Knowledge Goals Homework Booklet (Autumn 1)

Year 9 and 10

Name: _____

Settlebeck School

Respect | Responsibility | Aspiration

Subject Index

Suggested Homework Schedule
(30 minutes of independent study per subject each week)

	Subjects to Revise	
Monday	Science	Option 2
Tuesday	Mathematics	Option 2
Wednesday	Science	Tier 2 Vocab
Thursday	English	Option 3
Friday	Option 3	Mathematics
Saturday	Option 1	English
Sunday	Option 1	Mathematics

To help you get organised, we have planned out your weekly homework slot for each subject.

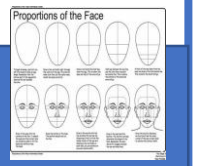
Subject Homework Frequency Information

Subject	Homework
Art	Fortnightly
Computer Science	Fortnightly
Design and Technology	Fortnightly
Drama	One per half term
English	Weekly
Food Technology	Weekly
French	Weekly
Geography	Fortnightly
History	Fortnightly
Mathematics	Weekly
Music	Once per half term
PSHE	Once per half term
Physical Education	One per half term
Religious Studies	Weekly
Science	Weekly

HOW TO SELF TEST

Mind mapping

- Mind mapping is simply a diagram to visually represent or outline information.
- Use information gathered from your Knowledge Goals booklet to create mind maps, make sure to use colour and images and keep writing to the bare minimum.



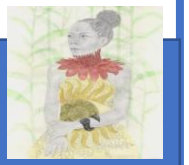
HOW TO MIND MAP VIDEO

Parent information on knowledge retrieval:

Flash cards

Use your Knowledge Goals booklet to make flash cards. Write the questions on one side and on the other record the answer.

Test yourself or work with a friend to make sure you know all of the key information for each topic.



HOW TO FLASH CARD VIDEO

How should students use the Knowledge Goals booklets?

Your **Knowledge Goals** booklet provide the essential knowledge that you need to learn in each subject this half term.

You are expected to spend **30 minutes per subject per week** 'learning' the content.

You will be assessed during lessons using 'low stake' quizzing.

Your teacher may choose to set you additional homework.

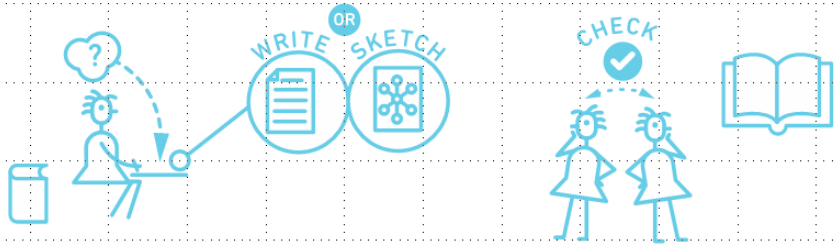
How can parents support?

- Read through the booklet with your child – if you don't understand the content then ask them to explain it to you – 'teaching' you helps them to reinforce their learning.
- Test them regularly on the spellings of key words until they are perfect. Get them to make a glossary (list) of key words with definitions or a list of formulae.
- Read sections out to them, missing out key words or phrases that they have to fill in. Miss out more and more until they are word perfect.

Retrieval Practice

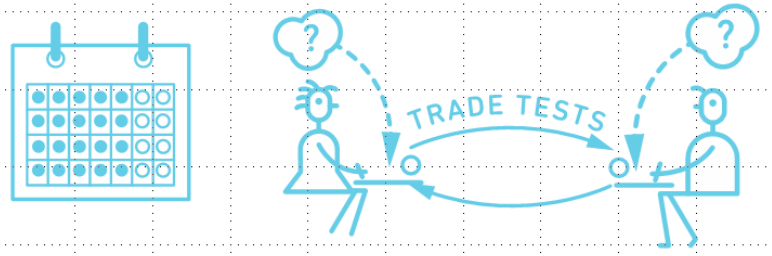
HOW TO DO IT

Put away your class materials, and write or sketch everything you know. Be as thorough as possible. Then, check your class materials for accuracy and important points you missed.



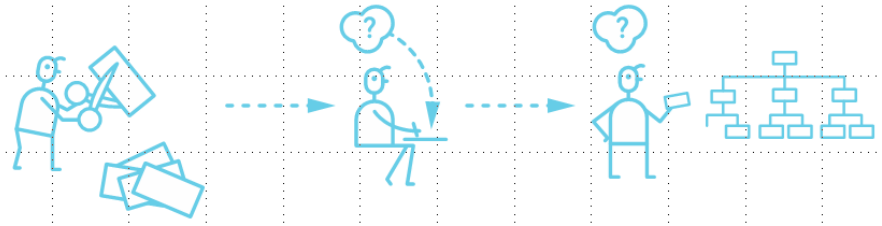
HOW TO DO IT

Take as many practice tests as you can get your hands on. If you don't have ready-made tests, try making your own and trading with a friend who has done the same.



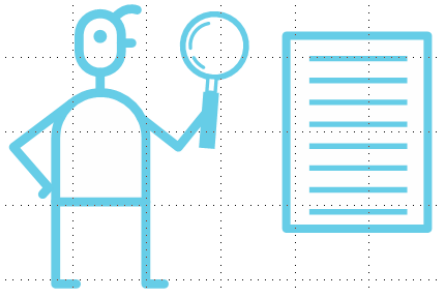
HOW TO DO IT

You can also make flashcards. Just make sure you practice recalling the information on them, and go beyond definitions by thinking of links between ideas.



HOLD ON!

Retrieval practice works best when you go back to check your class materials for accuracy afterward.

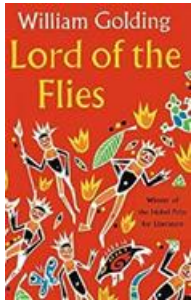
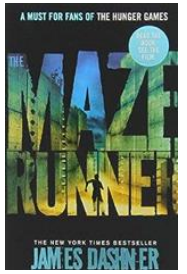


Literacy: Tier 2 Vocabulary

Tier 2 Vocabulary		
	Key word	Definition
1	deteriorate	To make or become worse or inferior in condition, character, quality, value, etc.
2	hamper	To hold back; hinder; impede.
3	shift	To put (something) aside and replace it by another or others; change or exchange.
4	pledge	A solemn promise or agreement to do or refrain from doing something
5	sparse	Thinly scattered or distributed.
6	teeming	Abounding or swarming with something, as with people.

These words are all tier 2 words; in other words, they are seen as 'academic vocabulary' and if you know them, can understand them and use them, you will do better in your exams and be able to communicate more precisely and effectively in life.

DEAL Year 9 (Autumn Term)

Book Title	Author	Genre	Overview	Image
Lord of the Flies	William Golding	Classic	Lord of the Flies is set on a remote island and shows how a group of stranded schoolboys go from civilisation to savagery in a very short space of time. Although their situation at first seems to have the makings of a fun adventure, their fight to survive in their environment and their struggle with each other for power reveals the wickedness which lives inside all of us. Before they are finally rescued there is savagery, destruction, terror and even death.	
British Values	Tolerance	Individual Liberty	Rule of Law	Democracy	Mutual respect
Maze Runner	James Dashner	Science Fiction (Dystopian Adventure)	The first three books in the pulse pounding Maze Runner series! When the doors of the lift crank open, the only thing Thomas remembers is his first name. But he's not alone. He's surrounded by boys who welcome him to the Glade - a walled encampment at the centre of a bizarre and terrible stone maze. But the maze is just the beginning ...	
British Values	Tolerance	Individual Liberty	Rule of Law	Democracy	Mutual respect

DEAL Year 10 (Autumn Term)

Book Title	Author	Genre	Overview	Image
The Hunger Games	Suzanne Collins)	Science Fiction (Dystopian Adventure)	The Hunger Games universe is a dystopia set in Panem, a North American country consisting of the wealthy Capitol and 13 districts in varying states of poverty. Every year, children from the first 12 districts are selected via lottery to participate in a compulsory televised battle royale death match called The Hunger Games. The Hunger Games follows 16-year-old Katniss Everdeen, a girl from District 12 who volunteers for the 74th Hunger Games in place of her younger sister Primrose Everdeen. Also selected from District 12 is Peeta Mellark, who once saved Katniss from starvation when they were children. They are mentored by their district's only living victor, Haymitch Abernathy, who won 24 years earlier and has since led a solitary life of alcoholism.	
British Values	Tolerance	Individual Liberty	Rule of Law	Democracy	Mutual respect
All Quiet on the Western Front	Erich Maria Remarque	War Novel	In 1914 a room full of German schoolboys, fresh-faced and idealistic, are goaded by their schoolmaster to troop off to the 'glorious war'. With the fire and patriotism of youth they sign up. What follows is the moving story of a young 'unknown soldier' experiencing the horror and disillusionment of life in the trenches.	
British Values	Tolerance	Individual Liberty	Rule of Law	Democracy	Mutual respect

British Values

British Values: What They Mean for Us

British values are the important ideas that help make the UK a fair, safe, and respectful place for everyone. These values shape how we live together and treat each other. Here's a simple breakdown of the key British values:

Democracy

- Democracy is all about having a voice. In the UK, we get to vote in elections to choose our leaders and decide on important issues. Everyone's opinion matters!
- At school, this means having the chance to express your views, take part in decisions, and have your voice heard.

The Rule of Law

- The rule of law means that everyone must follow the law, no matter who they are. Laws help keep us safe and ensure that everyone is treated fairly.
- At school, we follow rules that help keep our environment respectful and safe for everyone.

Individual Liberty

- Individual liberty is about having the freedom to make your own choices, as long as they don't harm others. It's about having the freedom to think for yourself, express your opinions, and be who you are.
- At school, you can express yourself, pursue your interests, and have the freedom to make choices about your learning.

Mutual Respect and Tolerance

- Mutual respect means valuing other people's opinions, feelings, and beliefs, even if they're different from your own. Tolerance is about accepting people for who they are and being open to different cultures, ideas, and traditions.
- At school, we show respect by listening to each other, understanding differences, and creating a welcoming and friendly environment for everyone.

Equality

- Equality means treating everyone fairly, no matter their background, gender, race, or beliefs. Everyone should have the same opportunities to succeed.
- At school, we support equality by making sure everyone has the same chances and is treated with respect, regardless of who they are.

How British Values Apply to Us at Settlebeck

At Settlebeck, we bring British values to life by encouraging respect for each other, celebrating diversity, and working together to create a positive school community. These values help us create a safe and supportive space where we can all learn and grow, respecting each other's differences and making sure everyone feels included. By living these values, we can all contribute to making Settlebeck a great place to learn, where everyone has the chance to thrive!

Year 9 and 10 Knowledge Goals: Art Still Life

Still life is a broad term in art that can include many subjects. Anything that doesn't move on its own - any inanimate object - can be used in still life art. Artists have been inspired by still life throughout history and it is still a popular theme today.

Drawing lines, shapes and details accurately shows an understanding of the subject. By observing objects carefully you will start to notice how our eyes make sense of:
- perspective
- lines
- 2D shapes
- 3D shapes
- light and dark

Observational drawings should clearly show what you see.

Search | National Gallery, London

Still Life Painting And How It's Survived Thousands Of Years (mymodernmet.com)

Van Gogh – Sunflowers

Georges Braque – Violin & Candlestick

To set up your own still life:
Think about how to choose, set up and arrange objects for a still life. Here are some ideas to help:
- use an odd number of items
- include objects of different shapes, sizes and textures
- use objects that have things in common
- overlap objects
- consider a balance of pattern and colour
- think about what the viewer's eye will look at first and how it will move around the picture

Giorgio Morandi
(July 20, 1890 – June 18, 1964) was an Italian painter and printmaker he focused on still life. His paintings are noted for their tonal subtlety in depicting simple subjects, mainly vases, bottles, bowls, flowers.

Still life - Observational drawing - AQA - GCSE Art and Design Revision - AQA - BBC Bitesize

Still life | Tate

Still life, pitcher and fruit
Paul Cezanne
- Date: 1894
- Style: Post-Impressionism
- Period: Final period
- Genre: still life
- Media: oil canvas
- Location: Private Collection
- Dimensions: 43.2 x 62.8 cm

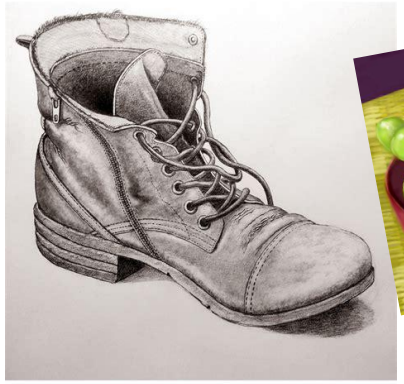
TOP TIP! Try creating observational drawings in stages. Start by focusing on the shape then check the proportions, lightly draw the details then finally start to add shading. After each stage of drawing, compare it to the subject. Make small changes at each stage to improve the work.

Still life with white bowl
Paul Gauguin
- Date: 1886; France
- Style: Post-Impressionism
- Period: Breton period
- Genre: still life
- Media: oil, canvas
- Location: Kunsthaus Zürich, Zürich, Switzerland
- Dimensions: 59.5 x 72 cm

Year 9 and 10 Knowledge Goals: Still Life

Tier 3 Vocabulary		
	Key word	Definition
1	**Scale**	The size of the objects in a still life arrangement. Composition refers to how each of the objects are brought together and arranged.
2	**Post Impressionism**	The work or style of a varied group of late 19th-century and early 20th-century artists including Van Gogh, Gauguin, and Cézanne. They reacted against the naturalism of the impressionists to explore colour, line, and form, and the emotional response of the artist.
3	**Cubism**	An early 20th-century style and movement in art, especially painting, in which perspective with a single viewpoint was abandoned and use was made of simple geometric shapes, interlocking planes, and, later, collage.
4	**Symbolist**	A late nineteenth-century movement that advocated the expression of an idea over the realistic description of the natural world.
5	**Fauvist**	Style of painting that flourished in France around the turn of the 20th century. Fauve artists used pure, brilliant colour aggressively applied straight from the paint tubes to create a sense of an explosion on the canvas.
6	**Composition**	Composition is the arrangement of elements within a work of art.
7	**Ellipse**	An ellipse in art is an oval, but the term generally refers to an oval used to represent a titled circle that adds to the impression of depth.
8	**Observational drawing**	Look at the subjects directly in front of your eyes and depict them accurately within a drawing.

