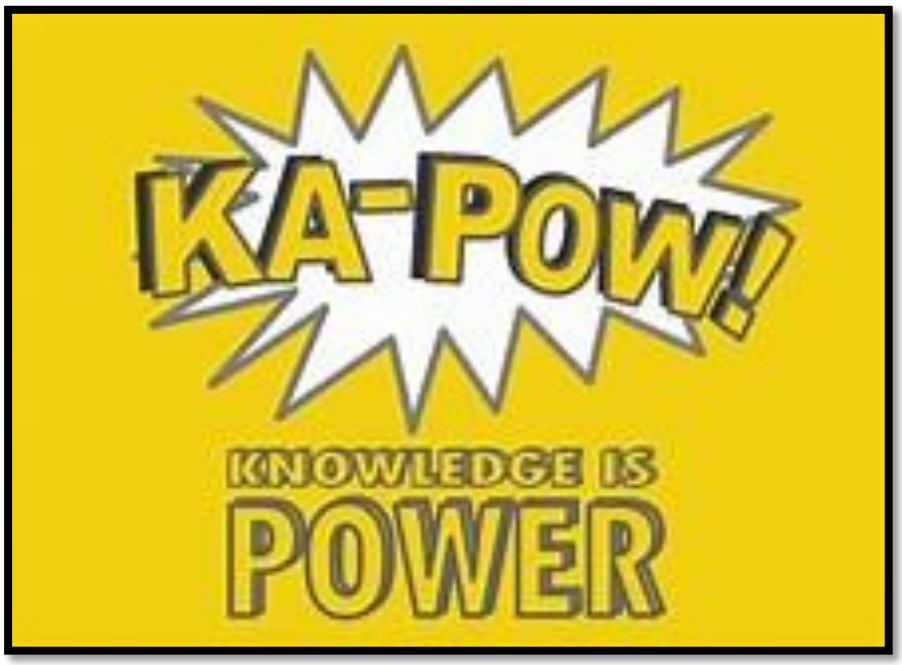
Year 9

Knowledge Organiser Booklet

Half Term 6



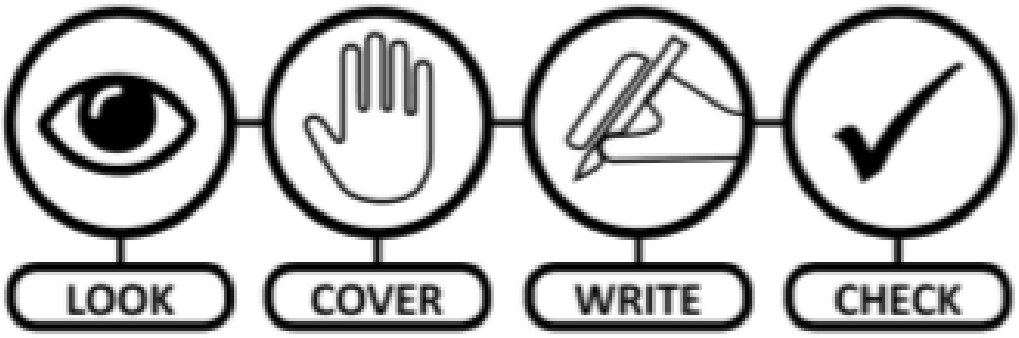
Name

Self-Quizzing Book

Knowledge organisers contain **critical** knowledge you must know. They will help **you remember more** and learn complex information and concepts. Using knowledge organisers will make you more successful in your subjects.

You need to bring your knowledge organiser booklet and self-quizzing book with you **every day**.

For homework you will be asked to self-quiz using your knowledge organisers. You will do this in this book using look, cover, write, check.



Look: Spend a small amount of time reading a section of the knowledge organiser and trying to memorise the content.

Cover: Cover up that section of your knowledge organiser.

Write: In your self-quizzing book, write out the information you have tried to memorise from the knowledge organiser.

Check: Uncover the section of your knowledge organiser and check every word, including spellings. Make any corrections using a **green pen**. If it is all correct, tick what has been written.

Repeat this process until **one whole page** of your self-quizzing book is full, with **no whole lines left empty**.

Respect **Resilience** **Responsibility**

Expectations

You should be proud of the work you produce and how hard you have worked.

There should be no wasted space on each page.

No whole lines should be left empty.

Corrections should be made in a **green pen**.

Example

Subject, underlined

Date in full, underlined

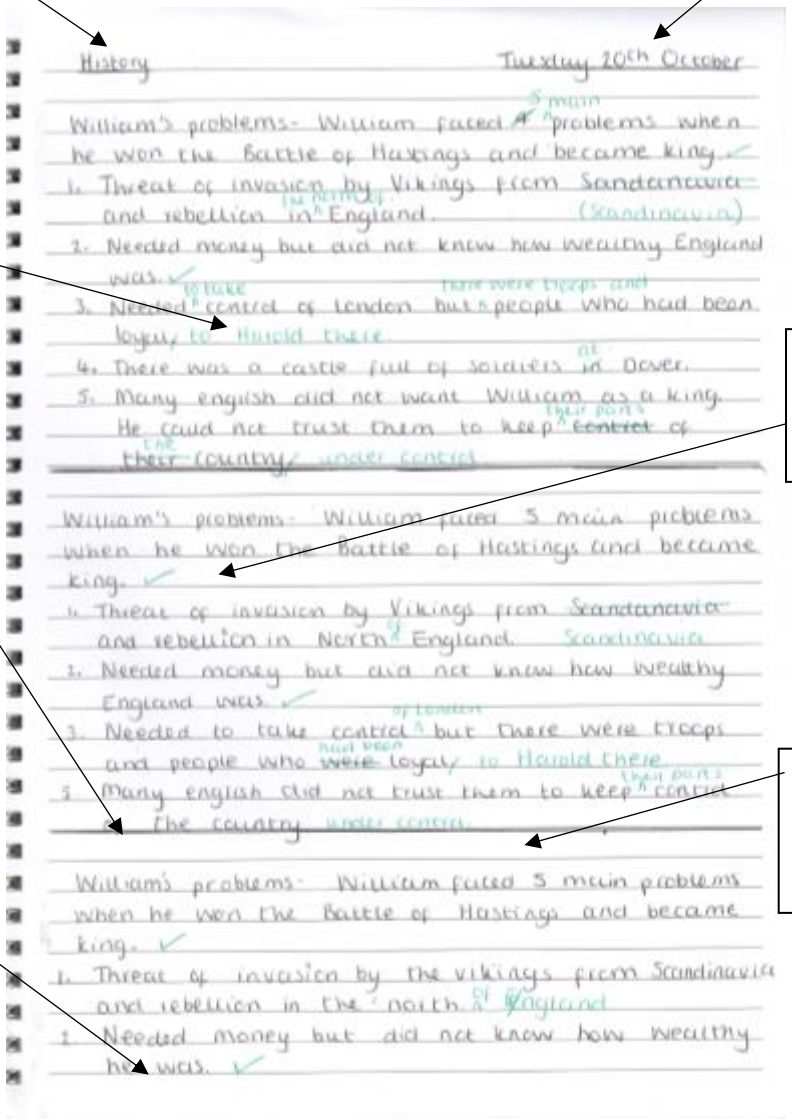
Corrections made in green pen.

Each line checked and ticked if correct.

Solid black line after each attempt

No whole lines left empty except between repeats.

Repeat until the whole page is full



History — Tuesday 20th October

William's problems- William faced 5 main problems when he won the Battle of Hastings and became king. ✓

1. Threat of invasion by Vikings from Scandinavia and rebellion in N England.
2. Needed money but did not know how wealthy England was. ✓
3. Needed control of London but people who had been loyal to Harold there
4. There was a castle full of soldiers in Dover.
5. Many english did not want William as a king. He could not trust them to keep control of their county.

William's problems- William faced 5 main problems when he won the Battle of Hastings and became king. ✓

1. Threat of invasion by Vikings from Scandinavia and rebellion in North England.
2. Needed money but did not know how wealthy England was. ✓
3. Needed to take control but there were troops and people who were loyal to Harold there
5. Many english did not trust them to keep control of the county.

William's problems- William faced 5 main problems when he won the Battle of Hastings and became king. ✓

1. Threat of invasion by the vikings from Scandinavia and rebellion in the north of England
2. Needed money but did not know how wealthy he was. ✓

Respect **Resilience** **Responsibility**

Year 9 Knowledge Organiser

ART

Watch Peter Capaldi explain Surrealism: https://youtu.be/uPD6okhfGzs

SURREALISM

a 20th-century avant-garde movement in art and literature which sought to release the creative potential of the unconscious mind, for example by the irrational juxtaposition of images.

Collage describes both the technique and the resulting work of art in which pieces of paper, photographs, fabric and other ephemera are arranged and stuck down onto a surface.

Key artists
Andre Breton
Salvador Dali
Max Ernst
Rene Magritte
Joan Miro
Man Ray

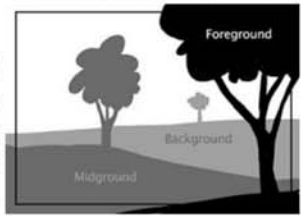
Key features of surreal painting:
Wrong Place
Wrong Scale
Juxtaposition of imagery
Merging of objects
Playful,
Strang, Bizarre placement/arrangement/juxtaposition of objects/imagery

SPACE

Space, as one of the classic formal elements of art, refers to the **distances or areas around, between, and within a piece of art.** Space can be **positive** or **negative**, open or **closed, shallow or deep,** and two-dimensional or three-dimensional.

Sometimes space isn't explicitly presented (shown) within a piece, but the illusion of it is.

One way to show space in an artwork is to show things in the **foreground (closest)** to the front, middle ground and background (furthest away).



A tree may be large because it is in the foreground while the mountains in the distance are quite small (background). Though we know in reality that the tree cannot be larger than the mountain, this use of **size gives the scene perspective** and develops the impression of **space and distance** (depth of field).

Cropping images Composition

Cropping means to remove parts of the image, often in the digital stage. When sketching/ taking photos, its important to consider space. Space will make your work more interesting. (The bird is moving into space).

COMPOSITION IN ART

In **3D art**, **negative spaces** are typically the **open** or relatively **empty** parts of the piece.

For example, a metal **sculpture** may have a hole in the middle, which we would call the **negative space.**

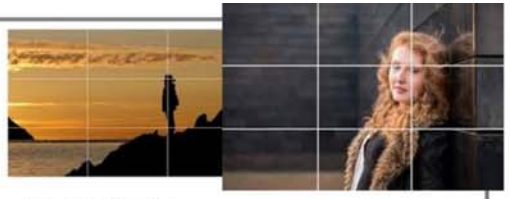
Barbara Hepworth (Pelagos, 1946)

Henry Moore used such spaces in his freeform sculptures such as *Recumbent Figure in 1938, and 1952's Helmet Head and Shoulders.*

French artist Henri Matisse used flat colours to create spaces in his Red Room (Harmony in Red), 1908.

LEADING LINES

Draw the **viewer's eye** towards a **specific point of interest.** Edvard Munch painted The Scream in 1893. Lines in his painting draw the viewers eyes around the work.



RULE OF THIRDS

Negative space is a key element in many pieces of work. A composition is **offset to one side or the top or bottom**. A Rule of Thirds grid can help line up things of interest in your work.

This can be used to **direct the viewer's eye**, **emphasize a single element** of the work, or imply **movement.**

Year 9 DT

Make sure you memorise ACCESSFM, and use this to analyse 3 products in your Kitchen.

Design Strategies

You can use design strategies to come up with initial design ideas without getting you on a bad one. Designing is a really complex process and there are several different ways of doing it:

User-Centred design: The wants and needs of the client are prioritised- their thoughts are given a lot of attention at every stage of design and manufacture

When you are designing a product it is easy to get stuck on a particular idea. This is called design fixation and it can stop you thinking creatively and coming up with innovative ideas.

