



George Eliot Academy

The best in everyone™

Part of United Learning

Year 10

End of Year

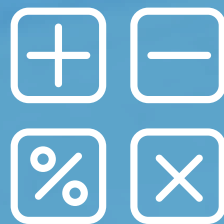
Mock Exams Booklet



Revision
Topics



Revision
Tips



SPARX
Help

A message from our Principal

Dear Parents and Pupils,

As we approach the end of the academic year, I would like to take this opportunity to introduce the upcoming programme of end-of-year mock exams, outlined in this booklet. These mock exams are an important part of each pupil's learning journey, providing a valuable opportunity to consolidate knowledge, reflect on progress, and identify next steps for future success.

Inside this booklet, you will find key information about the topics to be assessed in each subject, along with important dates.

At our school, we are proud to place our STAR values at the heart of everything we do:

- Self-Discipline – preparing effectively, managing time wisely, and maintaining focus throughout the revision and assessment period.
- Tenacity – approaching challenges with persistence and resilience, especially when learning feels difficult.
- Ambition – striving to achieve personal bests and embracing the opportunity to improve and grow.
- Responsibility – taking ownership of learning, meeting deadlines, and making the most of the support available.

These values are not just important during assessment periods, they are the habits and attitudes that will support pupils throughout their education and beyond.

We recognise that exams can sometimes feel demanding, but they are also a chance to celebrate how far pupils have come. I would like to reassure both parents and pupils that staff are here to support every step of the way, whether that be through guidance in lessons, additional resources, or encouragement when it is most needed.

Above all, I want to say how proud we are of our pupils. Your hard work, commitment, and growth this year have been truly impressive. We encourage you to approach the coming weeks with confidence, determination, and a positive mindset.

Thank you to parents and carers for your continued support, it makes an enormous difference.
Yours sincerely,

Homeira Zakary
Principal

Year 10 Mock Exams

English	
Language	Friday 5th June – P5/6 – 1hr 45 mins
Literature Paper 1	Monday 15th June – P5/6 – 1hr 45 mins
Literature Paper 2	Monday 22nd June – P1/2 – 1hr 30 mins
Maths	
Paper 1 (Non-Calculator)	Friday 19th June – P1/2 – 1hr 30mins
Paper 2 (Calculator)	Thursday 25th June – P1/2 – 1hr 30 mins
Science	
Biology	Combined - Thursday 18th June – P1/2 – 1hr 15mins Triple - Thursday 18th June – P1/2 – 1hr 45mins
Chemistry	Combined - Tuesday 23rd June – P1/2 – 1hr 15mins Triple - Tuesday 23rd June – P1/2 – 1hr 45mins
Physics	Combined - Wednesday 24th June – P1/2 – 1hr 15mins Triple - Wednesday 24th June – P1/2 – 1hr 45mins
History	
Paper 1	Thursday 18th June – P5/6 – 1hr 20 mins
Paper 3	Tuesday 23rd June – P5/6 – 1hr 30 mins
RE	
Paper 2	Friday 19th June – P5/6 – 1hr
Paper 3	Wednesday 24th June – P5/6 – 1hr
PE	
Paper 1	Friday 19th June – P5/6 – 1hr 15 mins
Creative Design – Food	
Paper 1	Monday 22nd June – P5/6 – 1hr 45 mins
Music	
Listening	Thursday 25th June – P3/4 – 1hr 15 mins

Computer Science	
Paper 1	Wednesday 17th June – P3/4 – 1hr 30 mins
BTEC Digital I.T.	
Paper 1	Wednesday 17th June – P3/4 – 1hr 30mins
French	
Writing	(F) Wednesday 17th June – P5/6 – 1hr 15mins (H) Wednesday 17th June – P5/6 – 1hr 20mins
Listening	(F) Wednesday 24th June – P3/4 – 45mins (H) Monday 22nd June – P3/4 – 1hr
Reading	(F) Thursday 25th June – P5/6 – 45mins (H) Thursday 25th June – P5/6 – 1hr
Spanish	
Writing	(F) Wednesday 17th June – P5/6 – 1hr 15mins (H) Wednesday 17th June – P5/6 – 1hr 20mins
Listening	(F) Wednesday 24th June – P3/4 – 45mins (H) Monday 22nd June – P3/4 – 1hr
Reading	(F) Thursday 25th June – P5/6 – 45mins (H) Thursday 25th June – P5/6 – 1hr
Geography	
Paper 1	Thursday 18th June – P5/6 – 1hr
Paper 2	Tuesday 23rd June – P5/6 – 1hr

English Language



LANGUAGE PAPER 1

This booklet will guide you through the revision needed for this exam. You will need to refer to the revision booklets on Class Charts for more detailed tasks.

Revision Overview

English is a mixture of knowledge and skill.

KNOWLEDGE – these tend to be facts or quotations; things that you can know.

Key Knowledge Points

Overview of the exam – which skills are being tested and how long should you spend on each question.

Key Terminology – Check the revision guide for a full list of terminology.

SKILL

There is a practice paper on Class Charts. You can have a go at one specific question, or all at once. For questions 4 and 5 can be planning, it does not always need to be writing out the full response.

REMEMBER: Revision is drawing attention to the gaps in your knowledge, then working on these. It is also putting skills into practice.

In short, building and reinforcing the **KNOWLEDGE** that you need is your main task. In lesson revision will be **SKILLS** focussed.

English Literature Paper 1



Macbeth A Christmas Carol

Please use this revision guide alongside the 4 Stages of revision to work through in each revision hour for English. Please also refer to the detailed revision notes in the booklet on Class Charts.

This paper is 1hr 45 mins long. Both questions are equally marked, but Macbeth has 4 extra marks for spelling, punctuation and grammar.

KNOWLEDGE

Plot overview:

You need a general sense of what happens in the whole play. Review this on BBC bite size if you are unsure.

You need to understand the contextual facts about this play. Where do you have gaps in your knowledge?

For each of the main characters you should be able to identify a key scene, quotation and link to theme.

ANNOTATIONS

Take any of the quotations you have identified, write them down and annotate them with methods and effects. This will prepare you for the writing of analytical paragraphs. Refer to your revision booklet for suggested quotations.

PLANNING

Use the planning grid to plan essay responses for each main character and theme.

PRACTICE – 25 mins (set a timer)

Use one of the planned responses, write the introduction paragraph and the first TEAC paragraph. Share this with your teacher on your return to school.

English Literature Paper 2



Poetry Anthology

Unseen Poetry

Please use this revision guide alongside the 4 Stages of revision to work through in each revision hour for English. Please also refer to the revision guides on Class Charts for more detailed notes.

Section B 30 marks – 45 mins

Section C 32 marks

Part 1 - 30 mins

Part 2 – 15 mins

Revision Overview

English is a mixture of knowledge and skill.

KNOWLEDGE – these tend to be facts or quotations; things that you can know. This has been taught to you once and this should be the bulk of your revision.

SECTION B

Poetry Anthology

KNOWLEDGE

Additional terminology for poetry. Check that you understand all of these.

For each poem you should have two quotations and one piece of context.

ANNOTATIONS

Take any of the quotations, write them down and annotate them with methods, effects and context. This will prepare you for the writing of analytical paragraphs. Create master copies of each to check your answers against.

PLAN

Use the plans from 4 Stages of Revision. For the focus identify one of the main themes below and a chosen poem. Your main thesis is how are these poems comparable in terms of the focus. Each sub thesis block is one of the poems.

PRACTICE

Use one of the plans, write the introduction paragraph and the first TEAC paragraph. Share this with your teacher on your return to school.

SECTION C

Refer to your Revision Booklet for a practice question.

This section of the paper has much less knowledge to learn. It is predominantly skills based and so the 4 stages are only **KNOWLEDGE** and **PRACTICE**.

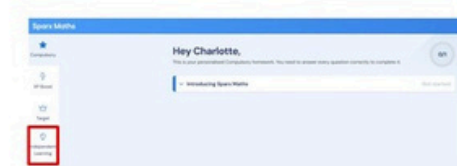
Maths

Revising independently with Sparx Independent learning

Revising independently with Sparx Independent Learning

Step 1

When you log in, you will see the independent learning feature in the top right hand corner (highlighted in red in the screenshot)



Step 2

Choose the topic you want to work on by

- Searching for the topic code (listed later in this document) (highlighted in green in the screenshot)
- Searching for the name of the topic (highlighted in blue in the screenshot)
- Browsing the content by clicking on one of the main strands (highlighted in purple in the screenshot)



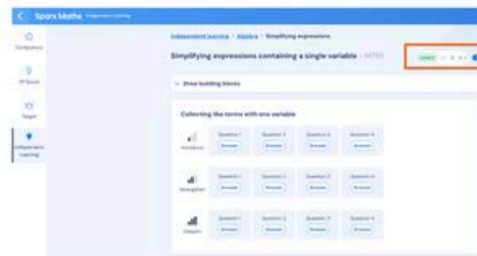
Step 3

The difficulty level will in line with that of your homework.

You can choose to complete questions that **introduce** the topic if you don't remember it, **strengthen** the topic if you need a recap or **deepen** the topic if you are looking to increase your knowledge

An example of this is shown on the right with a topic

You can also change the difficulty level, this is located in the top right of the screen. (highlighted in orange in the screenshot)



Step 4

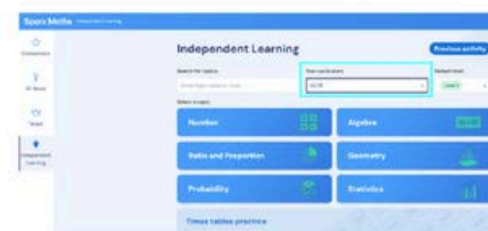
As you are learning more difficult content now, some of the topics are in the GCSE section on Sparx

When the Sparx code starts with a U, you need make sure the 'Your curriculum' section says GCSE and change it using the arrow

When the Sparx code starts with a M, you need make sure the 'Your curriculum' section says KS3 and change it using the arrow

The 'Your curriculum' section is the middle box (highlighted in sky blue in the screenshot)

Also please be aware, as the content is becoming more difficult, not all topics will start a Level 1 for difficulty



Maths

Year 10 End of Year Foundation Assessment Revision List

You can search the Sparx codes in the Independent Learning function in Sparx.

The Year 10 End of Year assessment can include any topic from Year 9 and Year 10 Term 1 to Term 5

Unit	Topic	Sparx topics
9.01	Decimal manipulation	U417, U478, U127, U293, U453, U868, U976
9.02	Estimation and limits of accuracy	U480, U298, U731, U965, U225, U657, U108, U301
9.03	Related calculations	U735
9.04	HCF and LCM of large numbers	U211, U751, U529, U236, U739, U250
9.05	Fraction calculations	U736, U692, U793, U475, U224, U544, U538, U881, U916, U874
9.06	Algebraic manipulation	U613, U662
9.07	Index laws	U235, U694, U851
9.08	Standard form	M719, M678
9.09	Expanding and factorising	U179, U365, U768, U178, U963
9.10	Forming expressions and substitution	M175, M428, U201, U585, U144, M830
9.11	Direct and inverse proportion	U721, U610, U357, U640, U364, U238
9.12	Probability 1	U408, U510, U683, U166, U104, U476, U748, U296, U280, U580
9.13	Solving equations 2	U755, U325, U870, U599
9.14	Inequalities 1	U759, U509, U738, U145
9.15	Sequences	U213, U530, U498, U978, U680, U958
9.16	Pythagoras	U385
9.17	Interior and exterior angles	U447, U390, U730, U628, U732, U329, U655, U427
9.18	Vectors 1	U196, U903, U564, U632, U660
9.19	Transformations 1	M797, U799, U696, U519
9.2	Plans and elevations	U743
9.21	Arcs and sectors	U767, U604, U950, U221, U373
9.22	Surface area	U929, U259, U464, U761, U871, U523, U893, U334, U561, U142, U771

Maths

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The Year 10 End of Year assessment can include any topic from Year 9 and Year 10 Term 1 to Term 5

Unit	Topic	Sparx topics
F1	Solving equations and rearranging formulae	U755, U325, U870, U556
F2	Linear graphs	U789, U741, U933, U889, U669, U315, U377, U477, U848, U652, U862
F3	Linear simultaneous equations	U760, U757, U836, U137
F4	Volume 2	U786, U174, U915, U484, U116, U617, U426, U543
F5	Compound Measures	U902, U388, U248, U468 U151, U256, U403, U910, U527, U842, U914, U462, U896
F6	Quadratics – graphical	U989, U667, U601
F7	Quadratics – algebraic	U178, U963, U228
F8	Further graphs	U980, U593, U238
F9	Probability 2	U803, U408, U510, U280, U683, U166, U104, U580, U476, U748, U558, U729, U296, U369
F10	Statistics 2	U981, U312, U363, U557, U508, U172, U653, U506, U200, U909, U291, U260, U456, U526, U569, U854, U877, U717, U322, U162, U590, U193, U199, U277, U128, U840
F11	Ratio 2	U687, U577, U753, U176
F12	Growth and Decay	U332, U988
F13	Pythagoras Review	U851, U385
F14	Bearings and Scale Drawings	U257, U525, U107

Maths

Year 10 End of Year Higher Assessment Revision List

You can search the Sparx codes in the Independent Learning function in Sparx.

The Year 10 End of Year assessment can include any topic from Year 9 and Year 10 Term 1 to Term 5. For any topics which are Higher tier only, the Sparx codes will be bold.

Unit	Topic	Sparx topics
9.01	Decimal manipulation	U417, U478, U127, U293, U453, U868, U976
9.02	Estimation and limits of accuracy	U480, U298, U731, U965, U225, U657, U108, U301
9.03	Related calculations	U735
9.04	HCF and LCM of large numbers	U211, U751, U529, U236, U739, U250
9.05	Fraction calculations	U736, U692, U793, U475, U224, U544, U538, U881, U916, U874
9.06	Algebraic manipulation	U613, U662
9.07	Index laws	U235, U694, U851
9.08	Standard form	M719, M678
9.09	Expanding and factorising	U179, U365, U768, U178, U963
9.1	Forming expressions and substitution	M175, M428, U201, U585, U144, M830
9.11	Direct and inverse proportion	U721, U610, U357, U640, U364, U238
9.12	Probability 1	U408, U510, U683, U166, U104, U476, U748, U296, U280, U580
9.13	Solving equations 2	U755, U325, U870, U599
9.14	Inequalities 1	U759, U509, U738, U145
9.15	Sequences	U213, U530, U498, U978, U680, U958
9.16	Pythagoras	U385
9.17	Interior and exterior angles	U447, U390, U730, U628, U732, U329, U655, U427
9.18	Vectors 1	U196, U903, U564, U632, U660
9.19	Transformations 1	M797, U799, U696, U519
9.2	Plans and elevations	U743
9.21	Arcs and sectors	U767, U604, U950, U221, U373
9.22	Surface area	U929, U259, U464, U761, U871, U523, U893, U334, U561, U142, U771

Maths

Year 10 End of Year Higher Assessment Revision List

You can search the Sparx codes in the Independent Learning function in Sparx.

The Year 10 End of Year assessment can include any topic from Year 9 and Year 10 Term 1 to Term 5. For any topics which are Higher tier only, the Sparx codes will be bold.

Unit	Topic	Sparx topics
H1	Solving equations and rearranging formulae	U755, U325, U870, U556
H2	Linear graphs	U789, U741, U933, U889, U669, U315, U377, U477, U848, U652, U862, U898
H3	Linear simultaneous equations	U760, U757, U836, U137
H4	Volume 2	U786, U174, U915, U484, U116, U617, U426, U543, U350
H5	Compound Measures	U902, U388, U248, U468 U151, U256, U403, U910, U527, U842, U914, U462, U896
H6	Quadratics – graphical	U989, U667, U601
H7	Quadratics – algebraic	U178, U963, U228, U858, U960, U589, U665, U150, U178, U960, U397, U589, U103, U437, U294, U685, U457, U824
H8	Further graphs	U980, U593, U238, U229, U567
H9	Probability 2	U408, U510, U683, U280, U166, U476, U748, U296, U104, U558, U729, U580, U369, U246, U128, U699, U821, U806
H10	Statistics 2	U508, U172, U200, U909, U569, U854, U877, U717, U322, U162, U199, U277, U840
H11	Cumulative Frequency and Box Plots	U642, U182, U837, U879, U507
H12	Growth and Decay	U332, U988
H13	Ratio 2	U687, U577, U176, U753, U921, U676, U865
H14	Ratio 3	U595
H15	Similar Shapes	U551, U578, U630, U110, U350, U334
H16	Algebraic Proportion	U721, U357, U640, U407, U364, U138, U238
H17	Surds	U633, U338, U872, U499, U707, U281
H18	Right angled trigonometry	U605, U283, U545, U627

Combined Science

Biology Paper 1

Topic 1: Cells and Organisation

Types of cells, Transport in cells, Cell Division, Stem Cells Microscopes, Osmosis

Topic 2: Organisation

Digestive system, Enzymes, Circulation, Breathing, Health, Plant Tissues

Topic 3: Infection and Response

Types of disease, Human Defence, Vaccination, Antibiotics

Topic 4: Bioenergetics

Respiration, Photosynthesis

Chemistry Paper 1

Topic 1: Atomic Structure and Periodic table

Development of atom, Atomic Structure, Isotopes, Development of PT, Groups of the PT

Topic 2: Bonding

Covalent, Ionic, metallic, carbon allotropes, States of matter.

Topic 3: Quantitative Chemistry

Conservation of mass, Relative formula mass, concentration calculations

Topic 4: Chemical Changes

Reactivity of metals, Reactions of acids, Making Salts, pH scale, Electrolysis

Topic 5: Energy Changes

Endo and Exothermic reactions, temperature change, reaction profiles

Physics Paper 1

Topic 1: Energy

Energy stores and transfers, Energy calculations, Specific Heat capacity, Insulation practical

Topic 2: Electricity

Current, PD, Resistance of a wire, IV Characteristics, IV characteristics, Power, Electricity in the home.

Topic 3: Particle Model of Matter

States of matter, Diffusion, Latent Heat, SHC

Topic 4: Atomic Structure and Radiation

Development of the atom, Types of radiation, Nuclear equations, Half-life, Contamination, and Irradiation

Combined – Required Practicals

Biology Paper 1	
Microscopy	https://www.youtube.com/watch?v=SX6mow1AExI
Osmosis	https://www.youtube.com/watch?v=oieXYuQm_xE
Food Tests	https://www.youtube.com/watch?v=akMLGbNA0gE
Enzymes	https://www.youtube.com/watch?v=8Yqbu56ImXk
Photosynthesis	https://www.youtube.com/watch?v=id0aO_OdFwA

Chemistry Paper 1	
Making Salts	https://www.youtube.com/watch?v=qIOMlwBoe_4
Electrolysis	https://www.youtube.com/watch?v=tCHE_7QeRUc
Energy Change (Temperature)	https://www.youtube.com/watch?v=tKxcQYZ2YH8

Physics Paper 1	
Specific Heat Capacity	https://www.youtube.com/watch?v=CpEdfQUAxZ4
Thermal Insulation	https://www.youtube.com/watch?v=PRX_LXyCSWk
Resistance of Wire	https://www.youtube.com/watch?v=m_3JrA-sDEg
IV Characteristics	https://www.youtube.com/watch?v=bp4T1Vqma3M
Density	https://www.youtube.com/watch?v=g4qhPs2U5S4

Revision Resources

1. SPARX Independent Study: <https://sparxscience.com/>
2. Cognito: <https://cognitoedu.org/>
3. Revision Guide via Amazon: <https://amzn.eu/d/06idOLC6>
4. Knowledge Organisers:
 - o [Biology Knowledge Organiser](#)
 - o [Chemistry Knowledge Organiser](#)
 - o [Physics Knowledge Organiser](#)

Triple Science

Biology Paper 1

Topic 1: Cells and Organisation

Types of cells, Transport in cells, Cell Division, Stem Cells Microscopes, Osmosis

Topic 2: Organisation

Digestive system, Enzymes, Circulation, Breathing, Health, Plant Tissues

Topic 3: Infection and Response

Types of disease, Human Defence, Vaccination, Antibiotics

Topic 4: Bioenergetics

Respiration, Photosynthesis

Chemistry Paper 1

Topic 1: Atomic Structure and Periodic table

Development of atom, Atomic Structure, Isotopes, Development of PT, Groups of the PT

Topic 2: Bonding

Covalent, Ionic, Metallic, Carbon allotropes, States of matter, Nanoparticles

Topic 3: Quantitative Chemistry

Conservation of mass, Relative formula mass, Mole calculations, Concentration calculations, and titrations

Topic 4: Chemical Changes

Reactivity of metals, Reactions of acids, Making Salts, pH scale, Electrolysis, Half equations

Topic 5: Energy Changes

Endo and Exothermic reactions, temperature change, reaction profiles, Chemical Cells and Fuels cells

Physics Paper 1

Topic 1: Energy

Energy stores and transfers, energy calculations, Specific Heat capacity, Insulation practical, Global energyresources

Topic 2: Electricity

Current, PD, Resistance of a wire, IV Characteristics, IV characteristics, Power, Electricity in the home.

Topic 3: Particle Model of Matter

States of matter, Diffusion, Latent Heat, SHC, Gas pressure

Topic 4: Atomic Structure and Radiation

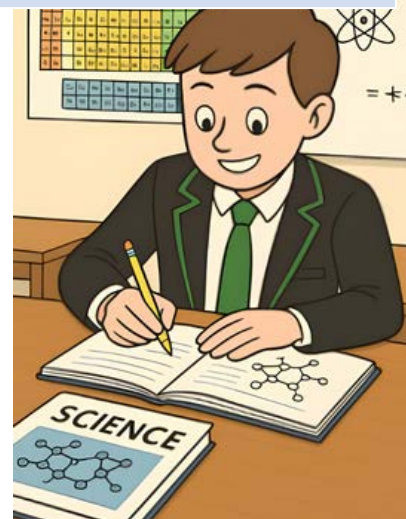
Development of the atom, Types of radiation, Nuclear equations, Half-life, Contamination and irradiation, Hazards, Fission, Fusion

Triple - Required Practicals

Biology Paper 1	
Microscopy	https://www.youtube.com/watch?v=SX6mow1AExI
Microbiology	https://www.youtube.com/watch?v=sl2Dp5fNdDY
Osmosis	https://www.youtube.com/watch?v=oieXYuQm_xE
Food Tests	https://www.youtube.com/watch?v=akMLGbNA0gE
Enzymes	https://www.youtube.com/watch?v=8Yqbu56ImXk
Photosynthesis	https://www.youtube.com/watch?v=id0aO_OdFwA
Chemistry Paper 1	
Making Salts	https://www.youtube.com/watch?v=qlOMlwBoe_4
Neutralisation	https://www.youtube.com/watch?v=vn3Rx3g1VPk
Electrolysis	https://www.youtube.com/watch?v=tCHE_7QeRUc
Physics Paper 1	
Specific Heat Capacity	https://www.youtube.com/watch?v=CpEdfQUAxZ4
Thermal Insulation	https://www.youtube.com/watch?v=PRX_LXyCSWk
Resistance of Wire	https://www.youtube.com/watch?v=m_3JrA-sDEg
IV Characteristics	https://www.youtube.com/watch?v=bp4T1Vqma3M
Density	https://www.youtube.com/watch?v=q4qhPs2U5S4

Revision Resources

1. **SPARX Independent Study:** <https://sparxscience.com/>
2. **Cognito:** <https://cognitoedu.org/>
3. **Revision Guides via Amazon:**
<https://amzn.eu/d/035b0wqu>
4. **Knowledge Organisers:**
 - o [Biology Knowledge Organiser](#)
 - o [Chemistry Knowledge Organiser](#)
 - o [Physics Knowledge Organiser](#)



Food Technology

1 Food Nutrition and Health

Macronutrients - fats and proteins

Macronutrients are needed by the body in large amounts

PROTEINS

Large biomolecules built of amino acids bound together into long chains

15% of daily energy intake

Proteins have many functions in our bodies:

Functions

- Build enzymes and hormones
- Build cell membranes
- Repair and maintain tissues
- Defend the body (antibodies)
- Secondary source of energy



There are approximately 20 amino acids in total and each one has a specific function in our body. While most can be made by our bodies, approximately nine cannot – these have to be consumed through food.

