# KNOWLEDGE ORGANISERS

## YEAR 10

**BODMIN COLLEGE**

2

# Contents

# SCHOOL DAY

08:45am  Start of the School Day

08:45am  Tutor Time

09:15am  Lesson 1

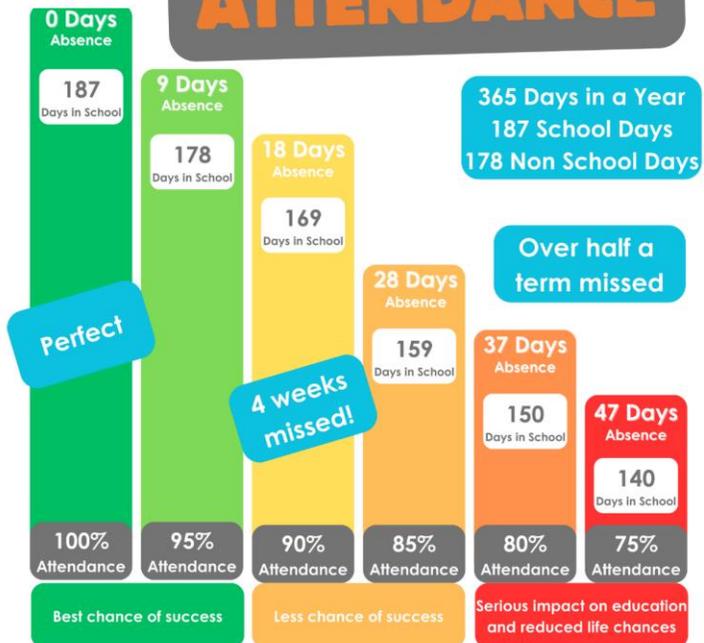10:30am  Break 1

11:00am  Lesson 2

12:15pm  Lesson 3

1.30pm  Break 2

2:00pm  Lesson 4

3.15pm  End of the School Day

3:30pm  Bodmin+

# EQUIPMENT

School Bag

Knowledge Organiser

Black and Purple Pens

Pencil Case

Knowledge Organiser

Calculator

Pencil

Rubber

Ruler

Whiteboard and whiteboard pen

# ATTENDANCE

**0 Days** Absence
187 Days in School
100% Attendance
Best chance of success

Perfect

**9 Days** Absence
178 Days in School
95% Attendance
Best chance of success

365 Days in a Year
187 School Days
178 Non School Days

**18 Days** Absence
169 Days in School
90% Attendance
Less chance of success

4 weeks missed!

**28 Days** Absence
159 Days in School
85% Attendance
Less chance of success

Over half a term missed

**37 Days** Absence
150 Days in School
80% Attendance
Serious impact on education and reduced life chances

**47 Days** Absence
140 Days in School
75% Attendance
Serious impact on education and reduced life chances

# REWARDS

**Student Leaders**

STUDENT LEADER

SENIOR STUDENT LEADER

HEAD STUDENT

**Subject Awards**

FOOD TECHNOLOGY — OUTSTANDING PROGRESS

DESIGN TECHNOLOGY — OUTSTANDING PROGRESS

PSHE — OUTSTANDING PROGRESS

MUSIC — OUTSTANDING PROGRESS

CONSTRUCTION — OUTSTANDING PROGRESS

ENGINEERING — OUTSTANDING PROGRESS

DRAMA — OUTSTANDING PROGRESS

SCIENCE — OUTSTANDING PROGRESS

BODMIN COLLEGE YEAR 7 BRONZE MERIT AWARD

BODMIN COLLEGE YEAR 7 SILVER MERIT AWARD

BODMIN COLLEGE YEAR 7 GOLD MERIT AWARD

**Merit Badges**

3

**TIMETABLE**

| A | T | 1 | 2 | 3 | 4 |
|-------|---|---|---|---|---|
| A Mon | | | | | |
| A Tue | | | | | |
| A Wed | | | | | |
| A Thu | | | | | |
| A Fri | | | | | |

| B | T | 1 | 2 | 3 | 4 |
|-------|---|---|---|---|---|
| B Mon | | | | | |
| B Tue | | | | | |
| B Wed | | | | | |
| B Thu | | | | | |
| B Fri | | | | | |

# THE PERIODIC TABLE OF THE ELEMENTS

**Group 1 – Alkali Metals**

**Group 7 – Halogens**

**Group 0 – Noble gases**

**Group number** – tells you the number of **electrons** in an elements **outer** shell.

Elements in the **same group** have **similar properties**.

Element **symbol**

Element **name**

**Key**

| relative atomic mass |
| **atomic symbol** |
| name |
| atomic (proton) number |

**Mass Number** = number of **protons** and **neutrons** added together.

**Atomic / Proton Number** = number of **protons** which is the same as the number of **electrons**.

**Neutrons** = Mass number – Atomic number

**Transition Metals**

**Non-Metals**

Noble gases have a **full outer shell** of electrons E.g., Neon (Ne)

**Magnesium** (Mg) has **12 electrons** in total. It is in **group 2** so has 2 electrons in its **outer** shell. Mg's electronic configuration is 2,8,2.

| Group | 1 | 2 | | | | | | | | | | | 3 | 4 | 5 | 6 | 7 | 0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | 1 H hydrogen 1 | | | | | | | | | | 4 He helium 2 |
| | 7 Li lithium 3 | 9 Be beryllium 4 | | | | | | | | | | | 11 B boron 5 | 12 C carbon 6 | 14 N nitrogen 7 | 16 O oxygen 8 | 19 F fluorine 9 | 20 Ne neon 10 |
| | 23 Na sodium 11 | 24 Mg magnesium 12 | | | | | | | | | | | 27 Al aluminium 13 | 28 Si silicon 14 | 31 P phosphorus 15 | 32 S sulfur 16 | 35.5 Cl chlorine 17 | 40 Ar argon 18 |
| | 39 K potassium 19 | 40 Ca calcium 20 | 45 Sc scandium 21 | 48 Ti titanium 22 | 51 V vanadium 23 | 52 Cr chromium 24 | 55 Mn manganese 25 | 56 Fe iron 26 | 59 Co cobalt 27 | 59 Ni nickel 28 | 63.5 Cu copper 29 | 65 Zn zinc 30 | 70 Ga gallium 31 | 73 Ge germanium 32 | 75 As arsenic 33 | 79 Se selenium 34 | 80 Br bromine 35 | 84 Kr krypton 36 |
| | 85 Rb rubidium 37 | 88 Sr strontium 38 | 89 Y yttrium 39 | 91 Zr zirconium 40 | 93 Nb niobium 41 | 96 Mo molybdenum 42 | [97] Tc technetium 43 | 101 Ru ruthenium 44 | 103 Rh rhodium 45 | 106 Pd palladium 46 | 108 Ag silver 47 | 112 Cd cadmium 48 | 115 In indium 49 | 119 Sn tin 50 | 122 Sb antimony 51 | 128 Te tellurium 52 | 127 I iodine 53 | 131 Xe xenon 54 |
| | 133 Cs caesium 55 | 137 Ba barium 56 | 139 La* lanthanum 57 | 178 Hf hafnium 72 | 181 Ta tantalum 73 | 184 W tungsten 74 | 186 Re rhenium 75 | 190 Os osmium 76 | 192 Ir iridium 77 | 195 Pt platinum 78 | 197 Au gold 79 | 201 Hg mercury 80 | 204 Tl thallium 81 | 207 Pb lead 82 | 209 Bi bismuth 83 | [209] Po polonium 84 | [210] At astatine 85 | [222] Rn radon 86 |
| | [223] Fr francium 87 | [226] Ra radium 88 | [227] Ac* actinium 89 | [267] Rf rutherfordium 104 | [270] Db dubnium 105 | [269] Sg seaborgium 106 | [270] Bh bohrium 107 | [270] Hs hassium 108 | [278] Mt meitnerium 109 | [281] Ds damstadtium 110 | [281] Rg roentgenium 111 | [285] Cn copernicium 112 | [286] Nh nihonium 113 | [289] Fl flerovium 114 | [289] Mc moscovium 115 | [293] Lv livermorium 116 | [293] Ts tennessine 117 | [294] Og oganesson 118 |

| Subatomic Particle | Mass | Charge |
|---|---|---|
| Proton | 1 | +1 |
| Neutron | 1 | 0 |
| Electron | Negligible | -1 |

**Nucleus:** Protons and Neutrons

**Shells:** Electrons
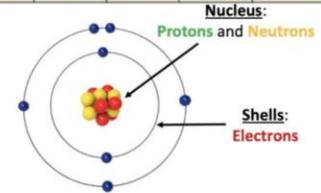
# HOW CAN I USE THE PHYSICS EQUATION SHEET?

## Triple only equations

HT = Higher Tier only equations

| | | |
|---|---|---|
| kinetic energy = 0.5 × mass × (speed)² | | $E_k = \frac{1}{2} m v^2$ |
| elastic potential energy = 0.5 × spring constant × (extension)² | | $E_e = \frac{1}{2} k e^2$ |
| gravitational potential energy = mass × gravitational field strength × height | | $E_p = m g h$ |
| change in thermal energy = mass × specific heat capacity × temperature change | | $\Delta E = m c \Delta\theta$ |
| power = $\dfrac{\text{energy transferred}}{\text{time}}$ | | $P = \dfrac{E}{t}$ |
| power = $\dfrac{\text{work done}}{\text{time}}$ | | $P = \dfrac{W}{t}$ |
| efficiency = $\dfrac{\text{useful output energy transfer}}{\text{total input energy transfer}}$ | | |
| efficiency = $\dfrac{\text{useful power output}}{\text{total power input}}$ | | |
| charge flow = current × time | | $Q = I t$ |
| potential difference = current × resistance | | $V = I R$ |
| power = potential difference × current | | $P = V I$ |
| power = (current)² × resistance | | $P = I^2 R$ |
| energy transferred = power × time | | $E = P t$ |
| energy transferred = charge flow × potential difference | | $E = Q V$ |
| density = $\dfrac{\text{mass}}{\text{volume}}$ | | $\rho = \dfrac{m}{V}$ |

| | | |
|---|---|---|
| | thermal energy for a change of state = mass × specific latent heat | $E = m L$ |
| | For gases: pressure × volume = constant | $p V = \text{constant}$ |
| | weight = mass × gravitational field strength | $W = m g$ |
| | work done = force × distance (along the line of action of the force) | $W = F s$ |
| | force = spring constant × extension | $F = k e$ |
| | moment of a force = force × distance (normal to direction of force) | $M = F d$ |
| | pressure = $\dfrac{\text{force normal to a surface}}{\text{area of that surface}}$ | $p = \dfrac{F}{A}$ |
| HT | pressure due to a column of liquid = height of column × density of liquid × gravitational field strength | $p = h \rho g$ |
| | distance travelled = speed × time | $s = v t$ |
| | acceleration = $\dfrac{\text{change in velocity}}{\text{time taken}}$ | $a = \dfrac{\Delta v}{t}$ |
| | (final velocity)² − (initial velocity)² = 2 × acceleration × distance | $v^2 - u^2 = 2 a s$ |
| | resultant force = mass × acceleration | $F = m a$ |
| HT | momentum = mass × velocity | $p = m v$ |
| HT | force = $\dfrac{\text{change in momentum}}{\text{time taken}}$ | $F = \dfrac{m \Delta v}{\Delta t}$ |
| | period = $\dfrac{1}{\text{frequency}}$ | $T = \dfrac{1}{f}$ |
| | wave speed = frequency × wavelength | $v = f \lambda$ |
| | magnification = $\dfrac{\text{image height}}{\text{object height}}$ | |
| HT | force on a conductor (at right angles to a magnetic field) carrying a current = magnetic flux density × current × length | $F = B I l$ |
| HT | $\dfrac{\text{potential difference across primary coil}}{\text{potential difference across secondary coil}} = \dfrac{\text{number of turns in primary coil}}{\text{number of turns in secondary coil}}$ | $\dfrac{V_p}{V_s} = \dfrac{n_p}{n_s}$ |
| HT | potential difference across primary coil × current in primary coil = potential difference across secondary coil × current in secondary coil | $V_p I_p = V_s I_s$ |

Give
Give
Want

1. What does it give you? What does it want you to calculate?
2. Do you need to rearrange?
3. Do you need to convert?
4. Include the figures
5. Do you need to put it into standard form?
6. Do you need to include the unit?
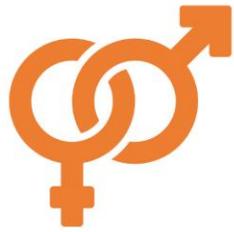7. Do you need to give the answer in significant figures?
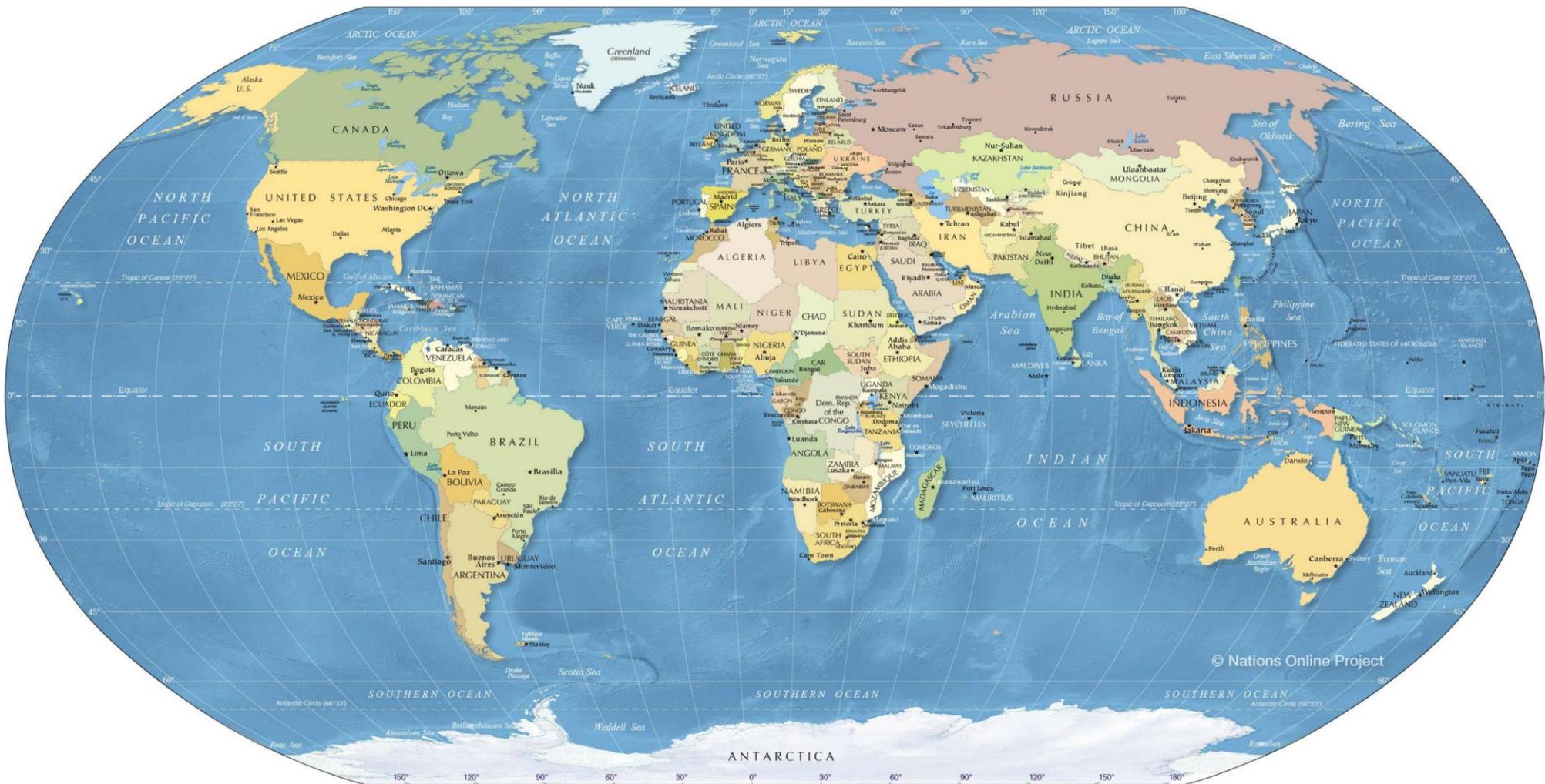
World - Oceans & Continents
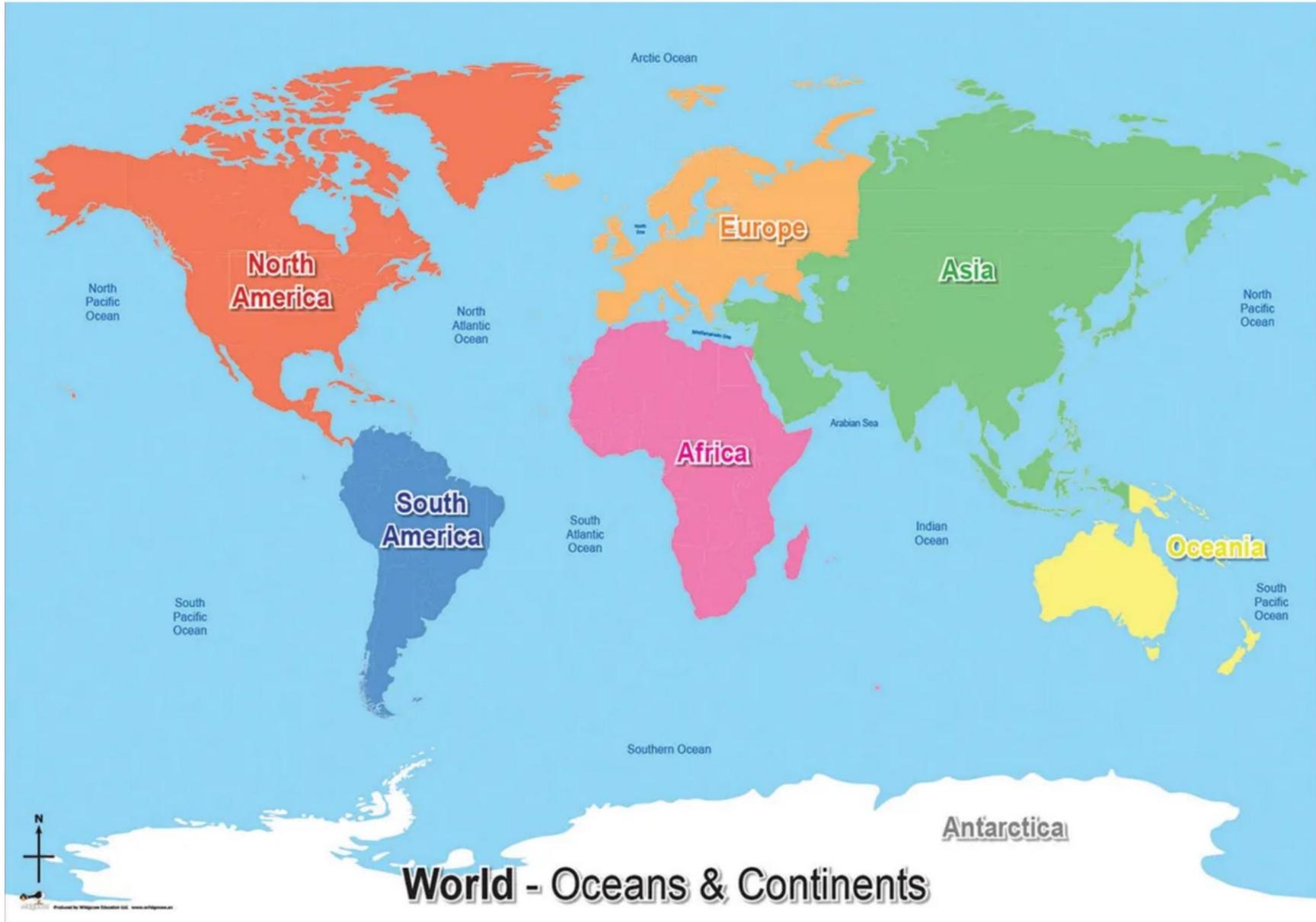
# PROTECTED CHARACTERISTICS

# BRITISH VALUES

Sex

Sexual Orientation

Age

Disability

Gender Reassignment

Marriage and Civil Partnership

Pregnancy and Maternity

Race

Religion or belief

## Democracy
- I can **influence** the decisions that affect me in the school
- I can work **effectively** with others in the school

## Liberty
- I am **free to think** as I see fit
- I have the freedom to **make choices** that affect me but I **recognise** I am **accountable** for **all my actions**

## Respect
- I recognise that **everyone is entitled** to their opinion as long as it **does not promote extremism**
- I understand that everyone is **entitled to a voice** within the classroom and I will **listen to others**

## Law
- I understand that the school **rules** are used to mirror **society laws** and must be respected
- I recognise that there will be **consequences for my actions**

## Responsibility
- I recognise that I am as **equally responsible** for my learning as the teacher
- I take **responsibility** for my actions - good or bad
- We **all** have a **responsibility** to **promote** and **protect** the wellbeing of others

## Tolerance
- I recognise that it is **unacceptable** to dismiss the **beliefs** and **opinions** of anyone
- I understand that discussions about **sensitive issues** will be **controlled** and **structured**

9

# STAYING SAFE AT SCHOOL

At Bodmin College we want to ensure that all of our students feel happy, safe and supported at all times. Everyone has a duty of care to safeguard your physical and mental health when at school. During tutor and PSHE lessons you will be taught how to stay safe both in school, outside of school and online. There is always someone from the 'Safeguarding Team' to talk to during school hours, should you need to. However, you can talk to any member of staff that you feel comfortable talking to.

# FULL STOP

Bullying is not ok, and we need to work together to stop it from happening. 'Full Stop' is our online bullying report form that allows you to report any occurrences of bullying, either in school, out of school, or online. You can complete the form via the school website. A member of the pastoral team will then investigate the incident and behaviour sanctions will be issued if bullying has happened.

# LANYARDS

All staff, visitors and sixth form students where lanyards whilst on the college campus. The purpose of lanyards are to keep our college campuses safe places to work and learn in. It is essential that all post-16 students, staff and visitors when on the college premises are easily identified and that we are aware of who everyone is on our campuses during all periods of the day. This is an important employability skill that you need to understand, as many sectors always require visible ID as a safeguarding requirement and a way of registering attendance.

# ONLINE SAFETY

Staying safe online is really important, especially now that we have smartphones and devices connected to the internet all of the time. In school we use a system called **Smoothwall** so monitor the use of computers and devices connected to the internet. This helps us to keep you and our school community safe. There are lots of tops to help you keep safe online. Checkout out the SMART Rules here.

## Staying Safe Online — Follow the SMART Rules

**S** — Do not **SHARE or SEND** personal information, passwords, images or videos of yourself. If anyone asks you for images or videos tell an adult straight away

**M** — Do not **MEET** anyone who you have only become friends with online. Even a friend of a friend is a stranger

**A** — Do not **ACCEPT** messages, images, videos or friend requests from people you do not know

**R** — Not everything you see online is **RELIABLE**. Find at least 3 different sources to check information is correct

**T** — **TELL** a trusted adult if something happens online that makes you feel worried or uncomfortable

# Wellbeing

## Signposting

**Internal Pastoral Support**
Tutor, Director of Key Stage,
Year Manager, Safeguarding Team

**External Support**
See websites below:

**CLEAR**
Emotional Trauma & Therapy Specialists
clearsupport.net

**Young People Cornwall**
Making Waves
Youngpeoplecornwall.org

**kooth**
Kooth.com

**Penhaligon's Friend**
Penhaligonsfriends.org.uk

**YOUNGMINDS**
fighting for young people's mental health
Youngminds.org.uk

**Cornwall Carers Service**
Cornwallcarers.org.uk/young-carers

**childline**
ONLINE, ON THE PHONE, ANYTIME
Childline.org.uk

**withyou**
wearewithyou.org.uk

**Intercom Trust**
Intercomtrust.org.uk

## MENTAL HEALTH & WELLBEING

five self care tips

**ZZZ Get plenty of sleep**
Teenagers need 8-10 hours of sleep per night

**Maintain a healthy diet**
Eating well – a balanced diet full of vegetables and nutrients – can improve your sense of well-being and mood

**Exercise regularly**
Even if it's just a walk around the block or to school - you'll feel better

Talking can provide stress relief, and can lighten the load of a concern you might be having. Talking about a problem can help to stop you from feeling so overwhelmed.

**"Talk to someone"**

**Make time for yourself**
Whether it's reading, watching a film or having a bath, making time for yourself is essential

# Art

| Presentation and Recording Ideas | Design | Clay key Knowledge | Vocabulary |
|---|---|---|---|

**Key Knowledge: Presenting your collection of observational drawings.**

**Strong Observational Skills**
Show accurate drawing from real objects: **proportion, tone**, detail, **texture, and mark-making**. Only present your **best** drawings.

**Clear, Balanced Presentation**
Use a clean layout with **visual hierarchy** so the strongest drawings stand out. Keep spacing even, avoid clutter, and use minimal colour so the drawings stay the focus.

**Refinement & Selection**
Choose drawings that clearly show improvement and skill. Refine your work and presentation with small adjustments to create a professional, well-organised board.

**Assessment Objectives**
- **AO1** – Show research and links to artists' techniques where relevant.
- **AO2** – Show experimentation with different media (pencil, charcoal, ink).
- **AO3** – Record ideas through high-quality observational drawing.
- **AO4** – Present a clear, polished, well-organised final board.

**Key knowledge: Understanding the importance of Design.**

**Designs Communicate Ideas Clearly:**

Good design helps you communicate your intentions to the viewer.
Layout, colour, composition, and materials all work together to make your message easy to understand.

**Design Improves the Quality of Your Final Outcome:**

Planning and refining designs helps you make stronger, more professional work. Testing ideas, combining elements, and making improvements leads to a more successful final piece.

**Designers Solve Problems with Purpose:**

Design is not just decoration — it solves a problem or meets a need.
Considered design ensures your work is fit for purpose, links to your theme, and meets the Assessment Objectives.

**Clay Preparation:**
- Wedging: Kneading clay to remove air bubbles and make it smooth.
- Clay must be even in texture to avoid cracking or exploding in the kiln.

**Building Techniques:**
- Pinch Pot: Shaping clay by pinching it with your fingers.
- Coil Building: Rolling coils and stacking them to build walls.
- Slab Building: Joining flat pieces of clay using scoring and slip.
- Score & Slip: Scratching (score) and adding liquid clay (slip) to join pieces securely.

**Drying Stages:**
- Plastic: Soft and workable.
- Leather-Hard: Firm but still carvable; good for refining details.
- Bone Dry: Completely dry and fragile; ready for the kiln.

**Firing Stages:**
- Bisque Firing: First firing; makes clay hard but porous.
- Glaze Firing: Second firing; melts glaze into a glassy coating.

**Proportion** The correct size and scale of parts in a drawing compared to each other.

**Tone** How light or dark something appears in a drawing.

**Texture** How something looks like it feels (smooth, rough, bumpy, soft).

**Mark-Making** The different lines and marks you use to show tone, texture, and form.

**Visual Hierarchy** Making certain parts of a page or artwork stand out first using size, placement, or contrast.

# Art

| Glaze Key Knowledge | Printmaking | Screen printing | Vocabulary |
|---|---|---|---|

**Surface & Decoration:**

**Glaze**: Creates colour and a shiny or matte finish.

**Underglaze**: Paint applied before glaze; good for fine details.

**Texture Tools**: Pressing, carving, or stamping to create patterns.

**Surface & Finish:**
Use texture, underglaze, and glaze to add colour, detail, and a professional finish to your final piece.



**Printmaking Key Knowledge:**

Printmaking is the process of creating artwork by transferring ink from one surface onto another, usually paper or fabric.

Key methods include relief printing (carving away areas to leave raised inked surfaces), **intaglio** (inking lines cut into a surface), **mono-printing** (one-off prints), and screen printing.

Printmaking allows artists to create multiple copies, experiment with texture, line, and layering, and explore strong contrast and composition.

**Registration** (lining up prints), clean inking, and correct pressure are essential for a successful print.



**Screen Printing Key Knowledge:**

Screen printing uses a mesh screen, **stencil**, and squeegee to push ink through open areas of the screen onto fabric or paper.

Designs can be created using paper **stencils**, blocking fluid, or **photo emulsion**.

Each colour is printed separately, so alignment is important. Screen printing creates bold, flat colour, clean shapes, and can be repeated consistently across multiple prints.

Screen printing is a popular form of printing used in fashion and textiles as well as t-shirt design.



**Underglaze** A special **colour layer** painted onto clay before glazing.

**Intaglio** A printmaking method where ink sits inside carved lines.

**Mono-printing** A one-off print created by painting or rolling ink onto a surface and pressing it once.

**Registration** Making sure each layer of a print lines up perfectly.

**Stencil** A cut-out shape used to block areas so ink only goes where you want it.

**Photo Emulsion** A light-sensitive coating used in screen printing to create detailed stencils.

# Business Studies

## Week 1

**Steps to Undertake STEEPLE Analysis**

1. **Identify each factor** relevant to your business or project.
2. **Gather data** from reliable sources (reports, news, industry analysis).
3. **Assess impact**: Is it positive, negative, short-term, or long-term?
4. **Prioritise factors** that have the greatest influence.
5. **Develop strategies** to mitigate risks or exploit opportunities.

STEEPLE ANALYSIS
SOCIAL
TECHNOLOGICAL
ECONOMIC
ENVIRONMENTAL
POLITICAL
LEGAL
ETHICAL

## Week 2

**Break-even**
Firstly, a business must work out the contribution, this is calculated as:
Contribution = Selling Price – Variable
per unit(PU) Price PU Costs PU

*Break-even = Fixed costs ÷ Contribution*
*Output PU*

The result of this calculation is **always** how many products a business needs to sell in order to break even. The first calculation which gives the contribution per unit, must be completed first.

## Vocabulary

**External factors impacting on a business**

**Social:–** cultural trends (Patterns), demographics, lifestyle changes, consumer attitudes.
**Technological:** innovations, automations, digital platforms, research & development
**Economic:** infllatio, interest rates, unemployment, economic growth.
**Environmental:** sustainability, climate change, how available resources (to make the product) are.
**Political:** Government policies, trade agreements, taxation.
**Legal:** employment law, health & safety, consumer protection.
**Ethical:** moral principles, fair trade, corporate social responsibility.

*Some points above also need explaining further. identify those terms, you don't know.*

## Week 3

**Review**
**You need to be able to write your points** clearly. Learn and use the PEEL Strategy

Your Paragraph Should Include:
**P** Point — Make your point
**E** Evidence — Back it up. Support your point with evidence & examples
**E** Explanation — Explain how the evidence supports your point
**L** Link — Link this point to the next point in the following paragraph. Or back to main point
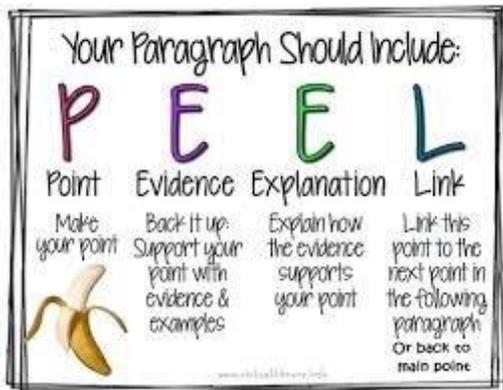
## Week 4

**NEA**

**Task 1 Market Research:**
*Consider the product. What are your options. What accessories / features / ingredients can be added? How will you know what your market think? How will you be able to identify your customer profile?*

*AIMS for example:*
* *To find out who your target market are*
* *To find out what motivates your target market*
* *To find out preferences of your target market*
* *To find out what competitors produce*
* *To test design ideas*

# Business Studies

## Week 5

**Market Research (Primary & Secondary)**

Quantitative & Qualitative
- Questionnaires/Forms (hardcopy/digital)
- Observation
- Focus Groups
- Trials

**Secondary** research, usually desk research. Particularly important to study competitors

## Week 6

**Task 2 How to identify a customer profile:**

*Describe **in detail** the features of a specific customer profile using market segmentation techniques.*

***Detailed** justification of the selected customer profile, **with reference** to the market research findings.*

Defining a Customer Profile

- Age 35 Years Old
- Location Cornwall
- Lifestyle Surfing/fitness
- Income >£45000
- Occupation Business Owner
- Gender Male

## Week 7

**NEA,** Mark scheme to plan your approach
**Task 3 Develop a product proposal:**

*Creates an outline of an appropriate design mix with* ***comprehensive*** *justification.*

*COST also known as ECONOMIC MANUFACTURE*

Aesthetics — Function — Cost
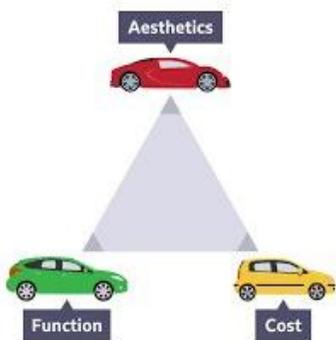
## Week 8

*Generates product design ideas with **effective** use of creative techniques.*

***Comprehensive** description of how the design mix and market research findings have informed one of the designs*

*Sketches * Mindmaps * Moodboards*

## Vocabulary

**Design Mix**
- The combination of **function**, **aesthetics**, and **cost** in a product design.

**Aesthetic**
Relates to the sensory appeal and attractiveness of a product. It includes multiple senses such as:
- **Sight** (colour, shape, design)
- **Touch** (texture, feel)
- **Smell** (fragrance)
- **Sound** (pleasant tones)
- **Taste** (in food or drink products)

In marketing, aesthetics is crucial for creating positive customer experiences and influencing buying decisions.

**Economic Manufacture:**
Financial considerations in creating a product. E.g. costs. This can also include pricing.
COSTS = how much to produce
PRICE = how much to sell for.

# Business Studies

| Week 9 | Week 10 | Vocabulary |
|---|---|---|
| **NEA,** Mark scheme to plan your approach<br>**Task 4 Develop a Product Proposal:**<br>• Summary of the strengths and weaknesses of designs<br>• Self-assessment<br>• Verbal Feedback<br>• Written Feedback<br>• Design modifications(explained and shown)<br>• The reasons for choosing the final design are **fully** justified.<br><br> | **NEA,** Mark scheme to plan your approach<br>**Task 5a Review whether a business proposal is financially viable:**<br><br>Identifies **all** relevant costs relating to the chosen product design. Variable cost calculations for the product design are **accurately** completed.<br><br>Predicts a number of units sold in the first month showing **detailed** reasoning.<br><br>Selects an **appropriate** pricing strategy and selling price for the product design. Reasoning is **clearly focused** on the identified customer profile.<br><br>Calculates the predicted total costs and predicted total profit for the first month **accurately**. | **Primary Research:** collecting new data directly e.g. surveys, observations, interviews focus groups.<br>**Secondary Research:** Finding research already undertaken, e.g. from books, journals, reports, websites.<br>**Quantitative**: Numbers (quantity), easy to analyse.<br>**Qualitative:** opinions, sentences (quality) - not so easy to analyse.<br>**Segmentation**: dividing market into various segments: age, income, occupation, lifestyle, location, gender.<br>**Customer Profile:** Identifying all the segmentation details to identify the characteristics of your target customer. |

| Week 11 | Week 12 | |
|---|---|---|
| NEA Mark scheme to plan your approach<br>**Task 5b Review what a business proposal is financially viable:**<br><br>Applies the break-even formula to calculate break-even for the business proposal **accurately**. Shows a **clear** understanding of the results.<br><br>Provides a **comprehensive** description of the impact of a change in price on the break-even level of sales for the business proposal.<br><br>**Full** evaluation of the financial viability of the business proposal. | NEA, Mark scheme to plan your approach<br>**Task 6 Review the likely success of the business proposal**<br><br>**Comprehensive and realistic** explanation of the risks and challenges involved with producing and launching a new product.<br><br>**Fully** evaluates the impact that risks and challenges faced may have on the success of the business proposal. **Detailed** reference made to how these risks and challenges could be minimised/overcome. | |

# Cambridge National in Sport Science

### Continuous Training
- This type of training involves a steady but regular pace at a moderate intensity which should last for at least 30 minutes. Activities can include running, walking, rowing or cycling.
- Maximum HR = 220-Age
- Heart rate should be kept between 60-80 % of maximum heart rate.
- This type of training is good for long-duration sports including team games.

### Fartlek Training
- This means Speed Play in Swedish.
- It is a combination of different intensities
- Works on both aerobic and anaerobic fitness due to the varying intensities
- Fartlek training is used by team games performers as it suits the movements necessary for a game. This can be completed over different terrains, woods, hills and roads.

### Interval Training
- This training involves periods of work followed by periods of rest.
- This type of training can be adapted to any sport that has a change in intensity, for example racket sports
- To improve endurance, decrease the number of rests and length of time recovering, decrease the intensity of work

| Advantages |
| --- |
| Good for short events that have recovery periods |
| No equipment needed |
| Can easily be progressed |
| Can reduce boredom as intensity changes |

| Disadvantages |
| --- |
| Higher risk of impact injuries |
| Environmental factors if outside |

### Circuit Training
- Circuit training is a series of exercises completed one after another
- Each exercise is called a station. Each station should work a different area of the body to avoid fatigue.
- Stations can be designed to suit any sport
- When training for muscular endurance the focus should be on high repetitions and low load.

### HIIT Training
- High-Intensity Interval Training (HIIT) involves periods of high intensity work and rest breaks. This anaerobic burst is typically for 30-40 seconds with 15-20 seconds' rest.
- Can be adapted to any sport that require a high intense burst of energy.

| Advantages | Disadvantages |
| --- | --- |
| Burns calories and use fats quickly | High intensity can lead to injuries |
| Can be completed quickly | High levels of motivation |
| Balance or work and rest | Can leads to nausea/dizziness |

### Plyometric training
- Explosive power
- Plyometrics training refers to any exercise that enables the muscle to reach maximal force in the fastest possible time.
- Plyometrics exercises cause the muscle to lengthen (eccentric action) before a maximal muscle shortening (concentric action)

### Vocabulary

**Training Thresholds** Heart rate zones used to improve fitness (aerobic 60–80%, anaerobic 80%+).

**Aerobic Fitness** Fitness using oxygen over longer periods.

**Anaerobic Fitness** High-intensity fitness without oxygen for short bursts.

**Eccentric Action** Muscle lengthening under tension.

**Concentric Action** Muscle shortening under tension

**Explosive Power** The ability to exert maximum force in the shortest time.

**Anaerobic Burst** A short period of high-intensity activity without oxygen.

# Cambridge National in Sport Science

## Organinsing a Fitness Programme

Before designing a training programme, the following considerations need to be addressed, a coach should think about:
- Facilities/equipment
- Safety/risk assessments
- Aims/goals/objectives
- Current fitness levels/injuries
- Organisation
- Environment
- Skills to be improved

**Safety Risk assessments**
- Weight of athlete
- Age
- Physical activity levels
- Access to facilities
- Injuries/health issues
- Training preferences

Lifestyle and physical activity history can be obtained through questionnaires. The **Physical Activity Readiness Questionnaire (PAR-Q)** is a common method.