Following the design strategy can help you avoid design fixation and encourage you to look at your design in a critical way to make improvements. Other ways to avoid are-

- Collaboration
- Honest feedback
- Focusing on new solutions
- Using fresh approaches

You can also annotate your designs to fully explain further using ACCESSFM

A= Aesthetics
C= Cost
C= Customer
E= Environment
S= Size
S= Safety
F= Function
M= Materials

Find an existing design and use this formula ACCESS FM to analyse your products.

Cross curriculum topics

Science

- Structure of polymers
- How long does it take for plastic to degrade?

Geography

- Impact of pollution on the wider world.
- How has the geography landscape changed with the rise in pollution?

Maths

- Sizing and tolerances of products
- Use of time within a practical task

English

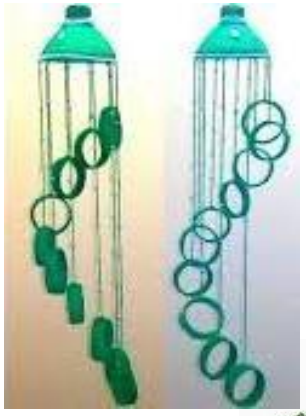
- Justification of practical choices, evaluation techniques and improvement comments

History

- What materials were used before plastics? How in history have other countries dealt with pollution?

PSHE

- Creation of sensory items for the health hub and sensory garden at OSSMA












Drama
Year 9
Performing Arts

Costume design

Costume is an important aspect of a production, as it helps to: establish a character, convey the context of the play and support the style of the production. Other aspects to consider when designing a costume include: accessories, hair and make-up, practicalities, shape and texture. Colour is a very important aspect as it can convey as symbolic idea or reveal something about the character.

Vocal skills

Accent: Accent refers to a particular way of talking and pronouncing words, and is associated with a geographical area or social class.
Volume: Volume refers to how loud or quiet the voice is. While performers will need to be loud enough to be heard by everyone in the audience, they can change their volume to express a character's emotions.
Tone: Tone is the emotional sound of the voice, eg frightened, angry or joyful, and is very important in revealing the subtext of a line.
Emphasis: Emphasis is where a performer will stress a particular word or phrase within a sentence to indicate importance.
Pace: Pace is the speed at which lines are delivered. The speed of speech can often convey how someone is feeling.
Rhythm: Rhythm is related to pace, and refers to the pattern of sound when speaking.
Pause: A pause (or beat) is a short break in speech for dramatic effect. A performer may choose to pause to show hesitation, that they are overwhelmed with emotion, or that they are thinking.
Pitch: Pitch is how high or low the voice sounds
Quality: Quality refers to the basic sound of the voice and is largely influenced by how sound moves through the vocal folds.
Resonance: Resonance refers to the placement of the voice and where the sound resonates, eg in the chest, throat or nose.

Lighting design

One of the most important functions of lighting design is illuminating the action on stage. Lighting is needed so that the audience can see clearly what is happening.

Lighting can help to create mood and atmosphere on stage. For example, to create a cold, damp jail cell, a lighting designer might use a cool, blue light with a low intensity.
When designing lighting, there are several aspects to consider, including: colour, focus, intensity, position and direction.

Stage design

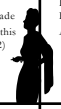
The set helps show where and when the story of a play takes place, while also conveying meaning to the audience.
When designing a set, there are several aspects to consider, including: colour, condition, practicalities and scale. Designers will also consider: shape, staging configuration, texture, transition and health and safety.

Projections are becoming more common within set design and can be used to add detail and texture on stage.
A flat is a piece of scenery used to represent a wall or to conceal a backstage area.
Revolves are sometimes uses which is a turntable built into the stage floor on which scenery can be set and turned.

Physical skills

Body language: Body language includes posture and stance and can convey a character's feelings or personality.
Eye contact: Eye contact is the state in which two people look directly into one another's eyes. It can be used to reveal the status and relationship between characters.
Facial expressions: Facial expressions are the way the face moves to convey an emotional state.
Gait: Gait is a person's manner of walking. The way a performer walks on stage will form part of their characterisation.
Gesture: Gesture is the way people communicate with their hands or other parts of the body. It can be used to show a character's emotions, eg shaking a fist to represent anger.
Pace: Pace is the speed of a performer's movement. As well as focusing on pace individually, the pace of movement within a scene can completely change the atmosphere on stage.
Space: Space refers to how performers or items are positioned on stage. The process of placing performers in a specific space is called blocking.
Levels: Levels refer to the use of different heights, eg through standing or sitting, to convey meaning on stage. They can be used to create visual interest but they can also signal status and character relationships.

Year 9 English- An Inspector Calls

	Character summary	Key Quotes	Associated themes or ideas:
Mr Arthur Birling	•Mr Birling is described as "a heavy-looking, rather portentous man in his middle fifties but rather provincial in his speech." •He represents middle class men who have made money via capitalism. •He refuses to accept responsibility for anyone else except himself, including the death of Eva Smith. •He represents capitalism and its ideals. •He also represents an older generation that is less likely to be influenced by ideas of socialism. •Despite his arrogance and confidence, Birling is no match for the wit, precision and intellect of The Inspector.	"If we were all responsible for everything that happened to everybody we'd had anything to do with, it would be very awkward, wouldn't it?" (Act 1) 	Capitalism Generation gap Patriarchal society Individualism Class Gender Responsibility Reputation Aspiration
Mrs Sybil Birling	•She represents many of the upper and middle class attitudes from the time: arrogance, sanctimony, snobbishness and selfishness. •She is part of the older generation that refuses to change or accept new ideas. She is happy to live in the status quo. •She uses her influence to hurt other people rather than help them – it is difficult for the audience to do anything but dislike Mrs Birling, as is the case with her husband. •She seems to have some control over her husband, determining when he should or should not speak. Her role as matriarch in the family goes against the established patriarchal society of the Edwardian period.	"When you're married you'll realize that men with important work to do sometimes have to spend nearly all their time and energy on their business." (Act 1) "You seem to have made a great impression on this child, inspector. (Act 2) 	Capitalism Generation gap Patriarchal society Individualism Class Gender Responsibility Reputation Aspiration
Sheila Birling	•The daughter of Arthur and Sybil Birling and engaged to be married to Gerald Croft at the start of the play. •Sheila shows how gender roles are clearly defined at the start of the play: she is meant to be the sweet, innocent and naïve girl that gets married. •As the play progresses, her character changes and she becomes far more determined, confrontational and aware. •By the end of the play she represents a younger generation that is far more willing to take responsibility for the people around them. 	"But these girls aren't cheap labour – they're people." (Act 1) "And Eric's absolutely right. And it's the best thing any one of us has said tonight and it makes me feel a bit less ashamed of us. You're just beginning to pretend all over again." (Act 3)	Materialism Generation gap Gender equality Responsibility Reputation Class Guilt
Eric Birling	•The son of Arthur and Sybil Birling. •Eric represents the younger generation that are more socially responsible than their parents. •He drinks because he feels guilt about what he did: by violently forcing himself on Eva, he got her pregnant and helped to drive her towards suicide. •Eric sometimes has contrary opinions to his parents and it is he who brings up the idea of war and suggesting his father could have paid Eva more money. •Because he accepts responsibility by the end of the play, the audience come to respect Eric a lot more.	"What about war?" (Act 1) "He could. He could have kept her on instead of throwing her out. I call it tough luck." (Act 1) 	Patriarchal society Generation gap Gender equality Responsibility Reputation Class Guilt
Gerald Croft	•Engaged to be married to Sheila Birling and the son of wealthy aristocrats who are also rivals in business to Arthur Birling. •He represents the upper classes in the play. •We – the audience – want him to change, after all, he did help Daisy with money, but he doesn't. •He represents how the old class system is hard to remove – aristocrats don't want to lose their power and their status.	"Inspector: and you think young women ought to be protected against unpleasant and disturbing things? Gerald: if possible – yes." (Act 2)	Patriarchal society Generation gap Gender equality Responsibility Reputation Class
The Inspector	•Inspector Goole is described as "an impression of massiveness, solidity and purposefulness." •Despite questioning a family of wealthy members of the upper middle classes, the Inspector appears calm and assertive throughout. He seems to have already pre-planned exactly who is going to speak to and when and how he will speak to them. •As Sheila comes to understand, the Inspector already knows how all the characters are connected to Eva. Because of this, it gives him a ghost-like or supernatural quality to him. •He seems to be operating on a different level of consciousness to the other characters and this has led to a number of theories about who or what Inspector Goole is.	"You see, we have to share something. If there's nothing else, we'll have to share our guilt." (Act 2) "We don't live alone. We are members of one body. We are responsible for each other. And I tell you that the time will soon come when, if men will not learn that lesson, then they will be taught it in fire and blood and anguish. Good night." (Act 3) 	Gender equality Responsibility Reputation Class The supernatural Socialism Community
Edna:	•Edna's role in the play is seemingly insignificant, but she is the character that introduces the Inspector to the Birlings and she is the only genuine working class presence in the whole play. Like Eva, Edna is ignored by the other characters for most of the play which is hugely symbolic in itself. 		Class Responsibility

Key events

Associated quotes

J B Priestley's An Inspector Calls centres on the suicide of a young woman known as Eva Smith.
During the play, the wealthy and comfortable Birling family are celebrating Sheila Birling's engagement to Gerald Croft when their meal is interrupted by the visit of Inspector Goole, who is investigating Eva's death.

Act 1

The Birlings are celebrating the engagement of Sheila Birling (the Birlings' daughter) to Gerald Croft, whose family own a rival business to that of Arthur Birling – Sheila's father. The family are celebrating with champagne, cigars and many other luxuries that only a wealthy middle or upper class family of the time could afford.

Mr Birling seems very keen to impress Gerald and even speaks to him in private away from the rest of his family; Sheila mentions about Gerald having not come near her the previous summer; and Eric appears very nervous and anxious around his family. Although the atmosphere is mostly positive, there are hints that there are problems hidden under the surface.

Mrs Birling and Sheila leave the dining room to allow the men to speak on their own. Mr Birling gives Eric and Gerald advice about looking after yourself and not concerning yourself with others. As he is giving this speech, there is a ring at the door.

"We employers at last are coming together to see that our interests – and the interests of capital – are properly protected. And we're in for a time of steadily increasing prosperity." **Arthur Birling**

Edna, the maid, brings in a man who is known as Inspector Goole. A detailed description is provided of Goole and he is said to be serious but also demanding respect. He tells the family that he is investigating the suicide of Eva Smith, who had died after drinking a large quantity of disinfectant.

"What happened to her then may have determined what happened to her afterwards, and what happened to her afterwards may have driven her to suicide. A chain of events." **The Inspector**

The Inspector shows Mr Birling a photo of Eva Smith (although makes sure no one else sees it) and Birling admits that Eva used to work at his factory. However, she was later fired for being one of the ring-leaders of uprising and strike action after Birling refused to give any of his workers even a small pay rise. Birling argues that he pays usual rates to his workers and he is not responsible for what happened to Eva after she left his employment.

Sheila comes into the room and the Inspector wants to ask her some questions. It is revealed that Eva found work at a clothes shop after being fired by Birling. However, Eva was fired once more when the Inspector explains a customer complained about her. Sheila admits she was that customer and the reason she got Eva fired was because a dress that Sheila tried on did not suit her and when Eva tried it on, it did. Sheila also believes she caught Eva laughing at her.

When Sheila finds out what happened to Eva, she immediately feels responsible for her death – in complete contrast to her father. The Inspector then reveals Eva, unemployed once more, changed her name to Daisy Renton. Gerald Croft, Sheila's fiancé, gives away that he knew Daisy by his reaction. Sheila sees this. The act ends and the audience are waiting to find out how Gerald is connected to Daisy.

Act 2

Sheila and Gerald are alone on stage and Gerald admits he did know Daisy, but Sheila explains to Gerald that the Inspector has already worked this out.

