Wadham School

A Church of England Community School

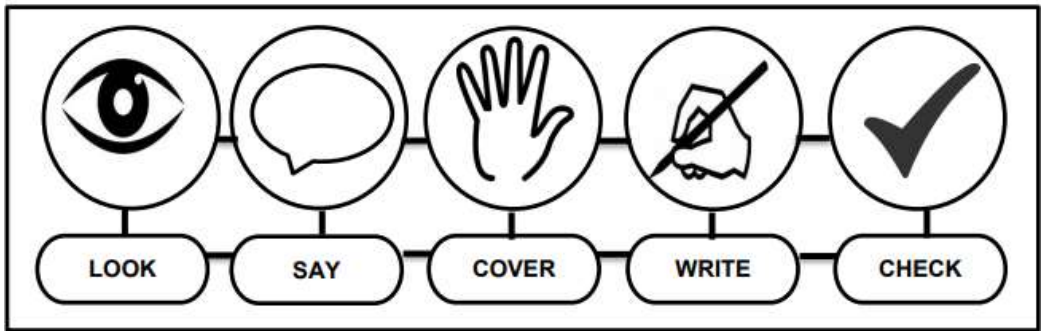
Knowledge Organisers
Year 9
Term 3 & 4
2024-2025

Name.....

Tutor group.....

"Life in all its fullness" John 10:10

Using Your Knowledge Organiser



Look-Say-Cover-Write-Check

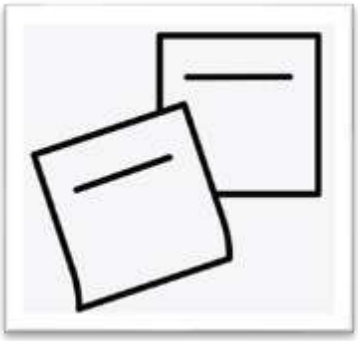
Retrieval practice using the look-say-cover-write-check technique, when done in regular small chunks, is one of the best ways you can learn relevant knowledge over time.

Working in Independent mode:

- Look at the first bullet point or sentence
- Read through it three to five times
- Cover
- Write it out exactly
- Remove and check what you wrote and tick if correct
- Repeat
- When you get it 100% right, move on to the next chunk of information

Flash Cards

Make flast cards with the definition on one side and key word on the other.

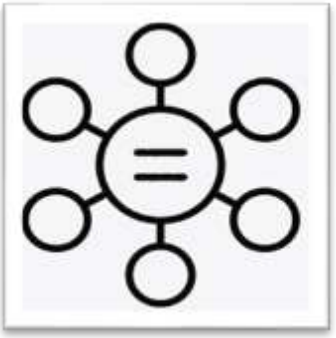


Self Quizing

Write quizzes with answers to test yourself in the future.

Mind maps

Create mindmaps linking key inforamtion you need to remember.



YEAR 9 ART

STREET ART

Creating Stencil Art 1

- Stencil art is one of humanity's oldest creative forms.
- Some of our species' first artists made stencils when they placed their hands on cave walls and blew minerals over them, coating the rock in red or black pigment and leaving behind their palmprints.
- Fast-forward some 30,000 years and stencil art techniques remain essentially unchanged.
- Using a sheet of cardboard, plastic, or metal with a pattern or letters cut out is surprisingly versatile, allowing craftspeople to colour cloth, print t-shirts, and create some fantastic street art.

Creating a stencil design

First, you'll need an image to work with. You can use something you've drawn, choose a photo or pre-existing artwork to adapt as stencil art, or combine elements of all three.

- Make sure your design can be rendered in two-tone black and white without losing too much detail.
- Typography, icons, bold, comic-style illustrations, and high-contrast photos all work well when you're first learning how to create stencil art.
- Make it pop with bold shadows and crisp lines.

Keep in mind that your stencil cannot be too detailed.

Shepard Fairey (b.1970)
His style has been described as bold and iconic.

His most famous artwork is the iconic 'Hope' poster he made for Barack Obama's election campaign in 2008.