If an athlete answers yes to any of the medical conditions experienced, they should be checked over by a GP prior to starting an exercise programme.

A **risk assessment** is a document that outlines all the potential risks and are graded, red, yellow and green. The document highlights ways to minimise the risk

## Goalsetting

When setting goals, the **SMART principle** is most effective ways to ensure your aims are focused.
This stands for:
**Specific**
**Measurable**
**Achievable**
**Realistic**
**Time-bound**

### Applying the princies of training Using SPOR and FITT
It is vital a trainer uses these principles when designing and carrying out a programme.

**Specificity**
A sprinter would likely carry out interval and plyometrics training to ensure speed and power are worked on. The specific target area would be the legs and the muscles in this region.

**Progression and Overload**
An athlete will progress when the body adapts, and it becomes easier. This could involve running at a higher intensity and or for longer.
**Frequency** – As training gets easier, they will increase the number of sessions per week.
**Intensity** - They will use heart rate as a guide for intensity.
**Time** – If an athlete has trained for 30 minutes it can be increased to 40 and then 50mins
**Type** – The athlete will likely continue to use the type of training best suited to the event, however circuit and weight training may also be used to vary the programme.

## Training Thresholds

**Reversibility**
Any athlete training full time will work 5-6 times a week to prevent reversibility and allow for sufficient recovery.

**Overload application**
Understanding **target heart rate zones** and **exercise intensity** will help the individual to get the most out of training.

An estimate of **maximum heart rate** is calculated as **220-age**

To improve fitness from regular exercise you must push your heart rate above a certain level, known as the **training thresholds..** There are two training thresholds.

Aerobic 60-80% of maximum HR
Anaerobic 80+ of maximum HR.

The elements of a training programme include:
•Suitable warm up/cool down
•Activities/main content
•Duration of session
•Equipment and facilities
•Coaching points
•Adaption of the programme and mid-term testing

## Vocabulary

**Risk Assessment**
A document identifying potential dangers and how to reduce them (graded red/yellow/green).
**PAR-Q (Physical Activity Readiness Questionnaire)** screening questionnaire to identify medical risks before exercise.
**SMART Goals** method of setting goals (Specific, Measurable, Achievable, Realistic, Time-bound).
**Principles of Training (SPOR)** Specificity, Progression, Overload, Reversibility
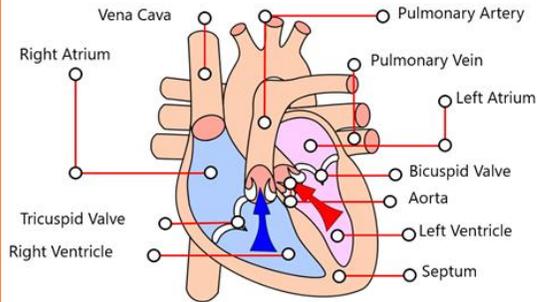**Specificity** Training matched to the sport, muscles and energy system used.
**Progression** Gradual increase in training demands to continue improvement.
**Overload** Working the body harder than normal to stimulate adaptation.
**Reversibility** Loss of fitness when training stops or decreases

# Cambridge National in Sport Science

## Cardiovascular System



**Arteries** – Take blood **away** from the heart.
**Veins** – Returns blood to the heart. Contain valves to stop backflow of blood.
**Capillaries** – Tiny, thin-walled blood vessels that join veins and arteries. This vessels allow gaseous exchange.
**Cardiac output** is the amount of blood pumped out of the left ventricle of the heart per minute. Cardiac output is a combination of stroke volume and heart rate.
**Heart rate** is the number of times it beats each minute
**Stroke volume** is the amount of blood pumped out of the left ventricle per beat.

## Respiratory System
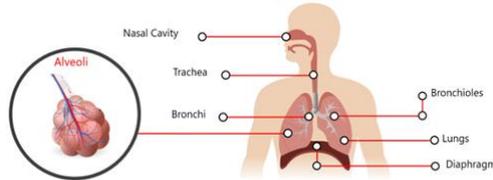


**Gaseous Exchange:**
This is a process where oxygen is transferred into the blood stream to be transported to the working muscles and carbon dioxide is moved into the lungs to be breathed out.
**Vascular shunt**
Blood flow is controlled through **vasoconstriction (contracting)** and **vasodilation (relaxing)** of the blood vessels. Moving blood to areas of the body that have a greater demand is a mechanism that helps maintain physical activity.

## Skeletal System
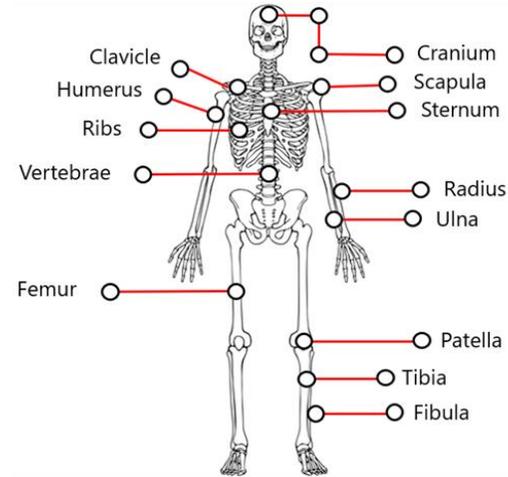


**Joints:** A joint is a place where two or more bones meet' This is known as **articulation**.
**Synovial Joints:** This is a **freely moveable joint**. These joints are the most moveable and are vital to sporting actions. *i.e. the knee joint*
**Cartilage** prevents the ends of bones rubbing together at joints.
**Ligaments** – these are tough, elastic fibres that link bones to bones.
**Tendons –** These connect muscles to bones.

## Vocabulary

**Cardiac Output** – The amount of blood pumped out of the left ventricle per minute (HR × SV).
**Stroke Volume** Amount of blood pumped out of the left ventricle per beat
**Gaseous Exchange** – Transfer of oxygen into the blood and carbon dioxide into the lungs to be exhaled
**Vascular Shunt** Redistribution of blood flow to working muscles through vasodilation and vasoconstriction.
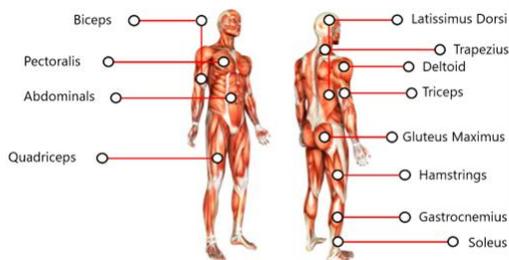**Vasoconstriction** Narrowing of blood vessels to reduce blood flow.
**Vasodilation** – Widening of blood vessels to increase blood flow.
**Synovial Joint** – A freely movable joint found in most sporting movements.

# Cambridge National in Sport Science

## Muscular System



**Adduction** - Movement towards midline of the body

**Abduction** - Movement away from midline of the body

**Flexion** involves a decrease in the angle that occurs around a joint

**Extension** involves an increase in the angle that occurs around a joint or straightening a limb.

**Rotation** - The joint moves in a circular or turning motion

**Circumduction** – Turning of a limb in a conical movement

## Short Term effects of exercise

**Cardiovascular System**
- Increase in heart rate
- Increase in stroke volume
- Increase in cardiac output

**Respiratory System**
- Increase in respiratory rate
- Increase in depth of breathing

**Muscular System**
- Working muscles produce heat therefore increasing muscle temperature.
- Lactate build up

**Skeletal System**
- Increased production of synovial fluid
- Increased muscle and ligament pliability

### Long Term Effects of Exercise

**CV System**
- Increase in the size and strength of the heart
- Changes to resting Heart Rate (bradycardia)
- Changes to stroke volume and cardiac output
- The heart rate recovers back to its resting state much quicker

**Respiratory System**
- increase in vital capacity
- Improved efficiency of gaseous exchange

**Muscular System**
- better flexibility
- increase in muscle recovery

**Skeletal System**
- Increase the strength of tendons and ligaments around a joint

## Technology

Technology can be used to gauge the response of the Musculo-skeletal system both short and long term.

### Musculo-Skeletal Analysis

| Tape measure | This is a simple way to monitor long term development of the muscular system |
|---|---|
| Video Analysis | This is where a player is replayed footage of training or a performance to spot areas for development. Viewing slow motion replays and statistical charts are common post-match processes. |
| Motion capture software | The motion of the whole body can be tracked using specialist software. Markers are placed on the athlete and motions of these points tracked. |
| Electromyography (EMG) | This is a technique used to measure electrical activity in the muscle tissue. This is a laboratory-based technique that requires electrode sensors to be placed on the skin. |

### Cardio-Respiratory Analysis

| Stopwatch | A simple stopwatch can be used when counting heart and breathing rate. Changes can indicate exercise intensity or body adjustments. |
|---|---|
| Heart rate monitor | The use of specific devices can monitor **heart rates and training zones.** This can indicate if a performer is training at the right level of intensity. |
| Smartwatches | These are sometimes called activity trackers. They can take a range of readings including heart rate, blood pressure, breathing rate, blood oxygen uptake |
| Global Positioning Software Applications | This is a type of **field-based computer programme** that is developed with a specific focus in mind. Tracking a person's **distance** and **time taken** to cover it could highlight areas for development. |
| VO2 Max Testing | The test provides data on how much oxygen the body can use and determines the maximal oxygen consume during exercise. |
| Spirometry trace | This measure changes in breathing volumes and can indicate a performer's **vital capacity**. |

## Vocabulary

**Respiratory Rate** – Number of breaths taken per minute.

**Lactate** A by-product of anaerobic respiration that builds up in working muscles.

**Pliability** Increased flexibility/elasticity of muscles and ligaments.

**Bradycardia** A lower resting heart rate due to training.

**Vital Capacity** Maximum amount of air the lungs can expel after a full inhalation

# Computer Science

| Week 1 | Week 2 | Week 3 | Vocabulary |
|---|---|---|---|

## Week 1

**Count Controlled For and While Loops Iteration (while)**

The repetition of a block of statements within a program when the number of repeats is not known.

Python Example

```
player_turns = 5
while player_turns >0:
        print ("Player takes their turn")
        player_turns = player_turns – 1
```

```
active = True
while active == True:
        print ("Player is active")
```

**Iteration (for)-** The repetition of a block of statements within a program when the number of repeats is known

Python Example

```
for counter in range (0,10,1):
        print (counter)
```

## Week 2

**String Manipulation, Validation and Error Handling**

Length of String - The length of a string can usually be determined using the len statement. This gives the length as an integer.

Python Example

```
word = ("Computer")
word_length = (len(word))
```

Character Position - It is possible to determine which character features at a position within a string as each character is numbered. Computers start counting at 0 so the first character is always 0.

Python Example

```
word = ("Computer")
print (word[2]) #would print the character "m" as c = 0 and o = 1.
```

**Upper and lower case**
It is possible to change all letters in a string to either lowercase or uppercase. This can be very useful, for example when checking possible inputs.

```
word = ("Computer")
word = word.upper() #would change the string to "COMPUTER"
word = ("Computer")
word = word.lower() #would change the string to "computer"
```

## Week 3

**Concatenation**
To concatenate strings means to join them to form another string – adding two strings together.

Python Example

```
word = ("Computer")
sentence = ( word + "Science") #would add the two strings together to form one string which is "Computer Science"
```

Data Structures and sub routines
Procedure - A section of computer code that performs a specific task.

Python Example

```
def greeting ():
        print ("Hello world")
#_____
greeting()
```

**Function** - A section of code that, when programming, can be called by another part of the program with the purpose of returning one single value

```
def addition(a,b):
        c = (a+b)
        return (c)
#_____
num1 = int(input("Enter first number:"))
num2 = int(input("Enter first number:"))
answer = (addition(num1,num2))
print (num1,"+",num2,"=",answer)
```

## Vocabulary

**Iteration (while)** – Repeating a block of statements when the number of repeats is unknown.

**Iteration (for)** – Repeating a block of statements when the number of repeats is known.

**Length of String** – The number of characters in a string, usually found using len.

**Character Position** – The index of a character in a string, starting from 0.

**Concatenation** – Joining two strings together to form a new string.

**Procedure** – A section of code that performs a specific task but does not return a value.

**Function** – A section of code that returns one single value when called.

# Computer Science

## Week 4

### 1D Array

An array is a data structure that holds similar, related data. An array is like a collection of boxes, each of which is called an **element**. Each element has a position in the array and can hold a value. The data in an array must all be of the same **data type**.

| Pen | Pencil | Ruler | Eraser |
|-----|--------|-------|--------|

Python Example

```
stationery = [ "Pen" , "Pencil" , "Ruler" , "Eraser" ]
print (stationery) #would display whole array
print (stationery[0]) #would output the first element – "Pen"
print (stationery[0-2]) #would output the first 2 elements – "Pen,Pencil"
```

### 2D Array

A two-dimensional array can hold more than one set of data. This type of array is like a table, with data held in rows and columns.

|   | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| 0 | Pen | Pencil | Ruler | Eraser |
| 1 | Red | Green | Blue | Yellow |

Python Example

```
stationery = [ [ "Pen","Pencil","Ruler","Eraser" ] , ["Red,"Green","Blue","Yellow] ]
print (stationery) #would print the whole 2D array
print (stationery[0]) #would print the first row only (the original stationery)
print (stationery[1]) # would print the second row only (the coloured pens)
```

## Week 5

### File Handling

**Open** - Once a file has been opened, the records are read from it one line at a time. The data held in this record can be read into a variable, or, more commonly, an array

```
file = open("scores.txt" , "r") #would import the contents of score into the variable file in read only mode
file = open("scores.txt" , "a") #would import the contents of score into the variable file in append mode
file = open("scores.txt" , "w") #would import the contents of score into the variable file in write mode
```

**Read** - Once a file has been opened, the records are read from it one line at a time. The data held in this record can be read into a **variable**, or, more commonly, an **array**.

Python Example

```
score = file.read() #reads the entire file
score = file.readline() #reads a single line
```

Write - Data is written to a file one line at a time, using the writeLine statement

Python Example

```
for x = 0 to 9
    file.write(scores[x])
```

Closing - A file must be closed by the program for it to be saved.

Python Example

```
file.close()
```

## Week 6

**Operating System (OS)** - Software, which manages the hardware and software resources of a computer system and provides an interface for the user.

**Kernel** - The heart of the operating system, responsible for looking after "the most low-level hardware operations".

**Multi-Tasking** -The ability of an OS to supply the CPU with instructions from multiple programs in particular orders to create the illusion that a computer is processing multiple programs simultaneously.

### The Kernel

The kernel is the heart of the operating system and is responsible for looking after "the most low-level hardware operations".

It is the kernel that applications make use of when they want to operate the computer's hardware.

So that the kernel understands how to communicate with the various computer components, each component/device will register its **driver file** with the kernel. The **driver** file holds code which allows the OS (kernel) to communicate with it.

```
Applications
    ↓
Kernel
  ↓   ↓   ↓
CPU  Memory  Devices
```
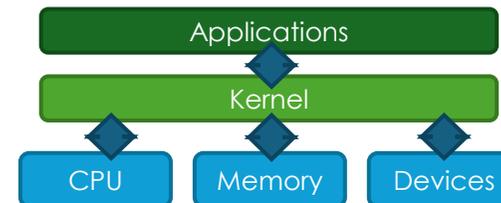
## Vocabulary

**1D Array** – A data structure holding related data of the same type in indexed elements.

**2D Array** – A data structure arranged in rows and columns storing multiple sets of data.

**Open (File Handling)** – Opening a file to read its contents one line at a time.

**Read (File Handling)** – Retrieving data from a file line by line after it is opened.

**Write (File Handling)** – Saving data to a file one line at a time.

**Closing (File Handling)** – Finishing access to a file to ensure data is stored properly.

**Operating System (OS)** – Software that manages hardware and provides the user interface.

**Kernel** – The core part of the operating system handling low-level hardware operations.

# Computer Science

## Week 7

**Graphical User Interfaces**
Uses windows, icons, menus and pointers (WIMP) to control the computer. Only been around since the mid 80s. Windows and Apple Mac OSx are examples of this kind of interface.



**Menu Driven Interface**
Uses menus to control the computer. These were very popular on early mobile phones and are seen in all high streets on cash machines and also on many MP3 players. Only offer limited functions (ie. if it is not on the menu then you can't do it!)



**Command Line Interface**
Used to be the only way to interact with a computer (pre-80s) and is still used today by 'Linux users' and other professionals with technical knowledge. With this kind of interface 'written commands' control computers.



## Week 8

**Encryption**
Scrambling (encoding) data so that intercepted data is unreadable.
**Utility Software**
Software that maintains a computer system by securing it, organising data, and optimising performance.
**Formatting**
Preparing a disk or storage device for data.
.

**Data Compression Software**
Compression software reduces the size of files.
There are various reasons why the size of a file might need to be reduced:
-Less storage space required
-Faster download times – improving online experience
-Faster streaming speeds of video/audio files
There are two ways in which compression software might reduce the size of a file:

**Lossy Compression**
Removes unnecessary data permanently (e.g., MP3), with minimal quality loss.
**Lossless Compression**
Temporarily removes data and restores it on use (e.g., ZIP). Files must be unzipped to use again.

## Week 9

**Networks**
Lan - Local Area Network – One which covers a small geographical area and whose equipment is owned by the organisation/individual.

- A LAN is a Local Area Network.

- It is a connection of computers and devices.

- Each device on a network is known as a node (e.g. computer, printer, etc.)

A LAN is confined to one site.
- It's therefore relatively small
- All network infrastructure is the property of the organisation

Different ways that LANs can be set up:
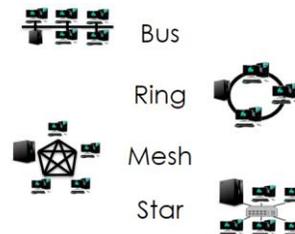


The topology of a network affects: cost, Performance, ease of set-up.

## Vocabulary

**Graphical User Interface (GUI)** – An interface that uses windows, icons, menus, and pointers.
**Menu Driven Interface** – An interface controlled through menus offering limited options.
**Command Line Interface (CLI)** – An interface where typed commands control the computer.
**Encryption** – Scrambling data so intercepted information is unreadable.
**Utility Software** – Software that maintains, secures, organises, or optimises a computer system.
**Formatting** – Preparing a disk or storage device for data.
**Data Compression Software** – Software that reduces file size.

# Computer Science

| Week 10 | Week 11 | Week 12 | Vocabulary |
|---|---|---|---|

**WAN - Wide Area Network**

**Wide Area Network** – A network that covers are large geographical area and whose equipment (phone lines / satellites) is usually owed by third party telecommunication companies often supply.

**Cloud Computing -** A term used to describe online services and applications.

**URL** - Uniform Resource Locator – a fancy name for the web address of a website.

**Virtual networks**

A virtual network is one which uses software to subdivide a physical network (LAN or WAN) into smaller ones.

---

**Data Packets**
- When files are sent over the internet they are split into millions of **data packets**.

  - Packets get sent by different routes according to availability.
  - When you send a file online, the parts of the file might travel one way around the world and the other parts may go in the opposite direction!
  - Packets are reassembled at receiving end.
- Typical packet structure:



**The Heade**r contains 3 pieces of information:

Sequence Number
Return Address
Destination Address.

---

**Destination Address** a data packet needs a destination address so that it can be routed to the correct location.

**Return Address** When data arrives, the computer which sent the data can be notified that it arrived safely. And if a packet arrives corrupted, the computer which sent the data can be asked to send it again.

**Error check** is an important aspect of a data packet.

This aspect of the packet is a '**checksum number**'. A checksum is made up of a calculation and its correct answer. Once the packet has been received by the destination computer, If the calculation is run and still produces the correct answer, then we know the data hasn't been corrupted on its journey.

**Sequence Number** - As data is split into packets, the sequence number allows the file to be rebuilt by putting the packets back together in the correct order.

**Data –** Is the data its transporting.

---

**LAN (Local Area Network)** – A network in a small geographic area with equipment owned by the organisation.

**WAN (Wide Area Network)** – A network covering a large area, using infrastructure owned by third-party telecom companies.

**Cloud Computing** – Online services and applications delivered over the internet.

**URL (Uniform Resource Locator)** – The address of a webpage.

**Virtual Network** – A software-created subdivision of a physical network.

**Data Packet** – A small unit of data sent across a network.

# Digital Information Technology

| Week 1 | Week 2 | Week 3 | Vocabulary |
|---|---|---|---|

## Week 1

### Practice PSA Task 1a Project Proposal

**Project proposal** - Used within organisations to allow managers to consider all aspects of a project.
**Audience** - It is important in project planning to clearly identify the people who will use the system.
**Purpose** - Identify the reasons for the project.
**User requirements** - Tasks that the user needs to be able to carry out.
**Output requirements –** This could be visual, audio or haptic e.g. vibration.
**Input requirements** – How is data input? E.g. touch.
**Accessibility requirements** – To help users e.g. text to speech option.
**Constraints** – Restrictions such as time, budget and human resources.

**Figure 1 Project proposal template**

Type your answers in the boxes, the boxes will expand when you type. Use the Project proposal brief to help you.

Purpose and audience of the project

Project requirements

User accessibility requirements

Constraints

## Week 2

### Practice PSA Task 1b Planning Timescales

**Project plan** – All tasks and sub-tasks to be completed will be ordered.

**Timescales –** Length of overall project in time, completion date and dates when tasks/sub-tasks are completed.

**Gantt chart –** A visual bar chart used to plan and track a project's progress.

**Key milestones –** Key points in a project e.g. completion of design phase of the project. A diamond symbol represents a milestone on a Gannt chart below.

**Figure 2 Gantt Chart**
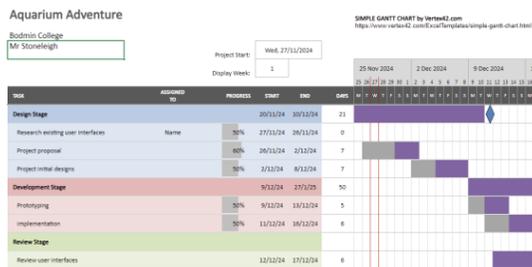


## Week 3

### Practice PSA Task 2 Interface Designs

**Sketch** - Allow a screen design to be made quickly. A sketch can be shown to a client. Often called a **wireframe**.
**Features of a sketch** – buttons, colour, text size and style, an X in a box shows an image, a triangle to show a drop-down menu, thumbnails, search bar.
**Storyboard** – Show the sequence of screens in an app, website or program. They are useful when discussing the design and functionality with the client.
**Features of a storyboard** – Layout of assets, proportions of assets, colours are used, show links between screens, annotation show actions and processing.
**Visualisation** – Using storyboard and sketches to visualise the interface.
**Good design** – increases confidence of users, reduces amount of time to learn features, reduces time to complete tasks, increases user attention, reduces specialised knowledge.

**Figure 3 Sketch**
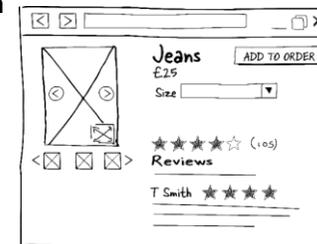


## Vocabulary

**Project Proposal**
A formal document outlining the purpose, objectives, scope, resources, and approach for a planned digital solution.

**Target Audience**
The specific group of users the product is designed for (e.g., age, experience, needs).

**Project Scope**
Defines what is included and excluded from the project.

**Success Criteria**
Measurable goals used to determine if the final product meets expectations.

**Feasibility**
A judgement of whether the project is realistic, practical, and achievable.

# Digital Information Technology

## Week 4

### Practice PSA Task 3 Prototype User Interface

Use your design to produce a user interface prototype using the following **design principles**:

**Colours** e.g. organisational house style
**Font style/size** e.g. san serif fonts
**Language** e.g. age and skill level appropriate
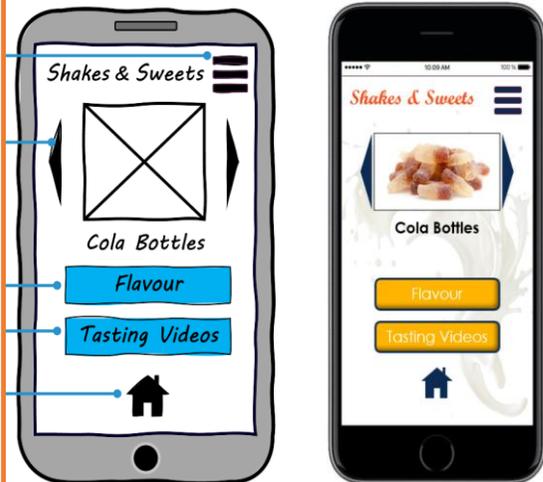**Amount of information** e.g. use of white space
**Layout** e.g. consistency, input controls
**User perception** e.g. red colour for errors
**Retaining user attention** e.g. labelling
**Intuitive design** e.g. graphics to denote button actions.
**Figure 4 Design Figure 5 Prototype**



## Week 5

### Practice PSA Task 4 User Interface Review

Reviewing the success of the user interface should include the strengths and weaknesses in:

- How well the **user requirements** have been met e.g. input and output,
- **Suitability** for audience and purpose e.g. age, accessibility
- **Ease of use** e.g. completing forms
- **Accessibility** features
- How effectively the **design principles** have been met e.g. ensuring colours don't clash
- Project **planning techniques** used

Suggest **improvements** that could be made to the user interface to better meet the audience needs.

**Figure 6 Improvements**



## Week 6

### PSA Task 1a Project Proposal

You have about 45 minutes to complete the project proposal template including:

- **Purpose** and **audience** of the project
- Project **requirements**
- User requirements
- **Constraints**

Revisit week 13 project proposal and read through the information. Make some notes which you can take into the assessment, but you must leave them behind with the teacher.

**Figure 7 Project Proposal Template**



## Vocabulary

**User Interface (UI)**
The space where interaction between the user and system occurs (e.g., menus, buttons, forms).
**Navigation**
How users move through a system (e.g., menus, tabs, breadcrumbs).
**Accessibility**
Designing the interface so it can be used by people with disabilities or varying abilities (e.g., screen readers, colour contrast).
**Consistency**
Keeping elements (colours, fonts, buttons) uniform across the interface to improve familiarity.
**Prototype**
An interactive test version of the final interface, used for feedback and improvement.

# Digital Information Technology

| Week 7 | Week 8 | Week 9 | Vocabulary |
|---|---|---|---|

### PSA Task 1b Planning Timescales

During the assessment you have about 45 minutes to create a **Gantt chart** to show:
- **Timescales**, including **tasks** and **sub-tasks**
- Key **milestones**
- Task **dependencies**
- Use today's date as the start of the project.

Revisit cycle 1 **week 14** planning timescales and read through the information. Make some notes which you can take into the assessment, but you must leave them behind with your teacher.

### Figure 8 Gantt Chart
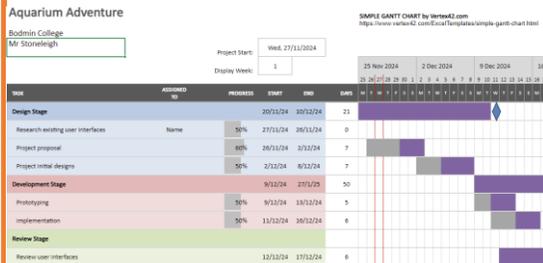


### PSA Task 2 Interface Designs

During the assessment you have about 90 minutes to produce user interface designs which should:
- Be **easy** to use
- Use appropriate **design principles,** see week 4 & 12
- Include different **accessibility** features

Revisit cycle 1 **week 15** interface designs and read through the information. Make some notes which you can take into the assessment, but you must leave them behind with your teacher.

### Figure 9 Storyboards
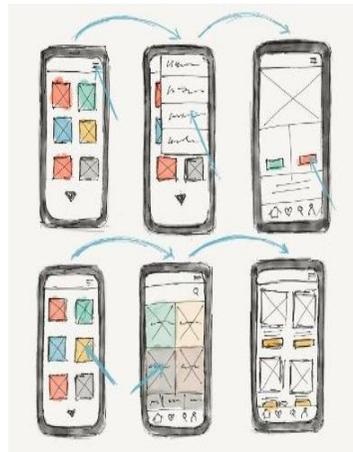


### PSA Task 3 Prototype User Interface

During the assessment you have about 2 hours to create a **prototype** of the user interface using the images and information provided. You can create the prototype using **PowerPoint** or the software that is suggested.

Revisit cycle 1 **week 16** interface designs and read through the information. Make some notes which you can take into the assessment, but you must leave them behind with your teacher.

### Figure 10 Prototype



**Project Plan**
A detailed overview of tasks, timescales, resources, and milestones needed to complete a project.

**Task List**
A breakdown of all work activities required to complete the project.

**Timescales**
The planned duration for each task and the overall project timeline.

**Milestones**
Key checkpoints or major progress goals within a project (e.g., "Interface prototype completed").

**Dependencies**
Tasks that rely on other tasks being completed first.

**Gantt Chart**
A visual timeline showing tasks, durations, and dependencies.

# Digital Information Technology

## Week 10

### PSA Task 4 User Interface Review

During the assessment you have about 1 hour to review the user interface against user needs. Consider the **strengths** and **weaknesses** of the interface against:
- User **requirements**
- **Suitability** for audience and purpose
- **Ease** of use
- **Design principles** used
- **Accessibility** features

Suggest **improvements** that could be made to the user interface to better meet the audience needs.

Revisit cycle 1 **week 17** user interface review and read through the information. Make some notes which you can take into the assessment, but you must leave them behind with your teacher.

### Figure 11 Strengths and Weaknesses

**Strengths**
- Time buttons are large and easy to press
- The days of the week are easy to read as they are black text on a white background
- The image of the doctor makes it easy to identify

**Weaknesses**
- There is no left button for the days
- The right button is small making it hard for those with motor needs to press
- The 'Book Now' button has no highlight

## Week 11

### Contingency

This week is set aside for any event or circumstance where you have not completed your PSA tasks e.g. due to illness.

During this week, your teacher may be marking your assessment. If you did not achieve your expected potential, you may be given time to improve evidence. This is called resubmission of evidence.

You may need to revisit **week 1, 2, 3 and 4** to read through the information. Make some notes which you can take into the assessment, but you must leave them behind with your teacher.

Learn the **vocabulary** on the side of this page.

## Week 12

### Contingency

Learn the following **design principles**.

| Colours | Use a limited range of colours, use of organisational house style |
|---|---|
| Font style/size | Ensure text style/size is readable, avoid decorative fonts |
| Language | Use language appropriate for user skill level, age-appropriate language |
| Amount of information | Make appropriate use of white space, provide appropriate amount of information for the task |
| Layout | Consistency throughout the whole interface |
| User perception of | Visuals, to include photos, symbols, graphics |
| Retaining user attention | Clearly labelled items/features |
| Intuitive design | Helpful pop-up messages |

## Vocabulary

**Embedded systems**
Traffic lights, vending machines, smartwatches.

**Types of user input**
Touchscreen, traditional displays.

**Hardware resources**
Processing power, memory.

**Emerging technologies**
New innovations e.g. Artificial intelligence.

**GUI**
Graphical user interface.

**WIMP**
Windows, icons, menus, pointer.

# Drama

| Week 1 | Week 2 | Week 3 | Vocabulary |
|---|---|---|---|
| **Stanislavski:** Developed a naturalistic acting system focused on emotional truth, given circumstances and physical actions. Techniques like the "magic if" encouraged believable characterisation and authentic performance.<br>**Brecht:** Created Epic Theatre, using alienation techniques such as direct address, placards and visible stagecraft to stop immersion and prompt critical thinking about social and political issues.<br>**Artaud:** Theatre of Cruelty rejected realism, using intense sound, movement and sensory shock to unsettle audiences, expose deep fears and provoke psychological awakening. | **Features of a script**<br>Stage directions    Scene Structure<br>Objectives          Subtext<br><br>**Genres of performance**<br>Comedy              Horror<br>Romantic            Tragedy<br>Drama<br><br>Understand what a **Table read** is.<br>- A structured, in-person reading of a script by actors who have a speaking role. This is often done preproduction. | **Analysing** a script<br>- Interpreting text<br>- Identifying objectives<br>- Obstacles and relationships<br><br>Understanding **context**<br>Themes              Time period<br>Influences<br><br>**Workshops**<br>Script annotation       Character profiling<br>Hot seating<br><br>Scripts and groups assigned. | **Characterisation**<br>How an actor creates a believable character.<br>**Objective**<br>What a character wants in a scene.<br>**Obstacle**<br>What stands in the way of the objective.<br>**Subtext**<br>Meaning beneath the spoken lines.<br>**Blocking**<br>Planned movement on stage.<br>**Rehearsal Etiquette**<br>Professional behaviour when rehearsing.<br>**Vocal Skills**<br>Pitch, pace, tone, articulation, projection.<br>**Physical Skills**<br>Gesture, posture, facial expression, movement, proxemics.<br>**Cue**<br>A signal for an actor/tech to begin an action.<br>**Evaluation**<br>Reflecting on strengths, weaknesses and development. |

| Week 4 | Week 5 | Week 6 | |
|---|---|---|---|
| **Successful rehearsals**<br>- Blocking (the planned movement of actors onstage).<br>- Mark- throughs (A run-through of a scene or performance where actors go through the motions lightly without full energy, often to practice spacing or sequence).<br>- Cueing (signals the tell actors, crew or technicians when to do a line, action or effect).<br><br>**Rehearsal etiquette and teamwork**<br>- Bring all necessary materials.<br>- Stay focused and avoid distractions.<br>- Listen actively to the director and others.<br>- Respect everyone's space and ideas.<br>- Keep talk rehearsal-related.<br>- Take notes instead of arguing.<br>- Practice professionalism, be positive and cooperative.<br>- Learn your lines and blocking promptly. | **Acting skills development**<br>- Voice<br>- Intonation<br>- Pace<br>- Articulation<br>- Physicality<br>- Spatial awareness<br>- Movement<br><br>**Rehearsal strategies**<br>- **Stansilavski** (Breaking a script into small sections (*units*) and deciding what a character wants in each one (*objectives*) to make acting more realistic and purposeful).<br>- **Actioning** (Choosing an action word (like *beg*, *threaten*, *comfort*) for each line or moment to show what the character is trying to *do* to another character).<br>- **Improvising around scenes** (making up what came before or after the moment you are performing). | Rehearsing the script<br><br>**Building emotional truth**<br>- know your character's backstory, motivations, and internal logic, and then show, don't tell, using authentic dialogue, sensory details, and actions. Tap into your own experiences and observations to make their emotions believable, even if the situation is fantastical.<br><br>**Developing character on stage**<br>- deeply analysing the script, then create a detailed backstory with distinct physicality and voice. Use rehearsals and improvisation to explore the character's emotional journey, including their goals and obstacles, and collaborate with the director and cast to refine your portrayal. | |

29

# Drama

| Week 7 | Week 8 | Week 9 | Vocabulary |
|---|---|---|---|
| Rehearsing the script<br><br>**Applying vocal work**<br>- using your voice in a purposeful way while practicing scenes. This includes warming up your voice, speaking clearly, projecting, and adjusting pitch, pace, and tone to show your character.<br><br>**Physical choices:**<br>- Levels<br>- Proxemics<br>- Position onstage<br><br>**Director's notes**<br>- The notes a director makes on a script to guide the production, such as changes to a scene, character interpretation, or specific technical instructions. | Rehearsing the script<br><br>**Refining a performance**<br>- Making small, thoughtful changes after looking at what's working well and what isn't. This process involves getting feedback from yourself, classmates, or teachers and using their suggestions to make specific adjustments to things like your technique, character choices, staging, or emotional expression. The goal is to refine your work so the final performance is stronger, more polished, and more impactful. | Rehearsing the script<br><br>**Evaluation/Reflection**<br><br>Evaluating work and setting targets:<br><br>**Analyse** - to look at the information provided and break it down to identify and interpret the main points being raised<br><br>**Evaluate** – to make a personal judgement about the performance | **Characterisation**<br>How an actor creates a believable character.<br><br>**Objective**<br>What a character wants in a scene.<br><br>**Obstacle**<br>What stands in the way of the objective.<br><br>**Subtext**<br>Meaning beneath the spoken lines.<br><br>**Blocking**<br>Planned movement on stage. |

| Week 10 | Week 11 | Week 12 | |
|---|---|---|---|
| Rehearsing the script<br><br>**Production: Set, Costume, Lights, Sound**<br><br>**Lanterns:**<br>Fresnel<br>Flood<br>Profile<br><br><br><br>**Diegetic** – sound that exists in the world of the play<br><br>**Non-diegetic sound** – sound that adds mood and atmosphere for the audience<br><br>Enhancing meaning<br><br>Mood/Atmosphere | Rehearsing the script<br><br>**Evaluation/Reflection**<br><br>**Target** – setting a goal for improvement<br><br>**S**pecific – clearly defined<br>**M**easurable – capable of being measured<br>**A**ttainable – able to be achieved<br>**R**elevant - appropriate<br>**T**imely – set to a time limit | **Section A Logbook:**<br>**Skill Development**<br>- Write about your **current strengths and weaknesses** as a performer.<br>- Identify **skills you need to improve** (e.g., voice, movement, characterisation, teamwork).<br>- Explain your **targets** and how you plan to meet them.<br>- **Influences** that shaped your work (actors, practitioners, styles, techniques).<br>**Reflection on Workshops and Rehearsals**<br>- Describe what you **did** in each workshop or rehearsal.<br>- Explain what you **learned** and how it helped your performance.<br>- Note what **worked well** and what you need to **improve next time**.<br>- Show how your performance idea or skills **developed over time**. | **Rehearsal Etiquette**<br>Professional behaviour when rehearsing.<br><br>**Vocal Skills**<br>Pitch, pace, tone, articulation, projection.<br><br>**Physical Skills**<br>Gesture, posture, facial expression, movement, proxemics.<br><br>**Cue**<br>A signal for an actor/tech to begin an action.<br><br>**Evaluation**<br>Reflecting on strengths, weaknesses and development. |

# Engineering Design

## Week 1

### We are investigating the 6 CORE Design strategies:

**Linear:** A step-by-step design process where each stage is completed before moving on to the next.

**Iterative:** A design process where ideas are tested, improved, and repeated until the best solution is found.

**Inclusive:** Designing products or systems so that everyone, regardless of ability or background, can use them.

**User-Centred:** Focusing the design process on the needs, wants, and experiences of the people who will use the product.