Famous Still Life Artists	Art Movement
Van Gogh	Post-Impressionist
Paul Cezanne	Post-Impressionist
Giorgio Morandi	Metaphysical art
Georges Braque	Cubism
Pablo Picasso	Cubism
Paul Gauguin	Symbolist
Henri Matisse	Fauvist



Year 9 and 10 Knowledge Goals: Computer Science

3.3 Fundamentals of data representation

	Term	Definition
1	Number bases	The number base is the number of digits available in that number system. You have to know about 3. Decimal/Denary(base 10) Binary(base 2) Hexadecimal(base 16)
2	Binary and data	All data inside the computer is represented in binary. That applies to numbers, data, instructions, text, bitmaps and sound. Binary is used because part of the electric circuit is off or part of the electric circuit is on. This produces the representation of 0s and 1s.
3	Why hexadecimal?	We use hexadecimal in computer science as it makes it larger numbers appear smaller and therefore makes them easier to communicate.
4	Binary Line	<table><tr><th>128</th><th>64</th><th>32</th><th>16</th><th>8</th><th>4</th><th>2</th><th>1</th></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>
5	Binary to Denary	Add up only the columns that contain a 1. Double check the answer after you have worked it out.
6	Most Significant Bit	The first bit on the left.
7	Least Significant Bit	The bit on the far right.
8	Denary to Binary	Start at the left hand side. Check if that column fits into the number. If it **doesn't** enter a 0. If it does enter a 1 **BUT** subtract the column value from your number. Example: **73** <table><tr><th>128</th><th>64</th><th>32</th><th>16</th><th>8</th><th>4</th><th>2</th><th>1</th></tr><tr><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>1</td></tr></table> 73 - 64 = 9 left to find

3.3 Fundamentals of data representation

		9 - 8 = 1 left to find 1 - 1 = 0. We are finished To double check, add **each column heading** where we have placed a 1
9	Hexadecimal	A number system that has 16 different possible digits. 0–9, A=10 B=11 C=12, D=13, E=14, F=15 <table><tr><td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>A</td><td>B</td><td>C</td><td>D</td><td>E</td><td>F</td></tr></table>
10	Hex to Denary	<table><tr><td>16</td><td>1</td></tr><tr><td>**4**</td><td>**B**</td></tr></table> 4 * 16 + B (11) = **75**
11	Denary to Hex	**Method1:** Divide by 16. Whole part goes in the left column. Remainder in the right column. **Method2:** Convert Denary to Binary then use the split method.
12	Hex to binary and binary to hex	1) Convert to an 8 bit binary number 2) Split into two nibbles like below 3) Add up both sides <table><tr><td>8</td><td>4</td><td>2</td><td>1</td><td></td><td>8</td><td>4</td><td>2</td><td>1</td></tr><tr><td>**1**</td><td>**0**</td><td>**1**</td><td>**1**</td><td></td><td>**1**</td><td>**1**</td><td>**1**</td><td>**1**</td></tr></table> 8+2+1 = 11 (**B**) 8 + 4 + 2 + 1 = 15(**F**) **BF**
13	Bit	A single **1** or **0**
14	Nibble	**4** bits
15	Byte	**8** bits
16	KB	1000 Bytes
17	MB	1000 KB
18	GB	1000 MB

3.3 Fundamentals of data representation

19	TB	1000GB
20	Binary Addition	<table><tr><td>0 + 0 =</td><td>**0**</td></tr><tr><td>0 + 1 =</td><td>**1**</td></tr><tr><td>1 + 0 =</td><td>**1**</td></tr><tr><td>1 + 1 =</td><td>**0 carry 1**</td></tr><tr><td>1 + 1 + 1 =</td><td>**1 carry 1**</td></tr></table>
21	Binary Overflow	When the number of bits in the answer is greater than original bits.
22	Bit Shiting	If you shift a number to the left it **multiplies**. • One shift multiplies it by **2** • Two shifts multiplies it by **4** • Three multiplies it shifts by **8** If you shift a number to the right it **divides**. • One shift divides it by **2** • Two shifts divides it by **4** • Three shifts divides it by **8** Example Perform a 2 place left shift on: **00100010** <table><tr><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td></tr><tr><td>1</td><td>0</td><td>0</td><td>0</td><td>1</td><td>0</td><td>0</td><td>0</td></tr></table>
23	ASCII	• **A**merican **S**tandard **C**ode for **I**nformation **I**nterchange • Where each character is represented by a **unique** 7–bit binary **number** • 7 Bit = 128 characters. • Mainly used for the **English language**.
24	Unicode	• Character set used for **non english languages** also allows **emoji's**. • **16 bits** or 2 bytes • It has 65,536 different options.
25	Character Set	The different characters a computer can represent
26	Image Representation	• Images are made up of **pixels** • Each pixel has a **unique binary value** • The number of colours in the image is called the **colour depth**

Revise:

BBC Bitesize

Craig 'n' Dave

Year 9 and 10 Knowledge Goals: Computer Science

3.3 Fundamentals of data representation

27	Resolution	The number of pixels within a screen or an image. Height * Width.
28	Colour Depth	• The number of bits per pixel • The more bits the more colours the image can show • So 8 bits is $2^8 = 256$ colours.
17	Size of an Image file(In bits)	Height x Width x Colour Depth
19	Sound	A sound wave is measured so many times per second called the **frequency**. The height of the wave is measured and converted into a binary value.
20	Sample rate	The sample rate is the **number of measurements** taken per **second**
21	Sample resolution	The sample resolution is the number of bits per sample (bit depth)
22	Size of a sound file	sample rate x resolution x number of seconds
23	Compression	Compression is the process of reducing the size of a file to ensure it takes up less storage or makes it easier to send over the internet There are two types: • Lossy • Lossless
24	Huffman encoding	• A method of **lossless** compression used on text based data (documents) • A **Huffman coding tree** is used to compress the data whilst **keeping all the data** so that it can be uncompressed back to its original state
25	Lossy	Lossy compression is where you remove parts of the original file to **significantly reduce** the size of the file. Lossy compression means that once it's performed you **can not** recreate the original file. You do this to a point so it's not noticeable to a human being.
26	Lossless	Lossy compression uses repetition techniques such as run length encoding. You can recreate the original file. It's ideal for text files which don't work with lossy compression. Lossy compression does **not** give as good levels of compression compared to lossy.
27	Run Length Encoding(RLE)	Run length encoding is where you repeat data where there are patterns of data. The numbers of occurrences is state with the binary value **0000011100000011** would become **5 0 3 1 6 0 2 1** **RRRRRGGGBBB** would become **5R 3G 3B**

Notes:

Revise:

BBC Bitesize

Craig 'n' Dave

Year 9 and 10 Knowledge Goals: Design and technology

Tatty Devine

Analysing the work of others:

Designing with **sustainability** in mind:

- Create a quality item that will last.
- Avoid waste – tessellate your designs to use less materials.
- Use scraps and off cuts

We use **ACCESS FM** to help us write a **specification** - a list of requirements for a design - and to help us **analyse and describe** an already existing product.

ACCESS FM - Helpsheet

A is for **Aesthetics**
Aesthetics means **what does the product look like?**
What is the: Colour? Shape? Texture? Pattern? Appearance? Feel? Weight? Style?

C is for **Cost**
Cost means **how much does the product cost to buy?**
How much does it: Cost to buy? Cost to make?
How much do the different materials cost? Is it good value?

C is for **Customer**
Customer means **who will buy or use your product?**
Who will buy your product? Who will use your product?
What is their: Age? Gender?
What are their: Likes? Dislikes? Needs? Preferences?

E is for **Environment**
Environment means **will the product affect the environment?**
Is the product: Recyclable? Reuseable? Repairable? Sustainable? Environmentally friendly? Bad for the environment?
6R's of Design: Recycle / Reuse / Repair / Rethink / Reduce / Refuse

S is for **Size**
Size means **how big or small is the product?**
What is the size of the product in millimeters (mm)? Is this the same size as similar products? Is it comfortable to use? Does it fit? Would it be improved if it was bigger or smaller?

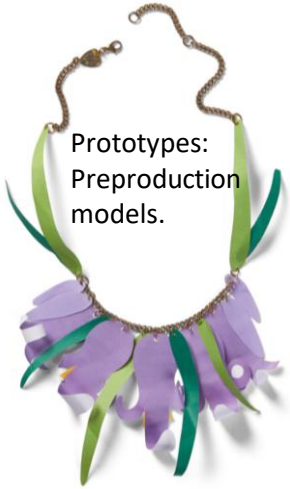
S is for **Safety**
Safety means **how safe is the product when it is used?**
Will it be safe for the customer to use? Could they hurt themselves? What's the correct and safest way to use the product? What are the risks?

F is for **Function**
Function means **how does the product work?**
What is the products job and role? What is it needed for? How well does it work? How could it be improved? Why is it used this way?

M is for **Material**
Material means **what is the product made out of?**
What materials is the product made from? Why were these materials used? Would a different material be better? How was the product made? What manufacturing techniques were used?

Tatty Devine Inspired Jewellery

Solid Acrylic colours | Frosted Acrylic | Glitter Acrylic | Marble Acrylic | Mirrored Acrylic



Prototypes: Preproduction models.

Pliers: Round nosed, cutting and long nosed

Jewellery findings: They are the small parts that make up a piece of jewellery – the building blocks to jewellery making.

Year 9 and 10 Knowledge Goals: Design and Technology

Tier 3 Vocabulary		
Key word		Definition
1	Sustainability	The quality of being able to continue over a period of time.
2	Acrylic	A type pf plastic suitable for laser cutting.
3	Pliers	Hand held tools to snip or bend materials.
4	Findings	Jewellery making parts to join, attach or hold jewellery together.
5	Chain	Links of chain joined together to form lengths.
6	Links	Single circles of chain which join jewellery together.
7	Tessellate	Nesting materials together to take up as little space as possible.
8	Prototype	A pre production model made to check the product works.
9	Aesthetics	How a product looks.
10	Function	What a product is supposed to do.
11	Material	What a product is made out of.
12	Customer	Who a product or design is for.

Notes:

Quiz QR Code	Quiz Link
	QUIZ LINK

Year 9 and 10 Knowledge Goals: Drama (Devising from a Stimulus)

What is 'devising'?

Devising is **creating your own ideas from scratch**, in a theatrical performance. During this you will develop the ability to:

- Use a stimuli to come up with original ideas for a piece.
- Develop your ideas – thinking deeply about links in your ideas and how you can make a story engaging.
- Collaborate with others – Combine ideas in your devised work with others in your group.
- Use a range of drama skills and techniques to engage your audience.
- Rehearse and improve your work - make changes in your practical work where needed.
- Perform to an audience.
- Analyse and evaluate it – discuss how to improve your work.

What is a 'stimulus'?

A stimulus is a **starting point.**

Examples of stimuli…

In order to come up with original and interesting ideas, we can use a range of stimuli. For example;

- A prop
- An image
- A piece of music
- A title
- A poem or piece of writing
- A sound

Which of these are stimuli?

- ○ Pictures and poems
- ○ Music and articles
- ○ All of them

What is a flashback?

- ○ A scene showing past events
- ○ A scene showing future events
- ○ A scene showing an actor in more than one role

Year 9 and 10 Knowledge Goals: Drama (Devising from a Stimulus)

Tier 3 Vocabulary		
Key word		Definition
1	Stimulus	A starting point.
2	Devising	Creating from scratch.
3	Facial Expressions	A way to show emotions and feelings using your face.
4	Body Language	A way to show emotions and feelings using your body.
5	Gait	The way you walk
6	Stance	The way you stand using your legs and feet.
7	Posture	The way you stand using your body.
8	Vocal Projection	the strength of speaking or singing whereby the voice is used powerfully and clearly.

Link:

BITESIZE

Click Here

Notes:

Quiz QR Code	Quiz Link
	Click Here

Year 9 and 10 Knowledge Goals: English (Autobiography)

Autobiography – a self written account of one's own life

The word is from 3 Greek words:

- **auto – meaning self**
- **bio – meaning life**
- **graphy – meaning writing**

2 achievement points if you list 10 in each column

Week 1: List at least 5 words and their meanings which -

start with auto	start with bio or have bio in them	end in graph or graphy
1.	1.	1.
2.	2.	2.
3.	3.	3.
4.	4.	4.
5.	5.	5.
6.	6.	6.
7.	7.	7.
8.	8.	8.
8	8	8
9.	9.	9.
10.	10.	10.

Week 3: Vocabulary linked with feeling

	happy		sad
1	euphoric	6	miserable
2	elated	7	melancholic
3	ecstatic	8	morose
4	jubilant	9	grief stricken
5	overjoyed	10	overwhelmed

Week 4 : Vocabulary linked with feeling

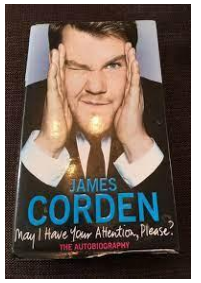
	something was hard		a sense of achievement
1	challenging	6	a sense of success
2	arduous	7	a sense of accomplishment
3	formidable	8	a sense of fulfilment
4	gruelling	9	a dream realised
5	irksome	10	triumphant

Year 9 and 10 Knowledge Goals: English (Autobiography)

10 Must-Read Autobiographies

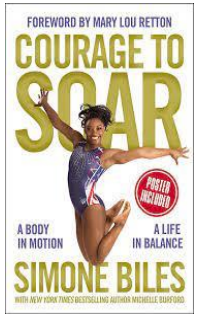
May I Have Your Attention Please? by James Cordon

James Corden achieved the dream of many a British entertainer: he became a huge success in the USA as well as here. His Carpool Karaoke TV show has an almost cult following. Yet at school, he wasn't cool, or clever - in fact, he was pretty disruptive. He formed a boy band but it was when he co-wrote “Gavin and Stacey” that his life really changed.



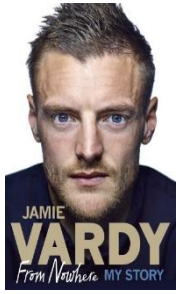
Courage to Soar: A Body in Motion, A Life in Balance by Simone Biles

Olympic gold medallist, Simone Biles, appeared to somersault onto our screens from nowhere when she became the darling of the 2016 Rio de Janeiro Olympics. But the gymnast, like all successful athletes, had spent many years training and overcoming a less-than-perfect start to her life. Taken from her drug-addict mother, she was fostered and eventually adopted.



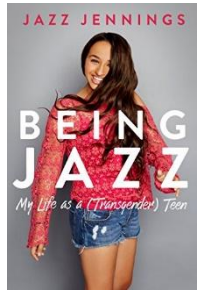
Jamie Vardy From Nowhere. My Story by Jamie Vardy

Jamie Vardy has made it from being an ordinary boy in Sheffield to the soccer player who led underdogs, Leicester City, to the top of the Premier League and won himself a place on the England team.



Being Jazz: My Life as a (Transgender) Teen by Jazz Jennings

Jazz has a hugely popular reality TV show on TLC. Jazz transitioned to life as a girl at the very young age of five and now she is one of the most recognised activists for transgendered kids, teens and adults. She has had to endure much discrimination and bullying. This story tells of how Jazz navigated adolescence, having started her life as a boy.

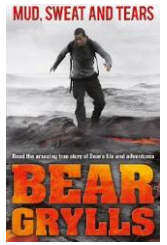


Year 9 and 10 Knowledge Goals: English (Autobiography)

10 Must-Read Autobiographies

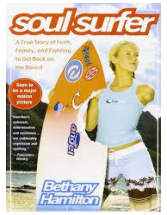
Mud Sweat and Tears Junior Edition by Bear Grylls

Bear Grylls is the ultimate adventurer. A former SAS serviceman, he is also a survival instructor, and has found fame as a writer and TV presenter. In this memoir, he describes how he learned to sail and climb with his dad, and spent his teenage years practising mountaineering and martial arts. But when he broke his back in a terrible parachuting accident, he defied expectation and learned to walk again, eventually climbing Everest at the age of 23.



Soul Surfer: A True Story of Faith, Family, and Fighting to Get Back on the Board by Bethany Hamilton

Bethany Hamilton is a professional surfer, who returned to surfing after she lost her arm in a shark attack. Bethany describes how she survived that attack and found the determination and faith to continue with the sport she loved.



All Boys Aren't Blue: A Memoir-Manifesto by George M Johnson

George M. Johnson is a journalist and LGBTQIA+ activist. This tale takes us through his childhood, teen and college years in the states of New Jersey and Virginia, from being bullied at the age of five to embarking on sexual relationships.

The Reason I Jump: One Boy's Voice from the Silence of Autism by Naoki Higashida

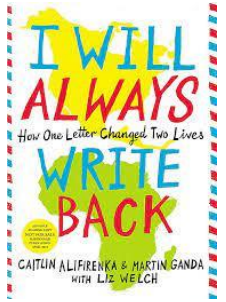
Autistic teenager, Naoki Higashida, wrote this at the age of 13. Naoki explains why he acts as he does such as why he talks loudly, what causes his panic attacks, and why he likes to jump.

Year 9 and 10 Knowledge Goals: English (Autobiography)

10 Must-Read Autobiographies

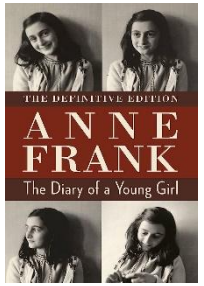
I will always write back by Caitlin Alifirenka

Some school assignments can go further than just getting you a good grade. This story tells of how 12-year-old Caitlin Alifirenka writing to an unknown student in a far-off place, Martin Ganda in Zimbabwe, changed her life.



The Diary of Anne Frank

Anne Frank, a Jewish teenager during the Second World War, wrote of how her family had to hide in a tiny secret annexe fearful of being arrested and taken away by the Nazis. Tragically, Anne and her family were arrested and sent to concentration camps, where Anne died at the age of 16. You can watch The Anne Frank video diaries on YouTube.



Week 2: Be ready to be quizzed about who wrote about what by the week beginning Sept 18th

Good autobiography, like good stories, uses techniques to make details more vivid

Week 5 : Know the following techniques to use in your writing : SIMPLE ones to PASS and get a ROARingly good grade

Year 9 and 10 Knowledge Goals: English (Autobiography)

Similes	Comparing one thing with another using the word like or as to give a clearer picture of it.
Imagery	Any words which give a clear picture of something.
Metaphor	Comparing one thing with another but saying it is that thing to give a clearer picture of it.
Personification	Comparing a non-living thing/an object with a person/ living thing to make it sound mysterious, scary, funny .
Lists of 3 words eg. verbs, adjectives, adverbs	Using 3 descriptive words for one thing rather than just one to give a more precise picture.
Exaggeration	Describing something to be more than it actually is to capture strong feelings about it or a person.