BIRLING
"You'll apologize at once ... I'm a public man –"
INSPECTOR
[massively]
"Public men, Mr. Birling, have responsibilities as well as privileges."

Gerald reveals to Mrs Birling that her son Eric drinks a lot – she initially refuses to believe him – and he admits that he once had a relationship with Daisy. Sheila works out that this was during the one summer when he wouldn't go near her.
Gerald explains that he met Daisy at the Variety Theatre (which was known for prostitutes), and that he stopped Alderman Meggarty – an important man or 'dignitary' – getting involved with her.

Gerald helped Daisy by letting her stay in a friend's flat but she eventually became his mistress, which meant he was having an affair with her behind Sheila's back. Gerald decided to later break off their relationship and gave her money to help her in the future.
Mrs Birling says she believes this relationship was 'disgusting', although Gerald does argue back. However, Sheila appreciates Gerald's honesty and says she respects him more now than she did.

Gerald asks to leave the room to get some fresh air after now realising Daisy has died. The Inspector allows him to do this, and during the time he is away the Inspector begins to interrogate Mrs Birling.Mrs Birling eventually admits that she saw Eva/Daisy before she died. Mrs Birling was the chair of a local charity: the Brumley Women's Charity Organisation and Daisy, calling herself Mrs Birling, asked for financial help. It is revealed that Daisy was pregnant at the time, and Mrs Birling used her power as chairwoman of the charity to deny her access to financial assistance.

Mrs Birling found it impudent or insulting that Daisy took on the name 'Mrs Birling' and she also felt the money and responsibility should come from the baby's father. Mrs Birling seems to take pride from her decision, although Sheila quickly realises the missing link here: Eric is the father. This happens after Mrs Birling has said the father of the child should be made an example of. Mrs Birling realises, just as Eric enters at the end of the scene, that her son is the father and she has effectively killed her own grandchild.

Act 3

Eric asks for a drink and his parents refuse, but the Inspector explains it would help Eric through and so they agree. Eric explains how he met Daisy at the same theatre bar as Gerald; they both got drunk and Eric accompanied Daisy back to her flat. There, Eric became very violent and Daisy reluctantly agreed to let him in where they slept together. They met again two weeks later and slept together once more.

Eric: (bursting out) What's the use of talking about behaving sensibly. You're beginning to pretend now that nothing's really happened at all. And I can't see it like that. This girl's still dead, isn't she? Nobody's brought her to life, have they?

Daisy revealed to Eric that she was pregnant with his baby, and he proposed to her. However, she refused stating he did not love her. Instead, she received gifts of money from him, but turned these down when she found out Eric was stealing the money from his father's business. Mr and Mrs Birling are incensed that Eric has stolen £50 from them (a lot of money in 1912, it would be thousands of pounds now).

All of the family have been involved in her death, but a divide forms between the younger characters and the older family members. The Inspector then gives his famous 'fire and blood and anguish' speech, where he explains society must change or there will be violence. Goole says that everyone must feel responsible for everyone else.

Gerald and Mr and Mrs Birling begin to question the role of the Inspector: was he a real inspector? Was this all a hoax? Did the Inspector show the same photo to everyone? Birling rings the local police station and finds out there is no Inspector Goole working there. Birling, Mrs Birling and Gerald begin to grow in confidence once more, knowing their reputations are in tact and believe they can go back to where they were. However, Sheila and Eric have changed and cannot ignore what has happened. A phone call comes from the police which Mr Birling answers: the police explain a young girl has committed suicide and a police inspector is coming over to ask them some questions.

Context key term	Why is this significant?
Edwardian Period: The play is set in 1912 during the Edwardian period. This is the time between the end of the Victorian era and the start of the First World War in 1914. In this time period class divisions were still very clear with there being virtually no welfare state or benefits in place for the poorer sections of society. 	By setting the play in this period, Priestley is able to remind his post-war audience what society was like only 30 years previously, when a small minority of rich aristocrats and middle-class business owners dominated the wealth in the country. At a turning point like 1945 when the play was written, Priestley wanted to encourage his audiences to push for social and political change in Britain. 
The Post-War Period: The play was performed in 1945 (in the Soviet Union and in the UK in 1946). This was a time of significant social, economic and political upheaval after two World Wars that completely altered the make-up of British society.	Priestley was a noted socialist and wanted to bring about change in British society. By performing this play to the public in Post-War Britain, Priestley was able to influence the British people into supporting socialist reforms. 
Socialism: A political philosophy that and theory that believes the means of production, distribution, and exchange should be owned or regulated by the community. 	Britain pre-1945 had always been a capitalist or imperialist society and socialism was a relatively new political theory. The British Labour Party was formed several decades before advocating socialism in the country. In 1945 it won a famous General Election victory, ousting then Prime Minister Winston Churchill. New PM Clement Attlee brought in the British welfare state which included the National Health Service, where everyone in the country contributed to the NHS through National Insurance and everyone was able to use it without charge.
Capitalism: An economic and political system in trade and industry are controlled by private owners for profit, not the state.	Britain has – for most of its modern history – been a capitalist society. Priestley was frustrated at what he saw as economic inequality in society and wanted to use the Second World War as a catalyst for change. He therefore advocated socialism over capitalism.
The Titanic: A colossal passenger ship that sank on its maiden voyage from Britain to America in 1912. 	Arthur Birling boasts of the tremendous power of the Titanic in one of his early speeches in the play. However, Priestley and the audience are aware the Titanic sank a few days after Birling makes his speech. Priestley therefore uses the Titanic as a symbol of greed and capitalism and shows that its power and control will inevitably sink. It also makes Birling look incredibly foolish.

Dramatic device	Why is this significant?
Dramatic irony: When characters know less than the audience 	At different points in the play the audience knows facts that some of the characters do not. For instance, Arthur Birling boasts about the Titanic, yet as an audience in Post-War Britain, we know that the ship sank. This then serves to make Biring's boasts look empty and foolish.
Foreshadowing: Hinting to the audience about what is going to happen later on in the play.	Clues about the Birlings' problems are hinted at from the very start of the play, for instance when Sheila mentions about the summer Gerald hardly came near her. It hints at what is going to be revealed later on in the play and keeps the audience eager to solve the mystery.
Stage directions: Used by the writer to indicate to the director and actors about how they should perform their roles.	Even though an audience can't see stage directions when a play is being performed, they are pivotal for helping to bring a play to life AND as students of literature we can analyse how they impact on the performance of a play. The stage directions at the very beginning of the play make clear to us about the status of the Birling family, for instance.
Cliffhangers: Keeping the audience in suspense from one part of a text to another.	Priestley employs a cliffhanger at the end of Act One and again at the end of Act Two. It means we as an audience are desperate to find out what happens in the subsequent scenes and so suspense and tension are built.

Form	Why is this significant?
Well-Made Play: A type of very structured play that was immensely popular in the 19th and early 20th centuries. The action often builds to a climax.	Priestley's play follows a traditional three act structure where he builds a problem before reaching a dramatic climax and then moving on to the resolution or solving the problem. However, the plot twist at the very end of the play moves away from this rigid structure and leads to the audience having to make their own judgments and conclusions.
Morality Play: An allegorical drama having personified abstract ideas as the main characters (such as Greed or Death) and presenting a lesson about good conduct and character to the audience. They were popular in the 15th and early 16th centuries.	An Inspector Calls is a kind of allegory, with different characters representing different sections of Edwardian society. It is also quite clear that Priestley wanted to educate or teach his audience about his own political viewpoints.
Crime and Mystery	An Inspector Calls uses a number of crime genre conventions, such as clues, a mystery to be solved, suspects, a dramatic climax before all is revealed, and so on.


Year 9 English - An Inspector Calls – Extension tasks

Task 1. Watch these Mr Bruff Act summary videos on YouTube and take notes on key points, quotes, context and analysis:

Act 1:
https://youtu.be/QJ_0VgEduXY (Search for 'An Inspector Calls': Act 1 Summary & Analysis)

Act 2:
https://youtu.be/bcXMy84cr5g (Search for 'An Inspector Calls': Act 2 Summary & Analysis)

Act 3:
https://youtu.be/v_m3SMNk-SA (Search for 'An Inspector Calls': Act 3 Summary & Analysis)

You can also explore further videos that relate to themes, events and characters within the play:

The Inspector's final speech:
https://youtu.be/GGwITPrb_Yc

Young vs Old:
https://youtu.be/XaZSujrmt58

Task 2. Character quotes to learn (linked to task 3):

1. Inspector: It's better to ask for the earth than to take it.
2. Inspector: You're offering the money at the wrong time,
3. Mr Birling.
4. Inspector: One Eva Smith has gone... but there are
5. millions... of Eva Smiths... all intertwined with our lives... if men will not learn that lesson, then they will be taught it in fire and blood and anguish.
6. (About Mr Birling): A heavy looking, rather portentous man
7. Mr Birling: I speak as a hard-headed practical man of business...
8. Mr Birling: Unsinkable, absolutely unsinkable
9. Mr Birling: I must say Sybil, that when this comes out at
10. the inquest, it isn't going to do us much good
11. Mrs Birling: When you're married, you'll realise that men with important work to do sometimes have to
12. spend all their time and energy on their business. You'll
13. have to get used to that, just as I had.
14. Mrs Birling: Girls of that class...
15. Mrs Birling: He's only a boy
16. Gerald (to Sheila): I hope I can make you as happy as
17. you deserve to be.
18. Gerald: I didn't install her there so I could make love to
19. her... I was sorry for her.
20. (Sheila to Eric): You're squiffy.
21. Sheila: You mustn't build a kind of wall between us and
22. that girl - if you do, the inspector will just break it
23. down...
24. Sheila: I don't care about that, the point is that you
25. don't seem to have learnt anything
26. Eric: I was in that state when a chap easily turns nasty.
27. Eric: You're not the kind of father a chap could go to
28. when he's in trouble.
29. Eric: The money's not the important thing. It's what
30. happened to the girl and what we all did to her that matters.

Task 3. For each quote in task 2:
a . Read and re-familiarise yourself with the quote
b. Choose a suitable image to represent the quote
c. Explain the quote briefly with a bullet point
d. Underline the SWA (Single Word Analysis) and bullet point the effect of this language or technique
e. Link the quote to relevant background/context in a bullet point

Here is an example for the first quote:

Inspector: It's better to ask for the earth than to take it.

- The Inspector says that Eva was entitled to ask for a pay rise and decent living wage and that Mr Birling didn't have to be harsh by firing her
- SWA: "ask" - this verb is about being a decent human being, rather than someone who just 'takes' by force. This is a dig at Mr Birling and his capitalist ways. The quote is a metaphor about being a decent human.
- Relates to the socialist context of the play - really about people doing the right thing and looking out for each other in society so that it is fair, rather than exploit people for making profit (capitalism)

Spanish Knowledge Organiser
Year 9 - Summer 2

Week 1&2

Connectives

- **pero** - but
- **y** - and
- **sin embargo** - however
- **sobre todo** - especially
- **tambien** - also

Qualifiers

- **muy** - very
- **un poco** - a little
- **bastante** - quite
- **demasiado** - too

This year you have been learning sentences which use the 10 keys. For this last half term we would like to remind you of some of those key words that we want to see you continuing to use at GCSE level when it becomes the 20 keys.

Week 3&4

Opinions

- **Pienso que** - I think that
- **Creo que** - I believe that
- **Desde mi punto de vista** - From my point of view

Comparatives

- **más + adjective + que** - more + adjective + than
- **menos + adjective + que** - less + adjective + than

Superlatives

- **el/la más + adjective** - the most
- **el/la menos + adjective** - the least

Week 5&6

Time phrases

- **El fin de semana pasado** - last weekend
- **El fin de semana próximo** - Next weekend
- **Todos los fines de semana** - every weekend
- **A veces** - sometimes

Modal verbs

- **Tengo que** - I have to
- **Puedo** - I can
- **Quiero** - I want

French Knowledge Organiser
Year 9 - Summer 2

Week 1&2

Connectives

- **mais** - but
- **car** - becuase
- **cependent** - however
- **surtout** - especially
- **aussi** - also

Qualifiers

- **très** - very
- **un peu** - a little
- **assez** - quite
- **vraiment** - very
- **trop** - too

This year you have been learning sentences which use the 10 keys. For this last half term we would like to remind you of some of those key words that we want to see you continuing to use at GCSE level when it becomes the 20 keys.