**Sustainable:** Creating designs that reduce harm to the environment and make good use of resources.

**Ergonomic:** Designing products to fit the human body and make them comfortable and easy to use.

## Week 2

### We are analysing a brief and evaluate existing products using ACCESSFM.

**Aesthetics:** How does the product look, feel, and appeal to the senses (colour, shape, style, texture)?

**Cost:** How much does the product costs to make and to buy? Is it value for money?

**Customer:** Who is the product designed for?

**Environment:** How does the product affect the environment — materials, energy use, recycling, sustainability?

**Size:** Is the size appropriate? Does it suit the 5th to 95th percentile of users?

**Safety:** How safe the product is to use; how risks are reduced?

**Function**: What is the product designed to do and how well does it perform? How could it be improved? Is it efficient?

**Materials** What is the product is made from and why those materials were chosen (strength, flexibility, cost, etc.)?

## Week 3

### We are writing our own Specification.

**Design Brief:** Describes the design problem and what the solution should achieve.

**Design Specification:** Lists detailed criteria the final design must meet.

1. **The Problem / Need:** What is the issue or challenge you are designing for? Why is a solution needed?
2. **Target User / Client:** Who are you designing for? Age, needs, interests, and relevant details
3. **Purpose of the Product:** What should the product do? How will it help the user?
4. **Context / Situation:** Where and how will the product be used?
5. **Possible Limitations:** Any constraints, such as time, cost, materials, tools, or environmental impact.

**You use ACCESSFM to guide the content of the Specification.**

## Week 4

### We are generating design ideas.

**SCAMPER** is a creative thinking technique used to help generate new ideas or improve existing designs.

**S – Substitute:** Replace part of the product or process.

**C – Combine:** Join elements together.

**A – Adapt:** Change to suit a different purpose or user.

**M – Modify** / Magnify / Minify: Change size, shape, features, or appearance.

**P – Put to another use**: Use the product for a different purpose.

**E – Eliminate:** Remove unnecessary parts or simplify.

**R – Reverse / Rearrange**: Change the order, direction, or layout.

## Vocabulary

**Design strategy:** a deliberate plan of action designed to achieve a long-term goal or desired outcome.

**Ergonomics:** The study of how products or spaces are designed to fit the people who use them.

**Aesthetics:** The way a product looks and appeals to people.

**Anthropometrics:** The study of human body measurements and sizes.

**5-95% Percentile:** The 5th percentile represents the smallest users (bottom 5% in size).The 95th percentile represents the largest users (top 5% in size).Designers aim to make products usable by people in between, covering roughly 90% of the population.

**Function:** What a product is designed to do – its main purpose or job.

**Generate:** Coming up with multiple ideas before choosing the best one.

31

# Engineering Design

## Week 5

### We are still generating a range of design ideas to meet our Specification.

**Sketching & Drawing Skills:** Use 2D and 3D isometric sketches to show the shape and structure of the product.

**Add annotation** to explain materials, functions, or mechanisms.

**Use colour, shading, or texture** to make ideas clearer and more appealing.

### Types of sketching we will demonstrate are:

**Freehand:** Freehand sketching is drawing quickly and loosely without tools to communicate ideas and shapes clearly.

**Isometric:** 3D Pictorial drawing that focuses on the edge of the object and used an angle 30 degrees to the horizon.

**Oblique:** 3D Pictorial drawing that focuses on the face of the object and used an angle 45 degrees to the horizon.

**Orthographic:** Drawing that represents a 3D object by using several 2D views (or projections) of it. In the UK we use 3rd person projection.

## Week 6

### Design Development

Design development is the process of taking an initial idea and improving it through sketches, models, testing, and feedback. It helps you refine your design, so it works better, looks better, and meets the needs of the user.

To communicate a final design, you may use one or more of the following drawing techniques:

**Close-up:** A close-up sketch zooms in on a small part of your design to show important details more clearly. It helps others understand features that might be too small to see in a normal drawing.

**Section view:** A section view sketch shows what the inside of your design looks like by cutting through it, like slicing something in half. It can show how internal parts are shaped and how they fit together.

**Exploded view:** An exploded view sketch shows all the parts of your design pulled apart but arranged in order so you can see how they assemble. It helps you understand the components and how they connect.

## Vocabulary

**Annotation:** Annotation is adding brief notes to a sketch to clearly explain features, materials, or function, this is also known as labels.

**Rendering:** Rendering is adding colour, shading, and texture to a drawing to make it look more realistic.

**Prototyping:** Prototyping is creating a simple model of a design to test how it works before final manufacture.

**Demonstrate:** To demonstrate means to show or explain how something works or how to do something clearly.

**Dimensions:** Dimensions are the measurements that describe the size of a product, such as height, width, and depth.

## Week 7

### Card Modelling, Prototyping and Testing
### Why Card modelling:

Card modelling is useful because it lets you quickly and cheaply test the size, shape, and fit of your design, spot problems early, make easy improvements, and clearly communicate your ideas to others.

### Testing Form and Function:

**Form:** The form of a product is its overall appearance and shape, which helps show what it is, how it should be used, and how appealing it looks.

**Function:** The function of a product is what it is designed to do, meaning how well it performs its job and meets the needs of the user.

### Why test?

We need to test products to make sure they work safely, effectively, and as intended before they are manufactured or used.

## Week 8

### Technical Drawings and BSI 8888

**British Standards Institute (BSI):** The British Standards Institute is an organisation that creates official rules and guidelines to make sure products, designs, and engineering processes are safe, reliable, and high quality. Designers and engineers follow these standards, so their work is consistent and meets professional expectations.

**BSI 8888** is the British standard that sets the rules for how technical drawings should be created so they are clear, accurate, and easy for engineers to understand. It ensures everyone uses the same symbols, layouts, and conventions when communicating design information.

**BSI includes guidance on the following:**
- Line types
- Projection
- Use of symbols
- Dimensions (mm) and much more…

# Engineering Design

| |

## Week 9

### Engineering Drawings

**Safety:** They help ensure products and systems are tested and designed to reduce risks and protect users.

**Quality and reliability:** They set clear expectations for how things should be made, which helps products perform well and last longer.

**Consistency:** Everyone—from designers to manufacturers—follows the same rules, so information is easier to understand, and products work together properly.

**Efficiency:** Standards reduce mistakes and misunderstandings, saving time and money during design and production.

**Trust:** Customers and companies have more confidence in products that meet recognised standards.

**Compatibility:** Many British Standards align with ISO standards making it easier to manufacture and sell products worldwide.

**ISO Standards:** Internationally agreed rules and guidelines created by the International Organization for Standardization to make sure products, services, and systems are safe, reliable, and high quality across different countries.

## Week 10

### Manufacturing Planning:

Before we manufacture our design, we need to plan each step.

**Production Plan/Planning Table:** A production plan is a table that shows the steps you will follow to make your product, along with the tools, materials, and time needed for each stage.

**Cutting List:** A cutting list is a clear list of all the materials you need to cut, including their sizes and quantities, so you can prepare everything accurately before manufacturing.

**Gantt Chart:** A Gantt chart is a timeline that shows what tasks need to be done and when, helping you organise your project and manage your time effectively.

**Flow Chart:** A flow chart is a diagram that uses boxes and arrows to show the order of steps in a process, making it easy to understand how something works or is made.

## Vocabulary

**Compatibility:** Compatibility is how well a product or part works together with other products, parts, or systems.

**Reliability:** Reliability is how consistently and dependably a product performs its job without failing.

**Assessment:** Assessment is the process of judging or evaluating something to understand how good, effective, or suitable it is.

**Manufacturing:** Manufacturing is the process of making a product by turning raw materials into finished items using tools, machines, and techniques.

## Week 11

### Risk Assessments

A risk assessment is a careful check to identify potential dangers in an activity, decide how likely they are to happen, and plan how to reduce or prevent them to keep people safe.

**What is included in a risk assessment?**
- The Hazard (activity or tool)
- The Risk (what can go wrong).
- Likelihood of an accident happening – scored out of 5.
- How severe the accident could be – scored out of 5.
- Overall score (Likelihood X Severity).
- Preventions and control measures that must be taken to lower this score.

**The total scores can determine how high the risk is and how urgent it is to act.**
- Low risk: 1–8
- Medium risk: 9–15
- High risk: 16–25

## Week 12

### PPE (Personal Protective Equipment)

PPE is the safety equiptment you wear to protect yourself from hazards while working in the workshop or during practical tasks.
- **Safety goggles** – protect your eyes from dust, debris, and sparks.
- **Apron or workshop coat** – protects your clothes and skin from spills or sharp materials.
- **Gloves –** protect your hands when handling rough, sharp, or hot materials (only when safe to use) or chemicals. We select the type of gloves based on the task we are undertaking. We do NOT wear gloves when using power tools, as they can cause a hazard.
- **Ear defenders/earplugs –** protect your hearing when using loud machines.
- **Dust mask –** protects your lungs when sanding or working with materials that create dust.
- **Safety boots or closed-toe shoes –** protect your feet from dropped tools or materials

# English

| Week 1 | Week 2 | Week 3 | Vocabulary |
|---|---|---|---|

**Week 1**
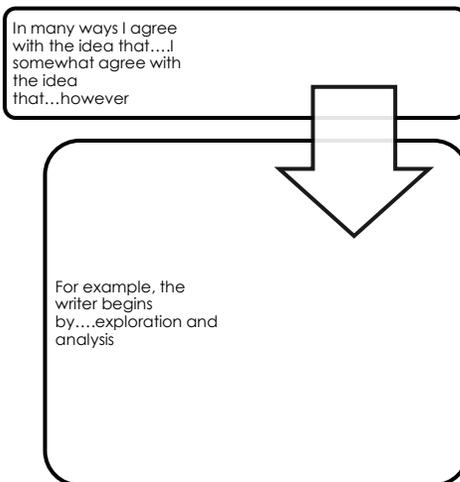
Language Paper 1 Questions 1 and 2

**Writers** use language **deliberately** to influence the reader in different ways.
This includes;
Structure and chronology
Sentence structure and organisation
Phrase and word choice

Some of the literary techniques a writer uses are as follows;

**Imagery**; semantic field.
Extended metaphor.
**Sound patterns**; Alliteration, onomatopoeia, Fricatives, sibilance
**Contrast.** Juxtaposition, oxymoron, antithesis

To explore the ways in which the writer uses language to create effect you will need to use discourse phrases such as;

- **Firstly**, the **writer**

- This **foregrounds** the idea that

- The writer **juxtaposes** this image with

- **Through the use** of the semantic field, the writer **illuminates** the idea that

- The **reader** empathises/anticipates/visualises

**Week 2**

**Animal Farm. Chapters 1 and 2**
Animal farm is an example of **political satire** – this means it is a story that uses humour, irony and exaggeration to mock and criticises those in power.

Orwell introduced the inevitable **hierarchy of a society** through the way the animals organise themselves in the great barn.

Orwell presents the **hypocrisy and ignorance** of "armchair philosophers" who present theories they know nothing about through the character of Old Major who is a privileged pig.

Orwell introduces the three potential leaders through the pigs **Snowball, Napoleon and Squealer.** Molly is introduced as a weak and **materialistic** character and Moses as the tame raven who represents the idea that religion is often used to control people. (If they work hard, they will go to **"sugarcandy mountain.**
The last straw for the animals is their starvation – and this triggers **revolution.** In no time at all the farm was theirs symbolising how quickly control can shift.

Quotations;
"Man is the only creature that consumes without producing"
"The work of teaching and organising fell naturally upon the pigs"
"The milk had disappeared"

**Week 3**

Language Paper 1 Question 3

**Writers** structure the text **deliberately** to influence the reader in different ways.
This includes;
When and how a character is introduced.
**When and how** a setting is described.
**When and how** the complicated action in a story is presented.
How a story is finished.

Some of the **structural techniques** a writer uses are as follows;

- **Narrative** hook/opening
- **Juxtaposition** or **antithesis**
- **Changes** and variations in pace and mood
- Emphasis through description and positioning
- **Cyclicality**

To explore the ways in which the writer uses structure to create effect you will need to use discourse phrases such as;

- **Firstly**, the writer…in order to

- **Then** the writer…and this creates anticipation because

- **Finally,** the writer

**Vocabulary**

**Social responsibility**
Acting in ways that benefit all members of a social group or community.
**Exploitation**
Treating someone unfairly in order to benefit from their work
**The class system**
The social structure in which people are categorised according to their wealth and means**.**
**Revolution**
The forcible overthrow of the government or social order in favour of a new system.
**Marxism**
A criticism of capitalism in favour of a classless society.
**Class consciousness**
A recognition of one's social status and the exploitation this may involve.
**Hierarchy**
A system in which members of society are ranked according to status.
**Socialism**
The idea that the means of production is owned by the whole community rather than individuals
**Rhetoric**
The power and art of speech.
**Democracy**
A society in which the people vote for their government and are involved in the decision making.
**Dictatorship**
A society in which a single unelected person or small group holds absolute power.

# English

## Week 4

### Animal Farm Chapters 3 and 4

The pigs take **control** in these chapters and hierarchy begins to be established. Jesse and Bluebells puppies are stolen symbolising the tendency of dictators to infiltrate the youngest members of society.

The ability to write determines the **allocation of power**. Boxer cannot get beyond the letter D so he will have to believe everything he is told.

The pigs are eating the milk and apples – Squealer justifies this by explaining that the pigs need to do this to prevent Mr Jones from coming back.

The battle of the cowshed portrays the need to defend a political system and fight for it. Orwell depicts the **glorification of war** through the description of war medals and parades. Napolean is strangely absent through the whole battle and Boxer is distraught when he thinks he has killed a stable lad.

**Quotations:**
"The pigs did not actually work but directed and supervised the others."
"It is for your sake that we drink that milk and eat those apples."

## Week 5

### Language Paper 1 Question 4

**Writers** use language and structure **deliberately** to influence the reader in different ways. This includes;
- Structure and chronology
- Sentence structure and organisation
- Phrase and word choice.

Language paper 1 Question 4 asks you to **agree** or **disagree** with a statement presented about the story. You should establish your viewpoint (write a thesis) and then find language and structure choices that enable you to discuss your viewpoint using this evidence.

Look below at the diagram to help you;

In many ways I agree with the idea that….I somewhat agree with the idea that…however

For example, the writer begins by….exploration and analysis

## Week 6

### Animal farm Chapters 5 and 6

Mollie leaves the farm because she values materials over freedom. Political disagreements between **Snowball** and **Napoleon** intensify. Snowball presents ambitious plans for a **windmill**, which he claims will generate electricity, reduce labor, and improve life. Napoleon opposes the idea. Napoleon unleashes **nine fierce puppies that chase Snowball away.** Napoleon declares that meetings are abolished and that decisions will be made by a committee of pigs, and that the windmill will be built after all. The pigs start sleeping in beds. They violate the commandments and flout the teachings of Old Major. The windmill is demolished in a storm and Napolean immediately blames Snowball. Snowball is scapegoated as a traitor in to unite the animals against a common enemy. They begin building the windmill again

**Quotations;**
"His brilliant speeches" (Snowball)
"Urinated over the plans" (Napolean)
"Nine enormous dogs wearing brass studded collars"
"All that year the animals worked like slaves"
"No animal shall sleep in a bed *with sheets*"

## Vocabulary

**Propaganda**
Deliberate spread of information to influence public opinion.

**Reductionism**
Simplifying complex ideas – often to stop people from questioning them.

**Obfuscation**
Deliberate use of complex language to confuse or alienate.

**Equivocation** use of ambiguous language to avoid committing oneself.

**Influential power**
Persuading others to think and behave in certain ways without using force.

**Instrumental power**
Using threat/ punishment and direct consequence to control behaviour.

**Ignorance**
Having no knowledge of something.

**Materialism**
Valuing wealth and possessions over everything else.

# English

## Week 7

### Full paper 1 consolidation.

One source – an extract from a novel.

Section A - Reading

- **Question 1** Multiple choice. 4 marks. First part of the source.
- **Question 2**. The Language Question – 8 marks. Thesis followed by analysis.
- **Question 3**. The Structure question – Chronological exploration of how the writer has structured the text to interest the reader.
- **Question 4**. The Statement question – whether you agree or disagree.

### Section B - Creative writing.

24 marks – sentence structure and organisation
16 marks – Technical accuracy

Include;
An extended metaphor
A semantic field
Ambitious vocabulary choices
Varied syntax
Mood shifts
Cyclicality

## Week 8

### Animal farm Chapters 7-8

Winter is harsh, and the animals suffer from **food shortages**, but Napoleon orders the outside world to be told that food is plentiful.
The hen's rebel when Napoleon demands their eggs to trade for food. In response, he **cuts off their rations**, and several hens die.
Napoleon blames Snowball for every problem on the farm The animals are terrified when Napoleon forces animals to confess to crimes—some real, some false—and the dogs attack and kill them. Clover thinks life is not what the animals hoped for. Squealer alters the commandments again. "**No animal shall kill any other animal**" now reads: **"No animal shall kill any other animal** *without cause.***"**
**Boxer** continues to work harder than anyone.
Napoleon maintains that the farm is prospering even though it is not.
The animals are to afraid and indoctrinated to rebel.

**Quotations;**
"No animal shall kill any other animal without cause".
"Napolean carried a whip in his trotter"
"We pigs are brainworkers"

## Week 9

### Animal Farm Chapter 9-10
**Food rations are reduced again**, except for the pigs and dogs. The **pigs** consume alcohol. Napoleon declares the farm a **"Republic,"** and he is elected President in a unanimous vote.
**Moses** the raven returns telling stories of **Sugarcandy Mountain**, which the pigs now tolerate.
After collapsing, **Boxer is taken away.** Boxer is **never seen again. Squealer** claims Boxer died peacefully in the hospital. The pigs mysteriously obtain money soon after—used to buy more whisky.
The farm grows richer, but the animals **do not benefit** from it. The pigs continue to adopt more human behaviors— **walking on two legs**, carrying whips, wearing clothes.
The **sheep are taught a new slogan**: **"Four legs good, two legs better."**
The Seven Commandments are erased and replaced with a **single commandment**:
The animals watching from outside can no longer distinguish **pigs from humans**—they have become identical in their corruption.

**Quotations;**
"All animals are equal, but some animals are more equal than others".
"He carried a whip in his trotter"
"Pig to man, and from man to pig, and from pig to man again"

## Vocabulary

**Protest**
A Public act of objection.
**Famine**
Extreme scarcity of food.

**Manipulation**
Influencing or controlling another person's thoughts and behaviour.

**Slavery**
The ownership of one person by another involving the denial of freedom.

**Scapegoat** A person or group that is unfairly blamed for the faults or wrongdoing of others to deflect responsibility.

**Maxim** A short statement expressing a general principle or rule of conduct.

**Laborious**
Exhausting hard work.

**Cyclical structure**
A story in which the ending is similar or reflective of the start.

**Indoctrination**
Using repeated instructions to teach people into a way of thinking. Like brainwashing.

# English

## Week 10

**PPE Week**

**Animal farm Key quotations.**

- "Man is the only creature that consumes without producing"
- "Clover built a sort of wall around them"
- "I will work harder/Napolean is always right"
- "Could turn black into white"
- "Brass studied collars"
- "The pigs did not actually work, but directed and supervised the others"
- "The work was strictly voluntary"
- "Promptly tore their throats out"
- "All animals are equal, but some are more equal than others"
- "Impossible to say which was which"

**Anthology poetry**
**London**

- *Every face – marks of weakness, marks of woe*
- *Mind forg'd manacles*
- *New born infants tear*

**Ozymandias**

- *Shattered visage*
- *Colossal wreck*
- *Nothing beside remains*

**The Prelude**

- *Led by her*
- *Troubled pleasure*
- *Lustily I dipped my oars – like a swan*
- *There was a darkness*

## Week 11

**Consolidation Animal Farm**

What is **Old Major's vision** for the animals at the start of the novel?

How is **Snowball** different from **Napoleon** in terms of leadership and ideas?

What role does **Boxer** play in the success and failure of the farm?

How does **Napoleon** consolidate power on Animal Farm?

In what ways does **Squealer** manipulate the other animals?

How is **Boxer** a symbol of the working class

What does the novel say about **class struggle** and inequality?

How does Orwell present the power of **language** and **knowledge** in Animal Farm?

**Thesis structure**
In his sociopolitical novella, Animal Farm Orwell seeks to……………….
Through the characterisation of………..
At the beginning….however by the end

## Week 12

**Consolidation Poetry**

**Compare** how the poets present the power of nature in Kamikaze and one other poem from the anthology

**Compare** how the poet presents the power of memory in Kamikaze and one other poem from the anthology

**Compare** how the poet presents the power of the past in Ozymandias and one other poem from the anthology.

**Compare** how the poet presents conflict in The Prelude and one other poem from the anthology.

## Vocabulary

**Loyalty** Being faithful and devoted to a person, cause or country.
**Utopia** An imagined society or community that is unrealistically perfect.
**Dystopia** A society characterised by oppression and suffering.
**Omniscience** All knowing (Omni – all. Science –Knowledge).
**Omnipotence** All powerful.
**Industrialisation** Reorganisation of a society for the purpose of manufacturing.
**Tyranny** **T**he abusive and unjust exercise of power.

When thinking about the (words in the question)in poem A by Poet A one immediately thinks about the poem ………… by ……………… Both poets explore the idea that (Thematic similarity)…. However (difference)

Explore poem a chronologically

Explore poem B chronologically

# Food

| Week 1 | Week 2 | Vocabulary |
|---|---|---|
| **Theory – Food Provenance**<br>**Food provenance** means knowing where food comes from, how it was produced, and how it reaches us. The **food chain** includes production (growing or catching), processing and distribution (selling to the public). **Traceability** allows food to be tracked through each stage to ensure quality and safety. Buying locally can mean fresher food, support for local farmers, and a lower **carbon footprint**, but it can also be more expensive or offer less choice. Some foods have special protection marks showing their origin and quality: **PGI**, **PDO**, and **TSG**. Examples include Stilton cheese (**PDO**) and Melton Mowbray pork pies (**PGI**). Not all imported foods are bad for the environment.<br><br>**Practical – Chilli Con Carne**<br>It's made by browning minced meat, **sautéing** onions and chillies, and simmering the mixture slowly to build flavour. Key skills include using the claw and bridge holds for safe knife work, preventing cross-contamination when handling raw meat, and knowing when the mince is fully cooked. Key cooking terms such as **sauté**, simmer, and brown. The recipe can be adapted for different dietary needs, such as using beans or vegetables for a vegetarian version. | **Theory - Food miles**<br>Food miles are the distance food travels from where it's produced to where it's eaten, while a **carbon footprint** is the total greenhouse gases caused by our actions. To reduce food miles, buy local or seasonal food, shop at **farmers' markets**, grow your own, cook from scratch, walk or cycle to shops, and shop less often. Imported food isn't always worse for the environment, its impact depends on how it's produced and **transported**.<br><br>**Practical - Chocolate mousse**<br>This is a light, airy dessert made by melting chocolate gently, whisking egg whites to soft peaks, and **folding** them carefully into the mixture to keep it fluffy. Key skills include safe hob use, correct whisking and folding, and good hygiene when handling ingredients. Avoid overheating the chocolate, use clean, dry utensils, and chill the mousse to set. | **Origin –** the place from which something is derived<br>**Traceability –** the ability to trace any food through all of the stages – production, processing and distribution<br>**Food chain –** a series of processes by which food is grown, produced and eventually consumed<br>**PGI –** protection geographical indication<br>**PDO –** protection designation of origin<br>**TSG –** Traditional specialty guaranteed<br>**Carbon footprint -** A carbon footprint is the total amount of greenhouse gases (including carbon dioxide and methane) that are generated by our actions.<br>**Transport –** the process of moving food to desired destinations from the food producer to its consumers<br>**Seasonality –** Seasonal food is fresh food that is ready to eat during its preferred season. For example, Scottish raspberries are juicy and delicious in the summer<br>**Farmers markets –** a regular event in a town or city when farmers come to sell their fruit, vegetables, eggs, meat, etc.<br>**Local produce –** Local means existing in or belonging to the area where you live<br><br>**Practical Vocabulary**<br>**Sautéing -** Cooking ingredients quickly in a small amount of oil over medium-high heat<br>**Fold -** Gently combining two mixtures of different thicknesses without deflating the air incorporated. |

# Food

| Week 3 | Week 4 | Vocabulary |
|---|---|---|

**Theory - Food packaging**
Food packaging protects food, keeps it fresh, and provides important information like the **best before date**. Common materials include paper, plastic, glass, metal, and cardboard, each with pros and cons for safety, cost, and environmental impact. **MAP** (Modified Atmosphere Packaging) and **vacuum sealing** help extend shelf life by reducing oxygen around the food. While packaging can create waste, recycling, reusing, and using **biodegradable** materials help reduce its environmental impact.

**Practical - Pizza Marinara**
Pizza Marinara teaches how to make pizza dough by **kneading** it to develop gluten for a light, chewy texture. Yeast helps the dough rise, and olive oil adds flavour and elasticity. Key skills include safe oven use, correct knife techniques, and **shaping** the dough evenly in the tin. Understanding food provenance, where ingredients like flour, cheese, and tuna come from, helps link cooking to food origins.

**Theory - Food waste and food security**
Food waste and **food security** explore how wasted food and unequal access affect people and the planet. Food waste comes from homes, retailers, and producers, contributing to environmental harm and **climate change. Food poverty** occurs when people lack access to affordable, nutritious food, while **food security** means everyone has reliable access to safe, sufficient food. Projects like food banks, community cafés, and school clubs help support those in need. Reducing waste, buying local, eating seasonally, and choosing sustainable foods all help protect resources and improve global food security.

**Practical - Rough puff pastry**
Rough puff pastry is a light, flaky dough made by layering fat and flour with water and lemon juice. Folding and resting the dough between turns allows **gluten** to relax and air to be trapped, creating a crisp texture when baked. Key skills include accurate measuring, gentle handling to keep the butter cold, and using proper rolling and folding techniques. Understanding each ingredient's function helps achieve the perfect rise and texture while reducing waste by using leftover ingredients in dishes like sausage plait.

**Modified Atmosphere Packaging (MAP) -** Packaging that alters the atmosphere around the product to extend shelf life.
**Vacuum Sealing -** Packaging where air is removed before sealing to extend shelf life.
**Biodegradable -** Materials that can be broken down by microorganisms over time.
**"Best Before" Date -** The date until the product is expected to be at its best quality.
**Food banks** – Food banks are run by volunteer-based organisations, redistributing food donated by consumers, retailers and the food industry.
**Food security** – food security is a measure of the availability of food required to support people of a household, region, country or any specified area.
**Climate change** - A large-scale, long-term shift in the planet's weather patterns or average temperatures, which can lead to unusual weather conditions.

**Practical Vocabulary**
**Shaping** - Forming the dough into a pizza base, usually by hand or with a rolling pin.
**Kneading** - The process of working the dough to develop gluten, giving it elasticity and strength
**Resting** - Allowing the dough to sit in the refrigerator between turns to relax the gluten and keep the butter cold.
**Gluten** – this can be found in wheat flour

# Food

| Week 5 | Week 6 | Vocabulary |
|---|---|---|

**Theory - Foods from around the world**
This explores how geography, climate, migration, religion, and economy influence different cuisines. Each country has its own **signature dishes**, often made with locally produced ingredients, and uses unique flavours and cooking styles. Understanding **cuisine**, **staple foods**, and how cultures blend through **fusion** cooking helps us appreciate global food diversity and the traditions behind what we eat.

**Practical - Sausage, sage and onion plait**
Sausage, sage and onion **plait** focuses on pastry and knife skills, including rolling, shaping, and plaiting the dough neatly over the sausage filling. Key techniques include safely dicing onions using the claw and bridge hold, removing sausage skins, and applying an **egg wash** for a golden, glossy finish. Good hygiene and avoiding cross-contamination are essential when handling raw meat. Understanding where ingredients like pork and flour come from links the dish to food provenance and safe cooking practices.

**Experiment – Denaturation and Meringue**
His experiment explores how proteins in egg whites change when whisked, known as **denaturation**. The goal is to create the perfect **meringue,** thick, glossy, and forming **stiff peaks**. Students test different methods, observing how sugar, whisking, and timing affect texture and stability. By recording results, analysing outcomes and **hypothesises**, and comparing methods, they learn how ingredient interactions and techniques influence the final meringue's quality.

**Commodity exam**
**Topic**: Where food comes from
**Commodity 3** – Meat, poultry, fish & eggs

**Signature dish –** made with locally produced ingredients.
**Cuisine** – a style of cooking
**Migrate** – when people or animals move from one geographical area to another.
**Staple food** - food or drink that provides nourishment to sustain the body and life.
**Fusion –** when two cuisines are mixed together.
**Denaturation** - the unfolding or breaking up of a protein
**Soft peak** – is the stage when you pull the whisk out of the mixture and the whites form peaks with the tips flopping over
**Stiff peak** – is the stage when the mixture holds its shape
**Hypothesis** – what you predict is going to happen
**Meringue** – a crisp cooked mixture of sugar and white of eggs which are whisked together

**Practical Vocabulary**
**Plait** - A method of braiding or weaving pastry strips over the filling to create a decorative top.
**Egg Wash** - A mixture of beaten eggs and sometimes milk or water, brushed over the pastry before baking to give it a golden, glossy finish.

# Food

## Theory - Food spoilage, causes, storage and food safety

Food spoilage focuses on understanding how and why food goes bad and how to prevent it. **Food spoilage** happens when bacteria, moulds, yeasts, or enzymes cause food to decay. **Perishable foods** like meat, fish, dairy, fruit, and vegetables must be stored correctly, chilled, frozen, or at **ambient** temperature, to stay safe to eat. Good **f**ood hygiene and proper storage help prevent contamination and reduce waste, keeping food fresh and safe for consumption.

## Practical – Thai Red Curry

Thai Red Curry focuses on safe handling and cooking of chicken, a high-risk food, to prevent cross-contamination. Key skills include using separate equipment for raw meat, washing hands and surfaces, and storing raw chicken at the bottom of the fridge. The dish uses ingredients like **Aromatics -** chilies, garlic, lemongrass, and coconut milk, with the curry paste cooked first to enhance flavour. Understanding safe cooking temperatures and hygiene ensures the chicken is fully cooked and the curry is both tasty and safe to eat.

## Theory - Sources of contamination

Contamination explores how food can become unsafe through physical, chemical, or bacterial contamination. **Pathogenic bacteria** such as **Salmonella, E. coli, Campylobacter**, and **Staphylococcus aureus** can cause food poisoning, often found in high-risk foods like meat, poultry, eggs, and dairy. Bacteria grow quickly when given food, warmth, time, and moisture, so good hygiene, correct storage, and proper cooking are essential to prevent illness and keep food safe.

## Practical – Lemon Cheesecake

**Lemon** Cheesecake explores how acid acts as a natural thickener in recipes. The **lemon juice** reacts with the proteins in cream, causing **denaturation**, which thickens the mixture for a smooth, set texture. Key skills include safe hob use when melting butter, whisking cream to soft peaks, and spreading the topping evenly. Understanding the role of ingredients and correct storage of high-risk foods like cream ensures both food safety and a well-set, creamy cheesecake.

## Vocabulary

**Microorganisms -** forms are bacteria, yeasts, moulds, and viruses

**Food spoilage** – refers to changes that make food unfit for human consumption.

**Bacteria -** Bacteria rapidly multiply under favourable conditions and can cause the food to spoil.

**Perishable foods** – foods that will decay or go bad quickly

**Ambient foods –** foods that can be stored at room temperature in sealed containers

**Pathogenic bacteria** – bacteria that can cause illness

**Salmonella** – type of food poisoning found in the intestines of humans and animals, raw poultry, meat, eggs and milk

**E. Coli** – type of food poisoning found in sewage, water, raw meat and muddy vegetables

**Campylobacter** – type of food poisoning found in raw poultry, meat, milk and animals

**Staphylococcus A** – type of food poisoning found in humans – skin, hair, nose, mouth cuts and spots

### Practical Vocabulary

**Aromatics** - Ingredients like garlic, onions, and herbs that add aroma to dishes.

**Reduction** - The process of thickening and intensifying the flavour of a liquid by boiling.

**Denaturation** - occurs when the protein's structure unravels.

**Lemon** – a type of citrus fruit

# Food

| Week 9 | Week 10 | Vocabulary |
|---|---|---|

**Theory - Cross Contamination**
**Cross Contamination** focuses on how harmful bacteria or substances can transfer from one surface or food to another, especially when hygiene practices are poor. It can occur through hands, utensils, or equipment that touch raw and ready-to-eat foods without proper cleaning. Preventing it involves maintaining good **personal hygiene**, using separate equipment, and storing food safely. **Toxins** are poisonous by-products of bacteria that can survive cooking, while **spores** are protective coatings that help bacteria withstand high temperatures.

**Practica – Carbonara**
Carbonara focuses on **emulsification**, the process that combines fat and water to create a smooth, creamy sauce. In this dish, egg yolks, cheese, pasta water, and pancetta fat work together to form a stable emulsion without curdling. The **starchy pasta water** is key; it helps thicken and bind the sauce for a silky texture. Key skills include safe hob use, proper meat preparation, and gentle **tossing** to evenly coat the pasta. Good hygiene and handling of high-risk foods prevent cross contamination.

Theory - **Control Points, HACCP and Preservation**
This lesson focuses on how the food industry maintains safety through **HACCP** - Hazard Analysis and Critical Control Points. This system identifies and controls **biological, chemical, and physical hazards** from production to sale. A **hazard** is any potential source of contamination, while a **control** is an action taken to prevent it. Students explore **preservation methods** such as heating, freezing, drying, removing air, or using salt, sugar, smoke, vinegar, and irradiation to extend shelf life and keep food safe.

**Practical - Cauliflower and Broccoli Bake**
This practical focuses on making a **roux sauce**, combining flour, fat, and liquid to create a smooth, thickened base. The sauce thickens through **gelatinisation**, where starch granules swell and burst when heated with liquid, giving a creamy texture. Key skills include safe use of the hob and oven, preparing vegetables, stirring constantly to avoid lumps, and adjusting thickness as needed. Understanding these techniques ensures a well-set, golden-brown bake while maintaining food safety and correct storage of dairy ingredients.

**Cross contamination –** The transfer of harmful substances or disease-causing microorganisms to food by hands
**Spores –** a bacterium that has formed a strong, protective outer coating
**Toxins –** bacterial poisons
**Personal hygiene** – involves keeping yourself clean to prevent cross contamination in food
**Pests** – refers to rodents like mice and rats and insects and birds
**HACCP -** Hazard analysis and critical control points
**Hazard –** a biological, chemical or physical contaminate when could affect food items
**Preservation –** extended the shelf life of a food ingredient
**Irradiation** – food is exposed to low doses of radiation which kills all microorganisms
**Preservation methods –** heat, freezing, removing air, drying, chemicals – salt, sugar, smoke and vinegar and irradiation

**Practical Vocabulary**
**Emulsify** - Combining fat with liquid to create a smooth, stable mixture. The egg yolks and cheese are emulsified with the fat and starchy pasta water.
**Starchy Pasta Water** - The water in which pasta is boiled, which contains starch released from the pasta. It is used to help emulsify and thicken the sauce.
**Tossing** - The method of combining pasta with the sauce ingredients by gently lifting and mixing, ensuring even coating and preventing the sauce from scrambling.
**Roux method** – flour is stirred into melted fat. Liquid is then carefully added. The sauce is heated and brought to the boil, stirring all the time.
**Gelatinisation** – When starches are heated with liquid, they swell and will thicken.

# Food

| Week 11 | Week 12 | Vocabulary |
|---|---|---|

**Theory – Food Labelling**
**Food Labelling** covers the legal requirements for information on food packaging as outlined in The Food Labelling Regulations, including product name, manufacturer, ingredients, allergens, weight, cooking instructions, shelf life, and nutritional information. Nutritional Information details the nutrient content per serving, including calories, fats, proteins, and vitamins. The traffic light system indicates at a glance whether a food is high, medium, or low in fat, saturated fat, sugars, and salt, and shows calories and kilojoules. **Labels** also include the **Best Before Date**, which indicates the date by which the food should be consumed for best quality, ensuring consumers have accurate information to make safe and informed choices.

**Practical - Blackcurrant and Apple Flapjack with Yogurt Topping**
This practical focuses on the **melting method**, where **butter, syrup, and sugar** are melted together to create a smooth base before mixing with oats. Key skills include safe hob and oven use, lining baking dishes, and spreading the **yogurt topping** evenly once the flapjack has cooled. Proper timing and storage of high-risk ingredients like yogurt ensure food safety, while careful mixing and layering create a visually appealing and well-set flapjack.

Theory - **Rice Pudding Milk Experiment**
This experiment focuses on testing **different types of milk** (e.g., full-fat, skim, UHT, evaporated, plant-based) to see how they affect the texture, colour, taste, and overall quality of a traditional rice pudding. Students safely use the hob, weigh ingredients accurately, and record observations to compare results. Key points include **lactose caramelisation**, thickening properties, and forming a hypothesis to identify which milk produces the best pudding.

**Commodity exam**
Topic: Diet and Good Health
Commodity 2 – Fats & sugars

**Best Before Date** - Indicates the date by which the food should be consumed for best quality.
**Label** - The information on a food package that includes details about the product.
**Rice pudding** – a sweet dish made by cooking rice in milk and sugar
**UHT milk** – has gone through a process where once packaged this can be stored at room temperature, once opened this must be treated a fresh milk
**Evaporated milk** – a type of processed milk
**Lactose** – the sugar found in dairy milk
**Caramelisation** - the process of heating sugar

**Practical Vocabulary**
**Blackcurrants** - Small, dark purple berries with a tart flavour, often used in jams, jellies, and desserts.
**Yogurt** - A creamy dairy product made by fermenting milk with beneficial bacteria, used for the topping.