Pathetic fallacy	Where the weather is made to reflect the feelings of a character.
Alliteration	The repeating of a letter sound at the start of several words in a sentence – not necessarily next to each other.
Synonyms	Using several different words with the same meaning to emphasise the picture being given.
Superlatives	Making something sound as if it's the best or worst ever using most or least in front of an adjective or adding - est to the end.

Rhyme	Where the ends of 2 words in a sentence sound the same to make them catchy and memorable.
Onomatopoeia	Where a descriptive word sounds like the sound it's describing.
Assonance	Half rhyme where the beginning and end of a word have the same letter sounds or the middle of the words do.
Repetition	Using the same word several times in a sentence or paragraph to emphasise a point.

Year 9 and 10 Knowledge Goals: English (Conflict Poetry)

Poem Summaries	Context
Extract from 'The Prelude' by William Wordsworth (1850): This autobiographical epic poem is set on a lake in the English Lake District. The speaker narrates an incident in which he finds and steals a shepherd's boat in "an act of stealth". Being typical of Romantic poetry, the experience of rowing on the lake is described as a beautiful and peaceful until the tone changes and nature causes the speaker to panic and return the boat. However, the experience isn't forgotten and haunts the boy for many days afterwards. Although he is unsure what is happening to him, it is clear that the experience causes an epiphany as nature teaches him a moral lesson and the poet feels guilty for taking the boat without permission	Wordsworth is writing this pastoral poem based on experiences during his formative years in the English Lake District. This section of the epic poem, subtitled Growth of the Poet's Mind, is focused on an event in which he stole a boat and feels that nature tried to teach him a moral lesson as a result. Being a Pantheist (worships nature) and Romantic, nature is presented as both beautiful and powerful. Also typical of Romantic poetry is the focus on the individual's connection with nature, away from the urban cities and Industrial Revolution.
What Were They Like?' by Denise Levertov (1967): This poem is split into two stanzas: the first lists 6 questions and the second stanza provides the answers to each. This creates the impression almost of a television interview. It is clearly an anti-war piece of propaganda, presenting the American soldiers as barbaric and the Vietnamese civilians as simple and peaceful yet being destroyed by the might of the American forces. Although one might consider it slightly patronising towards the Vietnamese, "most were peasants," Levertov's aim is to create sympathy for the majority of innocent, highlighting the grotesque destruction of the innocent, particularly children, and describing a future in which the Vietnamese culture has been destroyed.	The Vietnam War was one of the first televised wars, therefore the world were able to witness the horrors and greater sympathy was evoked for the Vietnamese civilians. The American army intervened in the civil war between North and South Vietnam (South Vietnam wanted to preserve its independence, North Vietnam wanted to unite the country). America sent masses of military personnel to support South Vietnam, which many at home perceived to be morally wrong. In America, there were many protests and movements to withdraw American troops and involvement. The North's use of guerrilla warfare meant the American army was eventually humiliated. This si very clearly a piece of anti-war propaganda.
'The Class Game' by Mary Casey (1981): This poem is a dramatic monologue in which the speaker directly addresses [a] member[s] of the middle or upper classes. The speaker is confident and challenges prejudice based on class backgrounds. One long stanza is used to present a sustained outpouring or outburst of anger and annoyance. The use of rhetorical questions throughout the poem puts the reader under pressure. She also uses juxtaposition by placing slang or colloquial words alongside standard English or by presenting the contrast in its physical form, such as "did I drop my unemployment card/Sitting in your patio (we have a yard)?" This not only highlights the contrast between the lifestyles but trivialises the class distinctions. Ultimately, Casey ends the poem with a defiant tone, stating her pride in being working class	Little is known about Casey except that she was a housewife from Liverpool who contributed to a literary magazine, 'Voices', from 1972-1984. The poets were not professional but ordinary, working class people writing about ordinary events in daily life. Many were consequently snobbish about the collections, questioning the magazine's literary value. In 1979, Margaret Thatcher became Prime Minister and the working class felts the repercussions with job cuts due to recession and indirect taxation which taxed everybody, regardless of income. Some argue that today, we live in a classless society but more than enough, the distinction is vivid.
'**Half Caste' by John Agard (1996):** Agard directs this poem at anybody who uses the term "half-caste". He uses humour and sarcasm to ridicule the term and challenge its use. The tone becomes growingly angry at prejudice based on race and he uses lots of famous cultural references such as Picasso and Tchaikovsky, who mixed colours and notes to make infamous works that have been acclaimed for generations, to highlight that some of the greatest successes in life come from mixing, thus mixing races is not a bad thing.	Agard was born in the former British colony of Guyana and moved to Britain in 1977. He uses Caribbean accent and dialogue to bring Guyanese identity to his work. 'Caste' derives from the Latin 'castus' meaning pure, thus the term "half caste" is offensive as it derives from the Latin meaning of being 'half pure'. Having moved to Britain in 1977, Agard is sure to have faced and witnesses some of the prejudices held by the public. He is foremost challenging the use of the term "half-caste" but more widely, he is challenging racial discrimination which is arguable still present in society.
No Problem' by Benjamin Zephaniah (1996): Zephaniah speaks directly to the reader about being a victim of "playground taunts/ An racist stunts." However, he holds no grudges but uses the poem to attack racism in general and racial stereotyping in particular. The title of the poem, "No problem" is ironic since racism and racial stereotyping have no place in civilised society. He is confident that "I/Black am/is not de problem", the racist attitudes are. The first stanza deals with the many stereotypes white people have of black people, which the poet is able to deal with but thinks is unfair.	Zephaniah grew up in Jamaica and Birmingham and consequently uses a mixture of Black British and Standard English words in his poem. He left school at 14 and was dyslexic; this could be why he does not abide by punctuation and grammatical rules. However, it could also be evidence of him standing up against the rules and expectations. He writes a lot of poetry celebrating cultural diversity in Britain yet declined an OBE from the Queen because he felt it would be a symbol of accepting the oppression by the British Empire.

Year 9 and 10 Knowledge Goals: English (Conflict Poetry)

Settlebeck School

Tier 3 Vocabulary		
Key word		Definition
1	Autobiographical	Written work dealing with the writer's own life.
2	Epic	A lengthy narrative poem typically about the extraordinary deeds of extraordinary characters.
3	Dramatic monologue	A type of poetry written in the form of a speech of an individual character.
4	colloquial	Colloquialism is informal, everyday language that is used by a specific geographical region.
5	Juxtaposition	Two things being seen or placed close together with contrasting effect.
6	Irony	The expression of one's meaning by using language that normally signifies the opposite, typically for humorous or emphatic effect.
7	Simile	A simile describes something by comparing it to something else, using like or as.
8	Metaphor	A figure of speech that describes an object or action in a way that isn't literally true.
9	Personification	The attribution of a personal nature or human characteristics to something non-human.
10	Alliteration	The occurrence of the same letter or sound at the beginning of adjacent or closely connected words.
11	Assonance	The use of the same vowel sound with different consonants or the same consonant with different vowels in successive words.
12	Anaphora	A figure of speech in which words repeat at the beginning of successive clauses, phrases, or sentences.

Notes:

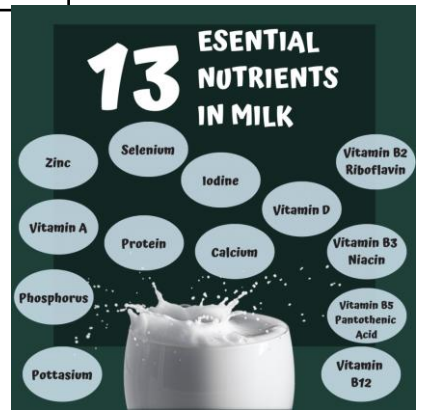
Quiz QR Code	Quiz Link
	QUIZ LINK

Year 9 and 10 Knowledge Goals: Food Preparation and Nutrition

Primary processing

Secondary processing

Categories of cheese	Examples
Hard	Cheddar, Parmesan, Gouda, Red Leicester,
Soft	Goats cheese, Brie, Cambebert, Cottage Cheese,
Blue Veined	Stilton, Danish blue, Garstang Blue



Watch this video to learn more about the Maillard reaction, caramelisation and dextrinization

https://youtu.be/5lKzZc_OO7U

Starch degradation

Caramelisation

Starch geletanisation

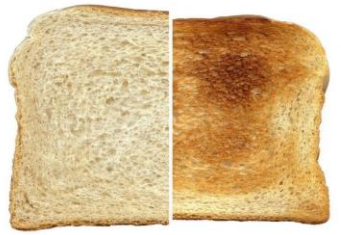
Protein denaturation

Enzymic browning

Maillard reaction

Blanch

Dextrinisation



Year 9 and 10 Knowledge Goals: Food Preparation and Nutrition

Tier 3 Vocabulary		
Key word		Definition
1	Protein denaturation	Where protein strands unravel and change structure to form a different shape or colour. i.e when frying an egg.
2	Dextrinisation	When dry heat is applied to a starchy product and the molecules on the surface break down and change colour to brown – i.e bread to toast.
3	Enzymic browning	The release of enzymes from cut cells in fruit and vegetables, which react with oxygen and form brown discolourations i.e in an apple.
4	Milliard reaction	Chemical reaction between proteins and carbohydrate which changes the flavour of food i.e when meat is cooked.
5	Starch degradation	The breaking up of starch molecules during cooking which releases sugars and sweetness, breaks down bonds to make starchy foods softer. Ie pasta, potatoes.
6	Starch geletanisation	When starch molecules swell up during boiling and absorb water to thicken a sauce. They eventually burst, creating a gel in the sauce i.e white sauce.
7	Caramelisation	When sugars melt at a high temperature and change colour to a shade of brown and release sweetness.
8	Blanch	Vegetables or fruit are put into boiling water for two minutes and then plunged into cold water. This prevents enzymic browning and partly cooks the fruit or vegetable.
9	Pasturisation	A process of food preservation in which packaged and non-packaged foods (such as milk and fruit juices) are treated with mild heat, usually to less than 100 °C (212 °F), to eliminate pathogens and extend shelf life.
10	Primary processing	Changing a food that is not edible in its original state. For example washing salad, harvesting wheat.
11	Secondary processing	When a primary food is changed into an ingredient which then can be used to make a food product.
12	The olfactory system	The olfactory system, or sense of smell, is the sensory system used for smelling (olfaction).

Notes:

Quiz 1 QR Code	Quiz 1 Link
	QUIZ LINK

Quiz 2 QR Code	Quiz 2 Link
	QUIZ LINK

Revise these countries

- Angleterre =
- Ecosse =
- Canada =
- Suisse =
- France =
- Grande Bretagne =

- Portugal =
- Irlande =
- Autriche =
- Belgique =
- Pays de Galles =

- Amérique=
- Allemagne =
- Espagne =

Nouvelle-Zélande =

Australie =

Arabie Saoudite =

Dubaï =

Emirats Arabes Unis =

Croatie =

Bulgarie=

Danemark =

Finlande =

Grèce =

Russie =

Suède =

Year 9 and 10 Knowledge Goals: French

Tier 3 Vocabulary		
Key word		Definition
1	Past	Gone by or elapsed in time
2	Present	Being, existing, or occurring at this time or now; current.
3	Future	Something that will exist or happen in time to come

Languagenut

Exam skills

KS4 Revision of

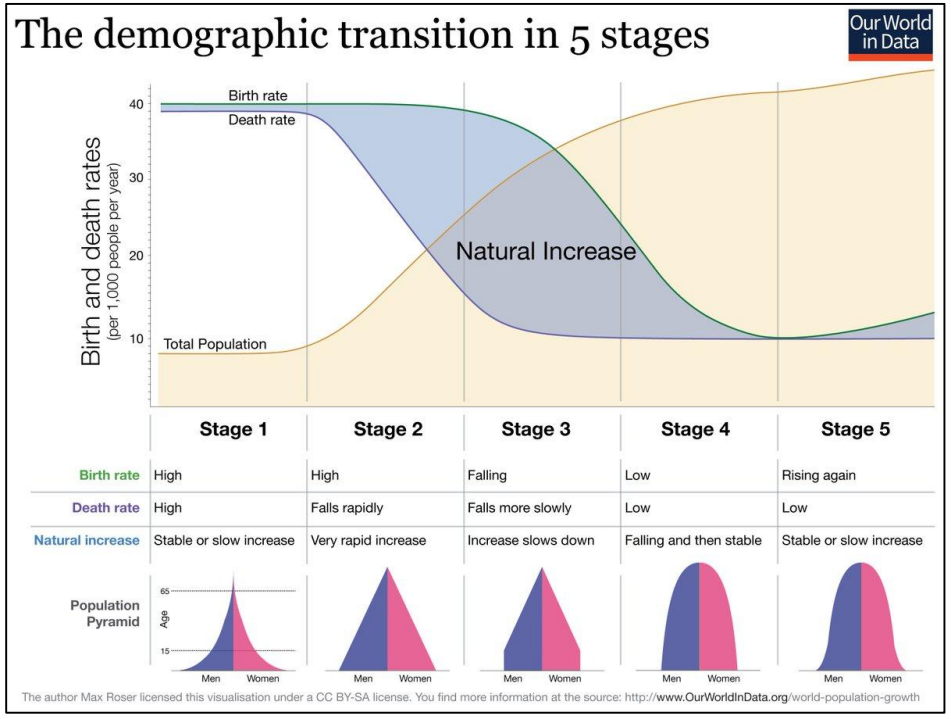
- Hobbies and sports
- TV, cinema and music
- Technology

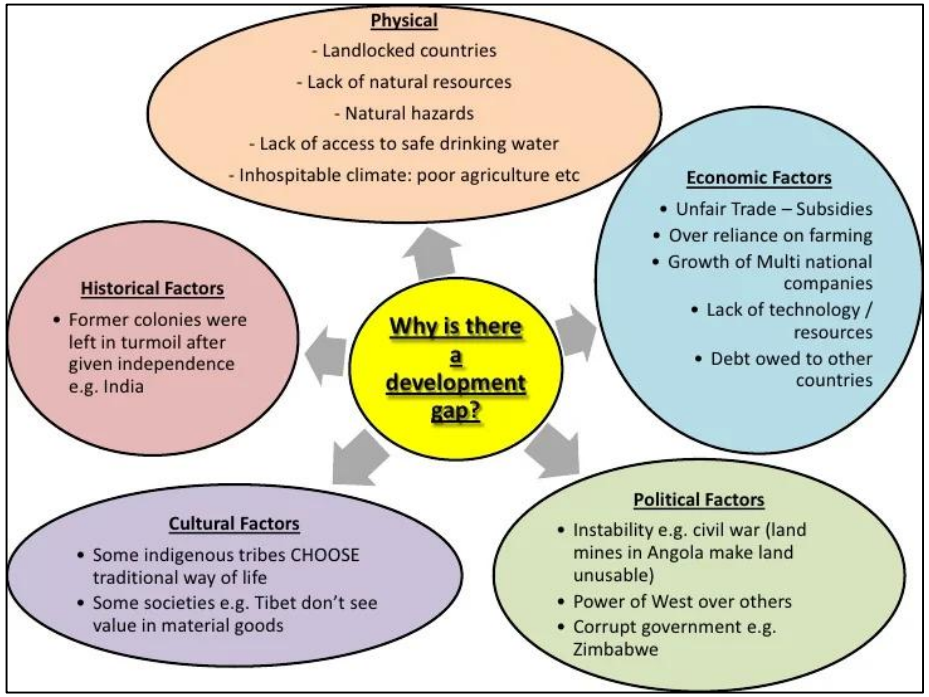
Languagenut

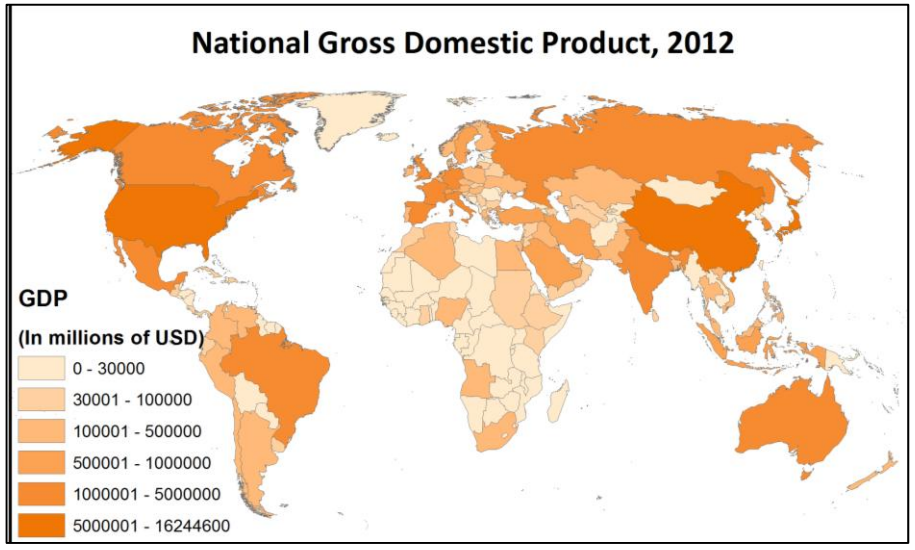
Notes:

Quiz QR Code	Quiz Link
	QUIZ LINK

Year 9 and 10 Knowledge Goals: Geography – The Development Gap







Solutions to the Development Gap

Investment: infrastructure, energy, services and industry can all improve if they are given money either via capital investment (own country) or international investment (another country or cooperation).

