks. Risk assessments help to understand the risk and avoid potentially dangerous situations.

Examples of enquiry questions / hypothesis

Coastal management techniques are effect at area x

What conflict exists between land users in area x ?

How successful is tourism managed in area x ?

Inequalities in housing exist?

The regeneration of x has had a positive impact on the local area.

The transport strategy in x is effective.

Why has the population of x declined?

People in x create a large carbon footprint.

The flood management scheme at x has been effective.

In what direction does longshore drift move beach material at x ?

What impact did weather hazard x have on the local area?

What changes in the river features can be found over distance on the river x ?

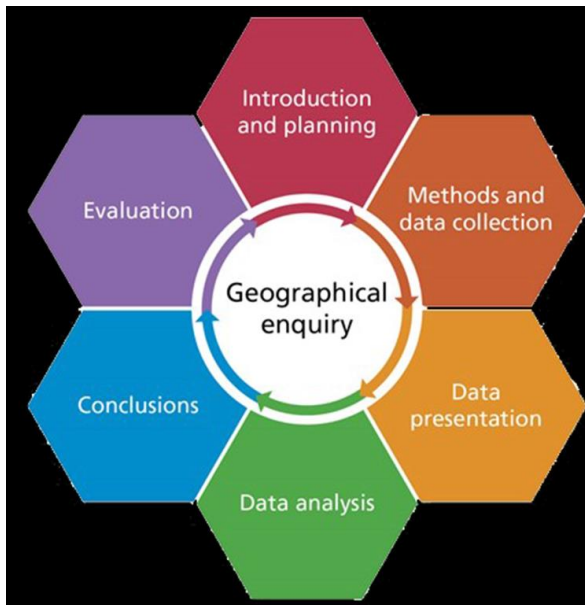
Bedload becomes smaller and rounder along a long profile of a river.

How have changes in the urban area in x increased opportunities for the local people?

What impact has the science park/ business had on area x ?

Traffic congestion decreases as you move along road x out of area x

Fieldwork can be conducted in a range human and physical environments



Word Power

Fieldwork

Gathering statistics or doing research out-of-doors or on-site

Geography Fieldwork – Selecting, measuring and recording data

	Tier 3	Meaning
1	Methodology	The steps you take in order to successfully carry out the collection of primary data.
2	Primary data	Data or information that you collect yourself.
3	Secondary data	Data that is collected by someone else. It could be published e.g. maps, historical data.
4	Quantitative data	Data that records quantities (e.g. numbers / sizes / frequencies)
5	Qualitative data	Data that is descriptive/ subjective which records opinions, attitudes and beliefs.
6	Sampling	The process of collection data from sites or people. Involves gathering data from a small part of the whole area or population.
7	Random Sampling	Choosing sites or people without bias (judgement), where every person or site has an equal chance of being selected.
8	Systematic sampling	Involves choosing samples in a regular (or systematic) way. E.g. speak to every 8 th person or measure every second groyne on a beach.
9	Stratified sampling	Involves dividing samples into groups e.g. 5 people from each age group or 3 sites from each stage of a river.
10	Point sampling	Choose particular points and sample only at these points. e.g. places on a river or specific houses on a street.
11	Discrete data	Data that can be counted e.g. how often something occurs/ data that falls into categories
12	Continuous data	Data that can be measured on a scale or continuum e.g. rainfall levels over time.
13	Pilot Study	A small scale study to check the key steps, before carrying out the main fieldwork
14	Transect	A line along which you take regular measurements.

Methodology
1. Choose suitable data. This can range from primary and secondary and both qualitative and quantitative data.
2. Sampling methods – measure and recording data using different sampling methods
3. Justification – why are the data methods suitable for your enquiry.

Examples of equipment

Clinometer



Quadrat



Ranging Pole



Surveyor's tape



Thermometer



Compass



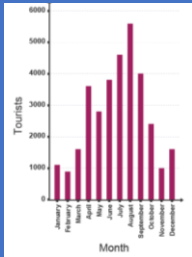
GEOgraphy Fieldwork – Selecting, measuring and recording data

Below are a range of fieldwork techniques for both human and physical fieldwork locations.

Fieldwork Technique	Description	Benefit
Questionnaire	You could ask closed and open questions. You could also provide a bi-polar scale to collect views.	Allows you to gain a wide range of views.
Counts (traffic/pedestrian)	Count people or transport over a period of time e.g. 5 mins. This can then be repeated at different times.	Allows you to compare how busy an area is at different times.
Beach or river profile/transect	Use a clinometer and two ranging poles to record the slope angle.	Allows you to see the impact of processes on the shape of land.
Measuring longshore drift	Measure the distance between two points. Record the time it takes for a floating object to travel between the two points.	Provides an indication of the direction and speed of longshore drift.
River cross sections	Measure the width of a river channel and record the depth at regular intervals.	Allows you to compare the size and shape of river channels along the course of the river.
Measure sediment along a groyne	Measure the height of sediment either side of the groyne at regular intervals.	Allows you to identify the direction of longshore drift and the impact of the groyne on the profile and impact of the groyne on the beach
Measure the velocity of a river	Use of a flow meter to measure the velocity of water.	Allows you to take accurate measurements of the velocity of a river along its course.
Environmental quality survey	Develop a bi-polar scale to review the quality of the environment	Allows you to compare different locations against the same factors.

Fieldwork Technique	Description	Benefit
Land Use Survey	Using a base map of a selected area, create a key for different buildings. Label the map with the different building types.	Shows the distribution of land use in a selected area.
Field sketches	Draw key features of a landscape, adding specific annotated comments to describe/explain the feature.	Helps to show located information on a range of issues.
House Price Comparison	Either by recording sale details in estate agent windows in selected locations or online e.g. Rightmove. Details of type of property will need to be recorded for accuracy of comparison	Shows how house prices compare between areas or to the national average. Can show deprivation of inflation.
Property Quality Survey	Create a set of observable criteria which indicates the level of maintenance/investment applied to each property. Grade each on a scale between negative and positive e.g. 1-5. Tally the scores for all observed houses in a given street.	Shows the general quality of properties in a selected area based on individual perspective.
Local service survey	Create an index key of local services – tally the number of these seen in a given location to give a total score.	Shows the amount and range of key local services in a chosen location.

Geography Fieldwork– Data presentation and processing

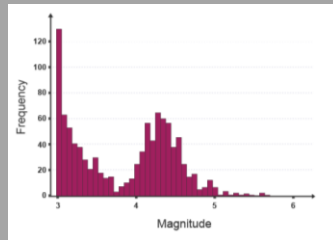


Bar Graphs (gaps between data)

Use: To show distinct/discrete data. Can compare a number of categories.

+ Good visually, easy to make sense of data, clearly shows larger and smaller groups.

-Hard to show large/small data on the same graph

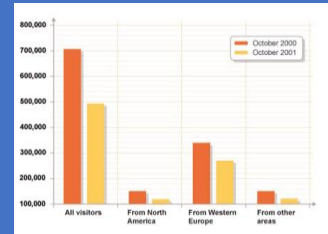


Histogram (no gaps between bars)

Use: To show continuous data (so it uses the same shading)

+Good visually, easy to make sense of data. Shows continuous data.

-Hard to show large/small data on the same graph.

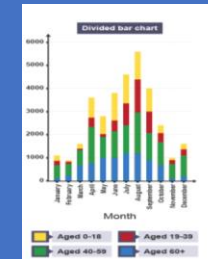


Complex Bar Graph

Use: To show comparisons between two or more sets of data for each category

+Can compare multiple sets of data.

-Hard to show large/small data on the same graph. Can become overcomplicate and harder to read.



Compound/divided bar graph

Use: Shows continuous data.

+Can show changes distance/time. Quick visual impression of results clearly shows different groups. Shows relationships between sets of data.

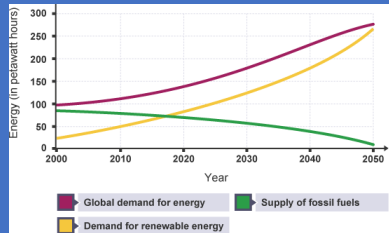
-More difficult to access individual results, especially if a large number of categories. Needs colours to separate variables.

Mean - Add all the measurements together then divide by the number of measurements taken

Median - Arrange the data in order, and take the middle value as the median.

Mode - The value which occurs most often.

Range - difference between the highest and lowest value in the data set

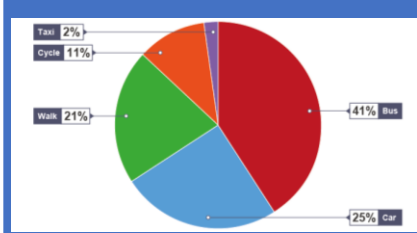


Line Graph

Use: shows continuous data e.g. over time

+Can show multiple sets of data on the same graph. Shows peaks/troughs and trends and patterns at a glance.

-Does not show direction of movement. Problem if numbers vary greatly/need to chose appropriate scale.

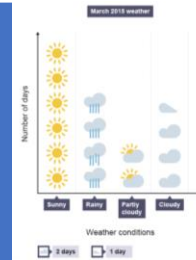


Pie Chart

Use: Shows distinct data that can be divided into parts.

-Quick visual impression of results. Clearly shows larger and smaller groups. Can be used on a map to show extra information.

-Small segments less than 5 degrees are difficult to draw. Hard to assess % accurately from the pie chart if segments are small and unlabelled.

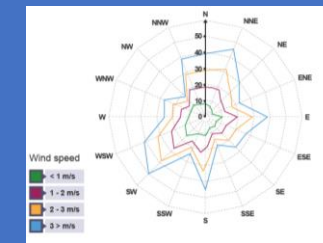


Pictogram

Use: Using pictures to represent numbers

+Pictures clearly show what is being counted. Numbers easily seen by the key.

- Accuracy of data can be a problem. Many other methods are easier to construct.



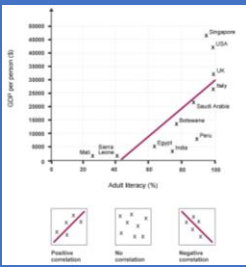
Radar Graph

Use: A way of displaying multiple variable quantities.

+Very visual- easy to see patterns. Easy to compare sets of data.

-Can be difficult to construct. It is difficult to spot anomalies. Can be difficult to make the scale suitable.

Geography Fieldwork– Data presentation and processing

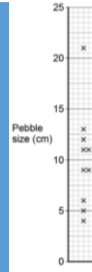


Scattergraph

Use: Shows relationship between two set of data (correlation).

+Best fit line gives visual guide of relationship. Clearly shows anomalies.

-Need paired data. Need enough points to show a relationship. Best fit line not always clear.

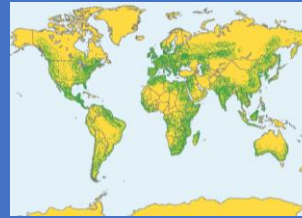


Dispersion Graph

Use: Shows range of a set of data.

+Shows if data is grouped or dispersed. Can compare sets of data. Shows the spread of data from the mean. Gives an indication of the reliability of the data.

-Works best with lots of data. Can be time consuming and complex to construct.



Dot maps

Use: Show information as individual dots. Each dot might represent more than one of something.

+ Spatial- shows density and distribution across a whole area. Good visual impression of variations.

-Clustering may make it impossible to plot and interpret. Large numbers difficult to calculate. Areas with no dots may give false sense of emptiness.

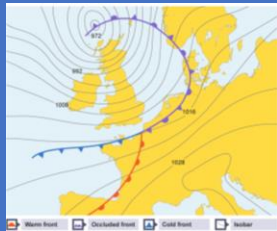


Desire Lines

Use: Show movements from one place to another. Shows the general direction of movements.

+Useful to show general patterns e.g. trade/migration. Indicates 2 variables route and quantity of movement.

- Requires data to be collected from questionnaires –is the info valid. No indication of reason for journey.

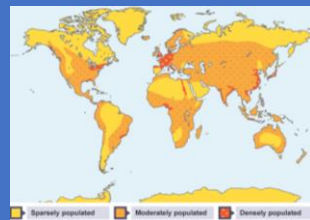


Isoline

Use: Show lines that join up areas or values that are equal.

+Shows gradual change and patterns over a large spatial area. Can add colour/density shading. Can be placed onto a base map.

- There can be variations in the location of each isoline. The shading implies equal values between isolines. Requires data for a large number of locations.

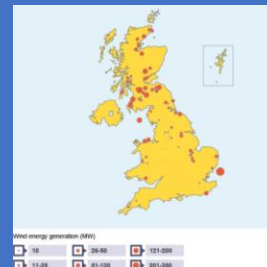


Choropleth Map

Use: Using shading to map data over an area.