- **Essential amino acids** – cannot be made by our bodies and need to come from food
- **Non-essential amino acids** – readily made by the body

Different foods contain different amounts of these essential amino acids. Foods that contain them all are called **High Biological Value (HBV)** and a protein source that lacks one of these essential amino acids is called a **low biological value (LBV)** protein.



You can obtain HBV proteins by combining two LBV proteins. This is called **protein complementation**.

Protein Complementation

A process of combining two or more LBV protein sources to obtain an HBV protein

Examples of protein complementation:
baked beans + bread
rice + peas
peanut butter + porridge oats

Too much or too little protein and the following can happen:

Excess	<ul style="list-style-type: none"> • Kidney and liver diseases • Weight gain
Deficiency	<ul style="list-style-type: none"> • Kwashiorkor • Slowing of growth rate • Swelling

What about vegetarians and vegans?

Protein Alternatives

Vegetarians and vegans don't consume meat so instead they use protein alternative products, which are manufactured in order to provide protein in a diet, and protein-rich plant foods.

Examples include:

- Mycoprotein (Quorn®)
- Tofu
- Tempeh
- Soy chunks
- Textured vegetable proteins (TVP)
- Beans, lentils, chickpeas



FATS

Large biomolecules built of one particle of glycerol and three particles of fatty acids that provide energy

35% of daily energy intake

The functions of fats include:

Functions

- Source of energy
- Insulation
- Dissolve vitamins
- Build hormones
- Build cell membranes

Omega 3
Polyunsaturated essential fatty acids present in fish, fish oil and cold-pressed vegetable oils

There are two types of fatty acid, outlined below:

Saturated
Contain only single bonds. Solid at room temperature.

Sources:
meat, cheese, butter, cream, whole milk, lard, suet, eggs

Unsaturated
Contain one or more double bonds. Liquid (oils) at room temperature.

Unsaturated fats (or fatty acids) can be divided into two further categories:

Monounsaturated
One double bond

Sources: fish and fish oil, vegetable oils and spreads, nuts and grains, avocados

Polyunsaturated
More than one double bond

Food can contain fat, even when you can't see it.

Visible	<ul style="list-style-type: none"> • Fats you can see – such as the fat on meat – are often saturated. • However, visible fats can be unsaturated (such as oils in fish and from plants).
Invisible	<ul style="list-style-type: none"> • Unsaturated fats you cannot see – such as those in nuts and avocados – are often good for the brain! • However, some invisible unsaturated fats can be found in processed foods.

Fats are needed, but so is a balance of them – too much fat or too little fat has consequences...

Excess	<ul style="list-style-type: none"> • Obesity • Hypertension • Coronary heart disease • Fatty liver disease • Type 2 diabetes
Deficiency	<ul style="list-style-type: none"> • Weight loss • Vitamin deficiency • Heart disease • Feeling cold

Cholesterol
Fatty substance present in animal-origin foods, responsible for transporting fats around the body

Low-density lipoprotein (LDL) is 'bad' cholesterol

High-density lipoprotein (HDL) is 'good' cholesterol

2 Food Nutrition and Health

Macronutrients - carbohydrates

CARBOHYDRATES

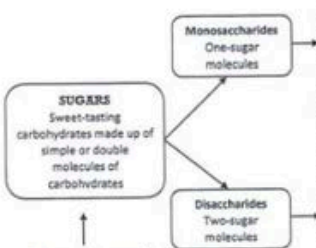
Large biomolecules built of carbon, oxygen and hydrogen, either in the form of simple, double or complex molecules built of hundreds of molecules of sugar bonded together

50% of daily energy intake

What do we need carbohydrates for?

Functions

- Primary source of energy
- Store energy for later
- Build DNA
- 'Protein sparer'



- There are three main monosaccharides found in food:
1. **Glucose** – also known as blood sugar – can be found in fruits and vegetables. Also found in muscles and liver cells.
 2. **Fructose** – sweet sugar found in many fruits
 3. **Galactose** – a less sweet monosaccharide found in mammals' milk
- There are three main disaccharides found in food:
1. **Lactose** – products made from mammals' milk
 2. **Sucrose** – common sugar
 3. **Maltose** – produced when starch is broken down; found in cereals

Sources of sugars

- Fruit and vegetables
- Milk and dairy products
- Sweets and condiments
- Juices and beverages
- Sugar, honey and syrups

Free sugar
Sugar that is added to foods, and the sugar naturally present in honey and fruit juices. These should make up no more than 5% of your daily energy intake.

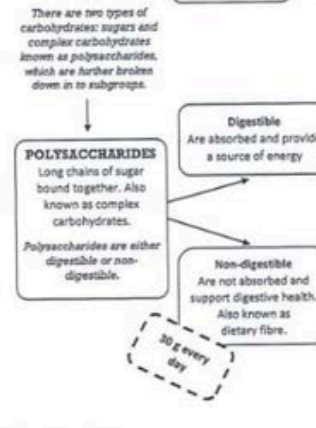
Intrinsic sugar
Sugar that is naturally present in fruit and vegetables.

What happens if you eat too many or too few carbohydrates?

Excess	<ul style="list-style-type: none"> • Tooth decay • Type 2 diabetes • Weight gain and obesity • Hyperglycaemia
Deficiency	<ul style="list-style-type: none"> • Weight loss • Lack of energy, tiredness • Severe weakness • Hypoglycaemia

→ **Hypoglycaemia** – very low blood sugar level
o collapse/fainting, coma

→ **Hyperglycaemia** – very high blood sugar level
o type 2 diabetes, damage to the nerves



Sources of digestible polysaccharides

1. **Starch** – made up of several glucose molecules, this is found in grains, cereals and starchy vegetables
2. **Dextrin** – produced when starchy foods are cooked, e.g. toast or baking cakes

Sources of starches

- Starchy vegetables, e.g. potatoes, parsnips
- Grains, e.g. wheat, rice, barley, maize, quinoa, bread and pasta, porridge, couscous

Sources of non-digestible polysaccharides (dietary fibre)

1. **Cellulose** – often found in plant cell walls
2. **Pectin** – found in cell walls of vegetables and fruits

Dietary fibre can either be soluble or insoluble

SOLUBLE

- Swells in stomach and increases satiety
- Slows down sugar ingestion and prevents high blood sugar levels

INSOLUBLE

1. Adds bulk to the stool
2. Regulates bowel movements
3. Prevents bowel cancer

Sources of dietary fibre: wholemeal products, bran, oatmeal, vegetables, fruit, nuts, lentils and beans

What happens if you eat too much or too little fibre?

Excess	<ul style="list-style-type: none"> • Constipation or diarrhoea • Impaired absorption of nutrients
Deficiency	<ul style="list-style-type: none"> • Constipation or diarrhoea • Increased risk of obesity, type 2 diabetes, cardiovascular disease, bowel cancer

Food Technology

1 Food Nutrition and Health

Micronutrients – vitamins

Micronutrients are needed by the body in small amounts

Water-soluble vitamins

Group B vitamins and vitamin C

Fat-soluble vitamins

Vitamins A, D, E and K, present mainly in fatty foods, which can be stored in the body for long periods of time – excess may be harmful

Easily excreted from the body, usually non-toxic in excess, deficiency may be harmful

A
Retinol
Beta-carotene
DRV 600 mcg daily

Functions:

- Growth and development of the body
- Helps support vision at night
- Keeps the skin and cell membranes healthy

Sources:

- Liver, milk and dairy, egg yolk, oily fish
- Red, yellow and green vegetables and fruit

Deficiency: night blindness, itchy and dry skin
Excess: toxic, harmful to unborn babies

D
Cholecalciferol
Sunshine vitamin
DRV 10 mcg daily

Functions:

- Healthy bones and teeth
- Helps absorb calcium

Sources:

- Produced in the skin in response to sunshine exposure
- Liver, milk and dairy, egg yolk, oily fish

Deficiency: rickets, osteoporosis, depression, increased risk of cancer
Excess: damage to the kidneys and other organs, weakened bones

E
Tocopherol
DRV 4 mg daily

Functions:

- Helps growth of the baby during pregnancy
- Keeps cell membranes and muscles healthy
- Helps build sperm cells and red blood cells

Sources:

- Vegetable oils, seeds and nuts
- Egg yolk, wheatgerm

Deficiency: muscular dystrophy, anaemia, infertility
Excess: loss of appetite, nausea, flatulence, diarrhoea

K
Phylloquinone
DRV 0.1 mcg daily per kg body mass

Functions:

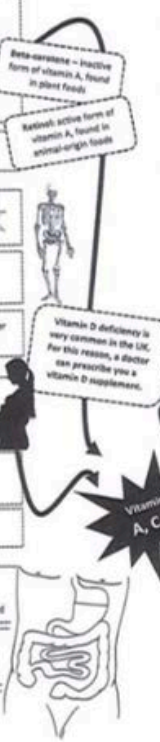
- Ensures proper blood clotting and healing of wounds
- Prevents bleeding by supporting blood clotting when injured

Sources:

- Produced by gut bacteria
- Leafy green vegetables, green tea

Deficiency: bleeding, bruising
Excess: very rare, no known symptoms

	Function in the body	Source	Effects of deficiency and excess
Vitamin B1 Thiamine DRV 1 mg daily	<ul style="list-style-type: none"> Helps release energy from food Supports the nervous system 	<ul style="list-style-type: none"> Liver, milk and dairy Bread and cereals Eggs, nuts, peas 	<ul style="list-style-type: none"> Deficiency: beriberi disease Excess: very rare
Vitamin B2 Riboflavin DRV 1.5 mg daily	<ul style="list-style-type: none"> Supports healthy skin, nerves and mucous membranes 	<ul style="list-style-type: none"> Chicken, eggs, milk and dairy Rice, bread, cereals, leafy vegetables, soya 	<ul style="list-style-type: none"> Deficiency: skin problems, dry lips, poor growth Excess: very rare
Vitamin B3 Niacin DRV 15 mg daily	<ul style="list-style-type: none"> Releases energy from carbohydrates Helps keep skin and nerves healthy 	<ul style="list-style-type: none"> Meat and poultry Cereals and grains Pulses (beans, lentils and other) 	<ul style="list-style-type: none"> Deficiency: pellagra, inflammation of skin, dementia (memory loss) Excess: damage of the liver
Vitamin B9 Folate / folic acid DRV 200 mcg daily	<ul style="list-style-type: none"> Ensures proper development of the nervous system Helps build red blood cells 	<ul style="list-style-type: none"> Bread and cereals Broccoli, Brussel sprouts, spinach Liver, chickpeas and peas 	<ul style="list-style-type: none"> Deficiency: spina bifida in newborns Excess: no known effects
Vitamin B12 Cobalamin DRV 2.5 mcg daily	<ul style="list-style-type: none"> Helps build red blood cells 	<ul style="list-style-type: none"> Meat, milk and dairy, egg yolk Fish and beef 	<ul style="list-style-type: none"> Deficiency: pernicious anaemia, more likely in vegans Excess: no known effects
Vitamin C Ascorbic acid DRV 40 mg daily	<ul style="list-style-type: none"> Builds connective tissues (such as skin and mucous membranes) Helps healing of wounds Increases absorption of iron 	<ul style="list-style-type: none"> Potatoes, tomatoes, Brussel sprouts Berries, currants Citrus fruit (lemon, orange, kiwi) 	<ul style="list-style-type: none"> Deficiency: scurvy, impaired healing Excess: stomach pain and diarrhoea



Antioxidants
Protect cells from the damage caused by free radicals.
Help prevent cardiovascular disease, cancer and maintain youth.

FREE RADICALS are particles of oxygen which have seven electrons and steal electrons from other particles in the body, causing damage and oxygen stress.

Sources of antioxidants:

- Fresh fruit and vegetables
- Nuts
- Whole grains
- Oily fish

How cooking affects nutritional value of food

Water-soluble vitamins can be lost by exposure to high temperatures, high pressure, oxygen and enzymes. Therefore, the following should be practised in order to reduce vitamin loss:

- Store foods out of direct sunlight
- Cut vegetables when you need them – so as not to expose to oxygen
- Soak vegetables for a short time when cooking them to reduce exposure to temperature and water
- Steam vegetables when possible
- Avoid damaged fruit and vegetables – bruised vegetables release enzymes that can reduce vitamin C.

2 Micronutrients – minerals and water

Micronutrients (minerals)

Micronutrients are needed by the body in small amounts

Calcium (Ca)

- Works together with phosphorus and vitamin D to ensure proper bone and tooth health
- Helps blood clotting
- Ensures proper functioning of nerves and muscles

Excess: Kidneys – effect of calcium deficiency in children, in which bones don't grow properly and impair movement. Osteoporosis – effect of calcium deficiency in adults, in which bones become weak, brittle, easy-to-break and heal slowly.

Deficiency: Commonly found in milk and dairy products. Also present in nuts, bread and cereals, oily fish and green vegetables.

DRV: 700mg daily

Iron (Fe)

Necessary for building red blood cells

Haem iron (Easily absorbed by the body)
Red meat, offal, egg yolk

Non-haem iron (Difficult to absorb)
Green leafy vegetables, dried fruit, chocolate, lentils

Iron deficiency anaemia – symptoms include: pale complexion, tiredness, weak and split nails, deficiency

Deficiency is usually caused by: loss of blood, impaired absorption or genetic disorders.

Stomach ache, Nausea, Vomiting, Constipation

Haemoglobin – red pigment in the blood cells which carries oxygen around the body

Menstruation Part of the female monthly cycle when bleeding occurs

DRV: 11 mg boys / 15 mg girls

Water

Water is LOST from the body by:

- Breathing – lungs, mouth and nose
- Body waste – kidneys and intestines
- Sweating – skin

Water

- ✓ Cools the body down and maintains stable body heat
- ✓ Helps digestion
- ✓ Removes toxins
- ✓ Eliminates waste
- ✓ Provides important minerals, such as calcium

This can lead to...

HEAT STROKE: Uncontrolled, life-threatening increase in body temperature

DEHYDRATION: A harmful reduction in water loss in the body

HYDRATION: Amount of water necessary for proper functioning of the body

Adults should drink around 2 litres of water a day!

Drink more:

- on hot, sunny days
- when you exercise a lot
- when you have a fever
- when you want to lose weight

DRV: 6.5 g of salt daily

Phosphorus (P)

- Works together with calcium and vitamin D to ensure proper bone and tooth health
- Essential for energy release

Excess: Tiredness, Depression

Deficiency: Decalcification of bones, Weak, brittle bones

Milk and dairy, Bread and cereals, Nuts, meat and fish

DRV: 550 mg

Iodine (I)

- Builds hormones in the thyroid gland
- Controls the rate of metabolism

Excess: Weight gain, Swelling of the thyroid (goitre), change in metabolism

Deficiency: Thyroid: small gland in the front of the neck

Red meat, sea fish, shellfish, cereals, grains, Nuts, meat and fish. Iodine is also added to salt

DRV: 140 mcg daily

Fluoride (F)

- Builds and strengthens tooth enamel

Excess: Brittle tooth enamel, Tooth decay

Deficiency: Tooth decay / dental caries

Bony fish (e.g. sardines) and seafood, tea, toothpaste and mouthwash

Fluoride is also added to drinking water by fluoridation

DRV: 3.5 mg daily

Sodium (Na)

- Maintains body water balance
- Important for the conduction of nerve impulses

Excess: High blood pressure = hypertension, Heart failure and stroke, Kidney damage

Deficiency: Muscle cramps, Swelling of the body

Sources:

- Kitchen salt
- Tinned foods (e.g. Fish)
- Processed foods and fast foods
- Salty snacks (e.g. crisps and nuts)
- Smoked and cured meats, bacon, cheese
- Bread

Food Technology

Food Nutrition and Health

MAKING INFORMED CHOICES for a varied and balanced diet Planning meals for specific dietary groups

Current Guidelines

Nutritional needs of people differ depending on:

- Age, weight, height
- Sex/gender
- Physical activity levels
- Diet of health

However, general guidance can be taken from the Eatwell Guide (below).



Some people cannot, or do not want to, eat certain products. It is important to take that into account when planning a meal or diet for them.

Lactose intolerance

Common condition in which lactose cannot be digested, causing painful bloating, stomach pains and diarrhoea.

Lactose is a disaccharide present in milk.

Milk and dairy products should be avoided by lactose intolerant people.

Celiac disease

- Inborn disease characterised by intolerance to gluten.
- Gluten intake causes inflammation and damage to the intestines, impairing nutrient absorption and leading to malnutrition.

Gluten is a protein found in wheat, rye, barley and oats.

A celiac has to follow a gluten-free diet for their whole life.

Rice, potatoes, buckwheat and quinoa are gluten-free.

Vegetarians

People who do not eat meat and sometimes other foods of animal origin.

- Lacto-ovo vegetarians eat dairy and eggs
- Lacto-vegetarians eat dairy
- Ovo-vegetarians eat eggs
- Pesco-vegetarians eat fish

Vegans

People who do not eat any foods of animal origin, such as meat, fish, milk and dairy, eggs, honey and butter. Often avoid using other products of animal origin, such as leather clothing, fur, feathers, etc. All foods eaten are plant-based. Vegans are at risk of developing vitamin B12 deficiency and anaemia.

High-fibre diets

- Help prevent obesity, coronary heart disease, type 2 diabetes and some cancers
 - Dietary fibre is a group of polysaccharides, usually indigestible for humans, present in the cell walls of plants
 - Adults should eat 30 g of dietary fibre daily to remain healthy and prevent certain diseases
- #### Soluble fibre:

 - Increases satiety
 - Slows down sugar ingestion and prevents type 2 diabetes

Insoluble fibre:

 - Regulates bowel movements
 - Prevents constipation
 - Binds toxins and harmful substances
 - Fibre-rich foods include: cereals, wholegrain products, raw vegetables

How nutritional needs vary depending on age

As we age, our nutritional needs change due to a number of reasons.

Young children

- Growth spurt means young children require more protein, calcium and vitamin D
- Teething means they require more calcium, fluoride and vitamin D
- More vitamins and minerals are needed to help support the developing immune system
- Fewer sugary sweets and drinks should be consumed to prevent overweight and tooth decay.

Teenagers

- Calcium and vitamin D should be consumed to support growth spurts and help reach skeletal mass
- Teen girls need more iron to prevent anaemia caused by menstruation
- Eat regularly to provide more energy for increased physical and intellectual activity
- Should consume fewer sweets and sugary drinks, do more physical activity and drink more water to prevent obesity and other health conditions

Adults and the elderly

- More dietary fibre should be consumed to prevent obesity, diabetes and cancers
- More vitamin D and calcium is required to maintain strong bones
- Fewer sugary snacks and drinks to prevent diabetes, coronary heart disease and obesity
- Elderly people are less active, so less energy is needed from energy dense foods
- More iron to prevent anaemia and maintain healthy red blood cells.
- Less salt and more water should be consumed, and more activity done, to reduce hypertension.

Portion size and costing when planning a meal

Eating the correct portion size can help ensure that an individual's nutritional and energy needs are met.

A portion is the amount of food eaten in one meal.

Planning meals and shopping in advance helps assess the cost and stay within the family budget.

Family budget is the amount of money allocated to spend on food or other goods. Children may be using pocket money to force their parents into buying sweets, toys or other things.

How to carry out nutritional analysis

Nutritional analysis allows you to measure the nutritional value of the food we eat. The following can be used to help you analyse foods:

- Food tables - contain data on all nutrients in a given food
- Nutritional analysis software - helps plan a meal and/or diet for specific target groups or plan a balanced diet.

This allows you to assess the needs of the consumer: their preferences, health conditions, age, etc.

Providing proper amounts of nutrients can help to improve and maintain health.

Modifying recipes

- You can modify your recipes to make a given meal more suitable for different groups or individuals through a number of ways:
- Substitute ingredients, e.g. soy chunks for meat
 - Reduce the amount of sugar, salt, fat or other ingredients
 - Replace ingredients with low-fat, low-protein or high-fibre alternatives
 - Choose low-fat dressings and sauces, e.g. yogurt instead of mayo
 - Substitute saturated fats with unsaturated ones if possible
 - Change the consistency of the dish

Food Science

Cooking of food and heat transfer

Why do we cook food?

Applying heat to food is advantageous for a number of reasons. It not only makes the food safe to eat, but also gives it the desired palatability and organoleptic qualities.

	Explanation	Example
To make it safe to eat	Heat kills bacteria and parasites, inactivates harmful enzymes and toxins	Salmonella in chicken, listeria in milk, aflatoxin in potatoes and green tomatoes
To develop flavour	Water evaporation makes flavour more pronounced, sugar caramelisation and other reactions change the initial flavour of the food	Stew, goulash, soups, crème brûlée
To improve texture	Cooking alters the texture of food products, making them easier to chew and more pleasurable to eat	Roast meat becomes softer and easier to chew; chips become crunchy
To improve shelf life	Cooking kills microorganisms which could spoil the food, so it can be stored for longer	Clostridium botulinum in meat preserves, mould in jam
To increase variety	One product may be cooked in many different ways	Potatoes can be served boiled, mashed, as chips, in a salad, roasted, dauphinoise, etc.

Heat transfer

Various methods of heat transfer are often combined to obtain the desired meal.

	Conduction	Convection	Radiation
How heat is transferred	Direct transfer of heat from the cooktop to the food inside → Heat makes metal particles vibrate → Vibrations of the metal are transferred to the particles of food → Food particles vibrate and the meal heats up	Indirect transfer of the heat through water or air Convection current makes the hot air / steam go up while the colder air falls	Indirect transfer of heat through heat waves → Microwaves send electromagnetic waves, which heat up water particles in the food → Water particles begin to vibrate and, therefore, heat up the whole meal Infrared radiation is used in grills and barbecues
Pattern	Hot → pan → food	Oven → Air → Food	Heat → waves → food
Example	• Melting butter in a pan • Boiling water • Roasting meat	• Steaming vegetables • Boiling eggs • Baking muffins	• Grilling meat • Tasting bread • Microwaving soup



Cooking methods...

Cooking improves the shelf life of food. Cooked food can be safely stored and eaten for longer than raw food.



Methods of cooking

Various methods of cooking have different effects on the nutritional value and palatability of food. Choosing the right method helps to obtain a desired meal without decreasing the amount of vitamins and minerals in it.

How does cooking affect food?

Appearance	Meats shrink, cakes rise, eggs become solid, sauces thicken, rice and pasta increase in size.
Colour	Foods become golden or brown. Red and green vegetables may lose colour.
Flavour	Flavours become sweeter, more pronounced, rich.
Texture	Eggs firm, vegetables and meats soften, chips become crunchy, bread becomes crispy, custard becomes creamy, sauces thicken.
Smell	Is more pronounced because essential oils fill the air and are more easily detected by the olfactory system.

At high temperatures, sugar and protein react with each other, producing brown compounds which affect the colour, taste and smell of foods such as cocoa or coffee. This is called the Maillard reaction.



During cooking, onion becomes brown, soft and sweet.

Water-based methods

Steaming	Helps preserve nutritional value of food. Low in fat.
Boiling	May cause vitamin loss. Low in fat.
Simmering	Long time required. Causes vitamin loss.
Blanching	Prevents enzyme browning and oxidation, preserves nutritional value.
Poaching	Ideal for preparing delicate ingredients.
Braising	Long time required. Causes vitamin loss

Dry methods

Baking	Long time required. Causes vitamin loss. Palatability is improved (crispy and other baked goods become spongy-like and often have crispy text).
Roasting	Helps to reduce amount of fat in food. Long time required. Decreases vitamin content. Helps to obtain a crispy skin or surface.
Grilling	May create harmful substances. Usually low in fat.
Dry-frying	Reduces amount of fat in food. Nutritional value is preserved.

Oil-based methods

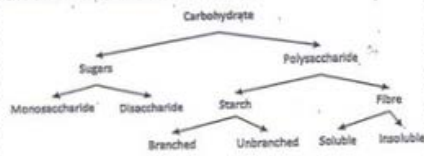
Deep-frying	Foods become golden and crunchy, but their nutritional value is poor (loss of vitamins, and high fat content).
Shallow-frying	Seals the surface of food and helps to obtain crunchy top and juicy interior.
Sautéing	Low-fat. Helps to preserve nutritional value of food.