Fairtrade: this is where the primary producers and secondary industries get a fair payment for their product as well as investment in their infrastructure and improvement in working conditions.

Tourism: Money from tourists visiting the area can be used by governments and local businesses to help develop an area.

Free trade: Trade with out tax or tariffs can help grow the economy and therefore increase the amount of available money to develop a country.

Aid: there are many different types of Aid from emergency aid to help recover from a natural disaster, long-term aid to help build a sustainable economy or tied aid that is used with conditions attached, all play a key role in closing the development gap.

Year 9 and 10 Knowledge Goals: Geography

Tier 3 Vocabulary		
Key word		Definition
1	Demographic Transition Model	A 5 stage model showing how populations should change over time in terms of their birth rates, death rates and total population size.
2	Fairtrade	Fairtrade changes the way trade works through better prices, decent working conditions and a fairer deal for farmers and workers in developing countries.
3	Free trade	The buying and selling of goods, without limits on the amount of goods that one country can sell to another, and without taxes, tariffs or charges: a free-trade agreement such as within the European Union.
5	GDP (Gross Domestic Product)	The total wealth including all products and goods of a country.
6	Birth rate	The amount of children born per person in a population.
7	Death rate	The amount of deaths per thousand people in a population.
8	HDI (Human development Indicator)	A development indicator that demonstrates how developed a country is, it includes; life expectancy, education and GDP per capita (average wealth per person).
9	TNC (Transnational Corporation	A large company operating across multiple countries and also has no fixed country in which it is based.
10	Intermediate technology	Small scale technology that is usually cheap, easy to use and manage.
11	Aid	There are many different types of Aid from emergency aid to help recover from a natural disaster, long-term aid to help build a sustainable economy or tied aid that is used with conditions attached, all play a key role in closing the development gap.
12	Multiplier effect	A positive feedback loop that helps demonstrate how investment can help develop a country or population.

Notes:

Resource QR Code	Resource Link
	The Changing Economic World

Quiz QR Code	Quiz Link
	QUIZ LINK

Year 9 and 10 Knowledge Goals: History

GCSE History Knowledge Organiser: The Weimar Republic 19181929

1918 Kaiser Wilhelm II abdicates

1919 Treaty of Versailles; Spartacist Uprising; Weimar Constitution finalised

1920 Kapp Putsch

1921

1922

1923 Hyperinflation; French occupation of the Ruhr

1924 The Dawes Plan

1925 The Locarno Pact

1926 Germany joins the League of Nations

1927

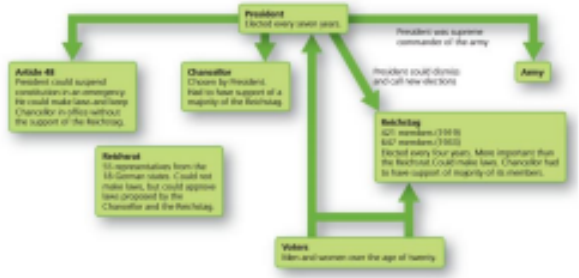
1928 Kellogg-Briand Pact

1929 The Young Plan

Aftermath of WWI

After WWI a new government was established in Germany, which was accountable to the **Reichstag** rather than the **Kaiser.** In order to establish peace after WWI the USA insisted that the Kaiser was removed from power. On the 9th November, Kaiser Wilhelm **abdicated**.
The new government was led by **Chancellor** Friedrich **Ebert** and agreed to **Armistice**based on America's **Fourteen Points.**

The Weimar Constitution



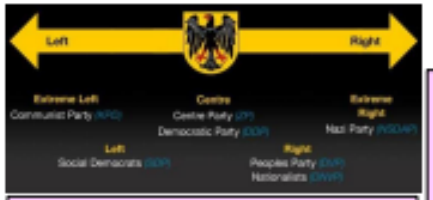
In January 1919 an election took place but no party had a direct majority. They had to form a **coalition** which Ebert (of the **Social Democratic Party –SPD)** became President of. They joined with the Catholic **Centre Party (ZP)** and the **German Democratic Party (DDP).** A coalition meant that there were some weaknesses to the government.

The Treaty of Versailles

The Treaty of Versailles was harsh on Germany and forced them to sign the **War Guilt Clause,** lose land, army, equipment and pay back £6.6 billion in **reparations**.

Opposition

The German people felt the government had stabbed them in the back **(Dolchstoss).** They called the government the **November Criminals.**



2.. The **Kapp Putsch** (right-wing) was attempted in March 1920. Ebert wanted to disband the **Freikorps** so they joined with the Reichswehr in Berlin. Led by Wolfgang Kapp they seized Berlin. Ebert asked **Trade Unionists** & **Civil Servants** not to support it, and the Putsch collapsed.

1. The **Spartacists**, in January 1919, inspired by the left-wing **Bolshevik** revolution in Russia, set up the Communist Party and tried to overthrow the government. This was put down by the **Reichswehr** & the **Berlin Freikorps**

Problems of 1923

When Germany couldn't pay their reparations, the French moved into the **Ruhr** to take goods for themselves. The Germans went on strike & sabotaged their work, setting factories alight and breaking pumps. This meant that production from the **Rhineland** was very slow, making Germany poorer.

The government printed more money to pay the strikers and their reparations which, coupled with the slow production in the Ruhr, led to **hyperinflation** where the currency became virtually worthless.

Economic Recovery

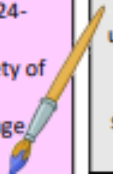
In 1923 Gustav **Stresseman** was **Chancellor** and is largely credited with the economic recovery of Germany.
The Dawes Plan changed the reparations schedule to something which was more manageable. It also meant that French troops would leave the Ruhr.
The Rentenmark was the new currency, issued in limited amounts. Once it worked for a year, it was converted to the **Reichsmark,** based on gold reserves.
The Young Plan was developed by US banker, Young. He reduced the reparations figure and extended the time the Germans had to pay it.

Foreign Recovery

The Locarno Pact helped German relations with France, Britain, Belgium & Italy by agreeing borders.
The League of Nations agreed to admit Germany in 1926.
The Kellogg-Briand Pact was signed in 1928, along with 64 other countries. It said they could have armies for self-defence and would resolve disagreements peacefully.

Changes in Society

Wages had increased by over 10% by 1928. Although this helped the working class, the middle classes had been bankrupted by hyperinflation. Unemployment amongst the middle class increased.
More **houses** were being built: 2million + between 1924-1931, which reduced homelessness.
Women were given the vote and could work in a variety of areas: teaching, civil service etc.
Art, architecture, literature and theatre began to change and become more rich & diverse.



Historiography

F. Reynoldson *Weimar & Nazi Germany* 1996
"From 1924 – 1929 the Weimar Republic was much stronger than it had been just after the war. Led by Stressemann in the Reichstag, the different parties managed to work together. The extreme parties such as the Nazis gained fewer seats in the elections. The German people were better off and more contented. The Weimar Republic looked safe."

E. Wimlott *Weimar & Nazi Germany* 1997
"German prosperity was built on quicksand foundations. The Weimar economy was dependent upon high-interest American loans, which usually had to be repaid or renewed within three months. In times of depression, US money lenders could demand rapid repayment. Moreover, unemployment never fell below 1.3 million. Although big business grew in the 1920s, small firms struggled and many went bankrupt.

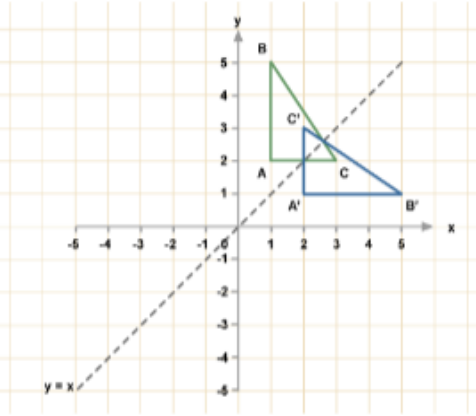
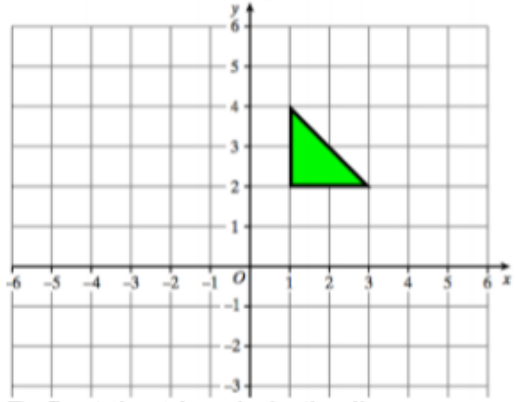
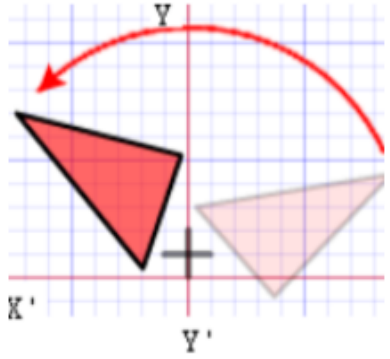
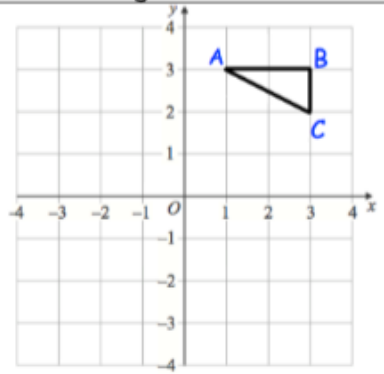
Year 9 and 10 Knowledge Goals: History

Tier 3 Vocabulary		
Key word		Definition
1	Democracy	A system of government where people vote for their leaders.
2	Republic	A nation without a monarchy.
3	Uprising	An attempt to take power by force.
4	Putsch	An attempt to take power by force.
5	Hyperinflation	When prices start to rise rapidly.
6	Constitution	The rules of how a country should be governed.
7	Proportional Representation	A voting system where every vote is counted equally.
8	Kaiser	The German King.
9	Coalition	When a government is made up of a number of different parties.
10	Conservative	People who oppose change and want to continue with old traditions.

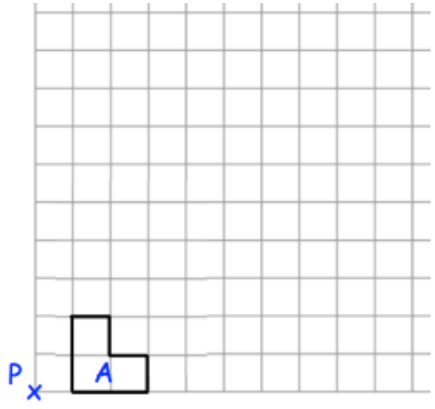
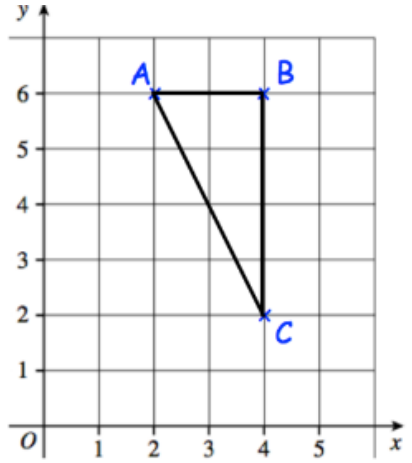
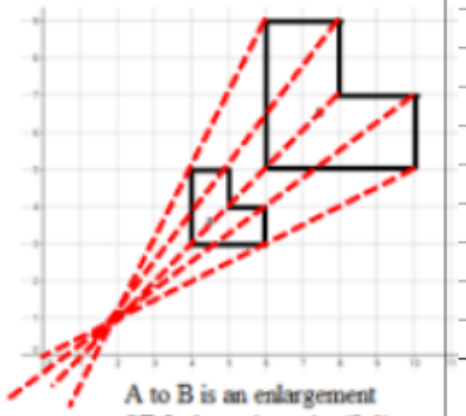
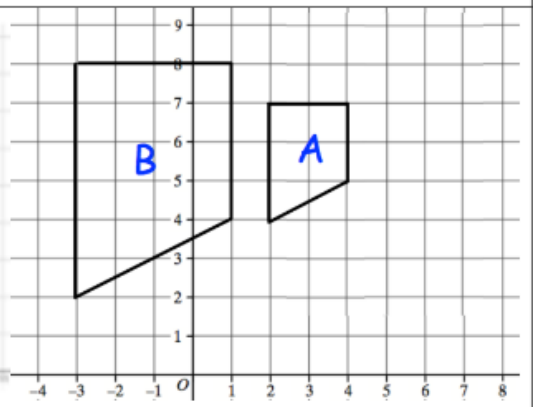
Notes:

Quiz QR Code	Quiz Link
	QUIZ LINK

Year 9 and 10 Knowledge Goals: Foundation – Transformations

Topic/Skill	Definition/Tips	Example	Your Turn
Reflection	The size does not change, but the shape is **'flipped'** like in a **mirror**. To describe a reflection you need to give the **equation** of the **mirror line** Line is a **vertical line**. Line is a **horizontal line**. Line is a **diagonal line**.	Reflect shape C in the line 	  Reflect the triangle in the line
Rotation	The size does not change, but the **shape is turned around a point**. Use tracing paper. To describe a rotation you need to give: the direction (clockwise or anti-clockwise) the angle the centre of rotation (coordinate)	Rotate shape A 90° anti-clockwise about (0,1) 	 Rotate triangle ABC 90° clockwise about centre (0, 0)

Year 9 and 10 Knowledge Goals: Higher – Circles, Arcs, Sectors

Enlargement	The shape will get **bigger or smaller**. Multiply each side by the **scale factor**.	Enlarge Shape A by scale factor 3, from point P.	Enlarge triangle ABC with scale factor ½ and centre (0,0)
	specific **point** or **centre.** Scale factor 3 means '3 times larger = **multiply all the lengths by 3'** Scale factor **½ means 'half the size = divide all lengths by 2'**		
Finding the Centre of Enlargement	Draw **straight lines** through **corresponding corners** of the two shapes. The centre of enlargement is the point **where all the lines cross over**. Be careful with negative enlargements as the corresponding corners will be the other way around.		 Describe fully the single transformation that maps shape A onto shape B.

Year 9 and 10 Knowledge Goals: Foundation – Transformations

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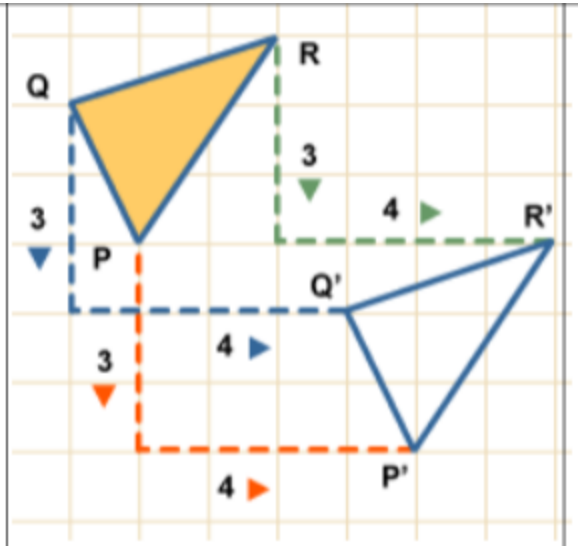
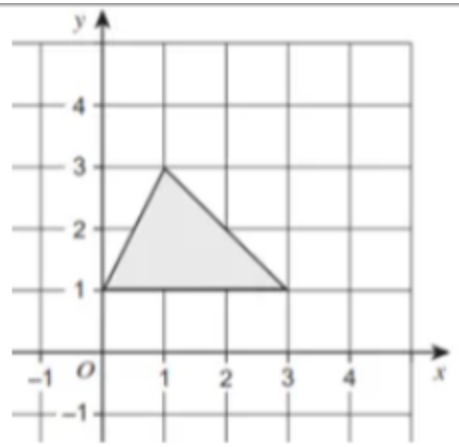
Translation Column Vector	**Translate** means to **move a shape**. The shape does not change **size** or **orientation**. In a column vector, the **top** number moves **left (-) or right (+)** and the **bottom** number moves **up (+) or down (-)** means '2 right, 3 up' means '1 left, 5 down'	 This shape has been translated by vector	 Translate by $\begin{pmatrix}2\\1\end{pmatrix}$
Describing Transformations	Give the following information when describing each transformation: Look at the number of marks in the question for a hint of how many pieces of information are needed. If you are asked to describe a 'transformation', you need to say the **name of the type of transformation** as well as the other details.	**- Translation: Vector** **- Rotation: Direction, Angle, Centre** **- Reflection: Equation of mirror line** **- Enlargement: Scale factor, Centre of enlargement**	

Year 9 and 10 Knowledge Goals: Foundation/Higher – Straight Line Graphs

What do I need to be able to do?