+Shows immediately at a glance the pattern made by data. Visual representation. Good visual impressions of change over space.

-Shading is done using an average so variations within areas concealed. Only shows spread of data not amount. If ranges chosen incorrectly the map is ineffective in showing patterns.



Proportional Symbols

Use: Shows spread of data by location

+Clearly shows the differences due to size of symbol. Spread of data by location can be seen at a glance.

-Difficult to construct. Data is shown in a range not an actual value.



Flow Lines

Use: movement from one place to another. Shows the exact path of movement.

+Can also show volume and direction of movement. Can be put onto a base map for even more information.

-In order to achieve a clear image the real distance and direction may be distorted. Gives no reason for the movement.

Interquartile range
Worked out by ranking the data (highest to lowest) and placing the data into quarters or 'Quartiles'.

The top 25% of the data is placed in the **Upper Quartile (UQ)**

The bottom 25% is placed in the **Lower Quartile (LQ)**

The **inter-quartile range or IQR** is the difference between 25% and 75% values.

GEOgraphy Fieldwork – Data analysis, conclusions & evaluation

	Tier 3	Meaning
1	Conclusion	Do you accept or reject your initial hypothesis based on the evidence you have collected. Or what is the outcome of the question you were answering?
2	Evaluation	Critically look at the usefulness and accuracy of your methods and the certainty of your findings in your investigation.
3	Limitations	Are about how time/ location/ resource use could be improved on next time
4	Accuracy	How close a measurement is to the true value. Is about knowing how to use the equipment and surveys correctly so your data is correct .
5	Reliability	Is about making sure that you follow a plan, so somebody could repeat the investigation. To what extent are the measurements consistent (the same).
6	Validity	The suitability of the method to answer the question/ hypothesis it was intended to answer.
7	Bias	Is about how the data might be affected by someone's opinion.
8	Errors	The difference between the results you found and the true value.
		Measurement error – mistakes when collecting the data e.g. mis reading a thermometer.
		Operator error – differences in results collected by different people, such as different people giving different score.
		Sampling error – local differences meaning that one sample gives slightly different results to another.
9	Anomalies	Values in a set of results which are judged not be part of the variation caused by random uncertainty. Something that stands out/ doesn't fit the pattern.

Describing, analysing and explaining the data.

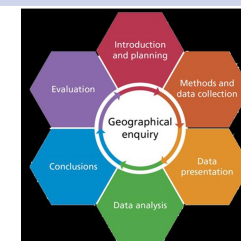
1. Interpretation of results – description, analysis and explanation of the results.
2. Use of statistics – establish links between data sets.
3. **Anomalies** in data – identification of anomalies in fieldwork data.

Conclusion

Draw evidenced conclusions in relation to original aims of the enquiry.

Evaluation

1. Issues with enquiry – identification of problems of data collection methods.
2. **Limitations** of enquiry
3. Additional data collection – suggestions for other data that might be useful.
4. Reliability of conclusions – extent of which conclusions were **reliable**.



Present Tense		
1	Ich bin	I am
2	Ich habe	I have
3	Ich mache	I do/make
4	Ich gehe	I go
5	Ich fahre	I travel
6	Ich mag	I like
7	Ich hasse	I hate
8	Ich spiele	I play
9	Ich esse	I eat
10	Ich trinke	I drink
11	Ich lese	I read
12	Ich sehe	I see
13	Ich kaufe	I buy
14	Ich finde	I find
15	Ich arbeite	I work
16	Ich denke	I think
17	Ich muss	I have to
18	Ich kann	I can
19	Ich will	I want to
20	Es ist	it's

Perfect Tense		
1	Ich bin gegangen	I went
2	Ich bin gefahren	I travelled
3	Ich bin geflogen	I flew
4	Ich bin geblieben	I stayed
5	Ich habe gemacht	I did/made
6	Ich habe gespielt	I played
7	Ich habe gegessen	I ate
8	Ich habe getrunken	I drank
9	Ich habe gekauft	I bought
10	Ich habe gearbeitet	I worked
11	Ich habe gesehen	I watched
12	Ich habe gelesen	I read
13	Ich habe gefunden	I found
14	Ich habe besucht	I visited

Using Geben		
1	Es gibt	There is/are
2	Es gab	There was/were
3	Es wird...geben	There will be
4	Es würde...geben	There would be

Simple Past		
1	Ich war	I was
2	Es war	It was
3	Sie waren	They were
4	Ich hatte	I had
5	Es gab	There was/were

Conditional Fancy		
1	Ich wäre	I would be
2	Es wäre	It would be
3	Sie wären	They would be
4	Ich hätte	I would have
5	Es gäbe	There would be

Structures With Infinitives		
1	Ich muss...machen	I have to do
2	Ich darf...machen	I am allowed to do
3	Ich kann...machen	I can do
4	Ich soll...machen	I should do
5	Ich will...machen	I want to do
6	Man muss/kann/soll...machen	You must/can/should do

Future/Conditional Tense		
Ich werde/möchte... = I will/would like to		
1	...sein	be
2	...werden	become
3	...gehen	go
4	...fahren	travel
5	...spielen	play
6	...essen	eat
7	...trinken	drink
8	...sehen	see
9	...arbeiten	work
10	...lesen	read
11	...machen	make/do
12	...besuchen	visit

Sentence Starters

1	Meiner Meinung nach	In my opinion
2	Meines Erachtens	In my opinion
3	Im Großen und Ganzen	All in all
4	Ich denke, dass...	I think that
5	Ich würde sagen, dass	I would say that
6	Ich muss sagen, dass	I have to say that

Connectives

1	und	and
2	aber	but
3	denn	because
4	oder	or
5	jedoch	however
6	außerdem	furthermore
7	weil/da	because
8	dass	that

Intensifiers

1	ein bisschen	a bit
2	ziemlich	quite
3	sehr	very
4	wirklich	really
5	echt	genuinely
6	zu	too
7	so	so
8	ganz	totally

Adjectives

1	lustig	funny
2	interessant	interesting
3	spannend	exciting
4	nützlich	useful
5	schön	beautiful
6	toll	great
7	unglaublich	incredible
8	langweilig	boring
9	anstrengend	tiring
10	schwierig	difficult
11	teuer	expensive
12	billig	cheap

Signposting Time Frames

1	letztes Jahr	last year
2	letzte Woche	last week
3	gestern	yesterday
4	normalerweise	normally
5	gewöhnlich	usually
6	heute Abend	this evening
7	nächste Woche	next week
8	nächstes Jahr	next year
9	in der Zukunft	in the future
10	am Wochenende	at the weekend

Frequency

1	jeden Tag	every day
2	ab und zu	from time to time
3	einmal pro Woche	once a week
4	zweimal pro Monat	twice a month
5	nie	never
6	immer	always
7	oft	often
8	manchmal	sometimes

Exclamations!!!

1	Wie Schade!	What a shame!
2	Wahnsinn!	Wow!

Fancy Phrases

1	Es hat eine Menge Spaß gemacht	It was loads of fun
2	Es hat sich wirklich gelohnt	It was really worth it
3	Das hat mir gefallen	I liked it
4	Ich freue mich schon darauf	I am already looking forward to it
5	Ich werde mich amüsieren	I will enjoy myself

Perfect Past Examples

1	Letztes Wochenende bin ich ins Kino/Café/Restaurant/Stadion/Museum gegangen und es hat eine Menge Spaß gemacht.	Last weekend I went to the cinema/café/restaurant/stadium/museum and it was loads of fun.
2	Ich habe Hähnchen, Pommes und Salat gegessen und ich habe Cola getrunken. Das Essen war sehr lecker und es hat sich wirklich gelohnt. Wahnsinn!	I ate chicken, chips and salad and I drank cola. The food was very tasty and it was really worth it. Wow!

Fantastic Future Examples

1	Nächstes Jahr werde ich mit meinen Freunden nach Berlin fahren und ich freue mich schon darauf.	Next year I will travel with my friends to Berlin. I am already looking forward to it.
2	Ich möchte ins Café gehen und ich möchte Pizza essen. Ich werde mich amüsieren, weil ich Pizza liebe.	I would like to go to café and I would like to eat pizza. I will enjoy myself I love pizza.

Present Tense		
1	Ich bin	I am
2	Ich habe	I have
3	Ich mache	I do/make
4	Ich gehe	I go
5	Ich fahre	I travel
6	Ich mag	I like
7	Ich hasse	I hate
8	Ich spiele	I play
9	Ich esse	I eat
10	Ich trinke	I drink
11	Ich lese	I read
12	Ich sehe	I see
13	Ich kaufe	I buy
14	Ich arbeite	I work

Present tense other subjects		
1	Er/sie fährt Wir fahren	He/she travels We travel
2	Er/sie sieht Wir sehen	He/she sees We see
3	Er/sie isst Sie essen	He/she eats They eat
4	Er/sie liest Sie lesen	He/she reads They read

Perfect Tense		
1	Ich bin gegangen	I went
2	Ich bin gefahren	I travelled
3	Ich bin geflogen	I flew
4	Ich bin geblieben	I stayed
5	Ich habe gemacht	I did/made
6	Ich habe gespielt	I played
7	Ich habe gegessen	I ate
8	Ich habe getrunken	I drank
9	Ich habe gekauft	I bought
10	Ich habe gearbeitet	I worked
11	Ich habe gesehen	I watched
12	Ich habe gelesen	I read
13	Ich habe gefunden	I found
14	ich habe besucht	I visited

Past tense other subjects		
1	Er/sie hat...gespielt	He/she played
2	Sie/er ist...gegangen	She/he went
3	Wir haben...gemacht	We did/made
4	Sie sind...gefahren	They travelled

Simple Past		
1	ich war	I was
2	es war	it was
3	sie waren	they were
4	ich hatte	I had
5	es gab	there was/were

Conditional Fancy		
1	ich wäre	I would be
2	es wäre	it would be
3	sie wären	they would be
4	ich hätte	I would have
5	es gäbe	there would be

Future/Conditional Tense		
ich werde/möchte/will = I will/would like to/want to		
Er/sie wird = he/she will Wir werden = we will		
1	...sein	be
2	...werden	become
3	...gehen	go
4	...fahren	travel
5	...spielen	play
6	...essen	eat
7	...trinken	drink
8	...sehen	see
9	...arbeiten	work
10	...lesen	read

Structures With Infinitives		
1	ich muss... machen	I have... to do
2	ich darf... machen	I am allowed... to do
3	ich kann... machen	I can... do
4	ich soll... machen	I should... do
5	ich will... machen	I want... to do
6	man muss/kann/soll... machen	you must/can/should... do

Sentence Starters		
1	Meiner Meinung nach	In my opinion
2	Meines Erachtens	In my opinion
3	Im Großen und Ganzen	All in all
4	Auf der einen Seite	On the one hand
5	Aber auf der anderen Seite	But on the other hand
6	Es scheint mir, dass	It seems to me that
7	Ich denke, dass...	I think that
8	Ich würde sagen, dass	I would say that
9	Obwohl ich weiß, dass	Although I know that
10	Ich glaube, dass...	I believe that
11	Ich muss sagen, dass	I have to say that

Connectives		
1	und	and
2	aber	but
3	denn	because
4	sondern (neg)	but
5	jedoch	however
6	deshalb	therefore
7	trotzdem	nevertheless
8	außerdem	furthermore
9	weil/da	because
10	dass	that
11	obwohl	although
12	wenn	if/when

Intensifiers		
1	ein bisschen	a bit
2	ziemlich	quite
3	sehr	very
4	wirklich	really
5	echt	genuinely
6	zu	too
7	so	so
8	ganz	totally

Adjectives		
1	lustig	funny
2	interessant	interesting
3	spannend	exciting
4	nützlich	useful
5	schön	beautiful
6	toll	great
7	unglaublich	incredible
8	langweilig	boring
9	anstrengend	tiring
10	schwierig	difficult
11	teuer	expensive
12	billig	cheap

Exclamations!!!		
1	Wie Schade!	What a shame!
2	Wahnsinn!	Wow!