YEAR 9 ART

STREET ART

Creating Stencil Art 2

island bridges

As you create your stencil pattern, be sure to plan for any necessary "bridges" in the artwork. You need to make sure there aren't any lonely "islands" of blank stencil material, otherwise you may accidentally cut away important design elements.

Cutting & Spraying Your Stencil

You should cut out the most detailed parts of your stencil first, as your stencil will only get flimsier with each piece of paper that's removed.

Now for the best part: spraying your stencil...

- Aim for steady movement and even coverage to avoid dripping (unless that's an effect you'd like to try out).
- Position your nozzle about 30cm away from your stencil and spray in short strokes in a single direction, without "doubling back" over parts you've already coated.
- Leave to dry for at least 10 minutes.
- You may wish to add another layer of colour over the top.

Keyword	Definition
Stencil	A thin sheet of card, plastic or metal with a pattern or leaves cut out of it, used to apply a design on the surface below by the application of ink or paint.
Typography	The art of arranging type and printing from it.
Scalpel	A knife with a small, sharp blade.
Graphics	The products of graphic art, especially design or illustration.
Graffiti	Writing or drawings scribbled, scratched or sprayed on a wall or other surface in a public space.
Distress	Making a piece of furniture, object or surface appear aged.
Collage	The technique in which pieces of paper, photographs, fabrics and other materials are arranged and stick down onto a surface.

Beliefs and World Views

Beliefs and Worldviews – Year 9 Term 1& 2

Topic 2: Philosophy

1	**Philo**	'Love'
2	**Sophia**	'Wisdom' - Philosophy= love of wisdom
3	**Logic**	Using reason and common sense to solve problems

4	**Empiricism**	Using evidence to prove knowledge, beliefs and ideas
5	**A Posteriori**	Knowledge known only after experience
6	**Rationalism**	Reason and Logic provide knowledge
7	**A Priori**	Knowledge known before experience

8	**Problem of Evil**	Argument against the existence of God - States an all-loving God is incompatible with a world of suffering
9	**Epicurus**	Philosopher who wrote about Problem of Evil
10	**Free Will**	God created humans with freedom to choose how to act
11	**Free-Will defence**	Defence against the Problem of Evil: Suffering is due to human choices, it's not God's fault

12	**Materialism**	People are just physical bodies (there is no soul)
13	**Dualism**	People are two parts: physical body and spiritual soul
14	**Cosmological Argument**	Argument that seeks to prove God's existence based on the need for the universe to have a creator
15	**Cause**	the reason something came into being
16	**Eternal**	beyond time
17	**Spiritual**	non-physical

Topic 3: Ethics

1	**Ethics**	Moral principles that guide a person's beliefs and behaviour
2	**Moral**	'Right'- If an action is moral it is the right thing to do
	Immoral	'Wrong' - If an action is immoral it is the right thing to do
3	**Utilitarianism**	That which brings the greatest good to the greatest number
4	**Deontological**	An action is inherently right or wrong
5	**Revelation**	God telling humans his will, especially what is moral
6	**Agape**	Universal love and compassion – the way of Jesus
7	**Abortion**	Terminating a unwanted pregnancy
8	**Euthanasia**	Assisted Suicide – Ending a life due to severe pain
9	**IVF: In Vitro Fertilisation**	Sperm & egg combined outside of the womb to begin pregnancy
10	**Designer Babies**	IVF used to create children with certain genetic characteristics
11	**Artificial Intelligence**	Computer generated intelligence, ability to read and speak

Year 9 Graphics Knowledge Organiser

Computing

Bitmap graphics

Bitmap graphics made with painting packages consist of many tiny dots called pixels. It is possible to edit each individual pixel.

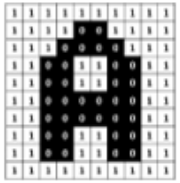
Since the computer has to store information about every single **pixel** (the colour for example) in the image, the file size of a **bitmap** graphic is often quite large. **Bitmap** graphics lose quality when they are resized.

Representing Bitmaps

Images are made up of p**ixels** (Picture Elements). Each **pixel** is set to one colour. Together they look like an image. Individual **pixels** are unidentifiable.