# French

## Year 10 French : The Twelve-Point Check
Make your work amazing by including as many features as possible from the Twelve-Point Check every time

| 1. Time frame | 2. 'I' form of a verb | 3. we/ he/ she verb form | 4. Negation | 5. Conjunctions | 6. Justified opinion |
|---|---|---|---|---|---|
| **at the weekends** – les weekends<br>**on Thursdays –** Tous les jeudis<br>**when I am on holiday**- quand je suis en vacances<br>**when I am relaxing** – Quand je me repose<br>**if it is cold** – S'il fait froid<br>**when I was in Mexico**- quand j'étais au Mexique<br>**in summer** - en été<br>**in winter** - en hiver | **I am** – je suis<br>**I have** – j'ai<br>**I go / I am going** – je vais<br>**I want** – je veux<br>**I do** – je fais<br>**I did** – j'ai fait<br>**I went –** je suis allé ( e )<br>**I saw** – j'ai vu<br>**I liked** – j'ai aimé<br>**I will go** – j'irai<br>**I will watch** – je regarderai | **he / she goes** – il/elle va<br>**we go** – nous allons<br>**he/ she went** – il/elle est allé ( e )<br>**we went** – nous sommes allés ( e )<br>**it was** – c'était<br>**he / she will go** – il/elle ira<br>**we go** – nous irons<br>**it will be** – ce sera<br>**there was** - había | **not / don't** – Ne…pas<br>**nobody** – personne<br>**no /none /not any** – aucun/e<br><br>Example:<br>There is nobody at home – il n'y a personne à la maison<br><br>I **didn't** buy **any** flowers – je n'ai pas acheté de fleurs | **that's to say** – c'est à dire<br>**specifically** – en particulier<br>**despite** – malgré<br>**even so** – même si<br>**above all** – surtout<br>**not only… but also** – non seulement … mais aussi<br>**because** – vu que | **an advantage is that –** un avantage c'est que<br>**a disadvantage is that –** un désavantage c'est que<br>**because** – puisque<br><br>**s/he says that** – elle/il dit que<br>**s/he told me that** – elle/il m'a dit que….<br>**according to** – selon moi<br>**s/he would say that** – elle/il dirait que |

| 7. Contrasting opinion | 8. Comparative | 9. Superlative phrase | 10. Additional tense | 11. WOW-phrase | 12. Proofread for …. |
|---|---|---|---|---|---|
| Example:<br><br>My aunt likes Greece **because** it's very historic **even so** my cousin doesn't like it **because** <u>according to him</u> it is not interesting.<br><br>Ma tante aime la Grèce **puisque** c'est très historique **même si** mon cousin ne l'aime pas **vu que** selon lui ce n'est pas intéressant | **more…than** – plus…que<br>**as …as** – aussi…que<br>**less..than** – moins…que<br>**better than** – meilleur/e que<br>**worse than** – pire que<br><br>Example:<br>WhatsApp is **better than** SnapChat – Whatsapp est meilleur que SnapChat | **what I like the most** – ce que j'aime le plus<br>**what I like the least** – ce que j'aime le moins<br><br>**Examples:**<br>**What I like the most** is sunbathing– **ce que j'aime le plus** c'est me bronzer<br><br>**What I like the least** is travelling by boat **– ce que j'aime le moins** c'est voyager en bateau | **yesterday** - hier<br>**last Sunday** – dimanche dernier<br>**I went** – je suis allé ( e )<br>**I saw / watched** - j'ai vu/regardé<br>**I listened** – j'ai écouté<br><br>**Tomorrow** – demain<br>**When I am older** – quand je serai plus vieux/vieille<br>**I am going to + verb** – je vais + any infinitive verb<br>**I would like to + verb** – je voudrais + any infinitive verb | **if I were millionaire –** si j'étais millionaire+ conditional (I would)<br>**if I were more** – si j'étais plus+ conditional (I would)<br>**if I had more –** si j'avais plus + conditional (I would)<br>I am thinking of – je pense + infinitive verb<br>**I fancy (doing something)** –j'ai envie de + infinitive verb | • Repetition<br>• Missing accents(**SP**)<br>• Missing words (**^**)<br>• Spelling errors (**SP**)<br>• Adjective agreement (**A**)<br>• Syntax errors (**WO**)<br>• Verb agreement (**VP**)<br>• Tense agreement (**VT**)<br>• Tenses match time frame (**WW**)<br>• Vocabulary errors (**WW**)<br>• Included all the features of the twelve-point check |

## Classroom language

| Français | Anglais |
|---|---|
| Comment dit-on en français/anglais ? | How do you say… in French/ English? |
| Comment ça s'écrit…? | How do you spell…? |
| Comment prononce-t-on …? | How do you pronounce (it)? |
| Passe-moi …. , s'il te plaît? | Can you give me…? |
| Tu peux répéter? | Can you repeat that? |
| Je peux aller à ma leçon de musique? | Can I go to my music class? |
| Je ne comprends pas. | I (don't) understand |
| Je suis désolé(e). | I'm sorry |
| J'ai (presque) fini. | I have (almost) finished |
| S'il te plaît / s'il vous plaît | please |
| merci | thank you |
| **Objets en classe** | **Classroom objects** |
| un stylo | a pen |
| une règle | a ruler |
| un portable | a mobile phone |
| un cahier | an exercise book |

## Describing the weather

| Aujourd'hui… | Today … |
|---|---|
| il y a du soleil | it's sunny |
| il fait froid | it's cold |
| il fait chaud | it's hot |
| il y a du vent | it's windy |
| il fait beau | it's good weather |
| il fait mauvais | it's bad weather |
| il pleut | it's raining |
| il nège | it's snowing |
| il y a des nuages | it's cloudy |

**Saying what the weather is like today :**

Aujourd'hui, il y a du soleil et il fait beau. Cependant il y a des nuages.

## Days and dates

| Aujourd'hui c'est… | Today is... |
|---|---|
| lundi | Monday |
| mardi | Tuesday |
| mercredi | Wednesday |
| jeudi | Thursday |
| vendredi | Friday |
| samedi | Saturday |
| dimanche | Sunday |
| | |
| janvier | January |
| février | February |
| mars | March |
| avril | April |
| mai | May |
| juin | June |
| juillet | July |
| août | August |
| septembre | September |
| octobre | October |
| novembre | November |
| décembre | December |

Saying the date:
Aujourd'hui c'est lundi vingt-deux septembre deux mille vingt-cinq

## Numbers

1. un
2. deux
3. trois
4. quatre
5. cinq
6. six
7. sept
8. huit
9. neuf
10. dix
11. onze
12. douze
13. treize
14. quatorze
15. quinze
16. seize
17. dix-sept
18. dix-huit
19. dix-neuf
20. vingt
21. vingt et un
22. vingt-deux
23. vingt-trois
24. vingt-quatre
25. vingt-cinq
26. vingt-six
27. vint-sept
28. vingt-huit
29. veingt-neuf
30. trente
31. trente et un

## The alphabet

| letter | |
|---|---|
| a | ah |
| b | beh |
| c | seh |
| d | deh |
| e | uh |
| f | eff |
| g | zheh |
| h | ahsh |
| i | ee |
| j | zhee |
| k | kah |
| l | ell |
| m | em |
| n | en |
| o | Oh |
| p | peh |
| q | koo |
| r | air |
| s | ess |
| t | teh |
| u | ooh |
| v | veh |
| w | doo-bla-veh |
| x | eeks |
| y | Ee-grek |
| z | zed |

# French

## Preparing for the written exam

| Time frames | |
|---|---|
| Dans le passé / le week-end dernier / récemment | In the past / last weekend / recently |
| Normalement / d'habitude | Normally / usually |
| A l'avenir / le week-end prochain | In the future / next weekend |
| **Conjunctions** | |
| Parce que / vu que / car | Because / as |
| En plus / aussi / en outre | In addition / also |
| Cependant / par contre | However |
| **Describing a photo in brief sentences (F)** | |
| Sur la photo il y a... | In the photo there is... |
| Un homme / une femme / une famille / des amis / des enfants | A man / a woman / a family / some friends / some children |
| Il fait beau / il fait mauvais | It's nice / bad weather |

## Giving and justifying opinions

| | |
|---|---|
| A mon avis | In my opinion |
| Je trouve que | I find that (I think that) |
| J'aime / j'apprécie | I like |
| Je n'aime pas | I dislike |
| Je déteste | I hate |
| Je préfère | I prefer |
| J'ai une préférence pour | I have a preference for |
| Étant donné que | Given that (because) |
| donc | so |
| Ça m'est égal | I don't mind |
| D'ailleurs | Furthermore |
| Selon ma mère / mes amis | According to my mother / my friends |
| C'est une décision difficile | It's a difficult decision |

## Pros and cons

| | |
|---|---|
| D'une part...d'autre part / D'un côté...d'un autre côté | On the one hand...on the other hand |
| En revanche | On the other hand |
| Le meilleur, c'est que | The best thing is |
| Le pire, c'est que | The worst thing is |
| Les avantages sont que | The advantages are that |
| Les inconvénients sont que | The disadvantages are that |

## Exclamatives and WOW phrases

| | |
|---|---|
| Quel dommage! | What a shame! |
| Quel malheur! | What a pity! |
| Quelle histoire! | What a faff! |
| Quelle chance! | How lucky! |

**WOW phrases – just add a conditional (I would…)**

| | |
|---|---|
| Si j'étais riche… | If I were rich |
| Si j'avais le temps… | If I had the time |
| Si j'avais l'opportunité… | If I had the opportunity |
| Si je pouvais… | If I could |

**Other impressive phrases**

| | |
|---|---|
| J'aurais voulu + inf | I would have liked to… |
| ça vaut la peine de + inf | It's worth… |
| ça me permet de + inf | It allows me to… |
| ça m'aide à + inf | It helps me to… |

## Upgrading our language - verbs

| Verb phrase | Upgrade |
|---|---|
| Je pense que *I think that* | Je crois que *I believe that* |
| C'est *It is* | Ça peut être *It can be* |
| Je mange *I eat* | Je prends *I have (eat)* |
| Je voyage avec *I travel with* | J'**y** vais avec *I go **there** with* |
| Je joue au foot *I play football* | Je fais beaucoup de sport, y compris le foot *I do lots of sport including football* |
| C'était + adjective *It was + adjective* | Je l'ai trouvé + adjective *I found it + adjective* |
| J'aime jouer au parc *I like playing in the parc* | J'ai une passion pour jouer au parc *I have a passion for playing in the park* |

## Upgrading our language - adjectives

| Adjective | Upgrade |
|---|---|
| bon(ne) - good | genial(e) – great |
| ennuyeux(euse) | insupportable – unbearable |
| intéressant(e) | fascinant(e) - fascinating |
| amusant(e) - fun | divertissant(e)- entertaining |
| fatigant(e) - tiring | épuisant(e) - exhausting |
| joli(e) - pretty | pittoresque - picturesque |
| mauvais(e) - bad | nuisible - harmful |
| difficile (difficult) | exigeant(e) - demanding |
| facile (easy) | accessible |
| relaxant(e) | reposant(e) - restful |
| aimable - likeable | accueillant(e) - welcoming |

# French

## Sports and hobbies

| Jouer à / à la / à l' / aux | To play (ballsports) |
|---|---|
| au basket | basketball |
| au foot | football |
| au tennis | tennis |
| au volley | volleyball |
| au hand(ball) | handball |
| en fauteuil roulant | in a wheelchair |
| Je fais du sport / de l'exercice | I do (play) sports / exercise |
| Je m'entraîne | I train |
| Faire du / de la / de l' / des | To do (non-ball) sports |
| du vélo | bike-riding / cycling |
| du cheval | horse-riding |
| de la danse | dance |
| de la voile | sailing |
| de la lutte | wrestling |
| de la natation | swimming |
| de la gymnastique | gymnastics |
| de l'athlétisme | athletics |
| je vais au gymnase | I go to the gym |
| Je participe aux concours | I take part in competitions |
| Un match de rugby | A rugby match |
| Je suis membre d'un club | I'm a member of a club |
| Je suis membre d'une équipe | I'm a member of a team |
| C'est bon pour le corps / les muscles / le coeur | It's good for the body / the muscles /the heart |

## Music and sports events

| Un spectacle | A show |
|---|---|
| Des chansons | songs |
| Des clips | music videos |
| chanter | to sing |
| un(e) chanteur(euse) | A singer |
| un groupe de musique | A band |
| Le public | The audience |
| un festival | a festival |
| un concert | a concert |
| un concours | a competition |
| un tournoi | a tournament |
| un événement | an event |
| un stade | a stadium |
| un billet | A ticket |
| un(e) célébrité | A celebrity |
| un fan | A fan |
| Les Jeux Olympiques | The Olympic Games |
| La Coupe du monde de foot | The World Cup of football |
| Le Championnat Européen de tennis | The European Championship of tennis |
| J'ai vu | I saw |
| J'ai assisté à | I saw (match or show) |
| J'ai acheté un t-shirt comme souvenir | I bought a t-shirt as a souvenir |
| Je me suis éclaté | I had a blast |
| Mon équipe a gagné! | My team won! |

## Weekend activities – present and future

| Making plans | |
|---|---|
| aujourd'hui | today |
| demain | tomorrow |
| ce matin | this morning |
| demain matin | tomorrow morning |
| cet après-midi | this afternoon |
| demain après-midi | tomorrow afternoon |
| ce soir | this evening |
| à … | at … |
| neuf heures | nine o'clock |
| neuf heures et demie | half past nine |
| dix heures moins vingt | twenty to ten |
| dix heures moins le quart | quarter to ten |
| Ça t'intéresse? | Are you interested? |
| Es-tu libre? | Are you free? |
| Tu viens ? | Are you coming? |
| Ça m'intéresse | I'm interested |
| Oui, merci, c'est gentil. | Yes, thank you, that's kind of you. |
| Non, désolé(e), je ne peux pas | No, sorry, I can't. |
| A bientôt! | See you soon! |

# French

## Staying healthy

| Que fais-tu pour rester en bonne santé? What do you do to stay healthy? ||
| --- | --- |
| Je (ne) mange (pas) / je bois | I (don't) eat / I drink |
| des légumes / des fruits | vegetables / fruit |
| de l'eau / du lait | water / milk |
| du fast-food | fast-food |
| de la viande | meat |
| c'est bon / mauvais pour la santé | It's good / bad for you |
| c'est sain / malsain | It's healthy / unhealthy |
| un plat / un dessert / un repas | a dish / a dessert / meal |
| Je suis / il est vegan(e) / végétarien(enne) | I am / he is vegan / vegetarian |
| Il faut / on doit… | You must… |
| manger plus/moins de | eat more/less (of) |
| dormir 8 heures par nuit | sleep 8 hours a night |
| faire de l'exercice | do exercise |
| faire du yoga | do yoga |
| faire du sport | do sport |
| éviter la viande rouge | avoid red meat |
| le bien-être / la santé mentale | wellbeing / mental health |
| je joue au foot/basket | I play foot/basketball |
| Je fais de la natation/de la danse | I do swimming / dance |
| Je sors avec mes amis | I go out with friends |
| Je fais de longues promenades | I go on long walks |

## Improving your life

| Pour améliorer ma vie je vais / je voudrais... | To improve my life I am going to / I would like to... |
| --- | --- |
| faire plus de sport | do more sport |
| aider les autres | help others |
| écouter mes profs / mes parents quand il parlent | listen to my teachers / parents when they are talking |
| faire plus d'efforts en... | make more effort in... |
| aller plus souvent au centre de sport | go to the sports centre more often |
| manger mieux | eat better |
| manger moins de choses sucrées | eat less sugary things |
| arrêter de manger du fast-food | stop eating junk food |
| être plus actif(ive) | be more active |
| passer moins de temps sur les réseaux sociaux | spend less time on social media |
| me coucher de bonne heure | go to sleep early |
| travailler plus sérieusement au collège | work more seriously at school |
| ne pas faire mes devoirs à la dernière minute | |
| au lieu de | instead of |
| avant de me coucher | before going to bed |
| après être rentré(e) du collège | after getting home from school |
| pour réduire le stress | In order to reduce stress |
| afin d'être plus en forme | In order to be more fit |

## Revision of future plans and jobs

| A l'avenir / dans le futur, je (ne) voudrais (pas) être... | In the future, I would (not) like to be (a)... |
| --- | --- |
| chef(fe) / directeur (trice) | manager |
| médecin / artiste | Doctor / artist |
| professeur(e) (prof) | teacher |
| policier(ière) | police officer |
| apprenti / acteur(trice) | apprentice / actor |
| influenceur(euse) | influencer |
| Je voudrais travailler dans... | I would like to work in... |
| Un hôtel / Un restaurant | A hotel / A restaurant |
| Une colonie de vacances | A holiday camp |
| Un hôpital / un commissariat | A hospital / police station |
| Une école / Une banque | A school / A bank |
| Un bureau | An office |
| Une ferme / Une usine | A farm / A factory |
| Un travail / emploi / métier | A job / career |

| J'espère + inf | I hope to + inf |
| --- | --- |
| J'ai l'intention de + inf | I intend to + inf |
| je veux / je compte + inf | I want to / I'm counting on |
| avoir des enfants / me marier | have children / get married |
| aller à l'université | to go to university |
| prendre une année sabbatique | to take a gap year |
| suivre une formation professionnelle | do vocational training |
| gagner beaucoup d'argent | to earn lots of money |
| avoir ma propre entreprise | to have my own business |
| acheter ma propre maison | To buy my own house |
| devenir célèbre / connu(e) | To become famous well-known |

# French

## Revision of environmental issues

| French | English |
|---|---|
| Le problème le plus important, c'est... | The biggest problem is... |
| Je m'inquiète de | I am worried about |
| menacé / touché | threatened / affected |
| La déforestation | Deforestation |
| L'extinction des espèces | Extinction of species |
| L'utilisation des ressources naturelles | Use of natural resources |
| Les déchets industriels / personnels | Industrial / personal rubbish (waste) |
| Les effets du changement climatique | The effects of climate change |
| La planète | The planet |
| La population humaine | The human population |
| Le niveau de la mer / les inondations | The sea level / floods |
| La circulation / la pollution | Traffic / pollution |
| La faim | Hunger / famine |
| Pour protéger l'environnement il faut... | To protect the environment we must... |
| trier / recycler le papier, le verre et le plastique | Sort / recycle paper, glass and plastic |
| manger moins de viande | Eat less meat |
| acheter / utiliser des produits verts | Buy / use green products |
| manifester pour la protection des espèces | Demonstrate in favour of the protection of species |

## Preparing for Reading and Listening PPEs

| French | English |
|---|---|
| ne...pas / que / jamais / plus / rien / personne | not / only / never / no more / nothing /no-one |
| tous les jours | every day |
| souvent | often |
| quelque fois / parfois | sometimes |
| ouvrir / fermer | to open / shut |
| gratuit | free (no cost) |
| il y a + time period | ago |
| à l'étranger | abroad |
| propre | Clean / **own** (if before noun) |
| sale | dirty |
| la nourriture | food |
| un repas | a meal |
| le logement | accommodation |
| gagner | to earn / win |
| dépenser | to spend (money) |
| passer | to spend (time) |
| même | same / even |
| les prix | the prices/costs |
| essayer | to try |
| un(e) voisin(e) | a neighbour |
| avoir envie de + inf | to fancy doing something |
| tendance | fashionable |

## More listening and reading words

| French | English |
|---|---|
| chaque | each |
| assez | quite / enough |
| le temps | Time / the weather |
| surtout | especially |
| rencontrer | To meet |
| donner | To give |
| La nuit / le jour | At night / during the day |
| Une journée | A day |
| actuellement | currently |
| Libre / disponible | Free / available |
| depuis | Since / for + time period |
| Le but / l'objectif | The goal / objective |
| Le début / la fin | The beginning / the end |
| Une association | An organisation / charity |
| Un régime | A diet |
| Une fête | A party |
| Fêter / célébrer | To celebrate |
| Une règle | A rule |
| Inquiet(éte) / fier(ère) | worried / proud |
| Avant / maintenant | Before / now |
| hier | yesterday |
| bientôt | soon |
| lutter | to fight / struggle |

# Geography

| Week 1 | Week 2 | Week 3 | Vocabulary |
|---|---|---|---|
| **What are the challenges in creating sustainable urban brownfield and greenfield sites?**<br><br>Building on **brownfield** and **greenfield** sites helps meet demand for housing, jobs and services.<br><br>**Brownfield sites**, like Bristol Docks, reduce urban sprawl, reuse existing infrastructure and improve neglected areas, but they can be expensive to clean, may require demolition, and risk gentrification.<br><br>**Greenfield sites**, like Nansledan near Newquay, are cheaper and easier to build on, offer more space, and allow sustainable planning, but they can lead to loss of countryside, more traffic, and local opposition.<br><br>Creating **sustainable communities** requires balancing social needs, such as housing and services, with economic needs like jobs and transport, and environmental needs including green space and low emissions.<br><br>**Egan's Wheel** is a tool used to assess how sustainable a community is, considering housing, transport, jobs, services, environment, and wellbeing. | **Why has retailing changed in the UK? What are the benefits & costs of changing retail patterns?**<br><br>Shopping in the UK has shifted from traditional high streets to out-of-town shopping centres and online shopping.<br><br>Economic factors, like high city-centre costs, have encouraged shoppers and retailers to move out of town.<br><br>Cultural changes, such as increased car ownership, make larger shopping centres easier to reach, while technology, including online shopping, fast delivery and digital payments, has changed how people buy goods.<br><br>Out-of-town shopping centres offer free parking, large stores, more choice and leisure facilities, but they can harm high streets, increase traffic and encourage car dependence.<br><br>Internet shopping is convenient, often cheaper, and offers a wide range of products, yet it reduces town footfall, can cause job losses in physical stores, and increases delivery traffic. High streets are adapting by adding cafés, leisure activities, pop-up shops and community spaces to attract people and give new purposes beyond traditional shopping. | **A sustainable community** is a community which is designed to have minimum impacts on the environment. Such communities may make use of energy efficiency, renewable technologies and local services to reduce transport costs.<br><br>**Egans wheel** is a model for sustainable communities. It outlines the main priorities when trying to develop a modern, well balanced and sustainable community. There are other characteristics, as well as housing, which need to be considered when designing sustainable communities. Egan's wheel can be used as a success criteria for a sustainable community.<br><br> | **Brownfield site:** an area of land that has previously been built on.<br><br>**Greenfield site:** an area of land that has never been built upon.<br><br>**Sustainable communities:** designed to benefit both the people and the environment. They meet the needs of existing and future residents and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equal opportunities and good services for all. |

# Geography

| Week 4 | Week 5 | Week 6 | Vocabulary |
|---|---|---|---|

**How is development measured?**

The **development gap** is the difference in wealth, health and quality of life between countries.

Development varies worldwide, with some countries richer and more developed than others.

The **economic development continuum** ranks countries from low to high development. Some countries, like South Korea, have experienced rapid change.

Economic measures like **GDP and GNI** show a country's wealth but do not reflect income distribution or quality of life. **Purchasing Power Parity (PPP)** adjusts for cost of living, giving a fairer comparison.

Social measures include **life expectancy, birth rates, infant mortality,** doctors per person, and gender equality.

**The Human Development Index (HDI)** combines income, health and education for a more complete view.

Social and economic measures change over time as countries develop.

**What are the global patterns of urbanisation? How are global cities connected?**

**Urbanisation** is the growth of cities, which has increased worldwide over time, especially in **LICs and NICs**. This rapid growth affects population distribution, housing, services, and infrastructure.

**Global cities** are major urban centres that influence the world economically, politically, and culturally. Their importance has changed over time as some cities have grown due to trade, finance, technology, and global connectivity. Examples include London, New York, and Tokyo.

**Globalisation** links cities through transport, trade, tourism, and communication.

Transport hubs, ports, and airports allow people and goods to move efficiently, while trade and tourism generate economic growth and cultural exchange.

Media and communication networks connect cities globally, enabling them to share information, influence worldwide trends, and maintain global influence.

**How has London changed over time? What are the urban challenges facing London?**

Mini Case Study: London, England **(HIC)**

**Reasons for Growth**
London, with around 9 million people, is the UK's largest city and a global centre for finance, media, technology, and culture. Its ports, airports, and train networks connect it nationally and internationally, attracting skilled workers and investment.

**Ways of Life**
London is highly multicultural, with over a third of residents born abroad. Areas such as Tower Hamlets, Southall, and Brixton have long-established communities from South Asia, the Caribbean, and Africa. The city has a rich cultural life, including theatre, music, festivals, and museums.

**Urban Challenges**
London faces a shortage of affordable housing, traffic congestion, air pollution, and social inequality. Plans aim to improve housing, transport, green spaces, and sustainability while maintaining the city's global importance.

**HIC:** High Income Country (e.g. the UK)

**Urbanisation:** the growth in the number of people living in urban areas or increasing proportion of a country's population living in urban areas.

**GDP (Gross Domestic Product):** total value of a country's economy per year.
**GNI (Gross National Income):** total value of goods and services produced, including earnings from abroad.

**Global city:** a city that is connected and interacts through trade and communication with other places on a global scale.

**Globalisation:** the process of connecting places economically, socially, culturally and politically.

51

# Geography

| Week 7 | Week 8 | Week 9 | Vocabulary |
|---|---|---|---|

**Why is Mumbai growing? What are the urban challenges facing Mumbai?**

Mini Case Study: Mumbai, India (**NIC**)

**Reasons for Growth**
Mumbai, India's largest city with over 20 million people, is a major trading hub and financial centre. Its port handles a large proportion of India's trade, and the city attracts rural migrants seeking jobs in industry, services, and Bollywood. Mumbai's airport connects it nationally and internationally.

**Ways of Life**
Mumbai is culturally diverse, mostly Hindu with significant Muslim communities. The city is highly unequal: many live in poverty, especially in Dharavi, one of the largest slums in the world, while others are very wealthy. Informal work is common.

**Urban Challenges**
Mumbai faces overcrowding, poor housing, limited clean water, and widespread poverty. Plans like 'Mumbai Vision' aim to build low-cost homes and improve healthcare, education, and water to create a more sustainable city.

**How does the informal economy support growth in Mumbai?**

The **informal sector** in Mumbai is not regulated by taxes or safety rules. It includes street jobs such as ragpicking, household chores, and child care.

Up to 85% of Dharavi's residents work in the informal economy, including street trading, recycling, and small factories. This sector provides jobs for unskilled workers, allows cheaper production for companies, and can stimulate economic growth through new businesses. However, it has disadvantages: the government collects no tax, workers have no job security, sick pay, or holiday pay, and wages are often very low.

Housing in Mumbai reflects the city's inequality. Around 60% of residents live in informal housing. Dharavi is home to 1 million people in just 1 square mile. Inner-city chawls are old, run-down 4–5 story buildings with basic shared bathrooms. Around 150,000 pavement dwellers pay rent to gangs controlling the streets. At the same time, many wealthy residents live in modern apartments, including the most expensive home in the world, a $1 billion, 27-story skyscraper.

**How does the global atmospheric circulation system work?**

**High pressure** occurs when cold, dry air sinks. As it reaches the surface, it warms, but clouds do not form, leading to clear skies and hot conditions in the tropics or cold, dry conditions at the poles.

**Low pressure** forms when warm, moist air rises, cools, and condenses, producing clouds and precipitation. Rising air lowers surface pressure as surrounding air moves in to replace it.

The equator receives the most concentrated solar energy, creating **low pressure.** Cooled air sinks at around 30° north and south, forming **high-pressure** zones. Air moves between these areas and converges at the **Intertropical Convergence Zone (ITCZ)**, the area of maximum solar energy near the equator. This circulation drives global wind belts and shapes climate patterns worldwide.

Seasonal variation occurs because the tilt of the Earth shifts the **ITCZ** north in summer and south in winter, causing monsoons and tropical cyclones. Climate change can also affect the frequency, intensity, and location of droughts and storms.

**NIC:** Newly Industrialised Country (e.g. India)

**Informal employment:** a job that is not regulated by the government and does not offer sick pay.

**Global Atmospheric Circulation Model:** the movement of air around the planet powered by the hot equator.

**ITCZ = Inter Tropical Convergence Zone:** the area of maximum solar insolation (energy) – usually at the Equator.

**High pressure:** descending air leads to high pressure at the Earth's surface.

**Low pressure:** rising air leads to low pressure at the Earth's surface.

# Geography

## Week 10

**How does low pressure create tropical storms?**

**Hurricane/Cyclone/Tropical storm Formation**
Hurricanes and cyclones form over warm tropical oceans when low-pressure systems develop. Warm, moist air rises, creating clouds and strong winds. The Coriolis effect causes rotation, and energy from the warm water intensifies the storm, producing heavy rain, strong winds, and storm surges.

**High-Pressure Hazards**
**Droughts** occur when rainfall is below average for three months or more.

Example: California drought (2013–2015). Impacts include water shortages, crop failure, and economic losses. Responses include water conservation and alternative water sources.

**Low-Pressure Hazards**
Hurricanes and cyclones cause flooding, property damage, and social disruption.

Example: Cyclone Pam (Vanuatu). Communities respond with evacuation, shelters, and disaster relief.

## Week 11

**What are the causes, consequences and responses to Hurricane Sandy?**

**Causes**
Hurricane Sandy formed over warm tropical waters in October 2012. **Low pressure** at the centre caused air to rise, drawing in moist air, and rotation from the Coriolis effect intensified winds and rainfall as it moved north.

**Impacts**
- **Social:** Over 70 deaths, displacement, power outages.
- **Economic:** Damage over $70 billion to homes, businesses, and infrastructure.
- **Environmental:** Coastal erosion, flooding, and ecosystem damage.

**Responses**
Early warnings allowed evacuation. Emergency services and the National Guard carried out rescues. Relief included shelters, food, and rebuilding support.

**HIC vs LIC Context**
As a high-income country, the USA could respond quickly with advanced warnings, strong emergency services, and funding. In **LICs**, similar storms usually have greater impacts due to weaker infrastructure and fewer resources.

## Week 12

**What are the causes, consequences and responses to California drought?**

**Causes**
Persistent high-pressure systems prevented rainfall over much of California. Reduced snowpack and low soil moisture worsened water shortages.

**Impacts**
- **Social:** Water restrictions, stress on communities.
- **Economic:** Crop losses, reduced farm income, higher food prices.
- **Environmental:** Depleted reservoirs, dying vegetation, increased wildfire risk.

**Responses**
Water conservation, efficient irrigation, alternative water sources, public awareness campaigns, and state/federal support.

**HIC vs LIC Context**
As a high-income area, California could manage water use and provide financial aid. In **LICs**, droughts often have worse impacts due to limited infrastructure and resources

## Vocabulary

**Tropical storm:** a severe low-pressure weather system which develops over tropical maritime areas.

**Drought:** a lack of precipitation in an area for a long period of time leading to a shortage of water.

**Social:** people and communities, including health, education, housing, and quality of life.
**Economic:** money, trade, jobs, industry, and wealth within a country, region, or community.
**Environmental:** the natural world, including land, water, air, ecosystems, resources, and the impact of human activity.

**LIC:** Low Income Country (e.g. Bangladesh)

# Graphics

| Week 1 | Week 2 | Week 3 | Vocabulary |
|---|---|---|---|
| **Key Concepts:**<br>Importance of understanding the client's needs<br>**Key Terms:**<br>**Brief:** A document outlining the project requirements.<br>**Client:** The person or organization requesting the design.<br>**Self-Reflection Questions:**<br>• How well do I understand the components of a graphic design brief?<br>• What specific needs of the client stand out to me, and how might they influence my design approach? | **Key Concepts:**<br>Overview of the Double Diamond model<br>**Key Terms:**<br>**Discover:** The first stage where you gather insights.<br>**Define:** The second stage where you articulate the problem.<br>**Self-Reflection Questions:**<br>• In which stage of the Double Diamond do I feel most comfortable, and why?<br>• How can I apply the Discover stage to gather more insights for my current project? | **Key Concepts:**<br>Methods of conducting research for design briefs<br>**Key Terms:**<br>**Qualitative Research:** Gathering non-numerical data.<br>**Quantitative Research:** Collecting numerical data.<br>**Self-Reflection Questions:**<br>• Which research method do I find most effective for my design projects, and how have I used it?<br>• How can I incorporate both qualitative and quantitative research to gain a comprehensive understanding of the design problem? | **Brief** A list of what the project must include.<br><br>**Client** The person who wants the design.<br><br>**Discover** Finding out information.<br><br>**Define** Clearly saying what the problem is.<br><br>**Target Audience** The people the design is for.<br><br>**Objectives** The goals your design must meet.<br><br>**Mind Map** A drawing of ideas linked together.<br><br>**Iteration** A new version of a design. |

| Week 4 | Week 5 | Week 6 | |
|---|---|---|---|
| **Key Concepts:**<br>How to break down and analyse a design brief<br>**Key Terms:**<br>**Target Audience:** The intended users of the design.<br>**Objectives:** Goals that the design must achieve.<br>**Self-Reflection Questions:**<br>• How well have I identified the target audience for my design, and what insights does this provide?<br>• Are my design objectives clear and aligned with the client's needs? How can I refine them? | **Key Concepts:**<br>Brainstorming and ideation methods<br>**Key Terms:**<br>**Mind Mapping:** Visualising ideas and connections.<br>**Sketching:** Quickly drawing ideas for visual representation.<br>**Self-Reflection Questions:**<br>• What ideation techniques have I used, and how effective have they been for my current project?<br>• How can I expand my ideation process to generate a wider range of ideas? | **Key Concepts:**<br>Refining ideas into design concepts<br>**Key Terms:**<br>**Concept Development:** The process of taking an idea and fleshing it out.<br>**Iterations:** Different versions of a design.<br>**Self-Reflection Questions:**<br>• How have I approached concept development, and what feedback have I incorporated?<br>• How many iterations have I created, and what have I learned from each version? | |

54

# Graphics

| Week 7 | Week 8 | Week 9 | Vocabulary |
|---|---|---|---|
| **Key Concepts:** Creating prototypes for design concepts<br><br>**Key Terms:**<br>**Prototype:** An early sample or model of the design.<br>**Mockup:** A realistic representation of the final product.<br><br>**Self-Reflection Questions:**<br>• What challenges did I face while creating prototypes, and how did I overcome them?<br>• How effectively does my prototype communicate my design ideas? | **Key Concepts:** Importance of feedback in the design process<br><br>**Key Terms:**<br>**Feedback:** Critique or suggestions from others.<br>**Revisions:** Changes made based on feedback.<br><br>**Self-Reflection Questions:**<br>• How receptive have I been to feedback, and what specific changes have I made as a result?<br>• What are the most significant revisions I've implemented, and how have they improved my design? | **Key Concepts:** Preparing designs for presentation<br><br>**Key Terms:**<br>**Final Presentation:** The complete and polished design ready for submission.<br>**Exporting:** Saving the design in the necessary format.<br><br>**Self-Reflection Questions:**<br>• How have I ensured that my final design meets the initial objectives of the brief?<br>• What formats am I considering for exporting, and why are they suitable for my project? | **Prototype** A first model of the design.<br><br>**Mockup** A picture showing what the final design will look like.<br><br>**Feedback** Comments from others to help you improve.<br><br>**Revisions** Changes made to fix or improve a design.<br><br>**Presentation** Showing your final design to others.<br><br>**Exporting** Saving your work in the right file type.<br><br>**Pitch** Explaining your idea to an audience.<br><br>**Evaluation** Judging how successful the design is. |

| Week 10 | Week 11 | Week 12 | |
|---|---|---|---|
| **Key Concepts:** Effective presentation techniques for design work<br><br>**Key Terms:**<br>**Pitch:** Presenting your ideas and designs to others.<br>**Visual Storytelling:** Communicating ideas visually.<br><br>**Self-Reflection Questions:**<br>• What strategies will I use to communicate my design effectively during the pitch?<br>• How can I incorporate visual storytelling elements into my presentation? | **Key Concepts:** Reflecting on the design process and outcomes<br><br>**Key Terms:**<br>**Evaluation:** Assessing the success of the design.<br>**Lessons Learned:** Insights gained from the project.<br><br>**Self-Reflection Questions:**<br>• How successful was I in achieving the goals of the design brief, and what metrics did I use to assess this?<br>• What are the key lessons I've learned from this project that I can apply to future design work? | **Key Concepts:** Applying what has been learned to future design briefs<br><br>**Key Terms:**<br>**Continuous Improvement:** Ongoing efforts to enhance skills and processes.<br>**Portfolio:** A collection of work that showcases skills and projects.<br><br>**Self-Reflection Questions:**<br>• How can I apply the skills and knowledge gained from this project to future design briefs?<br>• What elements will I include in my portfolio to showcase my growth as a designer? | |

# Health & Social Care

| Sources of Support | Types of Support | Component 11 | Vocabulary |
|---|---|---|---|

## Sources of Support

**Informal Support** is usually the first support a person receives (family friends neighbours partners)

| Voluntary Organisations | Community Groups | Faith Based Organisations |
|---|---|---|
| Purpose of helping people – not making £ Run by volunteers Donations Eg family lives – confidential helpline/articles online / someone to talk to | Local area & organised by volunteers Similar experienced life events Support groups bereavement / people can come together and feel understood and less alone | Groups formed with same religious beliefs Support within their faith |

**Professionals** – this is their job, trained : Doctors, nurses, counsellors, teachers and social workers
Professionals can work together
**Multi agency working** – professionals from more than one service work together
**Social Services** – work with mental health trusts to support young adults and children
**Children's Services** – work with the justice system to keep children safe
**Multidisciplinary working** – healthcare professionals with different roles work together to provide support
Health visitor works with GP's during the first five years of a child's life- assessing growth and development – sharing information & meeting

## Types of Support

**Emotional** – by caring and reassuring other, listening to worries without judgement and offering encouragement ( Friends and family or professionals such as a counsellor)

**Informational Support** – when a person receives useful information and advice, can be informal from friends etc and from professionals. Use of Apps such as NHS – Couch to 5K to improve fitness / Headspace / guided meditation to relax

**Practical Help** – person gets assistance with something they are struggling with on their own, could be financial, domestic chores, childcare
An injury might make them unable to work – needing financial support with bills

| Emotional | Informational | Practical |
|---|---|---|
| Express feelings ● Increase self-esteem Feel more confident Comfort and security Accept the situation | Help people understand their situation Options Informed decision making Further help | Help with specific needs Reduce anxiety & stress Reduce impact a life event has on a person |

## Component 11

**Main stages of life**
Infancy 0-2, Early Childhood 3-8, Adolescence 9-18 Early Adulthood 19-45, Middle Adulthood 46-65, Later Adulthood 65+

**Growth** – physical development / increase in body size/ increase in height

**Development** – gaining new skills & abilities / learning to read and write



THE FOUR AREAS OF **P.I.E.S**
PHYSICAL, INTELLECTUAL, EMOTIONAL, SOCIAL
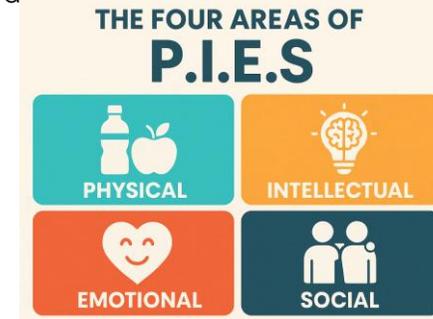
**Factors** – Physical, Lifestyle, Social, Cultural, Emotional, Environmental, Economic

**Events** – relationship changes, Life Circumstances (moving house, school, job) Imprisonment, Redundancy, retirement

**Character traits** - resilience, self-esteem, emotional intelligence, disposition

## Vocabulary

**Informal Support** Support provided by people close to an individual, such as family, friends, neighbours or partners.
**Professionals** Trained people whose job is to provide care, advice or treatment (e.g., doctors, nurses, counsellors, teachers, social workers).
**Multi-agency Working** Professionals from more than one service working together.
**Social Services** Organisations that support vulnerable adults, families and children, often working with mental health teams.
**Children's Services** Services that support children and work with the justice system to keep them safe.