Food Technology

The chemical structure of food ingredients plays a vital role in how they can be used in cooking. Applying heat to proteins, carbohydrates and fats usually damages their structure, which helps to obtain the desired effect.

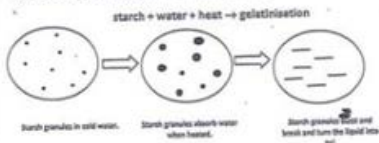
Carbohydrates

Macromolecules which include mono-, di- and polysaccharides (built of thousands of monosaccharides bonded together)



Functional and chemical properties:

1. Gelatinisation – happens when starch granules absorb water, swell and break during heating, causing mixture to thicken and form a gel when cooled; used to prepare sauces and puddings.



2. Dextrinisation – happens when starch chains break down into shorter chains of dextrins; during the process, molecules of water evaporate and carbon is left to give brown colour; occurs during baking and toasting bread and other baked goods.

starch + heat → dextrinisation

3. Caramelisation – happens when sugar is heated to a very high temperature, causing it to liquefy and form a thick, brown syrup; during the process, water evaporates and carbon is left to create a brown or black colour; occurs during roasting of vegetables, making caramel and fudge, etc.

sugar + heat → caramelisation

Raising Agents

Some ingredients and processes are used in cooking to allow gases into a mixture causing it to rise in order to create a desired texture.

Three gases are used for leavening:

- air – introduced by mechanical processes
- carbon dioxide – introduced by biological and chemical processes, such as yeast in bread or using bicarbonate of soda
- water vapour (steam)

Raising agents are used to:

- lighten the texture of the food
- enable raising during cooking
- make food more appetising

Mechanical raising agents

Mechanical methods trap air bubbles in the mixture or between layers. During cooking the air expands, causing the mixture to rise.

Method	Examples
Whisking	meringue, whisked sponge, cloud eggs
Beating	batter, rich sponge
Folding	flaky pastry, filo pastry
Rubbing in	pastry, scones, crumble
Sieving	sponge, pastry, scones
Creaming	rich sponge, cakes, buttercream

Steam or water vapour is the gaseous form of water. It is produced each time a wet food is heated up. As the hot steam rises and expands, it causes a pastry or dough to rise with it.

Biological raising agents

Yeast is a single-celled fungus used in the production of baked goods, cheese, wine and beer.

Yeast + sugar + warmth + liquid → carbon dioxide + alcohol/acid

During fermentation, yeast transforms sugar into carbon dioxide and alcohol or acid. The carbon dioxide causes small bubbles to form, raising the dough.

Chemical raising agents

Bicarbonate of soda + acid + water + heat → carbon dioxide + water

Baking powder = bicarbonate of soda + calcium phosphate

- Baking powder doesn't need the addition of acid because it already contains an acidic ingredient.
- Self-raising flour contains baking powder or other leavening agents.
- During baking, CO₂ bubbles form and cause the batter to rise, while proteins set and, therefore, a cake obtains a stable structure.

Food poisoning

- Food poisoning is a disease caused by eating spoiled or contaminated food. Such food may contain certain microorganisms, toxins or enzymes.
- Microorganisms which cause diseases are called pathogenic.
- A person who carries a pathogen but shows no symptoms of a disease is called a carrier.



Food poisoning bacteria and where to find them:

- X *Campylobacter* → raw poultry and unpasteurised milk
- X *E. coli* → undercooked beef, unwashed vegetables, dirty hands
- X *Salmonella* → raw eggs, meat and poultry, unpasteurised milk
- X *Listeria* → ready-to-eat foods, unpasteurised milk, dirty hands
- X *Staphylococcus aureus* → salads, ham, egg, tuna, poultry, cream, hands of an infected person

Symptoms of food poisoning:

- Stomach pains and cramps
- Nausea and vomiting
- Diarrhoea
- Fever
- Shivering

Cross-contamination and food poisoning may be avoided by:

- washing hands after dealing with high-risk foods, rubbish or using a toilet
- properly cleaning work surfaces and utensils
- using dedicated, colour-coded utensils only
- storing food in proper conditions
- storing raw and cooked foods separately
- cooking food thoroughly before eating
- applying food safety standards and schemes, such as the British Lion Scheme

British Lion Scheme

Food safety mark which guarantees that eggs are produced in the UK and that all the hens have been vaccinated against salmonella.



Food temperature probe

Helps measure the temperature in the food core and ensures that it is properly cooked

- Clean and disinfect the probe before using
- Insert into the thickest part of the food, making sure not to touch the tin or bone with the tip of the probe
- Wait a couple of minutes for the temperature to stabilise
- Read the temperature
- Remove the probe
- Clean and disinfect after use



Genetically modified foods

Come from GM animals or plants, or GM microorganisms are used during production.

- resistance to pests and unfavourable weather conditions
- more nutrients, e.g. beta-carotene in Golden Rice
- fewer pesticides and herbicides are used
- higher yield of crops = more food
- stay fresh for longer, shelf life is improved
- no known long-term health effects
- use of viruses and bacteria may pose risk of spreading new diseases
- GM seeds can contaminate natural habitats and decrease species variety
- pests, bacteria and viruses may develop resistance and pose new risks

Food Technology

Food labelling

Proper labelling of food products is important to ensure food safety (e.g. for allergy sufferers) and nutritional education (e.g. for those who wish to lead a healthy lifestyle).

1 Name of the food is important so that people know what is inside the package, e.g. butter or butter-like spread

2 Use by – applies to food safety; it may be harmful to eat food after this date; used on fresh, perishable foods such as milk, dairy and fresh meat

Best before – applies to food quality; it is usually safe to eat the food after this date, although its flavour, colour or appearance may be changed; used on dried, preserved or tinned foods such as jams and pasta

3 Quantity is given so that it is easier to compare prices between products, and so that the consumer knows how many portions of food the package contains

4 Warnings are given as necessary, e.g. may contain nuts, source of phenylalanine

5 List of ingredients is shown in descending order, from the one which is used in the largest amount to the one which is used in the smallest amount

6 Name of the company is important to track where the food comes from in case of food spoilage, anaphylactic reactions, pieces of glass inside, etc.

7 The lot number is useful in case of food spoilage or contamination – it is easier to track the whole lot and remove it from the market

8 Storage conditions are given if needed, e.g. refrigerate after opening, suitable for freezing

9 Instruction for preparation helps people to properly prepare and enjoy the food, without poisoning themselves

10 Country of origin is important to track in case of food poisoning, but also for people who prefer to eat locally produced food

Food legislation authorities



European Parliament and the European Council



Food Standards Agency

Food label: mandatory information

- 1 Name of the food
- 2 Date marks
- 3 Quantity, e.g. in litres, grams or pieces
- 4 Warnings
- 5 List of ingredients
- 6 Name and address of the producing, packing or selling company
- 7 The lot number
- 8 Special storage conditions
- 9 Necessary instructions for use or preparation
- 10 Country of origin
- 11 Allergens
- 12 Nutrition declaration

11 Allergens – ingredients which may cause an allergic reaction – are shown in bold

List of allergens which HAVE to be indicated on the label

- X Cereals containing gluten: wheat, rye, barley, oats
- X Peanuts
- X Nuts: almond, hazelnut, walnut, cashew, pecan, Brazil, pistachio, macadamia, Queensland nut, e.g. **flavourings (almond)**
- X Mustard
- X Sesame, e.g. **tahini (sesame)**
- X Soybeans, e.g. **tofu (soya)**
- X Fish, e.g. **cod (fish), salmon (fish)**
- X Crustaceans: prawns, crayfish, lobster, shrimp
- X Molluscs: oyster, squid, cockles, mussels, winkles, scallops, snails, e.g. **oyster sauce (molluscs)**
- X Lupin
- X Eggs, e.g. **powdered yolk (eggs)**
- X Celery
- X Milk, e.g. **Cheddar cheese (from milk)**
- X Sulphur dioxide or sulphites, e.g. **preservative (sulphur dioxide)**

12 Nutrition declaration informs consumers of the amount of certain nutrients per 100 g or portion of product and % of GDA it provides.

Traffic light label may be used to indicate low (green), medium (amber) or high (red) amounts of sugar, fats, saturated fats, and salt in a portion of a food product.

Protein	8.8g	0.6g	1%	50g
Salt	1.55g	0.10g	2%	6g

Energy (Total Fat)	2%
Fat	3%
Saturated	4%
Sugars	2%
Salt	2%

Non-mandatory information

Some food labels may include non-mandatory information, such as a picture of the food, health and nutritional claims or serving suggestions.

GDA – guideline daily amount – amount of a nutrient a person should eat each day to remain healthy and avoid under- or over-nutrition

Nutritional claim
Statement regarding nutrient content, e.g. 'low energy', 'low fat', 'sugar free', 'source of vitamin C'

Health claim
Statement suggesting potential health benefits of eating a given product, e.g. *Calcium is needed for the maintenance of healthy teeth and bones*

Nutrients have to be listed in a specific order...

- Energy
- Fat, inc. saturates
- Carbohydrates, inc. sugars
- Fibre, if any
- Proteins
- Salt or sodium
- Vitamins and minerals

Food Technology

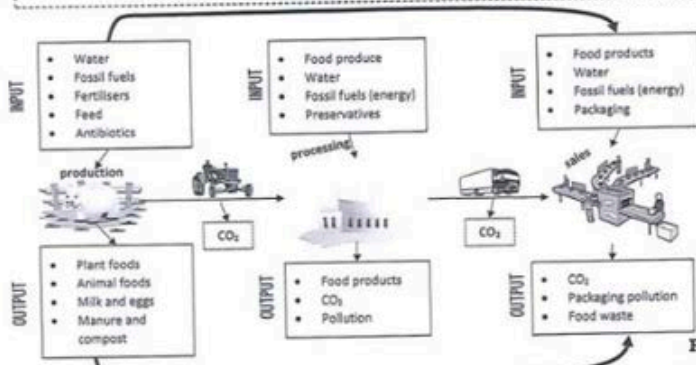
13 Food Provenance

Why is carbon dioxide so dangerous?

Food production, at each of its stages, emits large amounts of carbon dioxide. Carbon dioxide creates an impermeable layer around Earth. When warmth is reflected from the Earth's surface, it is caught by that layer and bounces back. As a result, the average temperature on Earth rises, and that affects plant and animal species.

Carbon footprint

The amount of carbon dioxide and other greenhouse gases emitted into the environment during production and transportation of a product



Food miles

The distance from the field to the plate of the consumer – importing food products from distant countries increases the food miles

How food production affects the environment and communities

Food production has a direct and an indirect effect on the environment by creating various pollutants or by causing deforestation. The way we produce and transport food is also meaningful to those who produce it: farmers, farm workers, and even people working in your local shop.

Packaging

- Fossil fuels are used to produce many types of packaging
- Tonnes of used packaging are thrown away every day
- Unrecycled packaging creates pollution
- Animals, birds and fish swallow the debris and die
- Some materials used for packaging NEVER decompose!



Fairtrade

A foundation and ethical movement focused on supporting farmers and sustainability of food.

Advantages of Fairtrade:

- ✓ Ensures fair wages and prices
- ✓ Improves working conditions
- ✓ Empowers local communities, farmers and workers
- ✓ Supports education and growth in developing countries
- ✓ Helps to protect the environment



Food and the environment, and sustainability of food

Each step of food production has a huge impact on the environment. Overexploitation of natural resources, such as water, soil and fossil fuels, together with transportation and packaging of food, contribute significantly to climate change.

Climate change

... the effect of this process is known as global warming. Global warming means that climate conditions change and plants cannot grow anymore, because they are not used to the new conditions. Also, as it is warmer, oceans evaporate faster, and this leads to severe hurricanes and massive rainfall, which damage even more crops by causing flooding.

Carbon dioxide and other greenhouse gases create a layer around Earth

The heat cannot escape into space and the temperature of the atmosphere rises

Glaciers melt and sea levels rise, while oceans evaporate faster due to higher temperatures

Fierce hurricanes, rainfall and tornadoes devastate the land

Crop failure due to floods and droughts

Food shortages, famine, wars and death

Greenhouse gases

Vapour, CO₂, nitrous oxide, methane, ozone, CFCs absorb infrared radiation and trap heat

Global warming

Rise in average temperature on Earth due to extravagant release of greenhouse gases



Food availability

Climate change affects food availability. Droughts caused by faster evaporation of waters, and floods caused by massive rainfall are causes of crop failure around the world. Crop failure means that there are no plants to eat, and no food for animals.

Food security – when all people, at any time, have access to nutritious, healthy food in sufficient amount

Food availability may be increased by:

- ✓ The use of GM seeds and organisms to produce more food
- ✓ Modern technologies to store food for longer
- ✓ Transportation of food around the world, e.g. to those who affected by famine

Food availability may be decreased by:

- ✗ Climate change and the effects of global warming
- ✗ Insufficient land for growing food
- ✗ Growing world population which requires more food
- ✗ Overexploitation of soil and fisheries
- ✗ Limited resources such as water and fossil fuels

Seasonal foods

Food products which are characteristic of a given season, because this is when they are ripe and are harvested

Spring: sprouts, kale, lettuce, spring onion, radish

Summer: peas, berries, courgettes, cucumbers, apricots, cherries

Autumn: apples, pears, plums, aubergine, pumpkin, celery

Winter: potatoes, carrots, parsnips, beetroots, Brussel sprouts, onions

Advantages of seasonal foods:

- ✓ Are often produced locally, so reduce food miles and carbon footprint
- ✓ Are cheaper in season
- ✓ Are higher in nutrients and tastier than off season

Food waste

Reasons:

- Buy and cook too much
- Don't eat the food before it goes off

Effects:

→ Waste of money, pollution, carbon footprint increase

Methods of prevention:

- Plan shopping, don't go shopping when hungry
- Only cook as much food as needed
- Eat everything on the plate or store leftovers for later
- Reuse food products to make new meals
- Store food correctly to avoid spoilage
- Use peelings and scraps to make compost

Geography



What exams will I do?

During the June assessment window, you will sit an assessment in lesson based on everything you have studied so far as part of the Geography GCSE course.

You will be sitting the following papers:

Paper	Title	Time
1	Living with the Physical Environment	60 minutes
1	Challenges in the Human Environment	60 minutes

What topics should I revise?

Paper 1

Paper 2

The Challenge of Natural Hazards:

- Extreme weather in the UK –Somerset Level Floods 2013/2014
- Climate change –mitigation and adaptation strategies
- Tropical Storms –Prediction and Monitoring, Planning and Protection strategies.
- Japan (2011) and Nepal (2015) Earthquakes – effects and responses

River landscapes in the UK:

- Flood Hydrographs
- Formation of upper course features
- Flood management –Hard and Soft engineering

Urban Issues and Challenges:

- Why cities grow over time –Natural Increase and Migration
- The importance of Birmingham on a variety of scales –National and International
- Social and Economic opportunities in LIC/NEE cities –Rio de Janeiro
- Environmental Issues in LIC/NEE cities –Rio de Janeiro

The Challenge of Resource Management:

- Organic Farming in the UK
- Water pollution and Quality in the UK

Water:

- Factors that affect water availability
- Strategies to increase water supplies

How do I revise?

These are some ideas on what you can use to revise on the next page but here is a summary:



Complete practice exam questions –use any AQA GCSE questions, give them to your teacher for advice/feedback.



Use the revision clock method –spend a short time reviewing a topic, test yourself (quiz/exam question) and check it against notes.



Make your brain work hard –create a flow diagram, self-quiz, read cover write check, mind map or flashcards; aim to recall all that you know!

Where can I get revision materials?

Teachers will be able to upload revision materials onto ClassCharts to support your revision. Don't forget you can also use:

- SENeca
- CGP Revision Guide
- Case Study revision guide
- Your exercise book(s)

If you need further guidance then speak to your Geography teacher or send them an email!

Geography



“Geography explains the past, illuminates the present and prepares us for the future” –Michael Palin

The basics



Limit all distractions



Find a nice space to revise



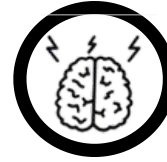
Put in the maximum effort



Create and use a plan



Set an alarm to start early



Revise, repeat, remember



Eat, sleep and take breaks

Flashcards

Simple to create –put questions on one side and answers on the other side. These are great for knowledge questions that have a clear right answer.

You can colour-code for specific topics and quiz yourself and others.

Recommended uses:

- Key terms –create for keywords and definitions.
- Case studies –place specific detail to showcase what you know to the examiner.

Retrieval practice

Testing what you know is a powerful tool in revision, the effort to remember something strengthens your memory. You can create quizzes using the following types of questions:

- Multiple choice questions
- True or false statements
- Short explanation questions
- Odd one out
- If this is the answer then what is the question?

Transform it

Graphic organisers are a great way of ‘transforming’ your notes/information into visual revision topics. They can be used to create links or identify the causes/consequences.

Recommended uses:

- Sequence –create a visual flow diagram of a series of events e.g. the formation of a crack, cave, arch, stack, stump of the water cycle.
- Cause and effect –create a double-spray mind map showing the causes and consequences of an event e.g. the economic opportunities and challenges of Birmingham’s growth.

Dualcoding

This is the method of combining visual diagrams with written words to increase your chance of remembering it.

How to:

1. Use simple drawings with matching simple descriptions.
2. The drawings should represent your understanding of the topic and make links between the images.

An example that you can do in Geography is show the different challenges faced in a favela due to urban growth.

Deliberate practice

Set aside time to practice improving your knowledge or skills. Choose what you need to do. It must be tough enough to challenge you, and practice, practice, practice.

Recommended uses:

- Use a model answer from the teacher, analyse it, then answer a similar question using a similar approach.
- Study material, complete practice questions in timed conditions, then use your notes/revision guides to make improvements. Repeat a similar question a week later.

Read, cover, write, check

Test what you can remember using your exercise book, knowledge organiser, revision guide, case study booklet or other resource.

Choose a section, read the information multiple times, cover it over and write down as much as you can remember. Check what you got and what you are missing. Next time around really focus on what you forgot –this highlights an important gap in your knowledge.

This is a great method you can do with your fellow Geographers –compare notes and test each other; research shows you learn the most from your peers!

The big picture

The best way to aid your understanding of Geography is to make sure you are confident with the big ‘overview’ of the subject.

Recommended uses:

- Mapping out what you know about areas of the specification/topics before you start revising these areas.
- Create a mind-map showing the connections within and between topics that you have studied.

History - Paper 1



EDEXCEL GCSE HISTORY FOUNDATIONAL KNOWLEDGE

Paper 1: Medicine in Britain (c1250-present) *and* The British sector of the Western Front (1914-18)

KEY TOPIC 1: MEDICINE IN MEDIEVAL ENGLAND (c1250-c1500)

Specification	What do I need to know?
<p>Ideas about the cause of disease and illness</p> <p>Supernatural and religious explanations of the cause of disease.</p>	<ul style="list-style-type: none"> • Medieval people believed that God controlled everything, including health. • Illness was often seen as a punishment for sin, meaning God sent disease when people behaved badly. • Religious leaders encouraged people to pray, confess and live good lives to avoid illness. • Many also believed in supernatural causes, such as: <ul style="list-style-type: none"> - Astrology – the idea that the position of the stars and planets could cause or predict disease. - Strange or unexplainable events being linked to bad luck or evil forces. • Because of these beliefs, people focused more on prayer and spiritual cures rather than science.
<p>Ideas about the cause of disease and illness</p> <p>Rational explanations: the Theory of the Four Humours and the miasma theory; the continuing influence in England of Galen.</p>	<p>Theory of the Four Humours</p> <ul style="list-style-type: none"> • Was first suggested by the ancient Greek doctor Hippocrates, and made popular in medieval England through Galen and the Theory of Opposites (treating an imbalance with the opposite so for example something cold to treat a hot fever). • The humours were: blood, phlegm, black bile and yellow bile. • People believed illness happened when these humours became unbalanced. • This explained why treatments like bleeding or purging were used as they were to try to restore balance. <p>Miasma Theory</p> <ul style="list-style-type: none"> • People believed that bad air (miasma) caused disease. • Smelly places like, rubbish heaps, and swampy areas were seen as dangerous. <p>Galen's Influence</p> <ul style="list-style-type: none"> • Galen was a respected ancient Roman doctor. • His books were used in medieval medical training. • The Church supported Galen because he believed in one God, so his ideas were not questioned by the Church. • As a result, doctors repeated his ideas for centuries, but this slowed medical progress.
<p>Approaches to prevention and treatment</p> <p>Approaches to prevention and treatment, and their connection with ideas about disease and</p>	<p>If disease was caused by God:</p> <ul style="list-style-type: none"> • People prayed and went on pilgrimages. <p>If disease was caused by the Humours:</p> <ul style="list-style-type: none"> • Bloodletting (cutting a vein or using leeches). • Purging (making the person vomit or empty their bowels - poo). • Doctors aimed to rebalance the body, even though these treatments often made people worse.



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illness: religious actions, bloodletting and purging, purifying the air.	If disease was caused by miasma: <ul style="list-style-type: none"> Burning herbs and spices like lavender to improve the smell of the air.
Approaches to prevention and treatment	Physicians (Doctors): <ul style="list-style-type: none"> Trained at universities for many years. Used astrology, urine charts and the Four Humours to diagnose problems. Very expensive, so mainly used by the rich. Apothecaries: <ul style="list-style-type: none"> Learned through apprenticeships rather than university training. Mixed herbal remedies for patients. Cheaper than physicians. Barber Surgeons: <ul style="list-style-type: none"> Performed minor surgery (e.g., pulling teeth, bloodletting). Had basic training and were cheaper than physicians. Hospitals: <ul style="list-style-type: none"> Mostly run by the Church. Main focus was care not cure. Patients were given food, rest, and prayer. Home Care: <ul style="list-style-type: none"> Most people were treated at home by women using herbal remedies and family knowledge.
Case study Dealing with the Black Death, 1348-49: approaches to treatment and attempts to prevent its spread.	Treatments: <ul style="list-style-type: none"> Praying and confessing sins to seek God's forgiveness. Using strong herbal mixtures to fight the disease. Bleeding or purging to rebalance the humours. Popping buboes (swollen lumps) but this was very dangerous. Prevention: <ul style="list-style-type: none"> People avoided the sick or left towns. Carried flowers or herbs (like rosemary) to protect themselves from miasma. Cleaned streets to improve air quality.

KEY TOPIC 2: THE MEDICAL RENAISSANCE IN ENGLAND (c1500-c1700)

Specification	What do I need to know?
Ideas about the cause of disease	During the Renaissance, people still held onto many medieval beliefs, but new scientific thinking also began to develop. <ul style="list-style-type: none"> Continuity and change in explanations of the cause of disease and illness: A scientific approach, including the work of Thomas Sydenham in improving diagnosis.
Approaches to prevention and treatment	Continuity and change in approaches to prevention, treatment and care in the community and in hospitals. <ul style="list-style-type: none"> Change (new ideas developing): <ul style="list-style-type: none"> There was a growing belief that doctors should observe patients carefully rather than relying only on old books. Scientists began to question traditional explanations and look for evidence. Thomas Sydenham: <ul style="list-style-type: none"> A key individual who encouraged doctors to observe the symptoms of the disease rather than the patient's personality or horoscope. He believed that diseases were separate illnesses, not caused by individual humours. He grouped illnesses by symptoms and promoted a more scientific approach. The Printing Press: <ul style="list-style-type: none"> Invented in the 1400s, but became widely used in the Renaissance. Allowed medical ideas to spread quickly, accurately, and widely. This meant that old ideas could be challenged, because knowledge was no longer controlled only by the Church. The Royal Society (1660): <ul style="list-style-type: none"> A group of scientists who met to share ideas, experiments and discoveries. Encouraged investigation, debate, and recording results. Helped move medicine towards a more evidence based and scientific approach. Continuity (things that stayed the same): <ul style="list-style-type: none"> Many people still used herbal remedies, just as they had in the medieval period. Treatments based on the Four Humours (like bleeding and purging) were still used by many doctors. Change (new developments): <ul style="list-style-type: none"> A growing interest in experimentation encouraged doctors to test new treatments. There was a better understanding of the human body, thanks to



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<p>Approaches to prevention and treatment</p> <p>Improvements in medical training and the influence in England of the work of Vesalius.</p>	<ul style="list-style-type: none"> dissection and studies of the human body. Hospitals slowly began to treat more sick people, not just provide care and prayer. <p>Andreas Vesalius:</p> <ul style="list-style-type: none"> A professor of anatomy (human body) who used dissection to study the human body. Found hundreds of mistakes in Galen's work, showing that Galen had often dissected animals, not humans. His work encouraged doctors to question old ideas and learn from direct observation. As a result of his work, dissection became more common in medical schools and students learned from real bodies, not just books.
<p>Case Studies</p> <p>Key individual: William Harvey and the discovery of the blood circulation of the blood.</p> <p>Dealing with the Great Plague in London (1665): approaches to treatment and attempts to prevent its spread.</p>	<p>William Harvey: Discovery of the circulation of the blood.</p> <ul style="list-style-type: none"> What Harvey discovered: <ul style="list-style-type: none"> Proved that the heart acts as a pump that circulates blood around the body. Showed that blood travels in one direction, through veins and arteries. Why he was important: <ul style="list-style-type: none"> Completely changed the understanding of how the body works. Encouraged doctors to use experimentation and direct observation of the human body. <p>The Great Plague (1665)</p> <ul style="list-style-type: none"> What stayed the same (continuity): <ul style="list-style-type: none"> People still relied on religion, praying and fasting to ask God for help. Many still believed in miasma, so sweet-smelling herbs and fires were used to "clean" the air. Traditional treatments like bleeding were still used. New actions (changes): <ul style="list-style-type: none"> Quarantines were used to stop movement of people. Infected houses were shut and marked with a red cross. Large gatherings were banned to reduce spread. Rakers were employed to clean streets, remove waste, and kill cats and dogs. These early public health measures show the beginning of government action to control disease.