Creating a Bitmap

Each p**ixel** is given a binary value. Each value represents a different colour. Using one bit per **pixel** allows only 2 values, 0 and 1.

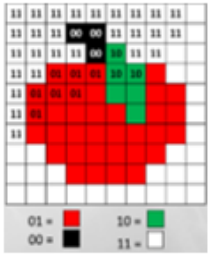


1	=	White
0	=	Black

More bits per **pixel** = more colour combinations.

- 1 bit = 2 Colours
- 2 bits = 4 Colours
- 3 bits = 8 Colours
- 4 bits = 16 Colours

How many bits per **pixel** required for 256 colours?



Graphics Package

A graphics package is an application that can be used to create and manipulate images on a computer.

Common features of graphics packages:

- Drawing straight lines and 'freehand' lines;
- Drawing regular pre-defined shapes like squares, rectangles and circles using a special 'tool';
- Building up images using **'layers';**
- Entering text and changing the style and size of font;
- Attaching text to objects;
- Changing the size of an object, or scaling;
- Rotating objects in either clockwise or anticlockwise by specifying the direction and angle of rotation;
- Stretching objects either horizontally or vertically. 'Flipping' an object either horizontally or vertically.
- A paint palette from which different colours and patterns can be chosen.

- A fill option for colouring in a shape or area on the screen with a colour or pattern from the paint palette.
- Most graphics packages have a built-in library of clipart pictures.
- Zoom or magnify is a feature that allows an area of the screen to be seen close up for detailed work.
- Special brushes such as an airbrush can be used to achieve different paint effects on the screen.
- In most graphics these features are chosen from a toolbar or tool palette where they are displayed as icons.
- Exporting is a special way of saving a file produced using a graphics package so that it can be used in another application package **(.PNG, .JPG, .BMP)**

Vector Graphics

Vector images comprise geometric shapes. The properties of each shape are recorded:

- Shape type (e.g. Circle)
- Radius
- Centre point **(x,y)**
- Fill Colour
- Line Colour

Vector graphics consist of shapes called objects. You can edit each object separately to change the shape, colour, size, and position.

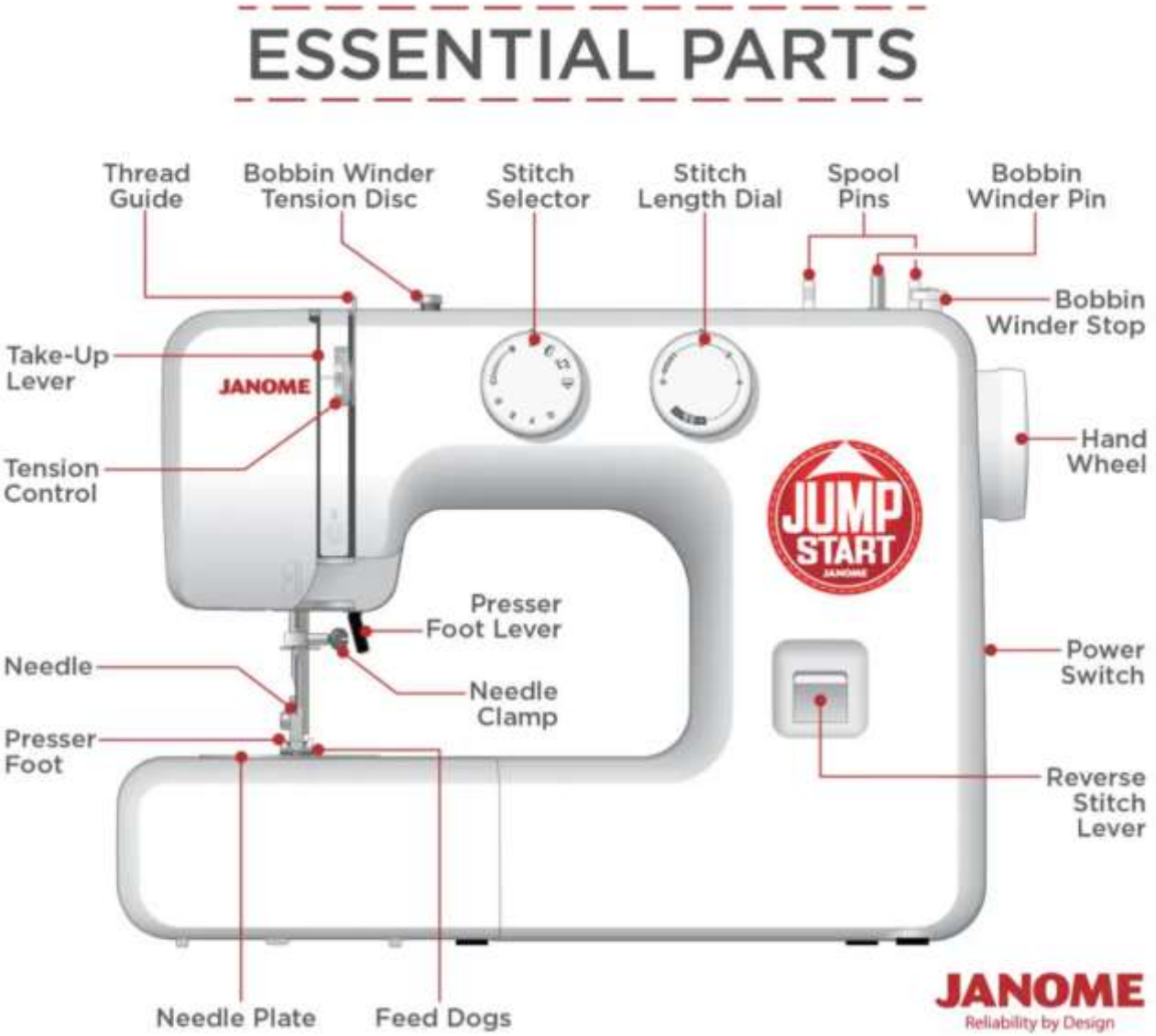
Recording the properties of vector shapes does not take up much memory. This usually makes the file size of a **vector** graphic very small