Signposting Time Frames		
1	letztes Jahr	last year
2	letzte Woche	last week
3	gestern	yesterday
4	normalerweise	normally
5	gewöhnlich	usually
6	heute Abend	this evening
7	nächste Woche	next week
8	nächstes Jahr	next year
9	in der Zukunft	in the future

Frequency		
1	jeden Tag	every day
2	ab und zu	from time to time
3	einmal pro Woche	once a week
4	zweimal pro Monat	twice a month
5	nie	never
6	immer	always
7	oft	often
8	manchmal	sometimes

Fancy Phrases		
1	es hat eine Menge Spaß gemacht	it was loads of fun
2	ich habe mich wirklich amüsiert	I really enjoyed myself
3	es hat sich wirklich gelohnt	it was really worth it
4	das hat mir gefallen	I liked it
5	ich hätte nie gedacht	I would have never thought
6	je (heißer), desto besser	the (hotter) the better
7	ich freue mich schon darauf	I am already looking forward to it
8	es wird bestimmt viel Spaß machen	it will definitely be lots of fun

4.1 Safeguarding (service users who need safeguarding)

Vulnerable groups	Homeless, older adults - dementia
Children	Rely on people to keep them safe
Physical and learning Difficulties	Help them to dress and wash/ understand risks or safety issues
Mental health	Not always in control of their day-to-day lives
Older adults in residential care	Cannot care for themselves independently
Sensory impairment	Not always aware of surroundings
Dependent on carers	Cannot make decisions themselves

Protecting service users

Safeguarding procedures in care settings	<ul style="list-style-type: none"> Safeguarding policy Designated Safeguarding Lead (DSL)
Safeguarding training for all staff	<ul style="list-style-type: none"> Duty to report serious concerns Knowledge of setting procedures Awareness of signs of abuse and harm Reporting procedures
Disclosure and Barring Service (DBS) checks for all staff	<ul style="list-style-type: none"> Standard checks Enhanced checks The barred list

4.2 Infection prevention

Infections can enter the body by inhalation, ingestion and through broken skin.

General cleanliness	<ul style="list-style-type: none"> Wash hands Use antibacterial spray Clean toys and play equipment Mop floors and vacuum carpets daily Clean and disinfect toilets Dispose of hazardous waste correctly
Personal Hygiene	Prevent cross-contamination by <ul style="list-style-type: none"> Hair tied back and regular showering Open wounds covered No jewellery Short nails and no nail polish Disposal of tissues Regular brushing of teeth
Personal protective equipment (PPE)	<ul style="list-style-type: none"> Disposable gloves and apron Rubber gloves and face masks Overalls and overshoes Hair net and scrubs

4.1 Impacts of safeguarding	Short term	Long term
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Physical	Dirty or smelly, hungry or stealing food, losing weight, fractures or burns, reluctant to change in public.	Self-harm, pressure sores, physical damage
Intellectual	Reluctant to seek support or try new things, missing appointments, confusion, lack of concentration/focus, Difficulties in thinking logically and decision making.	Loss of opportunity to progress in work, thinking they lack intelligence, delayed language development
Emotional	Pretending to be ill, regression in behaviour e.g. bedwetting, feeling anxious, flinching, aggressive, feeling unsafe, over cautious	Depression, loss of trust, feelings of guilt, difficulties in forming relationships, believing they are clumsy
Social	Few or no friends, reluctant to join in or accept help, isolation or withdrawn, being ignored.	Difficulties in forming relationships, isolation, not involved in social opportunities

Key terms

Surgical garments	scrubs
Cross-contamination	Reduce the risk of infection
PPE	Personal protective equipment

4.3 Safety procedures and measure

Safety procedures for reducing risk

First aid Policy	<ul style="list-style-type: none"> • Providing first aid • Taking control of the situation • Recording details of the accident • Informing the manager • Maintaining the first aid equipment
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Risk assessments	<ul style="list-style-type: none"> • Identifying hazards • Identifying actions
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Staff training programmes	<ul style="list-style-type: none"> • Equipment use • Moving and handling techniques • First aid
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Emergency procedures	<ul style="list-style-type: none"> • Fire drills • Evacuation
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Equipment consideration	<ul style="list-style-type: none"> • Is the equipment fit for purpose? • Has the equipment been risk assessed? • Has the equipment been safely checked? • Is there a reporting system?
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Safety measure	<ul style="list-style-type: none"> • Displaying fire safety notices • Using warning signs (wet floor/ no entry)
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4.4 How security measures protect service users and staff

Identifying staff	<ul style="list-style-type: none"> • ID lanyards • Staff uniforms • Importance of staff identification (agency)
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Monitoring keys	<ul style="list-style-type: none"> • To protect confidential information (locked filing cabinets) • Lost or stolen keys must be reported and immediately changed • Limit the amount of people who have access to keys
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Receiving and monitoring visitors	<ul style="list-style-type: none"> • Staff on duty at entrances/exits • Visitor books • Visitor badges
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Reporting of concerns to line managers	<ul style="list-style-type: none"> • Service providers have a duty to report any concerns to their line manager • Larger settings will have security officers/security departments
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External door, restricting access	<ul style="list-style-type: none"> • Electronic swipe card entry system • Buzzer entry system • Security pad with PIN
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Window locks and restraints	<ul style="list-style-type: none"> • Prevent windows from opening fully. Necessary to protect vulnerable service users • Young children or adults with learning difficulties or dementia may not know the dangers of an open window.
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Visitors to a health or social care setting

Friends and family of service users

Health care professionals (GPs, physiotherapists)

Support services (hairdressers)

Guest speakers

Tradesmen (electricians, plumbers)

Religious support workers (priests, rabbis, vicars)

Social care professionals (social workers)

Key terms

Risk	The likelihood of harm occurring
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Visitor log	Written record of all visitors
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Risk assessment	A way of identifying the potential hazards
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Emergency procedure	A set process that must be followed in the event of an incident
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Manual handling	Moving things by hand
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Key idea: What changed in the Industrial Revolution?

1 Enlightenment ideas	People became much more willing to experiment and to challenge traditional ideas.
2 Technology	Allowing further research into the cause of disease.
3 Factories developed	Thousands of people migrated to towns and cities, having a huge impact of housing and public health.

1. Understanding of Disease

1 What had changed ?	<ol style="list-style-type: none"> With the invention of the microscope, people had discovered germs and bacteria This led to the theory of Spontaneous Generation – that something rotted and then created bacteria
2 The Impact of Pasteur	<ol style="list-style-type: none"> In 1861, French chemist Pasteur conducted experiments with flasks of water that proved germs caused decay – disproving spontaneous generation He published his work but didn't apply this work to humans until later
3 The impact of Koch	<ol style="list-style-type: none"> German doctor Koch was inspired by Pasteur's work and became the first to link specific bacteria to specific diseases He proved this using scientific experiments and photographic evidence
4 Understanding specific diseases	<ol style="list-style-type: none"> From 1860 to 1900, Pasteur and Koch competed with each other to link bacteria to different diseases Koch and his team identified the bacteria that caused TB, cholera and anthrax Pasteur built on these discoveries to develop vaccinations for different diseases e.g. Chicken cholera
5 Lasting impact of Koch	<ol style="list-style-type: none"> Koch's work and methods inspired other scientists By 1900 different teams had found the bacteria that caused typhoid, pneumonia meningitis, plague and dysentery By 1950, different teams had developed vaccines against typhoid, TB, diphtheria, tetanus, measles and polio

2. Treatments

1 Changes in treatments	<ol style="list-style-type: none"> In 1889, Ehrlich (was part of Koch's team) started working on finding chemical cures that would work like antibodies In 1909 his team developed the Salvarsan 909 as a cure for syphilis – the first 'magic bullet' This was a big discovery, however it didn't affect Britain much until the mid 1900s
2 Everyday treatments and remedies - continuity	<ol style="list-style-type: none"> Treatments were slow to develop and the most common treatment was still home remedies If home remedies didn't work, people could buy 'patent medicines' that were advertised by their makers. There was no control over these manufacturers or the claims they made and many were dangerous In the 1880s the government introduced laws to control the use of harmful ingredients

Key dates

1 1844-47	Development of first effective anaesthetics
2 1848	First Public Health Act
3 1854	Major cholera outbreak in Broad Street
4 1858	The Great Stink in London
5 1861	Pasteur publishes paper on germ theory
6 1867	Lister develops anti-septic surgery
7 1875	Second Public Health Act
8 1871-1885	Identification of germs and vaccines by Pasteur and Koch

Key word

Definition

Germ Theory	Theory that germs (bacteria) cause disease
Miasma	Bad air/smells – it was believed up until the 19 th Century that this was the cause of disease
Spontaneous Generation	The belief that bacteria appear after an object has rotted
Vaccine	Using the dead germs of a disease or one like it to give a patient immunity

Key Individuals

1 Pasteur	Developed the germ theory and proved disease was caused by bacteria
2 Koch	Developed Pasteur's work and linked specific bacteria to specific diseases
3 Lister	Developed the first antiseptic and promoted clean surgery
4 Simpson	Developed the first effective anaesthetic
5 Chadwick	Commissioned by the government to write the first report into the spread of cholera
6 Snow	Proved that cholera was spread through contaminated water not from
7 Bazalgette	Commissioned by the government to design and build London's sewer system

3. Surgery

- 1. **How did anaesthetics develop?**
 1. In the early 1800 scientists found that some chemicals reduced pain
 2. In 1799 Nitrous Oxide was suggested, but it wasn't always effective
 3. From 1846, Ether was used effectively in operations but it was flammable and difficult to inhale
 4. In 1847, James Simpson discovered chloroform would cause unconsciousness. He started using it for childbirth
 5. There was initial opposition to the use of chloroform but it was publicly supported by Queen Victoria
- 2. **Why were anaesthetics important?**
 1. Anaesthetics allowed surgeons to operate more slowly and carefully without fear of their patients dying from shock
 2. It allowed more complex operations
 3. Chloroform encouraged more research into anaesthetics leading to chemicals which relaxed the muscles and local anaesthetics later
- 3. **How did antiseptics develop?**
 1. Joseph Lister was inspired by Pasteur's work and wanted to apply it to surgery
 2. He experimented with treating compound fractures using carbolic acid soaked bandages
 3. Lister published his results in 1867 and developed his work so that bacteria was being killed at every stage
 4. There was opposition to Lister from surgeons who disliked the irritating acid, the extra steps needed in operations among other reasons
 5. Lister persevered with demonstrations and education
- 4. **Why were antiseptics important?**
 1. Antiseptics vastly reduced deaths from infection
 2. His work led to aseptic surgery by the 1890s

4. Public Health

- 1. **Conditions in towns and cities**
 1. With the Industrial Revolution, the urban population increased dramatically.
 2. Houses were built quickly and built close together.
 3. Houses would have a shared outside toilet and a shared water pump
 4. Little government involvement in people's health and living conditions
- 2. **Hospitals and healthcare**
 1. Most poor people were treated in workhouses – conditions here were poor
 2. Over the 1800s some hospitals were founded by universities or medical school. These were used as training schools for doctors
 3. From 1860 onwards, cottage hospitals run by local doctors provided care for rural areas
 4. Florence Nightingale published her work on nursing in 1859 based on the poor conditions she saw in the Crimean War hospitals.
 5. She emphasised the need for hygiene and raised money to train nurses

5. Public Health – Cholera

- 1. **What was cholera?**
 1. Cholera is a disease caused by water contaminated with sewage
 2. It reached Britain in 1831 and over the next 35 years there were several cholera epidemics killing tens of thousands of people each time
- 2. **Edwin Chadwick's report**
 1. In 1842, Edwin Chadwick published a report stating that living conditions in towns were worse than in the country.
 2. He suggested the government should pass laws for drainage and sewerage systems funded by taxes.
 3. Chadwick's report and the 1848 cholera outbreak triggered the First Public Health Act
 4. However, he still believed cholera was caused by miasma
- 3. **John Snow's report**
 1. Snow conducted a scientific study in 1854 of the cholera outbreak in the Broad Street area of London.
 2. He proved the real cause of cholera and the need for clean water.
 3. The government didn't act on his report; many scientists still believed in miasma
 4. Even after a further epidemic in 1865, the government wouldn't act on his report due to their laissez-faire attitudes – they believed it wasn't their responsibility to help the poor and get involved in people's lives

Key word Definition

Anaesthetic	A substance that stops a patient from feeling pain
Antiseptic	Something that stops disease spreading organisms growing and spreading in the body
Aseptic	Sterile or totally free from contamination by viruses or disease
Cholera	A water borne disease that causes severe vomiting and diarrhoea
Laissez-Faire	A policy where the government should not get involved in people's lives
Miasma	Bad air/smells – it was believed up until the 19th Century that this was the cause of disease
Reform	To make changes in order to improve something
Vaccine	Protecting someone from a disease by giving them a weakened or dead organism