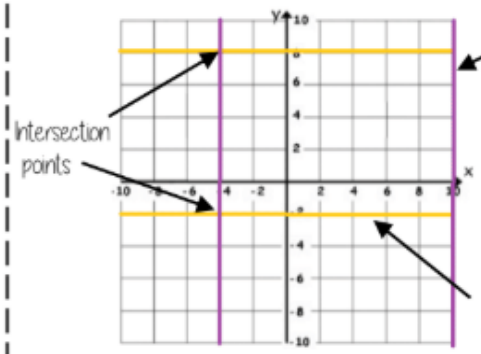
By the end of this unit you should be able to:

- Compare gradients
- Compare intercepts
- Understand and use y= mx + c
- Find the equation of a line from a graph
- Interpret gradient and intercepts of real-life graphs

Keywords

Gradient: the steepness of a line
Intercept: where two lines cross. The y-intercept: where the line meets the y-axis.
Parallel: two lines that never meet with the same gradient
Co-ordinate: a set of values that show an exact position on a graph
Linear: linear graphs (straight line) – linear common difference by addition/ subtraction
Asymptote: a straight line that a graph will never meet
Reciprocal: a pair of numbers that multiply together to give 1
Perpendicular: two lines that meet at a right angle.

Lines parallel to the axes (R)



All the points on this line have a x coordinate of 10

'a' can be ANY positive or negative value including 0

Lines parallel to the **y axis** take the form **x = a** and are **vertical**

Lines parallel to the **x axis** take the form **y = a** and are **horizontal**

All the points on this line have a y coordinate of -2

e.g (3, -2) (7, -2) (-2, -2) all lay on this line because the y coordinate is -2

Plotting y = mx + c graphs (R)

$y = 3x - 1$ → 3 x the x coordinate then – 1

x	-3	0	3
y	-10	-1	8

Draw a table to display this information

This represents a coordinate pair (-3, -10)

You only need two points to form a straight line

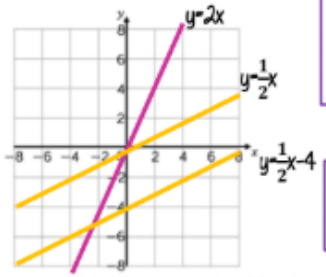
Plotting more points helps you decide if your calculations are correct (if they do make a straight line)

Remember to join the points to make a line

Compare Gradients

$y = mx + c$

The **coefficient** of x (the number in front of x) tells us the gradient of the line



The **greater** the gradient – the **steeper** the line

Parallel lines have the **same** gradient

Positive gradients

Negative gradients

Notes:

Year 9 and 10 Knowledge Goals: Foundation – Straight Line Graphs

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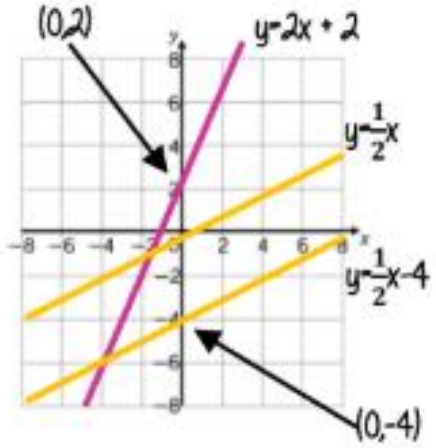
Compare Intercepts

$y = mx + c$ ← The value of **c** is the point at which the line crosses the y-axis **Y intercept**



The coordinate of a y intercept will always be (0,c)

Lines with the **same** y-intercept cross in the **same** place

y = mx + c

The **coefficient** of x (the number in front of x) tells us the gradient of the line

$y = mx + c$ ← The value of **c** is the point at which the line crosses the y-axis **Y intercept**

y and x are **coordinates**

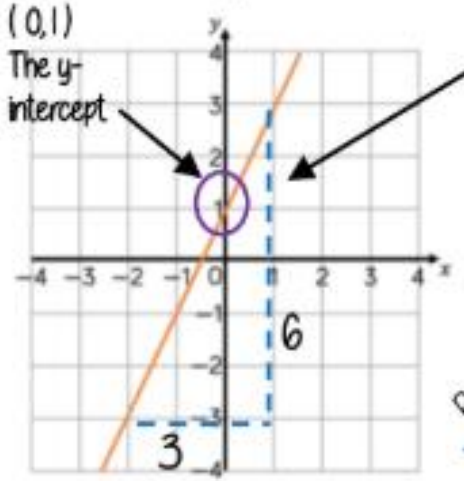
The equation of a line can be rearranged. E.g.

$y = c + mx$

$c = y - mx$

Identify which coefficient you are identifying or comparing

Find the equation from a graph



$y = 2x + 1$

The direction of the line indicates a positive gradient

Positive gradients

Negative gradients

Real life graphs

A plumber charges a £25 callout fee, and then £12.50 for every hour.
Complete the table of values to show the cost of hiring the plumber.

Time (h)	0	1	2	3	8
Cost (£)	£25				£125

The y-intercept shows the minimum charge. The gradient represents the price per mile

In real life graphs like this values will always be positive because they measure distances or objects which cannot be negative

Direct Proportion graphs To represent direct proportion the graph must start at the origin

When you have 0 pens this has 0 cost. The gradient shows the price per pen

A box of pens costs £2.30
Complete the table of values to show the cost of buying boxes of pens.

Boxes	0	1	2	3	8
Cost (£)		£2.30			

Year 9 and 10 Knowledge Goals: Higher – Interpret and Represent Data

Settlebeck School

What do I need to be able to do?

By the end of this unit you should be able to:

- Construct and interpret frequency tables and polygon, two-way tables, line, bar, & pie charts
- Find and interpret averages from a list and a table
- Construct and interpret time series graphs, stem and leaf diagrams and scatter graphs

Keywords

Population: the whole group that is being studied
Sample: a selection taken from the population that will let you find out information about the larger group
Representative: a sample group that accurately represents the population
Random sample: a group completely chosen by change. No predictability to who it will include
Bias: a built-in error that makes all values wrong by a certain amount
Primary data: data collected from an original source for a purpose.
Secondary data: data taken from an external location. Not collected directly
Outlier: a value that stands apart from the data set

Stem and leaf

A way to represent data and use to find averages

This stem and leaf diagram shows the age of people in a line at the supermarket

0	7 9
1	4 5 6 8 8
2	1 3
3	0

Key: 1|4 Means 14 years old

Stem and leaf diagrams:
Must include a key to explain what it represents
The information in the diagram should be ordered

Back to back stem and leaf diagrams

Girls		Boys
5	14	
7, 5, 5, 5, 4	15	3, 8, 9
8, 4, 2, 1, 0	16	2, 5, 7, 7, 7, 8, 8, 9
9, 8, 7, 6, 6, 4, 2, 1, 1, 0, 0	17	0, 2, 3, 6, 6, 7, 7
	18	0, 1, 4, 5

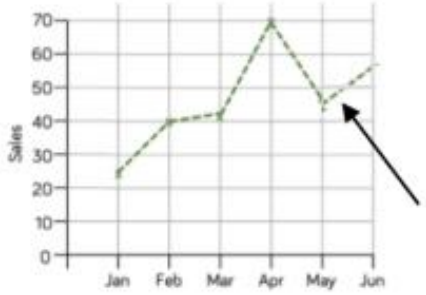
15 | 3
Means 153 cm tall

Back to back stem and leaf diagrams:
Allow comparisons of similar groups
Allow representations of two sets of data

Time-Series

R

This time-series graph shows the total number of car sales in £1000 over time



Look for general trends in the data. Some data shows a clear increase or a clear decrease over time.

Readings in-between points are estimates (on the dotted lines). You can use them to make assumptions

Comparing distributions

Comparisons should include a statement of average and central tendency, as well as a statement about spread and consistency

Mean, mode, median – allows for a comparison about more or less average.
Range – allows for a comparison about reliability and consistency of data

Notes:

Year 9 and 10 Knowledge Goals: Higher – Collect and Interpret Data

Draw and interpret a scatter graph

R

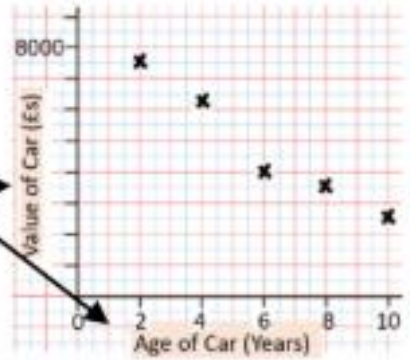
Age of Car (Years)	2	4	6	8	10
Value of Car (£s)	7500	6250	4000	3500	2500

- This data may not be given in size order
- The data forms information pairs for the scatter graph
- Not all data has a relationship

"This scatter graph shows as the age of a car increases the value decreases"

The link between the data can be explained verbally

All axes should be labelled



The axes should fit all the values on and be equally spread out

Linear Correlation

R

Positive Correlation

As one variable increases so does the other variable

Negative Correlation

As one variable increases the other variable decreases

No Correlation

There is no relationship between the two variables

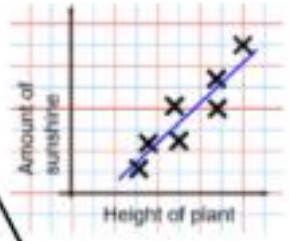
The line of best fit

R

The Line of best fit is used to make estimates about the information in your scatter graph

Things to know:

- The line of best fit **DOES NOT** need to go through the origin (The point the axes cross)
- There should be approximately the same number of points above and below the line (It may not go through any points)
- The line extends across the whole graph



It is only an estimate because the line is designed to be an average representation of the data

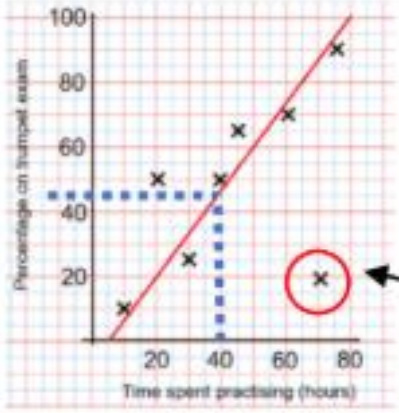
It is always a **straight line**

Using a line of best fit

R

Interpolation is using the line of best fit to estimate values inside our data point

e.g. 40 hours revising predicts a percentage of 45



Extrapolation is where we use our line of best fit to predict information outside of our data

This is not always useful – in this example you cannot score more that 100% So revising for longer can not be estimated

This point is an "**outlier**"

It is an outlier because it doesn't fit this model and stands apart from the data

Year 9 and 10 Knowledge Goals: Higher – Collect and Interpret Data

Settlebeck School

Two way tables R

60 people visited the zoo one Saturday morning
26 of them were adults 13 of the adult's favourite animal was an elephant 24 of the children's favourite animal was an elephant

Extract information to input to the two-way table

Subgroups each have their own heading

	Adult	Child	Total
Elephant	13	24	37
Other	13	10	23
Total	26	34	60

Needs subgroup totals

Overall total

Draw and interpret Pie Charts R

Type of pet	Dog	Cat	Hamster
Frequency	32	25	3

There were 60 people asked in this survey (Total frequency)

$\frac{32}{60}$ "32 out of 60 people had a dog"

This fraction of the 360 degrees represents dogs

$\frac{32}{60} \times 360 = 192°$

Use a protractor to draw This is 192°

Multiple method
Os 60 goes into 360 – 6 times
Each frequency can be multiplied by 6 to find the degrees (proportion of 360)

Comparing Pie Charts:
You NEED the overall frequency to make any comparisons

Averages from a table R

Non-grouped data

Number of Siblings	0	1	2
Frequency	6	8	6
Subtotal	0	8	12

Overall Frequency: 20

Total number of siblings: 20

The data in a list: 0,0,0,0,0,0,1,1,1,1,1,1,1,1,2,2,2,2,2,2

Mean: $\frac{\text{total number of siblings}}{\text{Total frequency}} = 1$

Grouped data

x Weight(g)	Frequency	Mid Point	MP x Freq
$40 < x \leq 50$	1	45	45
$50 < x \leq 60$	3	55	165
$60 < x \leq 70$	5	65	325

Overall Frequency: 9

Overall Total : 565

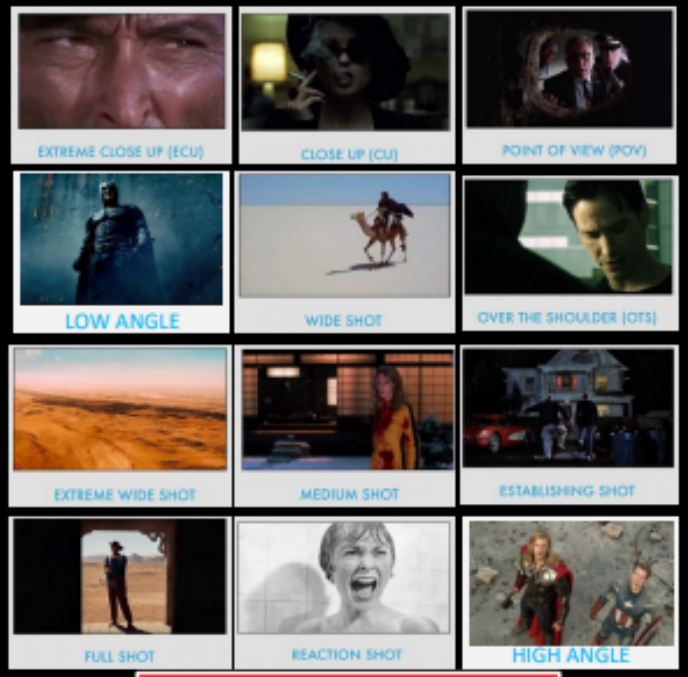
Mean: 62.8g

The data in a list: 45, 55, 55, 55, 65, 65, 65, 65, 65

Year 9 and 10 Knowledge Goals: Introduction to Media Studies

Settlebeck School

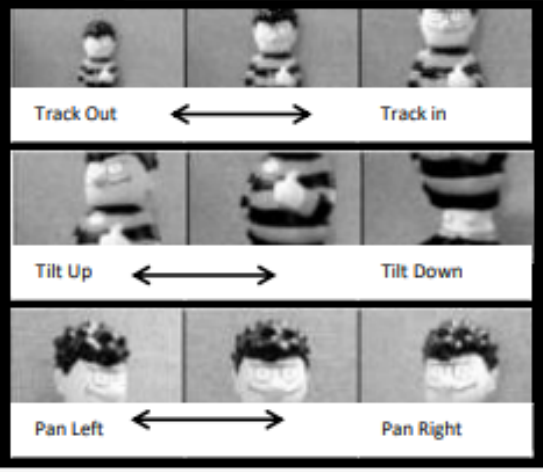
CAMERA SHOTS



Match on action

*A technique **used** to smooth the transition between shots and break one action up into more than one action.*

CAMERA MOVEMENT



OTHER CAMERA TERMS

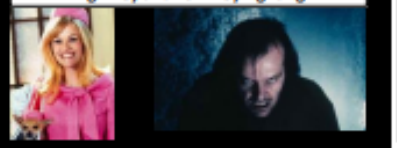
Camera Movement	Camera Angles & shots
Crane	High angle
Hand-held	Low angle
Zoom in	Worms eye view
Zoom out	Canted angle
Shaky cam	Wide-shot
	Aerial-shot

MISE EN SCENE

Mise-en-scène is a French term and originates in the theatre. It means, literally, "put in the scene."

Elements of Mise En Scene
Location
Setting
Costume
Props
Lighting/colour

High Key and **Low Key Lighting**



SOUND

How is sound/music used to create a mood or atmosphere?