Vector graphics are scalable – you can change their size without any loss of quality.

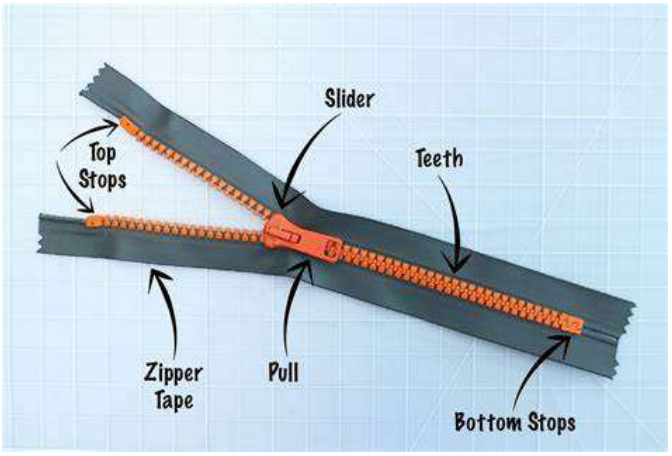
	Bitmap graphics	Vector graphics
Made up of	Coloured pixels	Objects
File size	Large	Small
Resizing	Lose quality	No loss of quality
Appearance	Real	Cartoon-like
File formats	.bmp .jpg .gif	.svg .wmf