Week 3&4

Opinions

- **Je pense que** - I think that
- **Je crois que** - I believe that
- **À mon avis -** from my point of view

Comparatives

- **plus + adjective + que** - more +adjective + than
- **moins + adjective + que** - less + adjective + than

Superlatives

- **Le plus** - the most
- **Le moins** - the least

Week 5&6

Time phrases

- **Le week-end dernier** - last weekend
- **le week-end prochain** - next weekend
- **tous les week-ends** - every weekend
- **parfois** - sometimes

Negatives

- **ne ... plus** - no longer
- **ne...jamais** - never
- **ne...pas** - not

Modal verbs

- **je veux** - I want
- **je dois** - I must
- **je peux** - I can

Year 9 Food Knowledge Organiser: Principles of Nutrition

Macronutrients
Needed in **large amounts** to help the body to function properly

Protein:

These are made up of ***essential amino–acids*** and ***non-essential amino–acids***. (Our bodies can make non-essential amino acids, but we need to get essential amino acids from our food).

Source

HBV – these have all the essential amino acids
•Meat, fish, dairy, eggs (animal sources)
•Tofu
LBV – these are missing at least one essential amino acid
•Seeds, nuts, beans, pulses, cereals, Quorn (plant sources)

Function

Growth
Repair
maintenance

Not enough	Too much
Kwashiorkor Oedema Anaemia Slow growth in children	Excess protein can be converted to energy. If unused turns to fat.

Dietary Reference Values

Age	Amount
1-3	15g
4-6	20g
7-10	28g
11-14	42g
15-18	55g
19-50	55g
50+	53g

Complementary actions

Combining 2 or more LBV proteins helps get a balance of essential amino acids.
e.g. beans on toast.

Watch this video to learn more

https://www.youtube.com/watch?v=cKRf53I737E

Fats, oils and lipids:

Too much fat is bad for you, but so is not enough.

Source

Saturated Fats
(From Animal sources. They are also called unhealthy fats. They are generally solid at room temperature)
Sausages / Bacon / Lard / Dairy

Unsaturated Fats
(These are healthier. They are often liquid at room temperature.)
Monounsaturated fats
– olive oil / avocados
Polyunsaturated fats
– sunflower oil / seeds

Omega-3. These are Polyunsaturated and called "healthy" fats as your body needs them but can't make them. They are good for your heart.
– Oily fish / Nuts / Seeds

Function

Energy
Warmth
Protection of organs
Source of fat soluble vitamins
Hormone production

Dietary Reference Values

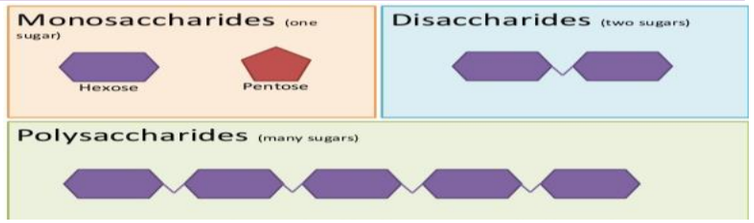
DRI	Men	Women
Total fat	95g	70g
Sat fat	30g	20g

Too much	Not enough
Obesity **Heart disease** **Type 2 diabetes** **Stroke** **Cancer**	Vitamin deficiency (fat soluble) Unprotected organs

Carbohydrates

There are 2 kinds, simple and complex -
Sugar & Starches

.



Source

Simple - these are sugars (monosaccharides, disaccharides)
Cakes, jam, soft drinks

Complex - these are starches (polysaccharides)
Bread, potatoes, Flour, Pasta,Rice.

Function

Simple
Quick burst of energy
Complex

Longer lasting energy

Free sugars

These give you no nutritional benefit other than energy.

Dietary advice

- Reduce the amount of sugar that we eat, no more than 5% of our diet.
- Complex Carbohydrates should make up half of the energy we eat.
- Wholegrain cereals are a good source of fibre

Not enough	Too much
Can make blood sugar level drop • hunger, • dizziness, • Tiredness • Lack of energy Our body will use protein for energy (leads to loss of muscle)	• Excess is turned into fat • Can cause obesity • Too much sugar leads to dental problems • Can lead to type 2 diabetes

Year 9 Food Knowledge Organiser: Dietary needs

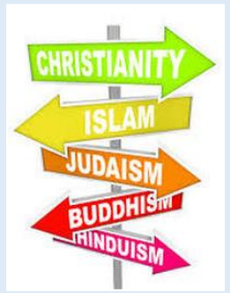
Dietary Needs

People have different dietary needs; this affects what they can and cannot eat.

Key Words:

- **Allergy:** an adverse reaction by the body to certain substances.
- **Intolerance:** a condition that makes people avoid certain food because of the effects on their body
- **Allergic reaction:** the way someone responds to certain food. For example: a rash/swelling/anaphylactic shock

Some people make a choice not to eat certain foods. Reasons include:



- Religious beliefs

- Medical reasons

- Taste/texture of food

- Ethical beliefs

Vegetarians

There are many different types of vegetarian depending on which animal foods are included in the diet.
People may follow a vegetarian diet for different reasons

- They do not like the thought of eating dead animals, fish, birds
- They think it is cruel to kill for food
- Their religion does not allow them to eat meat, fish, poultry.
- They think it is healthier to eat a vegetarian diet.

The three main types of vegetarian are lacto-vegetarian, lacto-ovo vegetarian and vegan.

lacto-vegetarian –will not eat any meat, fish or eggs, but will consume milk and dairy products.
lacto-ovo vegetarian –will not eat any meat, or fish , but will consume eggs, milk and dairy products.
Vegan – will not eat any food that is made directly or indirectly from an animal. They also refuse to use product such as soap and cosmetics which involve the use of animal oils or fats.

Diet Related Health Problems

Obesity - When the body has too much fat.

- BMI (Body Mass Index) is used to calculate body mass

BMI of 18.5 – 25 is normal, 30 + is obese.

Cause: energy in > energy out; Eating too many high energy foods (fat & sugar); Low exercise levels.

Problems: High blood pressure and cholesterol = heart problems; Increased risk of type 2 diabetes & cancer

Breathing difficulties, fatigue & low self esteem.

Coronary Heart Disease Arteries clogged with cholesterol

- Cause: saturated fats, low physical activity, smoking & high blood pressure.
- Health Problems: Blood cannot pass through arteries properly which causes heart to pump faster and harder, causing chest pains (angina);blood flow and oxygen to the heart gets blocked which causes heart attacks

Tooth Decay

Plaque is a substance which contains bacteria. This builds up from food in the mouth. Bacteria feed on sugars and form acids which eat away at tooth enamel and cause tooth decay (caries/cavities) Cause: high sugar foods.

Religious Reasons

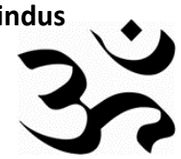
Islam

- **Do not eat pork**
- **Meat must be halal**
- **No alcohol or shellfish**

Judaism

- **No pork or shellfish**
- **No milk and meat together**
- **Meat must be kosher**

Hindus



- **No beef or beef products**
- **Mostly vegetarians**
- **No alcohol**

Medical reasons

Name of medical condition	Food/drinks to avoid	Reason to avoid
Diabetes	Starchy food/ high in sugar	High in saturated fat. Can lead to heart disease, while excess sugars can cause unwanted weight gain and blood sugar spikes
Nut allergy	Nuts, blended cooking oil, margarine with nuts oils and often seeds	the immune system overreacts to proteins in these foods
Lactose intolerance	Milk, cheese, yogurt, processed food	cannot metabolize **lactose** properly; they lack lactase, an enzyme required in the digestive system to break down **lactose**. Patients typically experience bloating, flatulence, and diarrhoea
Gluten intolerance (coeliac)	Wheat, wholemeal, bran, pasta, rye, beer	Celiac disease is caused by a reaction to a gluten protein found in wheat, barley, rye, and sometimes oats. Symptoms include chronic diarrhoea, weight loss and fatigue

YR7 GRAPHICS

The Design Process

Brief

A brief is a set of **instructions** given to a designer by a company (**client**) about a job or task they wish to be completed.

A **company** (client) will ask a **graphic designer** to create a **product**. A product means an item that can be sold to people (**consumers**).

A brief will set out clearly what it is that should be made (**constructed**) and what requirements (**specifics**) will need to be included in the **design process**.

Isometric

When the concept drawing is finished, the design will be turned into an isometric drawing where the size (**dimensions**) of the parts are finalised. Specific measurements (**metric – CM, MM**) are used so that it can copied many times (**mass produced**).

The design will be computerised (**digitally formatted**) so that it can be **saved**, **shared** and **inputted** into the machines that produce it.

Market Research

Companies will employ people to conduct **surveys**. A survey is a set of **questions** that are asked to many people. Often companies would decide which people they will ask (**target audience**). They wish know peoples **preferences** and **spending habits**.

The answers are important to the **design process** and can influence the way the product is **designed**. To make it easy to see large amounts of **data**, companies use **graphs**.

Testing Models

When isometric drawings are complete, it will go through a process of being made **3D**. A number of **machines** will be used to create practice models (**prototypes**) to see how the product works. It must be easy for a human to use (**ergonomics**). **3D printers** are often used.

If the product is made out of different **materials** such as glass, metal or wood, these would require different methods of construction (**manufacturing**).

Design Process

Designers will explore lots of ideas before selecting the right one. Often this involves creating **mind maps**, **sketches** and **mood boards**.

A mind map starts with a single word and then ***explores ideas*** around it, these are sorted into **categories**.

When drawing sketches, designers will work out how it works (**functions**). Ideas at this stage can be really ***creative*** and ***imaginative***.

A mood board is a collections of pictures, drawings, text (**typography**) and **materials** to do with the **theme**.

Packaging

When a final product has been made and passed safety standards, it will be labelled and have its own (**custom**) **packaging**.

Packing must –

- Be eye catching (**visually pleasing**) to attract customers to buy it.
- Protect the item inside it to **avoid damage** or **contamination**.
- Provide **accurate information** about the product inside.
- Stack easily for **transportation** from factory to shops.

Concept Art

Artists/**illustrators** will draw a number of different sketches of the product from different angles.

When designing, **colour** and **style** is important. It is important to think about how it looks (**aesthetics**). Designs will consider the mood board and specifics.

Drawings can be in **traditional** materials (pen, pencil, paint) or using **CAD** (Computer Aided Design) and electric drawing pads (**graphics tablets**).

Advertising

For companies to make money (**financial Income**), they must tell as many people as possible about their product.

This often happens through **social media**, **adverts**, **radio stations**, **magazines** and **displays** in shops.

Its important that the product is well received by its target audience so that people buy it and share reviews of it. Companies make a **profit** when they sell items for more than the price of making it. .

Geography

Year 9: Living World

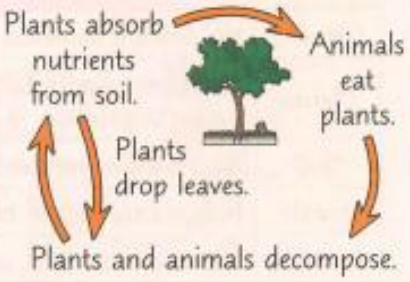
- Nutrient cycle
- Components of an ecosystem
- Food chains and webs
- Global ecosystems
- Pond ecosystem

Key Definitions

ECOSYSTEM — All the biotic (living) and abiotic (non-living) parts of an area.