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KEY TOPIC 3: MEDICINE IN EIGHTEENTH AND NINETEENTH CENTURY BRITAIN (c1700-c1900)

Specification	What do I need to know?
<p>Ideas about the cause of disease and illness</p> <p>Continuity and change in explanations of the cause of disease and illness. The influence in Britain of Pasteur's Germ Theory and Koch's work on microbes.</p>	<ul style="list-style-type: none"> During the 1700s and 1800s, there were dramatic changes in understanding disease - far greater than in any earlier period. <p>Continuity (what stayed the same):</p> <ul style="list-style-type: none"> At the start of the period, many people still believed in miasma (the idea that bad air caused illness) <p>Major change: Germ Theory (Louis Pasteur, 1861)</p> <ul style="list-style-type: none"> Pasteur proved that germs caused disease, not bad smells or imbalanced humours. This was a huge turning point because it challenged hundreds of years of incorrect beliefs. <p>Koch's work on microbes: (1880s)</p> <ul style="list-style-type: none"> Robert Koch built on Pasteur's ideas by identifying specific microbes that caused specific diseases. He used dyes and microscopes to match microbes with illnesses (e.g., cholera, anthrax). This helped doctors understand disease more scientifically and accurately.
<p>Approaches to prevention and treatment</p> <p>The extent of change in care and treatment: improvements in hospital care and the influence of Nightingale on nursing and hospitals in Britain. The impact of anaesthetics and antiseptics on surgery.</p>	<p>This period saw huge progress in patient care, hospital cleanliness, and surgical safety.</p> <p>Before:</p> <ul style="list-style-type: none"> Hospitals were often dirty, overcrowded and spread infection. <p>Changes during the period:</p> <ul style="list-style-type: none"> Hospitals became cleaner, more organised and more focused on curing patients, not just caring. More trained nurses and doctors worked in hospitals. <p>Impact of Florence Nightingale:</p> <ul style="list-style-type: none"> During the Crimean War (1850s) She insisted on clean bedding, good ventilation, proper handwashing and fresh air. As a result, death rates fell dramatically due to her strict hygiene. She wrote books on nursing and hospital design and encouraged hospitals to be clean, well ventilated, and better organised. She helped create the first professional nurse training school. Nightingale's work transformed nursing into a respected, skilled profession. <p>Improvements in surgery:</p>



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<p>Approaches to prevention and treatment</p> <p>New approaches to prevention: the development and use of vaccinations and the Public Health Act (1875).</p>	<ul style="list-style-type: none"> • Anaesthetics (pain relief): <ul style="list-style-type: none"> - Before anaesthetics, surgery was fast, painful and traumatic. - Ether and chloroform allowed surgery to be pain-free, meaning deeper and more complex operations could be attempted. • Antiseptics (infection control): <ul style="list-style-type: none"> - Joseph Lister used carbolic acid to clean wounds and surgery equipment. - This reduced infection dramatically and made surgery safer. - Combined with Germ Theory, antiseptics became essential for preventing infection. <p>Surgery became safer, more successful and less feared. Doctors understood the need for cleanliness, sterilisation and hygiene.</p>
<p>Case studies</p> <p>Key individual: Jenner and the development of vaccination.</p> <p>Fighting Cholera in London (1854): attempts to prevent its spread: the significance of Snow and the Broad Street pump.</p>	<ul style="list-style-type: none"> • After Edward Jenner's discovery of the smallpox vaccination (see case study below), more vaccines were slowly developed. • Vaccinations helped prevent illness rather than treating it after infection. <p>Public Health Act (1875)</p> <ul style="list-style-type: none"> • Local authorities had to provide: <ul style="list-style-type: none"> - clean water - proper sewers - regular rubbish collection. • These improvements helped reduce disease by improving hygiene and sanitation. • This showed the government taking responsibility for public health and it reduced diseases like cholera. <p>Edward Jenner</p> <ul style="list-style-type: none"> • What Jenner discovered: <ul style="list-style-type: none"> - Noticed that milkmaids who caught cowpox did not get deadly smallpox. - He tested the idea and proved that cowpox protected people from smallpox. - Created the first true vaccination. • Why Jenner was significant: <ul style="list-style-type: none"> - Saved millions of lives. - His discovery encouraged future vaccination programmes. - Was a huge step forward in preventing disease. <p>John Snow and Cholera</p> <ul style="list-style-type: none"> • Background: <ul style="list-style-type: none"> - Cholera outbreaks caused thousands of deaths. - Many people believed in miasma, but John Snow doubted this. • John Snow's discovery: <ul style="list-style-type: none"> - Snow investigated a local outbreak of cholera. - He created a map showing that cases centred around the Broad



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<p>Specification</p> <p>Ideas about the cause of disease and illness</p> <p>Advances in understanding the causes of illness and disease: the influence of genetic and lifestyle factors on health.</p>	<p>Street water pump.</p> <ul style="list-style-type: none"> - So, he removed the pump handle and cases of cholera dropped rapidly. <ul style="list-style-type: none"> • Significance: <ul style="list-style-type: none"> - He proved cholera was spread by dirty water, not air. - This helped shift opinion towards better water supply and sanitation. - Supported later public health reforms (Public Health Act 1875)
<p>KEY TOPIC 4: MEDICINE IN MODERN BRITAIN (c.1900-Present)</p>	
<p>What do I need to know?</p> <p>By the 1900s, doctors had a far better understanding of disease than ever before.</p> <p>Genetic factors:</p> <ul style="list-style-type: none"> • Scientists discovered that many diseases are caused by genes passed down from parents. • These include conditions like cystic fibrosis. • This marked a major change from earlier ideas. Illness was not caused by bad air or "humours", but by changes inside the body's cells. <p>Lifestyle factors:</p> <ul style="list-style-type: none"> • Modern medicine showed that people's choices and habits can strongly affect health: <ul style="list-style-type: none"> - Smoking can lead to lung cancer and heart disease. - Poor diet can lead to diabetes and obesity. - Lack of exercise can lead to heart problems. - Drinking too much alcohol can lead to liver disease. <p>This helped governments create advice and campaigns to help people live healthier lives.</p> <p>Modern technology means doctors can understand illness far more accurately than in earlier periods.</p> <p>Blood tests:</p> <ul style="list-style-type: none"> • Used to detect infections, cancers, organ problems and more. • Give doctors quick, reliable information. <p>Scans and imaging:</p> <ul style="list-style-type: none"> • X-rays (allow doctors to see bones). • CT and MRI scans (show soft tissue, organs, brain, tumours). • Ultrasound (safe scan used for pregnancy and soft tissues). • These tools allow doctors to diagnose illness before symptoms become severe, improving treatment outcomes. <p>Monitoring equipment:</p>	<p>What do I need to know?</p> <p>By the 1900s, doctors had a far better understanding of disease than ever before.</p> <p>Genetic factors:</p> <ul style="list-style-type: none"> • Scientists discovered that many diseases are caused by genes passed down from parents. • These include conditions like cystic fibrosis. • This marked a major change from earlier ideas. Illness was not caused by bad air or "humours", but by changes inside the body's cells. <p>Lifestyle factors:</p> <ul style="list-style-type: none"> • Modern medicine showed that people's choices and habits can strongly affect health: <ul style="list-style-type: none"> - Smoking can lead to lung cancer and heart disease. - Poor diet can lead to diabetes and obesity. - Lack of exercise can lead to heart problems. - Drinking too much alcohol can lead to liver disease. <p>This helped governments create advice and campaigns to help people live healthier lives.</p> <p>Modern technology means doctors can understand illness far more accurately than in earlier periods.</p> <p>Blood tests:</p> <ul style="list-style-type: none"> • Used to detect infections, cancers, organ problems and more. • Give doctors quick, reliable information. <p>Scans and imaging:</p> <ul style="list-style-type: none"> • X-rays (allow doctors to see bones). • CT and MRI scans (show soft tissue, organs, brain, tumours). • Ultrasound (safe scan used for pregnancy and soft tissues). • These tools allow doctors to diagnose illness before symptoms become severe, improving treatment outcomes. <p>Monitoring equipment:</p>



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Approaches to prevention and treatment	<ul style="list-style-type: none"> • Blood pressure monitors. • Heart rate monitors. • Blood sugar tests for diabetes. <p>Technology makes diagnosis faster, safer and more accurate than ever before. From 1900 onwards, the biggest changes were in access to healthcare and the development of advanced treatments.</p> <ul style="list-style-type: none"> • The NHS (National Health Service) <ul style="list-style-type: none"> - Created in 1948 to give free healthcare to everyone, regardless of wealth. - This was a huge change: previously, only the rich could afford doctors regularly. - This improved access to treatment, vaccines and operations.
Approaches to prevention and treatment	<p>The extent of change in care and treatment. The impact of the NHS and science and technology: improved access to care; advances in medicines; including magic bullets and antibiotics; high-tech medical and surgical treatment in hospitals.</p> <ul style="list-style-type: none"> • Antibiotics <ul style="list-style-type: none"> - Drugs that kill bacteria inside the body. - Penicillin was the first major antibiotic, and it transformed modern medicine. - Antibiotics made infections that were once deadly much easier to treat and meant more people were likely to survive. • Magic bullets <ul style="list-style-type: none"> - Special drugs designed to target one specific disease without harming the body. - The first magic bullet (Sakarsan 606) targeted syphilis. • Modern hospitals use advanced technology to save lives: <ul style="list-style-type: none"> - Organ transplants (kidneys, hearts, livers). - Keyhole surgery — smaller cuts, faster recovery. - Radiotherapy and chemotherapy for cancer. <p>Medicine is now more scientific, precise and technology-driven than ever before.</p>
Approaches to prevention and treatment	<p>New approaches to prevention: mass vaccinations and government lifestyle campaigns.</p> <p>Mass vaccinations</p> <ul style="list-style-type: none"> • The government introduced widespread vaccination programmes against major illnesses such as: <ul style="list-style-type: none"> - Polio. - Measles. • Vaccines help protect individuals and reduce spread in the population. <p>Government lifestyle campaigns</p> <ul style="list-style-type: none"> • Because many illnesses are linked to habits, the government helps educate the public. • Campaigns include: <ul style="list-style-type: none"> - Stop Smoking (one of the most successful). - Change4Life (healthy eating and exercise). • These campaigns aim to prevent disease before it develops.



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Case studies	<p>Key individuals: Fleming, Florey and Chain's development of penicillin.</p> <p>The fight against lung cancer in the twenty-first century: the use of science and technology in diagnosis and treatment: government action.</p>	<p>Alexander Fleming (1928)</p> <ul style="list-style-type: none"> • Discovered penicillin accidentally while studying bacteria. • Noticed that mould on a Petri dish killed nearby bacteria and recognised it could be used to fight infections. • But Fleming could not turn it into a medicine because he lacked money and equipment to develop large amounts. <p>Florey and Chain (1940s)</p> <ul style="list-style-type: none"> • Built on Fleming's discovery. • Used laboratories at Oxford to turn penicillin into a usable treatment. • Tested it successfully on infected mice and a human patient. • During World War II, mass production began, saving thousands of soldiers' lives. <p>Why penicillin was significant</p> <ul style="list-style-type: none"> • First true antibiotic which led to many more lifesaving antibiotics being created. • Was a huge leap forward in treating bacterial infections. <p>The Fight Against Lung Cancer in the 21st Century</p> <ul style="list-style-type: none"> • Diagnosis using science and technology <ul style="list-style-type: none"> - CT scans and X-rays to spot lung tumours - Bronchoscopy (camera into lungs) - Blood tests and biopsies to identify cancer types • Earlier diagnosis improves survival. <p>Treatment</p> <ul style="list-style-type: none"> • Surgery to remove tumours - Radiotherapy to destroy cancer cells - Chemotherapy <p>Government action</p> <ul style="list-style-type: none"> - Smoking bans in public places - Warnings on cigarette packets - Health campaigns warning about the dangers of smoking <ul style="list-style-type: none"> • These measures aim to reduce smoking, the leading cause of lung cancer. 	<p>Key Individual</p> <p>Galen</p> <p>Time Period</p> <p>Medieval period (ideas used c1250–c1500)</p> <p>Thomas Sydenham</p> <p>Renaissance (c1500–c1700)</p> <p>Significance</p> <p>His writings shaped medieval medicine. Doctors followed his ideas on anatomy and he was strongly supported by the Church.</p> <p>Encouraged doctors to observe symptoms carefully and treat diseases as separate illnesses. Helped move medicine towards scientific thinking.</p>
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KEY INDIVIDUALS AND SIGNIFICANCE

Key Individual	Time Period	Significance
Galen	Medieval period (ideas used c1250–c1500)	His writings shaped medieval medicine. Doctors followed his ideas on anatomy and he was strongly supported by the Church.
Thomas Sydenham	Renaissance (c1500–c1700)	Encouraged doctors to observe symptoms carefully and treat diseases as separate illnesses. Helped move medicine towards scientific thinking.



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Vesalius	Renaissance (c1500–c1700)	Improved knowledge of human anatomy (the human body) through dissections and proved many of Galen's ideas wrong.
William Harvey	Renaissance (c1500–c1700)	Discovered the circulation of the blood and proved the heart acts as a pump.
Edward Jenner	18 th - 19 th century (1790s)	Created the first vaccination using cowpox to prevent smallpox.
Louis Pasteur	19 th century (1861)	Developed Germ Theory, proving germs cause disease - a major turning point in medical understanding.
Robert Koch	19 th century (1880s)	Identified specific microbes that cause particular diseases, improving diagnosis.
Florence Nightingale	19 th century (1850s)	Transformed hospital hygiene and nursing during the Crimean War; introduced professional nurse training.
John Snow	19 th century (1854)	Proved cholera was spread by contaminated water by mapping cases and linking them to the Broad Street pump.
Alexander Fleming	20 th century (1928)	Discovered penicillin, the first antibiotic.
Florey & Chain	20 th century (1940s)	Turned Fleming's discovery into a usable drug and developed mass production during World War II.

HISTORIC ENVIRONMENT: THE BRITISH SECTOR OF THE WESTERN FRONT (1914-18)

Specification	What do I need to know?
<p>The British sector of the Western Front, 1914-18: Injuries, treatment and the trenches</p> <p>The context of the British sector of Western Front and the theatre of war in Flanders and northern France: the Ypres salient, the Somme, Arras and Cambrai. The trench system - its organisation, including frontline and support trenches. Significance for medical treatment of the nature of the terrain and problems of the transport and communications infrastructure.</p>	<p>Key places: Ypres, the Somme, Arras and Cambrai.</p> <ul style="list-style-type: none"> • These were major battle areas in Belgium and northern France. • Fighting here was long, difficult, and caused huge casualties. • The land was muddy, uneven, full of shell holes and waterlogged. <p>The trench system:</p> <ul style="list-style-type: none"> • Frontline trench: where soldiers fought and faced the enemy. • Support trench: behind the frontline; offered backup and supplies. • Reserve trench: further back; used for resting troops and reinforcements. • Communication trenches: linked all trenches together so soldiers, messages and supplies could move between lines. • Soldiers lived and fought in these trenches for long periods. • Conditions were cramped, muddy and often flooded.

<p>The British sector of the Western Front, 1914-18: Injuries, treatment and the trenches</p> <p>Conditions requiring medical treatment on the Western Front, including the problems of ill health arising from the trench environment. The nature of wounds from rifles and explosives. The problem of shrapnel, wound infection and increased numbers of head injuries. The effects of gas attacks.</p>	<p>The physical environment made medical treatment difficult:</p> <ul style="list-style-type: none"> - The land was muddy, waterlogged and full of shell holes, making movement slow and dangerous. - Stretcher bearers struggled to move injured men across uneven ground. - Roads were destroyed by shelling, meaning ambulances often got stuck. <p>As a result, wounded soldiers often had to wait a long time before receiving treatment.</p> <p>Illnesses from trench life:</p> <ul style="list-style-type: none"> • Trench foot - Caused by standing in cold, wet, muddy water for long periods. Feet became swollen, painful and infected. Severe trench foot could lead to amputation. • Trench fever - A flu-like disease spread by lice living in soldiers' clothing. • Frostbite - Extreme cold during winter could damage skin and tissue. <p>Injuries from weapons:</p> <ul style="list-style-type: none"> • Rifle bullets caused deep wounds. • Shrapnel from shells caused cuts, blood loss and infection. Shrapnel often carried dirt deep into the body which caused infection. • Head injuries increased because of explosions. <p>Gas attacks:</p> <ul style="list-style-type: none"> • Chlorine and mustard gas burned skin and lungs. • Gas could cause blindness and severe breathing problems. <p>Who provided care?</p> <ul style="list-style-type: none"> • RAMC (Royal Army Medical Corps): Responsible for organising medical treatment across the entire army. Ensured wounded soldiers were transported and treated properly. • Nurses: Provided essential care in hospitals and Casualty Clearing Stations. Cleaned wounds, changed dressings and comforted soldiers. <p>Transporting the wounded (Chain of Evacuation)</p> <ol style="list-style-type: none"> 1. Regimental Aid Post – basic first aid. 2. Dressing Station – more treatment and prepared patients for moving onward. 3. Casualty Clearing Station – serious surgery and operations. 4. Base Hospital – positioned far behind the front line and where soldiers stayed for long term recovery.
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	<p>Transport included:</p> <ul style="list-style-type: none"> • Stretcher bearers • Horse-drawn ambulances (slow and could get stuck in the mud) • Motor ambulances • Trains <p>Underground hospital at Arras</p> <ul style="list-style-type: none"> • Built in tunnels for safety. • Had operating theatres, beds, and electricity. • Allowed medical care to continue even during heavy fighting.
<p>The British sector of the Western Front, 1914–18: injuries, treatment and the trenches</p> <p>The significance of the Western Front for experiments in surgery and medicine: new techniques in the treatment of wounds and infection, the Thomas splint, the use of mobile x-ray units, the creation of a blood bank for the Battle of Cambrai.</p>	<p>New techniques</p> <ul style="list-style-type: none"> • Better methods to treat infection (cleaning wounds, removing dead tissue). • Carrel-Dakin solution was used to wash wounds to reduce infection. • Thomas splint: held broken legs still; saved many lives. • Mobile X-ray units: helped doctors near the frontline to find bullets and shrapnel. • Blood transfusions became more common during the war. At the Battle of Cambrai (1917), doctors created the first blood bank, storing donated blood in advance. This allowed quicker treatment during mass casualties and saved many lives. <p>At the time of the war:</p> <ul style="list-style-type: none"> • Doctors now understood germs caused infection (following the work of Pasteur and Koch). • Hospitals used aseptic surgery (clean equipment, gloves, masks) to prevent infection during surgery. • X-rays had been invented and were improving but they were essential during the war. • Blood transfusions were developing but still difficult, the war sped up improvements in blood storage.
<p>The British sector of the Western Front, 1914–18: injuries, treatment and the trenches</p> <p>The historical context of medicine in the early twentieth century: the understanding of infection and moves towards aseptic surgery; the development of x-rays; blood transfusions and developments in the storage of blood.</p>	



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History - Paper 3



EDEXCEL GCSE HISTORY FOUNDATIONAL KNOWLEDGE

Paper 3: Weimar and Nazi Germany (1918-39)

KEY TOPIC 1: THE WEIMAR REPUBLIC (1918-29)

Specification	What do I need to know?
<p>The origin of the Republic, 1918-19</p> <p>The situation in Germany at the end of the War: political unrest, abdication of the Kaiser, armistice and new republic.</p>	<ul style="list-style-type: none"> Germany had lost the war and people were starving and unhappy. There was political unrest (riots, protests). The Kaiser (German King) abdicated (gave up the throne). A new democratic republic was declared. <i>A republic is a country without a king or queen.</i> Germany signed the armistice to end the fighting (World War I).
<p>The origin of the Republic, 1918-19</p> <p>The strengths and weaknesses of the new Weimar Constitution.</p>	<p><i>A constitution is a set of ideas and laws about how a country should be ruled.</i></p> <p>Strengths:</p> <ul style="list-style-type: none"> Men and women could vote which made society more equal, this was the first time women were allowed to vote in Germany. It had a president who was elected (voted in) every 7 years, they decided who had the role of the chancellor and the chancellor would pass laws if the majority of the Reichstag (German parliament) had voted for them. This meant that no one person or group could become too powerful like the Kaiser had been. <p>Weaknesses:</p> <ul style="list-style-type: none"> Proportional representation was when each party got the same percentage of seats in the Reichstag (parliament) as the percentage of votes it received in an election. This meant there were lots of small parties in the Reichstag (parliament) making it difficult to pass laws as it needed several parties to join together as a coalition. Article 48 of the constitution gave the president the power to act without the approval of the Reichstag (parliament) if there was an emergency. The problem was that it never clearly said what an 'emergency' was and so this power could have been overused and abused.
<p>The early challenges to the Weimar Republic, 1919-23</p> <p>Reasons for the early unpopularity of the Republic, including the 'stab in the back' theory and the key terms of the Treaty of Versailles</p>	<ul style="list-style-type: none"> Many Germans believed politicians had "stabbed the army in the back" by ending the war early in November 1918. Those who won the war met to discuss how to punish Germany and stop war restarting again in the future. This agreement (treaty) was called the Treaty of Versailles. Many Germans were extremely unhappy with the Treaty of Versailles for several reasons: <ul style="list-style-type: none"> -Germany had to accept blame for starting the war. -Germany had to pay reparations (money) to countries it had fought against in the war. Germany lost land which was given to other countries. Germany's army had to be made smaller which made them worried they wouldn't be able to protect themselves if they needed to in the future.