# Health & Social Care

Task 1 to **create a detailed account of PIES growth and development through specified life stages and how these change from one life stage to the next.** The task specifies the life stages to focus their response upon.

• Task 2 to **create a detailed account of how specified factors impact PIES growth and development in given life stages**, with well-developed reasons provided for why there is a difference in impact. The task specifies the factors and life stages to focus their response upon.

• Task 3a to **create a detailed account of how a specified life event has affected an individual's PIES growth and development**. This task is accompanied by a case study on specific individuals and life events to focus upon.

• Task 3b to **create a detailed account** that compares how a specified life event has affected t**wo individual's PIES growth and development**, referring to **sources and types of support available** to them, as well as their individual character traits. This task is *accompanied by a case study on specific individuals and life events for learners to focus their response upo*

Task 1 to **create a detailed account of PIES growth and development through specified life stages and how these change from one life stage to the next.** The task specifies the life stages to focus their response upon.

• Task 2 to **create a detailed account of how specified factors impact PIES growth and development in given life stages**, with well-developed reasons provided for why there is a difference in impact. The task specifies the factors and life stages to focus their response upon.

• Task 3a to **create a detailed account of how a specified life event has affected an individual's PIES growth and development**. This task is accompanied by a case study on specific individuals and life events to focus upon.

• Task 3b to **create a detailed account** that compares how a specified life event has affected t**wo individual's PIES growth and development**, referring to **sources and types of support available** to them, as well as their individual character traits. This task is *accompanied by a case study on specific individuals and life events for learners to focus their response upon*

Task 1 to **create a detailed account of PIES growth and development through specified life stages and how these change from one life stage to the next.** The task specifies the life stages to focus their response upon.

• Task 2 to **create a detailed account of how specified factors impact PIES growth and development in given life stages**, with well-developed reasons provided for why there is a difference in impact. The task specifies the factors and life stages to focus their response upon.

• Task 3a to **create a detailed account of how a specified life event has affected an individual's PIES growth and development**. This task is accompanied by a case study on specific individuals and life events to focus upon.

• Task 3b to **create a detailed account** that compares how a specified life event has affected t**wo individual's PIES growth and development**, referring to **sources and types of support available** to them, as well as their individual character traits. This task is *accompanied by a case study on specific individuals and life events for learners to focus their response upon*

**Multidisciplinary Working** Healthcare professionals with different roles working together to support an individual.

**Health Visitor** A trained nurse who works with families from birth to age 5 to check development and wellbeing.

**Life Stages** Infancy, early childhood, adolescence, early adulthood, middle adulthood, later adulthood.

**PIES** Physical, Intellectual, Emotional & Social development.

# Health & Social Care

| Types of health care services | Types of health care services | Health Conditions | Vocabulary |
|---|---|---|---|

**Services** can be divided into four groups.

**Primary** – first contact in the healthcare system, have a broad knowledge of different health problems, can provide advice & treatment themselves or may refer to specialists. Out of Hours, dental care, telephone services 999/111 A&E Departments

**Secondary Care** – provide specialist medical care, people are referred here, have in depth knowledge, specific medical areas, eg Rheumatology (bones & Joints), Respiratory medicine (lungs), Cardiology ( heart and blood vessels), Endocrinology ( hormones)

**Tertiary Care** – more specialised, provide more complex treatments Oncology ( diagnose and treat cancer) Transplant Services ( donors, patients through the process)

**Allied Health Professionals** – help people to recover from / adapt to injuries and health conditions. Physiotherapists – mobility and motor skills after an injury Speech & Language therapists – communication difficulties, eating or swallowing. Occupational therapists find ways to overcome difficulties in carrying out everyday tasks. Dieticians use knowledge of food and nutrition to improve health / treat health problems related to what a person eats and drinks.

**Multidisciplinary team** (MDT) is a group of health and care staff who are members of different organisations and professions e.g., GPs, social workers, nurses, that work together to make decisions regarding the treatment of individual patients and service users. MDTs are used in both health and care settings. A multidisciplinary meeting may take place prior to an older individual that has been treated in hospital for coronary heart disease is discharged back into the care of the residential care home where they live. Doctors, nurses, social workers and carers would come together to discuss the care that needs to be in place to ensure the individuals health, safety, wellbeing and comfort.

**Referral** - the action of referring someone for consultation, review or further action. Referrals take place throughout health and social care services. Primarily, GPs refer individuals to secondary or allied care professionals and services e.g., a GP may refer a diabetic individual may to a dietician (allied health profession).

**Social Care** provides support to individuals that require assistance with the activities of daily life due to illness, vulnerability or disability.

**Barriers** something unique to the health and social care system that prevents an individual to access the service

**Health conditions** can affect everyday life for a lot of people. Most of these conditions can be managed through individuals themselves and by healthcare services. Cardiovascular conditions affect the heart and blood vessels **Coronary heart disease** – when arteries that supply the heart get blocked by layers of fatty material building up causing narrowing / blood flow reduced and less oxygen gets to the heart. Can cause a heart attack.

| Managed by the individual | Managed by health care services |
|---|---|
| Eating a healthy diet Exercising regularly Maintaining a healthy weight Giving up smoking Reducing alcohol consumption Reducing stress | **Primary Care** – GP's prescribe medicines such as statins **Secondary Care** – a cardiologist may need to insert a stent **Tertiary Care** – might need heart bypass surgery or heart transplant |

**Cerebral vascular accident** – also known as a stroke, this happens when blood supply to part of the brain is cut off.

**Primary Care** First point of contact in healthcare (GPs, dentists, A&E, 111/999).

**Secondary Care** Specialist medical care following referral (e.g., cardiology, respiratory medicine).

**Tertiary Care** Highly specialised care such as oncology or transplant services.

**Referral** Sending an individual to another service or specialist for further care.

**Social Care** Services supporting people with illness, disability or vulnerability to manage daily life.

**Barriers** Factors that prevent people accessing health or care services (e.g., language, cost).

# Health & Social Care

| Health Conditions | Health Conditions | Social Care Servies | Vocabulary |
|---|---|---|---|

**Type 2 diabetes** causes blood sugar levels to become too high. When the body's cells don't respond properly to insulin this can cause blood sugar levels to rise to dangerous levels

| Managed by the individual | Managed by healthcare services |
|---|---|
| Eating a carbohydrate-controlled diet Maintaining a healthy weight Exercising | **Primary Care** – GP's prescribe medicine or insulin injections **Secondary Care** – a diabetes nurse will explain how to take the medicine and give advice on any lifestyle changes needed |

**Dementia** affects cognitive ability. A syndrome that causes gradual decrease in brain function. Can cause problems with thinking, memory, communication and mobility.

| Managed by the individual | Managed by health care services |
|---|---|
| Keeping active Mentally stimulating activities, keeping a calendar, reminiscence therapy – talking about events from the past | Primary Care – GP may prescribe medicine to reduce symptoms Allied health professionals – occupational therapists help overcoming difficulties with everyday activities to help independence, physiotherapists maintain strength and mobility |

**Health conditions – Obesity** when a person becomes very overweight with a lot of body fat. This can cause many other conditions such as type 2 diabetes, coronary heart disease and some cancers.
*Psychologists are care professionals that help treat mental, emotional and behavioural problems)*

**Asthma** – condition where the airways become narrow and swollen making it hard to breath/coughing, wheezing, chest tightness, breathlessness.
**Chronic Obstructive Pulmonary Disease** (COPD)- a group of conditions causing difficulty in breathing/ emphysema (damage to the air sacs in the lungs), chronic bronchitis (inflammation of the airways)
**Arthritis** – a disease that affects the joints to swell leading to joint pain and stiffness / usually worsens with age.
Some people have **additional needs**

| Sensory impairment | Problem with senses – most common visual and hearing |
|---|---|
| Physical impairment | Problem with ability to move could have been born with or developed through life |
| Learning disability | May find it difficult to understand new information, learn a new skill or cope independently |

**Social Care services** help people who are ill, vulnerable or disabled with day to day living. Services for young people- may need temporary support, ongoing throughout childhood and adolescence into adulthood. Reasons may be needed (there may be others)
•A child needs protection
•A child is showing challenging behaviour
•Parents / carers are ill and unable to look after
•Family problems
**Three types**
**Foster Care** – provides a family environment, gives a safe and stable place, may be temporary, foster carers are responsible for supporting all aspects of growth and development of the child (they receive training and support)
**Residential Care** – similar to foster care but bigger homes with multiple children or young people. Teams of professional staff who work shifts rather than live there. Can cover complex needs with a structured environment with support from trained professionals.
**Youth Work** – service for young people aged 11-25. can be based in a variety of community settings including youth centres, schools, colleges, places of worship. Youth workers organise activities that support young people with their personal and social development. Building *confidence, self-esteem, communication skills & life skills*

**Foster Care** Temporary or long-term care for children in a family setting.
**Residential Care** Group homes with trained staff supporting young people with complex needs.
**Youth Work** Services supporting young people's personal and social development.
**COPD** Lung disease including emphysema and chronic bronchitis.
**Dementia** Syndrome causing gradual decline in brain function affecting memory and thinking.
**Arthritis** – Disease causing swelling and pain in joints.

# Health & Social Care

## Healthcare Services



- Primary: First contact; Dr's GP dental care A&E
- Secondary: Specialist medical care; In-deph knowledge, Cardiology
- Tertiary care: Provide even more specialised medical care – the experts; Oncology, Transplant services

**Allied health professionals** Help people recover from / or adapt to injuries and health conditions

Examples **Physiotherapist** – helps people regain their mobility and motor skills (after an injury) **Speech and language therapists-** help people who have communication difficulties and people who have eating or swallowing problems. **Occupational therapists** – help people find ways to overcome any difficulties they have carrying out everyday tasks (household chores) **Dieticians** – use knowledge about food and nutrition to improve health and treat health problems related to what a person eats and drinks **Healthcare services often work together**

Multidisciplinary team – when different healthcare services work together, can include referrals between healthcare services

## Health Conditions

**Health conditions** affect everyday life for a lot of people.

**Coronary Heart disease** – when the arteries that supply blood to the heart get blocked by layers of fatty material building up.

**Cerebral Vascular Accident** – also known as a stroke. When the blood supply to the brain is cut off.

**Type 2 diabetes** causes blood sugar levels to become too high- occurs when the body's cells don't respond properly to insulin – this can cause blood sugar levels to rise to dangerous levels

**Dementia** affects cognitive ability and is a syndrome that causes a gradual decrease in brain function. It can cause problems with thinking memory communication and mobility

**Obesity** is when a person becomes very overweight with a lot of body fat. It can cause lots of other conditions such as type 2 diabetes, coronary heart disease and some cancers

**Respiratory conditions** are diseases of the lungs. **Asthma** is a condition where the airways become narrow and swollen which can make it difficult to breathe. Common symptoms include coughing, wheezing, chest tightness and breathlessness

**Arthritis** is a disease that affects the joints, causing joints to swell with can lead to joint pain and stiffness, symptoms usually worsen with age

## Services of Children

**Chronic obstructive pulmonary disease (COPD)** is a group of conditions that cause breathing difficulties. The most common conditions are emphysema (damage to the air sacs in the lungs) and chronic bronchitis (inflammation of the airways)

**Services for children and young people** - Some children and young people may need temporary support from social services – others may need support throughout childhood and adolescence and into adulthood

**Extra Help**
A child needs protection ( e.g. from abuse)
A child is showing challenging behaviors
Parents or carers are ill and can't look after the child
There are family problems ( e.g. high levels of parental conflict)

Three types of social care services for children and young people

**Foster Care – family environments, Residential Care – like foster but bigger homes with professional staff, Youth Work – community settings ( youth centres, schools etc)**

## Vocabulary

**Sensory Impairment** – Problems with sight or hearing.

**Physical Impairment –** Difficulty with movement caused by illness, injury or disability.

**Learning Disability –** Difficulty understanding information, learning skills or living independently.

**Type 2 Diabetes** A condition where the body does not respond properly to insulin.

**Obesity** A condition where a person has excessive body fat leading to health risks.

**Asthma** – A condition causing swollen, narrowed airways making breathing difficult.

# History

| Week 1 | Week 2 | Week 3 | Vocabulary |
|---|---|---|---|

**Origins of the Republic**

Near end of WWI Germany had lost 2m soldiers, 4m wounded, massive debt and facing food shortages. Kaiser Wilhelm (emperor) had lost control of country - strikes and riots.

9th November 1918 Kaiser abdicates (stood down), country becomes a republic. Ebert (leader of the SDP) appointed head of government until a new constitution (rules for the country) written.

11th November 1918 Germany surrenders and signs the Armistice. Ebert tries to bring stability: make German people confident in the Republic, get support of army, trade unions and business. But extreme political parties not happy.

**Strengths of the Constitution:**

**Democratic and fair:** All adults over 21 could vote, and Proportional Representation ensured votes were represented fairly.

**Balanced power:** No single person or group had full control—President, Chancellor, and Reichstag all shared power.

**Weaknesses of the Constitution**

**Unstable government:** Proportional Representation caused many weak coalition governments that often collapsed.

**Emergency powers:** Article 48 allowed the President to pass laws without the Reichstag, making the system vulnerable to abuse by anti-democratic parties.

---

**Early Challenges to the Weimar Republic (1919–23)**

**Treaty of Versailles Problems**

Weimar was blamed for surrendering WWI and accepting the Treaty of Versailles.

- **War guilt** clause blamed Germany for the war.
- **Reparations** of £6.6 billion.
- Loss of 13% of land, 10% of population, overseas colonies, and key areas like Alsace-Lorraine and the Saar.
- Army cut to **100,000**, no air force, weak navy.

Many Germans believed the government had betrayed them ("**stab in the back**"), making Weimar look weak.

**Political Revolts**

**Spartacist Revolt (1919):**Communist uprising led by Rosa Luxemburg. Army too weak, so Freikorps were used; revolt crushed and Luxemburg killed.

**Kapp Putsch (1920):**

Freikorps, led by Wolfgang Kapp, tried to overthrow the government.

**Economic Crisis (Ruhr + Hyperinflation)**

Germany couldn't afford reparations, so France occupied the Ruhr causing huge shortages and unemployment.

To cope, the government printed more money, which led to **hyperinflation**: prices shot up and savings became worthless, making everyday life extremely difficult.

---

**Recovery (1924–29)**

**1. Economic Improvements**

**New currency (Rentenmark, 1923)** restored confidence and helped the economy start working again.

**Dawes Plan (1924):** USA loaned money to Germany; reparations were lowered; France left the Ruhr; industry recovered and jobs increased (but Germany became dependent on US loans).

**Young Plan (1929):** Total reparations reduced and payment time extended, helping lower taxes and boosting confidence in Weimar.

**2. Better Foreign Relations**

**Locarno Pact (1925):** Germany agreed peaceful borders and a demilitarised Rhineland.

**League of Nations (1926):** Germany was allowed to join, showing it was trusted again internationally.

**Kellogg–Briand Pact (1928):** Germany and 61 countries promised not to use war to settle disputes.

**3. Social and Cultural Change**

Living standards improved: more jobs, better wages, shorter working hours, new homes, and support for war veterans.

Women gained more freedom—could vote, worked more, and had greater independence (though many disliked these changes).

A cultural boom occurred with new styles in art, cinema, and architecture.

---

<u>**Key words**</u>

**Abdicate** – when an emperor / king stands down from the role

**Armistice**- An agreement to stop fighting

**Chancellor** – the leader of the German Parliament

**Constitution** – set of rules for running a country

**Freikorps**- Band of right wing ex-soldiers

**Hyperinflation**- when money loses its value

**Kaiser** – emperor of Germany until the end of WWI

**Putsch** – political uprising

**Rentenmark** – new German currency introduced 1923

**Reparations** – money that Germany had to pay after WWI

**Republic** – a country ruled by a parliament, not a king/emperor

**Ruhr** – industrial area of Germany

# History

## Week 4

**Early Years of the Nazi Party (1920–22)**
Hitler was sent to spy on the small German Workers' Party (DAP) in 1919 but joined it and quickly took control, rewriting its **25 Point Programme** in 1920. He renamed it the **NSDAP (Nazi Party)**, adopted the swastika, started a party newspaper, and by 1923 membership had grown to over **50,000**.
Hitler became leader in 1921, appointing loyal figures (Hess, Goering, Streicher, Röhm) and working with WWI general Ludendorff.
The **SA (Brownshirts)** was created as a private army to protect meetings, intimidate opponents, and show Nazi strength.

**Munich Putsch (November 1923)**
**Causes**
Anger over the Treaty of Versailles and the "stab in the back" myth.
Economic hardship: hyperinflation and Ruhr invasion.
**Events**
On 8 Nov, Hitler and 600 SA stormed a Munich beer hall,. A march through Munich ended in gunfire: 14 Nazis and 4 police killed; Hitler was arrested.
**Consequences**
Hitler jailed for treason for only 9 months; Nazi Party banned until 1925. In prison, he wrote **Mein Kampf**, spreading his ideas widely and making him famous.
Hitler realised he must gain power **through elections**, not force.

## Week 5

**Nazi Party in the Lean Years (1924–28)**
**Mein Kampf & Party Reorganisation**
In prison, Hitler wrote **Mein Kampf**, setting out key Nazi ideas.
Hitler **reorganised the NSDAP during the Bamburg Conference.** New HQ in Munich and 35 party branches across Germany.
**Growth of SA and SS**
**SA** expanded to around 400,000 by 1930 but became hard to control and often more loyal to Röhm.
Hitler created the **SS** (led by Himmler) as an elite, loyal bodyguard—3,000 members by 1930.
Party grew to **100,000 members by 1929**, but struggled to win votes because Stresemann's success made Weimar stable and the economy improved.
**Growth of the Nazis (1929–32)**
**Wall Street Crash (1929)** destroyed Germany's economy; millions became unemployed and lost savings. Poverty and desperation increased across the country.
**Political Crisis**
Workers turned to the Communists, while middle and upper classes supported the Nazis.
**Rising Nazi Support**
Hitler's leadership image, propaganda, and the SA's intimidation boosted popularity. Nazis appealed to many groups across Germany and targeted different policies at them.

## Week 6

**Hitler Becomes Chancellor (1933)**
By 1930 the Nazis had risen to **107 seats** (18%), becoming a major political force, though the moderate SPD still had more support.
Hindenburg, aged 84, won the 1932 presidential election twice against Hitler, but Hitler gained millions of votes and national attention.
Chancellor **Brüning** tried to ban the SA and SS and proposed taking land from landowners to help the unemployed, turning right-wing groups against him; without support, he resigned.
Hindenburg then appointed **Von Papen** as Chancellor, forming a right-wing coalition backed by the Nazis, bringing Hitler closer to power.
In the July 1932 election, violent clashes killed over 200 people; the Nazis became the **largest party (230 seats)**. Hitler demanded the Chancellorship, but Hindenburg distrusted him and refused.
After Papen failed, **Von Schleicher** became Chancellor (Dec 1932), but he lacked support in the Reichstag and could not govern effectively.
Papen then convinced Hindenburg they could "control" Hitler if he were Chancellor with Papen as Vice-Chancellor.
On **30 January 1933**, Hindenburg appointed **Hitler Chancellor of Germany**.

## Vocabulary

**Aryan** – the master race who Nazi's believed should dominate lesser races
**Mein Kampf** – Hitler's book about his political beliefs
**SA** – "brownshirt" private Nazi army, led by Rohm
**SS**- Hitler's elite personal bodyguards, led by Himmler
**Stab in the back** – idea that the Weimar politicians let down the German people by signing Treaty of Versailles

Key People

**Adolf Hitler-** Leader of the Nazi Party

**Gustav Stresemann-** important Weimar Politician who was responsible for the "Golden Years".

# History

## Week 7

**Nazi Dictatorship 1933-39**
- **Reichstag Fire (Feb 1933)**
On **27 Feb 1933**, the Reichstag burned down; Communist **Van der Lubbe** was arrested. Hitler claimed it was a Communist plot. Using **Article 48**, Hitler gained emergency powers and arrested **4,000 Communists**. In the March election, the Nazis used these powers and SA violence to weaken opponents, removing 81 Communist seats and gaining the **two-thirds majority** needed to change the constitution.
- **Enabling Act (March 1933)**
Allowed Hitler to **pass laws without the Reichstag**, ending democracy.
SS and SA intimidation ensured the vote passed.
- **Removing Opposition**
**Trade unions** banned; leaders arrested; strikes illegal.
**Political parties** closed down—Germany became a **one-party state** in July 1933.
**Local parliaments** abolished; regions controlled by Nazi governors.
- **Night of the Long Knives (June 1934)**
Hitler saw **Röhm** and the huge SA as a threat and the SS wanted more power. On **30 June 1934**, Röhm and SA leaders were arrested and shot.
- **Hitler Becomes Führer (Aug 1934)**
After Hindenburg died, Hitler merged roles of **President and Chancellor**. Army swore loyalty to him, and a controlled vote gave him about **90% support**. The **Third Reich** officially began.

## Week 8

**Nazi Control of Policing 1933-39**
Hitler created his own police forces to replace traditional police.
**SS**, led by **Himmler**, grew from 240 men to **240,000** in the 1930s and controlled all police and security. They operated **above the law**.
**Heydrich** built detailed files on anyone suspected of opposing the Nazis.
**Gestapo**
The **Gestapo** (secret police), led by Heydrich from 1936, spied on people, tapped phones, used torture, and carried out dawn arrests.
Only **30,000 Gestapo** controlled a population of 80 million—fear made them effective.
By 1939, **150,000 people** (political opponents, Jews, homosexuals, "undesirables") were held in concentration camps such as **Dachau** (opened 1933).
**Legal System**
Judges had to support Nazi beliefs or lose their positions; juries were removed. Death sentences for political crimes rose from **8 (1930–32)** to **534 (1934–39)**.
**Control of Churches**
Hitler first tried to gain church support.
**Catholics:** July 1933 Concordat promised religious freedom, but Hitler broke it—priests arrested, Catholic schools shut.
**Protestants:** some joined the Nazi-aligned **Reich Church**, but others opposed, including **Martin Niemöller**.

## Week 9

**Controlling Attitudes**
**Propaganda (run by Goebbels)**
**Newspapers:** 1,600 anti-Nazi papers shut; remaining ones were heavily censored.
**Radio:** all broadcasts controlled; cheap mass-produced radios ensured 70% of homes had one by 1939; foreign stations blocked.
**Rallies:** huge events like the yearly **Nuremberg Rally** (200,000+ in 1934) created a sense of Nazi power and unity.
**Sport:** stadiums filled with swastikas; athletes gave the Nazi salute; **1936 Berlin Olympics** showcased Nazi organisation and strength.
**Control of Culture**
Nazis promoted traditional German values and banned modern/"un-German" culture.
Goebbels' **Reich Chamber of Culture** controlled art, music, books, and films. Modern art removed; jazz banned; Nazi-approved architecture and music encouraged. Writers had to be approved; many books were **banned or burned**.
**Church resistance:** The Confessing Church and priests like **Martin Niemöller** opposed Nazi control; many clergy were arrested and sent to concentration camps.
**Youth resistance:** Groups like the **Edelweiss Pirates** and **Swing Youth** rejected Nazi rules, culture, and expectations.

## Vocabulary

**Concordat** – deal that Catholic Church could remain independent as long as priests swore loyalty to Hitler
**Enabling Act** – Law which took powers from Reichstag and gave to Chancellor
**Gestapo** – secret police
**Propaganda** – information presented in a way to make a political point or make people think a certain way
**Reichstag**- German Parliament
**Totalitarian State** – country where one group / person controls everything (politics, media, police, army, etc)
**Trade Union** – collective group representing rights of workers

# History

## Week 10

**Life in Nazi Germany 1933-39**

**Women in Nazi Germany**
Nazis promoted a **traditional female role** focused on motherhood, home, and modest behaviour.
Policies encouraged big families: **marriage loans**, medals for 4+ children, and restrictions on women working.
Girls were educated mainly for **domestic life**, not careers (cooking, sewing, childcare).
Birth rates increased and female employment fell at first, though industry later needed women again.

**Young people in Nazi Germany**
Nazis aimed to build long-term loyalty, using propaganda to present Hitler as a **father figure** to all children.
All **other youth groups banned**; by 1939 membership in Nazi youth groups (Hitler Youth & League of German Maidens) was compulsory from age 10.
**Hitler Youth:** boys taught Nazi ideas, did physical and military training, and were encouraged to report "disloyal" adults.
**League of German Maidens:** girls did political activities and fitness but were trained mainly for cooking, sewing, and motherhood.
**Schools controlled:** teachers had to swear loyalty, Nazi-approved textbooks used, new subjects like Race Studies added, and lessons filled with Nazi beliefs.

## Week 11

**Employment**
**Huge unemployment solved:** In 1933, 5 million (25%) were unemployed; by 1939 this fell to around **300,000**.
**RAD (Labour Service):** Created public works jobs; compulsory for young men from 1935, but pay and conditions were poor.
**Public works (Autobahns):** Massive building projects like motorways and public buildings created thousands of jobs and boosted the economy.
**Rearmament:** Conscription and weapons production expanded the army to **1.36 million** by 1939 and created many industrial jobs.
**Manipulated figures:** Women and Jewish people were removed from jobs and not counted as unemployed,

**Living Standards**
**Longer working hours:** Increased from **43 hours (1933)** to **49 hours (1939)**.
**Labour Front (DAF):** Replaced trade unions; set minimum pay and maximum hours, but workers lost the right to negotiate wages.
**Strength Through Joy (KdF):** Gave workers cheap holidays, events, and leisure; promoted the **Volkswagen scheme**, though cars were never delivered.
**Beauty of Labour:** Encouraged better workplace facilities, though workers often paid for improvements themselves.

## Week 12

**Persecution of Minorities**
Nazis believed in an **Aryan master race** and saw other groups as inferior; "undesirable" people were **sterilised** under eugenics policies.
**Slavs**, **Roma**, **homosexuals**, and **disabled people** were targeted: Roma sent to camps, gay men criminalised, and over **400,000** disabled people sterilised (with thousands of disabled children killed).
Nazi propaganda blamed minorities for Germany's problems and portrayed them as threats to racial purity and national strength.

**Persecution of the Jews**
Germany had **477,000 Jewish Germans** in 1933; Nazis used propaganda to portray them as enemies.
**1933 boycott:** SA marked Jewish shops and blocked customers; discrimination increased.
**Nuremberg Laws (1935):** Jews lost citizenship, voting rights, and the right to marry Germans; forced to wear the yellow star.
**1938:** Jews had to register possessions; Kristallnacht saw 110 Jews killed, synagogues burned, thousands arrested, and Jews fined for the damage.
By **1939**, the Gestapo and Heydrich planned the **deportation** of all Jews from Germany.

## Vocabulary

**Conscription** – forcing people to join the army
**Eugenics** – managing who reproduces in attempt to control racial or physical purity
**Hitler Youth** – Nazi youth movement, organised activities for children and "brainwashed" them
**Kristallnacht-** attack on Jewish homes, businesses and synagogues
**Living standards** – quality of life for people
**Rearmament-** building up the army
**Strength through Joy** organisation that gave rewards and benefits to workers
**Thousand Year Reich** – idea of a Nazi totalitarian state which exists for a very long time.

# KNOWLEDGE ORGANISER - MEDICINE IN BRITAIN 1250 TO PRESENT

| | | IDEAS | PREVENTION AND TREATMENT | CARE AND TREATMENT | SIGNIFICANT PERSON | CASE STUDY |
|---|---|---|---|---|---|---|
| **1250-1500**<br>**The Middle Ages** | | The supernatural and religious ideas held back medical advances. **Church** controlled ideas. Astrology also used. **Galen's** work of the **Theory of Opposites**, Four Humours widespread. Belief in **Miasma**, disease transmitted by bad air. Church backed Galen's ideas. | Living a Christian life, lucky charms, chanting incantations, keeping streets clean, purifying the air, bleeding and purging. Bathing and washing. Purging, fasting, going on holy pilgrimage – praying. | Barber surgeons no training, did basic surgery. Care in the home – wise woman. Apothecaries, received training but no qualifications. Cost less than a physician. Physicians trained at university they diagnosed illness and gave treatments. Expensive. Basic hospitals – no treatment of infectious diseases. Run by the Church. | .<br>**Galen's** work of the **Theory of Opposites** developed Hippocrates work of the Four Humours | **Black Death 1348-39.** Bubonic plague is passed onto humans by infected flea, living on rats People believed it was caused by miasma, the four humours being out of balance, God sending it as a punishment.- treatment included praying, cutting buboes open and lucky charms. Killed third of pop. |
| **1500-1700**<br>**The Renaissance** | | A **scientific approach**, a decline in the influence of the Church. Seeds in the air blamed for the causes of disease. Fewer people believed in astrology. Doctors realised urine was not a good indicator of disease – physicians examine patients. **Royal Society 1665. Spontaneous Generation.** | By 1500 hospitals were treating the sick, **1536 dissolution of the monasteries** closed most hospitals. Removing miasma through drainage, removing rubbish, people regularly change clothing and bathing, **Theory of transference** and alchemy caused chemical cures to become popular. | Training for apothecaries and surgeons. **Vesalius in 1553** carried out dissections on humans he made new discoveries regarding how the body worked. His work was widely published. | **Thomas Sydenham** observed patients' symptoms. **William Harvey** discovered the process of blood circulation. Proved Galen wrong. License needed to practice medicine. | **The Great Plague 1665.** People believed mostly the same as the Black Death; miasma believed the most common cause. People knew it was passed person to person. Use of quarantine, dogs and cats killed. Houses boarded for 40 days, days of public prayer |
| **1700-1900**<br>**18th and 19th Century** | | Microscopes developed to enhance medical discoveries such as . Louis Pasteur published his **Germ Theory 1861**, most people still believed in miasma. **Robert Koch 1876** identified anthrax microbe – Koch proved bacteria was the cause, use of chemical dyes and agar jelly. Study disease itself. | **Florence Nightingale** led a team of nurses in the Crimean War she believed in good hygiene. Her approach improved hospital care. Nurses given a more central role in caring for patients. Specialist hospitals developed from workhouses, also the development of asylums. | Scientific methods of prevention. **Anaesthetics and antiseptics.** Lister use of carbolic acid kills sewage – Lister uses carbolic acid to clean surgical equipment. Jenner develops a smallpox vaccine and successfully tests it in 1776. **Public Health Acts** improving water supply and drainage 1848 and 1875 – increased government intervention. | **In 1855 John Snow** proved the Broad Street water pump was spreading Cholera. **Pasteur in 1861** proved germs caused decay. | **Cholera** first appeared in **1831.** John Snow believed it to be spread by water, not as a miasma. Mapped out cholera fatalities in 1854 within 200 meters of the Broad Street Pump there were over 500 fatalities. However, he had no scientific evidence to show what caused the disease. |
| **1900-present**<br>**Modern Britain** | | People now understood that illness and disease could be caused by microbes. **Laboratory medicine,** Chemical treatments such as Penicillin developed to target specific diseases, genetics and lifestyle factors investigated. Free medical care was provided for all through the **NHS.** | **Watson and Crick in 1953** suggested they discovered the secret of **DNA** – understand genetic diseases. Human Genome Project 1990, Technology enabled a huge leap forward in understanding disease. Magic bullets to attack microbes that cause disease in the body – antibiotics. | **1948 NHS set up**, paid for by National insurance contributions. Biggest intervention in medical care by the government. Improved access to care, compulsory vaccinations, passing laws to provide a healthy environment. **Health campaigns** – Change4life. Improved technology to cure disease. | **Fleming**, isolated **Penicillin** from a mould sample 1928. **Florey** and **Chain** developed it into a usable treatment **Crick and Watson** discovery of DNA. | **Lung Cancer** - 1950 scientists proved link to smoking. Treatments such as radiotherapy, chemotherapy have been developed but there's no conclusive cure. Government have taken action to reduce the number of people who smoke. Clean Air Acts |

# Maths Foundation

## Week 1

## Inequalities

There are four **inequality symbols**:

| $<$ | $\leq$ | $>$ | $\geq$ |
|---|---|---|---|
| less than | less than or equal to | greater than | greater than or equal to |

Inequalities can be represented on a number line using circles and arrows.

**examples**

Show each inequality on the number line:

> An **open circle** ○ is used for $<$ or $>$
> The number **is not** included.

> A **closed circle** ● is used for $\leq$ or $\geq$
> The number **is** included.

a) $x < 5$

b) $x \geq -1$

**Solve:**

$x + 3 < 8$
$-3 \qquad -3$
$x < 5$

$2x \geq 11$
$\div 2 \qquad \div 2$
$x \geq 5.5$

$5x - 1 > 29$
$+1 \qquad +1$
$5x > 30$
$\div 5 \qquad \div 5$
$x > 6$

$\dfrac{3x}{2} \leq 12$
$\times 2 \qquad \times 2$
$3x \leq 24$
$\div 3 \qquad \div 3$
$x \leq 8$

## Week 2

### 3-part inequalities

a) $y$ is greater than 3 and less than 10
$3 < y < 10$

b) $p$ is greater than or equal to 5 and less than 9
$5 \leq p < 9$

c) $w$ is greater than or equal to 1 and less than or equal to 7
$1 \leq w \leq 7$

a) $2 \leq x < 7$

b) $-2 < x \leq 1$

**examples**

Solve:

> Apply **inverse operations** to **all three parts** of the inequality.

$7 < x - 4 < 15$
$+4 \quad +4 \quad +4$
$11 < x < 19$

$5 < x + 1 \leq 10$
$-1 \quad -1 \quad -1$
$4 < x \leq 9$

$12 \leq 3x < 21$
$\div 3 \quad \div 3 \quad \div 3$
$4 \leq x < 7$

## Rounding

Write 0.8529 correct to 1 decimal place.
$0 \cdot 8 \;|\; 5 \;\; 2 \;\; 9$
5 or more?
Yes
$\to 0.9$

Write 20.4521 correct to 2 decimal places.
$2 \; 0 \cdot 4 \;\; 5 \;|\; 2 \;\; 1$
5 or more?
No
$\to 20.45$

The **first significant figure** of a number is the **non-zero digit** in the **highest place value**.

The digit to the **right** of the **first significant figure** is the **second significant figure**, even if it is a zero.

The next digit to the right is the **third significant figure**, and so on.

**Significant figures**

1st 2nd 3rd
↓ ↓ ↓
8045

1st 2nd 3rd
↓ ↓ ↓
0.03206
↑
leading zeros

## Week 3

Round **75,406** to 2 significant figures.
$7 \; 5 \;|\; 4 \;\; 0 \;\; 6$
5 or more?
No $\to 75,000$

Write **0.09265** correct to 3 significant figures.
$0 \cdot 0 \;\; 9 \;\; 2 \;\; 6 \;|\; 5$
5 or more?
Yes $\to 0.0927$

Write **30.28341** correct to 4 significant figures.
$3 \; 0 \cdot 2 \;\; 8 \;|\; 3 \;\; 4 \;\; 1$
5 or more?
No $\to 30.28$

## Error Intervals

For a rounded value, the **error interval** is the set of all possible values that it could have been before it was rounded.

It is usually shown using a **three-part inequality**.

A number $n$ is rounded to the nearest ten. The result is 60

Write down the error interval for $n$.

> The smallest possible value for $n$ is 55

> $n$ can be up to, but not including, 65

> Write using inequality symbols

$55 \leq n < 65$

The height of a bottle is measured as 21.8cm, correct to 1 decimal place.

Write down the error interval for the height of the bottle.

$21.75 \text{ cm} \leq height < 21.85 \text{ cm}$
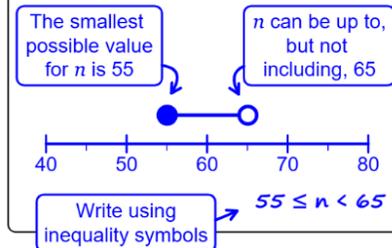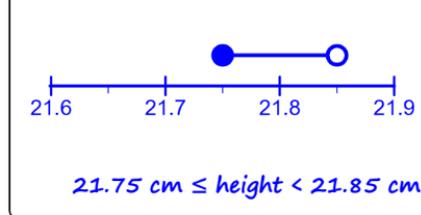
## Vocabulary

**Inequality –** a relationship between two expressions or values that are not equal

**Significant figures**- The number of significant figures in a number

**Error interval –** The set of possible values that a number could have been before being rounded.

# Maths Foundation

## Linear Graphs

| Linear graphs can be straight horizontal or vertical lines. | $y = a$ | If the equation is '$y$ = a number' the graph is a straight **horizontal** line passing through the $y$ axis. |
| | $x = a$ | If the rule is '$x$ = a number' the graph is a straight **vertical** line passing through the $x$ axis. |

### They can also be diagonal

Plot the graph of $y = 2x + 1$

First create some co-ordinates where $y = 2x + 1$ then plot them..

| $x$ | $y$ |
|-----|-----|
| -2 | -3 |
| -1 | -1 |
| 0 | 1 |
| 1 | 3 |
| 2 | 5 |

## gradients and y=mx+c

The equation of a straight line graph is given by the equation $y = mx + c$

The $y$-intercept for this line is 1

In the equation $y = mx + c$, $m$ is the **gradient** of the line. For example in the line $y = 7x - 2$, the gradient is 7. In the line $y = 3 + 4x$, the gradient is 4. It is the coefficient of $x$.