6. Public Health –The Sewer System

- | | |
|---|---|
| 1 The Great Stink | <ol style="list-style-type: none"> 1. In 1858 a heat wave in Britain forced the British government to recognise the building problems with public health. 2. The heat wave revealed tonnes of rotting and stinking waste in the Thames – this affected the government directly. |
| 2 The building of the sewers | <ol style="list-style-type: none"> 1. The government hire Joseph Bazalgette to build a new sewer network throughout London 2. The government invested £3 million to build the network. 3. Bazalgette's planning and engineering genius meant that the sewer system was complete by 1866. |
| 3 What was the impact of the sewers? | <ol style="list-style-type: none"> 1. Short term: Bazalgette's ideas were still based on miasma, but it unintentionally provided clean drinking water. 2. Long term: Bazalgette predicted that London's population would grow and planned for it: many of his sewers are still in use today |

7. Public Health – Improvements by the government

- | | |
|---|--|
| 1 Public Health Act 1848 | <ol style="list-style-type: none"> 1. Councils could set up a board of health but it was not compulsory. |
| 2 Vaccination Act 1853 | <ol style="list-style-type: none"> 1. Vaccination against smallpox was made compulsory |
| 3 Sanitary Act 1866 | <ol style="list-style-type: none"> 1. Towns had to have a health inspector and were made responsible for sewers, water and street cleaning. |
| 4 Artisans Dwellings Act 1875 | <ol style="list-style-type: none"> 1. Councils had the power to buy and demolish slum housing. |
| 5 Public Health Act 1875 | <ol style="list-style-type: none"> 1. Councils had to appoint a medical officer. 2. They also had to provide clean water, cover sewers and keep them in good condition, collect rubbish and provide street lighting. |
| 6 Sale of Food and Drugs Act 1875 | <ol style="list-style-type: none"> 1. Guidelines were set up to check the quality of food and medicine before it was sold to the public. |
| 7 What was the impact of these acts? | <ol style="list-style-type: none"> 1. This was a big change in the Laissez-faire attitude of the government 2. In 1800 the death rate in Britain was 39 per 1000 people. By 1900 this had dropped to 18 by 1900 |

Key factors in the Early Modern period

- | | |
|---------------------------------|--|
| 1 Individuals | <ol style="list-style-type: none"> 1. Individuals made significant breakthroughs in this time period. 2. Individuals like Lister, Snow and Simpson continued their work despite opposition |
| 2 Government | <ol style="list-style-type: none"> 1. The government funded the research of a lot of individuals during this time 2. However the government also held back the development of public health for longer than necessary due to their laissez-faire attitude 3. In 1867 working men were given the vote, giving them more influence in law-making |
| 3 Science and technology | <ol style="list-style-type: none"> 1. Developments in science and technology allowed scientists to prove and develop new ideas – like germ theory 2. It also allowed previous scientists work to be correct – e.g. germ theory could be used to prove Jenner's work 3. The scientific method helped Snow to prove that cholera was carried by water. 4. Advances in engineering made Bazalgette's sewer network possible. |
| 4 Chance | <ol style="list-style-type: none"> 1. Some developments like those of Simpson were discovered by chance 2. The Great Stink in 1858 forced the government to take action. |
| 4 Communication | <ol style="list-style-type: none"> 1. Inventions like the electric telegraph and the beginning of medical journals, allowed ideas to spread quickly. 2. Scientists also began to showcase their work, e.g. Louis Pasteur demonstrated his experiments to journalists 3. Tyndall delivered lectures supporting germ theory. 4. Cheyne translated Koch's work into English 5. The reports of Chadwick and Snow were published and distributed to the public |

Age groups – dietary needs		
1	Young Children	5 a day / Eat Well Guide recommendations Starchy carbs – energy Protein growth Calcium/vit D Full fat options – limit salt/sugar
2	Teenagers	Same as young children Extra iron for menstruation / muscle growth
3	Adults	No change between age 19-50. 5 a day / eat well guide recommendations Lower fat – increase fibre
4	Pregnancy	Calcium, iron, B12 (folic acid) No need to increase calories. Avoid too much vit A
5	Elderly	Protein to repair body cells Calcium & vit D to maintain bones / teeth More fat to keep warm in winter Soft foods – to help with chewing Fibre to prevent constipation
6	Active	More calories will be required Carbohydrates for energy Protein for muscle repair Water for hydration
7	Sedentary (inactive)	Less calories will be required Cautious of fat intake (if not used as energy it will be stored)

Special Diets – dietary needs		
Religion / Lifestyle		
1	Halal (Muslim)	All food must adhere to Islamic Law. No Pork
2	Hindu	No not eat beef – sacred animal
3	Kosher (Judaism)	No pork. Do not mix dairy and meat in the same meal.
4	Buddhist	Usually vegetarian. Do not eat meat or fish
Health – related		
5	Coeliac	Sufferers react to gluten - must avoid it
6	Lactose Intolerant	Sufferers cannot digest lactose. They will experience cramps wind and diarrhoea if consumed.
7	Nut/ other allergies	Must avoid food they are allergic to. Can result in anaphylaxis and even death if eaten
8	Coronary Heart Disease	Advised to follow a low sugar, low saturated fat, high fibre , Mediterranean style diet
9	Type 2 Diabetes	Avoid processed meat, low salt, wholegrains and lots of fruit and veg
10	Anaemia	Caused by iron deficiency
Ethical		
11	Vegetarian	Do not eat meat or fish but do eat dairy.
12	Vegan	Avoid eating ALL animal products – meat, fish, dairy, honey
13	Pescatarian	Do not eat meat but will eat fish
14	Flexitarian	Choose to eat vegetarian/ vegan some days of the week,

Key Vocabulary		
1	Food Allergy	A damaging immune response to a food
2	Intolerance	An inability to eat a food without negative effects
3	Gluten	A protein found in wheat.
4	Lactose	A sugar found in milk
5	Haram	Food that is forbidden under Islamic law
6	Mediterranean diet	A diet high in vegetables, olive oil and moderate protein intake
7	Anaphylaxis	A serious life threatening response to an allergic reaction. Happens in seconds.
8	Comparison	Looking at the similarities and differences between two things
9	BMR	Basal metabolic rate
10	PAL	Physical activity level

Research the RDI amounts for each target group

Is there an Eat Well Guide for vegans vegetarians?

Statistic: Representing data

1	Data handling cycle	<ol style="list-style-type: none"> 1) Specify the problem/ pick hypothesis 2) Collect data 3) Process the data and represent on a graph 4) Interpret and discuss the results 																								
2	Pie Chart	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Comedy</th> <th>Action</th> <th>Romance</th> <th>Drama</th> <th>SciFi</th> <th>TOTAL</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>5</td> <td>6</td> <td>1</td> <td>4</td> <td>20</td> </tr> <tr> <td>20%</td> <td>25%</td> <td>30%</td> <td>5%</td> <td>20%</td> <td>100%</td> </tr> <tr> <td>$4/20 \times 360^\circ = 72^\circ$</td> <td>$5/20 \times 360^\circ = 90^\circ$</td> <td>$6/20 \times 360^\circ = 108^\circ$</td> <td>$1/20 \times 360^\circ = 18^\circ$</td> <td>$4/20 \times 360^\circ = 72^\circ$</td> <td>360°</td> </tr> </tbody> </table>	Comedy	Action	Romance	Drama	SciFi	TOTAL	4	5	6	1	4	20	20%	25%	30%	5%	20%	100%	$4/20 \times 360^\circ = 72^\circ$	$5/20 \times 360^\circ = 90^\circ$	$6/20 \times 360^\circ = 108^\circ$	$1/20 \times 360^\circ = 18^\circ$	$4/20 \times 360^\circ = 72^\circ$	360°
Comedy	Action	Romance	Drama	SciFi	TOTAL																					
4	5	6	1	4	20																					
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3	Histogram	Like a bar chart but uses continuous data and all the bars are touching. Frequency is measured by the area of the bar.																								
4	Scatter graphs																									

Geometry: Loci

Locus of points equidistant from a point A will form a circle with center A.

Locus of points that are equidistant from two lines will bisect the angle formed by the two lines.

Locus of points equidistant from a line segment.

Locus of points equidistant from two points A and B forms a perpendicular bisector of the line AB.

Algebra: Quadratics

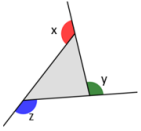
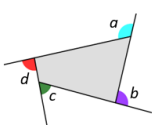
1	Use a value table to draw $y = x^2$	<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tr> <th>x</th> <td>-3</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <th>y</th> <td>9</td> <td>4</td> <td>1</td> <td>0</td> <td>1</td> <td>4</td> <td>9</td> </tr> </table>	x	-3	-2	-1	0	1	2	3	y	9	4	1	0	1	4	9
x	-3	-2	-1	0	1	2	3											
y	9	4	1	0	1	4	9											
2	Roots = -3 and 1	<p>$y = x^2 + 2x - 3$</p>																
3	y intercept = -3																	
4	Turning point (-1, -4)																	

Algebra: Graphs

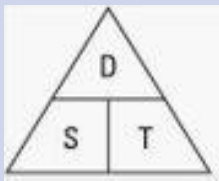
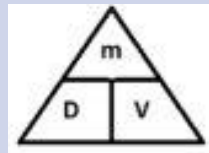
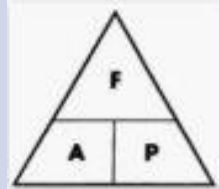
1	Speed distance time graph	10m – 20m They have Stopped moving	
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Key Vocabulary

1	Construct	Draw with a compass and ruler
2	Interpret	Say what the results mean

Geometry: Angles		
1	Sum of Interior angles	$(n - 2) \times 180^\circ$ <p>N is the number of sides.</p>
2	Sum of Exterior angles	<p>Sum of exterior angles of any shape always add to 360</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>$x + y + z = 360^\circ$</p> </div> <div style="text-align: center;">  <p>$a + b + c + d = 360^\circ$</p> </div> </div>

Key Vocabulary		
1	Hypotenuse	Side opposite the right angle on a right angle triangle (longest side)
2	Interior	Inside
3	Exterior	Outside
4	Scalar	A scalar has only magnitude (size)
5	Vector	A vector has magnitude and direction

Ratio and Proportion: Compound measure		
Speed, Distance, Time	Density, Mass, Volume	Pressure, Force, Area
		

Algebra Cubic Circular, Exponential Functions

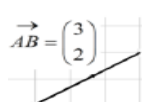
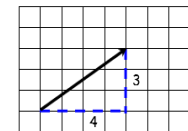
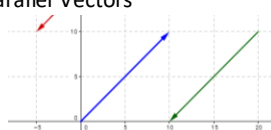
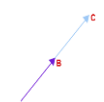
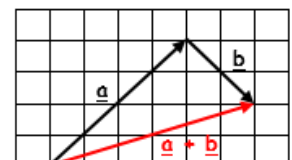
1	Sketch Sinx Cosx	
2	Sketch exponential graphs	Graphing Exponential Functions <div style="border: 1px solid red; padding: 2px; display: inline-block; color: red; font-weight: bold;">y = 2^x</div> horizontal asymptote: y = 0 the function is always positive (owing to any exponent yields positive values) 2 ⁻¹ = 1/2 ¹ = 1/2 2 ⁻² = 1/2 ² = 1/4 2 ⁻³ = 1/2 ³ = 1/8 2 ⁻⁴ = 1/2 ⁴ = 1/16
3	Graphs equations of circles	 $x^2 + y^2 = r^2$ $x^2 + y^2 = 49$
4	Recognise cubic & reciprocal graphs	 ← Cubic Reciprocal →

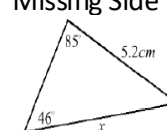
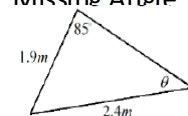
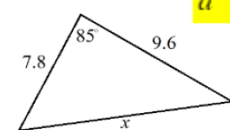
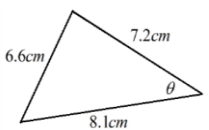
Transforming Functions & expanding brackets

5	Transforming graphs y-axis x-axis
6	$y = f(x/a)$ $(y$ $) / a = f(x)$
Single brackets	$5(x+3) + 6(x-4)$ $5x + 15 + 6x - 24$ $11x - 9$
Double brackets	$(5x+2)^2$ $(5x+2)(5x+2)$ $25x^2 + 10x + 10x + 4$ $25x^2 + 20x + 4$
Triple brackets	Expand $(x+3)(x+5)(x+4)$ $(x^2 + 5x + 3x + 15)(x+4)$ $(x^2 + 8x + 15)(x+4)$

Key Vocabulary


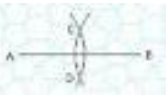
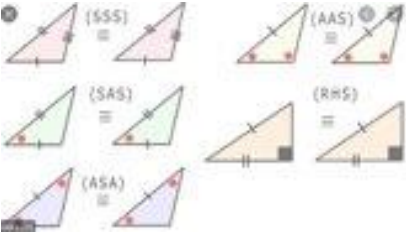
1	Vectors	A quantity having direction as well as magnitude, in other words, size with direction!
2	Sine Rule For non-right angled triangles	Use with non right angle triangles . Use when the question involves 2 sides and 2 angles . In any triangle ABC $\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$ or $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$
3	Cosine Rule For non-right angled triangles	Use with non right angle triangles . Use when the question involves 3 sides and 1 angle . $a^2 = b^2 + c^2 - 2bc \cos A$
4	Exponential	Rapid change: exponential growth has growth with a power resulting in greater growth year on year, exponential decay is decay with a power resulting in greater decay year on year.
5	Asymptote	A curve/line never reaches zero (for $y = \frac{1}{x}$) instead it tends towards infinity.