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<p>The early challenges to the Weimar Republic, 1919-23</p> <p>Challenges to the Republic from Left and Right: Spartacists, Freikorps, the Kapp Putsch</p>	<p>In Weimar Germany there were different political parties who believed their idea of how to run the country was the right one. This meant that some parties disagreed with the Weimar Republic, the three key groups are:</p> <ul style="list-style-type: none"> • Spartacists (1919): They wanted Germany to be communist. <i>Communism is where individual people do not own land or property, instead the government or people own these things and give people the money and resources they need to live. They want to see less really rich people and really poor people in society.</i> <p>In 1919 members of the Communist Party in Germany started an uprising and asked workers to stop working (strike) in Berlin (capital city of Germany) to show their anger at the German government.</p> <p>The government was saved when thousands of ex-soldiers came together to defeat the communists. These ex-soldiers were known as the Freikorps. The communists and workers on strike were unable to fight the Freikorps and were defeated. The actions of the Freikorps meant the Spartacists failed.</p>
<p>The early challenges to the Weimar Republic, 1919-23</p> <p>The challenges of 1923: hyperinflation; the reasons for, and effects of, the French occupation of the Ruhr.</p>	<p>The main problem occurred in 1923 after Germany missed a reparations payment in December 1922. As a result of missing this payment the following events happened:</p> <ul style="list-style-type: none"> • Kapp Putsch (1920): The Freikorps were angry about the Treaty of Versailles because it meant the Germany army was smaller which meant these men would have lost their jobs. They attempted to take over Berlin (capital city of Germany) by force. The German army refused to fight the Freikorps. The workers in Berlin did not like the idea that the Freikorps leader had of bringing the Kaiser back to Germany and so they went on strike (stopped working) this made it difficult to carry on ruling the city of Berlin as the workers were needed for transport and other important things. The actions of the workers meant the Kapp Putsch failed. • The main problem occurred in 1923 after Germany missed a reparations payment in December 1922. As a result of missing this payment the following events happened: • France sent soldiers into the Ruhr. This was an area of Germany that had a lot of factories and access to the majority of Germany's coal, iron and steel which are resources that can be used or sold to make money. • The German government told workers to strike (stop working) and not to work with the French soldiers. In return the German government would pay their wages. • But, the German government didn't have the money to pay them so they decided to print more money. • Printing more money is a problem because it means the money is worth less because there is more of it and the prices of things increased. This is called hyperinflation. • Wages that people were paid could not keep up with how much everything was costing and so some people found it difficult to buy basic food like bread.



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<p>The 'Golden Years': recovery of the Republic, 1924-29</p> <p>Reasons for economic recovery, including the work of Stresemann, the Rentenmark, the Dawes and Young Plans and American loans and investment.</p>	<p>Gustav Stresemann is a very important reason why Germany was able to end the problem of hyperinflation. He did the following:</p> <ul style="list-style-type: none"> • Told the German workers to go back to work and promised to begin reparations payments again so France would leave the Ruhr. • Introduced a new currency (money) called the Rentenmark which helped to bring prices of things back down and made people feel more confident in the German money. • In 1924, he managed to get American banks to agree to loan money to German businesses. This was called the Dawes Plan. • In 1929, he got the total reparations amount reduced from £6.5 billion to £2 billion and Germany was given more time to pay this money. This was called the Young Plan.
<p>The 'Golden Years': recovery of the Republic, 1924-29</p> <p>Stresemann's achievements in gaining international acceptance of Germany abroad through the Locarno Pact and joining the League of Nations.</p>	<p>Gustav Stresemann also wanted to build better relationships with other countries after World War I. He did this by:</p> <ul style="list-style-type: none"> • Signing the Locarno Pact (1925). In this agreement, Germany agreed to respect the decision made about the land they lost in Treaty of Versailles and that there would be peace between Germany and France. • Joining the League of Nations (1926). This was a group set up after World War I to discuss problems rather than going to war. Germany was not allowed to join the League of Nations when it was set up but Stresemann convinced them to let Germany join and they did. Showing how relationships are improving with other countries.
<p>Changes in society, 1924-29</p> <p>Changes in the standard of living.</p>	<p>Between 1924-1929 there is evidence that life improved for some people living in Weimar Germany.</p> <ul style="list-style-type: none"> • Wages increased every year. • More homes built and less people were homeless. • Unemployed people got payments through a new insurance law.
<p>Changes in society, 1924-29</p> <p>Changes in the position of women in work, politics and leisure</p>	<p>Attitudes towards women also changed during 1924-1929.</p> <ul style="list-style-type: none"> • More women worked. • Women could vote and could be elected to the Reichstag (parliament). • Women enjoyed more free time, they would drink alcohol, smoke and wore make-up.
<p>Changes in society, 1924-29</p> <p>Cultural changes: developments in architecture, art and the cinema.</p>	<p>People in Weimar Germany between 1924-1929 felt that they were able to share their ideas and be more creative than they had been before. This can be seen by:</p> <ul style="list-style-type: none"> • A growth in art and architecture (design of buildings). • More people making and watching German films. <p>This showed Germany was becoming more modern.</p>



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History - Paper 3

KEY TOPIC 2: HITLER'S RISE TO POWER (1919-33)

Specification	What do I need to know?
<p>Early development of the Nazi Party, 1920-22</p> <p>Hitler's early career: joining the German Workers' Party and setting up the Nazi Party, 1919-20.</p>	<ul style="list-style-type: none"> • Hitler joined the German Workers' Party in 1919. • In 1920 the party was renamed to the National Socialist German Workers' Party (NSDAP). • Hitler became the leader of the party and its main speaker.
<p>Early development of the Nazi Party, 1920-22</p> <p>The Twenty-Five Point Programme. The role of the SA.</p>	<p>The Twenty-Five Point Programme (1920) listed the party's main ideas. These included:</p> <ul style="list-style-type: none"> • Nationalism: Make Germany strong again after the war. • Anti-Semitism: Blame Jewish people for Germany's problems. • Anti-Treaty of Versailles: Reverse the land losses and stop reparations. • Help for workers. <p>Hitler wanted the programme to appeal to many groups who were unhappy after the war.</p> <p>In 1921, Hitler created a private army called the SA.</p> <ul style="list-style-type: none"> • They were known as the Brownshirts because of their uniforms. • Many of the SA were ex-soldiers. • Their job was to protect Nazi meetings and threaten opponents, especially communists. • The SA helped make the Nazis look powerful and organised.
<p>The Munich Putsch and the Nazi Party, 1923-28</p> <p>The reasons for, events and consequences of the Munich Putsch; Mein Kampf.</p>	<p>Reasons for the Putsch (why Hitler attempted a takeover):</p> <ul style="list-style-type: none"> • Germany was suffering from hyperinflation and many people blamed the government. • Hitler believed the government was weak and could be easily overthrown. <p>Events of the Munich Putsch (1923):</p> <ul style="list-style-type: none"> • Hitler and the SA burst into a meeting in a Munich beer hall. • They tried to force the leaders to support a march on Berlin. • The leaders changed their minds and called the police. • The march failed and Hitler was arrested. <p>Consequences:</p> <ul style="list-style-type: none"> • Hitler used his trial to give long speeches attacking the government. This gave him national publicity. • In prison, he wrote Mein Kampf, a book explaining Nazi ideas. • Hitler realised he could not take power by force and instead decided to gain power legally through elections.



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<p>The Munich Putsch and the Nazi Party, 1923-28</p> <p>Reasons for limited support for the Nazi Party, 1924-28. Party reorganisation, including the Bamberg Conference of 1926.</p>	<p>Why support for the Nazi Party was limited:</p> <ul style="list-style-type: none"> • After 1923, Germany began to improve under Stresemann. • With the economy recovering, fewer people supported extreme parties like the Nazis. • The Nazis won very few seats in elections during these years. <p>Party reorganisation (to make the party more effective):</p> <ul style="list-style-type: none"> • Hitler created a new clearer structure for the party. • Propaganda became more organised. <p>Bamberg Conference (1926):</p> <ul style="list-style-type: none"> • There were disagreements within the party. • Hitler called a meeting at Bamberg to settle the disagreements. • He made sure the party followed his ideas, strengthening his control.
<p>The growth in support for the Nazis, 1929-32</p> <p>The growth of unemployment – its causes and impact. The growth of support for the Communist Party</p>	<ul style="list-style-type: none"> • In 1929, the Wall Street Crash in America caused American banks to ask Germany to repay loans, meaning German businesses failed. • Millions of Germans became unemployed and desperate. • The government struggled to help, so people turned to extreme parties that promised solutions like the Nazi Party and the Communist Party. • Many workers supported the Communists, while others feared communism and therefore supported the Nazis, who promised to stop it.
<p>The growth in support for the Nazis, 1929-32</p> <p>Reasons for the growth in support for the Nazi Party, including the appeal of Hitler and the Nazis, the effects of propaganda and the work of the SA.</p>	<ul style="list-style-type: none"> • Hitler was a powerful public speaker who promised jobs, strong leadership and to make Germany great again. • Propaganda, organised by Joseph Goebbels, used posters, rallies where Hitler would speak, radio broadcasts, films and newspapers to spread the Nazi message. • The Nazis promised something for everyone: <ul style="list-style-type: none"> • Workers – jobs. • Business owners – protection from communists. • Farmers – higher prices for their goods. • The SA made the Nazis look disciplined and strong. They also threatened rivals, which made many people afraid to oppose the Nazis.
<p>How Hitler became Chancellor, 1932-33</p> <p>The Presidential and Reichstag elections of 1932; reasons for Hitler becoming Chancellor in 1933, including the roles of Hindenburg and von Papen.</p>	<ul style="list-style-type: none"> • In 1932, Hitler ran for President but lost to President Hindenburg • However, Hitler gained millions of votes and the Nazis became the largest party in the Reichstag, although they did not have a majority. • Hindenburg and von Papen believed they could control Hitler if they made him the Chancellor of Germany and they could use him as he was popular with the German people who voted for the Nazi Party. On 30th January 1933, Hindenburg made Hitler the Chancellor. This decision actually gave Hitler the power he needed to take full control of Germany.



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History - Paper 3

KEY TOPIC 3: NAZI CONTROL AND DICTATORSHIP (1933-39)

Specification	What do I need to know?
<p>The creation of a dictatorship, 1933-34</p> <p>The Reichstag Fire: The Enabling Act and the banning of other parties and trade unions.</p>	<ul style="list-style-type: none"> In February 1933, the Reichstag building (German Parliament) was destroyed by fire. Hitler blamed the communists for this and said they were trying to take over Germany. He persuaded President Hindenburg to pass a law which allowed the police to: <ul style="list-style-type: none"> Arrest people without trial. Shut down newspapers. Ban meetings. This helped Hitler remove political opponents. <p>The Enabling Act (March 1933):</p> <ul style="list-style-type: none"> Hitler told the Reichstag (German Parliament) that Germany was in an emergency and that he needed special powers. The Enabling Act allowed Hitler to make laws without the Reichstag for four years. <p>Banning opposition:</p> <ul style="list-style-type: none"> Trade unions were banned so workers could not challenge the government. Other political parties were closed down or banned. By July 1933, the Nazis were the only legal political party. <p>The SA (Brownshirts) had helped Hitler rise to power, but by 1934 they became a problem:</p> <ul style="list-style-type: none"> Their leader, Ernst Röhm, wanted the SA to replace the German army. Hitler feared Röhm was becoming too powerful and that he might try to challenge him. <p>Night of the Long Knives (June 1934):</p> <ul style="list-style-type: none"> Hitler ordered the SS (Hitler's bodyguards) to arrest and kill Röhm and other SA leaders. Many other political opponents were also murdered. This made Hitler look strong and gained him the support of the army, who disliked the SA. <p>Hitler becomes Führer (August 1934):</p> <ul style="list-style-type: none"> When President Hindenburg died, Hitler combined the roles of Chancellor and President. He invented a new title, Führer, meaning leader of Germany. The army now had to swear an oath of loyalty directly to Hitler, not the country. Germany was now a total dictatorship.
<p>The creation of a dictatorship, 1933-34</p> <p>The threat from Röhm and the SA, the Night of the Long Knives. The death of Hindenburg. Hitler becomes Führer, the army oath of allegiance.</p>	



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<p>The police state</p> <p>The role of the Gestapo, the SS and concentration camps.</p>	<p>A police state is when the government uses police and fear to control the country.</p> <ul style="list-style-type: none"> SS - The SS was led by Heinrich Himmler. They were extremely loyal to Hitler and controlled the police and concentration camps. Gestapo - The Gestapo were the secret police. They spied on people. People could be arrested and imprisoned without trial. Concentration camps - These were prisons for political opponents and groups the Nazis called "undesirables" like Jewish people. Prisoners faced harsh conditions and violence. Judges had to follow Nazi ideas. People could be tried in special courts (People's Courts) with no juries, where judges almost always agreed with what the Nazis wanted. This meant the law became a way for Nazis to control people, not fairness. Joseph Goebbels was in charge of propaganda. Propaganda is information used to control what people think.
<p>The police state</p> <p>Nazi control of the legal system.</p>	
<p>Controlling and influencing attitudes</p> <p>Goebbels and the Ministry of Propaganda: censorship, Nazi use of media, rallies and sport, including the Berlin Olympics (1936).</p>	<p>Media:</p> <ul style="list-style-type: none"> Newspapers, radio, films and books could only show Nazi-approved messages. Radios were made cheap so most households could hear Hitler's speeches. <p>Censorship:</p> <ul style="list-style-type: none"> Anything that criticised the Nazis was banned. Books written by Jewish or anti-Nazi authors were burned. <p>Rallies and mass events:</p> <ul style="list-style-type: none"> Huge rallies like the Nuremberg Rallies were carefully organised to show strength. <p>Berlin Olympics (1936):</p> <ul style="list-style-type: none"> Used as a chance to show the world that Germany was strong. Anti-Jewish signs were removed temporarily to improve Germany's image.
<p>Controlling and influencing attitudes</p> <p>Nazi control of culture and the arts, including art, architecture, literature and film.</p>	<ul style="list-style-type: none"> Only art, music, architecture (buildings), books and films that followed Nazi ideas were allowed. Architecture focused on large, grand buildings to show power. Writers had to produce work that praised the Nazis or German traditions.



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History - Paper 3

KEY TOPIC 4: LIFE IN NAZI GERMANY (1933-39)

Specification	What do I need to know?
Nazi policies towards women Nazi views on women and the family.	<ul style="list-style-type: none"> The Nazis believed women should focus on children, cooking and church. They wanted women to stay at home, have large families and support a strong, traditional Germany.
Nazi policies towards women Nazi policies towards women, including marriage and family, employment and appearance.	<ul style="list-style-type: none"> Women were offered marriage loans to encourage them to marry and have children. Awards were given to women with many children. Many women were pushed out of professional jobs (law, medicine) to make room for men. Women were expected to avoid makeup and focus on being "natural".
Nazi policies towards the young Nazi aims and policies towards the young. The Hitler Youth and the League of German Maidens.	<ul style="list-style-type: none"> The Nazis wanted young people to become loyal Nazis. Boys joined the Hitler Youth, where they learned marching, shooting and physical training to prepare them for the army. Girls joined the League of German Maidens, where they learned cooking, childcare and fitness to prepare them for being mothers.
Nazi policies towards the young Nazi control of the young through education, including the curriculum and teachers.	<ul style="list-style-type: none"> School subjects were changed to promote Nazi ideas. PE was increased to make students strong and healthy. Teachers had to support Nazi beliefs. Textbooks were rewritten to include Nazi messages.
Employment and living standards Nazi policies to reduce unemployment: labour service, autobahns, rearmament and invisible unemployment.	<ul style="list-style-type: none"> The Nazis reduced unemployment through: <ul style="list-style-type: none"> Public works like building autobahns (motorways). RAD (Labour Service), where young men had to work on farms or building projects. Rearmament, which created jobs in factories and the army. "Invisible unemployment" meant women and Jewish people were not counted as unemployed, making unemployment figures look better.
Employment and living standards Changes in the standard of living, especially of German workers. The Labour Front. Strength Through Joy. Beauty of Labour.	<ul style="list-style-type: none"> Trade unions were banned and replaced with the German Labour Front (DAF). Wages rose slowly but workers lost the right to strike. Strength Through Joy offered cheap holidays, sports and trips to make workers loyal and happy. Beauty of Labour improved conditions in work.
The persecution of minorities Nazi racial beliefs and policies and the treatment of minority groups: Slavs, Roma and Sinti, homosexuals, and people with disabilities.	<ul style="list-style-type: none"> Nazis believed in a "master race" (Aryans). Groups they saw as "inferior" were discriminated against. Groups who were targeted were Jewish people, Roma and Sinti, homosexuals and disabled people. People in these groups were often arrested, sent to concentration camps or killed.

Controlling and Influencing attitudes Nazi attempts to control the Catholic and Protestant Churches: the Concordat and the Reich Church.	<ul style="list-style-type: none"> In 1933, most Germans were Christian (either Catholic or Protestant). Churches were powerful because people trusted their leaders and what they said. Hitler wanted total control of Germany, so he needed the Churches to either support him or stay quiet. He feared that if Churches criticised Nazi ideas, they might weaken his power.
Opposition, resistance and conformity The extent of support for the Nazi regime.	<p>Hitler hoped the agreement would make it look like the Church accepted the Nazi government.</p> <p>But, the Nazis quickly broke the agreement:</p> <ul style="list-style-type: none"> Catholic schools were closed. Catholic youth groups were shut down. Priests were watched by the Gestapo and some were arrested.
Opposition, resistance and conformity Opposition from the Churches, including the role of Pastor Niemöller.	<ul style="list-style-type: none"> Protestants were divided into many local churches, so the Nazis wanted to bring them all together and control them. So, in the Nazis created the Reich Church, a new Protestant Church that followed Nazi ideas, not Christian teaching. The Reich Church removed parts of the Bible that did not fit Nazi beliefs. It replaced the cross with the swastika (symbol of the Nazi Party) Many Germans supported Hitler because: <ul style="list-style-type: none"> unemployment fell. Germany looked strong again. propaganda showed Hitler as a hero. Others obeyed out of fear of the Gestapo.
Opposition, resistance and conformity Opposition from the young, including the Swing Youth and the Edelweiss Pirates.	<ul style="list-style-type: none"> Some Christians opposed Nazi attempts to control religion. Pastor Martin Niemöller spoke out against Nazi involvement in the Church. He helped set up the Confessing Church, which rejected the Nazi-controlled Reich Church. Niemöller was arrested and sent to a concentration camp.
Opposition, resistance and conformity	<ul style="list-style-type: none"> Swing Youth enjoyed American music and rejected Nazi rules about culture and the arts. Edelweiss Pirates disliked the strict Hitler Youth. They met secretly in groups. <ul style="list-style-type: none"> Some attacked Nazi officials. These groups were not organised political movements but showed young people resisting Nazi control.

History - Paper 3

<p>The persecution of minorities</p> <p>The persecution of Jewish people, including the boycott of Jewish shops and businesses (1933), the Nuremberg Laws and 'Kristallnacht'.</p>	<p>1933 boycott</p> <ul style="list-style-type: none"> Nazis told Germans not to shop in Jewish businesses. <p>Nuremberg Laws (1935)</p> <ul style="list-style-type: none"> Jewish people lost their German citizenship – they were no longer seen as German. They were banned from marrying non-Jewish Germans. <p>Kristallnacht (1938)</p> <ul style="list-style-type: none"> Nazi gangs attacked Jewish homes, shops and synagogues. Many Jewish people were arrested and sent to camps. This was a major increase in violent persecution.
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GLOSSARY OF KEY TERMS

Key term	Definition
Anti-semitism	Hate and unfair treatment towards Jewish people.
Armistice	An agreement to stop fighting a war.
Autobahn	German motorways built during Nazi rule.
Communist	Someone who believes that all property should be shared and owned by the community or government, not by individuals.
Concentration camp	A prison camp where the Nazis forced people to live in horrible conditions.
Constitution	A set of rules explaining how a country is run.
Freikorps	Ex-soldiers in Germany after World War I who fought against communists and took part in violent uprisings to remove the government.
Fuhrer	Hitler's title meaning "Leader" after he combined the roles of Chancellor and President.
Gestapo	The Nazi secret police who spied on people and arrested them.
Hyperinflation	When money loses its value very quickly, so prices rise massively and people can't afford basics like bread.
Kaiser	The German King. Germany had a Kaiser (King) until the end of World War I in 1918.
Propaganda	Information used to persuade people to believe something.
Reichstag	The German Parliament (the building and people elected to run the country).
Rentenmark	A new currency (money) introduced in 1923 to end hyperinflation.
Reparations	Money Germany had to pay to countries it fought against in World War I.
SA (Brownshirts)	The Nazi Party's private army, used to intimidate opponents.
Spartacists	A communist group who tried take over Germany in 1919.
SS	Hitler's bodyguards who later ran concentration camps.



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Spanish/French

As directed in class, please revise the following topics for your MFL exam:

Lifestyle and wellbeing

- Sport
- Free time
- Healthy Lifestyle
- Wellbeing

Media and Technology

- TV programs
- Films
- Technology

My personal world

- Family
- Friends
- Free time with friends
- Personal Plans

Lifestyle and wellbeing

- School
- Future plans

Speaking exams – prepare and revise your chosen theme.

Music

MELODY IS...
a line of musical notes with varying pitches that is satisfying to listen to.

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Interval: distance between 2 pitches

Microtone	smaller than a semitone
Semitone	
Tone / major 2nd	
Major 3rd	
perfect 4th	
Perfect 5th	
Major 6th	
Major 7th	
Perfect 8th (Octave)	

Question and answer phrases: an initial idea (the questioning phrase) balanced by a 2nd idea (the answering phrase).

Theme: the main musical idea in a piece of music.

Sequence: repetition of a musical idea at a higher or lower pitch.

Imitation: when a musical idea is copied in another part.

Repetition: when musical ideas are repeated.

Contrast: when there is some type of difference in the music.

Fanfare: a musical 'announcement', based on the pitches of a chord.

Blue notes: the flattened notes in a Blues scale.

Types of scales: Major, Minor, (up to 4 sharps and flats), Pentatonic, Blues.

Pentatonic: a musical scale based on 5 notes.

Chromatic: when the tune moves in semitones (like a chromatic scale).

Ornaments: used to 'decorate' the music, e.g. trill, mordent, turn.

Range: the distance from the lowest sounding note to the highest sounding note in a piece of music.

Counter melody: a 2nd melody played at the same time as the main theme.

Pitch: whether the musical notes are high, middle-sounding or low.

Leitmotif: a recurrent musical idea representing a person, place, feeling or idea.

Motif: a short melodic or rhythmic idea.

Anacrusis: a note (or notes) that come before the first strong beat in a piece. Sometimes called the 'up-beat' or 'pick-up'.

Useful terms and their meanings

Conjunct: Stepwise movement in a melody (scaled).

Disjunct: When the melodic movement includes lots of leaps or intervals.

Arpeggio / broken chord: When the notes of a chord are played separately, and in succession.

Anticipation note: When a note of the next chord is played early, preparing for the intended pitch in the chord.

Triadic: Musical movement that uses the notes of a triad.

Pentatonic melody: Melody based on a 5-note scale.

METRE

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Simple Time
counts crotchet beats in every bar.

	= 2 crotchet beats in a bar	
	= 3 crotchet beats in a bar	
	= 4 crotchet beats in a bar	

Compound Time
counts dotted crotchet beats in every bar.

	= 1 dotted crotchet beat in a bar	
	= 2 dotted crotchet beats in a bar	
	= 3 dotted crotchet beats in a bar	
	= 4 dotted crotchet beats in a bar	

Music

MUSICAL STYLES

...are the different types of music

AOS 1: Musical Forms and Devices

- BAROQUE ERA**
(1600 - 1750)
- CLASSICAL ERA**
(1750 - 1810)
- ROMANTIC ERA**
(1810 - 1910)

AOS 2: Music for Ensemble

- JAZZ AND BLUES**
- MUSICAL THEATRE**
- CHAMBER MUSIC**

AOS 3: Film Music

- Music to accompany film or television scenes
- appreciating how musical elements are used to create the mood and atmosphere through engaging with the story.

AOS 4: Popular Music

- Rock
- Hip-Hop
- Pop
- Ballad
- Soul
- Reggae
- Fusion
- Minimalism
- Bhangra

Rhythm is ...

the way the time values and patterns of notes are organised and used.

Note	Note name	Rest
	Semibreve (4 crotchet beats)	
	Minim (2 crotchet beats)	
	Crotchet (1 crotchet beat)	
	Quaver (½ crotchet beat)	
	Semiquaver (¼ crotchet beat)	

Syncope
...is when the strong accent is placed on a normally weak beat.

On the beat
...is when the accents are on the strong beats, e.g. the first beat of the bar.

Dotted notes
...a dot placed after a note adds half the original value to the note.

Triplets
...when 3 equal note values are played in the time of 2 note values.

CHAAL is an 8 note dotted rhythmic pattern found in BHANGRA.

Tied notes ... are two notes of the same pitch joined together by a short curved line called a tie.

Swing rhythms give a dotted / triplet rhythm feel to the beat.