- **PRODUCERS** produce food from sunlight.
- **CONSUMERS** eat other organisms for energy.
- **DECOMPOSERS** break down dead material for energy.

Nutrient Cycle



Food Chain

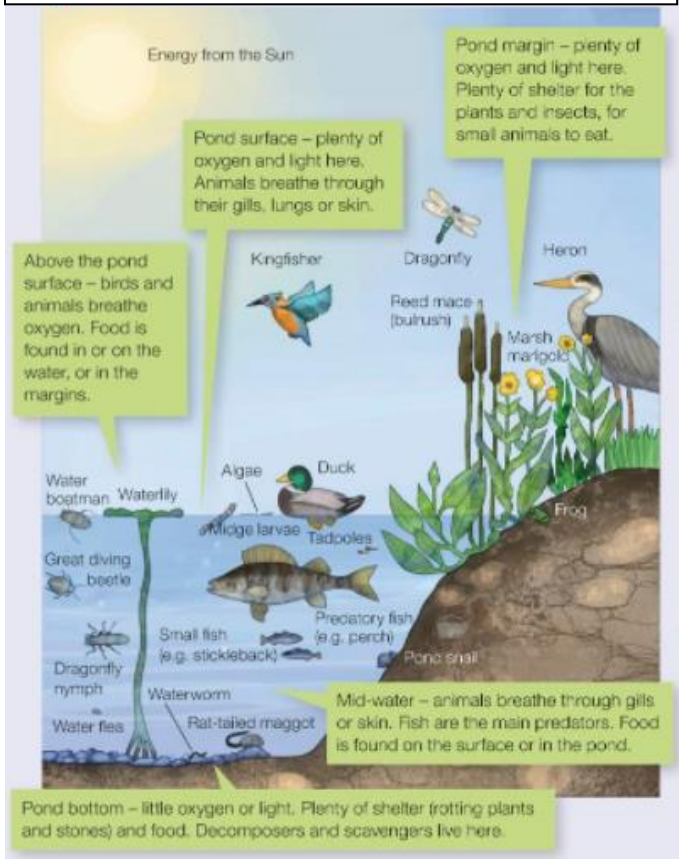
The connections between different organisms (plants and animals) that rely on one another as their source of food.

Oak Tree → Caterpillar → Shrew → Owl

Food web

A food web is made up of different food chains. It is a more complex and detailed picture of what eats what.. This shows many different links.

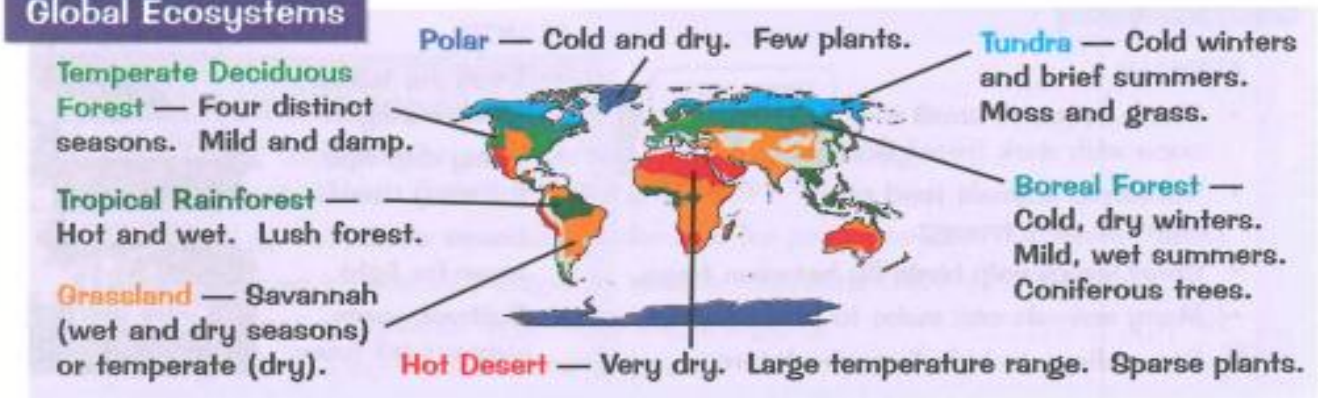
Pond Ecosystem



Changes to the ecosystem

Natural Changes	Vegetation takes nutrients and water from the soil allowing it to grow. If there was a drought the soil would be too dry then the vegetation would die. The squirrel and caterpillar would have less food and could reduce in numbers.
Changes Caused by Humans	Deforestation can occur, removing the producer (tree). If so then there will be no more leaf litter to be decomposed, less nutrients for the soil and a reduction in vegetation.

Global Ecosystems



Geography
Year 9:
Tropical Rainforest

Adaptations

ANIMALS

- Sharp sense of smell to cope with dark forest floor.
- Nocturnal animals feed at night to save energy.
- Short wings help birds fly between trees.
- Many animals can swim to cross rivers.
- Camouflage to hide from predators.

PLANTS

- Trees are tall to reach sunlight.
- Waxy drip-tips for easy runoff.
- Lianas climb trees for light.
- Buttress roots support tall trees.

Characteristics

Climate	No definite seasons. Sun directly overhead → Hot. High daily rainfall.
Plants	Evergreen plants take advantage of continual growing season. Tall trees and dense vegetation → dark forest floor. Epiphytes grow on other plants.
Soil	Rain washes nutrients away → Not very fertile. Fallen leaves decay quickly.
People	Indigenous people have adapted → hunt, fish, forage and farm.
Animals	More species than any other ecosystem.

Rainforest animals: sloths.

Sustainable Management Strategies

SUSTAINABLE MANAGEMENT — getting the resources we need today without damaging the environment so that resources aren't available in the future.

Replanting
- New trees (of the same type) replace felled ones.
- A legal requirement for logging companies in certain countries.

Selective Logging
- Some trees felled but most remain.
- Forest can regenerate.

→ Malaysia — helicopter logging.

Ecotourism
- Small groups of tourists follow strict environmental rules.
- Locals hired → less need for them to mine, farm or log for income.
- Incentive to conserve environment.

→ 21% of Costa Rica protected from development for ecotourism.

Education
- Encourages sustainable product use.
- Teaches locals to make money in an environmentally-friendly way.

→ Rainforest Alliance teaches communities in Guatemala about sustainable living.

Conservation
- National parks / nature reserves restrict damaging activities.
- Countries can set up funds for overseas investors to donate to.

→ 2018 — Norway paid $70m into Brazil's Amazon Fund.

Reducing Debt
- Debt can be cancelled — countries don't have to log, farm or mine to repay it.
- Conservation swaps → country's debt paid off if conservation is guaranteed.

→ 2011 — USA reduced Indonesia's debt by $29m.

International Hardwood Agreements
- Prevent illegal logging.
- Promote the use of hardwood from sustainably-managed forests.

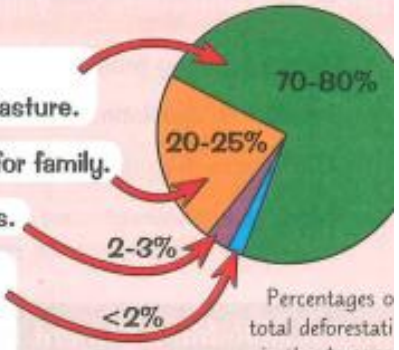
→ Forest Stewardship Council® mark on sustainably-sourced timber.

Causes of Deforestation in The Amazon

Commercial Farming 250 000 km² cleared to produce soy. 200 million cattle on 450 000 km² of pasture.

Subsistence Farming Small-scale farmers grow crops for family.

Logging Hardwood trees tempt legal and illegal loggers.



Percentages o total deforestati in the Amazor

Mineral Extraction
Mining gold, iron ore and copper boosts development. Explosives used.

Road Building
Trans-Amazonian Highway threatens to open up remote areas.

Population Growth
Land offered to poor people from overcrowded cities.

Energy Development
Balbina Dam flooded 2400 km² of forest.

Almost 18 million hectares of forest were lost between 2001 and 2012.

Three Impacts of Deforestation in the Amazon

1. **CLIMATE CHANGE:** 140 billion tonnes of carbon stored in the Amazon → Felling trees releases some of this as CO_2 → Global warming

2. **SOIL EROSION:** Fewer trees → Less rain absorbed / intercepted → More nutrient wash away → Reduced soil fertility → Farmers clear more land → Fewer trees

3. **ECONOMIC CHANGE:**
   - Loss of rubber trees → Brazilian rubber tappers lose jobs.
   - Buenaventura mining company (Peru) → 8000 employees.
   - Brazil exported $600 million of beef in March 2018.

Wealth and jobs boost development but can destroy resources.

Tropical Rainforests — Value

- Source of many products and medicines — some may still be undiscovered.
- Sustainable development → long-term economic benefits (e.g. ecotourism).
- Rainforests may reduce the greenhouse effect (trees absorb CO_2).
- Regulation of climate and water cycle → deforestation increases risk of drought or flooding.

Deforestation could affect all countries (e.g. climate change) not just deforested areas.

Year 9 History Knowledge organiser Half-term 6: Jack the Ripper, created by Mr Pritchard

What was it like to live in Whitechapel c.1870?

Whitechapel was one of the poorest districts in London with high levels of crime. It had a population of 30,000. About 1,000 were homeless made up of long-standing Londoners as well as Irish and Jewish Eastern European immigrants. Whitechapel was a breeding ground for crimes ranging from theft to murder. Many crimes were directly linked to the high levels of poverty and unemployment

Pollution and poor sanitation- London was heavily polluted. Smoke and gas fumes choked the maze-like streets of the East End. There was poor sanitation little, healthy drinking water. Sewers ran into the streets.

Housing

- Most housing was in overcrowded slums, known as rookeries. Houses were divided into apartments, with up to 30 people in one apartment sharing beds.
- Lodging houses offered a bed in 8 hour shifts. The smell, summer heat and rats made this awful. About 8,000 people (25% of local population) lived in them.

Work

- Many residents worked in 'sweated' trades like tailoring, shoe-making and making matching. The sweatshops were small, cramped and dusty and had little natural light. Hours were long: wages were low.
- Others worked in railway construction or as labourers where the amount of work varied day to day which left families with uncertain incomes.

Workhouses- offered food and shelter to those too poor to survive in the general community such as the old, sick, disabled, orphans and unmarried mothers. Conditions were deliberately made worse than those that could be provided by a labourer for his family so as to put people off from entering the workhouse.

Prostitution- There was an estimated 1,200 prostitutes and 62 brothels in Whitechapel. Women became prostitutes in order to survive- in brothels or on the streets.

Alcohol- was the only escape that many people had from their terrible lives. Drunkenness often turned to violence. Alcoholics could turn to crime to get the money for drink.

The Jack the Ripper Murders

The Victims

- In 1888- 5 women murdered in Whitechapel. Police believed they were all killed by the same person, who was never caught, but was nicknamed Jack the Ripper.
- 31 August, Mary Ann Nichols, found in Buck's row
- 8 September, Annie Chapman, found in the backyard of 29 Hanbury Street, Spitalfields.
- 30 September, Elizabeth Stride, found Berners Street
- 30 September, Catherine Eddowes, found in Mitre Square, Aldgate.
- 9 November, Mary Jane Kelly, found inside 13 Miller's Court, Dorset Street, Spitalfields.