Diegetic
Non-diegetic
Theme tune
Voice over
Ambient sound
Sound bridge
Dialogue

EDITING

Continuity editing	Parallel editing
Non-continuity editing	Cutaway
Shot/reverse shot	Dissolve
Eyeline match	Fade-in/out
Graphic match	Wipe
Jump cut	Slow motion
Crosscutting	Visual effects

C OSTUMES — *The costumes the characters are wearing communicates with the audience what type of role they have in the narrative.*

L IGHTING — *The lighting can tell the audience the type of genre or the mood and theme of the media product.*

A CTING — *The casting of the characters can say a lot about them. Also the facial expressions, body language & gesture codes tells the audience about the characters and their roles.*

M AKE-UP & HAIR — *The make up and hair can tell the audience the type of genre or the role of the character.*

P ROPS — *The props and objects could indicate the genre. It could also connote action or be iconic to the genre.*

S ETTINGS — *The settings could indicate the genre. The settings could also help communicate the narrative and themes.*

WATERSHED = the time when TV programmes, which might be unsuitable for children, can be broadcast. Begins at 9pm and material unsuitable for children should not be shown before 9pm or after 5.30am. Unsuitable material is everything from sexual content to violence, graphic or distressing imagery and swearing.

PUBLIC -FUNDED BY TV LICENSE

BBC

Year 9 and 10 Knowledge Goals: Introduction to Media Studies

Settlebeck School

Tier 3 Vocabulary		
Key word		**Definition**
1	Denotation	The literal meaning of a sign, symbol or image.
2	Connotation	The associations of a sign, symbol or image.
3	Narrative	How the events in a story are ordered and told.
4	Genre	A specific type of media form or product.
5	Conventions	Elements that we would expect to see in a particular genre.
6	Representatio n	The way aspects of society, such as gender, age or ethnicity, are presented to audiences in media texts.
7	Mise-en-scene	The visual codes or elements in a media product – costumes, lighting, acting, make-up, props and setting. In French it means 'to put in the scene'
8	Camera shots	How much space the audience sees in a particular frame.
9	Camera angles	The position at which the camera is pointed at the subject of the shot.
10	Camera movement	How the camera moves as it is capturing a shot.
11	Diegetic sound	Diegetic sound is anything the characters can hear within a film (dialogue, ambient sound).
12	Non diegetic sound	Non-diegetic sound is any sound that only the audience can hear (soundtrack, theme tune).

Notes:

Quiz QR Code	Quiz Link
	QUIZ LINK

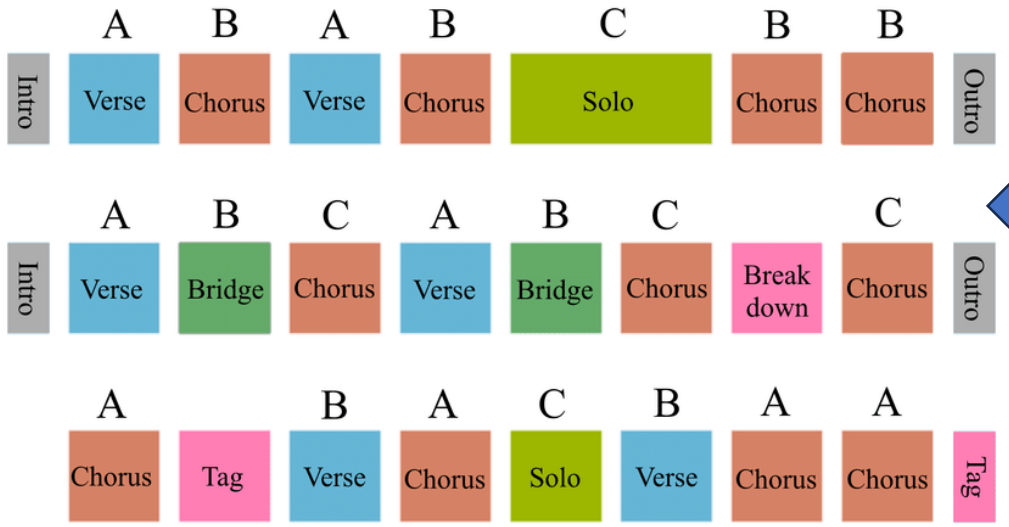
Year 9 and 10 Knowledge Goals: Music

Music Analysis

Musical analysis is a way to study a piece of music to try and understand it and make sense of the following:

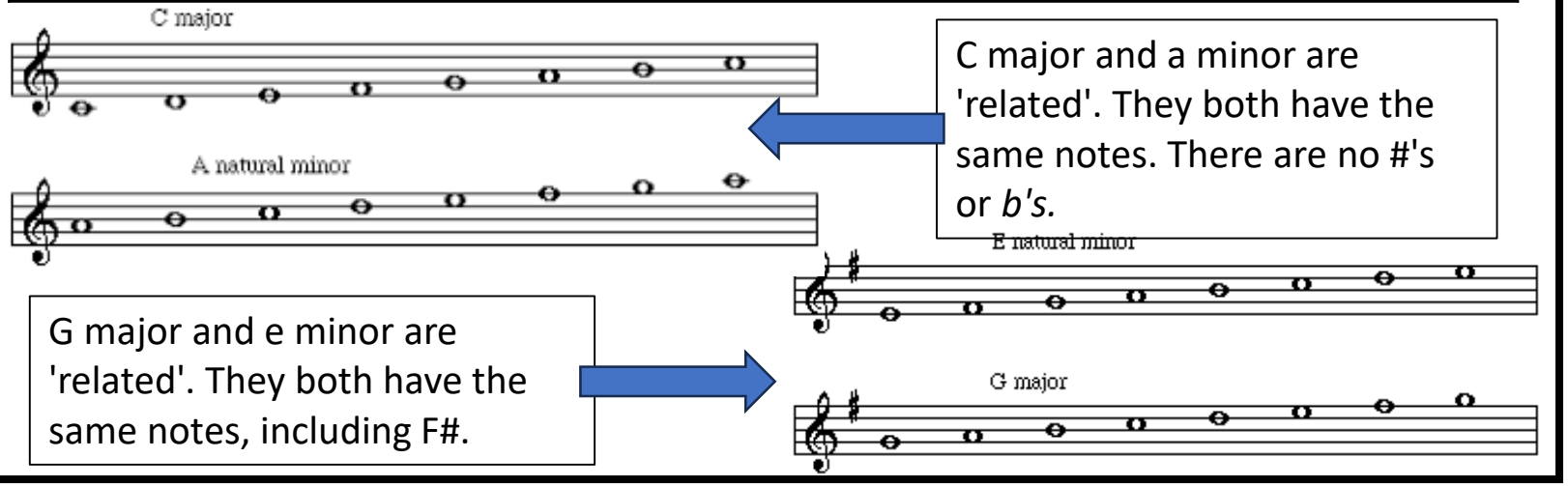
1. The structure
2. The time signature
3. The key signature
4. The instrumentation
5. The tempo
6. The harmony of the music (the chords used)
7. The melody of the music (the tune)
8. The lyrical content and meaning (if any).
9. The style/genre
10. The social/political/cultural impact on the music.
11. The effects the music on social/political/cultural

Song Structure Examples



Examples of some common song structures in popular music.

Example of (relative) major and minor key signatures



C major and a minor are 'related'. They both have the same notes. There are no #'s or *b's.*

G major and e minor are 'related'. They both have the same notes, including F#.

Year 9 and 10 Knowledge Goals: Music

Tier 3 Vocabulary		
Key word		Definition
1	Tempo	The speed of the music.
2	Dynamics	The volume of the music.
3	Chord	3 or more notes played at the same time.
4	Melody	1 note played at a time to make a tune.
5	Structure	Playing all strings at the same time.
6	Key Signature	The notes used in the music.
7	Time Signature	The number of beats in a bar.
8	Major	Refers to the 3rd note of the scale being a major 3rd above the root. 'Happy'
9	Minor	Refers to the 3rd note of the scale being a minor 3rd above the root. 'Sad'
10	Common Time	4/4 time.
11	Compound Time	E.g. 6/8, 12/8 time signature.
12	Circle of 5ths	Shows the relationship between 12 musical keys.

Notes:

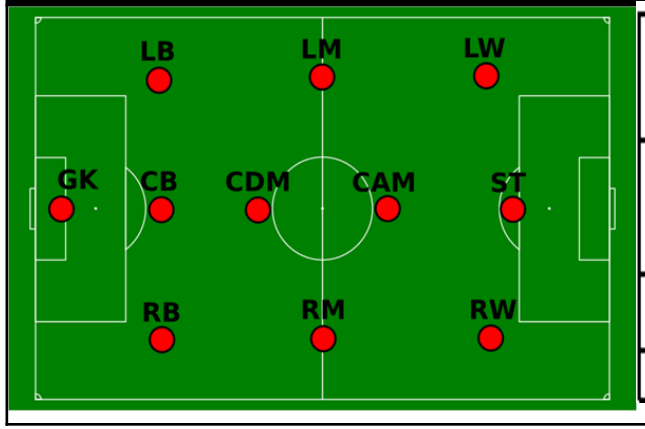
Quiz QR Code	Quiz Link
	QUIZ LINK

Year 9 and 10 Knowledge Goals: PE (Football)

Key Rules and regulations

- Football is an 11-a-side game; teams are allowed to make up to 3 substitutions during a game.
- If the ball leaves the side of the pitch it is a throw in to the team who did not touch the ball last.
- If the ball goes off one end of the pitch it is either a goal kick or a corner.
- Football is a contact sport; however tackles should be appropriate and not have a possibility of injuring an opponent.
- Use of arms is not allowed, unless you are the goalkeeper, or taking a throw in.
- To score a goal, you need to get the whole ball over in the goal you are attacking.
- To win a game, you need to score more goals than your opponents.
- A full game consists of 2 halves of 45 minutes each.
- Each game has one referee and 2 assistant referees.
- When attacking, if a player passes to you then there must always be at least 2 opposition players between you and the goal, otherwise you are offside.
- Safety equipment such as shin pads must be worn in competitive games.
- If you commit a foul which is severe you could receive yellow card or a red card. A red card means you've been sent off and must leave the field of play.

Positions:

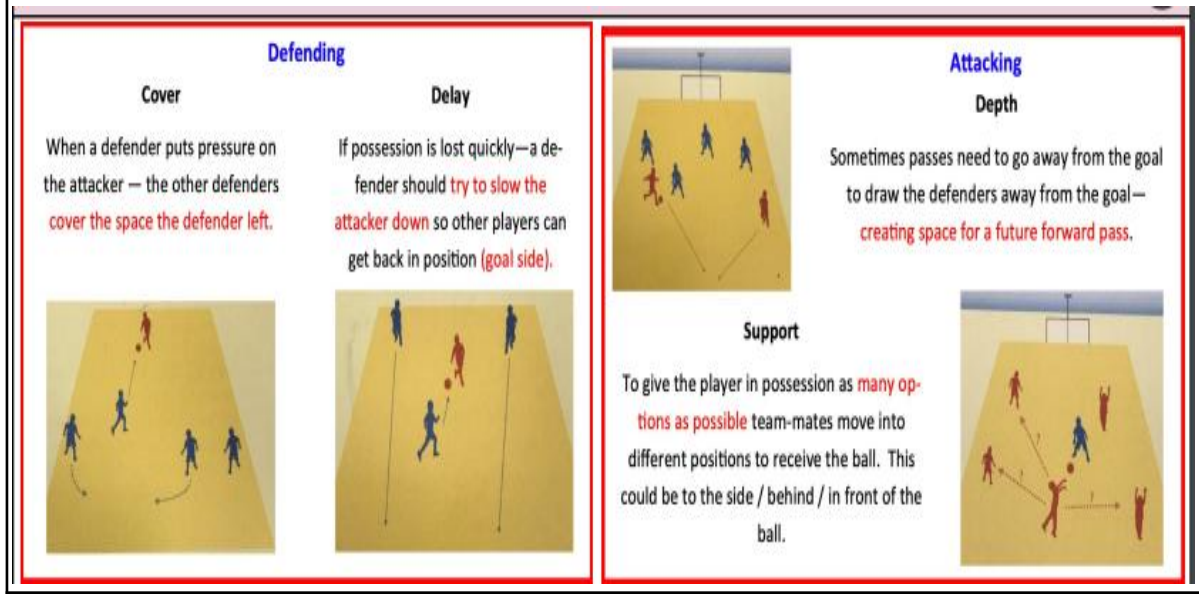


Goalkeeper	Main role is stop the opposition from scoring goals. They are the only players who are allowed to use their hands on the pitch
Defender	Main responsibility is to stop the opposition attacking their goal. Can be useful at set pieces as they are usually the tallest players on the pitch
Midfielder	Needs to be good at all areas of the game as they are involved in attacking and defensive situations
Forward	Main role is attacking the opposition's goal and scoring goals

Signals:

Infringement	Description	Linesman signal
Throw in	When the ball goes out of play on the touch line, the team who didn't touch it last are awarded the ball and restart play with a throw in	
Substitution	When one player is swapped for another, usually because of an injury or tactical reasons	
Offside	A player is in an offside position if they are nearer to their opponents' goal line than both the ball and the second last opponent when the ball is played towards them	

Key concepts:



Year 9 and 10 Knowledge Goals: PE (Football

Autumn Term: **Tier 3 Vocabulary**		
	Key word/ Key term	Definition
1	**Offside**	A violation where a player is closer to the opponent's goal than both the ball and the second-last defender when the ball is passed to them.
2	**Free Kick**	A kick awarded to a team after a foul is committed by the opposition
3	**Penalty Kick**	A kick awarded when a foul occurs inside the penalty area; taken from the penalty spot.
4	**Cross**	A pass from the side of the field into the penalty area, usually aimed at a teammate to score.
5	**Corner Kick**	A kick awarded when the ball goes over the goal line (last touched by a defender), taken from the corner of the field.
6	**Formation**	The arrangement of players on the field, usually described by the number of defenders, midfielders, and forwards (e.g., 4-4-2, 4-3-3).
7	**Possession**	The amount of time a team controls the ball during the game.
8	**Counterattack**	A quick offensive play after a team regains possession of the ball, often exploiting the opponent’s defensive weaknesses.
9	**Set Piece**	A planned play from a free kick, corner kick, or throw-in.
10	**Foul**	An illegal action, such as tripping, pushing, or handling the ball, that results in a free kick for the opposing team.

Notes:

Year 9 and 10 Knowledge Goals: PSHE

Muscular strength/endurance

Healthy diet

Hygiene

Hearing

BMI

Self image

Hair

Cardiovascular fitness

Emotions

Sleep

Relationships with others

Oral health

Positivity

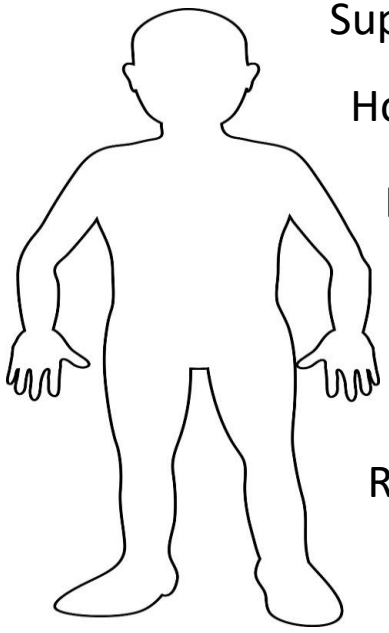
Self care

Mood

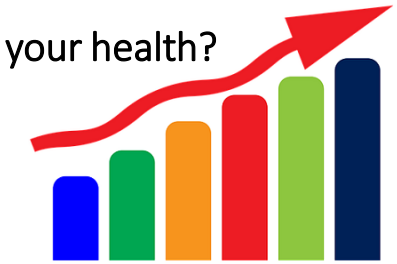
Hobbies/interests

Support

Feelings

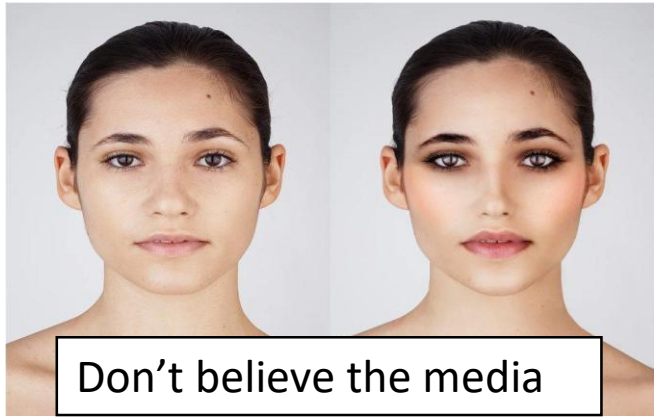


How can you improve your health?