Driving rhythms are energetic, 'driving' the music on.

Dance rhythms are typical rhythms of any kind of dance.






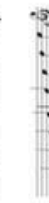



Rock rhythms are rhythmic riffs and patterns associated with 'rock' music.

Music








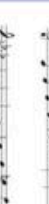

SCALES


MAJOR sounds are happy / bright.

Key	Scale
C major	
G major	
D major	
A major	
E major	
F major	
Bb major	
Eb major	
Ab major	


MINOR sounds are sad and rather mournful.

Key	Scale
A minor	
E minor	
B minor	
F# minor	
G# minor	
D minor	
G minor	
C minor	
F minor	

Blues scale in C




Chromatic scale on C



The major pentatonic uses notes 1, 2, 3, 5 and 6 of a major scale.

The minor pentatonic uses notes 1, 3, 4, 5, 7 of the natural minor scale.

SONORITY...



is all about the quality of sounds in music – the types of voices, instruments and technology and how they are used.

Percussion: *Timpani, Drum Kit, Snare Drum, Cymbal, Hand Held Percussion, Glockenspiel, Xylophone, Tabla, Dhol*

Rim shot – when the rim and head of the drum are hit at the same time.

Drum roll – beats played in a rapid succession.

Brass: *Trumpet, French Horn, Trombone, Tuba*

Muted – when mutes are used to ‘dampen’ the sound.

Woodwind: *Flute, Oboe, Clarinet, Saxophone, Bassoon*

Slurred – joining notes smoothly.

Tongued – notes are separated, sounding ‘defined’.

Voices: *Soprano, Alto, Tenor, Bass*

A cappella – without accompaniment.

Humming – vocal sound made with closed mouth.

Syllabic – one note for each syllable.

Melismatic – each syllable has a number of notes.

Vibrato – rapid, slight variation in pitch.

Falsetto – male voice in a higher range than usual.

Belt – lower, more powerful part of voice range.

Rap – words spoken in a rhythmical way.

Scat – jazz singing, no words or nonsense words.

Backing vocals – singers providing extra harmonies.

Strings: *Violin, Viola, Cello, Double Bass, Harp*

Pizzicato – ‘plucked’.

Double stopping – one instrument playing 2 notes at the same time.

Tremolo – rapid bowing to give a dramatic effect.

Divisi – 2 parts in the same musical line.

Arco – ‘bowed’.

Mutes – used to dampen the sound.

Guitars: *Classical / Spanish, Electric + Bass guitars, Sitar, Saranga, Tambi*

Distortion – effect which ‘distorts’ notes.

Hammer-on – finger brought down sharply on a string.

Slap bass – bouncing strings against the fret board.

Pitch bend – altering pitch of a note very slightly.

Keyboards: *Piano, Organ, Harpsichord*



Music

TEMPO is... the speed of the beat.

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- Allegro Vivace** - Fast / Lively / Quick
- Moderato Andante** - Not too slow / at a moderate pace, a 'walking' speed
- Allegretto** - Moderately fast
- Adagio Lento** - Slow / Leisurely

Accelerando gradually getting faster.

Ritardando / Rallentando slowing down.

Rubato a 'freer' interpretation of the tempo.

Pause a symbol which means the note must be held for longer than its original value.

Some other useful terms:

- Presto** - very quick
- Largo** - very slow
- A tempo** - in the original tempo
- Ritenuito** - in slower time

TEXTURE is...

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the way that the melody, chords and musical ideas have been woven together to achieve different effects - the 'layers' of music and how they relate to each other.

- Monophonic**: A single melodic line with no harmonies or other melodies. It may be sung or played by more than one voice or instrument.
- Homophonic**: A chordal style, or a melody plus chords, which sometimes provide a rhythmic contrast.
- Polyphonic**: A more complex style which presents the melody (or melodies) in imitation or in counterpoint.

Unison: When all parts are playing the same music at the same pitch

Chordal: When parts move together creating a succession of chords

Drone: Constantly repeated or sustained note(s)

Stab chords: Short, staccato chords that add impact and punch to the music

Imitation: When one part 'copies' another

Counter-melody: A new melody, combined with the theme

Descant: A decorative (higher) line added to the main tune

Round: A short (vocal) canon

Canon: When the melody is repeated exactly after the first, with some overlapping

Alberti Bass: A type of accompaniment figure that uses broken chords

Walking bass: A steady, continuous, mainly stepwise bass line

2-part texture: Music written for 2-part voices or instruments

3-part texture: Music written for 3-part voices or instruments

4-part texture: Music written for 4-part voices or instruments

Music

Tonicity

It's... the key of the music - it depends on the types of scales used.

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You must know the key signatures in all the major and minor keys up to four flats and four sharps. These scales are what the music is based on.

THE PENTATONIC SCALE

This type of scale is made up of five notes within the range of an octave.

order of sharps

order of flats

For example:

MODULATION is when the music changes key.

Modulation to the dominant is when the music moves from the tonic to the dominant key. The dominant key is based on chord V of the original key, e.g. from C major to G major. Modulation to the relative minor key is when the music moves from the tonic major key to the relative minor key. The relative minor key is the minor key which shares the key signature with the home key, e.g. the relative minor of C major is A minor. Modulation to the relative major key is when the music changes from the tonic minor key to the relative major key. The relative major key is the major key which shares the key signature with the home key, e.g. the relative major of A minor is C major.

Key signature	Major keys	Minor keys
No flats or sharps	C major	A minor
1 sharp (F#)	G major	E minor
2 sharps (F#, C#)	D major	B minor
3 sharps (F#, C#, G#)	A major	F# minor
4 sharps (F#, C#, G#, D#)	E major	C# minor
1 flat (Bb)	F major	D minor
2 flats (Bb, Eb)	Bb major	G minor
3 flats (Bb, Eb, Ab)	Eb major	C minor
4 flats (Bb, Eb, Ab, Db)	Ab major	F minor

Musical forms and devices

Area of study 1 - Eduqas GCSE Music

Baroque era (1600-1750)

- Harpsichord
- Ornaments
- Terraced dynamics
- Basso continuo
- Small orchestra (mostly strings, plus some wind)
- Suite, sonata, oratorio, chorales, trio sonata
- Bach, Handel, Vivaldi

Classical era (1750-1810)

- Slightly larger orchestra
- Piano introduced
- Alberti bass
- String quartets
- Symphony, solo sonata, solo concerto
- Balanced, regular phrases
- Haydn, Mozart, Beethoven

Romantic era (1810-1910)

- Lyrical, expressive melodies
- Large orchestra
- Wider range of dynamics
- Richer harmonies and use of chromatic chords
- Programme music
- Opera symphony
- Tchaikovsky, Grieg, Schumann, Dvorak, Brahms, Verdi, Wagner

Scales and chords

A **CHORD** is a group of two or more notes played at the same time. A **TRIAD** has three notes. A **CHORD SEQUENCE/PATTERN** is a series of chords. **DIATONIC HARMONY** is based on the chords of major/minor scales.

Primary chords I, IV, V
Secondary chords ii, iii, vi, vii

Form and structure

BINARY A B
Two sections: A usually ends in a related key (e.g. dominant or relative minor), but B returns to the tonic. B will contain with some change/contrast.

TERNARY A B A
Three sections: section B provides a contrast (e.g. new tune key change). A may return exactly or with some slight changes.

RONDO A B A C A
A longer form: A returns throughout the piece, with contrasting sections called 'episodes', containing new ideas and using different keys.

MINUET AND TRIO II: AB: II II: CD: II AB
The minuet was a type of graceful dance from the 17-18th century, and was often used as the 3rd movement in symphonies in the Classical era. The minuet had two repeated sections, the trio had two new repeated sections, with a return to the minuet at the end (no repeat).

VARIATIONS A A A A A
The main theme (tune) is repeated and developed a number of times in a variety of different ways.

STROPHIC A A A
A simple form where the song uses the same melody over and over.

Devices

Repetition A musical idea is repeated exactly.

Imitation An idea is copied in another part.

Sequence Repetition of an idea in the same part at a higher/lower pitch.

Ostinato A short, repeated pattern or phrase.

Drone A long held or constantly repeated note(s).

Arpeggio/ broken chord The notes of a chord played individually.

Alberti bass A broken chord accompaniment (I, V, iii, V) common in the Classical era.

Anacrusis An 'up-beat' or pick-up before the first strong beat.

Dotted rhythms A rhythm using dotted notes (gives a 'jagged' or 'bouncy' type of effect).

Syncopation Off beat accents.

Conjunct Notes that move in steps.

Disjunct Notes that move in leaps/ intervals.

Regular phrasing Balanced parts of a melody (like the phrases in a sentence) e.g. four bar phrases.

Cadences

The two chords at the end of a phrase

	Perfect	Plagal	Imperfect	Interrupted
	V-I	IV-I	I-V, ii-V, vi-V	V-vi
	Strong ending - sounds 'finished'; a musical full stop.	Sounds finished but 'softer', Amen.	Sounds unfinished.	Moves to an unexpected chord; 'surprise'.

Music

Music for ensemble

Area of study 2 - Eduqas GCSE Music

Texture

MONOPHONIC	A single melodic line.
HOMOPHONIC	A chordal style or melody and accompaniment: moving together.
POLYPHONIC	A more complex (contrapuntal) texture with a number of different lines.

Melody and accompaniment

Unison	All parts play/sing the same music at the same time.
Chordal	The music moves in chords (e.g. like a hymn/chorale).
Descant	A decorative, higher pitched line.
Counter melody	A new melody, combined with the theme.
Round	A short (vocal) canon.
Canon	The melody is repeated exactly in different parts but starting at different times, with parts overlapping.
Drone	Long held notes.
2-3-4 part texture	Textures which have 2/3/4 different lines.

Jazz and blues

Scat: vocal improvisation using wordless/nonsense syllables.
Improvised: music made up on the spot.
Blue notes: flattened 3rd, 5th, 7th.
Syncopation: off-beat accents.
Call and response: a phrase played/sung by a leader and repeated by others.
Walking bass: bass line that 'walks' up and down the notes of a scale/arpeggio.
Swing style: 'jazzy' rhythm with a triplet/dotted feeling.

A jazz ensemble may contain:

Rhythm section

- Drums
- Bass (guitar or double bass)
- Piano/guitar

'Horn section'

- Trumpet
- Trombone
- Saxophone

Some groups use a wider range of instruments e.g. clarinet, violin.

12 bar blues

Chords

I I I I
 IV IV I I
 V IV I I/V

Example in C major

C C C C
 F F C C
 G F C C/G

Chamber music

Chamber music was music for a small ensemble, originally played in a small room in someone's home.

Baroque: The **trio sonata** featured one or two soloists, plus **basso continuo** (which consisted of a low-pitched instrument such as a cello playing a bassline, with an instrument playing chords e.g. harpsichord).

Classical: **String quartets** (two violins, a viola and a cello) were popular. They had **four** movements, with the 1st movement usually in sonata form.

Romantic: Chamber music groups were more varied in the Romantic era, using a wider range of instruments (e.g. piano quintet, horn trio). Performances happened in larger concert halls as well as in small 'chambers'.

A piece of music for:

DUET	2 performers
TRIO	3 performers
QUARTET	4 performers
QUINTET	5 performers
SEXTET	6 performers
SEPTET	7 performers
OCTET	8 performers

Musical theatre

Musical numbers may include:
Solo: a song for one singer.
Duet: a song for two singers.
Trio: a song for three singers.
Ensemble: a song sung by a small group.
Chorus: a large group (usually the full company/cast).
Recitative: a vocal style that imitates the rhythms and accents of speech.
Overture: an orchestral introduction to the show, which usually uses tunes from the show.
 The orchestra/band is used to **accompany** the voices and to **underscore**.

Voices

Soprano
Alto
Tenor
Bass

The band/orchestra (sometimes called the 'pit' orchestra), may use **strings**, **woodwind** (sometimes called 'reeds'), **brass** and **percussion** and/or a rock/pop band, depending on the style. Most shows also use keyboards or synths.

Film Music

Area of study 3 - Eduqas GCSE Music

Some film **SOUNDTRACKS** include specially composed **SCORES**, either for orchestras (e.g. composers like John Williams, Ennio Morricone) or songs written especially for the film (e.g. Disney films). Other films use pre-existing music e.g. popular songs from the era/place in which the film is set.

STRINGS	WOODWIND
• Violin	• Flute
• Cello	• Clarinet
• Viola	• Oboe
• Double bass	• Bassoon
• Harp	• Saxophone
BRASS	KEYBOARDS
• Trumpet	• Piano
• Trombone	• Electronic keyboard
• French horn	• Harpsichord
• Tuba	• Organ
PERCUSSION	• Synthesizer
• Bass drum	OTHER
• Snare drum	• Electric guitar
• Triangle	• Bass guitar
• Cymbal	• Spanish/classical guitar
• Drum kit (untuned)	• Traditional world instruments
• Timpani	
• Glockenspiel	
• Xylophone (tuned)	

Musical elements

Film composers use the **MUSICAL ELEMENTS** (tempo, texture, dynamics, timbre, tonality, rhythm, melody, harmony) to create mood and atmosphere to help to tell the story and enhance the action.

For example:
 In a sad, reflective scene, a composer might use slow tempo, minor tonality, soft dynamics, legato, homophonic texture, long sustained notes, and a conjunct melody.

An exciting car chase scene in a thriller might have a fast tempo, busy, polyphonic texture, dissonant chords, loud dynamics, syncopated rhythms, a disjunct melody and short riffs.

A scene where the superhero 'saves the day' might use a major tonality, brass fanfares, loud dynamics, accents, 4th and 5th (intervals).

Composers will often use **CONTRASTS** to create effect (e.g. using a wide range of pitch from very high to very low).

Intervals

Film composers often use intervals to create a particular effect (e.g. a rising perfect 4th sounds 'heroic', and a semitone can sound 'menacing').

An **interval** is the distance between two notes.

Rising interval: moving upwards (ascending)
Falling interval: moving downwards (descending)

Specific instrumental terms

Pizzicato	Plucking the strings.
Divisi	Two parts sharing the same musical line.
Double stopping	Playing two strings at the same time.
Arco	Using a bow to play a stringed instrument.
Tremolo	A 'trembling' effect, moving rapidly on the same note or between two chords (e.g. using the bow rapidly back and forth).
Tongued	A technique to make the notes sound separated (woodwind/brass).
Slurred	Notes are played smoothly.
Muted	Using a mute to change/dampen the sound (brass/strings).
Drum roll	Notes/beats in rapid succession.
Glissando	A rapid glide over the notes.
Trill	Alternating rapidly between two notes.
Vibrato	Making the notes 'wobble' up and down for expression.

Composers also use:

Theme	The main tune/melody.
Motif	A short musical idea (melodic or rhythmic).
Leitmotif	A recurring musical idea linked to a character/object or place (e.g. Darth Vader's motif in Star Wars).
Underscoring	Music playing underneath the dialogue.
Scallic	Melody follows the notes of a scale.
Triadic	Melody moves around the notes of a triad.
Fanfare	Short tune often played by brass instruments, to announce someone/something important, based on the pitches of a chord.
Pedal note	A long, sustained note, usually in the bass/lower notes.
Ostinato/riff	A short, repeated pattern.
Conjunct	The melody moves by step.
Disjunct	The melody moves with leaps/intervals.
Consonant harmony	Sounds 'good' together.
Dissonant harmony	Sounds 'clashy'.
Chromatic harmony	Uses lots of semitones/accidentals that's not in the home key.
Minimalism	A style of music using repetition of short phrases which change gradually over time.

Music

Popular Music

Area of study 4 - Eduqas GCSE Music



Popular music includes:

- POP
- ROCK
- RAP
- HIP HOP
- REGGAE

Plus many other genres, e.g. soul, ska, heavy metal, R&B, country, rock'n'roll.

FUSION: when two different styles are mixed together. This can be two styles of popular music e.g. 'rap metal', or could combine a popular music genre with other styles, folk-rock, gospel, world music, classical to create a new and interesting sound. **Jazz fusion** (jazz and pop) is a popular genre.

Instruments

ELECTRIC GUITAR:

- **Lead guitar:** plays the melody/ solos/riffs
- **Rhythm guitar:** plays the chords/ accompaniment.

BASS GUITAR: plays the bass line.

DRUM KIT: provides the beat.

LEAD SINGER: the main vocalist.

BACKING VOCALS: singers who provide harmony.

Pop/rock groups may also include **acoustic** (not electric) instruments e.g. trumpet, trombone, saxophone and/or electronic keyboards/synthesizers.

Features and techniques found in popular music

Riff	A short, repeated pattern.
Hammer on	Finger brought sharply down onto the string.
Pitch bend	Altering (bending) the pitch slightly.
Power chords	A guitar chord using the root and 5 th note (no 3 rd).
Distortion	An effect which distorts the sound (creates a 'grungy' sound).
Slap bass	A percussive sound on the bass guitar made by bouncing the strings on the fret board.
Fill	A short, improvised drum solo.
Rim shot	Rim and head of drum hit at same time.
Belt	A bright, powerful vocal sound, high in the chest voice.
Falsetto	Male voice in a higher than usual range.
Syllabic	One note sung per syllable.
Melismatic	Each syllable sung to a number of different notes.
A cappella	Voices singing without instrumental accompaniment.

The structure of a pop/rock song may include:

INTRO: short opening section, usually instrumental.

VERSE: same music but different lyrics each time.

CHORUS: repeated with the same lyrics each time (refrain).

MIDDLE EIGHT: a link section, often eight bars, with different musical ideas.

BRIDGE: a link/transition between two sections.

OUTRO: an ending to finish the song (coda).

*You may also hear a pre-chorus, instrumental interlude or instrumental solo.

*Strophic songs, 32 bar songs (AABA) and 12 bar blues are also found in popular music.

A typical rock ballad in verse-chorus form could follow the pattern:

- Intro
- Verse 1
- Chorus
- Verse 2
- Chorus
- MiddleEight
- Chorus
- Outro

Technology

Amplified	Made louder (with an amplifier).
Synthesized	Sounds created electronically.
Panning	Moving the sound between left and right speakers.
Phasing	A delay effect.
Sample	A short section of music that is reused (e.g. looped, layered).
Reverb	An electronic echo effect.

Music terms and signs

Glossary - Eduqas GCSE Music



Dynamics

<i>pp</i>	<i>p</i>	<i>mp</i>	<i>mf</i>	<i>f</i>	<i>ff</i>
PIANISSIMO	PIANO	MEZZO PIANO	MEZZO FORTE	FORTE	FORTISSIMO
very soft (v.quiet)	soft (quiet)	moderately soft	moderately loud	loud	very loud
crescendo (cresc.) gradually getting louder			diminuendo (dim.) gradually getting quieter		

Tempo

LARGO	LENTO/ ADAGIO	ANDANTE/ MODERATO	ALLEGRO	ALLEGRO/ VIVACE	PRESTO
v.slow	slow	walking pace/ moderate	quite fast	quick/lively	very quick
<ul style="list-style-type: none"> • Accelerando: gradually getting faster • Ritardando/ritardando: gradually getting slower • A tempo: return to the original speed • Ritenuato: in slower time • Rubato: rhythms are played in a more free/flexible way ('robbed time'). 					

Time values

NOTE	NAME	LENGTH (duration)	REST
	Semibreve	4 beats	
	Minim	2 beats	
	Crotchet	1 beats	
	Quaver	1/2 beats	
	Semiquaver	1/4 beats	
A dot after the note increases its length by half:			
	Dotted minim		
	Dotted crotchet		
Groups of quavers/semiquavers are usually beamed together:			

Terms and signs

#	Sharp	Raises a note by a semitone.
b	Fiat	Lowers a note by a semitone.
	Natural	Cancels a previous sharp or flat for a note.
	Staccato	Detached.
	Slur	Play smoothly.
	Tie	Hold the notes for the full value of the tied notes.
	Accent	Emphasize the note (play forcefully).
	Pause	Hold the note longer.
<i>sfz</i>	Sforzando	Sudden stress/ accent.

Music

Music terms and signs

Glossary - Eduqas GCSE Music

Key signatures

C Major
G Major **D Major** **A Major** **E Major**
F Major **Bb Major** **Eb Major** **Ab Major**

F C G D A E B
 Order of sharps # --
 -- Order of flats b

treble clef time signature
 bass clef barline
 notes on the lines notes in the spaces
 repeat sign

Treble clef notes
Bass clef notes

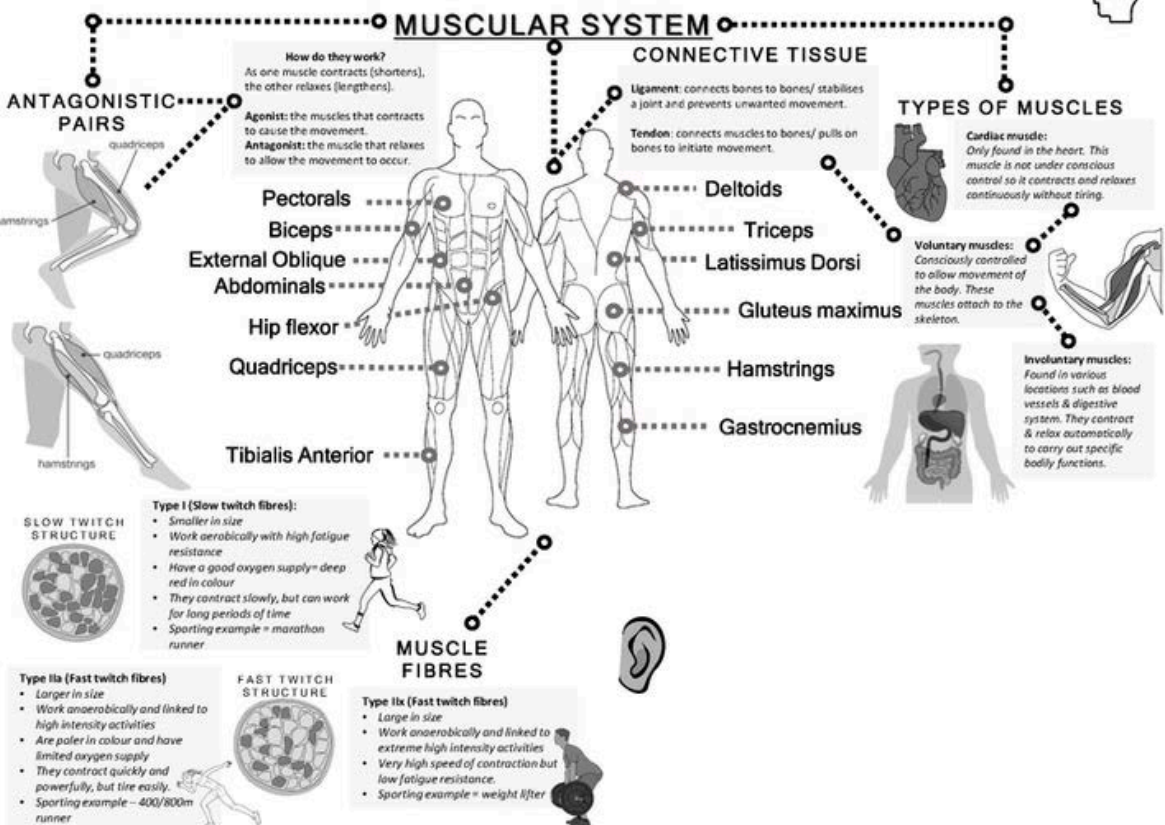
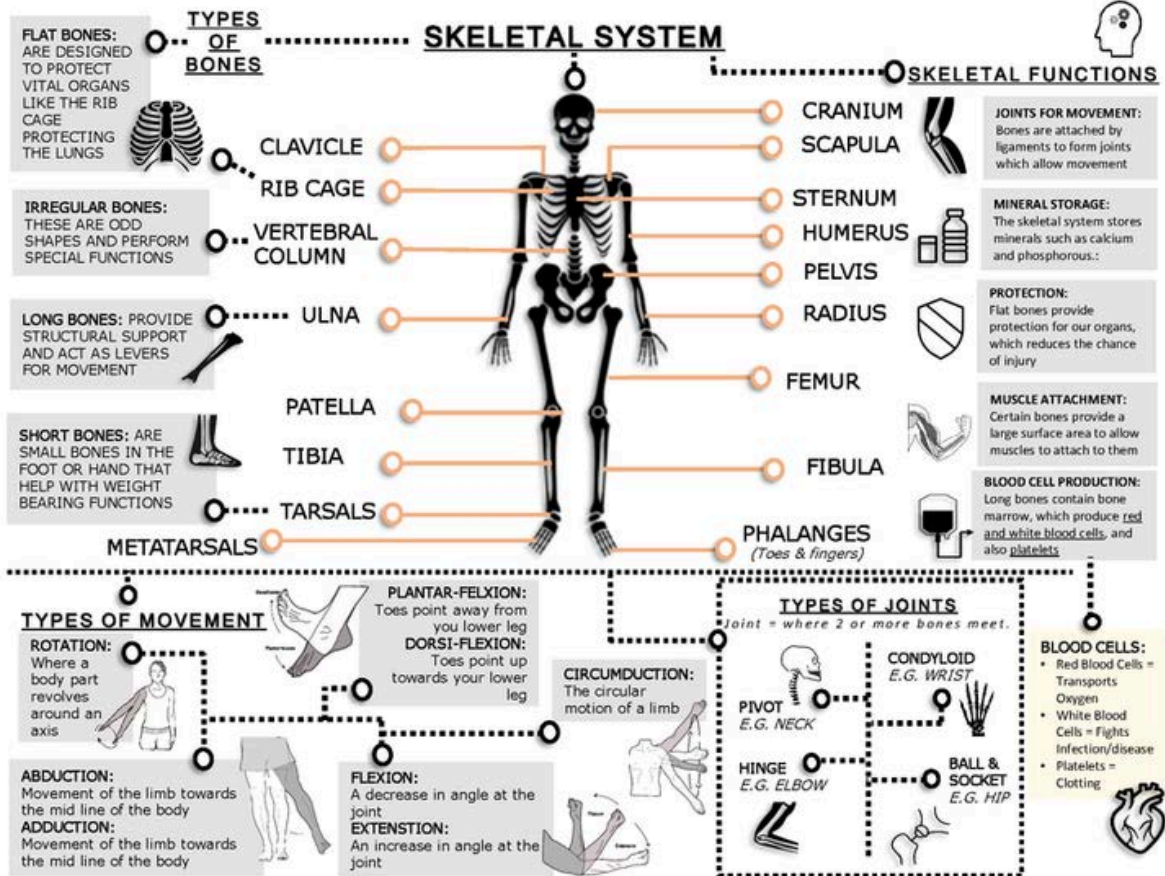
Time signatures