The suspects

- Dr Thomas Cream- American doctor who had been arrested for poisoning prostitutes and writing false letters to the police. He was hanged in 1892 for murdering prostitutes. His last words were 'I am Jack'.
- Severin Klosowski (aka George Chapman)- suspected by the police at the time of the murders. He had poisoned two of his wives. He trained as a doctor and worked as a barber near Whitechapel.
- M J Druitt- trained as a doctor. His own family thought he could be the Ripper. Committed suicide in Dec 1888 and there were no more murders after this time.
- Alexander Pedachenko- a Russian doctor who worked in a women's hospital. He went back to Russia after the last murder and was then sent to a mental hospital after murdering a woman in St Petersburg.
- Prince Albert Victor- the grandson of Queen Victoria and was known for hanging around the gay bars in Whitechapel late at night. The last victim, Mary Kelly, worked for him for a while.
- John Pizer- a Jewish shoemaker who fitted the public's view of the murderer's profile due to the fact that he was a craftsman and had access to 5 inch blades and was in possession of a leather apron. Pizer also had stabbing convictions against him and displayed a well-known dislike for prostitutes. He fitted the physical descriptions that had been circulated; that of a short man with a dark beard, moustache and foreign accent.

The police investigation

Policing techniques included:

- Following up on direct leads
- Following up on coroners' reports
- Following up on journalists' theories
- Following up on clues found with victims
- House-to- house searches
- Setting up soup kitchens
- Interviewing witnesses
- Help from other police divisions
- Distributing hand bills (leaflets)
- Questioning lodging house residents
- Visiting lunatic asylums- The murders were so savage that some thought he must have escaped from a lunatic asylum

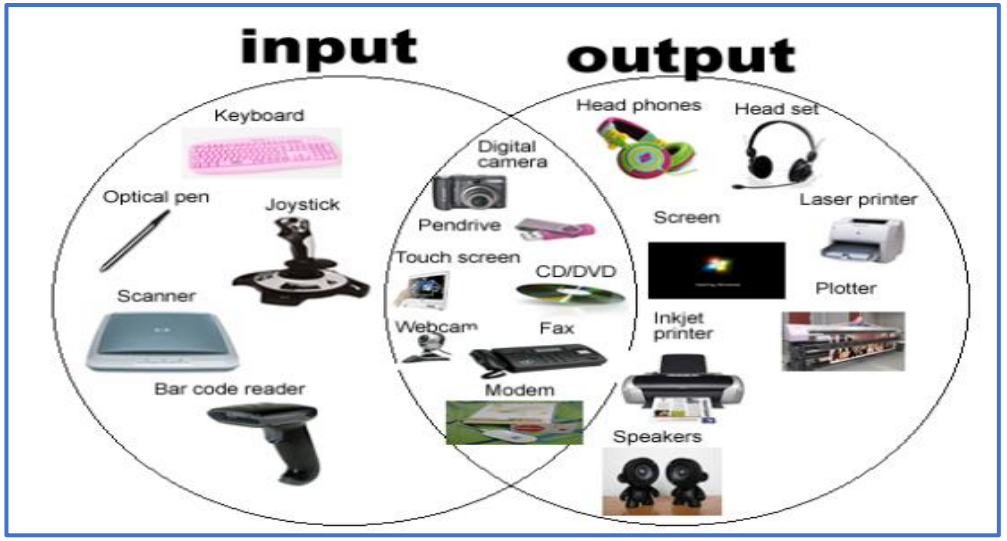
Obstacles to success

Police database- was not yet large enough to be effective.
Crime scenes - Crime-scene photography was just starting to be used and so had a limited impact. On top of this crime scenes were often tampered with by people.
The Vigilance committee- set up by Whitechapel traders and business. They offered rewards for information leading to the killer's arrest and took to the streets at night making loud noises- this damaged the police investigation.
Bloodhounds- police tried to use bloodhounds but did not pay their owner who then refused to work with the police.
Lack of forensic techniques- DNA evidence, fingerprinting and blood samples did not exist at this time.
Police in disguise- some officers dressed as prostitutes to trap the Ripper- but refused to remove their moustaches.
Police force rivalry- Whitechapel bordered on the city of London- which had its own police force. They did not cooperate and were rivals for finding the killer.
The Media - The press often criticised the police and published stories based on guesswork that the police had to follow up and which distracted the police.
The letters- the police and the newspapers received three letters from someone claiming to be Jack the Ripper. The police did not know if these were genuine.

Year 9 Knowledge Organiser ICT – Functional Skills

Email Key words

Communication – The sharing or exchanging of information by speaking, writing, or using some other medium such as email.
Email – Messages sent by electronic means from one device to one or more people.
Compose – To write or create something.
Send – To make an email be delivered to the email address it is addressed to.
Attachment – A file, which could be a piece of work or a picture that is sent with the email.
Address book – A list of people who you regularly send an email to.
Save to draft – Allows you to save an email that you are working on and send it later.
Password – A secret word, phrase or combination of letters, numbers and symbols that must be used to gain admission to a site or application such as email.
CC – A way of sending a copy of your email to other people so they can see the information in it.
Formatting – Allows you to change the way the text of an email looks. For example, you can make the text bold or underline it.

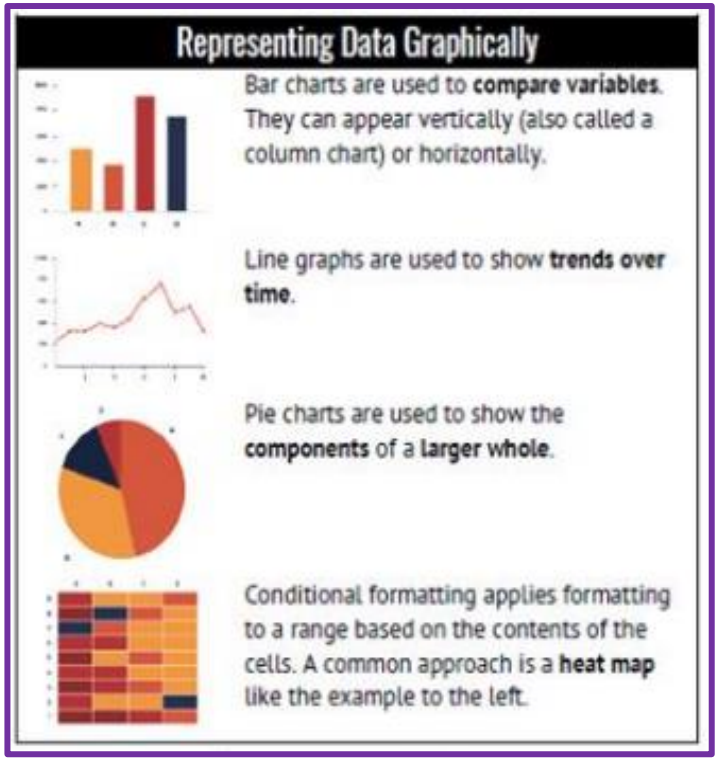


Using the internet safely

Malware - malicious - software intended to cause harm.
Penetration Testing - Organisations employ professionals to try and hack their network so that they can find areas of weakness.
User Access Levels - Different employees have different levels of access to programs, websites and data.
Encryption - data is scrambled so that it cannot be understood if intercepted. It can only be decrypted with a key.
Types of Malware Virus - attach themselves to files and copy themselves when the user copies or opens a file.
Worm - copy themselves without the user doing anything.
Trojan - malicious software pretending to be a legitimate program
Copyright – protects written, music, video, software and images being used without permission.

Cloud Storage

Examples are Microsoft One Drive or Google Drive
Stores files online enabling files to be accessed on any device with internet access.
Share files with others and automatic backup



Features of a strong password

A mix of letters, capitals, symbols, numbers
8 or more characters

No dictionary words
No personal information
Consider replacing letters with numbers e.g. the letter E and 3

Year 9 Knowledge Organiser ICT – Functional Skills

Microsoft Office	Word	Excel	PowerPoint	Outlook	Microsoft Teams
Type of program	Word processor	Spreadsheet	Presentation	Email	Chat-based collaboration
Description	Used mainly for creating documents such as letters, brochures, learning activities, tests, quizzes and students' homework assignments. Make changes easily, such as correcting spelling, adding, deleting, formatting and relocating text. Document can be printed quickly and accurately saved for later modifications.	Used to create spreadsheets, which are documents in which data is laid out in rows and columns — like a big table. Helpful and powerful program for data analysis and documentation. Store, organize and manipulate data by creating spreadsheets. Data can be manipulated mathematically using arithmetic operations and functions. Typically used to organize data and perform financial analysis.	Used to create dynamic, informational slides through the use of text, graphics, and animation. Visually display information, using anything from basic slideshows to professional multimedia presentations. Combine text, graphics and multi-media content.	Used mainly to send and receive emails. It can also be used to manage various types of personal data including calendar appointments and similar entries, tasks, contacts, and notes.	Provides a modern conversation experience for today's teams. The core capabilities include business messaging, calling, video meetings and file sharing.
Features	Create documents with different font, styles, sizes, colours. Spelling and grammar check, Thesaurus, Translate, Language preference Insert tables, images, shapes, charts	Use of formulas e.g. sum or average on a large amount of data all at once. Analyse data to discover trends. Graphs and charts can summarize the data and store it in an organized way. Tools for sorting, filtering and searching.	Add text, images, art, and videos. Select a professional design with PowerPoint Designer. Add transitions, animations, and motion.	Send, receive and organise mail. Save and edit contacts lists. Create and manage tasks and alerts. Send and receive meeting invitations. View and manage your calendar.	Conversations within channels and teams. A chat function between teams, groups, or individuals. Document storage and sharing. Online video calling and screen sharing.

Word Processing Key Words

Alignment – the orientation of the lines of a paragraph with respect to the margins.
Editing – making modifications to an existing document.
Font Style– adds emphasis to a font: bold, italic and underline.
Bullet – A dot or symbol that marks an important line of information or designates items in a list.
Vertical Alignment – The position of text in relation to the top and bottom page margins.
Horizontal Alignment – The position of text in relation to the left and right page margins
Autocorrect – A word feature that automatically corrects common spelling errors as you type.
Editing – making modifications to an existing document.
Menu Bar - The menu bar typically appears at the top of the word processing application's window and contains a listing of the main commands in the form of text

Spreadsheet Keywords

Active Cell - The active cell is the cell in the spreadsheet that is currently selected for data entry.
Cell - A cell is a rectangular area formed by the intersection of a column and a row.
Data - Data refers to the type of information that can be stored in the cells of a spreadsheet.
Formula - A formula is a spreadsheet data type that will calculate a result and display it in the active cell.
Labels - Labels refer to text that is typed into the cells of a spreadsheet.
Range - A range is a group of cells in a spreadsheet that have been selected.
Rows - Rows run horizontally on the spreadsheet screen.
Workbook - A workbook is a collection of worksheets that are saved together in one file.
Column - Columns run vertically on the spreadsheet screen.
Column / Bar Chart: A column or bar chart is a style of chart that is used to summarize and compare categorical data.

B2: Cells and control

Lesson sequence

1. Mitosis
2. Animal growth
3. Plant growth
4. Stem cells
5. Nervous system
6. Neurotransmission
7. Controlling movement

1. Mitosis	
***Cell cycle**	The life of a cell comprising interphase and mitosis.
***Interphase**	Preparation for mitosis in which extra cell parts are made and DNA chromosomes are replicated (copied).
***Mitosis**	When one cell divides into two genetically identical daughter cells.
***(I)PMATC**	The stages of mitosis: interphase (not mitosis), prophase, metaphase, anaphase, telophase, cytokinesis.
****Prophase**	The membrane of the nucleus breaks down and spindle fibres start to form.
****Metaphase**	Spindle fibres fully form and chromosomes line up across the middle of the cell.
****Anaphase**	Chromosome copies separate and move to each end of the cell.
****Telophase**	A new membrane forms around each set of chromosomes to form two nuclei.
****Cytokinesis**	The two new cells fully separate.
***Cancer**	When mitosis happens out of control forming large lumps of cells called tumours.

2. Animal growth	
***Growth**	Increase in size due to increased numbers of cells.
***Percentile**	A measure of the growth of a child that compares them to other children of the same age.
***90th percentile**	A child is taller than 90% of children of the same age.
***50th percentile**	Average for height/mass for the age.
***Percentile graphs**	Graphs showing how height/mass change with age with different lines for each percentile.
***Cell differentiation**	When a cell divides by mitosis to produce two different types of cell (not two identical ones).
***Specialised cell**	A cell special features designed for a specific job.
****Importance of differentiation in animals**	To produce all the different types of cell the body needs such as red blood cells, fat cells, nerve cells and muscle cells.