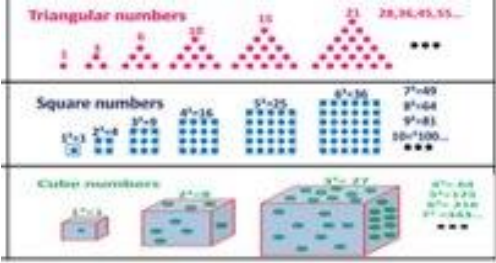
Geometry Vectors		
1	Column Vector	In a column vector, the top number moves left (-) or right (+) and the bottom number moves up (+) or down (-) Eg. $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$ means '2 right, 3 up'
2	Vector 	A vector is a quantity represented by an arrow with both direction and magnitude . $\vec{AB} = -\vec{BA}$
3	Magnitude 	Magnitude is defined as the length of a vector. <div style="border: 1px solid black; padding: 2px; width: fit-content;">Magnitude (length) can be calculated using Pythagoras Theorem: $3^2 + 4^2 = 25$ $\sqrt{25} = 5$</div>
4	Parallel Vectors 	Parallel vectors are multiples of each other. Eg. $2\mathbf{a} + \mathbf{b}$ and $4\mathbf{a} + 2\mathbf{b}$ are parallel as they are multiple of each other.
5	Collinear Vectors 	Collinear vectors are vectors that are on the same line . To show that two vectors are collinear , show that one vector is a multiple of the other (parallel) AND that both vectors share a point .
6	Resultant Vector 	The resultant vector is the vector that results from adding two or more vectors together. The resultant can also be shown by lining up the head of one vector with the tail of the other. if $\mathbf{a} = \begin{pmatrix} 4 \\ 4 \end{pmatrix}$ and $\mathbf{b} = \begin{pmatrix} 2 \\ -2 \end{pmatrix}$ then $\mathbf{a} + \mathbf{b} = \begin{pmatrix} 4 \\ 4 \end{pmatrix} + \begin{pmatrix} 2 \\ -2 \end{pmatrix} = \begin{pmatrix} 6 \\ 2 \end{pmatrix}$

Geometry -Trigonometry 2		
1	Sine Rule – Missing Side 	$\frac{a}{\sin(A)} = \frac{b}{\sin(B)} = \frac{c}{\sin(C)}$ $x = \frac{5.2 \times \sin 85}{\sin 46} = 3.75 \text{ cm}$
2	Sine Rule – Missing Angle 	$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$ $\sin \theta = \frac{1.9 \times \sin 85}{2.4} = 0.789$
3	Cosine Rule – Missing Side 	$x^2 = 9.6^2 + 7.8^2 - (2 \times 9.6 \times 7.8 \times \cos 85)$ $a^2 = b^2 + c^2 - 2bc \cos(A)$
4	Cosine Rule – Missing Angle 	$\cos \theta = \frac{7.2^2 + 8.1^2 - 6.6^2}{2 \times 7.2 \times 8.1}$ $\theta = 50.7^\circ$ $\cos(A) = \frac{b^2 + c^2 - a^2}{2bc}$

Well done for getting this far & good luck with your GCSE!

Subject: Maths	Term: HT5 March – Part 3	Year Group: I Higher
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Geometry Construction		
1	Perpendicular bisector	<p>1) Open the compass more than half of the distance between A and B, and scribe arcs of the same radius centered at A and B.</p> <p>2) Call the two points where these two arcs meet C and D. Draw the line between C and D.</p> <p>3) CD is the perpendicular bisector of the line segment AB.</p> 
2	Angle Bisector	<p>1) Place compass point on the vertex of the angle (point B).</p> <p>2) Stretch the compass to any length that will stay ON the angle.</p> <p>3) Swing an arc so the pencil crosses both sides (rays) of the given angle. ...</p> <p>4) Place the compass point on one of these new intersection points on the sides of the angle.</p> 
3	Prove congruent Triangles	<p>Know and understand the different tests for congruency.</p> 

Algebra – Sequences		
1	Nth term	 <p>1) Write out the times tables of the term-to-term rule above your sequence. Find the difference between this and the original sequence.</p> <p>We then add or subtract that</p> <p>$5n - 3$</p>
2	Special Sequences	

KG1 – Health fitness and well being

	Key term	Definition
1	Health	A state of complete physical, mental/emotional (and social) well-being or free from illness/injury
2	Fitness	The capacity to carry out life's activities/exercise (without getting tired) or The ability to meet physical demands placed on them by the environment / ability to function effectively and efficiently
3	Well-being	The feeling of being contented / happy / prosperous and healthy

KG2 – Consequences of sedentary lifestyle

	Aspect of health	Consequence	Benefit of exercise / how exercise reduces risk
4	Physical	- Decreased bone density	- Weight bearing exercise increases bone density therefore less chance of breaks and fractures.
		- Higher blood pressure	- Aerobic activity reduces high blood pressure by increasing elasticity of blood vessels and reducing risk of fatty deposits forming in blood vessels.
		- Coronary heart disease risk (CHD)	- Exercise reduces risk of CHD because: - Increases strength of heart muscle so can pump more efficiently/ increases stroke volume/ increased cardiac output/ increased circulation of blood/cardiac hypertrophy - Helps to maintain a healthy body weight and reduced obesity - Can reduce resting heart rate so less pressure on heart and circulatory system. - Reduces cholesterol/fatty deposits in the arteries. - Reduce blood pressure
		- Type 2 diabetes risk	- exercise reduces obesity risk which is one of the causes of type 2 diabetes.
		- Injury risk	- Exercise strengthens ligaments and tendons and increases pliability of muscles. - Exercise increases range of movement at joints. - Therefore, injury risk reduced, and recovery rate improved.
		- Obesity risk	- Exercise reduces risk of obesity
		- Poor posture	- Strengthens core/abdominal muscles - Strengthens muscles that support spine so can help to remain more upright- Strengthens muscles that stabilise pelvis and spine (in a neutral position)
		- Lower fitness	- Regular exercise improves fitness

KG2 (cont.) – Consequences of sedentary lifestyle

	Aspect of health	Consequence	Benefit of exercise / how exercise reduces risk
5	Emotional	<ul style="list-style-type: none"> - Low self-esteem/confidence - Poor stress management - Poor self-image - Less happy/ more depressed 	Exercise can lead to: <ul style="list-style-type: none"> - Improved self-esteem/ confidence - Less depressed/ lowers anxiety/ less worried/ forget problems - Stress release so helps to manage stress more effectively - Better/improved/increased/positive body image - Feel happier/feel good/ feel positive
6	Social	<ul style="list-style-type: none"> - Lack of friends - Not belonging to a group - Lack of social confidence. - Loneliness - Difficulty communicating with others/lack of social skills 	Exercise and physical activity provide opportunity for: <ul style="list-style-type: none"> - Friendship / improved communication /meet new people - Sense of belonging - Not being lonely

KG 3 – Diet and Nutrition

7	Balanced diet	A diet that contains the correct proportions of carbohydrates, proteins, fats, vitamins, minerals, fibre and water necessary to maintain good health.			
Components of a balanced diet		Function	Example	Impact/ relevance in sport	
8	Carbohydrates	Provide energy for movement. Two types:		<p>Normal needs: 50-60% of diet. Made up of mainly complex starches.</p> <p>Endurance performers needs: 60-70% of diet. Mainly complex starches. 'carbohydrate loading' 70-85% before an event to increase glycogen stores.</p>	
		Simple sugars	Break down quickly Give a burst of energy		Honey / jam Sweets / chocolate Fruit juice
		Complex starches	Release energy slowly		Rice / pasta Potatoes Bread Porridge/Cereals
9	Proteins	<ul style="list-style-type: none"> - Repair/ make cells - Build /strengthen muscle - Potential third source of energy - Production of haemoglobin 		<p>Meat (steak/ chicken/ turkey) Fish (e.g. Salmon) Eggs Pulses (beans/ seeds) Milk, cheese, yogurt</p> <p>Needed by weightlifters and throwers to help with muscle growth and repair .</p> <p>Long distance runner would benefit from haemoglobin production – enabling them to carry more O2.</p>	
10	Fats	<ul style="list-style-type: none"> - Fuel/ energy source - Protects organs - Insulates. - Contributes to cell growth - Help absorb other nutrients 		<p>See below</p> <p>Long distance athletes might eat reduced saturated/unhealthy fats to keep body weight low.</p> <p>Athletes might use unsaturated/healthy fats to boost secondary energy store.</p>	
		Saturated fats	Too much increases risk of developing heart disease.		Fatty meat, butter / cheese Cakes / crisps / biscuits.
		Unsaturated fats	Healthier than saturated fats. Play a role in reducing risk of heart disease.		Oily fish Nuts Olive oil Sunflower oil Avocado.

KG 3 – Diet and Nutrition

Components of a balanced diet		Function	Example	Impact/ relevance in sport
5	Minerals	<ul style="list-style-type: none"> - Strengthen bones - Growth - Healing - Production of red blood cells - Help utilise vitamins. 	<p>Source of iron: Shellfish / Almonds / water cress</p> <p>Source of calcium; Milk/ dairy</p> <p>Source of potassium and sodium: Some sports drinks –</p>	Athletes takes on vitamins and minerals to aid preparation /recovery/injury prevention and for general health.
6	Vitamins	<ul style="list-style-type: none"> - Help immunity - Help to maintain healthy skin and vision - Bone development and growth/ repair - Help make red blood cells - Aid nerve function - Aid iron absorption 	<p>Vegetables</p> <p>Fruit</p> <p>Cereals</p>	
7	Fibre	<ul style="list-style-type: none"> - Important for healthy digestive system - Avoids constipation - Lowers blood cholesterol - Helps manage weight - Reduces some cancer 	<p>Fruit (e.g. apples)</p> <p>Vegetables (e.g. cabbage)</p> <p>Oats / Cereals / Wheat</p> <p>Beans /Lentils</p> <p>Wholemeal bread</p> <p>Nuts</p>	Helps you feel fuller longer so able to maintain a healthy weight.
8	Water and hydration	<ul style="list-style-type: none"> - Aids digestion - Transports nutrients - Hydration/ lubrication - Flushes out or excretes waste - Regulates temperature - Aids brain function 	Water	<p>Important for all performers as:</p> <ol style="list-style-type: none"> 1. Replaces lost fluids, minerals, iron and salt and avoids dehydration 2. Body cells / tissues / organs need water to reduce risk of cramp/fatigue/headaches/dizziness and to maintain focus. 3. Water is important in urine / waste removal from body 4. Body uses water to regulate temperature / cool down. 5. Water is essential for maintaining blood viscosity

THE PURPOSE OF COSTUME

1	CHARACTER	Costumes help performers embody their characters. They give the audience key information such as age, gender, job, and social status. They can also show personality. Costumes can reveal a character's journey too, changing in appearance to reflect what they experience throughout the play.
2	LOCATION AND TIME PERIOD	Costumes help show the play's time period and location, reflecting the fashions of the era. For example, dinner jackets and top hats can signal a historical setting before anyone speaks. Clothing linked to local culture or climate can also indicate where the play is set.
4	STYLE	Costumes help reinforce a production's overall style. Naturalistic plays use realistic, everyday clothing, while more theatrical styles—like pantomime—use bold, colourful costumes to match the show's tone.
5	MOOD AND ATMOSPHERE	Costume colours, shapes and materials help express the play's mood. Dark, muted tones may suit tragedy, while bright colours fit comedy. Soft or loose fabrics can create a dream-like feel.

STYLES OF COSTUME

1.	REALISM	Costumes that reflect the time period and location accurately.
2.	SYMBOLISM	Costume that represent the characters in a more abstract (non-realistic) way.
3.	MINIMALISM	Use accessories or items of clothing to indicate a character to the audience instead of using full costume.
4.	FANTASY	Costumes that are not bound by real life. This gives the designer a lot of freedom and creativity.