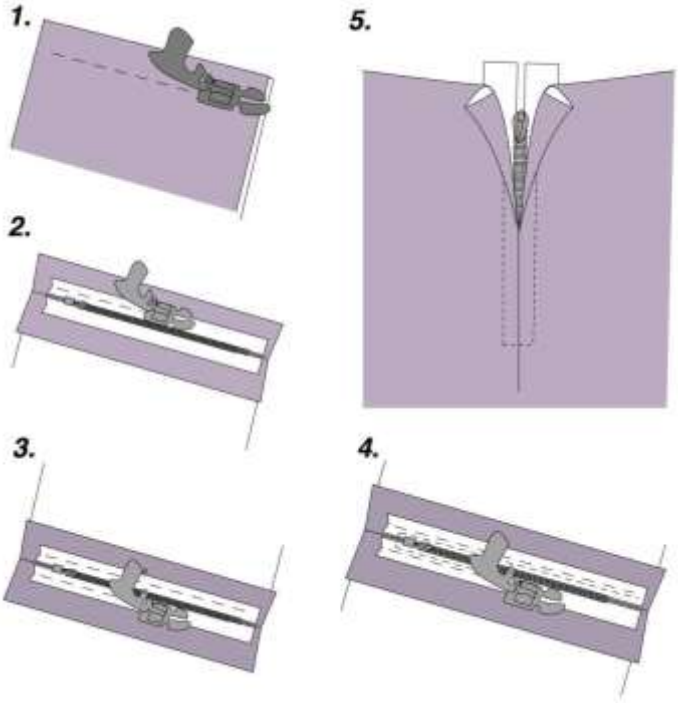
Bitmap or Vector image?

- Will the image need to be resized?
- Will the image need to be drawn to scale?
- Will the image need to be realistic?
- Are there any restrictions on file size?



Inserting a zip





A. Drama Key Words

Body language	Body language is communication by movement or position, particularly facial expressions, gestures and the relative positions of characters.
Facial expressions	conveys an emotion that tells us expressions about the character and the way they react to a situation.
Gesture	a body movement that conveys meaning, think of a wagging finger to tell someone off.
Proxemics	how the actors/characters are placed on a stage. The distance or level between character/actors shows their relationships and feelings.
Levels	create visual interest. Levels can be used to suggest status - meaning the power or authority one character has over another
Corpsing	To lose focus and come out of role often to giggle.
Still Image/ Freeze Frame	A still image is a frozen moment on stage where the characters stay still to clearly stop the play and show the audience a moment in time. It is often used to highlight something important that has happened.
Mime	using movements of your hands and body, and expressions on your face, without speech, to communicate emotions and actions or to tell a story
Point of focus	What you would like your audience to notice in a scene

The Five Things:
1- Facial Expressions
2 – Eye contact
3 – Create one point of focus
4 – Use Levels
5 – Where are your audience

English

The Tempest

Key Characters


PROSPERO


MIRANDA


ARIEL


KING ALONSO


FERDINAND


GONZALO



SEBASTIAN ANTONIO




STEPHANO TRINCULO CALIBAN

Some Useful Words & Phrases

- **exploitation:** (noun) using someone—often selfishly—for your own benefits eg Caliban feels exploited by Prospero
- **enslaved**: (adjective/verb) made into a slave; eg did Prospero enslave Caliban or help him?
- **retribution:** (noun) payback for something someone did to you; eg Prospero wants retribution from Alonso
- **usurp:** (verb) to take over someone else's kingdom by force
- **servitude:** (noun) slavery; eg Caliban and Ariel might feel they are in a state of servitude

Some Key Techniques

- **acts:** the main sections in a play; Shakespeare's plays tend to have five acts
- **scenes:** parts of the play which stay in the same place at the same time; like chapters in a book
- **character**: the "people" within the play
- **characterisation**: how Shakespeare creates a sense of his characters
- **aside:** when a character briefly says something which the audience hears but other characters do not
- **soliloquy:** a speech delivered by a single character alone on stage; they often give the audience a privileged insight into the character's thoughts and feelings
- **imagery:** language not used literally; eg metaphors, similes, personification, symbols
- **pathos**: feelings of pity and sympathy
- **subplot:** a secondary plot in the play, adding complications and extra obstacles in the way

Some Context

- The play was first performed in 1611. King James I was on the throne, and the play was used as part of the celebrations of his daughter Elizabeth's marriage.
- At the time, Britain was setting up colonies in North America and meeting the original inhabitants. Many of the characters in the play have ideas about how to rule the island.
- The play may look at ideas of "colonisation" - where European countries took over foreign countries and tried to "civilise" the "savages" they found (often actually just exploiting them).
- There had been an essay "Of the Cannibals" by the French writer Montaigne. This looked at the original peoples of South America. "Caliban" may well come from this.