3. Plant growth	
***Plant growth**	Cell division creates more cells, elongation makes these cells get bigger.
****Meristems**	Areas just behind the tips of roots and shoots where cell division and differentiation happens.
****Importance of differentiation in plants**	To produce all the different types of cell a plant needs such as root hair cells and xylem cells.
****Calculating percentage changes**	% change = (final value – starting value) / starting value x 100

4. Stem cells	
***Stem cell**	A cell that can differentiate when it divides, to produce two different cells.
****Embryonic stem cell**	A stem cell that can become any kind of cell. Found in developing embryos.
****Adult stem cell**	A stem cell that can only become a few types of cell. Found in animals after birth.
***Stem cells in medicine**	It is hoped they can be used to replace damaged cells in diseases like type 1 diabetes or leukaemia, or to grow new organs for transplant.
****Problems with stem cells**	They may potentially cause cancer, stem cells can only be used in the person they have come from.

5. Nervous system	
***Nervous system**	All the nerves in your body working together to gather information, make decisions and control responses.
***Central nervous system**	The brain and spinal cord – makes decisions (aka CNS).
****Peripheral nervous system**	All your other nerves – gathers information from your sense and carries messages from the CNS to your muscles.
***Neurone**	A nerve cell
***Impulse**	Electrical message carried by a neuron.
****Cell body**	The central part of a nerve cell containing its nucleus.
****Dendron and axon**	The long parts of a nerve cell carrying impulses towards the cell body (dendron) and away from it (axon)
****Myelin sheath**	A fatty layer around the axon and dendron that insulates it to prevent the impulse from escaping and speeds the impulse up.

6. Neurotransmission	
****Neurotransmission**	The travelling of an impulse along a neuron and into another.
****Dendrites**	Branches at the beginning of a dendron that connect to receptor cells or another neuron.
****Axon terminals**	Branches at the end of an axon that connect to a muscle or another neuron.
****Synapse**	Small gap between two neurons where the axon terminals of one meet the dendrites of another.
****Neurotransmitter**	Chemicals released by axon terminals that diffuse across the synapse to trigger a new impulse the dendrite of another neuron.
****Sensory neuron**	Nerve cell that carries impulses from sense organs to the CNS. Has a long dendron and a long axon.
****Relay neuron**	Nerve cell in the CNS that makes decisions. Dendrites join onto cell body, short axon.
****Motor neuron**	Nerve cell that carries impulses from the CNS to muscles. Dendrites join onto cell body, long axon.

7. Controlling movement	
***Stimulus**	A piece of information detected by the nervous system.
***Receptor**	Cells that detect a stimulus.
***Response**	The action that the nervous system makes happen.
***Effector**	The body part that produces the response, often a muscle.
****Voluntary movement**	A stimulus is detected by a receptor, causing an impulse to be carried by a sensory neuron to the brain. Relay neurones in the brain decide what to do and send another impulse down a motor neuron to the effector (muscle) to cause a response.
***Reflexes**	Automatic responses that happen very quickly without conscious thought to keep the body safe.
****Reflex arc**	Movement is caused in the same way as for voluntary movement, except the spinal cord makes the decision without needing the brain to think.

B3: Genetics

Lesson sequence

1. Meiosis
2. DNA
3. DNA extraction
4. Alleles
5. Inheritance
6. Gene mutation
7. Variation

1. Meiosis	
***Gametes**	Egg cell and sperm cell
***Fertilisation**	Sperm cell fuses with egg cell and nuclei combine
***Zygote**	Single cell formed by fertilisation
***Gene**	Length of DNA coding for a protein. Controls your characteristics
***Genome**	All the DNA and genes in an organism
***Protein**	Polymer made from amino acids
****Polymer**	Long molecule made by chaining together many shorter ones
***Diploid**	A cell with 23 pairs of chromosomes (46 in total)
***Haploid**	A cell with 23 single chromosomes
***Meiosis**	Cell division that makes gametes
****Meiosis stages**	DNA replicates, cell divides into 2 diploid cells, these divide into 4 haploid daughters.
****Why gametes are different**	Chromosomes in a pair are slightly different. Different gametes get different combinations of chromosomes.

2. DNA	
***Chromosome**	Large DNA molecule made into a small package by tightly coiling DNA around a protein.
***DNA structure**	Two strands, double helix, complementary base pairs, sugar-phosphate backbone
***DNA bases**	Adenine, A; thymine, T; cytosine, C; guanine, G
***Complementary base pairs**	A pairs with T C pairs with G
****Hydrogen bonds**	Weak force holding the two strands of DNA together.
****DNA analysis**	Uses small differences in DNA to determine family relationships or link people to crimes.

3. DNA extraction	
***DNA extraction: Mix water, salt and detergent.**	Salt makes DNA clump together, detergent breaks down cell membranes to release DNA
***DNA extraction: Mash fruit/veg and add the solution**	Increases the surface area
***DNA extraction: Leave in water bath at 60^{o}C**	Heat makes it react quicker
***DNA extraction: Filter the mixture and collect filtrate**	To remove unwanted lumps
***DNA extraction: Measure out 10 cm^3 of filtrate**	It's easier to work with a small amount
***DNA extraction: Add two drops of protease solution**	Protease breaks down proteins around the DNA
***DNA extraction: Gently add ice-cold ethanol**	DNA is insoluble in ethanol so precipitates
***DNA extraction: Leave for several minutes**	So white DNA layer forms

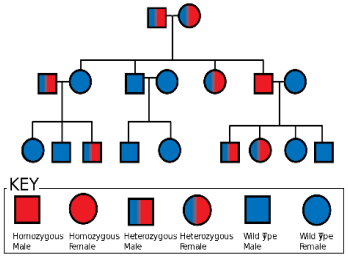
4. Alleles	
***Allele**	Different version of the same gene. We have two alleles of each gene.
****Homozygous**	We have two copies of the same allele
****Heterozygous**	We have two different copies of an allele
***Dominant allele**	One copy needed for characteristic to show. Written as a capital.
***Recessive allele**	Two copies for the characteristic to show. Written as lowercase.
***Genotype**	The combination of alleles in an organism.
***Phenotype**	The characteristics produced by the alleles.
****Genetic diagram**	Shows the likelihood of offspring produced by parents with certain genotypes

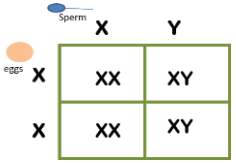
5. Inheritance	
***Sex chromosomes**	Female: XX Males: XY
***Inheriting sex**	All eggs are X, 50% of sperm are X and 50% are Y, so 50% of zygotes are XX and 50% are XY
***Punnett squares**	Uses the genotypes of male and female gametes to predict the genotypes of the offspring.
****Probability and Punnett squares**	Punnett squares tell you the likelihood of certain offspring, not what will actually happen.
****Cystic fibrosis**	Illness caused by a inheriting two copies of a faulty recessive allele.
****Family pedigree chart**	Chart showing how genotypes are inherited down through a family.

6. Gene mutation	
***Mutation**	A change to the bases in a gene.
****Effect of mutations**	Change the structure of a protein and how it works. Sometimes harmless, normally harmful, very rarely beneficial
***Cause of mutations**	Mistakes copying DNA during cell division, DNA damage from chemicals or radiation
***Inheriting mutations**	Only if they occur in gametes (egg and sperm)

***Human Genome Project**	(HGP) Project involving many scientists from many countries to find the order of bases in human DNA
****How is the HGP useful?**	To tailor drugs to genes, to design better drugs
****Genetic differences**	HGP found 99% of DNA in all people is identical.

7. Variation	
***Variation**	Natural differences between members of a species that affect the chance of survival.
***Genetic variation**	Variation caused by genes
***Environmental variation**	Caused by interaction with the surroundings – such as food, climate etc.
***Causes of most variation**	A combination of genes and the environment.
****Acquired characteristics**	Changes caused by the environment during your lifetime, such as losing a leg
****Continuous variation**	Can be anywhere within a range, such as height , following a normal distribution.
****Discontinuous variation**	Can be only one of a few possibilities, such as blood type: A, B, AB, O
****Normal distribution**	Bell-shaped curve with more in the middle and fewer either side.



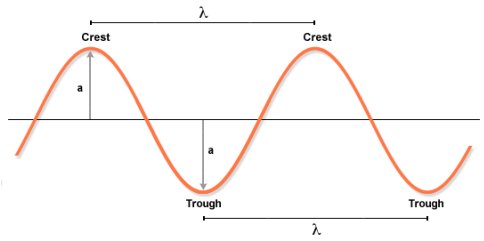


P4: Waves

Lesson sequence

1. Waves
2. Wave speed
3. Core practical – investigating waves (CP13)
4. Refraction

1. Waves	
***Waves**	Transfer energy without transferring matter.
***Oscillate**	When particles vibrate backwards and forwards or up and down.
***Transverse waves**	Waves in which particles oscillate at right angles to the direction of energy movement. E.g. water waves and light waves.
***Longitudinal waves**	Waves in which particles oscillate parallel to the direction of energy movement. E.g. sound waves.
***Medium**	The material that waves travel through. Light waves are the only waves that have no medium.
***Seismic waves**	Waves of vibrating rock caused by earthquakes.
***Frequency**	The number of waves that pass a point every second.
***Hertz**	The unit of frequency. 1 Hz = 1 wave per second.
***Period**	The length of time it takes for a single wave to pass.
***Wavelength**	The distance in m from the top of one wave to the top of the next.
***Amplitude**	The maximum distance a particle vibrates away from its resting point,
***Velocity**	The speed of a wave in m/s.

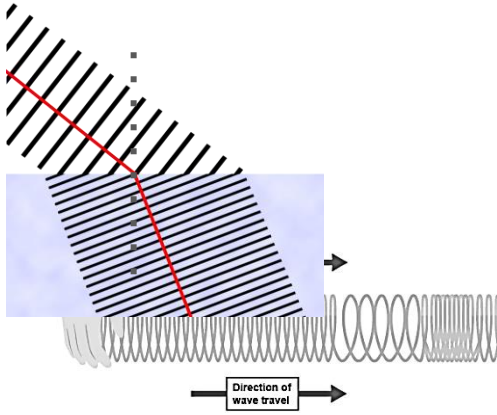


2. Wave speed	
***Speed, distance and time**	$wave\ speed\ (m/s) = \frac{distance\ (m)}{time\ (s)}$
***Speed, frequency and wavelength**	$wave\ speed\ \left(\frac{m}{s}\right) = frequency\ (Hz) \times wavelength\ (m)$
****Measuring wave speed**	Time how long they take to travel a certain distance.
*****Changing speed**	Waves travel at a different speed in a different medium. Light is slower in water than air.

3. Core practical – investigating waves (CP13)	
***CP13 - Aim**	To measure the speed of waves in a liquid and a solid.
***CP13 – Water waves 1**	1. Count the number of waves in 10 s and use this to find the frequency. 2. Measure the wavelength with a ruler 3. Wave speed = frequency x wavelength
***CP13 – Water waves 2**	1. Time how long a wave takes to pass two points, 0.3 m apart. 2. Wave speed = dist / time
***CP13 - Waves**	1. Hit suspended metal bar with hammer and measure the frequency using an app.
in a solid	2. Measure the metal bar – double the length gives the wavelength

4. Refraction	
Refraction	Bending of waves when they enter a new medium at an angle.
Interface	The boundary between two media (mediums) such as air and water.
Normal	An imaginary line drawn at 90° to where light hits an interface (boundary).
Travelling from air to glass or water	Light bends towards the normal
Travelling from glass or air to water	Light bends away from the normal.