Two crotchet beats per bar: simple duple
 Two dotted crotchet beats per bar: compound duple
 Three crotchet beats per bar: simple triple
 Three dotted crotchet beats per bar: compound triple
 Four crotchet beats per bar: simple quadruple
 Four dotted crotchet beats per bar: compound quadruple

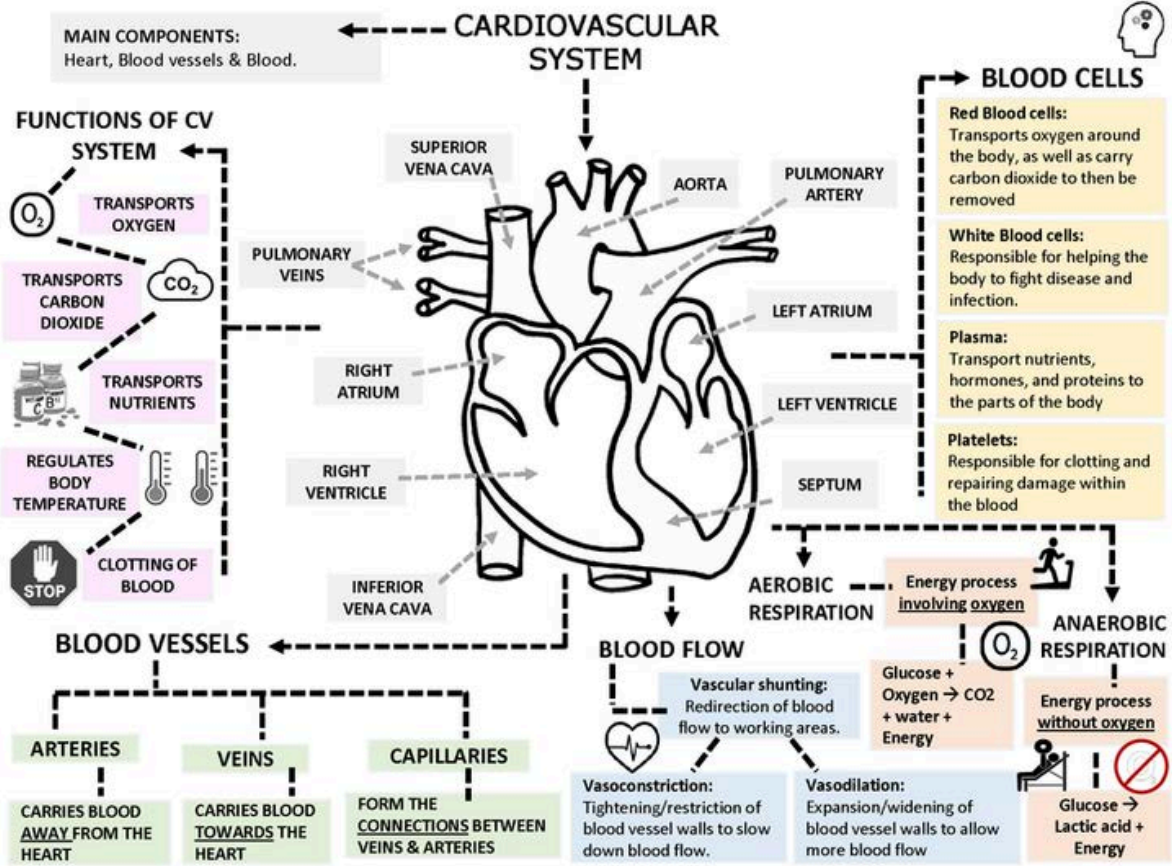
3
 A triplet is when three notes are played in the time of two.



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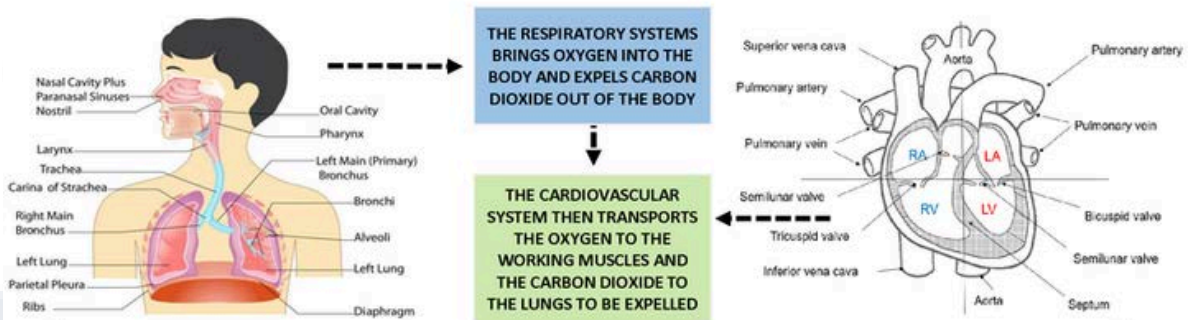


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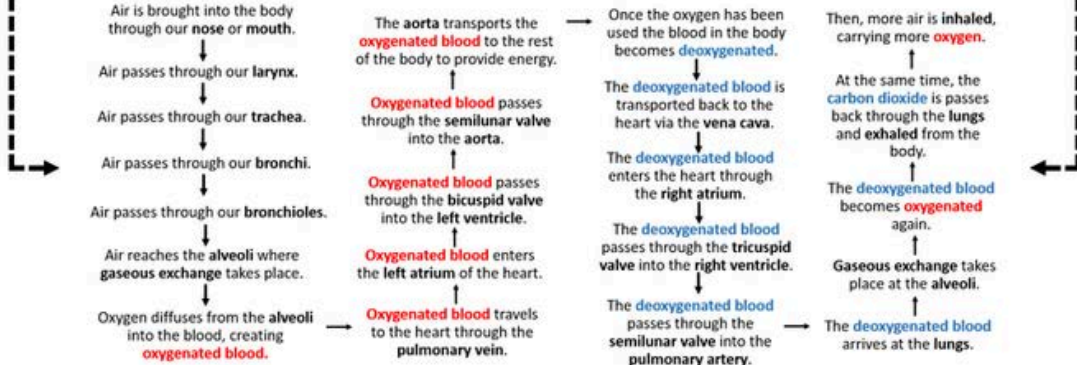


CARDIO-RESPIRATORY SYSTEM

THE CARDIOVASCULAR SYSTEM AND THE RESPIRATORY SYSTEM WORK TOGETHER AS ONE SYSTEM



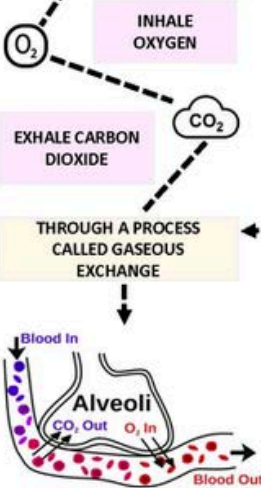
The cardio-respiratory system in action:



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KEY TERMS:
Pharynx, Larynx, Trachea, Bronchi, Bronchioles, Alveoli, Diaphragm and intercostal muscles.

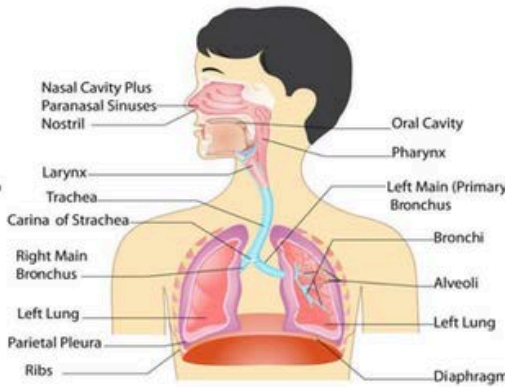
FUNCTIONS OF THE RESPIRATORY SYSTEM



DURING GASEOUS EXCHANGE:

- O₂ DIFFUSES INTO THE BLOOD FROM THE LUNGS
- CO₂ DIFFUSES INTO THE LUNGS FROM THE BLOOD

RESPIRATORY SYSTEM AND RESPIRATION



AEROBIC RESPIRATION

Energy process involving oxygen

Glucose + Oxygen → CO₂ + water + Energy

ANAEROBIC RESPIRATION

Energy process involving oxygen

Glucose → Lactic acid + Energy

LUNG VOLUMES

TIDAL VOLUME:
THE AMOUNT OF AIR YOU BREATHE IN AND OUT DURING NORMAL BREATHING

TOTAL LUNG CAPACITY:
TOTAL VOLUME OF AIR IN THE LUNGS AFTER LARGEST POSSIBLE INHALATION

VITAL CAPACITY:
VOLUME OF AIR YOU CAN EXHALE AFTER LARGEST POSSIBLE INHALATION

RESIDUAL VOLUME:
THE VOLUME OF AIR LEFT IN THE LUNGS AFTER MAXIMAL EXHALATION

COMPOSITION OF AIR

INHALED AIR:

- NITROGEN = 78%
- OXYGEN = 21%
- CARBON DIOXIDE = 0.04%

EXHALED AIR:

- NITROGEN = 78%
- OXYGEN = 16%
- CARBON DIOXIDE = 4%

EFFECTS OF EXERCISE

Y8 PE KNOWLEDGE ORGANISER – AUTUMN 1

SHORT TERM EFFECTS

- CV SYSTEM**
1. Increased heart rate (HR) – increased amount of beats per minute
 2. Increase stroke volume (SV) – amount of blood ejected per beat
 3. Increase cardiac output (CO) – amount of blood ejected per minute
 $Cardiac\ output = SV \times HR$
- RESPIRATORY SYSTEM**
1. Increased breathing rate – more breaths per minute
 2. Oxygen debt – temporary oxygen shortage in the muscles
- MUSCULAR SYSTEM**
1. Muscular fatigue – weakening of muscles during exercise
 2. Lactate accumulation – build up of lactic acid in the muscles
 3. Increased muscle temperature
 4. Muscle cramp – severe/painful type of muscle fatigue

LONG TERM EFFECTS

- CV SYSTEM**
1. Cardiac hypertrophy – heart grows in size and strength
 2. Decreased resting HR – fewer beats per minute when at rest
 3. Faster recovery rate – speed at which heart returns to resting HR
 4. Increased stroke volume – amount of blood ejected per beat
 5. Maximum cardiac output – amount of blood ejected per minute
- RESPIRATORY SYSTEM**
1. Increased vital capacity – more air exhaled after maximal inhalation
 2. Increased number of alveoli – more alveoli become available for gases exchange
- MUSCULO-SKELETAL SYSTEM**
1. Muscle hypertrophy – muscle fibres increase in size & strength
 2. Increased ligament & tendon strength – reducing chance of injury during exercise
 3. Increased bone density – bones get stronger produces new cells.

KEY TERMS

Aerobic respiration – process of releasing energy using oxygen

Anaerobic respiration – process of releasing energy without oxygen

Pulse – used to measure HR

Working HR – figure taken during or after exercise

Maximum HR – max number of heart beats during exercise

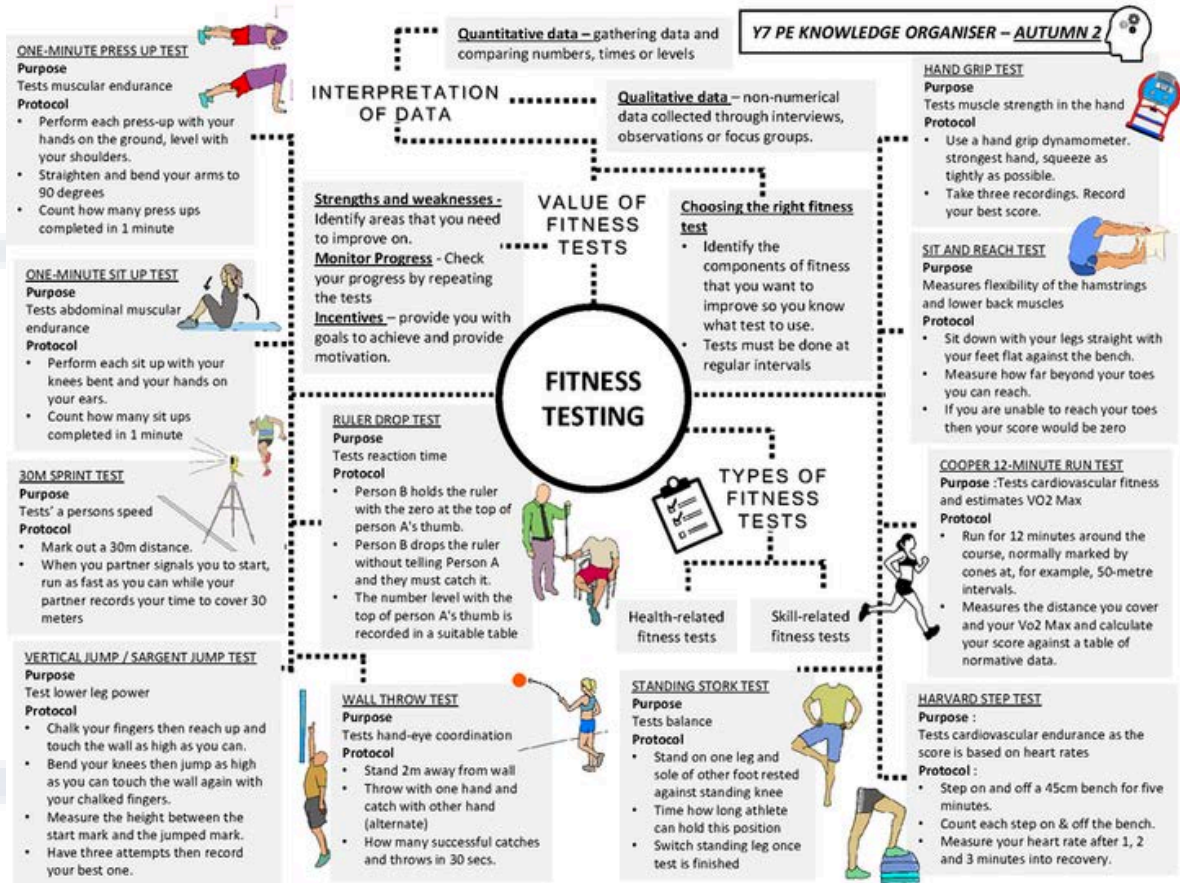
Recovery rate – time taken for HR to reduce to resting HR

Alveoli – Tiny air sacs in the lungs involved in the process of inspiration

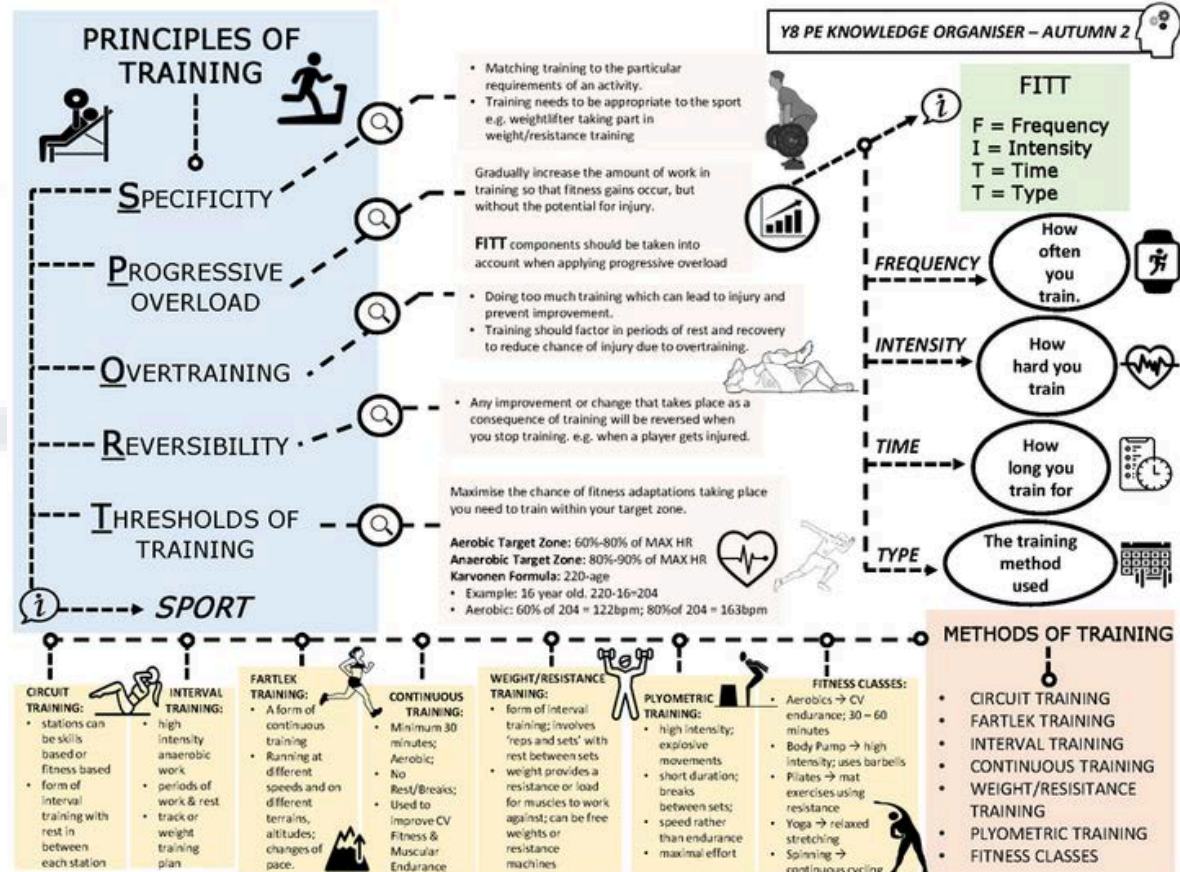
Vital capacity – Max amount of air exhaled after max inhalation

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Y7 PE KNOWLEDGE ORGANISER – AUTUMN 2



Y8 PE KNOWLEDGE ORGANISER – AUTUMN 2



PE

GCSE PE REVISION CHECKLIST

Name: _____

Exam Board: Edexcel

Target Grade:

Paper: Fitness and Body Systems

Aspirational Grade:

Use this checklist before your assessment to focus your revision

R	I am not confident I could answer a question on this topic. I need to check with my teacher and ensure I have what I need to revise it.
A	I am not too sure about this topic, I may need to check with my teacher and spend more time revising this topic
G	I am confident about this topic and I know what I need to do to revise it

Topic 1: Applied Anatomy and Physiology

Revision Resources	Topic	R	A	G
1.1: The structure and functions of the musculoskeletal system				
Revision Guide: Page 1	1.1.1 The functions of the skeleton applied to performance in physical activities and sports: Protection of vital organs, muscle attachment, joints for movement, platelets, red and white blood cell production, storage of calcium and phosphorus			
Revision Guide: Page 2	1.1.2 Classification of bones: Long (leverage), short (weight bearing), flat (protection, broad surface for muscle attachment), irregular (protection and muscle attachment) applied to performance in physical activities and sports			
Revision Guide: Page 3	1.1.3 Structure of the Skeleton: Cranium, clavicle, scapula, five regions of the vertebral column (cervical, thoracic, lumbar, sacrum, coccyx), ribs, sternum, humerus, radius, ulna, carpals, metacarpals, phalanges (in the hand), pelvis, femur, patella, tibia, fibula, tarsals, metatarsals, phalanges (in the foot), and their classification and use applied to performance in physical activities and sports			
Revision Guide: Page 4	1.1.4 Classification of joints: Pivot (neck – atlas and axis), hinge (elbow, knee and ankle), ball and socket (hip and shoulder), condyloid (wrist), and their impact on the range of possible movements			
Revision Guide: Page 5-7	1.1.5 Movement possibilities at joints dependant on joint classification: flexion, extension, adduction, abduction, rotation, circumduction, plantar-flexion, dorsi-flexion and examples of physical activity and sporting skill			
Revision Guide: Page 8	1.1.6 The role of ligaments and tendons, and their relevance to participation in physical activity and sport			
Revision Guide: Page 8	1.1.7 Classification and characteristics of muscle types: voluntary muscles of the skeletal system, involuntary muscles in blood vessels, cardiac muscle forming the heart			
Revision Guide: Page 9	1.1.8 Location and role of the voluntary muscular system to work with the skeleton to bring about specific movement during physical activity and sport, and the specific function of each muscle: Deltoid, biceps, triceps, pectoralis major, latissimus dorsi, external obliques, hip flexors, gluteus maximus, quadriceps, hamstrings, gastrocnemius and tibialis anterior			