In the equation $y = mx + c$, $c$ is the point where the line crosses the $y$ axis, called the **$y$-intercept**.

The equation of this line is $y = 2x + 1$

To find the gradient of the line on the right:
1. Choose two points on the line that sit exactly on the grid lines.
2. Draw a right angled triangle between them.
3. Work out the horizontal and vertical distance
4. Divide and decide if negative: $-\frac{3}{5}$

---

## finding the equation of a line given the gradient and a point

Given the gradient of a line and the coordinates of a point on the line $(x, y)$:
1. Start with the general equation of a line $y = mx + c$
2. Substitute $m$ for the gradient of the line.
3. Substitute the $x$- and $y$-values of the point into the equation and solve for the value of $c$.

### examples

The gradient of a line is -4
The line passes through the point (0, 2)
Work out the equation of the line.

$y = mx + c$
$y = -4x + c$ — *Substitute m for the gradient*
$2 = -4 \times 0 + c$ — *Substitute the x- and y-values and solve for c*
$c = 6$
$y = -4x + 6$ — *Write the equation with your values of m and c*

The gradient of a line is 7
The point (4, 5) is on the line
Work out the equation of the line.

$y = mx + c$
$y = 7x + c$
$5 = 7 \times 4 + c$
$c = -23$
$y = 7x - 23$

A line has equation $3y + x = 10$
Find the equation of another line that is **parallel** to this line.

| **Parallel** lines have the same gradient. |
| --- |

$3y + x = 10$
$3y = 10 - x$
$y = \frac{10}{3} - \frac{1}{3}x$

The gradient is $-\frac{1}{3}$
Any parallel line has gradient $-\frac{1}{3}$

A parallel line is: $y = -\frac{1}{x}x + 4$

## solving (simultaneous) equations graphically

By plotting graphs, find estimates for the solution to the simultaneous equations:
$y = 2x + 4$ and $y = 5 - 3x$

First create tables of values and plot each function:

| $y = 2x + 4$ | | $y = 5 - 3x$ | |
|---|---|---|---|
| $x$ | $y$ | $x$ | $y$ |
| -1 | 2 | -1 | 8 |
| 0 | 4 | 0 | 5 |
| 1 | 6 | 1 | 2 |
| 2 | 8 | 2 | -1 |

They cross when $x$ is approximately 0.2 and $y$ is approximately 4.2, so $x \approx 0.2$, $y \approx 4.2$ is an estimate of the solution.

---
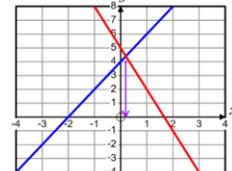
## Angles

| Adjacent angles on a straight line add up to 180° | | Opposite angles are equal | |
| Adjacent angles around a point add up to 360° | | | double arcs indicate equal angles |

### examples

XY is a straight line. Calculate angle **a**.
$80 + 60 = 140$
$180 - 140 = 40°$

Calculate angle **y**.
$150 + 150 = 300$
$360 - 300 = 60°$

**recall**   Angles in triangles add up to 180°

isosceles triangles have 2 equal sides and 2 equal angles

Equilateral triangles have 3 equal sides & 3 equal angles of 60°

Triangle ABC is isosceles. Work out angle **y**.
Base angles are equal, so this angle is 52°
$180 - 52 - 52 = 76°$

Angles in quadrilaterals add up to 360°

In a parallelogram, opposite angles are equal.

Work out angle **y**.
Angles add up to 360° in a quadrilateral.
$360 - 88 - 88 - 90 = 94°$

## angles & parallel lines

| Corresponding angles | Alternate angles |
| --- | --- |
| | **Transversal:** a line crossing two or more straight lines. |
| are on the same side of the transversal & are equal | are on opposite sides of the transversal & are equal |

Co-interior angles
are on the same side of the transversal & add up to 180°

---

## Vocabulary

**Linear –** An expression or equation where the variable is to the power of one, for example x or y.

**Gradient –** The rate of increase or decrease of a graph, How 'steep' the line is.

**Parallel lines –** two or more lines that have the same gradient, therefore they do not ever intersect (cross each other)

**Simultaneous Equations –** two or more equations that have two or more variables, where each corresponding variable has the same value in all equations.

**Transversal line -** A line that crosses two or more straight lines

**Corresponding angles –** Angles on the same side of the parallel lines and the same side of the transversal line, they are therefore equal.

**Alternate angles-** Angles on opoosite sides of the prarllel lines and opposite sides of the transversal line, they are also equal.

# Maths Foundation

## Week 7

### angles & polygons

**Polygon**: a closed shape with straight sides.

**Regular Polygon**: all angles & all sides are equal

**Irregular Polygon**: a shape where the angles and/or sides are not all equal.
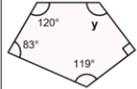
**Interior angles**: the angles at the corners of a polygon.

**Sum of the interior angles** in a polygon: $(n - 2) \times 180$ where $n$ is the number of sides.

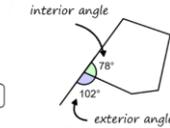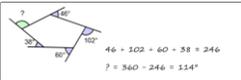**Regular**: all sides equal and all angles equal.

Work out the size of angle y

120°, y, 83°, 119°

Angles in a pentagon add up to:
$(5-2) \times 180 = 540°$

$540 - 90 - 119 - 83 - 120 = 128°$

The diagram shows a regular octagon. Work out the size of angle y

Angle sum =
$6 \times 180$
$= 1080°$
$1080 \div 8 = 135°$

$46 + 102 + 60 + 38 = 246$
$? = 360 - 246 = 114°$

interior angle

Exterior Angle + Interior Angle = 180°

Exterior angles in a polygon: sum to 360°

78°
102°
exterior angle

### Ratio

Share £90 in the ratio 2 : 4 : 3

Total number of parts:
$2 + 4 + 3 = 9$

Value of each part:
$£90 \div 9 = £10$

Shares:
$2 \times £10$   $4 \times £10$   $3 \times £10$
£20    £40    £30

Grace and Issy share some money in the ratio 4 : 7. Grace gets £160. Work out how much Issy gets.

4 parts = £160
1 part = £40
Issy gets £40 × 7 = £280

Jack and Jill share some money in the ratio 1:5. Jill gets £44 **more** than Jack. How much did Jack get?

Jill gets 4 parts more.
4 parts = £44,
so 1 part = £11
Jack received 1 part, so he got £11

a) **2 : 3 in the form 1 : n**
2 : 3 ÷2
1 : 1.5

b) **2 : 5 in the form n : 1**
2 : 5 ÷5
$\frac{2}{5}$ : 1
(or 0.4 : 1)

c) **0.5 : 2 in the form 1 : n**
0.5 : 2 ×2
1 : 4

Divide both parts of the ratio by the number on the side that you need to equal 1

Here you could times both parts by 2, or divide by 0.5

## Week 8

### connected ratios

example

The ratio $a : b$ is 4 : 3
The ratio $b : c$ is 2 : 5
Work out the ratio $a : c$

$b$ is common to both ratios. Write equivalent ratios with $b$ having the same number of parts.

You can then combine the ratios to give $a : b : c$ or $a : c$

$a : b$
4 : 3 ×2
8 : 6

$b : c$
2 : 5 ×3
6 : 15

$a : b : c = 8 : 6 : 15$
and
$a : c = 8 : 15$

### Proportion

Jenny buys 6 apples. The total cost is £1.50

First divide to find the cost of a smaller number of apples. Use a common factor of the numbers of apples involved.

a) Work out the cost for 9 apples

6 apples cost £1.50 ÷2
3 apples cost £ 0.75 ×3
9 apples cost £ 2.25

b) Work out the cost for 5 apples

6 apples cost £1.50 ÷6
1 apple costs £ 0.25 ×5
5 apples cost £ 1.25

Machines in a factory are being used to make an order of scarves. With 5 identical machines working, the order will be completed in 30 minutes.

a) How long would it take to complete the order if 10 machines were used?

5 machines would take 30 minutes ÷2
10 machines would take 15 minutes

b) How long would it take to complete the order if 2 machines were used?

5 machines would take 30 minutes ÷5
1 machine would take 150 minutes ×5
2 machines would take 75 minutes ×2 ÷2

75 minutes $(1\frac{1}{4}$ hours)

### measures

The metric units of length are mm, cm, m and km.
10mm = 1cm, 100cm = 1m and 1000m = 1km

**Units of Mass**

1kg = 1000g    1 tonne = 1000kg

**Units of Capacity**

1 litre = 1000ml    1cm³ holds 1ml

## Week 9

1 hour = 60 minutes, 0.5 hours = 30 minutes, 0.25 hours = 15 minutes.

To convert between hours and minutes we multiply and divide by 60.

A year is 365 days.

example

90 minutes = _____ hours?

$90 \div 60 = 1.5$ hours

### speed

Speed measures how far an object travels in 1 unit of time (1 hour, or 1 minute etc.)

Generally, $\text{speed} = \frac{\text{distance}}{\text{time}}$

Examples of units of speed are m/s or km/h, where the / is read 'per'. We also use mph, standing for miles per hour.

Jill drove 135 miles from Leeds to Warwick at an average speed of 60 mph. She then drove 105 miles from Warwick to Newport in one and a half hours.

a) Work out how long it took Jill to drive from Leeds to Warwick. Give your answer in hours and minutes.

Time taken $= \frac{135}{60}$
= 2.25 hours → **2 hours 15 minutes**

b) Work out Jill's overall average speed for her drive from Leeds to Newport.

Total distance = 135 miles + 105 miles
= 240 miles

To find the overall speed, first work out the total distance and the total time

Total time = 2 hrs 15 mins + 1 hr 30 mins
= 3 hrs 45 mins
= 3.75 hours

Speed $= \frac{240}{3.75}$
= 64 mph

### density

The density of an object is its mass per unit volume. The units for density are g/cm³ or kg/m³.

$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$

A cube has side lengths of 4cm and a mass of 83g. Work out the density of the cube correct to 2 significant figures. 4cm

Density = Mass ÷ Volume
= 83 ÷ 64
= 1.296875
= **1.3 g/cm³ (2 s.f.)**

A silver coin has a mass of 6.5g and density 10.5g/cm³. Work out the volume of the coin to 3 significant figures.

Density $= \frac{Mass}{Volume}$ → Volume $= \frac{Mass}{Density}$

Volume $= \frac{6.5}{10.5}$ = 0.619cm³

## Vocabulary

**Polygon-** A 2D shape with 3 on more straight sides that are connected.

**Regular Polygon –** A polygon with equal side, lengths, equal interior angles and equal exterior angles.

**Mass – A** measure of how much matter is contained in a body of an item. This is normally measured using weight.

**Capacity –** The amount of space a body of an item takes up, this is normally measured as a volume.

**Density –** A measure of mass per unit of volume of an item.

**Speed –** How far an objects travels in a unit of time.

68

# Maths Foundation

## Week 10

### translations

When a shape is **translated**, it is **moved to a different position**, without being turned or flipped.

Vectors such as $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$ are used to describe translations.

The **top** number is the **horizontal** movement:
← *left if negative* or *right if positive* →

The **bottom** number is the **vertical** movement:
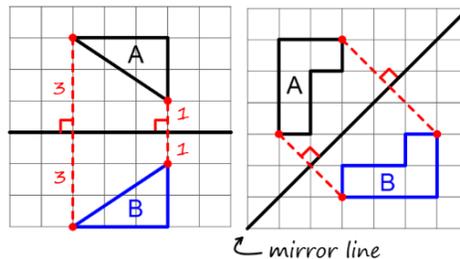↓ *down if negative* or *up if positive* ↑

Translate shape A by the vector $\begin{pmatrix} 4 \\ -3 \end{pmatrix}$
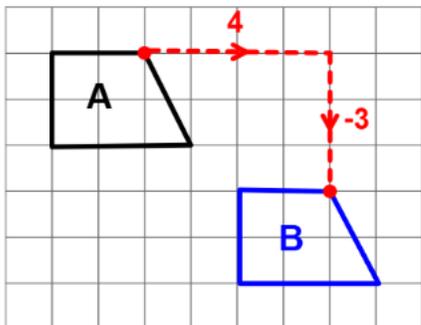
### reflection

When a shape is **reflected** in a **mirror line**, the shape is **flipped**.

The **perpendicular distance to the mirror line is the same** for each point of the original shape and the reflected shape.

## Week 11

Reflect each shape in the mirror line.

↳ *mirror line*

Horizontal lines have equations of the form $y = a$

Vertical lines have equations of the form $x = a$

The main diagonal lines have equations $y = x$ and $y = -x$

$y = x$

$y = 3$

$x = -2$

$y = -x$
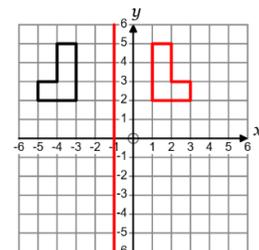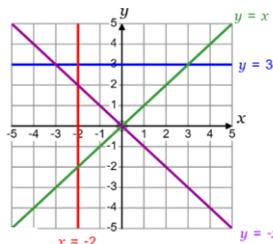
Reflect the shape in the line with equation $x = -1$.
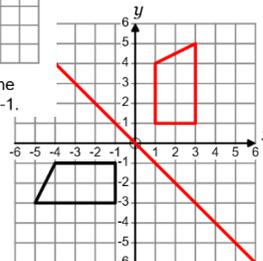
Reflect the shape in the line with equation $y = -x$.

## Week 12

### rotation

To describe a **rotation** of a shape, three things are required:
1. The centre of rotation
2. The angle of turn
3. The direction: clockwise or anti-clockwise

Clockwise

Anti-clockwise

*Centre of rotation*
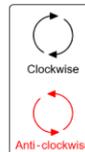
Rotate shape A 90° clockwise about the point.

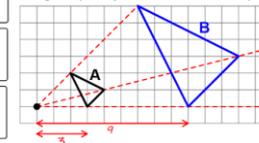Rotate the shape 270° anti-clockwise about the point with coordinates (5, 7).

### enlargement

An **enlargement** is a change in size by a given **scale factor**.

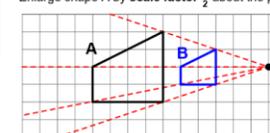**Ray lines** can be drawn from the **centre of enlargement**. through each vertex of the shape.

The **distance from the centre** to each point is **multiplied by the scale factor** to give the point on the enlarged shape.

When a shape is **enlarged** by a **scale factor between 0 and 1**, the shape becomes **smaller** and closer to the centre of enlargement.

Enlarge shape A by scale factor 3 about the point.

Enlarge shape A by **scale factor** $\frac{1}{2}$ about the point.

## Vocabulary

**Translation-** Describes the movement of a shape vertically and horizontally.

**Reflection-**The movement of a shape over a mirror line

**Rotation –** The movement or a shape clockwise or anticlockwise around a given point

**Enlargement** – The change is size of the shape given a centre point.
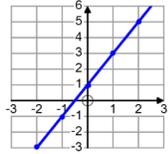
# Maths Higher

## Week 1

### Linear Graphs

Plot the graph of $y = 2x + 1$

First create some co-ordinates where $y = 2x + 1$ then plot them..

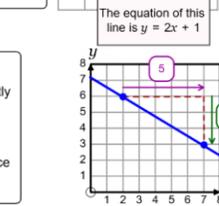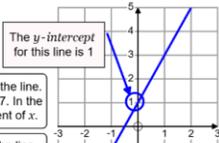| $x$ | $y$ |
|-----|-----|
| -2 | -3 |
| -1 | -1 |
| 0 | 1 |
| 1 | 3 |
| 2 | 5 |

### gradients and y=mx+c

The equation of a straight line graph is given by the equation $y = mx + c$

In the equation $y = mx + c$, $m$ is the **gradient** of the line. For example in the line $y = 7x - 2$, the gradient is 7. In the line $y = 3 + 4x$, the gradient is 4. It is the coefficient of $x$.

In the equation $y = mx + c$, $c$ is the point where the line crosses the $y$ axis, called the **y-intercept**.

The $y$-intercept for this line is 1

The equation of this line is $y = 2x + 1$

To find the gradient of the line on the right:
1. Choose two points on the line that sit exactly on the grid lines.
2. Draw a right angled triangle between them.
3. Work out the horizontal and vertical distance
4. Divide and decide if negative: $-\frac{3}{5}$

### finding the equation of a line given the gradient and a point

Given the gradient of a line and the coordinates of a point on the line $(x, y)$:
1. Start with the general equation of a line $y = mx + c$
2. Substitute $m$ for the gradient of the line.
3. Substitute the $x$- and $y$-values of the point into the equation and solve for the value of $c$.

The gradient of a line is -4
The line passes through the point (0, 2)
Work out the equation of the line.

$y = mx + c$
$y = -4x + c$
$2 = -4 \times 0 + c$
$c = 6$
$y = -4x + 6$

Substitute $m$ for the gradient
Substitute the $x$- and $y$-values and solve for $c$
Write the equation with your values of $m$ and $c$

The gradient of a line is 7
The point (4, 5) is on the line
Work out the equation of the line.

$y = mx + c$
$y = 7x + c$
$5 = 7 \times 4 + c$
$c = -23$
$y = 7x - 23$

## Week 2

**Parallel** lines have the same gradient.

A line has equation $3y + x = 10$
Find the equation of another line that is **parallel** to this line.

$3y + x = 10$
$3y = 10 - x$
$y = \frac{10}{3} - \frac{1}{3}x$

The gradient is $-\frac{1}{3}$
Any parallel line has gradient $-\frac{1}{3}$
A parallel line is: $y = -\frac{1}{4}x + 4$

**Perpendicular** lines have gradients that are negative recriprocals of each other.

A line has equation $4x + 2y = 5$
Find the equation of another line that is **perpendicular** to this line.

$4x + 2y = 5$
$2y = 5 - 4x$
$y = \frac{5}{2} - 2x$

The gradient is $-2$
Any perpendicular line has gradient $\frac{1}{2}$
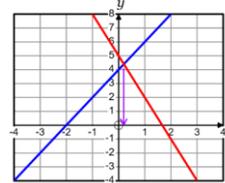A perpendicular line is: $y = \frac{1}{2}x + 6$

### solving (simultaneous) equations graphically

By plotting graphs, find estimates for the solution to the simultaneous equations:
$y = 2x + 4$ and $y = 5 - 3x$

First create tables of values and plot each function:

| $x$ | $y$ |
|-----|-----|
| -1 | 2 |
| 0 | 4 |
| 1 | 6 |
| 2 | 8 |

$y = 2x + 4$

| $x$ | $y$ |
|-----|-----|
| -1 | 8 |
| 0 | 5 |
| 1 | 2 |
| 2 | -1 |

$y = 5 - 3x$

They cross when $x$ is approximately 0.2 and $y$ is approximately 4.2, so $x \approx 0.2$, $y \approx 4.2$ is an estimate of the solution.
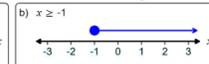
### Inequalities

There are four inequality symbols:

| < | ≤ | > | ≥ |
|---|---|---|---|
| less than | less than or equal to | greater than | greater than or equal to |

Inequalities can be represented on a number line using circles and arrows.

**examples**

Show each inequality on the number line:

An open circle ○ is used for < or > The number **is not** included.

A closed circle ● is used for ≤ or ≥ The number **is** included.

a) $x < 5$

b) $x \geq -1$

Solve:

$x + 3 < 8$
$-3 \quad -3$
$x < 5$

$5x - 1 > 29$
$+1 \quad +1$
$5x > 30$
$\div 5 \quad \div 5$
$x > 6$

$\frac{3x}{2} \leq 12$
$\times 2 \quad \times 2$
$3x \leq 24$
$\div 3 \quad \div 3$
$x \leq 8$

## Week 3

### 3-part inequalities

a) $2 \leq x < 7$

b) $-2 < x \leq 1$

a) $y$ is greater than 3 and less than 10
$3 < y < 10$

b) $p$ is greater than or equal to 5 and less than 9
$5 \leq p < 9$

c) $w$ is greater than or equal to 1 and less than or equal to 7
$1 \leq w \leq 7$

**examples**
Solve:

Apply **inverse operations** to all three parts of the inequality.

$7 < x - 4 < 15$
$+4 \quad +4 \quad +4$
$11 < x < 19$

$5 < x + 1 \leq 10$
$-1 \quad -1 \quad -1$
$4 < x \leq 9$

$12 \leq 3x < 21$
$\div 3 \quad \div 3 \quad \div 3$
$4 \leq x < 7$

### Rounding

Write 0.8529 correct to 1 decimal place.
$0 \cdot 8 | 5 \ 2 \ 9$
5 or more?
Yes
$\rightarrow 0.9$

Write 20.4521 correct to 2 decimal places.
$2 \ 0 \cdot 4 \ 5 | 2 \ 1$
5 or more?
No
$\rightarrow 20.45$

The **first significant figure** of a number is the **non-zero digit** in the highest place value.

The digit to the **right** of the **first significant figure** is the **second significant figure**, even if it is a zero.

The next digit to the right is the **third significant figure**, and so on.

**Significant figures**

1st 2nd 3rd
8045

1st 2nd 3rd
0.03206

leading zeros

Write **0.09265** correct to 3 significant figures.
$0 \cdot 0 \ 9 \ 2 \ 6 | 5$
5 or more?
Yes $\rightarrow 0.0927$

Write **30.28341** correct to 4 significant figures.
$3 \ 0 \cdot 2 \ 8 | 3 \ 4 \ 1$
5 or more?
No $\rightarrow 30.28$

### truncation

**Truncation** is a different way of shortening decimals. With truncation we do not choose the closest decimal, but instead just 'chop off' any digits after those indicated. For example, 2.89 truncated to 1 decimal place is 2.8

Truncate 4.7839 to 3 d.p.
$= 4.783$

Truncate 5.86 to the integer.
$= 5$

## Vocabulary

**Linear –** An expression or equation where the variable is to the power of one, for example x.

**Gradient –** The rate of increase or decrease of a graph, How 'steep' the line is.

**Parallel lines –** two or more lines that have the same gradient, therefore they do not ever intersect (cross each other)

**Simultaneous Equations –** two or more equations that have two or more variables, where each corresponding variable has the same value in all equations.

**Inequality –** a relationship between two expressions or values that are not equal

**Significant figures-** The number of significant figures in a number

**Truncation-** 'missing off' digits after a designated place value, filling in with zeros where necessary to ensure it remains an approximate value.
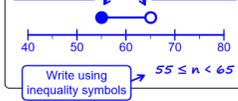
70

# Maths Higher

## Error Intervals

For a rounded value, the **error interval** is the set of all possible values that it could have been before it was rounded.

It is usually shown using a **three-part inequality**.

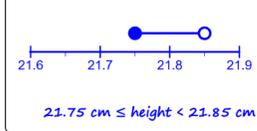A number $n$ is rounded to the nearest ten. The result is 60
Write down the error interval for $n$.

The smallest possible value for $n$ is 55

$n$ can be up to, but not including, 65

Write using inequality symbols

$55 \le n < 65$

The height of a bottle is measured as 21.8cm, correct to 1 decimal place.

Write down the error interval for the height of the bottle.

21.6   21.7   21.8   21.9

$21.75 \text{ cm} \le \text{height} < 21.85 \text{ cm}$

### calculations with bounds

$a = 3.4$, correct to 1 decimal place.
$b = 4.6$ correct to 1 decimal place.
Work out the maximum possible value of $a \div b$

Error intervals:
$3.35 \le a < 3.45$
$4.55 \le b < 4.65$

$a \div b$ is largest when $a$ is largest and $b$ is smallest...

$\dfrac{3.45}{4.55} = 0.75824$

| Formula | We want | Calculation |
|---|---|---|
| $a = b \times c$ | Upper bound of $a$. | $b_{upper} \times c_{upper}$ |
| $a = \dfrac{b}{c}$ | Lower bound of $a$. | $\dfrac{b_{lower}}{c_{upper}}$ |
| $a = b + c$ | Lower bound of $a$. | $b_{lower} + c_{lower}$ |
| $a = b - c$ | Upper bound of $a$. | $b_{upper} - c_{lower}$ |
| $a = \dfrac{b}{c-d}$ | Upper bound of $a$. | $\dfrac{b_{upper}}{c_{lower} - d_{upper}}$ |
| $a = \dfrac{1}{\sqrt{b}}$ | Lower bound of $a$. | $\dfrac{1}{\sqrt{b_{upper}}}$ |

## Circle Theorems

**Tangent** : a straight line that touches a curve at exactly one point. The tangent and the curve have the same gradient at the point where they meet.

**Radius** : a straight line from the centre of a circle to the circumference. The plural is radii.

**Diameter** : a straight line from one point on the circumference to another, *passing through the centre*. A diameter is double the length of the radius.

A tangent meets a radius at 90°

Two radii create an isosceles triangle.

**Chord** : a straight line from one point on the circumference to another.

**Arc** : a fraction of the circumference.

**Sector** : a fraction of a circle, created by two radii.

**Segment** : part of a circle created by a chord.

minor segment

major segment

**Subtended Angle** : an angle created by drawing lines from the ends of an arc or line, to meet at a point, often on the circumference.

You can think of this angle as being subtended from, created by, or sat on, this arc.

The angle in a semicircle is a right angle.

The angle at the centre is twice the angle at the circumference.

70°

140°

Angles in the same segment are equal.

51°   51°

Opposite angles of a cyclic quadrilateral sum to 180°.

$x + y = 180°$

## Week 6

Tangents to a point are equal in length.

The perpendicular line from the centre to a chord bisects the chord.

The angle between a chord and a tangent equals the angle in the **alternate segment**.

55°

55°

## Ratio

Share £90 in the ratio 2 : 4 : 3
Total number of parts:
$2 + 4 + 3 = 9$
Value of each part:
£90 ÷ 9 = £10
Shares:
$2 \times £10 \quad 4 \times £10 \quad 3 \times £10$
**£20**   **£40**   **£30**

Grace and Issy share some money in the ratio 4 : 7.
Grace gets £160.
Work out how much Issy gets.

4 parts = £160
1 part = £40
Issy gets £40 × 7 = £280

Jack and Jill share some money in the ratio 1:5.
Jill gets £44 **more** than Jack.
How much did Jack get?

Jill gets 4 parts more.
4 parts = £44,
so 1 part = £11
Jack received 1 part,
so he got £11

a) **2 : 3** in the form **1 : $n$**
2 : 3  )÷2
1 : 1.5
Divide both parts of the ratio by the number on the side that you need to equal 1

b) **2 : 5** in the form **$n$ : 1**
2 : 5  )÷5
$\frac{2}{5}$ : 1
(or 0.4 : 1)

c) **0.5 : 2** in the form **1 : $n$**
0.5 : 2  )×2
1 : 4
Here you could times both parts by 2, or divide by 0.5

## Vocabulary

**Error interval –** The set of possible values that a number could have been before being rounded.

**Tangent –** The tangent to a circle, is a straight line that touches the circle at one exact point.

**Chord –** A straight line from one point on the circumference to another, that does not go through the centre.

**Cyclic Quadrilateral –** A four-sided shape where all 4 points are on the circumference of a circle.

# Maths Higher

## Week 7

### connected ratios

**example**

The ratio $a : b$ is $4 : 3$
The ratio $b : c$ is $2 : 5$
Work out the ratio $a : c$

$b$ is common to both ratios. Write equivalent ratios with $b$ having the same number of parts.

You can then combine the ratios to give $a : b : c$ or $a : c$

$$a : b \qquad b : c \qquad a : b : c = 8 : 6 : 15$$
$$4 : 3 \qquad 2 : 5 \qquad \text{and}$$
$$\times 2 \quad \times 2 \qquad \times 3 \quad \times 3 \qquad a : c = 8 : 15$$
$$8 : \underline{6} \qquad \underline{6} : 15$$

### ratio and equations

If $a : b$ is equal to $2 : 5$, then as a fraction, $\frac{a}{b} = \frac{2}{5}$

This can be rearranged to give the equation: $5a = 2b$

Similarly, given the equation $6a = 5b$, we can write the ratio $a : b = 5 : 6$

$a : b = 3 : 7$
Write an equation connecting $a$ and $b$
$$\frac{a}{b} = \frac{3}{7}$$
$$7a = 3b$$

$2a + 3 : 4a - 1 = 2 : 5$
Work out the value of $a$.
$$\frac{2a + 3}{4a - 1} = \frac{2}{5}$$
$$5(2a + 3) = 2(4a - 1)$$
$$10a + 15 = 8a - 2$$
$$2a = -17$$
$$a = -8.5$$

Given $a : b = c : d$ the following equation can be written: $\frac{a}{b} = \frac{c}{d}$
This can be rearranged to: $ad = bc$

The original ratio is written as $2n : 5n$ where $n$ is an unknown integer.

**example**

A bag contains white and yellow counters in the ratio $2 : 5$

When eight white counters are added to the bag, the ratio changes to $2 : 3$

Work out the number of yellow counters in the bag.

Before the change, white : yellow $= 2n : 5n$
After the change, white : yellow $= 2n + 8 : 5n$

After the change, the ratio is $2 : 3$, so an equation can be formed and solved for $n$.

$$2n + 8 : 5n = 2 : 3$$
$$\frac{2n + 8}{5n} = \frac{2}{3}$$
$$3(2n + 8) = 2(5n)$$
$$6n + 24 = 10n$$
$$24 = 4n$$
$$6 = n$$

The number of yellow counters is $5n$, which is **30**

## Proportion

Jenny buys 6 apples. The total cost is £1.50

First divide to find the cost of a smaller number of apples. Use a common factor of the numbers of apples involved.

a) Work out the cost for 9 apples

6 apples cost £1.50
$\div 2$ ( 3 apples cost £ _0.75_ ) $\div 2$
$\times 3$ ( 9 apples cost £ _2.25_ ) $\times 3$

b) Work out the cost for 5 apples

6 apples cost £1.50
$\div 6$ ( 1 apple costs £ _0.25_ ) $\div 6$
$\times 5$ ( 5 apples cost £ _1.25_ ) $\times 5$

## Week 8

Machines in a factory are being used to make an order of scarves.
With 5 identical machines working, the order will be completed in 30 minutes.
a) How long would it take to complete the order if 10 machines were used?

$\times 2$ ( 5 machines would take 30 minutes ) $\div 2$
( 10 machines would take **15** minutes )

### direct proportion

If two variables are in directly proportion, one is always a constant multiple of the other. The ratio between the variables is constant for each pair of values.

The symbol $\propto$ is known as the **proportionality symbol**.
$y \propto x$ means '$y$ is directly proportional to $x$'

If $y \propto x$, the equation $y = kx$ can be formed, where $k$ is the **constant of proportionality**. The graph of this equation is a straight line through the origin with a gradient of $k$.

$y$ is directly proportional to $x$. When $x$ is 24, $y$ is 8.
a) Write an equation connecting $x$ and $y$.
b) Work out the value of $x$ when $y$ is 45

a) $y \propto x$, so $y = kx$
$8 = k \times 24$
$\frac{1}{3} = k$
The equation is $y = \frac{1}{3}x$

b) Subs. $y = 45$ into $y = \frac{1}{3}x$
$45 = \frac{1}{3}x$
$135 = x$
$x = 135$

$y$ is directly proportional to the cube of $x$
When $x = 4.5$, $y = 72.9$
Work out $y$ when $x = 3.5$
$y \propto x^3$
$y = kx^3$
$72.9 = k \times 4.5^3$
$k = 0.8$
$y = 0.8x^3$
Subs. $x = 3.5$
$y = 0.8 \times 3.5^3$
$y = 34.3$

$y$ is directly proportional to the square root of $x$
When $x = 46.24$, $y = 23.8$
Work out $y$ when $x = 88.36$
$y \propto \sqrt{x}$
$y = k\sqrt{x}$
$23.8 = k \times \sqrt{46.24}$
$k = 3.5$
$y = 3.5\sqrt{x}$
Subs. $x = 88.36$
$y = 3.5 \times \sqrt{88.36}$
$y = 32.9$

### inverse proportion

If two variables are in **inverse proportion**, then as one increases, the other decreases, with their product remaining constant.

$y \propto \frac{1}{x}$ means '$y$ is inversely proportional to $x$'

If $y \propto \frac{1}{x}$, the equation $y = \frac{k}{x}$ can be formed, where $k$ is the **constant of proportionality**. The graph of this equation is part of a reciprocal graph.

$y$ is inversely proportional to $x$
When $x = 4$, $y = 8$.
Work out $x$ when $y = 2$
$y \propto \frac{1}{x} \rightarrow y = \frac{k}{x}$
$8 = \frac{k}{4}$
$k = 32$
$y = \frac{32}{x}$
Subs. $y = 2$
$2 = \frac{32}{x}$
$x = 16$

$x$ is inversely proportional to the cube of $y$.
When $x = 10$, $y = 4$.
Work out $x$ when $y = 6$
$x \propto \frac{1}{y^3}$
$x = \frac{k}{y^3}$
$10 = \frac{k}{64}$
$k = 640$
$x = \frac{640}{y^3}$
Subs. $y = 6$
$x = \frac{640}{6^3}$
$x = 2.96$

## Week 9

### speed

Speed measures how far an object travels in 1 unit of time (1 hour, or 1 minute etc.)

Generally, speed $= \frac{distance}{time}$

Examples of units of speed are m/s or km/h, where the / is read 'per'. We also use mph, standing for miles per hour.

Jill drove 135 miles from Leeds to Warwick at an average speed of 60 mph. She then drove 105 miles from Warwick to Newport in one and a half hours.
a) Work out how long it took Jill to drive from Leeds to Warwick. Give your answer in hours and minutes.

Time taken $= \frac{135}{60}$
$= 2.25$ hours $\rightarrow$ **2 hours 15 minutes**

b) Work out Jill's overall average speed for her drive from Leeds to Newport.

To find the overall speed, first work out the total distance and the total time

Total distance $= 135$ miles $+ 105$ miles
$= 240$ miles

Total time $= 2$ hrs 15 mins $+ 1$ hr 30 mins
$= 3$ hrs 45 mins
$= 3.75$ hours

Speed $= \frac{240}{3.75}$
$= 64$ mph

### density

The density of an object is its mass per unit volume. The units for density are g/cm³ or kg/m³.

$$\text{Density} = \frac{\text{Mass}}{\text{Volume}}$$

A cube has side lengths of 4cm and a mass of 83g. Work out the density of the cube correct to 2 significant figures.
4cm

Density $=$ Mass $\div$ Volume
$= 83 \div 64$
$= 1.296875$
$= 1.3$ g/cm³ (2 s.f.)

A silver coin has a mass of 6.5g and density 10.5g/cm³. Work out the volume of the coin to 3 significant figures.

Density $= \frac{\text{Mass}}{\text{Volume}} \rightarrow$ Volume $= \frac{\text{Mass}}{\text{Density}}$
Volume $= \frac{6.5}{10.5} = 0.619$cm³

### combining densities

Use $D = \frac{M}{V}$ to work out the mass

Liquid A has a density of 1.06 g/cm³.
Liquid B has a density of 0.84 g/cm³.

2 litres of liquid A is mixed with 1 litre of liquid B to make liquid C.

Work out the density of liquid C.

Fill in the table with all the information given, and work out any other values possible.

| | Density | Mass | Volume |
|---|---|---|---|
| A | 1.06g/cm³ | 2120g | 2000cm³ |
| B | 0.84 g/cm³ | 840g | 1000cm³ |
| C | 0.99g/cm³ | 2960g | 3000cm³ |

Recall that 1 litre = 1000cm³

The final density is the total mass divided by the total volume.

## Vocabulary

**Mass –** A measure of how much matter is contained in a body of an item. This is normally measured using weight.

**Capacity –** The amount of space a body of an item takes up, this is normally measured as a volume.

**Density –** A measure of mass per unit of volume of an item.

**Speed –** How far an objects travels in a unit of time.
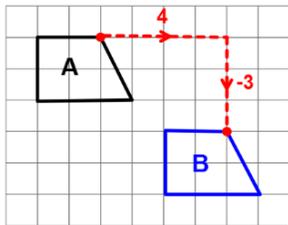
# Maths Higher

## Week 10

### translations

When a shape is **translated**, it is **moved to a different position**, without being turned or flipped.

Vectors such as $\begin{bmatrix} 4 \\ -3 \end{bmatrix}$ are used to describe translations.

The **top** number is the **horizontal** movement:
← **left if negative** or **right if positive** →

The **bottom** number is the **vertical** movement:
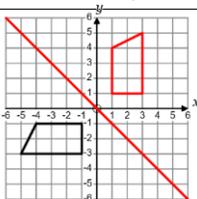↓ **down if negative** or **up if positive** ↑

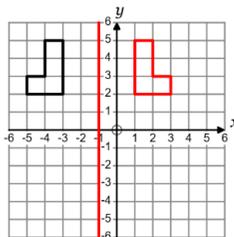Translate shape A by the vector $\begin{bmatrix} 4 \\ -3 \end{bmatrix}$

### reflection

When a shape is **reflected** in a **mirror line**, the shape is **flipped**.

The **perpendicular distance to the mirror line is the same** for each point of the original shape and the reflected shape.

Reflect the shape in the line with equation $y = -x$.

Reflect the shape in the line with equation $x = -1$.

Horizontal lines have equations of the form $y = a$
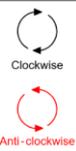
Vertical lines have equations of the form $x = a$

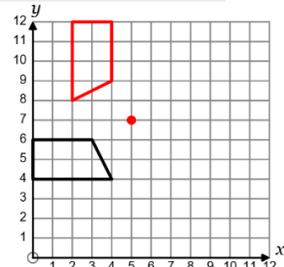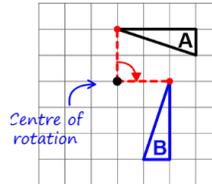The main diagonal lines have equations $y = x$ and $y = -x$

## Week 11

### rotation

To describe a **rotation** of a shape, three things are required:
1. The centre of rotation
2. The angle of turn
3. The direction: clockwise or anti-clockwise

Clockwise

Anti-clockwise

Rotate shape A 90° clockwise about the point.