COSTUME DESIGN ELEMENTS

1	M	MATERIAL	The choice of fabric – this will affect its weight and thickness and texture (how coarse or smooth it is).
2	A	ACCESSORIES	Accessories are additional items for a character which can give the audience important character information such as weather they are wealthy (holding a designer handbag) or indicating a style of time period.
3	G	GARMENT	The item of clothing the actor is wearing. For example, a t-shirt
4	I	INTERACTION	How the actor interacts with their costume. For example, fiddling with their sleeves or adjusting their tie.
5	C	COLOURS CONTEXT	Colours on stage can be used to create an atmosphere or tell an audience about the mood or personality of a character. Context will include thinking about the location and time period of the production. This could also mean when a play was written.
6	S	SHAPE AND FIT	The shape of the item of clothing and the outline of the actor in the costume. This includes whether the clothing is loose or tight.

COSTUME VOCABULARY

1	Applique	A small colourful piece of embroidery
2	Back stitch	A closely worked stitch done by hand
3	Colour palette	A complementary set of colours that belong to a group such as pastel or dark
4	Darting	Sewing small, tapered folds into a garment to provide shape or otherwise alter the fit
5	Embellishments	Added extras such as lace, buttons, braids (decorative details)
6	Finish	The surface of fabric (usually dull or shiny)
7	Monochrome	Black, white and grey only
8	Natural	Non man-made (cotton, wool etc...)
9	Rehearsal costumes	Practice clothes and shoes before the final costume
10	Seam	Joining two pieces of fabric on the wrong side
11	Subculture	A cultural trend in society that is not the dominant one e.g. goth, punk
12	Stylised	Non- realistic – where style features are dominant
13	Swatch	A small sample of fabric that gives an idea of how an item made from it would look and feel
14	Synthetic	Man-made (fabric)
15	Upcycle	Taking an existing garment and changing it in some way to make it something different.
16	Weight	How heavy or light the fabric is. This effects how it hangs.
17	Hair and wigs	Wigs let actors adopt hairstyles or colours different from their own. Hair can show the time period, as well as a character's status, personality, or age—for example, messy grey hair might suggest an elderly person who isn't looking after themselves.

KEY TECHNIQUES IN REALISM

1	Visualisation	The actors can picture their surrounding and the environment accurately, considering every detail. This include sight, sound, taste, smell and touch.
2	Units & Objectives	Each scene of a play can be broken down into the character's aim or goal. The objective is what the character wants. The Unit is the smaller sections of the scene where the character has a smaller objective, which will lead them to their main objective.
3	'Magic IF'	Where the actor puts themselves in the character's shoes, asking 'What would I do IF I was in this situation'.
4	Given Circumstances	Finding out or creating information about the character and their history. It also includes the time period and location.
5	Seven questions	Answering a set of questions an actor can use to learn more about their character – who they are, where they are, what time it is, what they want, why they want it, how they will get it and what they need to overcome to get it.
6	Subtext	Working out the hidden meaning behind the text. It is usually communicated through the way that an actor delivers the line.
7	Motivation	Deciding the reason why the character wants what they want in the play.
8	Circles / Concentration of Attention	A set of circles which start inside the head of the characters and slowly move outwards. The actors imagine every detail inside these circles to help with their concentration and to make their visualisation more detailed and realistic.
9	Relaxation	Getting rid of any tension in the body so the actor is able to move freely in the performance and control their body and mind.
10	Tempo & Rhythm	The actors work out the speed of the action and where the actor leaves pauses to communicate the emotion and intensity of a scene. The internal tempo and rhythm of a character can be different from the external (e.g. if the character is hiding something).
11	Emotional Memory	The actor uses their own experiences and memories to help them imagine how the character would be feeling and how they would act in a certain situation.
12	Role-on-the-wall	Using an outline of a person and writing out the character's thoughts and feelings on the inside and what they show and say on the outside.

REHEARSAL TECHNIQUES TO DEVELOP UNDERSTANDING AND IDEAS OF A CHARACTER / ROLE

1	THOUGHT TRACKING	Thought tracking is when a character speaks out loud about his/her inner thoughts during a freeze frame/still-image.
2	INTERNAL MONOLOGUE	This is what is going through your character's mind throughout the performance, even though it might not be what they are saying.
3	CROSS CUTTING	Switching between time periods – flash forwards and flash backs in time. For example, a character as a little boy, then as an old man.
4	CONSCIENCE ALLEY	Two groups exploring arguments for and against a character's decision.
5	OFF TEXT IMPROVISATION	Using what we know about a character or scenario from the TEXT, we can use improvise (make up) scenes that we do not see in the script. Actors use this rehearsal technique in order to understand their character more.
6	STATUS GAME	Giving your character a number status (from 1 -10) and exploring how they act with others OR an object (e.g. a chair) who are of different status
7	HOT SEATING	Asking a character questions about their background, situation or motivation.
8	LEADING TECHNIQUE	Actors often use different body parts to lead themselves around the stage depending on who the character is and how they feel.
9	LEVELS OF TENSION	This means focussing on different states of tension in the body: <ol style="list-style-type: none"> 1. Exhausted – Jellyfish 2. Laid back – Californian 3. Neutral – No story 4. Alert – Mr Bean, curious. 5. Suspense – "Is there a bomb?", Melodrama. 6. Passionate – "There is a bomb!", Opera. 7. Tragic – "The bomb is going to go off!", Petrified.
10	ANIMALISTIC TRAITS	Deciding what animal your character is like and using the animal's mannerisms to portray the character e.g. a cat would be sly and then pounce.

Worship		
1	What are the five pillars?	For Sunni Muslims, they are shahadah, salah, sawm, zakah and hajj. They are seen as pillars because they form the basis of faith.
2	What are the ten obligatory acts?	For Shi'a Muslims, they include salah, sawm, zakah, hajj and jihad. They also include khums, encouraging good, discouraging wrong, showing love for God and people, disassociation with enemies of God.
3	What is the Shahadah?	'There is no god but Allah, and Muhammad is the messenger of Allah' Muslims should declare this
4	Why is Salah significant?	<ul style="list-style-type: none"> Muslims perform ritual washing (wudu) before prayer Muslims pray facing Makkah Daily prayers are made up of certain actions and recitations At the mosque, men and women pray separately

Duties		
1	How do Muslims fast?	<ul style="list-style-type: none"> No food or drink in daylight hours. To experience want and poverty Encourages prayer and forgiveness.
2	How do Muslims practice zakah?	<ul style="list-style-type: none"> The Qur'an doesn't give exact amounts but it is a small proportion of extra earnings Charity brings communities together and fulfils ad duty God has imposed
3	What happens on Hajj?	<ul style="list-style-type: none"> Remember the life of Ibrahim Actions: Enter state of Ihram, circle the Ka'aba, travel to Arafat, throw pebbles at Medina It brings sincerity, humility, discipline and unity.
4	What is Jihad?	<ul style="list-style-type: none"> Lesser jihad is the duty to protect Islam against violent threat Greater jihad is the personal struggle to follow Muslim rules and be faithful to Allah's will.

Festival		
1	What happens at Id ul-Adha?	<ul style="list-style-type: none"> The Greater Eid, and celebrates the prophet, Ibrahim, Muslims remember Ibrahim's willingness to sacrifice his son and follow Allah's will. Visit the mosque, and eat a slaughtered animal.
2	What happens at Id ul-Fitr?	<ul style="list-style-type: none"> Festival of breaking the fast. The lesser Eid Special prayers are made at home and mosques Muslims wear new clothes and give gifts.
3	What happens at Ashura?	<ul style="list-style-type: none"> Main Shi'a festival called the Day of Remembrance Remember the death of Husayn. It is a day of mourning and martyrdom Some re-enact the suffering but this has caused controversy.

Similarities and Differences: Sunni and Shi'a Islam		
1	Acts of Faith?	<ul style="list-style-type: none"> Sunni Muslims have five pillars Shi'a Muslims add to the five pillars to have ten obligatory acts
2	Giving alms?	<ul style="list-style-type: none"> Sunni Muslims tend to give 2.5% of earnings to charity or volunteer themselves Shi'a tend to give 20% of extra earnings. This goes to the poor and to Muslim leaders
3	Prayer?	<ul style="list-style-type: none"> Sunni Muslims pray five times a day Shi'a Muslim combine these into three daily prayer.
4	Ashura?	Sunni Muslims recognise Ashura but as the Day of Atonement, when the Israelites escaped slavery in Egypt.
5	Leadership	<ul style="list-style-type: none"> Sunni Muslims support a caliphate Shi'a Muslims support an imamate.

Key Word	Definition
Abulution	Ritual washing before prayer (wudu)
Arafat	Part of the Hajj pilgrimage. Place where Prophet Muhammad preached his last sermon and pilgrims gather to pray.
Ashura	Important festival in Shi'a Islam, to commemorate the martyrdom of Hussein (Muhammad's grandson). Sunni Muslims observe Ashura as a day of repentance for sins in the belief that they will be forgiven.
Five Pillars	Important duties for Sunni Muslims which support the main principles of Islam. Shahadah, salah, zakah, sawm and hajj.
Friday Prayer /Jumma	Friday prayers in the mosque, where a sermon (khutbah) is heard.
Hajj	One of the Five Pillars/Ten Obligatory Acts; pilgrimage to Makkah, which all Muslims must undertake at least once in their lives, unless prevented by problems over wealth or health.
Id ul-Adha	Festival; celebration of the Prophet Ibrahim's willingness to sacrifice his son for Allah
Id ul-Fitr	Festival; celebration that comes at the end of Ramadan and marks the end of fasting.
The Ka'aba	Part of the Hajj pilgrimage; cube-shaped building in the centre of the Grand Mosque in Makkah. All Muslims face towards it when they pray.
Khums	One of the Ten Obligatory Acts in Shi'a Islam; practice of alms giving.
Mina	Site of pilgrimage during Hajj; where pilgrims take part in the stoning of pillars.
Rak'ahs	Actions and ritual movements made during salah (prayer) consisting of recitations, standing, bowing and prostration.
Muzdalifah	Site of pilgrimage during Hajj; where pilgrims hold a night prayer and rest after the Stand on Mount Arafat.
Night of Power	The night on which Muhammad received the first revelations of the Qur'an.
Recitations	Part of the practice of salah (prayer); the reciting of verses from the Qur'an.
Salah	Prayer; one of the Five Pillars/Ten Obligatory Acts.
Sawm	Fasting from dawn to dusk during Ramadan; one of the Five Pillars/Ten Obligatory Acts.
Shahadah	Muslim declaration of faith; one of the Five Pillars in Sunni Islam.
Ten Obligatory Acts	These are requirements for Shi'a Muslims.
Zakah	Giving alms means giving to those in need, eg money, food, time. One of the five pillars and 10 obligatory acts

Key quotes	
'When you are about to pray...wash your body' Quran	'Pilgrimage to the house is a duty owed to Allah' Quran
'the alms are meant for only for the poor and needy' Quran	'There is no God but Allah and Muhammad is his messenger' Quran
'call on me and I will answer' Quran	'fight in the cause of Allah.. Those who fight you' Quran
'Recite in the name of your lord who created' Quran	'Any who is present in that month should fast' Quran

A students should be aware that the religious traditions of Great Britain are, in the main, Christian, and that religious traditions in Great Britain are diverse. They include Christianity, Buddhism, Hinduism, Islam, Judaism and Sikhism, and non-religious beliefs such as atheism and humanism.

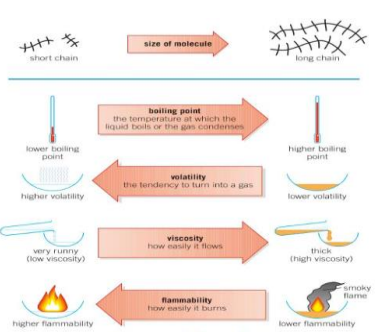
Crude Oil, Hydrocarbons & Alkanes

1	What is crude oil?	A mixture of mainly hydrocarbons that formed from the remains of ancient biomass, mostly plankton, that was buried in mud.
2	Crude oil is mostly made up of alkanes	General formula: C_nH_{2n+2} Alkanes are saturated (only single C-C bonds) hydrocarbons.

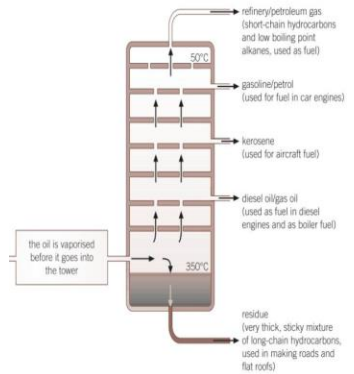
Key Vocabulary

1	Hydrocarbon	Molecules made up of carbon and hydrogen atoms only.
2	Homologous Series	A sequence of compounds with the same functional group and similar chemical properties.