Eat a balanced diet
Exercise regularly
Don't smoke or abuse alcohol/drugs
Socialise
Reduce/manage stress

[The Wellbeing Hub - Schools - Teen Tips]



Don't believe the media

- Sleep is a really important part of a healthy lifestyle
- Sleep improves your memory
- Improves concentration
- improves your mood
- Improves performance
- Linked to longer life
- A minimum of eight to nine hours' good sleep on school nights is recommended for teens.

childline
ONLINE, ON THE PHONE, ANYTIME
childline.org.uk | 0800 1111

Year 9 and 10 Knowledge Goals: PSHE

Tier 3 Vocabulary		
Key word		Definition
1	BMI	The body mass index (BMI) is a measure that uses your height and weight to work out if your weight is healthy.
2	Self Image	One's self-image is their view or concept of them self. Self-image is a fundamental aspect of someone's personality that can determine the success of relationships and a sense of general well-being.
3	Cardiovascular fitness	Cardiovascular fitness is a measure of how well the heart, lungs, and blood vessels can transport oxygen to the muscles during exercise. It is an important component of overall fitness and has been linked to numerous health benefits
4	Oral health	Oral health is multi-faceted and includes the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease.
5	Self care	The ability of individuals, families, and communities to promote health, prevent disease, maintain health, and to cope with illness and disability with or without the support of a healthcare provider.
6	Balanced diet	A balanced diet is the same as a complete diet because it has the right proportion of minerals, vitamins, other essential nutrients, and optimal calories for your body's makeup.
7	Eat well Guide	The Eat well Guide shows how much of what we eat overall should come from each food group to achieve a healthy, balanced diet.
8	Concentration	The ability to give your attention or thought to a single object or activity : the ability to concentrate. the power of concentration.
9	Resilience	Being able to return quickly to a previous good condition after problems.
10	Endurance	The fact or power of enduring or bearing pain, hardships, etc. the ability or strength to continue or last, especially despite fatigue, stress, or other adverse conditions.

Year 9 and 10 Knowledge Goals: Religious Studies (Christian Beliefs)

Settlebeck School

- Jesus grew up in a Jewish family and community in Nazareth.
- Age 30, **Jesus was baptised by John the Baptist and began teaching** and performing **miracles**, such as **healing a blind man**. This is known as his ministry.
- He recruited his disciples and together they taught God's message to many people.
- Jesus demonstrated God's love and gave teachings throughout his life.
- One of his key teachings was the Parable of the Good Samaritan, which teaches Christians to love thy neighbour (Luke 10:30-37)

Salvation

God placed sins of world on **Jesus (God the Son)** at his crucifixion – this **sacrifice** meant humans could **reconcile** with God.

Through Law please God by following his teaching and carrying out good deeds (give to charity).

Through Grace -salvation doesn't need to be earned. Belief in God and Jesus enough.

Through Holy Spirit – helps Christians seek forgiveness for sin "turn to God in repentance" (Acts)

Sin separates humans from God.
Original Sin = the first sin, committed by Adam & Eve disobeying God in the Garden of Eden by eating from **The tree of Knowledge (**after being tempted by the **Devil).**

Stewardship and dominion Christians believe that God appointed **human beings to rule the world**, and to care for the world as responsible custodians. God said, 'Let them have dominion' (Genesis 1:26). This could suggest that humans have **dominion** over God's world and its resources, but it does not mean that humanity should exploit the Earth's resources. This teaching suggests that humanity's purpose is to look after the world that God has created. This is known as **stewardship**.

The nature of God and Jesus in Christianity
Almost all Christians believe in the ***Trinity*** - Father, Son and Holy Spirit, who were present at the creation and who each take on different roles:-
God the Father = creator
Jesus (God the Son) = teacher/saviour

Interpretations Christian beliefs differ depending on **denomination** but also on **personal** belief.
Literal = Interpret the creation stories in Genesis literally.
Inspirational = Bible was inspired by God; inconsistencies because it was written by humans. The bible is open to interpretation.
Metaphorical = Stories are metaphors or symbolic so may accept scientific theories, such as the Big Bang.

Most Christians believe that death is not the end. They believe in the resurrection of the body on the **Day of Judgement**, when they will be sent to Heaven or Hell **(Book of Revelation)**. **The Parable of the Sheep and Goats (Matthew)** explains the idea of judgement.
Some Christians **do not believe that Heaven and Hell** are necessarily **physical places**. **Roman Catholics** believe in a place called **Purgatory**, where sins are punished and where a person's soul undergoes purification before it can go to Heaven.
Many also argue that the existence of **Hell would contradict God's omnibenevolent** nature. These Christians believe that everyone will eventually repent and be forgiven.
Christians believe that **Jesus was resurrected**, and because of this, **Christians will be too**.

Genesis is the **first book of the Bible**. **Genesis 1** describes the creation of the heavens and the earth. **Genesis 2** focuses on the creation of the first humans, Adam and Eve

Omnipotence - God is all-powerful. The evidence includes creation of the world and the resurrection of Jesus.
Omnibenevolence - God is all-loving. God sacrificed his own son for humanity.
Just - God is fair to all and he forgives those who say sorry for. The Psalms say, God is fair and just (Psalm 25:8).
Omniscience - God knows everything; every person's inner thoughts as well as knowing all that has happened and all that will happen in the future.
Transcendence - God exists outside of our worldly constraints and physical laws. Complete understanding of God is beyond the human intellect.

MORAL EVIL = HUMAN MADE
NATURAL EVIL = NATURAL DISASTERS

Solutions to the problem of evil
The idea that evil can exist alongside an all-loving God produces a **problem** for Christians. They have developed a few different solutions to this problem:
•God gave humans free will. Any suffering humans experience is a result of choices they have made or consequences from the natural world.
•Experiencing bad things could be a test of faith. For example, in the **Bible**, **Job** is tested on many occasions but keeps his faith in God, ultimately receiving a reward.
•Humans need evil to appreciate good. Balance is essential.
•God is beyond human understanding.

Year 9 and 10 Knowledge Goals: Religious Studies (Christian Beliefs)

Settlebeck School

Tier 3 Vocabulary		
Key word		**Definition**
1	Denomination	A branch of the Christian Church.
2	Dominion	Control, leadership or sovereignty.
3	Stewardship	Supervising or taking care of something.
4	Original Sin	The first sin created by Adam and Eve, inherited by humans.
5	Salvation	Deliverance from harm, ruin or loss.
6	Reconcile	Positively restore a relationship.
7	Purgatory	A place where sins are purified before going to heaven.
8	Omnipotent	All-powerful.
9	Omnibenevolent	All-loving/good.
10	Trinity	The father, the son and the holy spirit in one form.
11	Resurrection	Coming back to life.
12	Metaphor	An object or action that represents something else.

Notes:

Quiz QR Code	Quiz Link
	QUIZ LINK

Year 9 And Year 10 Knowledge Goals: Science (Ecology)

Ecosystems are the interactions between all of the living things in their environment, and the environment itself.
Organisms within the ecosystem are in **competition** for the resources they need to be able to survive.
Animals compete for; space, territory, food, water and mates.
Plants compete for; light space, water and mineral ions
Driven by natural selection, organisms have evolved over time to have specific **adaptations** which increase their chances of success and survival.
These are split into three main categories.
Structural – anything to do with shape, size or colour.
Behavioural – changes to behaviour patterns.
Functional/physiological – changes to internal processes of the organism.

Structural Adaptations
Sharp quills for protection from predators
Protruding snout (for accessing termite mounds)
Sharp claws for digging / burrowing

Behavioural Adaptations
Curls into ball when threatened (exposes quills)
Digs burrows in which to nest and rest
May hibernate during winter in very cold regions

Physiological Adaptations
Ears sensitive to low frequencies (detect ant sounds)
Well developed olfactory system (used for detection)
Tongue can stiffen and penetrate soil due to blood flow

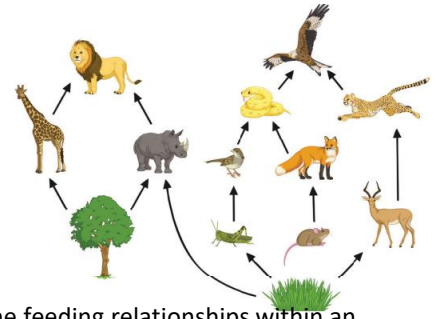
The hedgehog has examples of all three types of adaptation.
It is important to remember that it has taken millions of years for the evolution process to take its course. They do not just adapt to a changing environment in a short time which is why a rapidly changing world could potentially cause mass **extinction.**
Extremophiles are organisms which have adapted to survive in extreme conditions such as **high temperatures, high salt concentrations or high pressure.** They are usually simple microorganisms such as bacteria.

Interdependence is the mutual dependence of the different organisms within the ecosystem.
Biodiversity is the variety of different living things in the ecosystem. The more biodiversity the more stable the ecosystem will be.
Organisms will rely on each other for **food, shelter, seed dispersal and pollination.**

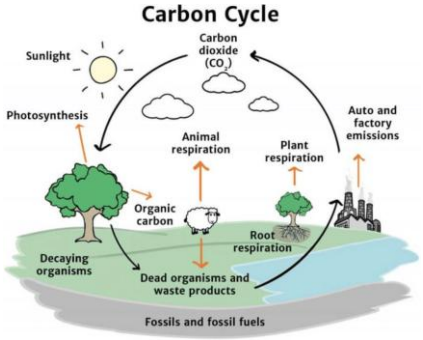
Ecosystems are varied and determined by the **abiotic and biotic** factors that make them up.
Abiotic factors are non living;
- Moisture levels
- Light intensity
- Temperature
- Wind intensity
- Soil pH
- Atmospheric gas concentrations

Biotic factors are living;
- Predators
- Competition
- Pathogens
- Food availability

Any change to the ecosystem such as the introduction of a new pathogen can result in huge knock on effects for the rest of the ecosystem.



The feeding relationships within an ecosystem are complex A food web is used to show the different food chains within the ecosystem.
Producers – fix energy from the Sun into glucose through photosynthesis.
Primary consumers – herbivores which eat the producers
Secondary consumers – Carnivores which eat the primary consumer.
Tertiary consumer – eat the secondary consumer. These are often the **apex predator**.



Carbon is cycled in different forms throughout an ecosystem. It is important to learn the form it is found, the key processes and the organisms involved.

Investigating an ecosystem
Quadrats are used to measure the abundance of an organism in an ecosystem.
A **transect line** is used to measure the **distribution** of an organism in an ecosystem.
If we want to **estimate** the number of an organism in an ecosystem then we follow these steps:
1. Split the ecosystem into a grid
2. Use a **random number generator** to determine where to place our quadrat
3. Count the number of organisms in the quadrat
4. Repeat. The more times we repeat, the more accurate our answer
5. Find a mean number of organisms per quadrat
6. Calculate how many quadrats would be needed by dividing the whole area of the ecosystem by the area of one quadrat
7. Multiply our answers from steps 6 & 7

Remember an **estimate** is **not a guess.**

Human interaction is leading to an imbalance in the carbon cycle. More carbon is being released than absorbed. This results in **global warming**.
Causes of global warming are why it is happening, including:
- Burning more fossil fuels
- Cattle farming releasing methane
- Anaerobic respiration in rice paddy fields releasing methane
- Deforestation

Effects are what happens due to global warming, including:
- Ice caps melting
- Sea levels rising and low level land flooding
- Extreme weather patterns
- Changes to migration patterns
- Changes to the distribution of species

Due to an increase in the human population we are needing more land for **farming, building, quarrying and landfill sites**. This demand is met through **deforestation** and **peat bog draining** Both of these **reduce biodiversity.** Some scientists are working hard to stop this reduction in biodiversity through **breeding programmes, regenerating and protecting rare habitats, reintroducing hedgerows and field margins and encouraging recycling.**

Year 9 and 10 Knowledge Goals: Science (Ecology)

Settlebeck School

Spring Term: **Tier 3 Vocabulary**		
Key word		Definition
1	Biodiversity	The variety of living things within an ecosystem.
2	Breeding programme	Planned breeding of animals that are close to extinction.
3	Community	All of the living things within an ecosystem.
4	Deforestation	The cutting down of large amounts of trees. Typically so the land can be used for farming, building, quarrying or landfill sites.
5	Food web	A diagram which shows the different feeding relationships within an ecosystem.
6	Global warming	The overall increase of the temperature of the Earth.
7	Habitat	The non-living parts of an ecosystem.
8	Interdependence	The mutual reliance of two or more organisms on each other for survival.
9	Peat bog	Dense wetlands that store carbon. These are drained for land. The peat is often burnt or used as compost, releasing carbon dioxide.
10	Population	The amount of one particular species with an ecosystem.
11	Random sampling	A small representation of a larger area taken at random, without any bias.
12	Recycling	Reusing materials or reprocessing waste materials to produce new materials.

Notes:

Quiz QR Code	Quiz Link
	QUIZ LINK

Year 9 and 10 Knowledge Goals: Science (Ecology)

Further explanations.

Extreme animal adaptations

Top 5 Animal Adaptations | BBC Earth - YouTube

Biodiversity and interdependence – David Attenborough

Why is biodiversity important - with Sir David Attenborough | The Royal Society – YouTube

The Carbon Cycle

The carbon cycle - Nathaniel Manning – YouTube

Investigating ecosystems

Sampling with Quadrats - GCSE Biology Required Practical – YouTube

Deforestation and climate change

The Tragedy Of Deforestation | Climate Change: The Facts | BBC Earth – YouTube

Maintaining biodiversity

GCSE Biology - Maintaining Biodiversity #90 - YouTube

Notes:

AQA Exam Questions QR Code	AQA Exam Questions
	Exam Questions

Year 9 and 10 Knowledge Goals: Science (Earth's Resources and the Atmosphere)

Finite resources from the Earth's crust, oceans and atmosphere will one day run out. They can be processed to provide energy and useful materials. Renewable resources are those which will not run out in the foreseeable future.

Life-cycle assessment:
LCA is a 'cradle to grave' analysis of the impact of a manufactured product on the environment. There are many detailed stages but the main ones are:

- extracting and processing the raw materials needed
- manufacturing the product and its packaging
- using the product during its lifetime
- disposing of the product at the end of its useful life

Reducing waste	Advantage	Disadvantage
• Recycling • Reducing • Reusing	• Fewer quarries and mines are needed to extract finite reserves of metal ores. • Less crude oil needs to be extracted from the crust as a raw material for making plastics. • Less energy is needed for recycling compared with making a new product from natural resources, so the emission of greenhouse gases is reduced. • The amount of waste that is disposed of in landfill is reduced.	• The collection and transport of used items needs organisation, workers, vehicles and fuel. • It can be difficult to sort different metals from one another. • The sorted metal may need to be transported to where it can be turned into ingots.

Evolution of the early atmosphere

As the crust of the Earth cooled down NH_3, CH_4, H_2O and CO_2 were released

The combination of gases made the atmosphere to hot to sustain life

As the water vapour cooled down to form seas some of the CO_2 dissolved into it and single celled plants such as algae evolved

The algae produced O_2 in photosynthesis and trapped CO_2

More CO_2 was trapped by the dead plant matter turning into fossil fuels and some into carbonate rocks (sedimentary)

In the modern atmosphere there is 78% nitrogen, 21%oxgen, 1% argon and 0.04% CO_2 due to the process mentioned above

Present day atmosphere

Drinking (Potable) Water

Most potable water in the UK is produced from naturally occurring fresh water by:

Rainwater collects in rivers, lakes and in rocks underground. This water contains low levels of dissolved substances.

It is made fit to drink by passing the water through filter beds to remove insoluble particles

After this it is sterilised to kill microbes by adding either chlorine or ozone or exposing to UV

Sea water can be made into potable water by Desalination can be done by distillation and by reverse osmosis, however it requires more energy and is therefore more expensive.

Waste water treatment
Waste water from homes, industry and agriculture must be treated before being released into the environment.
Sewage treatment involves the following steps:

- Screening and grit removal to remove large particles.
- Sedimentation allows tiny particles to settle out from still water, which produces sewage sludge and effluent (the liquid which remains on top).
- The sewage sludge is digested anaerobically by specific bacteria.
- The effluent is treated with aerobic bacteria to reduce the volume of solid waste.