Centre of rotation

Rotate the shape 270° anti-clockwise about the point with coordinates (5, 7).

### enlargement

An **enlargement** is a change in size by a given **scale factor**.

**Ray lines** can be drawn from the **centre of enlargement**, through each vertex of the shape.

The **distance from the centre** to each point is **multiplied by the scale factor** to give the point on the enlarged shape.

When a shape is **enlarged** by a **scale factor between 0 and 1**, the shape becomes **smaller** and closer to the centre of enlargement.

Enlarge shape A by scale factor 3 about the point.

Enlarge shape A by **scale factor** $\frac{1}{2}$ about the point.

## Week 12

When a shape is enlarged by a **negative scale factor**, the enlarged image is on the **other side of the centre of enlargement**.

The enlarged image is in a different orientation to the original shape - the same as if had been rotated by 180°.

Enlarge shape A by **scale factor -3** about the point.
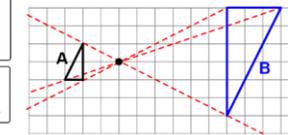
### describing transformations

To fully describe a transformation, state the **type of transformation**, and the following:

**Translation**
Translation vector

Translation by the vector $\begin{bmatrix} 2 \\ -1 \end{bmatrix}$

**Rotation**
Angle of turn
Direction
Centre of rotation

Rotation by 90° clockwise about the point (4, 0)

**Reflection**
Equation of the mirror line

Reflection in the line $y = x$

**Enlargement**
Scale factor
Centre of enlargement

Enlargement by scale factor 3 centred on (1, 3)
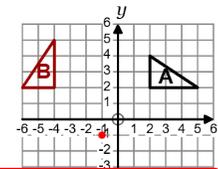
Rotation 90° anti-clockwise about (-1, -1).

Describe the transformation from A to B.
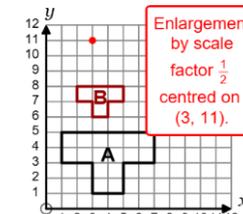
Enlargement by scale factor $\frac{1}{2}$ centred on (3, 11).

Describe the transformation from A to B.

## Vocabulary

**Translation-** Describes the movement of a shape vertically and horizontally.

**Reflection-** The movement of a shape over a mirror line

**Rotation –** The movement or a shape clockwise or anticlockwise around a given point

**Enlargement –** The change is size of the shape given a centre point.

# Media

| Week 1 & 2 | Week 3 & 4 | Week 5 & 6 | Vocabulary |
|---|---|---|---|

## Week 1 & 2

**Radio Industry Terminology**

**PSB**: A broadcaster serving the public, not aiming for profit.
**Commercial**: Stations funded by advertising.
**Remit**: Official task or area of activity assigned.
**Ofcom**: Regulator of UK TV and radio.
**Convergence**: When two or more things combine into one.
**License Fee**: Charge for UK viewers of terrestrial TV or iPlayer.
**RAJAR**: Measures radio audiences in the UK.

**The BBC & Radio 4**

- In the UK, BBC radio is funded by the licence fee. The BBC has a public service remit: **to educate, inform and entertain**.
- It has 8 UK-wide TV channels
- It has 10 national radio stations, BBC World Service & about 40 local radio stations
- Catch up services such as iPlayer & the Sounds app
- **Radio 4** – mostly speech-based station (news, current affairs, factual, drama & comedy series)
- **Radio 4** "should appeal to listeners seeking intelligent programmes in many genres which inform, educate & entertain.

## Week 3 & 4

**The Archers Context**

The Archers is aired on Radio Four, the BBC's main spoken-word channel, and so is funded by the licence fee.
The Archers was originally established in 1951 to educate farmers. The show soon became a major source of entertainment for people from all walks of life, not just the rural community. However, the show still prides itself on the quality of its research and its ability to portray real rural life.
Radio Four has a high cultural status and so the audience for The Archers consists mainly of well-educated middle-class professionals, most of whom are middle aged and above, white women.

**Convergence**
There are a number of ways for fans to *engage* with the show:

- Regular Radio 4 slot
- Sunday omnibus
- BBC Radio 4 Extra repeats
- Podcast
- iPlayer
- BBC Sounds App
- BBC Website The Archers' page
- Twitter
- Facebook

## Week 5 & 6

**Episode Terminology**

**Controversy**: heated discussion or argument, often causing strong feelings.
**Narratives**: storylines.
**Melodrama**: exaggerated drama meant to appeal to emotions.
**Omnibus**: broadcast of all episodes from a week for audience catch-up.

**Uses & Gratifications Theory**

Blumler & Katz's theory suggests there are certain reasons why an audience responds to different media texts. We can use **PIES** to help us to remember them:

**P**ersonal identity: relating to a character or situation
**I**nformation: finding out informatioWn
**E**ntertainment: escaping from daily lives
**S**ocial Interaction: discussing with others

## Vocabulary

**PSB (Public Service Broadcaster)** – A broadcaster serving the public interest, not aiming for profit.

**Remit** – An official task or area of responsibility assigned to an organisation.

**Convergence** – The merging of different media platforms or technologies into one.

**RAJAR** – The official body measuring radio audiences in the UK.

**Omnibus** – A single broadcast compiling all episodes from a week for catch-up.

# Media

**Representation**: **the description or portrayal of someone or something in a particular way.**
Representation is how media producers want you to see the world!
Representation is the process of how reality is constructed for an audience. (This is called **Mediation**)

**Stereotypes**
Representation often includes stereotypes. *Stereotypes are a widely held, often negative and over simplified image or idea of a particular type of person or thing*.

**Film Industry Production**

**Pre-Production:** planning the project and securing people, locations and equipment.
P**roduction**: the stage where all filming and recording takes place.
**Post-Production**: editing and adding elements like colour grading and visual effects to create the final film.

**Analysing Representations**
When analysing representation, we can look to see whether texts are **supporting** (using) or **subverting** (challenging) stereotypes.

We can look at the following areas:
**GENDER, AGE, SEXUALITY, ETHNICITY & SOCIAL GROUP.**

**Denotation**: what you can see/hear
**Connotation**: what this suggests – the deeper meaning the audience understands. **E.g. Denotation:** Black rimmed glasses  **Connotation:** Clever, nerd, geek, intelligent, educated
**Film Industry distribution and marketing:**

**Distribution** is the process of producing copies of a film for cinemas, VOD, DVD and streaming releases, along with organising its marketing and promotion.
**Marketing** (or film promotion) is handled by the distribution company and involves advertising the film through print, video, online media and related products.

- **Component 1 Section A Question 2 (25marks)**

**Introduction:** brief comparison of how both covers represent their subjects.
**Paragraph 1:** one similarity with examples from both covers.
**Paragraph 2:** another similarity with examples from both covers.
**Paragraph 3:** one difference with examples from both covers.
**Paragraph 4:** another difference with examples from both covers.
**Conclusion:** overall judgement on how similar or different the representations are.

**Film Industry circulation:**

**Circulation** is the process of exhibiting (showing) the film across a range of different media platforms.

- Cinema release
- DVD or PPV/VOD release
- Free-to-air television

**Representation** – The portrayal of people, events, or issues in media texts.

**Stereotype** – A widely held, oversimplified idea about a group or type of person.

**Denotation** – The literal meaning of what is seen or heard in a media text.

**Connotation** – The associated or implied meaning beyond the literal.

**Distribution** – The process of making a film available to audiences through various platforms.

# Music

| Week 1 | Week 2 | Vocabulary |
|---|---|---|

## Week 1

### Reggae Music

**Origin:** Jamaica, Late 1960's
Specific **Compositional Features**:
**Syncopation,** particularly syncopated basslines.
**Offbeat** rhythms, usually played on ukulele or guitar.
Simple **diatonic** chord structure. Reggae music has a slower **harmonic rhythm**.
**Instrumentation:** Electric Guitar, Bass Guitar, Drum Kit, Handheld percussion instruments, Horns, Keyboards. Reggae music is often played out in the street through a series of large speakers to project the sound. It's aim is to spread joy and happiness across the community, especially in times of hardship.
**Structure:** Verse-Chorus
**Artists:** The 3 artists we have looked at so far are Bob Marley, Bunny Wailer and The Paragons.

## Week 2

### Rock 'n' Roll Music

**Origin:** USA, 1950's
Specific **Compositional Features:**
**12 Bar Blues** chord structure – Rock 'n' Roll music was heavily influenced by Jazz. Driving Rhythms, focus on beats 2 and 4 of the music. Rock 'n' Roll Music is energetic with a fast **tempo**. Repeated guitar **riffs** which supports the simple chord structure. Sometimes you can hear a **walking bassline** another feature from Jazz music.
**Instrumentation:** Electric Guitar, Double Bass (later Rock 'n' Roll music used an electric Bass), Drum Kit, Piano, Strong vocals often using vocal techniques like **scat singing, vocal harmonies (ooh's and aah's).**
**Structure:** Verse – Chorus following a 12 Bar Blues structure.
**Artists:** Elvis Presley, Chuck Berry,

## Week 3

### British Invasion Music

**Origin:** A rise of UK Bands who became successful within America and across the world, 1960's. Influenced by Rock 'n' Roll music. Localised music scenes – Liverpool, London, Manchester nurture new talent.
Specific **Compositional Features**:
Catchy choruses, Diatonic harmony, Mostly upbeat with provoking lyrics. Rhythm and Blues elements, chord progressions, blues scale and pentatonic riffs.
**Instrumentation:** Guitars, Vocals – including harmonies (falsetto, scal singing, particularly ooh's and aah's), development of music technology – multitrack for layering sound.
**Structure:** Verse-Chorus with the addition of a bridge/ middle 8 section.
**Artists:** The Beatles, Rolling Stones, The Kinks, The who

## Week 4

### Britpop Music

**Origin:** UK Bands challenging society (REWORD THIS), 1990's.
Specific **Compositional Features**:
Strong melodies with a simple chord structure (sometimes using 4 chord trick, in C major this is chord I, IV, V, VI so C, F, G, Am), Anthemic choruses. British accents/ regional vocals. Music is guitar driven showcasing guitar solos. The had themes of everyday struggles, especially around politics.
**Instrumentation:** Electric Guitar (often distorted and heavily amplified), Electric Bass Guitar, Drum Kit, Keyboard, Regional Vocals.
**Structure:** Verse-Chorus
**Artists:** Oasis, Blur, Pulp, Suede

## Vocabulary

**Compositional Features –** How was the music composed using the different elements of music? use the acronym MAD TSHIRT.
**Origin –** Where does this type of music originate (come from).
**Syncopation –** The **displacement** of the beat. A combination of on-beat and offbeat notes. This rhythm may not feel like the notes are in the right place.
**Offbeat –** Playing notes on the 'silent and', not on beats 1,2,3,4.
**Diatonic –** using notes of a specific scale.
**Harmonic Rhythm –** how fast the chords change eg do they change every bar or is the same chord held across several bars?
**Tempo –** how fast or slow the music is.
**Structure –** how the piece of music has been composed.
**Riffs –** a short, repeated pattern or **phrase** of notes.

# Music

| Week 5 | Week 6 | Vocabulary |
|---|---|---|
| **Western Classical Music**<br>**Baroque**<br><br>**Origin:** Baroque Period 1600-1750. Music often used to accompany dances or dinners at social occasions.<br>Specific **compositional features:**<br>**Ornamentation –** decoration of a melody to make it more interesting. Musicians would add **trills, mordents, turns, appoggiaturas and acciaccaturas.**<br>**Terraced Dynamics** – sudden changes in volume between loud and quiet. Often controlled by changes in the number of instruments playing.<br>**Polyphonic** texture, **counter melodies,** use of **sequences** as a melodic feature.<br>**Instrumentation:** Strings (Violin, Viola, Cello), Small orchestra, Recorders, Oboes, Lutes, Harpsichord.<br>**Structure:** Binary, Ternary, Fugue, Concerto Grosso.<br>**Composers:** Bach, Handel, Vivaldi, Purcell, Corelli | **Western Classical Music**<br>**Classical**<br><br>**Origin:** Classical Period 1750-1820.<br>Specific **compositional features:**<br>Balanced phrasing with a clear **homophonic** texture. **Functional harmony** (following a clear key and chord progression).<br>**Instrumentation:** Early symphony orchestras, introduction of more woodwind and brass instruments, such as the clarinet and trumpets (using valves).<br>**Structure:** Sonata Form, Symphony, Concertos. Also using Binary, Ternary and Rondo Form.<br>**Composers:** Mozart, Haydn, Beethoven. | **Ornamentation –** extra notes to decorate the melody.<br>**Texture – Monophonic, Homophonic, Polyphonic –** layers of music, mono – one, homo – two, poly - many<br>**Terraced Dynamics –** sudden changes in volume.<br>**Counterpoint –** combining two or more melodic lines at the same time.<br>**Cadences –** are the ending of musical phrases.<br>**Modulation –** changing from one key to another.<br>**Ostinato –** a rhythm that repeats.<br>**Metamorphisis –** slow transformation of a musical idea.<br>**Drones –** sustained notes, usually held on the tonic note.<br>**Augmentation –** lengthening of notes<br>**Diminution –** shortening of notes. |
| Week 7 | Week 8 | |
| **Western Classical Music**<br>**Minimalism**<br><br>**Origin:** Minimalism 1960's onwards. More than just music, minimalism was a movement including things like art.<br>Specific **compositional features:**<br>Repetition, **ostinato/ ostinato**, gradual changes **metamorphosis** – gradual changes to cells across the piece of music eventually creating a completely different musical idea. **Phasing** and **layering.**<br>**Augmentation/ Diminution,** adding/ subtracting processes (adding/ subtracting notes gradually), **drones,** very subtle and gradual harmonic shifts.<br>**Instruments:** Can be used on any instruments. Mixed ensembles, one instrument such as clarinet or organ and layered multitracks. Tuned percussion. Use of music technology and synths.<br>**Structure:** slowly changing repetitive cells.<br>**Composers:** Steve Reich, Philip Glass, John Cage | **Jazz and Blues Music**<br><br>**Origins:** African-American music, early 1900's into 2000's.<br>Specific **compositional features:**<br>12 bar-blues, blues notes, call and response, Improvisation, swung rhythms, syncopation, extended chords.<br>**Instrumentation:** Jazz instruments – sax, clarinet, trumpet, trombone, piano, double bass, guitar, harmonica, drums (kit)<br>**Structure:** 12 bar blues, Head-solos-Head solo contain virtuostic improvisation. AABA form.<br>**Blues Artists:** BB King, Muddy Waters<br>**Jazz Artists:** Miles Davis, Duke Ellington, Louis Armstrong, Ella Fitzgerald | |

# Music

| Week 9 | Week 10 | Vocabulary |
|---|---|---|
| **Film Music** | **Digital Audio Workstation (DAW) GarageBand Features** | **Leitmotifs –** a short, recurring musical phrase that represents a character. |
| **Origin/ Purpose**: Underscore action, portrays moods and character themes. | **Creating a new project;** | **Thematic Development –** process of creating, varying and expanding a musical theme. |
| Specific **compositional features:** | Software instruments (MIDI), Audio (Vocals/Guitar) | **Inversion –** a melody line that is flipped. |
| **Leitmotifs**, dramatic dynamics and extensive use of instrument range. Use of themes and **thematic development.** | **Recording;** Add track – use MIDI Keyboard or Command + K | **Retrograde –** a melody is played in reverse. |
| Features that can build tension. **Drones, Sequences, Inversion, Retrograde.** | Press R to record | **Quantise –** making sure notes are in time on a DAW. |
| **Instruments:** Full Orchestra – multiple instruments, extensive use of percussion, use of post production techniques (such as panning), Computer generated sounds, synths. | **Editing;** MIDI – Double click region to open piano roll. Move/ resize/ delete notes. Quantise to fix timing. Trim by dragging region edges. Split track using Command T. | **Reverb –** bouncing of sound, sounds like a 'muddy' echo. |
| **Structure:** Often through-composed – links to story telling and moving through the story. | **Mixing;** Adjusting track volume and pan. Use EQ. Add reverb. | **Panning –** changing the sound from your left ear to your right ear. |
| **Composers:** John Williams, Hans Zimmer, John Powell, James Horner | **Adding Effects:** Press B to open Smart Controls. | |

| Week 11 | Week 12 | |
|---|---|---|
| **Compositional Features** | **Sonic Features** | |
| **Melody –** How can you describe the main tune? What instrument performs it? Is it made up of certain notes? What is the range? | **Instrumentation –** What instruments are used? Are they played throughout? Are the stylistic of the time? | |
| **Harmony –** How is the harmony produced? Block chords/ harmonic lines? Does it follow a chord progression? | **Texture –** Layers of music. Is it **thick** or **thin**? Do the layers come in gradually? **Polyphonic, Homophonic, Monophonic?** | |
| **Tonality –** Major or Minor key? What is the main key? Does it **modulate**? | **Timbre –** What sounds can you hear? How are instruments playing and what specific techniques are they using? | |
| **Rhythm –** What is the tempo of the piece? Any interesting rhythms? Ostinato/ Off-beat/ Sycopation/ Straight rhythms? Note durations? Is there an interesting drum part? | **Production –** Is there any specific music technology used within the piece? Is this stylistic of the genre? Is it recorded live or in a studio? Multitracks? Post production techniques? | |
| **Structure –** How is the music built? Does it have different sections and can you appropriately name those sections? | | |

# Photography

| Week 1 | Week 2 | Week 3 | Vocabulary |
|---|---|---|---|

## Week 1

**Key Knowledge**

- **Develop ideas**: Use mind-mapping, Mood boards, and artists websites to develop your ideas.

- **Analyse contextual sources**: Understand the sources you use and relate what you learn to your own ideas and experiences.

- **Moodboard/inspiration page**: A visual collage of images, colours, and other materials that capture a specific feeling or mood for a creative project. It can also be called an inspiration board.

- **Exposure Triangle**: **aperture**, **shutter speed**, and **ISO**—key for controlling light. All three cause and affect one another.

- **Auto focus and Manual focus** using Shutter button and Manual focus ring on lens.



## Week 2

**Key Knowledge**

- **Record ideas:** Record your ideas, observations, and insights visually, through writing, or using other media

- **Annotate**: Write about your idea by adding annotations to your work explaining or commenting on images and analysing why an artist has created their work.

- **Research:** Study an artist's life, education, and artwork, and analyse their work. You can also consider what inspired their work and how you respond to it.

- **Depth of Field:** Aperture (f-stop) controls light and depth. **LOW** F Number = **LESS** in Focus (f/5.6), **LOTS** of **l**ight.
- **Higher** Numbers (e.g., f/22) = **More** in focus. **Much less** light



## Week 3

**Key Knowledge**

- **Response:** a response is not simply a copy of the work; it should be your own image but completed in a similar style to your chosen artist. You should always use one of your own photographs as the basis for the image you will create.

- **Photoshoot:** A photo shoot is a series of images that are taken, with the goal of obtaining images that can then be placed into post-production, or editing. 30-60 images minimum. These images are then used for print/digital advertising, business collateral, or just for personal use.

- **Shutter Speed:** cause/stop motion blur. **Fast** speeds (1/1000) F**reeze** action; **Slow** speeds (1/30) B**lur** movement. No lower than 1/60 use a tripod for slower speeds to avoid camera shake. Slow Shutter = MORE light + MORE movement



## Vocabulary

**Aperture -** The opening in the lens that lets in light. A big opening = more light. A small opening = less light.

**Shutter Speed -** How fast the camera opens and closes to take a photo. Fast = freezes movement. Slow = blurry movement.

**ISO -** How sensitive the camera is to light. Low ISO = less grain. High ISO = more grain but brighter photos.

**Depth of Field** How much of the photo is in focus.
- Low f-number = blurry background
- High f-number = more in focus

**Shutter Speed** Controls motion in a photo.

# Photography

## Week 4

**Key Knowledge**

- **Studio Lighting:** is artificial light source to either add to the light that's already there, or to completely light their photograph. Setups can range from using a single **flash** that you mount onto your camera, to multiple **off-camera lights.**

- **Location:** a type of photography where a photographer takes pictures outside of a studio in a remote or outdoor location.

- **Contact sheet:** a page with **thumbnail** images from a photoshoot. A contact sheet provides an overview of all the frames and their **exposure**. It's the photographer's first look at what they've captured on camera.

- **ISO** – Effects the Sensitivity of the Camera to light AND the **graininess.** ISO 100 = Less Light/Less Grain. ISO 8000 = Lighter/Lots of Grain



## Week 5

**Key Knowledge**

- **Experiment:** It means stepping outside traditional photographic techniques and pushing the boundaries of what is possible. Experimental photographers use **unconventional** methods and materials to create unique and captivating images that convey emotion, tell a story, and challenge the viewer's perceptions

- **Edit:** Photo editing is the process of altering a photograph, such as by adjusting its colour, light, tone, **composition,** or focus. It's also known as post-processing or postproduction and can be done on software like Photoshop and Lightroom



## Week 6

**Key Knowledge**

- **Layering:** Combining multiple images or effects in separate layers to create depth and complexity in a manipulated Image.

- **Masking:** A technique used to hide or reveal parts of a layer, allowing for selective adjustments and complex compositions.

- **Colour Grading:** The process of adjusting the colours in an image for mood or style, often used to create a cohesive look across a series of photos.



## Vocabulary

**Flash -** A burst of bright light used when taking a photo.

**Off-camera light -** A light that is not attached to the camera and can be placed anywhere.

**Thumbnail -** A very small picture used to preview an image.

**Exposure -** How light or dark a photo is (based on aperture, shutter speed, and ISO).

**Graininess -** Tiny speckles or dots in a photo, often seen when ISO is high.

**Unconventional -** Not usual / different from normal methods.

**Composition -** How the parts of a photo are arranged, such as where the subject is placed.

# Photography

## Week 7

**Key Knowledge**

- **Gradient Maps:** You can use gradient maps to add colour to an image, or to change the colour of the **highlights, midtones**, or shadows. For example, you can colour the lightest areas of an image a warm orange to create a sun-kissed effect, enhancing mood and colour harmony.

- **HDR (High Dynamic Range)**: A technique that combines multiple exposures to capture a greater range of light and detail than a single photo can achieve.



## Week 8

**Key Knowledge**

- **Double exposure:** Combining 2 or more images to create an alternative image. Using either **opacity** or the layers and **blend**s palette examples like overlay, lighten, darken and multiply.

- **Scanography:** Also known as scanner photography, is a photographic technique that uses a **flatbed scanner** to create art. Some artists arrange multiple objects on the scanner's flatbed, while others scan individual objects and arrange them later



## Week 9

**Key Knowledge**

- **Texture Overlays:** Applying patterns or **textures** to images to add visual interest or a tactile quality.

- **Digital Collage**: Merging various images and elements into a single composition, often exploring themes or narratives in a unique way.

- **Duotone**: A technique that uses two colors to create a stylized look, often applied to black-and-white images for a dramatic effect.



## Vocabulary

**Highlights** The brightest parts of a photo.

**Midtones** The middle brightness areas. Not too light, not too dark.

**Opacity** How see-through something is. Low opacity = more see-through. High opacity = more solid.

**Blend Modes** (overlay / lighten / darken / multiply). Settings that change how one image mixes with another.

**Flatbed Scanner** A scanner with a glass surface where you place objects to be scanned.

**Texture** The surface feel of something (rough, smooth, bumpy), shown visually in photos.

# Photography

| Week 10 | Week 11 | Week 12 | Vocabulary |
|---------|---------|---------|------------|

**Key Knowledge**

- **Narrative:** A visual narrative in photography is a story told through a series of images or a single image. The goal is to create a photo story that **engages** the viewer, **evokes** emotions, and conveys a narrative. Challenging traditional perspectives can provide a fresh take on a familiar scene or concept.

- **Final piece:** A series of images that demonstrate a photographer's best work and understanding of **visual language**. Final pieces can be presented in many forms, including, Album covers, Book covers, Magazine covers and layouts, Movie, event, or festival posters, Branding and T-shirt designs, Zines etc

- **Context:** the information that surrounds a photograph, and it's what gives the photograph its meaning. Who is the image for and how will it be used i.e Mental Health

**Key Knowledge**

- **Mock up**: a small-scale, **annotated** model of the final piece that a photographer is planning to create. It's a way to ensure that the final piece will look as intended and to identify any potential problems that might arise

- **Composition:** the ways in which meanings, ideas and intentions can be communicated through visual language, using formal elements, including: colour, line, form, tone, texture and how the elements of an image are arranged.

**Key Knowledge**

- **The final piece presentation:** is a series of edited photographs that demonstrate your ideas and skills.

- **Link to preparatory work**: Ensure your final piece connects to your research and artist or designer work.

- **Refine ideas**: make small improvements to your ideas and techniques to create a professional-looking final piece

- **Experimentation**: Does your final piece show a variety of experimental processes?

- **Purpose**: Who is your final piece for and is this really well considered, developed and evidenced in your sketchbook?

- **Evaluation:** The process of explaining: your research about other artists' work and the ideas you have had, your experiments and the way you have refined them. the decisions you made along the way and how you have recorded your learning.

**Engage** To interest or capture attention.

**Evoke** To make someone feel an emotion.

**Visual Language** The way images communicate meaning (not spoken or written words).

**Narrative** A story told through photos.

**Annotated / Annotation** Writing short notes on your work to explain ideas.

**Refine** To improve your work by making small helpful changes.

# PSHE

## Week 1 and 2

**Extremism:** Supporting or promoting ideas based on violence, hatred, or intolerance that aim to take away others' rights or undermine British values like democracy and respect.

**Radicalisation:** The process of being influenced to support extremist ideas or terrorism.

**Terrorism:** Using or threatening serious violence to frighten the public or influence the government for political, religious, or ideological reasons.

## Week 3 and 4

**Aims of Radicalisers:** Extremist groups try to manipulate people—often online—into adopting their beliefs and sometimes carrying out violent actions.

**Types of Extremism:** This includes extreme right-wing, Islamist, far-left, anarchist, and single-issue extremism.

**Online Influence:** Extremists use the internet and social media to spread false information, groom vulnerable people, and recruit followers.

## Week 5 and 6

**Where to seek help with radicalisation and extremism**
**For immediate danger/emergency:** Call the police on **999**.
**For confidential advice and support:** Call the national police Prevent advice line on **0800 011 3764**. This line is staffed by specially trained officers who can discuss your concerns in confidence.
Speak to a member of our safeguarding team in school.

## Vocabulary

**The Protected Characteristics**

**Age** Protection from discrimination based on age.
**Disability** Protection for people with long-term physical or mental conditions.
**Gender reassignment** Protection for people transitioning gender.
**Marriage & civil partnership** Protection for people who are married or in a civil partnership.
**Pregnancy & maternity** Protection during and after pregnancy.
**Race** Protection based on skin colour, ethnicity, or nationality.
**Religion or belief** Protection for any religion or lack of belief.
**Sex** Protection based on being male or female.
**Sexual orientation** Protection for who someone is attracted to.

## Week 7 and 8

**How to communicate online**

- **Be respectful** – Speak kindly and avoid bullying or rude comments.
- **Think before you post** – Make sure what you share is appropriate and something you won't regret later.
- **Protect your privacy** – Don't share personal information or passwords.
- **Don't engage with negativity** – If someone is unkind, block or report instead of arguing.
- **Ask before sharing** – Get permission before posting photos or information about someone else.

## Week 9 and 10

**How to agree to disagree**

- **Listen first** – Let the other person explain their point without interrupting.
- **Stay calm** – Speak in a steady, polite tone; avoid shouting or insulting.
- **Use "I" statements** – Say "I think…" or "I feel…" instead of blaming ("You're wrong").
- **Find common ground** – Acknowledge any parts you agree with to show respect.
- **Accept differences** – It's okay to disagree; you don't need to "win" the argument.

## Week 11 and 12

**Communication in the workplace**

- **Be polite and professional** – Use good manners.
- **Listen carefully** – Pay attention to instructions, ask questions if unsure, and show you're engaged.
- **Be clear and honest** – Say what you mean, admit if you don't understand something, and avoid guessing.
- **Use positive body language** – Make eye contact, smile, and show interest in what others are saying.
- **Follow workplace rules** – Use phones appropriately, respect confidentiality, and communicate the way the workplace expects.

# Religious Education

| Weeks 1 & 2 | Weeks 3 & 4 | Weeks 5 & 6 | Vocabulary |
|---|---|---|---|

## Socrates:

One of the founding fathers of western philosophy, Socrates has left an indelible mark on the intellectual consciousness of our society. His ideas are recorded by his most famous pupil, Plato.

Socrates' challenged the intellectual and ruling establishment with his philosophy and inspired many young Athenians to question the traditional order of things.

This lead to resentment and anger amongst the rich and powerful of Athens and ultimately to Socrates' arrest, trial and execution for 'corrupting the youth of Athens'.

**Key Terms:**
- **Socratic questioning** – The method of enquiry aiming at discovering a person's basis for their views
- **Sophistry** – a method of argument based on persuasion rather than truth

**Key Quotations:**
*'The only thing that I know, is that I know nothing at all"*
— **Socrates**

## Plato:

One of the most influential philosophers of all time, Plato founded the first university of philosophy (The Academy) in ancient Athens.

As a student and supporter of Socrates, Plato shares many of his mentor's ideas and uses them to develop his own beliefs on the nature of reality, morality, leadership and human nature.

Plato wrote several books that survived to this day, the most significant is *The Republic,* a detailed examination of the creation of an ideal society.

**Key Terms:**
**Realm of the Forms** – A philosophical idea that there are perfect versions of all things (forms) from which all things are derived.
**Democracy** – a system of government in which power is held by the people, who exercise it through free and fair elections and participation in decision-making

**Key Quotations:**
*"The safest general characterisation of the European philosophical tradition is that it consists of a series of footnotes to Plato."*
— **Alfred North Whitehead**,

## Aquinas:

One of the most important Christian scholars in history, Aquinas made a significant impact in formalising and clarifying Christian theology.

Hi work covered a range of topics from the source of morality as observed through nature, the conscience as a tool to guide us towards divine knowledge and the nature of God as described by his divine characteristics

Aquinas also addressed many of the long-standing challenges to the idea of and belief in God.

**Key Terms**:
**Divine Characteristics** – the defined qualities of God including his power, knowledge and beneficence.

**Paradox**– A logic puzzle without an answer

**Key Quotations:**
*"To one who has faith, no explanation is necessary. To one without faith, no explanation is possible."*
— **St. Thomas Aquinas**

## Vocabulary

**Veracity –** the accuracy or truth of a statement

**A priori –** philosophical arguments based on reason

**a posteriori –** the unconditional love manifest as kindness between people

**Perception –** the way in which people observe and understand situations and ideas

**Theology –** philosophy of religion and religious belief

**Ontological arguments –** philosophical arguments on the nature of being or existence

**Deontological arguments -** Ethical arguments on the nature of duty

# Religious Education

**Descartes:**

A French mathematician and philosopher who made staggering contributions to the fields of algebra and geometry.

His philosophical works famously cover the nature of the self, the existence of God and the nature of reality. Additionally he pioneered the use of evidence based arguments in theology.

He is most well-known for his phrase 'I think, therefore I am.' As a way of justifying his own existence in the face of unreasonable doubt.

**Key Terms:**
**Dualism** – the belief that mind and body are two distinct substances.
**Rationalism** – the view that reason is the primary source of knowledge.
**Scepticism** – methodological doubt used to test what can truly be known.

**Key Quotations:**
*"Human life must be respected and protected absolutely from the moment of conception."*
— **Catechism of the Catholic Church (2270)**

---

**Rousseaux:**

Jean-Jacques Rousseau was an influential Enlightenment philosopher who argued that humans are born naturally good, free, and equal, but are gradually corrupted by society, inequality, and oppressive institutions.

He believed that true political authority must come from a **social contract** in which citizens collectively agree to form a community governed by the **general will**—the shared interest of the people as a whole.

Rousseau's ideas inspired later democratic thought and played a major role in shaping modern political philosophy, education theory, and revolutionary movements.

**Key Terms:**
**Social Contract** – the idea that legitimate government is created by the people's collective agreement.
**General Will** – the shared, common interest of the community that should guide laws and decisions.

**Key Quotations:**
"Man is born free, and everywhere he is in chains."
— **Jean-Jacques Rousseau**

---

**John Hick:**

John Hick was a modern Christian philosopher of religion who argued that God allows suffering as part of a "soul-making" process that helps humans develop moral and spiritual maturity.

Influenced by Irenaeus, he taught that humans are created imperfect so they can freely grow into the likeness of God through challenges. Hick also promoted **religious pluralism**, suggesting that no single religion has a monopoly on truth and that different faiths are culturally shaped responses to the same ultimate divine reality.

**Key Terms:**
**Soul-making Theodicy** – the idea that suffering helps develop virtues such as compassion, courage, and empathy.
**Religious Pluralism** – the belief that all major world religions reflect different paths to the same ultimate divine reality.

**Key Quotations:**
*"Flee from sexual immorality… your body is a temple of the Holy Spirit."*
— **1 Corinthians 6:18–19**

---

**Veracity** – the accuracy or truth of a statement

**A priori** – philosophical arguments based on reason

**a posteriori** – the unconditional love manifest as kindness between people

**Perception** – the way in which people observe and understand situations and ideas

**Theology** – philosophy of religion and religious belief

**Ontological arguments** – philosophical arguments on the nature of being or existence
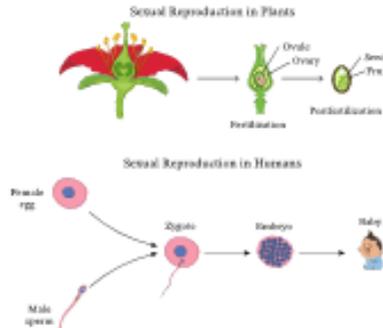
**Deontological arguments** - Ethical arguments on the nature of duty

# Combined Science

## Sexual and asexual reproduction

- **Sexual** – the formation of a new organism by combining the genetic material of **two organisms**, using **meiosis**.
- **Asexual** – reproduction with only **one** parent, using **mitosis.**



- **Gametes –** sex cells; sperm or egg cells.
- **Fertilisation –** the **fusion** of the nucleus of a male gamete with the nucleus of a female gamete.
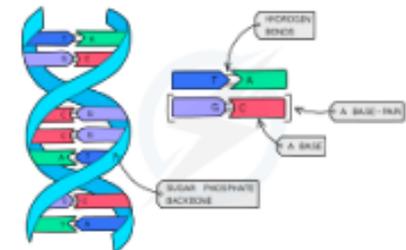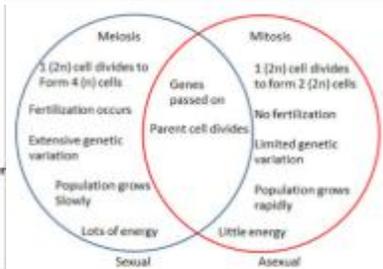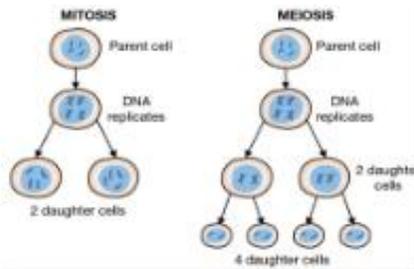


## DNA and the genome
**DNA – deoxyribonucleic acid.** The genetic material inside the nucleus of cells, made up of combinations of **4 bases and a phosphate – sugar backbone.**
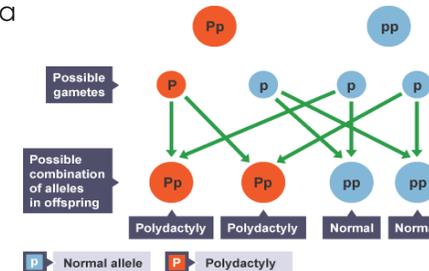
## Gender and inheritance
- **Heterozygous** – a **genotype** where **two alleles** for a particular characteristic are **different.**
- **Homozygous** - a **genotype** in which the **two alleles** for the characteristic are **identical.**
- **Genotype** – An organism's **combination of alleles**
- **Phenotype** – The **characteristics** an organism has

## Genetic disorders
- **Cystic fibrosis** – a r**ecessive genetic disorde**r of the **cell membranes**.
- **Polydactyly** – a **dominant genetic disorder** where a baby's born with **extra fingers or toes**
- **Gene therapy** - **inserting** a **normal allele into the chromosomes** of an individual who carries a **faulty allele.**

## Variation and mutations
- **Variation** – **differences in characteristics** of organisms
- **Mutations** - a **permanent change** in the nucleotide sequence of **DNA**



XY = Male 50% chance
XX = Female 50% chance

|   | E | e |
|---|---|---|
| **E** | EE | Ee |
| **e** | Ee | ee |

Outcome: One is EE (homozygous dominant), two are Ee (heterozygous) and one is ee (homozygous recessive).



## Vocabulary

**Meiosis -** cell division that produces 4 non identical daughter cells, followed by two cell divisions.

**Mitosis** - cell division forming 2 identical daughter cells, followed by one cell division.

**Cytokinesis** - the division of a cell following mitosis or meiosis.

**Haploid -** cells containing one set of chromosomes.

**Diploid -** cells containing two sets of chromosomes.

**Alleles** - two different versions of a gene.

**Dominant** - alleles that are always expressed, whether partnered by a recessive allele or by another like itself.

**Recessive** – alleles that are masked or suppressed in the presence of the dominant variant.

# Combined Science

## Week 3 Inheritance, variation and evolution

- The **fossil record** provides evidence for evolution.
- The **deeper** a fossil is found, the **older** it is likely to be.