Properties of Hydrocarbons & Combustion

1	Complete combustion	The combustion of hydrocarbon fuels releases energy. During combustion, the carbon and hydrogen in the fuels are oxidised. The complete combustion of a hydrocarbon produces carbon dioxide and water
2	Properties of hydrocarbons	 <p>The diagram illustrates the trends in hydrocarbon properties as the size of the molecule increases from short chain to long chain:</p> <ul style="list-style-type: none"> Size of molecule: short chain → long chain Boiling point: lower boiling point → higher boiling point Volatility: higher volatility → lower volatility Viscosity: very runny (low viscosity) → thick (high viscosity) Flammability: higher flammability → lower flammability

Fractional Distillation

1	Process	The Process 1) Heated crude oil enters a tall fractionating column, which is hot at the bottom and gets cooler towards the top 2) Vapours from the oil evaporate up the column 3) Vapours condense when they become cool enough liquids are led out of the column at different heights 4) The different fractions separate because they have different boiling points
2	Diagram	 <p>The diagram shows a fractional distillation column with trays. Crude oil is vaporized at the bottom (350°C) and rises through the trays. Fractions are collected at different heights:</p> <ul style="list-style-type: none"> refinery/petroleum gas (short-chain hydrocarbons and low boiling point alkanes, used as fuel) - 50°C gasoline/petrol (used for fuel in car engines) kerosene (used for aircraft fuel) diesel oil/gas oil (used as fuel in diesel engines and as boiler fuel) residue (very thick, sticky mixture of long-chain hydrocarbons, used in making roads and flat roofs)
3	Products	Useful petrochemicals produced: solvents, lubricants, polymers and detergents. Essential fuels produced from crude oil: petrol, diesel oil, kerosene, heavy fuel oil and liquified petroleum gases.

Cracking

1	Supply & demand	Long chain molecules have less uses and are in less of a demand, but they can be broken down into smaller more useful products by cracking.
2	Products	Both cracking processes result in the formation of two products; an alkane and an alkene .
3	Method 1	The alkane is brought into contact with a powdered aluminium oxide catalyst at moderate pressure and a temperature of around 500°C.
4	Method 2	The hydrocarbon is mixed with steam and heated to a very high temperature (approximately 850°C).

Alkenes

1	Alkenes homologous series	Alkenes are produced as one of the products of cracking. This double bond means that alkenes are more reactive than alkanes. Although it is the shorter chain alkane that is the desired product of cracking, alkenes are also useful to us. Alkenes can be used as monomers in polymerisation reactions to produce some of the plastics that we use in our everyday lives.
2	General formula	C_nH_{2n}
3	Test	Unsaturated hydrocarbon breaks its double bond & forms a new compound (Di-Bromo) it goes Colourless with alkenes .

Functional Groups

Polymerisation

1 Alcohols
 A molecule that contains the functional group –OH is called an alcohol.
 General formula: $C_nH_{2n+1}OH$

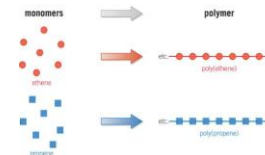
Number of C in chain	Start of name	Full name
1	Meth-	Methanol
2	Eth-	Ethanol
3	Prop-	Propanol
4	But-	Butanol

2 Esters
 Alcohol + Carboxylic Acid \rightarrow Ester + Water
 They have the functional group –COO
 Naming esters : First name is the **alcohol** and second name is the salt **name of the carboxylic acid**
Esters are **volatile** compounds are often used as; Food flavorings, plasticisers, plastics, solvents and plasticisers.

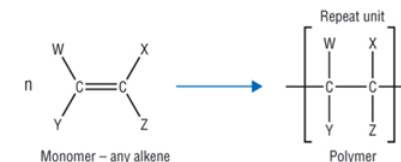
$$\begin{array}{c}
 \text{H} & \text{O} \\
 | & || \\
 \text{H}-\text{C} & -\text{C}-\text{OH} \\
 | & \\
 \text{H} &
 \end{array}$$

3 Carboxylic acids
 General formula: $C_nH_{2n+1}COOH$
 Carboxylic acids have the functional group –COOH.
 They have the ending 'anoic'
Carboxylic Acids are weak acids due to the fact they only **partially dissociate (ionize)**. Forming H^+ ions

1 Polymers
 When small molecules are combined together they are able to create long chain molecules called **Polymers**



2 Addition polymerisation
 Small molecules, such as alkenes (**Monomers**) react together to form **Polymers**
 Alkenes are able to join together in a process called addition polymerisation because they can open up their double bonds and join (or add) together to form a chain.
 Naming polymers : add poly in front and put the **Monomer** in brackets



3 Condensation polymerisation
 When different **Monomers** are added together they create a secondary product usually water. The different **monomers** will have different functional groups.
 General rule:
 1) Dicarboxylic acid + dialcohol \rightarrow polyester
 2) Diol + dicarboxylic acid \rightarrow polyester + water
 3) Dicarboxylic acid + diamine \rightarrow polyamide

4 Naturally occurring polymers
Amino acids are naturally occurring molecules that contain two functional groups. They have an amine group at one end of the molecule and a carboxylic acid group at the other.

5 Natural polymers
 Sugars can undergo polymerisation in living things to make polymers, such as starch and cellulose.

Reactions of Alcohol

1	Combustion	Ethanol is used as a fuel so combustion is common reaction for most alcohols.
2	With sodium	When reacting with Alkali metals It effervesces with Hydrogen gas.
3	Oxidation	When alcohols are oxidised they produce a Weak Acid Can use an oxidising agent to form a Carboxylic Acid . Ethanol + Oxidising agent \rightarrow Ethanoic Acid + Water $C_2H_5OH + [O] \rightarrow C_2COOH + H_2O$

Reactions of Alkenes

1	Reaction with hydrogen	$ \begin{array}{c} H & & H \\ & \backslash & / \\ & C = C \\ & / & \backslash \\ H & & H \end{array} + H_2 \rightarrow \begin{array}{c} H & H \\ & \\ H-C & -C-H \\ & \\ H & H \end{array} $ <p>Ethylene Hydrogen Ethane</p>
2	Reactions with halogens	Naming : Give the name of the Halide first but; Chloro, Bromo and Iodo. $ \begin{array}{c} H & & H \\ & \backslash & / \\ & C = C \\ & / & \backslash \\ H & & H \end{array} + Br-Br \rightarrow \begin{array}{c} H & H \\ & \\ H-C & -C-H \\ & \\ Br & Br \end{array} $
3	Reaction with water	Can be added across the double bond by reacting an alkene with steam in the presence of a hot phosphoric acid catalyst. This reaction will only happen at 300°C and with the use of a nickel catalyst. $ \begin{array}{c} H & & H \\ & \backslash & / \\ & C = C \\ & / & \backslash \\ H & & H \end{array} + H_2O \xrightarrow{H^+} \begin{array}{c} H & H \\ & \\ H-C & -C-H \\ & \\ H & OH \end{array} $

Fermentation

1	$C_6H_{12}O_6 \rightarrow 2 CH_3CH_2OH + 2 CO_2$ <p>glucose ethanol carbon dioxide</p>
2	

DNA

1	Structure	DNA molecules are two polymer chains twisted together into a double helix. Each polymer chain is made up of nucleotides which are made up of a base, a sugar and a phosphate group. <p>nucleotide monomer</p>
2	Bases	There are four bases and the interaction between the bases on each polymer strand holds the two DNA strands together and forms the double helix.
3	Base pairing	These four bases can only interact with others in pairs. Adenine (A) always pairs with thymine (T) and Cytosine (C) always pairs with Guanine (G).

Properties of Waves		
1	Transverse waves oscillate perpendicular (at right angles) to the direction of travel, e.g. ripples on water.	
2	Longitudinal waves oscillate parallel (in the same direction) to the direction of travel e.g. sound waves.	
3	Wavelength	
4	Frequency	The number of waves that pass a point in one second.
5	Amplitude	The maximum displacement of a point on the wave from its undisturbed position.

Measuring Wave Speed (RP)		
1	Investigating waves using a ripple tank.	Oscillator creates waves in ripple tank. A light shines through meaning the waves can be seen on the screen below. If a strobe is set on the ripple tank at the same frequency as the waves, it appears as though they are standing still.
2	Investigating waves using a string.	An oscillator creates waves along the string, because the wave 'bounces back' when it reaches the end it can create a 'standing wave'.
3	Measuring speed of sound waves in air	Stand 100m from a wall, bang two wooden blocks together and time how long it takes to hear the echo. Divide this time by 200 (the distance travelled to the wall and back). Equation: Speed = distance /time.
4	Wavelength	Can be calculated by measuring the distance between waves – remember to take into account the effect of magnification on the screen. For a standing wave on a string, a measurement between two nodes is half a wavelength.
	Frequency	Frequency is shown on the oscillator or by calculating the number of waves passing a single point.
	Wave speed	Calculate using the equation $v = f \times \lambda$.

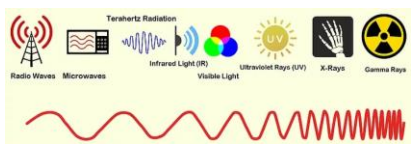
Reflection and refraction		
1	Waves can be reflected at a boundary between two different materials.	
2	Waves can be refracted when the density of the material it is travelling through changes, this makes the wave change speed and so the direction of travel.	

Properties of Waves Equations		
1	Frequency	$T = 1 / f$ T = time period in seconds, s f = frequency in hertz, Hz
2	Wave speed, frequency and wavelength	$v = f \times \lambda$ v = wave speed in metres per second, m/s f = frequency in hertz, Hz λ = wavelength in metres, m

Reflection and Refraction (RP)		
1	Use a ray box with a slit to create a beam of light. Place a Perspex box on a piece of white paper draw an outline. Shine the beam towards the Perspex. Draw on the paper where it enters and exits . Some light will also reflect. Now find the angles with a protractor. Measure from the normal (a straight line 90° from the perspex).	<p>Angle of incidence = Angle of reflection. The angle of refraction tells you the refractive index (the difference in speed that light travels compared to air). Refractive index = $\sin(\text{angle of incidence}) / \sin(\text{angle of refraction})$.</p>

Lenses		
1	Concave lenses make parallel waves spread out.	
2	Convex lenses make parallel waves converge (come together) to a focus.	
3	Focal length	Is the distance from the principal focus (where the rays are focused) to the lens.
4	Real image	Can be formed on a screen behind the lens.
5	Virtual image	Is formed where the rays appear to come from (e.g. a magnifying glass).

Electromagnetic Spectrum (Transverse waves)

1	Electromagnetic waves are electric and magnetic disturbances that can be used to transfer energy from a source to an absorber. This makes them useful for certain technologies.
2	EM waves form a continuous spectrum, and all types can travel through a vacuum or air. 
3	Radio waves – long λ / low f Used for communication (TV & Radio) When absorbed may create an AC with the same f
4	Microwaves Used for communication. (satellite communications) Used for heating up food.
5	Infrared (IR) All objects emit infrared radiation – the hotter the object, the more infrared it emits. Different surfaces absorb and emit different levels of IR radiation. Infrared cameras can be used to detect heat, so can be used for night vision or for medical purposes.
6	Visible light (ROYGBIV) Light from the sun or from bulbs is white light, can be used for fibre optic communications
7	Ultraviolet (UV) Can be used to mark valuable objects, then visible under certain light. Used for energy efficient lamps. Can be harmful to eyes and skin, link to skin cancer
8	X-Rays Can travel straight through objects, if they are not too dense. Used for medical purposes. Can cause ionising radiation.
9	Gamma rays – short λ / high f Can travel straight through objects, if they are not too dense, so used for medical imaging. Used for killing harmful bacteria e.g. on food. Used for cancer treatments.

Visible Light

1	White light can be split into the colours of the rainbow (spectrum) using a prism. Red, Orange, Yellow, Green, Blue, Indigo, Violet. Red has the longest wavelength Violet has the shortest wavelength
2	Objects absorb and reflect different wavelengths depending on their colour. E.g. A red top will reflect light of red's wavelength, but absorb all other wavelengths.
3	Colours can mix to form different shades. There are 3 primary colours and 3 secondary. The 3 primary colours form white light. Primary – Red, green, blue. Secondary – Cyan (green + blue), magenta (red + blue), yellow (red + green). (These primary and secondary colours are different to the ones you learn in art, because light is different to colour pigments, like paint).
4	Opaque Allows no light through
5	Translucent Allows light to pass through but distorts the image.
6	Transparent Allows light through and provides a clear image (includes coloured filters).