PE

Revision Resources	Topic	R	A	G
Revision Guide: Page 10-13	1.1.9 Antagonistic pairs of muscles (agonist and antagonist) to create opposing movement at joints to allow physical activities: Gastrocnemius and tibialis anterior acting at the ankle -plantar flexion to dorsi flexion; and quadriceps and hamstrings acting at the knee, biceps and triceps acting at the elbow, and hip flexors and gluteus maximus acting at the hip – all flexion to extension)			
Revision Guide: Page 14	1.1.10: Characteristics of fast and slow twitch muscle fibre types (type I, type IIa and type IIx) and how this impacts on their use in physical activities			
	1.1.11 How the skeletal and muscular systems work together to allow participation in physical activity and sport			
1.2 The structure and functions of the cardiorespiratory system				
Revision Guide: Page 15	1.2.1 Functions of the cardiovascular system applied to performance in physical activities: Transport of oxygen, carbon dioxide and nutrients, clotting of open wounds, regulation of body temperature			
Revision Guide: Page 16	1.2.2 Structure of the cardiovascular system: Atria, ventricles, septum, tricuspid, bicuspid and semi-lunar valves, aorta, vena cava, pulmonary artery, pulmonary vein, and their role in maintaining blood circulation during performance in physical activity and sport			
Revision Guide: Page 17	1.2.3 Structure of arteries, capillaries and veins: How this relates to function and importance during physical activity and sport in terms of blood pressure, oxygenated, deoxygenated blood and changes due to physical exercise			
Revision Guide: Page 18	1.2.4 The mechanisms required (vasoconstriction, vasodilation) and the need for redistribution of blood flow (vascular shunting) during physical activities compared to when resting intensities of exercise (aerobic and anaerobic)			
Revision Guide: Page 19	1.2.5 Function and importance of red and white blood cells, platelets and plasma for physical activity and sport			
Revision Guide: Page 20	1.2.6 Composition of inhaled and exhaled air and the impact of physical activity and sport on this composition			
Revision Guide: Page 21	1.2.7 Vital capacity and tidal volume, and change in tidal volume due to physical activity and sport, and the reasons that make the change in tidal volume necessary			
Revision Guide: Page 22	1.2.8 Location of main components of respiratory system: lungs, bronchi, bronchioles, alveoli, diaphragm			
Revision Guide: Page 23	1.2.9 Structure of alveoli to enable gas exchange and the process of gas exchange to meet the demands of varying intensities of exercise (aerobic and anaerobic)			
	1.2.10 How the cardiovascular and respiratory systems work together to allow participation in physical activity and sport			
1.3 Anaerobic and aerobic exercise				
Revision Guide: Page 24	1.3.1 Energy: The use of glucose and oxygen to release energy aerobically with the production of carbon dioxide and water, the impact of insufficient oxygen on energy release, the by-product of anaerobic respiration (lactic acid)			
Revision Guide: Page 24	1.3.2 Energy sources: Fats as a fuel source for aerobic activity, carbohydrates as a fuel source for aerobic and anaerobic activity			

PE

Topic 2: Movement Analysis

Revision Resources	Topic	R	A	G
2.1 Lever Systems				
Revision Guide: Page 27-28	2.1.1 First, second and third class levers and their use in physical activity and sport			
Revision Guide: Page 28	2.1.2 Mechanical advantage and disadvantage (in relation to loads, efforts and range of movement) of the body's lever systems and the impact on sporting performance			
2.2 Planes and axes of movement				
Revision Guide: Page 29	2.2.1 Movement patterns using body planes and axes: sagittal, frontal and transverse plane and frontal, sagittal, vertical axes applied to physical activities and sporting actions			
Revision Guide: Page 30	2.2.2 Movement in the sagittal plane about the frontal axis when performing front and back tucked or piked somersaults			
Revision Guide: Page 30	2.2.3 Movement in the frontal plane about the sagittal axis when performing cartwheels			
Revision Guide: Page 30	2.2.4 Movement in the transverse plane about the vertical axis when performing a full twist jump in trampolining			

Topic 3: Physical Training

Topic	R	A	G
3.1.1 Definitions of fitness, health, exercise and performance and the relationship between them			
3.2.1 Components of fitness and the relative importance of these components in physical activity and sport: Cardiovascular fitness (aerobic endurance), strength, muscular endurance, flexibility, body composition, agility, balance, coordination, power, reaction time, and speed			
3.2.2 Fitness tests: the value of fitness testing, the purpose of specific fitness tests, the test protocols, the selection of the appropriate fitness test for components of fitness and the rationale for selection			
3.2.3 Collection and interpretation of data from fitness test results and analysis and evaluation of these against normative data tables			
3.2.4 Fitness tests for specific components of fitness: cardiovascular fitness – Cooper 12-minute tests (run, swim), Harvard Step Test; agility – Illinois agility run test; strength – grip dynamometer; muscular endurance – oneminute sit-up, one-minute press-up; speed – 30 m sprint; power – vertical jump; flexibility – sit and reach			
Topic	R	A	G
3.3.1 Planning training using the principles of training: individual needs, specificity, progressive overload, FITT (frequency, intensity, time, type), overtraining, reversibility, thresholds of training (aerobic target zone: 60–80% and anaerobic target zone: 80%–90% calculated using simplified Karvonen formula, i.e. $(220) - (\text{your age}) = \text{MaxHR}$; $(\text{MaxHR}) \times (60\% \text{ to } 80\%) = \text{aerobic training zone}$; $(\text{MaxHR}) \times (80\% \text{ to } 90\%) = \text{anaerobic training zone}$)			
3.3.3 The use of different training methods for specific components of fitness, physical activity and sport: continuous, Fartlek, circuit, interval, plyometrics, weight/resistance. Fitness classes for specific components of fitness, physical activity and sport (body pump, aerobics, Pilates, yoga, spinning). The advantages and disadvantages of different training methods			

RE

COMPONENT 3- ISLAM BELIEFS

1. KUTUB (HOLY BOOKS)	
BOOK	FACTS
SAHIFAH	First holy scrolls given to Ibrahim but were lost.
TAWRAT (TORAH)	<ul style="list-style-type: none"> Book given to Musa (Moses) Contains laws & ideas on Paradise and Hell
ZABUR (PSALMS)	<ul style="list-style-type: none"> Given to Dawud (David) Contains poems praising Allah and nature
INJIL (GOSPELS)	<ul style="list-style-type: none"> The <u>Injil</u> were teachings given to Jesus (Isa) The Christian Gospels were written by others Corrupted e.g. Jesus was not crucified
QUR'AN	<ul style="list-style-type: none"> Given to Prophet Muhammad on the Night of Power by Angel Jibril. The literal word of Allah. Written in Arabic. Haftiz= a Muslim who memorises the Qur'an

2. NATURE OF ALLAH		
QUALITY	DEFINITION	EXAMPLE/TEACHING
TAWHID	The oneness of Allah	Shahadah- "There is no God but Allah..."
BENEFICENCE	Allah is always loving.	Forgave Adam- sent him to earth as the khalifah.
99 NAMES	99 ways to describe Allah	"The most excellent names belong to Allah, use them"
TRANSCENDENT	Allah is not affected by laws of nature- He exists outside the universe.	
IMMANENT	Allah is close to us	"Allah is closer than your jugular vein"
TAQWA	Constant awareness of Allah	
SHIRK	The sin of worshipping other idols.	

3. SUNNI VS SHIA	
SUNNI ISLAM	SHIA ISLAM
Abu-Bakr (Friend)	Alli (Son in law)
6 Articles of Faith- Tawhid, Angels, Holy Books, Prophets, Afterlife, AL-QADR	5 Roots of Religion- Tawhid, Afterlife, Imamate (12 th imam on Earth now), ADALAT
AL-QADR= Allah's divine plan	ADALAT= God is 'most-just'- will judge us fairly

4. RISALAH (PROPHETHOOD)	
NAME	FACTS
ADAM	<ul style="list-style-type: none"> Made from the "soil of many colours" Built the first Kaaba Forgiven by Allah for the first sin
IBRAHIM	<ul style="list-style-type: none"> Destroyed polytheist idols & rescued by Allah Willing to sacrifice his son (Ismail) for Allah Rebuilt the Kaaba- footprints are there
ISA	<ul style="list-style-type: none"> Not God- just a man. Performed miracles- spoke to Maryam (mother) at birth to say He is a "servant of God", breathed life into clay birds Will return to defeat the "false messiah"
MUHAMMAD	<ul style="list-style-type: none"> Orphaned at a young age, married Khadija. Spread Islam in a polytheistic Mecca. Jibril revealed Qur'an to him over 23 years. His sayings are recorded in the Hadith. Known as the "seal of the prophets"

5. MALAIKAH (ANGELS)	
JIBRIL	MIKAIL
<ul style="list-style-type: none"> Revelation-reveals good news (e.g. Qur'an) Has seen beauty of Paradise and horror of Hell Cleaned Muhammad's heart on Night Journey 	<ul style="list-style-type: none"> "Nourisher"- nourishes plants with rain Nourishes human souls by protecting us Keeps Shaytan (satan) out of Paradise
ISRAFIL	
<ul style="list-style-type: none"> Will blow horn in Jerusalem to start Judgement Day All humans will gather on Mount Arafat 	
RAQIB & ATID	
<ul style="list-style-type: none"> "Noble recorders" Record our deeds and <u>niyyah</u> (thoughts). 	
SUNNI/SHIA BELIEFS ABOUT ANGELS	
SUNNI	Angels have no free will
SHIA	Angels have free will but never disobey God
	Jibril told Muhammad All should be leader

6. AKHIRAH (AFTERLIFE)	
BARZAKH	3 QUESTIONS
Soul taken by Azrail to barzakh	<ul style="list-style-type: none"> Two angels ask 3 questions- who is your prophet/ god/your religion? Determines barzakh comfort
JUDGEMENT	<ul style="list-style-type: none"> Raqib and Atid present us with our book, then read aloud and weighed.
AS-SIRAT	Bridge over Jahannam into Jannah- "thin as a hair/ sharp as a sword"
JANNAH	<ul style="list-style-type: none"> Garden as eternal reward "Rivers of milk and honey" 7 stages of Heaven 1st stage- water (Adam) 7th stage = divine light (Abraham) Physical/mental torture "Garments of fire" 7 stages of torture... darkness Potentially just temporary
JAHANNAM	
	NO FREE WILL
PRE-DESTINATION	<ul style="list-style-type: none"> Al-Qadr. Preserved Tablet in Jannah- the destiny of the whole universe is on it Insha'Allah (if Allah wills it)
	FREE WILL
	<ul style="list-style-type: none"> Adalat- Allah is always "just" Tested Ibrahim's free will (faith) Raqib & Atid recording deeds

Tawhid	Risalah	Ummah	Mosque	Shariah	Jihad	Halal	Haram	Hanif
The basic Muslim belief in the oneness of Allah.	Messengers and Prophets of Allah e.g. Muhammad	Worldwide community of Muslims	A place of communal worship for Muslims	Means 'straight path'/' refers to laws in Qur'an.	'Struggle'- greater is inner struggle and lesser is physical struggle.	Permitted in Islam e.g. food rules.	Forbidden in Islam e.g. eating forbidden foods (pork).	Somebody with inner knowledge of God e.g. Ibrahim

COMPONENT 3- ISLAM PRACTICES

1. FIVE PILLARS OF ISLAM		
PILLAR	FACTS	TEACHING
SHAHADAH	<ul style="list-style-type: none"> Declaration of faith Said at birth, death and reversion, in battle Soldiers say it in battle Emphasises tawhid 	"I bear witness there is no God but Allah, and Muhammad is His messenger"
SALAH	<ul style="list-style-type: none"> Prayer 5 times a day Wudu-ritual cleansing Face Mecca (qibla) and state "Allahu akbar" Dua= personal prayers Friday prayers at mosque (men)= <u>jummah</u> 	"The first thing a person will be judged on is prayer"
ZAKAT	<ul style="list-style-type: none"> 2.5% tax donated to charity (e.g. poor and travellers) Zakat Foundation= Gave money to Grenfell Voluntary =sadaqah 	"Those who help the poor are warriors for God's cause"
SAWM	<ul style="list-style-type: none"> Fasting during Ramadan No eating/drinking in day Evening meal= <u>iftar</u> Month of Night of Power Read Qur'an every day 	"Those who fast are close to God"
HAJJ	WHAT?	WHY?
	Travel to Mecca	Prophet Muhammad's home
	Wear white robes	State of purity (Ihram)
	Circle Kaaba 7 times (tawaf)	Muhammad circled Kaaba as he smashed false idols.
	Drink water from Zam Zam well	To remember the angel showing Hajar the water
	Collect pebbles from Mount Arafat	Place- Prophet Muhammad's Final Sermon
Throw stones at pillars of <u>Jamarat</u>	To remember Ibrahim throwing stones at <u>Shaytan</u> .	
Sacrifice an animal	To remember Ibrahim being willing to sacrifice his son	

2. JIHAD		
TYPE	FACTS	TEACHING
GREATER JIHAD	<ul style="list-style-type: none"> The inner struggle to be a good Muslim Examples: Follow 5 pillars, go to mosque, avoid temptation Fa'rid Ahmed: Forgave wife's murderer in New Zealand mosque shootings. 	"Paradise is for those who curb their anger"
LESSER JIHAD	<ul style="list-style-type: none"> The physical struggle in self-defence Can't kill civilians or start war, must stop if enemy surrenders Only be declared by a holy Muslim leader. 	"Fight for God those who attack you"

3. 10 OBLIGATORY ACTS OF SHIA		
10 acts that Shia Muslims must perform.		
ACT	MEANING	EXPLANATION
SALAH	3 times a day	Combine 5 prayers
SAWM	Remember Ali during Ramadan.	On the 20 th day, Shia will remember the death of Ali
PILGRIMAGE	May visit Shia shrines.	May visit Husayn's grave outside Mecca (1000x holier than Hajj)
KHUMS TAX	20% tax on wealth	Tax for the wealthy to Muslim scholars.
TAWALLA	To love those who love Allah.	Associate (spend time with) Muslims who show faith and love.
TABARRA	Hate those who do not follow Allah	Dissociate (don't spend time with) people who do not follow the Qur'an

4. FESTIVALS		
FESTIVAL	WHY?	HOW IS IT CELEBRATED?
ID-UL-ADHA	Marks end of Hajj. Remembers Ibrahim's willingness to sacrifice Ismail.	<ul style="list-style-type: none"> New clothes, gifts. Animal sacrificed/ meat shared with poor Say 'Id Mubarak Salat-ul-Adha (special prayer) In Britain: Muslims may ask a butcher to slaughter a sheep
ID-UL-FITR	3 days to celebrate the end of Ramadan (fasting)	<ul style="list-style-type: none"> Houses decorated e.g. banners/lights. Special meals. Say 'Id Mubarak' Donate Zakat-ul-Fitr In Britain: May take day off work/school
ASHURA	Shia Muslims remember death of Husayn (Ali's son) in battle.	<ul style="list-style-type: none"> Grief, wear black and march through streets. Self-flagellation (cut/whip selves) Visit Husayn's shrine. In Britain: donate blood
NIGHT OF POWER	Remembers Jibril revealing Qur'an to Muhammad.	<ul style="list-style-type: none"> Stay up and recite Qur'an Break fast with family and friends

5. IS IT DIFFICULT BEING A MUSLIM IN THE UK?		
ISSUE	DIFFICULT?	NOT DIFFICULT?
GREATER JIHAD	Temptation in UK (alcohol, gambling)	Focus on taqwa (God-consciousness)
SAWM	*Temptation of food and work/school do not close early	* Can drink/eat if very ill. * Some schools allow no PE/homework
SALAH	No time at works/school	Combine prayers later in day.
HAJJ	<ul style="list-style-type: none"> Costs £3000. Id-Ul-Adha: sacrificing an animal is illegal. 45° heat causes heatstroke. 	<ul style="list-style-type: none"> Only must go once. Can have a butcher slaughter an animal. Foreign office provides support.

RE

COMPONENT 2- CHRISTIANITY PRACTICES

1. Sacraments	
Baptism	
INFANT	<ul style="list-style-type: none"> Catholic- Parents committing to raise child as Christian, priest sprinkles holy water, god-parents decided. Magisterium- babies should be cleansed of original sin.
BELIEVER (ADULT)	<ul style="list-style-type: none"> Evangelical- Wait until believer is old enough to commit (Jesus baptised as an adult by John the Baptist in River Jordan) Whole body submerged by pastor/represents 'death' of old self.
IMPORTANCE	"No-one can enter Heaven unless born of water"- Jesus
Eucharist	
<ul style="list-style-type: none"> Church community gathers, ask for forgiveness, listen to a sermon. Bread (wafer) & wine brought to the altar, say Lord's Prayer, eat (from Priest) 	
TRANSUBSTANTIATION (Catholic)	The bread & wine literally become the body/blood.
MEMORIALISM (Church of England)	The bread and wine symbolise Jesus' sacrifice on the cross. "Do this in memory of me."- Last Supper

2. Nature of worship	
Uturgical Catholic	Traditional structure. Hymns/set prayers/sacraments. <i>"For where two or more gather in my name, I am with them."</i>
Informal Evangelical	Spontaneous. Music/talk in tongues/prayers from 'heart'. <i>"They were filled with the Holy Spirit & spoke in tongues."</i>
Individual Quaker/Society of Friends	Alone. Meditation/silence/ Bible & study guide. <i>"Go to your room, close the door, pray to your Father."</i>

3. Prayer	
Purpose	
Adoration: Praising God.	
Confession: Saying sorry.	
Thanksgiving: Thanking God.	
Supplication: Asking for something.	
Type of Prayer	
Set	<ul style="list-style-type: none"> Formal prayer recited by heart. Follows tradition/connect to past
Informal	<ul style="list-style-type: none"> Improvised prayers- personal relationship
The Lord's Prayer	<ul style="list-style-type: none"> A set prayer Jesus taught his disciples. "Forgive us our sins as we forgive those who sin against us" / "Our Father who art in Heaven"

4. Pilgrimage	
Taize (Tayzay)	<ul style="list-style-type: none"> Founded by Brother Roger in France in 1940 Ecumenical- All Christians welcome 100,000 young pilgrims each year Pilgrims live in groups doing chores, sports, prayers. Chanting prayers in candlelight.
Walsingham	<ul style="list-style-type: none"> Norfolk- Replica of house where Gabriel visited Mary Often called the 'Nazareth of England' Ecumenical- Remains visited by Catholics & CoE. Pilgrims may walk barefoot as an act of penance 'Sprinkling of the Well'- holy well water on forehead.
5. Celebrations	
Christmas	<ul style="list-style-type: none"> Celebrating incarnation of God. <i>"If you have seen me you have seen the Father"</i> Advent= 4 weeks - Christmas
Events	Nativity scenes, presents, hymns, Midnight Mass
Easter	<ul style="list-style-type: none"> Celebrating the resurrection of Christ Holy Week= Maundy Thursday (last supper), Good Friday (crucifixion) and Easter Sunday Lent= Fasting 40 days before Easter <i>"He appeared to 500 brothers and sisters."</i>
Events	Easter eggs, Church services, Easter cards

6. Church in the UK	
Role of the Church in the UK	
Religious	<ul style="list-style-type: none"> Worship/wedding/funeral.
Social/Community	<ul style="list-style-type: none"> Food banks Prison reform <i>"When I was hungry you fed me, when I was in prison you visited me"</i>
Is the UK a Christian country?	
Yes	<ul style="list-style-type: none"> 26 bishops in House of Lords Laws based on 10 commandments e.g. 'Keep sabbath holy' Still majority - 59% in 2011
No	<ul style="list-style-type: none"> Christmas has become commercialised (about making/spending money) Only 10% of Christians regularly go to Church 2001-2011 census (Christianity- 71% to 59%)

7. Worldwide Church	
Reconciliation	To unite all Christian denominations <i>"Blessed are the peacemakers"</i>
Ecumenical Movement	Started in 1910 to unite all denominations- shared Churches, leaders meet annually.
World council of Churches	<ul style="list-style-type: none"> 350 member churches Annual 'prayer week' for 'togetherness'
Charity Work	
Tearfund	<ul style="list-style-type: none"> Inspired by Jesus' agape love Charity aiming to end poverty. E.g. work in 50 countries, football projects keep Colombian youths away from gangs. Evangelical
Mission	Travelling, doing good deeds and evangelising.
Persecution of Christians	
Martyr... Somebody who dies for their religion	<ul style="list-style-type: none"> Peter crucified upside down. Oscar Romero shot by <i>"He who endures till the end will be saved"</i>
Open Doors	<ul style="list-style-type: none"> Set up in Soviet Union in 1953 Publish annual list of most Christian persecution (2022- Afghanistan) 60,000 Christians in North Korean prison.

COMPONENT 2- CHRISTIANITY BELIEFS

1. NATURE OF GOD		
Omnibenevolent	All-loving	God promises a "wounded victor" will defeat the serpent."
Omniscient	All-knowing	<i>"Even the very hairs on your head are numbered."</i>
Omnipotent	All-powerful	God created world 'ex nihilo'
The Trinity	Father, Son and Holy Spirit	<i>"If you have seen me, you have seen the Father"</i>
THE PROBLEM OF EVIL		
Epicurus	"If God is omnipotent and omnibenevolent, why does evil and suffering exist?"	
CHRISTIAN RESPONSES		
Genesis 3- Free Will	Ate from Tree of Knowledge of Good & Evil. Caused sin to enter into the world. Evil= human fault.	
Theodicy of Job	Job tested by Satan- told by wife to "curse God and die"- God asks Jobs impossible questions- accepts God's wisdom	

4. INTERPRETATIONS OF CREATION	
MODERN PROGRESSIVE	
Genesis = ancient myth	God did not make the universe in exactly 7 days. <i>"yom"</i> = Hebrew- 'period of time.
Evolution	God started evolution 4.5 billion years ago and guides it through Theistic-Guided Evolution
The Big Bang	God caused the Big Bang <i>Ex nihilo</i> (God made the world from nothing)
FUNDAMENTALIST	
Creationism	The Genesis story is 100% accurate. <i>'Scripture is God-breathed'</i>
Young Earth	Earth= 10,000 years old- Biblical family tree traced to Adam
Evolution	Evolution is a myth/lie- 6 days.

6. SALVATION	
Atonement	Jesus' death healing the rift between us and God.
Salvation	To be saved from sin and death
Catholic	Follow sacraments (e.g. baptism, eucharist) Jesus set the perfect example (e.g. baptised in River Jordan)
Quaker	Help others Parable of sheep and goats
Protestant (Church of England)	Believe in Jesus (faith) <i>"Whoever believes in me shall never die"</i>
GRACE AND HOLY SPIRIT	
Grace	The Holy Spirit carries God's grace

3. CREATION		
GENESIS 1		
Ex Nihilo	From nothing	"God said <i>"Let there be light"</i>
Creation	6 days	<i>"and on the 7th day, God rested."</i>
Imago Dei	Image of God	<i>"he created them in His image."</i>
GENESIS 2		
Adam	Made from dust, given a soul (<i>"breath of life"</i>)	
Eve	Made from Adam's rib, made as a "companion for Adam"	
ROLE AND NATURE OF HUMANS OF HUMANS		
Nature	Made in the image of God (Imago Dei) but sinful by nature- original sin.	
Role	To procreate & rule over nature (<i>"fill the earth and subdue it"</i>)	
Trinity	<ul style="list-style-type: none"> Father= The Creator, overseer of all creation and humans The Word= Jesus, "In the beginning was the Word" Spirit= Holy Spirit e.g. "breath of life" 	

5. LIFE OF JESUS	
Isaiah	Old Testament prophet who made predictions about a 'messiah'
"born of a virgin"	Jesus born to Mary who was a virgin
"He will be pierced for our transgressions"	Roman soldiers pierced Jesus' side with a spear to check he had died/prove he was human.
LIFE OF JESUS	
Incarnation- God in human form e.g. the birth of Jesus.	
<ul style="list-style-type: none"> Gabriel announced to Mary/born in a stable "If you have seen me, you have seen the Father" 	
Crucifixion - Jesus' death on a cross	
<ul style="list-style-type: none"> Carried his own cross/ Crown of thorns/ Pierced with spear by Romans/ Died to forgive human sins "Forgive them Father for they know not what they do" 	
Resurrection- When Jesus rose from the dead 3 days after death	
<ul style="list-style-type: none"> Empty tomb found by 2 women/ Appeared to people with 'stigmata' / Doubting Thomas touched his wound "He appeared to more than 500 brothers and sisters" 	
Ascension- Jesus physically ascended back up to Heaven	
<ul style="list-style-type: none"> 40 days after resurrection from a hill in Bethany "I will be with you always" 	

7. ESCHATOLOGY (AFTERLIFE)	
Bodily resurrection	We will be raised with immortal bodies <i>"The body is sown perishable and raised imperishable"</i>
Jesus as the Judge	Jesus will save those who have helped others. Parable of Sheep and Goats (<i>"When I was hungry you fed me"</i>)
Traditional View: Physical	
Heaven	Rapture- We will physically ascend to Heaven (as Jesus did) "God created the Heavens and the Earth" "God's dwelling, angels, a new 'tree of life.'" * A feeling of closeness to God- "Heaven is within you" * Universalism- All souls will eventually experience Heaven.
Hell	"An eternal place of torture & darkness." * "Weeping and gnashing of teeth" * "Sinners will not be resurrected." * "Sinners will not reach eternal life"

Computer Science

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