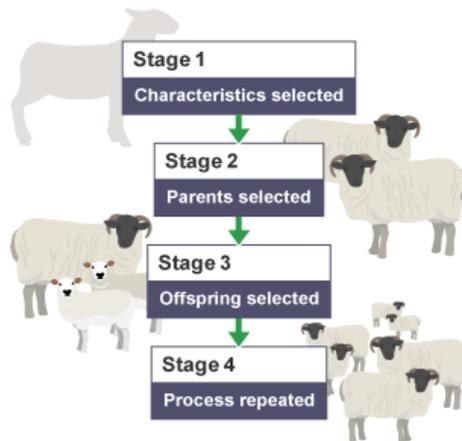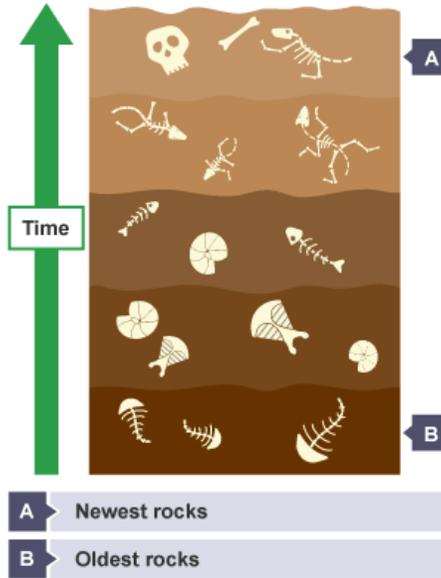### Extinction and endangered species
- **Extinction** – when **no individuals** of a species **remain**
- **Endangered** - if they are not helped, they are **likely to become extinct**
- **Biodiversity** - The range of animals and plants in a given area

### Selective breeding
- **Selective breeding** - when humans breed plants and animals for particular genetic characteristics
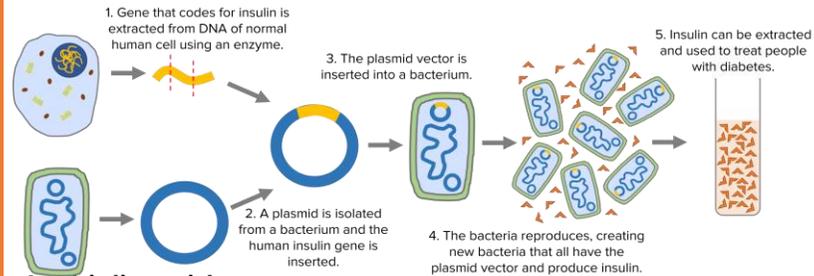
**Desired characteristics in animals**:
•animals that produce **lots of milk or meat**
•**chickens** that lay **large eggs**
•**domestic dogs** that have a **gentle nature**



Time

| A | Newest rocks |
| B | Oldest rocks |

Stage 1 — Characteristics selected
Stage 2 — Parents selected
Stage 3 — Offspring selected
Stage 4 — Process repeated

## Week 4 Inheritance, variation and evolution

### Genetic engineering
- **Examples: Human insulin** from bacteria, **Golden rice** with vitamin A



1. Gene that codes for insulin is extracted from DNA of normal human cell using an enzyme.
2. A plasmid is isolated from a bacterium and the human insulin gene is inserted.
3. The plasmid vector is inserted into a bacterium.
4. The bacteria reproduces, creating new bacteria that all have the plasmid vector and produce insulin.
5. Insulin can be extracted and used to treat people with diabetes

### Antibiotic resistance
- **Antibiotic resistance** – where **bacteria cannot** be **destroyed** by the antibiotic – this is an example of natural selection
- **Antibiotics** – substance that **kills bacteria**
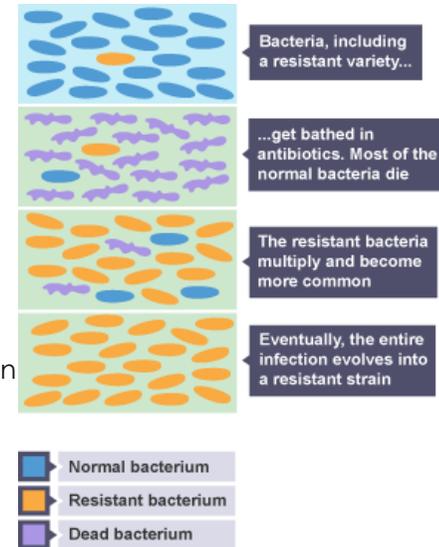
### Evolutionary trees and classification
- **Classification** - Living organisms are classified into **groups depending** on their s**tructure and characteristics.**
- **5 Kingdoms** – Animals, Plants, Fungi, Protists, Prokaryotes
- **3 domain systems** – Bacteria, Archaea and Eukaryotes



Bacteria, including a resistant variety...
...get bathed in antibiotics. Most of the normal bacteria die
The resistant bacteria multiply and become more common
Eventually, the entire infection evolves into a resistant strain

- Normal bacterium
- Resistant bacterium
- Dead bacterium

## Vocabulary

**Evolution** - process of **change in the inherited traits** of a population of organisms **from one generation to the next.**

**Natural selection** - the **best-adapted** individuals **survive** longer, have **more offspring** and **pass on** their **advantageous alleles.**

**Species** - Individuals capable of **interbreeding successfully** to produce **fertile offspring**.

**GE or GM (genetic modification)** - involves **modifying the genome** of an organism by **introducing a gene** from **another organism** to result in a desired characteristic.
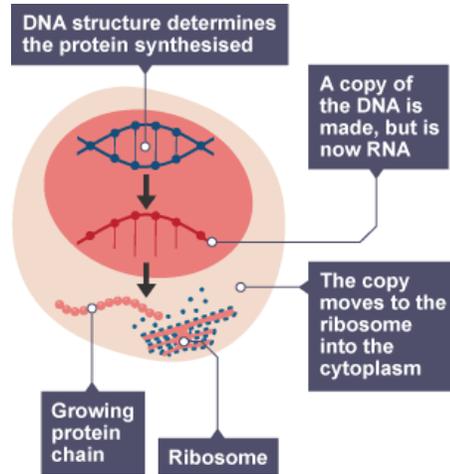
# Triple Science

## Protein synthesis
- **Synthesis** – **combining two** or more **components**

Order of bases on DNA

↓

Order of amino acids

↓

Specific proteins

DNA structure determines the protein synthesised

A copy of the DNA is made, but is now RNA

The copy moves to the ribosome into the cytoplasm

Growing protein chain

Ribosome

## Cloning
**Cuttings** - Part of a plant stem, leaf, or root cut off and used for producing a **new plant.**
**Tissue culture** - the **growth of tissues or cells separate** from an **animal or plant.**

Tissue sample scraped from parent plant

Tissue sample placed in Agar growth medium containing nutrients and auxins

Samples develop into tiny plantlets

Plantlets planted into compost
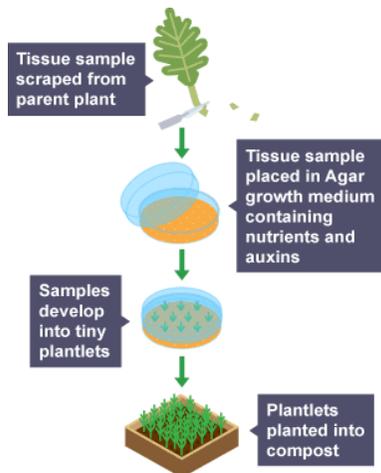
The method for adult cell cloning is:

1. The nucleus is removed from an unfertilised egg cell.

2. The nucleus from an adult body cell, such as a skin cell, is inserted into the egg cell.

3. An electric shock stimulates the egg cell to divide to form an embryo.

4. These embryo cells contain the same genetic information as the adult skin cell.

5. When the embryo has developed into a ball of cells, it is inserted into the womb of an adult female to continue its development.

## Theory of evolution and speciation
- **Darwin** – best known for the **theory of evolution by natural selection.**
- **Wallace** – best known for work on warning colouration in animals and his **theory of speciation.**
- **Lamarck –** best known for his alternative theory of evolution before Charles Darwin.

NO GENE FLOW BETWEEN Ⓐ + Ⓑ
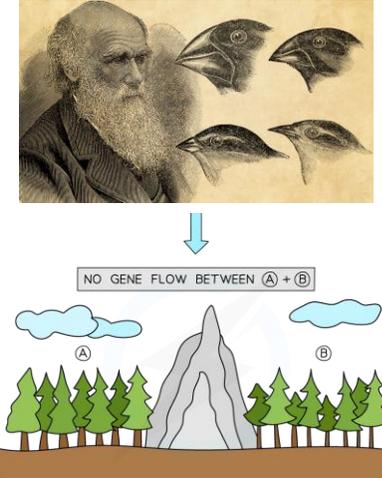
**Natural selection** is driven by **environmental changes.** Some organisms are **better adapted** to new environments as a result of habitat changes and outcompete other organisms for resources.
This results in evolution of surviving species, whilst outcompeted species are more likely to become **extinct.**

## Vocabulary

**Protein** - Organic **compound** made up of **amino acid** molecules.
**Ribosome –** site of protein synthesis in a cell.
**Clones - genetically identical** individuals.
**Speciation** - The formation of **new species** by **natural selection.**
**Classification -** the grouping of living organisms according to shared characteristics.
**Linnaeus -** the scientist who created the Linnaean classification system; Kingdom; Phylum; Class; Order; Family; Genus; Species.
**Woese –** the scientist who proposed the **3 domain** system:
Archaea – a type of prokaryotic cell, which share some characteristics of eukaryotic cells.
Bacteria – prokaryotic cells.
Eukaryota – organisms including fungi, animals, plants and protists.

# Combined Science

## Week 5 Organic chemistry

### Simple Molecular Substances
- Have **low melting points** and **low boiling points** because the intermolecular forces are weak and require **little energy** to be overcome.
- **Don't conduct electricity** because there are no delocalised electrons or ions present.
- Can be compounds such as water, or elements such as oxygen.
- Many covalently bonded elements are **diatomic**, for example $H_2$, $Cl_2$, $O_2$.
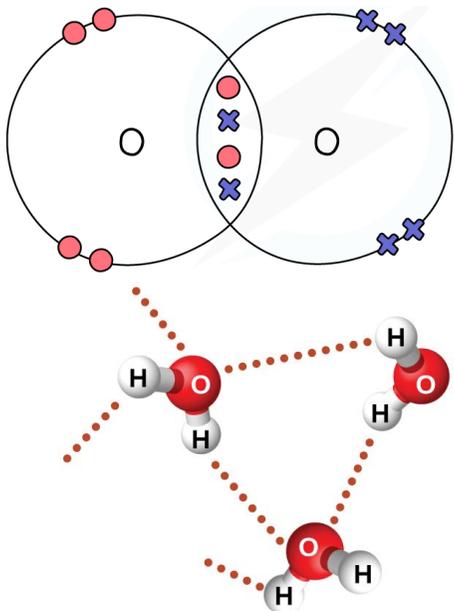
### Giant Covalent Structures
- Exist as **giant lattices.**
- Have **high melting points** and **high boiling points** since lots of energy is needed to break lots of covalent bonds.
- **Do not conduct electricity** (except graphite).
- **Diamond, graphite** and **graphene** are examples of giant covalent structures and are all allotropes of carbon.
- **Silicon dioxide** is an example of a giant covalent compound. It is largely what sand is made of; used to make glass.

## Week 6 Organic chemistry

### Combustion of Hydrocarbons
**Complete combustion**:
- **excess** of oxygen
- produces **water** and **carbon dioxide**
- transfers a lot of energy

**Incomplete combustion:**
- **limited** oxygen
- produces **water**, **carbon dioxide**, **carbon monoxide** and **carbon**
- transfers little energy

### Air pollution

| Pollutant | Formation | Effects |
|-----------|-----------|---------|
| Carbon monoxide | Incomplete combustion of fossil fuels | Prevents haemoglobin carrying oxygen |
| Soot | | Respiratory problems Global dimming |
| Sulfur dioxide | Oxidation of sulfur impurities in fossil fuels | Acid rain Respiratory problems |
| Oxides of nitrogen | Oxidation of nitrogen in car engines | |

**Crude oil** is a **finite** resource. It is the remains of organisms that lived and died millions of years ago - mainly plankton which was buried in mud.
It is an important source of:
- fuels
- feedstock for petrochemical industry
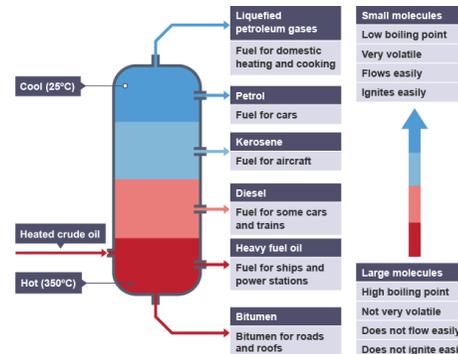
## Vocabulary

**Covalent bond** – a pair of electrons shared between 2 atoms.

**Molecule** – any particle which is covalently bonded.

**Hydrocarbon** – compound made up of carbon and hydrogen atoms only.

**Saturated** – a hydrocarbon containing no carbon carbon double bonds.

**Unsaturated** – a hydrocarbon containing a carbon double bond.

**Fractional Distillation** - a process used to separate the different **hydrocarbons** found in crude oil according to their boiling points.

**Catalytic cracking** – a process used to break long chain hydrocarbons down into shorter chain, more easily combustible ones.

89

# Combined Science

## Week 7 Rates of reaction

### Rate and Collision Theory
For a chemical reaction to happen:
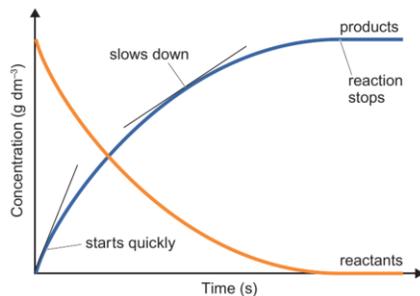- Reactants must collide.
- Particles must have enough energy to react.

The greater the **frequency** of **successful collisions**, the greater the rate of reaction.



### Factors Affecting Rate of Reaction
**Increasing temperature:**
- Particles move faster increasing the frequency of collisions
- Particles have more energy, so a greater proportion of collisions are successful.

**Increasing Concentration:**
- More particles in the same volume therefore more frequent collisions.

**Increasing pressure:**
- Less volume therefore less space between particles causing more frequent collisions.
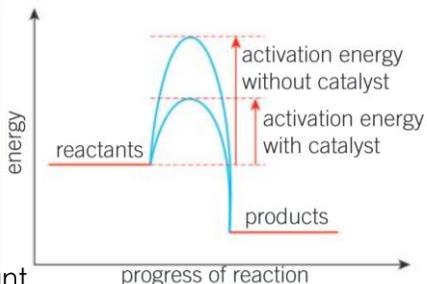
**Increasing surface area:**
- Greater amount of reactant exposed leading to more frequent collisions.

### Catalysts
**Catalyst –** a substance that increases the rate of a reaction by **decreasing the activation energy.**

Catalysts are not used up in a reaction.

An example is the use of **iron in the Haber process.**



## Week 8 Rates of reaction

### Reversible Reactions
Reversible reactions are represented by the symbol $\rightleftharpoons$.
e.g.

$$A + B \rightleftharpoons C + D$$
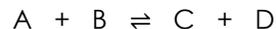
In a reversible reaction:
- In the **forward reaction**, A and B react to form C and D.
- In the **backward reaction**, C and D react to form A and B.
- If the forward reaction is **exothermic**, the backward reaction is **endothermic**.
- If the forward reaction is **endothermic**, the backward reaction is **exothermic.**
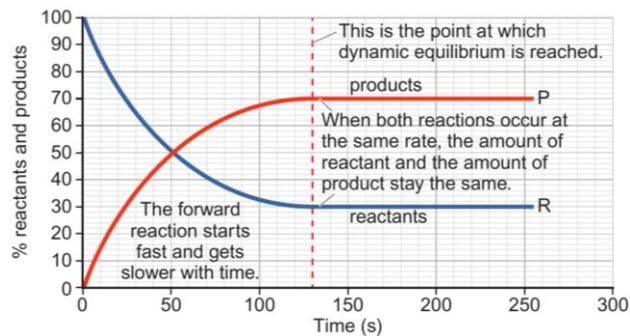


| Condition change | | Equilibrium shift |
|---|---|---|
| Temperature | Increases | Favours the endothermic direction |
| | Decreases | Favours the exothermic direction |
| Pressure | Increases | Favours the side with fewest molecules |
| | Decreases | Favours the side with most molecules |
| Concentration of reactants | Increases | Favours the forward reaction |
| | Decreases | Favours the backward reaction |
| Concentration of products | Increases | Favours the backward reaction |
| | Decreases | Favours the forward reaction |

## Vocabulary

**Precipitation reaction** – a reaction between 2 solutions in which an **insoluble solid** (the precipitate) forms.

**Closed system -** a reaction set up using equipment that will not allow any reactants or products to escape.

**Dynamic Equilibrium** – the state at which the rates of the forward and backward reactions are equal. The concentration of the reactants and products remain constant.

**Le Chatelier's Principle -** when a change in the conditions of a system at dynamic equilibrium changes, the system responds to counteract the change.

# Combined Science

## Week 9 Consolidation

**Revision and assessment**

KEYWORDS

**INDEPENDENT VARIABLE** What I CHANGE

**DEPENDENT VARIABLE** What I OBSERVE

**CONTROLLED VARIABLE** What I KEEP THE SAME

Re-Read

Steps to success:
- Attempt all questions
- Write out calculations and give units
- Plot data with crosses
- 1 mark per minute
- Plan your 6 mark questions before you write
- Give, give, want when using mathematical formulae
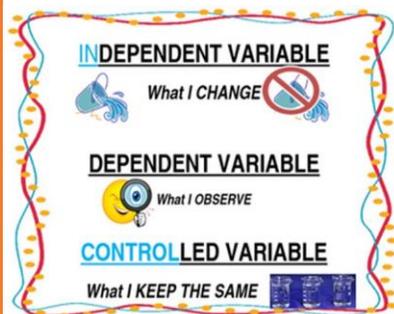- If it states tick one box, then only tick one box – Guess if you are unsure
- HUG the question (Highlight the command words, underline keywords and glance at the number of marks)
- Keep writing until you see end of questions

Use BBC bitesize to make mind maps and test yourself using the quizzes.

**BITESIZE**

## Week 10 PPE

**Preparing for AQA paper 1 Biology Combined science.**
Topic 1: Cell Biology
Topic 2: Organisation
Topic 3: Infection and response
Topic 4: Bioenergetics

**Preparing for AQA paper 1 Chemistry Combined science.**
Topic 1: Atomic structure and the Periodic table
Topic 2: Bonding, structure and the properties of matter
Topic 3: Quantitative chemistry
Topic 4: Chemical changes
Topic 5: Energy changes

**Preparing for AQA paper 1 Physics Combined science.**
Topic 1: Energy
Topis 2: Electricity
Topic 3: the particle model of matter
Topic 4: Atomic structure

Each paper carries 70 marks and you will have 1 hour and 15 minutes to complete each.

**All of the above topics also apply to Triple science, but involve extra content within some topics.**

Triple science papers carry 100 marks each and you will have 1 hour and 45 minutes to complete each.

## Vocabulary

**Control variables –** kept the same to achieve valid results
**Independent variable –** the variable you change; the variable being investigated
**Dependent variable -** the variable you measure; the variable affected by changes to the independent variable
**Equipment –** specific to the task; a balance for finding mass; a measuring cylinder for measuring volumes
**Results/repeats -** dependent variable data should be gathered at least three times to confirm reproducibility, anomalies removed and a mean calculated

# Combined Science

**Preparing for AQA paper 1 Biology Combined science- required practicals**
Topic 1: Microscopy and Osmosis
Topic 2: Enzymes and Food tests
Topic 4: Light intensity and the rate of photosynthesis

**Additional Triple science Biology required practicals:**
Topic 1: Microbiology

**Preparing for AQA paper 1 Chemistry Combined science - required practicals**
Topic 1: Making a soluble salt
Topic 4: Electrolysis
Topic 5: Temperature changes

**Additional Triple science Chemistry required practicals:**
Topic 1: Neutralisation

**Preparing for AQA paper 1 Physics Combined science.**
Topic 1: Specific heat capacity
Topic 2: Resistance and IV characteristics
Topic 3: Density

**Additional Triple science Physics required practicals:**
Topic 1: Thermal insulation

## What Went Well?



You've completed your assessment, what next?
1. Review – what were your strengths and weaknesses?
2. Reflect – what could you have done differently in you preparation?
3. Improve – act to address your weaknesses and implement improvements for next time!

## Even Better If...

**When completing calculations:**
**In Physics**, identify the key terms in the question and use them to identify the relevant equation on your equation sheet.
**In Biology and Chemistry** you will need to recall the equations if not given to you in the question.
**Identify the variables –** use 'give, give, want' to clarify what data you are calculating and what data you know.
**Check for unit conversions –** make sure the units are consistent. For example, if calculating density in $Kg/m^3$, the mass needs to be in Kg and the volume in $m^3$.
**Show your working –** a correct answer alone will only get 1 mark.

| 1. Time frame | 2. 'I' form of a verb | 3. we/ he/ she verb form | 4. Negation | 5. Conjunctions | 6. Justified opinion |
|---|---|---|---|---|---|
| **at the weekends** - los fines de semana<br><br>**on Thursdays** - los jueves<br><br>**when I am on holiday-** cuando estoy de vacaciones<br><br>**when I am relaxing** – cuando estoy descansando<br><br>**if it is cold** - si hace frío<br><br>**when I was inMexico** – cuando estaba en México<br><br>**in summer** - en verano<br><br>**in winter** - en invierno | **I am** – soy<br>**I have** – tengo<br>**I go / I am going** – voy<br>**I want** – quiero<br>**I do** - hago<br><br>**I did** – hice<br>**I went** - fui<br>**I saw** – vi<br>**I liked** – me gustó/ aron<br><br>**I will go** – iré<br>**I will watch** - veré | **he / she goes** - va<br>**we go** – vamos<br><br>**he/ she went** - fue<br>**we went** – fuimos<br><br>**It was** – era / fue<br><br>**he / she will go** – irá<br>**we go** – iremos<br><br>**it will be** - será<br><br>**there was** - había | **not / don't** – no<br>**nobody** – nadie<br>**no /none /not any** – ningún/a<br><br>Examples:<br>There is nobody at home – **No** hay **nadie** en casa<br><br>I **didn't** buy **any** flowers – **no** compré **ninguna** flor | **that's to say** – es decir<br><br>**specifically** – en concreto<br><br>**despite** – a pesar de<br><br>**even so** – aún así<br><br>**above all** – sobre todo<br><br>**not only… but also** – no solo … sino también<br><br>**because** – puesto que | **an advantage is that** – una ventaja es que<br>**a disadvantage is that** – una desventaja es que<br><br>**because** – ya que<br><br>**s/he says that** – dice que<br>**s/he told me that** – me dijo que<br>**according to** – según<br>**s/he would say that** – diría que |

| 7. Contrasting opinion | 8. Comparative | 9. Superlative phrase | 10. Additional tense | 11. WOW-phrase | 12. Proofread for …. |
|---|---|---|---|---|---|
| Examples:<br><br>My aunt likes Greece **because** it's very historic **even so** my cousin doesn't like it **because** <u>according to him</u> it is not interesting.<br><br>A mi tía le gusta Grecia **ya que** es muy histórica **aún así** a mi primo no le gusta **puesto que** <u>según él</u> no es interesante. | **more…than** – más…que<br><br>**as …as** – tan…como<br><br>**less..than** – menos…que<br><br>**better than** – mejor que<br><br>**worse than** – peor que<br><br>Examples:<br>WhatsApp is **better than** SnapChat – WhatsApp es **mejor que** SnapChat<br><br>The hotel was **more** luxurious **than** the campsite – El hotel era **más** lujoso **que** el camping | **what I like the most** – lo que más me gusta<br><br>**what I like the least** – lo que menos me gusta<br><br>**the best thing** - lo mejor<br><br>**the worst thing** - lo peor<br><br>Examples:<br>**What I like the most** is sunbathing– **lo que más me gusta es** tomar el sol<br><br>**What I like the least is** travelling by boat – **lo que menos me gusta es** viajar en barco. | **In fact yesterday …** -<br>de hecho ayer…+ preterite tense<br><br>**although when I was younger…** -<br>aunque cuando era más joven… + imperfect tense<br><br>**however tomorrow…**<br>sin embargo mañana … + future tense<br><br>**although when I am older …**-<br>no obstante cuando sea mayor + pure future | **If I were millionaire** – Si fuera millonario/a + conditional (I would)<br><br>**If I were more** – si fuera más + conditional (I would)<br><br>**If I had more** – si tuviera más + conditional (I would)<br><br>I am thinking of – pienso + infinitive verb<br><br>**I fancy (doing something)** – tengo ganas de + infinitive verb | • Repetition<br>• Missing accents(**SP**)<br>• Missing words (**^**)<br>• Spelling errors (**SP**)<br>• Adjective agreement (**A**)<br>• Syntax errors (**WO**)<br>• Verb agreement (**VP**)<br>• Tense agreement (**VT**)<br>• Tenses match time frame (**WW**)<br>• Vocabulary errors (**WW**)<br>• Included all features of the Twelve-Point Check |

## Classroom language

| Español | Inglés |
|---|---|
| ¿Cómo se dice…. en español/inglés? | How do you say… in Spanish/ English? |
| ¿Cómo se escribe…? | How do you spell…? |
| ¿Cómo se pronuncia? | How do you pronounce (it)? |
| ¿Me das …. ? | Can you give me…? |
| ¿Puedes repetir? | Can you repeat that? |
| ¿Puedo ir a mi clase de música? | Can I go to my music class? |
| (No) entiendo | I (don't) understand |
| Lo siento | I'm sorry |
| (Casi) he terminado | I have (almost) finished |
| por favor | please |
| gracias | thank you |
| **Objetos en la clase** | **Classroom objects** |
| un bolígrafo | a pen |
| una regla | a ruler |
| un rotulador florecente | a highlighter |
| un cuaderno | an exercise book |

## Describing the weather

| Hoy… | Today … |
|---|---|
| hace sol | it's sunny |
| hace frío | it's cold |
| hace calor | it's hot |
| hace viento | it's windy |
| hace buen tiempo | it's good weather |
| hace mal tiempo | it's bad weather |
| llueve | it's raining |
| nieva | it's snowing |
| hay nubes | it's cloudy |

**Saying what the weather is like today:**
**Hoy hace sol y no** hace mal tiempo **pero** hay nubes.

## Days and dates

| Hoy es… | Today is... |
|---|---|
| lunes | Monday |
| martes | Tuesday |
| miércoles | Wednesday |
| jueves | Thursday |
| viernes | Friday |
| sábado | Saturday |
| domingo | Sunday |
| | |
| enero | January |
| febrero | February |
| marzo | March |
| abril | April |
| mayo | May |
| junio | June |
| julio | July |
| agosto | August |
| septiembre | September |
| octubre | October |
| noviembre | November |
| diciembre | December |

Saying the date:
**Hoy es** lunes, veintidós **de** septiembre **de** dos mil veinticinco.

## Los números

1. uno
2. dos
3. tres
4. cuatro
5. cinco
6. seis
7. siete
8. ocho
9. nueve
11. diez
11. once
12. doce
13. trece
14. catorce
15. quince
16. dieciséis
17. diecisiete
18. dieciocho
19. diecinueve
20. veinte
21. veintiuno
22. veintidós
23. veintitrés
24. veinticuatro
25. veinticinco
26. veintiséis
27. veintisiete
28. veintiocho
29. veintinueve
30. treinta
31. treinta y uno

## The alphabet

| letter | Sounds like |
|---|---|
| a | c**a**t |
| b | beh |
| c | theh |
| d | deh |
| e | eh like **e**gg |
| f | effeh |
| g | heh |
| h | atcheh |
| i | ee |
| j | hota |
| k | kah |
| l | eleh |
| m | emeh |
| n | eneh |
| ñ | enyeh |
| o | l**o**t |
| p | peh |
| q | koo |
| r | erreh |
| s | esseh |
| t | teh |
| u | oo |
| v | oobeh |
| w | oobeh dobleh |
| x | eh kis |
| y | ee gri egah |
| z | theta |

# Spanish

## Free time Activities

| Words you may have forgotten! ||
|---|---|
| levantarse | to get up |
| me levanto | I get up |
| vestirse | to get dressed |
| me visto | I get dressed |
| tomar el desayuno | to have breakfast |
| tomar el almuerzo | to have lunch |
| tomar la merienda | to have a snack |
| tomar la cena | to have dinner/tea |
| volver | to return |
| vuelvo | I return |
| tomar un descanso | to have a break |
| hacer ejercicio | to do exercise |
| hacer deporte | to do sport |
| acostarse | to go to bed |
| me acuesto | I go to bed |
| dormir | to sleep |
| duermo | I sleep |
| a la una | at 1 o'clock |
| a las dos/ tres | at 2/3 o'clock |
| a la una y media | at half past 1 |
| a las dos menos cuarto | at quarter to 2 |
| primero | first |
| luego | then |
| después | after that |
| antes | before that |
| en seguida | right away |
| más tarde | later |
| más temprano | earlier |

## Sports

| Sports - Deportes ||
|---|---|
| los artes marciales | martial arts |
| el baloncesto | basketball |
| la bicicleta | bicycle |
| el ciclismo | cycling |
| el deporte | sport |
| el equipo | team |
| el fútbol | football |
| la natación | swimming |
| la piscina | swimming pool |
| el tenis | tennis |
| el vóleibol | volleyball |
| jugar | to play |
| hacer | to do |
| el gimnasio | gym |

| Words you may have forgotten! ||
|---|---|
| correr | to run |
| ganar | to win |
| pasear / caminar | to go for a walk |
| luchar | to fight |
| bañar | to swim/ bathe |
| el baloncesto | basketball |
| el baile | dance |
| un equipo | a team |
| un jugador | a player |
| un partido | a match |
| el estadio | the stadium |

## Cinema & Music

| Los pasatiempos | Free time activities |
|---|---|
| ir de compras | to go shopping |
| ir al cine / al parque | to go to the cinema / park |
| ir a la piscina | to go to the pool |
| montar a caballo | to ride a horse |
| montar en bicicleta | to ride a bike |
| cantar | to sing |
| ver la televisión | to watch tv |
| escuchar música | to listen to music |
| bailar | to dance |
| leer libros | to read books |
| hacer los deberes | to do homework |
| hacer deporte | to do sport |
| usar mi móvil | to use my mobile |
| escribir correos | to write letters |
| salir con amigos | to go out with friends |
| tocar un instrumento | to play an instrument |
| no hacer nada | to do nothing |
| jugar a los videojuegos | to play videogames |
| un anuncio | an advert |
| las películas | films |
| un documental | a documentary |
| una serie | a series |
| un espectáculo | a show |
| un concierto | a concert |
| una comedia | a comedy |
| las noticias | the news |
| una revista | a magazine |
| una obra | a play |
| la pantalla | the screen |
| un personaje | q character |

# Spanish

| Technology | Revising The Environment | Revising Jobs & Future Plans |
|---|---|---|

## Technology

### Topic specific language

| | |
|---|---|
| mandar / enviar | to send |
| subir | to upload |
| compartir | to share |
| grabar | to record |
| correos electrónicos | emails |
| redes sociales | social media |
| ordenador | computer |
| Compras en linea | Online shopping |
| una pérdida de tiempo | a waste of time |
| lento | slow |
| en directo | live |
| auriculares | headphones |
| contraseña | password |
| tableta | tablet |
| móvil | mobile phone |
| chatear | to chat online |
| conctarse | to connect |
| publicar | to post/publish |
| aprovechar | to take advantage of |
| usuario/a | user |
| un sitio web | a website |
| una red | a network |
| medios sociales | social media |
| un riesgo | a risk |
| bajar | to download |
| seguridad | security |

## Revising The Environment

### El Medio Ambiente

| | |
|---|---|
| Tengo derecho a… | I have the right to… |
| la educación | education |
| la libertad de expresión | freedom of expression |
| un medio ambiente sano | a healthy environment |
| No puedo… | I cannot… |
| dar mi opinión | give my opinion |
| salir solo/a | go out alone |
| dormir | sleep |
| tengo que ganar dinero | I have to earn money |
| hay mucha violencia | there is a lot of violence |
| tengo que trabajar | I have to work |
| no es justo porque… | It isn't fair because… |
| Para proteger el medio ambiente, | In order to protect the environment, |
| Se debería… | You/We should… |
| ahorrar energía | to save energy |
| apagar la luz | turn off the light |
| conservar el agua | save water |
| ir en bici(cleta) | go by bike |
| reciclar el papel / el plástico / el vidrio | recycle paper / plastic / glass |
| No se debería… | You/We shouldn't… |
| tirar la basura al suelo | throw rubbish on the ground |
| usar bolsas de plástico | use plastic bags |

## Revising Jobs & Future Plans

### Jobs

| | |
|---|---|
| ¿En qué trabajas? | What is your job? |
| trabajar | to work |
| un trabajo/empleo | a job |
| un trabajo a tiempo parcial | a part-time job |
| una carrera | a career |
| soy / es | I am / he/she is |
| me gustaría ser | I would like to be |
| me interesa ser | I'm interested in being |
| cantante | singer |
| escritor(a) | writer |
| amo/a de casa | housewife/ husband |
| médico | doctor |
| profesor(a) | teacher |
| jefe / jefa | boss |
| en paro | unemployed |

### Places of work

| | |
|---|---|
| una compañía | a company |
| una empresa | business |
| al extranjero | abroad |
| una oficina | an office |

### Work experience

| | |
|---|---|
| experiencia laboral | work experience |
| prácticas laborales | work experience |
| hice | I did |
| trabajé | I worked |
| mis compañeros | my colleagues |
| en equipo | in a team |
| una pérdida de tiempo | a waste of time |

# Spanish

## Essentials!

| Past | |
|---|---|
| fui | I went |
| vi | I saw/watched |
| fue/era | it was |
| había | there was/ were |
| lo pasé bomba | I had a blast |
| **Future** | |
| iré | I will go |
| veré | I will see/ watch |
| visitaré | I will visit |
| será | it will be |
| habrá | there will be |
| **Describing what's happening** | |
| está(n) hablando | he/she is (they are) talking |
| está(n) sonriendo | he/she is (they are) smiling |
| **Present** | |
| voy | I go |
| hay | there is / are |
| (no) me gusta | I like |
| (no) le gusta | s/he likes |
| **Question words** | |
| qué | what |
| cómo | how |
| por qué | why |
| dónde | where |
| adónde | where to |
| de dónde | from where |
| cuándo | when |
| cuánto/a | how much |
| cuántos/as | how many |
| cuál | which |
| quién | who |
| a qué hora | at what time |

## Revision for PPEs

| Revision of School | |
|---|---|
| alumno | pupil |
| asignatura | subject |
| colegio | school |
| deberes | homework |
| director(a) | headteacher |
| escuela primaria | primary school |
| estudiante | student |
| examen | exam |
| instituto | secondary school |
| libro | book |
| regla | rule |
| fácil | easy |
| sacar buenas notas | to get good grades |
| sacar malas notas | to get bad grades |
| intercambio | exchange |
| presión | pressure |
| prueba | class test |
| enseñar | to teach |
| se me da bien (el español) | I am good at (Spanish) |
| se me da mal ... | I am bad at … |

| My personal revision list | |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |

## Interpersonal Relationships

| Talking about relationships | |
|---|---|
| apoyar | **to support** |
| conocer | to meet/ know |
| dar consejos | to give advice |
| hacer reír | to make laugh |
| criticar | to criticize |
| juzgar | to judge |
| divertirse | to have fun |
| casarse | to get married |
| pelearse | to fight |
| parecerse | to seem |
| llevarse bien/mal | to get on well/ badly |
| **Conjugating reflexive verbs** | |
| me llevo | I get on |
| te llevas | you get on |
| se lleva | he/she gets on |
| nos llevamos | we get on |
| os lleváis | you(pl) get on |
| se llevan | they get on |
| **Negation** | |
| no … nada | not at all |
| no ... nunca | never |
| no … jamás | never ever |
| no ... ni ... ni | neither… nor… |
| no ... tampoco | neither |
| no ... ningún(a) | none |
| no ... nadie | no one |

# Spanish

## Relationships

### Talking about relationships

| | |
|---|---|
| concocer | to meet/to know |
| encontrar | to find |
| buscar | to search for |
| abrazar | to hug |
| chatear | to chat online |
| lograr | to achieve |
| discutir | to argue |
| desarrollar | to develop |
| compartir | to share |
| casarse | to get married |
| besar | to kiss |
| amar | to love |
| respetar | to respect |
| confiar | to trust/rely on |
| reírse | to laugh |
| novio/a | boyfriend/girlfriend |
| una cita | a date |
| un beso | a kiss |
| la pasión | passion |
| la confianza | confidence/trust |
| pareja | couple |
| el amor | love |
| hombre/mujer | man/woman |
| fiel | faithful |
| comportamiento | behaviour |
| la felicidad | happiness |

## Preparing for the Speaking PPE

### Travelling

| | |
|---|---|
| Quisiera reservar | I want to reserve |
| alquilar | to rent |
| comprar | to buy |
| un billete de ida | a single ticket |
| un billete de ida y vuelta | a return ticket |
| ¿A qué hora sale? | When does it leave? |
| salir | to leave/ depart |
| llegar | to arrive |
| salida | departure |
| llegada | arrival |
| la sala de espera | the waiting room |
| destino | destination |
| al lado de la ventana | next to the window |
| el horario | the timetable |

### Eating out

| | |
|---|---|
| una mesa | a table |
| para … personas | for.. People |
| a las… | at … o'clock |
| Quisiera sentarme… | I would like to sit… |
| en la terraza | on the terrace |
| Quisiera tomar… | I would like to have |
| tener sed | to be thirsty |
| tener hambre | to be hungry |
| la cuenta | the bill |

### In the shops

| | |
|---|---|
| ¿Cuánto cuesta(n)? | How much does it/ they cost? |
| cuesta … euros | it costs ... Euros |
| ¿Puedo probar…? | Can I try...? |
| La talla | The size |
| Quisiera cambiar | I would like to change |
| es/son demasiado… | it is/ they are too... |

## Preparing for the Speaking PPE

### The role play – key verbs

| | |
|---|---|
| quisiera | I would like |
| pagar | to pay |
| sentarse | to sit |
| devolver | to return (an item) |
| volver | to return |
| quedarse/ alojarse | to stay |
| comprar | to buy |
| quejarse | to complain |
| cerrar | to close |
| abrir | to open |
| abre | it opens |
| cierra | it closes |
| empezar/ comenzar | to start |
| terminar/ acabar | to finish |
| empieza / comienza | it starts |

### The role play – key vocab

| | |
|---|---|
| tamaño / talla | size |
| intercambio escolar | school exchange |
| viaje | journey |
| almuerzo/ comida | lunch |
| cena | dinner |
| datos de contacto | contact details |
| fecha | date |
| paga | pay |
| número | Number |
| entrada | ticket (entry) |
| tarjeta | card |
| nombre | name |
| horario | timetable |
| vuelo | flight |