Pollutant	Source
Carbon dioxide, CO_2	Complete combustion of any fuel containing carbon atoms
Carbon monoxide, CO	Incomplete combustion of any fuel containing carbon atoms
Particulate carbon, C (soot)	Incomplete combustion of any fuel containing carbon atoms
Unburned hydrocarbons	Hydrocarbon fuel molecules which have not been oxidised at all
Sulfur dioxide, SO_2	Combustion of a fossil fuel which contains sulfur impurities
Nitrogen oxides, NO_x	Oxidation of atmospheric nitrogen inside the engine of a car, lorry, etc

Polluting the atmosphere:
Green house gases (Carbon dioxide CO_2, Methane CH_4, Water vapour H_2O) - Absorb heat radiated from the Earth then release energy in all directions, which keeps the Earth warm. Human activities which increase these gases are farming cattle, paddy fields, burning fossil fuels and deforestation.

Year 9 and 10 Knowledge Goals: Science (Earth's Resources and the Atmosphere)

Settlebeck School

Tier 3 Vocabulary		
Key word		Definition
1	Finite	Resource that can only be used once and is in limited supply. For example, oil is a finite resource.
2	Desalination	The process of removing salt from sea water.
3	Reverse osmosis	A method of purifying water by forcing it under pressure through a membrane which has tiny holes in it.
4	Climate change	Describes global warming—the ongoing increase in global average temperature and weather patterns.
5	Acid rain	Rain that contains dissolved acidic gases such as nitrogen oxides and sulphur dioxide.
6	Carbon footprint	A measure of how much carbon is used through the activities of a person, company or country.
7	deforestation	The cutting down of trees and forests to allow a different land use.
8	Global Dimming	The gradual reduction in radiation energy which reaches the Earth's surface from the Sun due to small particles in the atmosphere which have almost certainly been produced by human activities such as burning fossil fuels.
9	Synthetic	A material made by a chemical process, not naturally occurring.
10	Sterilise	To kill any living organisms, usually microbes that might cause disease, on an object or in a substance.
11	Precipitate	A suspension of particles in a liquid formed when a dissolved substance reacts to form an insoluble substance.
12	Potable	Water that is safe to drink.

Notes:

Test you knowledge: Exam Questions

Quiz QR Code	Quiz Link
	QUIZ LINK

Year 10 Knowledge Goals: Cambridge Sport- Principles of Training

Settlebeck School

1. Cardiovascular endurance
2. Muscular endurance
3. Strength
4. Flexibility
5. Agility
6. Balance
7. Co-oridnation
8. Power
9. Reaction Time
10. Speed

10 Components of Fitness

Reasons for Fitness Testing

- Identify Strengths
- Compare score against normative table of data
- Give yourself an incentive
- To monitor progress

TOPIC AREA 1

Fitness Tests:

Balance → Stork Stand Test → Gymnastics
CV Fitness → Multistage Fitness Test → Marathon
Maximal Strength → One Rep Max Test → Rugby
Reaction Time → Ruler Drop Test → Sprinting
Speed → 30m Sprint → Sprinting
Power → Vertical Jump → Football
Flexibility → Sit & Reach → Gymnastics
Agility → Illinois Agility Test → Tennis
Co-ordination → Wall Toss Test → Cricket
Muscular Endurance → One Minute Sit Up → Swimming

Component of fitness	Definition	Sporting example	Fitness tests
Agility	Ability to change direction at speed while still in control of the body	Rugby players must dodge tackles from the opposition.	Illinois Agility Run
Balance	Ability to maintain stability and an awareness of body position	Static: Gymnast holding a handstand position still. Dynamic: Hammer Throw uses balance to keep control whilst moving and when he releases the hammer.	Standing Stork Test
Coordination	Ability to perform several tasks linked together	Hand-Eye: Tennis player's racket make contact with ball. Hand-Hand: Basketball player switch hands when dribbling. Foot-Eye: Football player receives a pass.	Three Ball Juggle
Power	Ability to apply both strength and speed in one action	High Jumper needs power to gain height and distance at take off.	Standing Broad Jump; Sargent Jump Test
Reaction Time	Time it takes to respond to a stimulus	Swimmer must leave the blocks as soon as the gun 'sounds'.	Ruler Drop Test
Speed	Ability to move a certain distance in the shortest time	100m sprinter needs speed to get a fast time and beat their opponents.	30m Sprint
Muscular Strength	Maximum force exerted by a muscle or group in a single contraction	Weightlifter needs muscular strength to lift heavy weights.	Hand Grip Test
Muscular Endurance	Ability of a muscle or group of muscles to sustain exercise over a period of time	Rower has to use same muscles repeatedly over a long period of time.	Perform as many Sit-Ups until you're tired.
Cardiovascular Fitness	Ability to maintain activity over a sustained period of time (without tiring)	Marathon runner can run at a good pace without tiring.	Cooper Run 12min
Flexibility	The range of movement at a joint, the elasticity of the muscles	Hurdler needs flexibility to achieve the hurdling position.	Sit and Reach

Year 9 and 10 Knowledge Goals: Cambridge Sport- Principles of Training

Tier 3 Vocabulary		
Key word		Definition
1	Cardiovascular endurance	The ability of the heart and lungs to get oxygen to the working muscles for the body to use.
2	Stamina	The ability to sustain activity without fatigue.
3	Muscular endurance	The ability of a muscle to sustain repeated contractions.
4	Agility	The ability to move and change directions quickly while maintaining control.
5	Balance	The ability to maintain a position; this involves maintaining the center mass over the base support.
6	Speed	The maximum rate at which an individual is able to perform a movement.
7	Power	The exertion of rapid muscular strength; it can be remembered as speed x strength.
8	Strength	The extent to which a muscle or muscle group can contract against resistance.
9	Flexibility	The range of movement possible at a joint.
10	Co-ordination	The ability to use two or more body parts together (simultaneously) smoothly and efficiently.
11	Reaction time	The time taken from the onset of a stimulus to the start of the reactive movement.
12	Aerobic	With oxygen; oxygen is used to produce energy during low intensity, long distance aerobic exercise.

Notes:

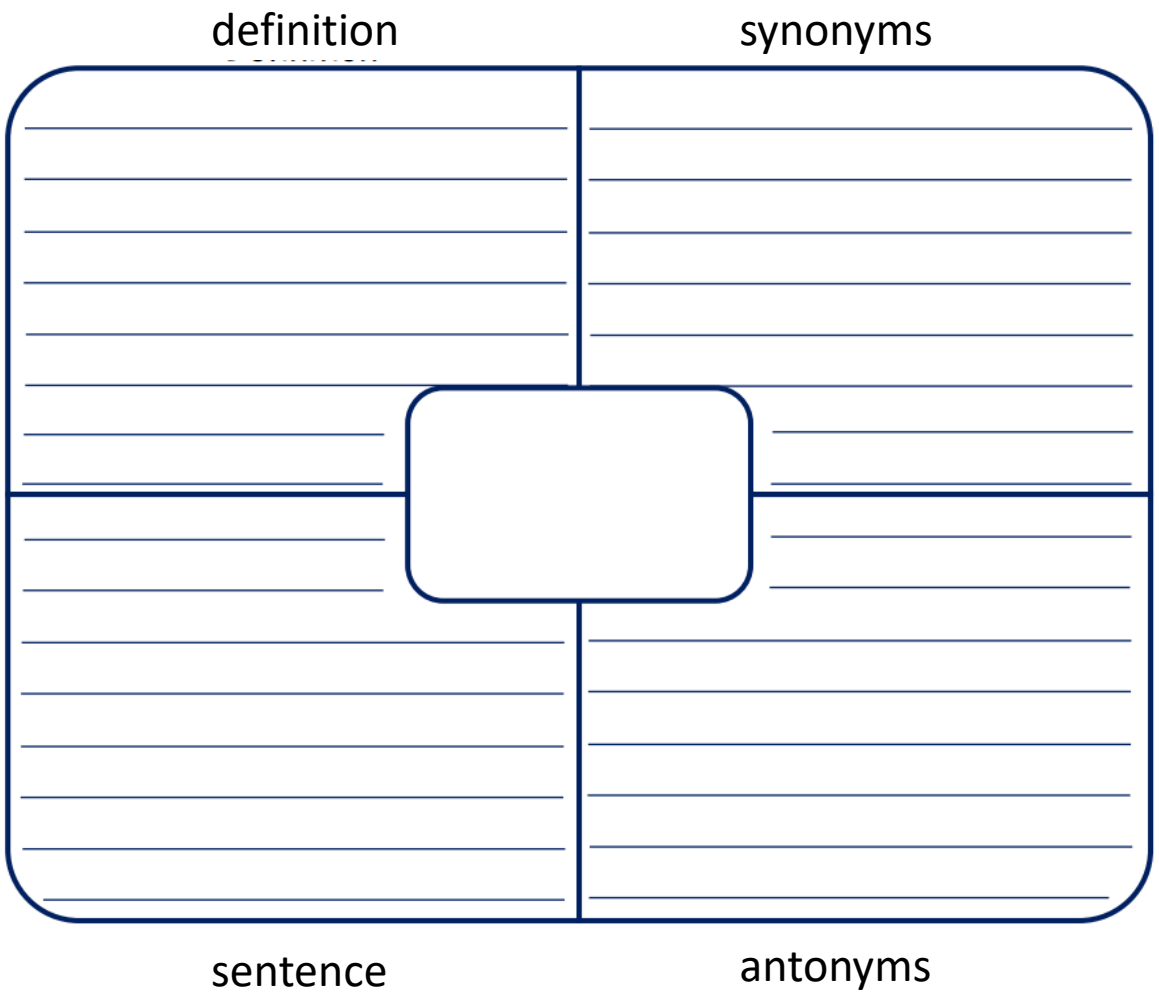
Tier 2 Vocabulary

ablution	abrasion	access
acquire	adapt	adequate
advocate	aggressive	albeit
alleviate	alter	altitude
ameliorate	analogous	analyse
behind	benign	beverage
bewitch	brawl	budge
calamity	calculate	callous
capacity	cause	central
challenge	chant	chirp
chore	circulate	claim
clear	collaborate	collude
command	committee	companion
compare	complex	confer
debate	decisive	decompose
define	delineate	deny
deteriorate	detrimental	dimension
disagree	discover	direct
eccentric	ecstasy	eloquent
emerge	emphasis	employ
encounter	epic	epitome
era	escalate	establish
evaluate	excavate	explore
farce	ferocious	flaw
flighty	formidable	function
ginormous	grapple	grizzly
hamper	harmful	harness
hierarchy	hitch	honour
hybrid	hypothesis	hysteria
identical	identify	ignorance
illusion	illustrate	immense

impeccable	imperative	impression
inevitable	innate	intense
interact	intercept	irreversible
jaunt	jubilant	justify
legacy	liberal	liberate
malicious	manipulate	match
measure	menace	meteoric
migrate	misconstrue	mitigate
native	network	notation
notice	notion	numeral
objective	observe	occupy
ointment	opaque	opponent
overall	overstate	overthrow
pallid	parallel	partition
persevere	persuade	pigment
pivot	pledge	ponder
pose	precedent	prepare
presume	previous	principal
radiant	raucous	ravage
rearrange	reckless	recline
refine	reflect	region
rejoice	relate	remote
replace	request	require
revise	rewrite	rhythm
salvation	scheme	sculpt
shift	shrewd	significant
slither	solar	sparse
specify	stability	state
supreme	surge	synonymous
tamper	technique	teeming
tentative	testament	transform

treaty	trivial	troublesome
underestimate	unscathed	update
validity	vanquish	verbose
verify	versatile	version
vibrant	victor	victory
virtuous	welfare	zealous

Literacy: Tier 2 Vocabulary – Frayer Model



Synonyms are words with the same or similar meaning:

- words such as happy, cheerful and merry.
- words such as sad, miserable and heartbroken.

Antonyms are words with opposite meanings:

- words such as angry and peaceful.
- words such as funny and serious.

You can use a **thesaurus** to find **synonyms** and **antonyms** for words.

Scan to view thesaurus

click to view thesaurus

Have a go at creating a Frayer Model for each of the 6 tier 2 words from this term (blank templates are at the back of the booklet for you to complete this activity).

Frayer Model: Deteriorate

definition

synonyms

deteriorate

sentence

antonyms

Complete a Frayer Model for the word **deteriorate**.

Scan to view thesaurus

click to view thesaurus

Frayer Model: Hamper

definition

synonyms

hamper

sentence

antonyms

Complete a Frayer Model for the word **hamper**.

Scan to view thesaurus

click to view thesaurus

Frayer Model: Shift

definition

synonyms

shift

sentence

antonyms

Complete a Frayer Model for the word **shift**.

Scan to view thesaurus

click to view thesaurus

Frayer Model: Pledge

definition

synonyms

pledge

sentence

antonyms

Complete a Frayer Model for the word **pledge**.

Scan to view thesaurus

click to view thesaurus

Frayer Model: Sparse

definition

synonyms

sparse

sentence

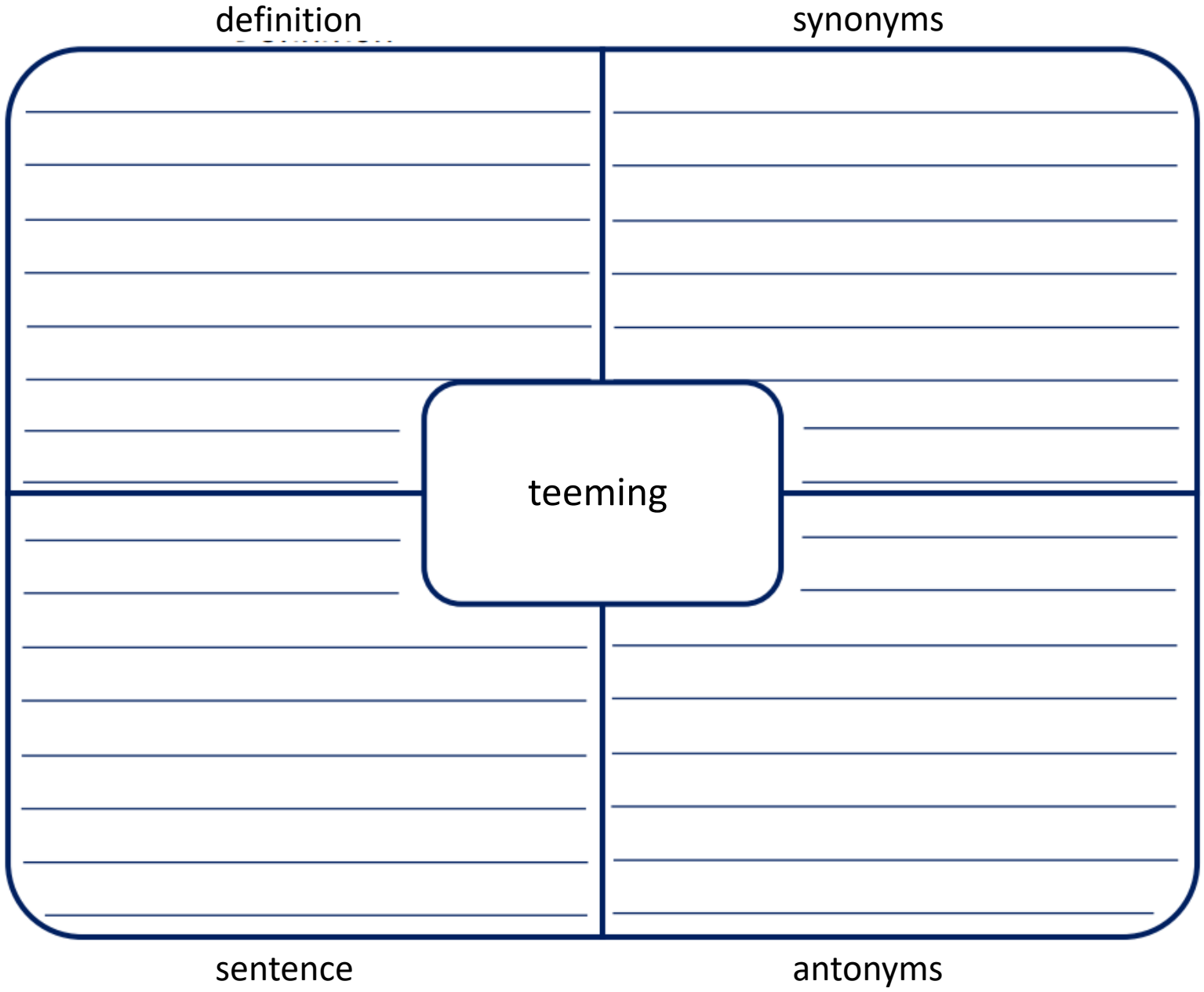
antonyms

Complete a Frayer Model for the word **sparse**.

Scan to view thesaurus

click to view thesaurus

Frayer Model: Teeming



Complete a Frayer Model for the word **teeming**.

Scan to view thesaurus

click to view thesaurus