Key Vocabulary

1	Longitudinal Wave Oscillate parallel (in the same direction) to the direction of travel e.g. sound waves.
2	Transverse Wave Oscillate perpendicular (at right angles) to the direction of travel, e.g. ripples on water.
3	Wavelength The distance from one point on a wave to the equivalent point on the next wave.
4	Frequency The number of waves that pass a point in one second.


Key Vocabulary Continued...

5	Amplitude The maximum displacement of a point on the wave from its undisturbed position.
6	Oscillator Machine used to make waves at a specific frequency.
7	Ray diagram A symbol drawing used to demonstrate how light rays move.
8	Normal A straight line perpendicular (90°) from the object light is travelling towards.
9	Angle of incidence Angle between the incident ray and the normal
10	Angle of reflection Angle between the reflected ray and the normal (equal to angle of incidence).
11	Angle of refraction Angle between the refracted ray and the normal.
12	Convex A lens that makes light rays parallel to the principle axis meet at a point.
13	Concave A lens that makes parallel rays spread out.
14	Principle focus The point where light rays parallel to the principle axis of a lens focus.
15	Real image An image formed by a lens that can be projected onto a screen.
16	Virtual image An image seen in a lens or mirror, from which light rays appear to come after being refracted by a lens or reflected by a mirror.
17	Electro-magnetic spectrum The continuous spectrum of electromagnetic waves, which have various uses.
18	Sievert (Sv) A measure of radiation dose, a measure of the risk of harm resulting from an exposure of the body to radiation

Sound Waves

1	Sound waves are longitudinal waves.	Particles vibrate in the same direction the wave travels.
2	Can pass travel through solids.	Create vibrations in the solid, transferring energy through the material.
3	Echo sounding, e.g. used in ships in deep water, and by bats and dolphins (echolocation).	High frequency sound waves can be used to detect objects, as the sounds waves are reflected from the object, then redetected, the time taken for the wave to return can be used to calculate the distance.

Hearing

1	Sound waves entering the ear cause the ear drum and other parts to vibrate.	
2	Humans can only hear a narrow range of frequencies. (20 Hz to 20,000 Hz (20 kHz)). Humans hear best at 3,000 Hz	This is because the conversion of soundwaves to vibrations of a solid (like those in the ear) only work at a limited frequency range.

Ultrasound

1	Ultrasound waves are...	Higher than the normal range of human hearing.
2	Can be partially reflected at the boundary between two different media.	This means a detector can be used to find how far away a boundary is, and so build an image. This is used in medicine (e.g. pregnancy scans) and industry.

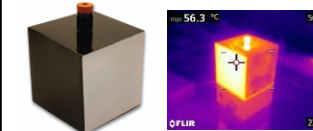
Seismic Waves

1	Seismic waves travel through the Earth and across its surface.	These can cause earthquakes and subsequently tsunamis. Earthquakes are generated in the Earth's crust, at continental fault lines.
2	Primary waves (P-Waves)	Are longitudinal waves that cause the initial tremor. The push or pull on material as they move through the Earth.
3	Secondary waves (S-Waves)	Are transverse waves that appear a few minutes after the initial tremor. They move more slowly than p-waves and shake the material they pass through
4	Studies of seismic waves have led to discoveries about the Earth's structure	Measurements of the changes in speed of seismic waves have allowed scientists to measure the boundary between the crust and mantle.

Infrared Radiation and Black Bodies

1	All objects emit and absorb infrared radiation.	The hotter an object, the more infrared radiation it absorbs.
2	A perfect black body is one that absorbs all of the radiation on it – it doesn't reflect any.	Because it is the best absorber it is also the best possible emitter.
3	A body at a constant temperature absorbs radiation at the same rate it emits it.	If a body is increasing in temperature it is absorbing faster than emitting. If it is decreasing in temperature it is emitting faster than absorbing.
4	Certain objects are designed to emit infrared radiation quickly.	E.g. halogen hobs heat up food faster than ordinary hobs, as they emit more infrared radiation.
4	The temperature of the earth depends on the rate of absorption and emission and reflection of infrared radiation.	Changes in the levels of greenhouse gases absorbing and reemitting greenhouse gases can change the temperature of the Earth.

Radiation RP

1	You can compare how much surfaces emit infrared radiation by seeing how quickly it cools down.	The quicker it emits IR radiation, the faster it will cool down. If you are measuring the temperature of the surface, the one which emits more IR radiation will have a higher temperature.
2	Matt, black surfaces emit more IR radiation,	Shiny, light coloured surfaces emit less IR radiation.
3	A Leslie cube (a cube with different surfaces on each side) can be used for this experiment. Hot water goes in the cube, then measure the temperature of each side.	

Key Vocabulary

1	Ossicles	Small bones in the ear, vibrate when sound waves enter the ear.
2	Ear drum	Thin membrane which separates the outer and inner ear. Sound waves cause vibrations when they hit this.
3	Ultrasound	Sound waves with a higher frequency than human hearing.
4	Seismic waves	Waves which travel through the Earth's crust, usually caused by an earthquake.
7	Infrared radiation	Electromagnetic waves with wavelengths between visible light and microwaves.
8	Black body	An object that absorbs all radiation that hits it.
9	Leslie cube	A device used to measure the IR radiation emitted from different surfaces.

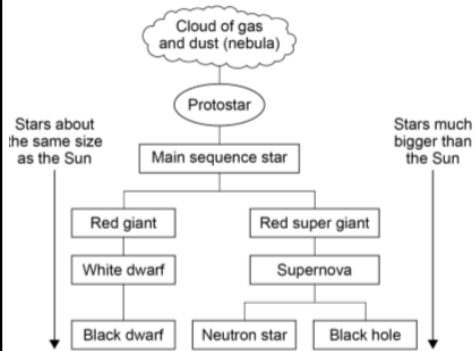
Our solar system is made up of ...

1	Sun	The largest object in the Solar System. Powered by nuclear fusion.
2	Planets	They orbit the Sun. Generally, as the distance between the planet and the Sun increases, the temperature on the planet decreases and the time taken to orbit the Sun increases.
3	Moons	Natural satellites that orbit planets.
4	Dwarf planets	Unlike planets, their gravitational field is not strong enough to 'clear the neighbourhood' around it.
5	Asteroids	Move in elliptical orbits around the Sun. Made of metals and rock.
6	Comets	Orbit the Sun. Made of rock, dust and ice.

Life cycle of a star

1 Stars form from nebula that collapse inwards due to gravity. This causes the dust and gas to heat up. Eventually it is hot enough for fusion to occur and a star is born.


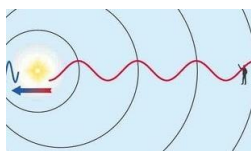
2 A star goes through a life cycle. The life cycle is determined by the size of the star.



Orbital motion

1	Planets orbit stars. Moons and artificial satellites orbit planets. This is possible due to gravity.	
2	When moving in circular orbits objects can have a changing velocity, even if their speed is constant, as when moving in a circle their direction is constantly changing (remember velocity has size & direction).	
3	For a satellite in a stable orbit, the radius must change if the speed changes.	If it is too fast, it will move off into space. If it is too slow, it will spiral into Earth.

Red shift

1	 <p>Absorption spectrum</p>	White light arriving at Earth from stars has certain colours (wavelengths) missing.
2	The dark lines in the absorption spectrum from stars in distant galaxies have all been shifted towards the red end of the spectrum (red-shifted).	
3	This shift tells us that the wavelength of their light has been stretched, indicating that these stars are moving away from Earth.	
4	The more red-shifted the light from a galaxy is, the faster the galaxy is moving away from Earth. Galaxies that are further away are moving away from us fastest (shown by observations from supernovae).	
5	Red shift provides evidence that space is expanding which supports the Big Bang theory.	
6	There is still much about the universe that is not understood, for example dark mass and dark energy.	

Key Vocabulary

1	Galaxy	A system of billions of stars held together by gravitational attraction. Our solar system is in the Milky Way galaxy.
2	Nebula	A large cloud of gas and dust from which stars form.
3	Nuclear fusion	Light nuclei (e.g. hydrogen) join together to produce heavier nuclei and energy. Leads to the production of new elements.
4	Protostar	A very young star that is still gathering mass.
5	Main sequence star	The stable phase in a star's life. The gravity pulling the star inwards is balanced by the outward pressure produced by fusion.
6	Red giant	When all the hydrogen has been used up in fusion, larger nuclei begin to fuse. The star expands to become a red giant.
7	White dwarf	Nuclear reactions have finished. The star contracts under its own gravity.
8	Supernova	The explosion of a large star. Produces elements heavier than iron.
9	Black hole	A region where gravity is so strong that nothing can escape.
10	Red shift	There is an observed increase in the wavelength of light from distant galaxies.
11	Big bang theory	The universe began from a very small, hot, dense point.

Substance misuse: Addiction

1	What is addiction?	Addiction to something means by not having it, there will be withdrawal symptoms. This can be unpleasant, so it becomes easier to carry on having or doing whatever it is that is craved.
2	Examples of chemical addictions	Alcohol Illegal drugs Legal drugs Smoking
3	Examples of behavioural addictions	Shopping Phones / internet Work Gambling
4	Physical effects of addiction	Developing a tolerance to the drug. Withdrawal symptoms when trying to cut back or quit. Health problems, like irregular heart rate, high blood pressure, lung damage, and seizures. Injury, both accidental and self-inflicted. Overdose. Death.
5	Psychological effects of addiction	Mood swings. Having a negative outlook on life. Loss of motivation. Having episodes of drug-induced psychosis. Drugs can cause mental health problems as a result some people are more likely to try and harm themselves or take their own life
6	Cycle of addiction	An emotional trigger leads to a craving, which leads to the ritual of addictive behaviour. Guilt over this causes another emotional trigger, and the cycle continues.

Health prevention: Sleep

1	How can sleep help the brain function?	Activity in the brain during sleep improves concentration and mood. Overnight, information moves from our short-term to our long-term memory. Decision making and cognitive performance (our ability to think) are improved by sleep.
2	How can sleep help the body function?	Special proteins are released, which support the immune system. The hormone levels in the body are balanced out. The body works to grow and repair muscles, organs and other cells.
3	Suggestions for a good sleep routine	Spray a nice scent Turning your phone off Washing Brushing teeth Reading Limited screen time Meditation Relaxing music

The science behind: Stress

1	What is stress?	Short term stress (fight or flight) evolved as a way to help us survive. However long-term stress can have negative impacts
2	Physical effects of stress on the body	Stress causes hormones, such as cortisol, to be released. This can cause physical effects such as an increase in heart-rate
3	Potential stress management strategies	Meditation, exercise, time in nature, sleep well, connect socially, eat well, reduce caffeine, make lists, prioritise tasks.

Healthy eating: Food for the brain

1	How can food support the brain?	There are some foods/ food groups that can support the release of dopamine and serotonin – neurotransmitters that help to regulate emotions and make us feel good.
2	Tips to boost serotonin and dopamine through our diet and lifestyle	Consume regular meals to avoid a 'high' and crash in energy. Eat one portion of oily fish per week. Look after your gut! 70% of your immune system lives in your gut so keeping it happy is very important. Consume a variety of fruit and veg (fresh, frozen or dried) as well as plenty of fibre to boost the good bacteria in your gut. Keep foods that high in sugar, salt and caffeine to small amounts, less often.

Personal Safety: Recreational drug use

1	What are recreational drugs?	Recreational drugs are chemical substances taken for enjoyment, or leisure, rather than for medical reasons. Most are illegal.
2	Why might someone take recreational drugs?	To change the way the body thinks and feels. Because their friends are using them or to see what it feels like.
3	The law related to recreational drugs	Legal – such as nicotine and alcohol. Illegal – this means it is against the law to have them or supply them to other people; most recreational drugs are illegal. Controlled – these are drugs used in medicine. It is legal to take controlled drugs if a doctor has given you a prescription for them but it is illegal to have them if not, or to give them to anyone else.

Healthy vs Inactive lifestyles: Exam prep

1	Diet related habit to develop	Reduce use of energy drinks. While they help high bursts of energy, they are often followed by a 'crash', and are bad for your stomach and due to the caffeine in them, can become addictive.
2	Time related habit to develop	Space revision out; don't cram. You don't know the alphabet because you sat down for 2 hours and memorised it, it's taken regular revision over a long period of time.
3	Sleep related habit to develop	Get more sleep. Your brain needs regular, lengthy rest periods.