Explaining refraction	Light waves slow down as they go from air to water. The 'bottom' of the wave hits the water and slows down first, causing refraction.



P5: Light and the electromagnetic spectrum

Lesson sequence

1. Electromagnetic waves
2. Core practical - Investigating refraction (CP14)
3. The electromagnetic spectrum
4. Using the long wavelengths
5. Using the short wavelengths
6. Dangers of EM radiation

1. Electromagnetic waves	
***Electromagnetic waves**	Transverse waves that travel at the speed of light.
***Speed of light**	300,000,000 m/s (3 x 10^8 m/s)
***Frequency**	The number of waves that pass a point every second.
***Wavelength**	The distance in m from the top of one wave to the top of the next.
***EM wave similarities**	All are transverse, all travel at the speed of light.
***EM wave differences**	Different frequencies, different wavelengths.
***Visible light**	The only type of EM radiation that our eyes can detect.
****Interface**	The boundary between two different materials.
*****Refraction and wave speed**	Light travels at different speeds in different materials causing it to refract when hitting the interface at an angle.
*****Prisms and the colour spectrum**	Different wavelengths slow down by different amounts when they hit glass causing each colour to refract differently.
****Infrared discovery**	Light split into a spectrum. Thermometer placed on every colour plus next to red. Red was hot, next to red was hottest.

2. Core practical – Investigating refraction (CP14)	
****Angle of incidence**	Angle between the incident ray and the normal
****Angle of refraction**	Angle between the refracted ray and the normal.
***CP14 – Aim**	To explore how changing the angle of incidence changes the angle of refraction
***CP14 - Setup**	Place a glass block on a sheet of paper, point a beam of light from a ray box at it, trace around the block and draw in the light ray.
***CP14 - Measurement**	Use a protractor to draw a normal, then measure the angles of incidence and refraction.
***CP14 - Variations**	Repeat 5 times, from 5 different angles, including head-on.
***CP14 - Results**	The greater the angle of incidence, the greater the angle of refraction.

3. The electromagnetic spectrum	
***EM spectrum mnemonic**	**R**ubbish **M**emories **I**nclude **V**isiting **U**r **X** **G**irlfriend
***EM spectrum – lowest to highest frequency or energy**	Radio waves, microwaves, infrared, visible light, ultraviolet, x-rays, gamma rays
***EM spectrum – lowest to highest wavelength**	Gamma rays, x-rays, ultraviolet, visible light, infrared, microwaves, radio waves
***EM spectrum**	The full range of types of EM radiation.
*****EM Radiation and the atmosphere**	Some EM radiation (visible, radio) passes through the atmosphere, most is absorbed.
*****Space telescopes**	For radiation absorbed by the atmosphere, a telescope must be placed in space.

4. Using the long wavelengths	
***Visible light uses**	Illumination, photography
***Infrared uses**	Short-range communications (TV remotes), fibre optics, cooking (grills and toasters), security cameras.
***Microwave uses**	Microwave ovens, mobile phone and satellite communications.
***Radio wave uses**	Radio and TV signals.
*****Producing radio waves**	Oscillating electricity in a metal rod produces radio waves.
*****Receiving radio waves**	Radio waves absorbed by a metal rod cause electrical oscillations.

5. Using the short wavelengths	
****Fluorescence**	Absorbing ultraviolet and re-emitting it as visible light.
***Ultraviolet uses**	Fluorescent security inks, fluorescent light bulbs, sterilising water.
***X-ray uses**	Hospital x-rays, baggage scanners.
***Gamma ray uses**	Killing bacteria on food or surgical instruments, detecting and treating cancer.

6. EM radiation dangers	
****Infrared dangers**	Surface heating causing burns.
****Microwave dangers**	Absorbed by water causing it to heat up burns under the skin.
****Ionisation**	High energy radiation causes ions to form in our cells, damaging DNA and causing cancer.
***Ultraviolet dangers**	Skin cancer, snow blindness.
***X-ray dangers**	Cancer
***Gamma ray dangers**	Cancer

KS3 PE THEORY

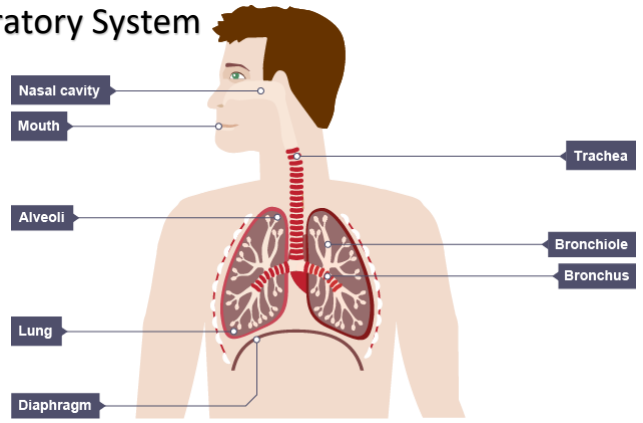
Function of the Skeleton

- **Support:** the bones are solid and rigid. They keep us upright and hold the rest of the body – the muscles and organs – in place.
- **Movement:** the skeleton helps the body move by providing anchor points for the muscles to pull against.
- **Structural shape and points for attachment:** the skeleton gives us our general shape such as height and build.
- **Protection:** certain parts of the skeleton enclose and protect the body's organs from external forces e.g. the brain is inside the cranium.
- **Production of Blood Cells:** the bone marrow in long bones and ribs produce red and white blood cells.
- **Mineral Storage:** bones store several minerals e.g. calcium, which can be released into the blood when needed.

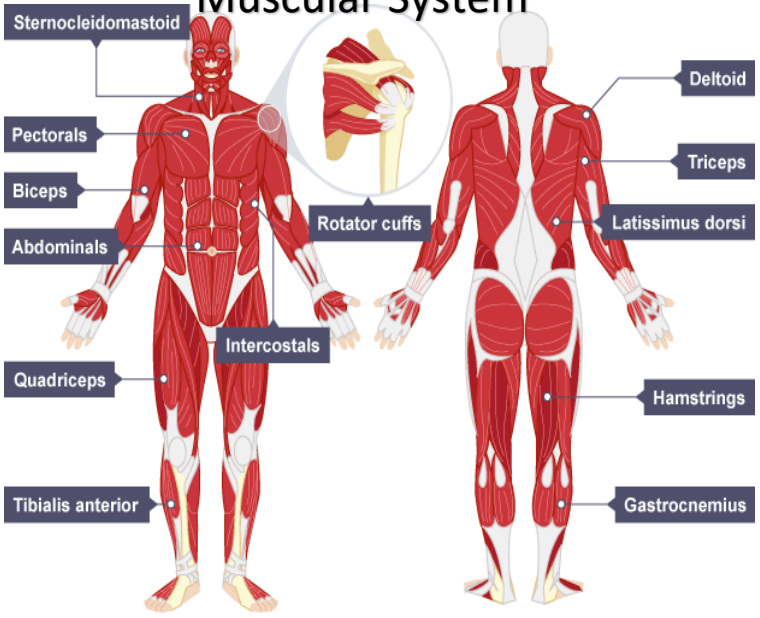
Components of Fitness

Cardio-Vascular
Endurance
Flexibility
Muscular Endurance
Strength
Body Composition
Agility
Balance
Co-ordination
Power
Reaction Time
Speed

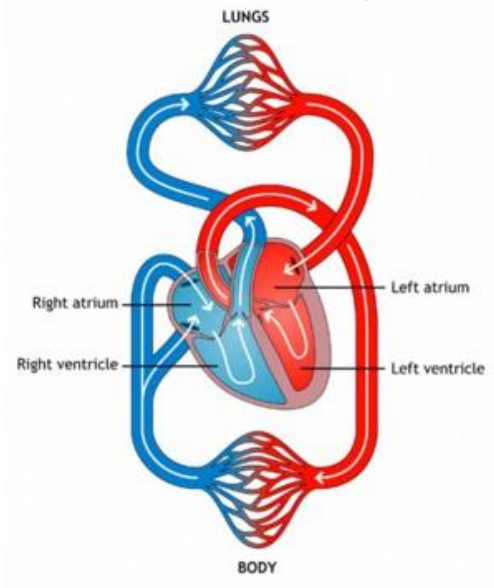
Respiratory System



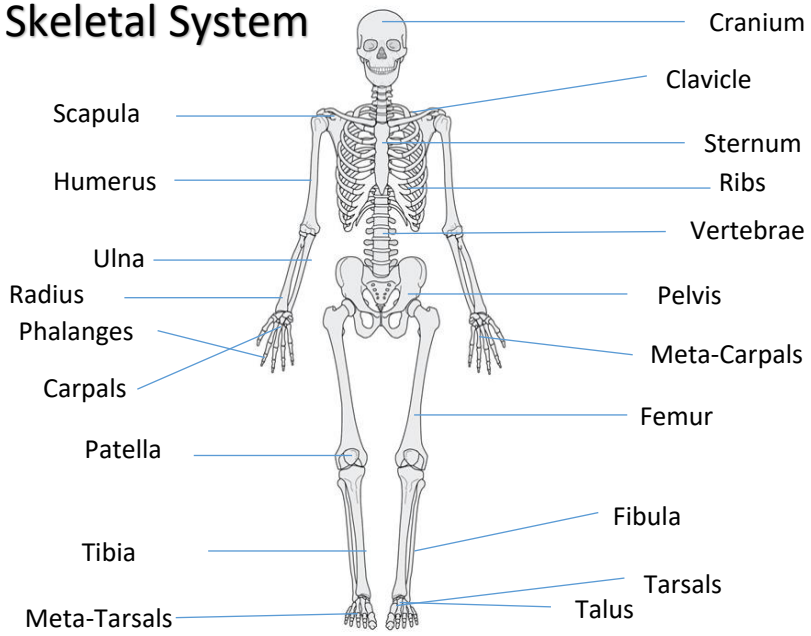
Muscular System



Cardiovascular System

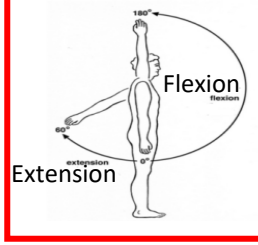


Skeletal System

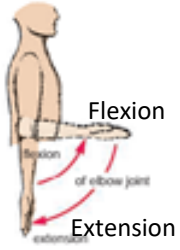


Movement at a Joint

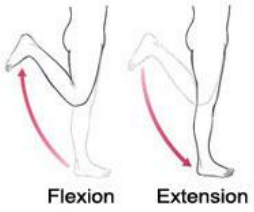
Flexion and extension at the shoulder
- The **Deltoid** causes flexion at the shoulder
- The **Latissimus dorsi** causes extension at the shoulder



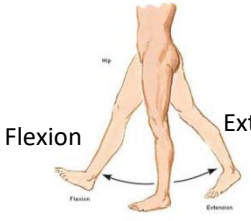
Flexion and extension at the elbow
- The **Biceps** cause flexion at the elbow
- The **Triceps** cause extension at the elbow



Flexion and extension at the knee
- The **Hamstrings** cause flexion at the knee
- The **Quadriceps** cause extension at the knee

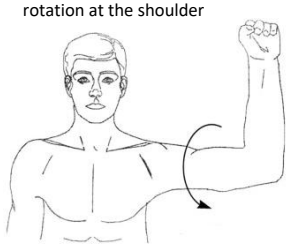


Flexion and extension at the hip
- The **Hip Flexors** cause flexion at the hip
- The **Gluteals** cause extension at the hip



Flexion and extension at the ankle
- The **Tibialis Anterior** causes dorsiflexion at the ankle
- The **Gastrocnemius** cause plantar flexion at the ankle

Rotation of the Shoulder
- The **Rotator Cuff** causes rotation at the shoulder



Abduction and Adduction at the shoulder
- The **deltoid** causes abduction at the shoulder
- The **Pectorals / Latissimus Dorsi** cause adduction at the shoulder