English

ANALYSIS	
Argument	The writer presents [topic] to…
Neat evidence	The phrase '…' shows…
Additional	Additionally, the phrase '…' adds to…
Language	The imagery suggests…
Your evaluation	A reader may also understand...
Structure and form	Structurally, the... tone emphasises...
Intentions of writer	The writer's intentions may have been to…
Society and context	Contextually, the writer may be reflecting…

POETIC POEMS	Definition
Personification	Giving something human characteristics
Oxymoron	Contradictory phrase
Enjambment	Continuing a line of poetry
Tone	Mood or atmosphere
Imagery	Descriptive language
Contrast	Very different things put together
Perspective	Viewpoint
Onomatopoeia	Words that sound like the thing
Extended	Carrying on
Metaphor	Saying something is something else
Simile	Saying something is like something else

A PERSUADER	Definition
Alliteration	Repeating same sound at starts of words
Points	Clear reasons to add to your argument
Exaggeration	Overstating
Repetition	Saying the same thing over and over
Statistics	Using numbers to represent facts
Unique ideas	Unusual or ways of approaching an issue
Anecdote	A short story used to make a point
Direct address	Talking to the audience
Emotive language	Appealing to people's feelings
Rhetorical questions	Questions not intended to be answered.

Shakespeare

Key words	Definition
Sonnet	A type of love poem with 14 lines.
Hierarchy	A system where people are ranked according to status or authority
Detachment	Being separated from others.
Zoomorphism /anthropomorphism	Types of personification – giving humans animal qualities
Divinity	Considering things to do with God or gods
Corruption	The damaging or ruining of something.
Soliloquy	A speech in a play delivered only for the audience to hear.
Supernatural	Things that are beyond normal like magic.
Colonialism	The idea of a country taking over another place.
Patriarchy	A male dominated society.

Food

1	Nutrients	Food and drinks contains different substances that are needed for health. These are nutrients and water
	Macro-nutrients	Nutrients needed in large amounts to provide energy **Carbohydrates, protein, fats**
	Micro-nutrients	Nutrients needed in the diet in very small amounts- **Vitamins and minerals**
	Vitamins	**Fat-soluble** vitamins can be stored in the body: **Vitamin A** - dim light vision, healthy skin and eyes, resistance to infection; Leafy green vegetables, Orange/ yellow vegetables **Vitamin D** – absorbs calcium from foods to keep bones and teeth healthy: the sun, oily fish, meat, eggs
		Water-soluble vitamins cannot be stored in the body so are required daily **B vitamins: thiamine - Releases energy from food** **B1 Thiamine**: energy from carbohydrate and the nervous system. **B2 Riboflavin**: energy from protein, carbohydrate and fat. Transport and use of iron in the body **B3: Niacin**: required for the normal function of the skin, mucous membranes and nervous system **Vitamin C** - Keeps connective tissue healthy, Helps the body absorb iron: Oranges, blackcurrants, broccoli, red/ green lentils
	Minerals	Inorganic substances such as: Calcium, sodium and iron.
		Calcium - maintenance of bones and teeth, blood clotting, normal muscle function: milk, cheese and other dairy products **Sodium (salt)-** regulating the amount of water and other substances in the body: Breads and rolls, Pizza, Sandwiches, cured meats, Soups, tacos. **Iron** - formation of haemoglobin in red blood cells. Red blood cells carry oxygen around the body: meat, green leafy vegetables, pulses
2	Functions	**Aeration** (foam) e.g. whisking egg whites; **thicken sauces** (coagulation) e.g. egg custard; **Binding (coagulation)** e.g. fishcakes; **form structures**, e.g. gluten development in bread; **gel**, e.g. lime jelly **Glazing**- (coagulation) egg is used to give shing golden colour **emulsifying** – **mayonnaise**; **Coating (coagulation)** – covering with breadcrumbs, fish; adding colour/flavour/moisture/nutrients.
3	Food choice	People choose to eat different food for many different reasons: • **individual energy and nutrient needs;** requirements depend on age, gender, activity level, genes, body size • **Energy needs also depend on activity levels** • **diet and health;** People might have their own or their family's health concerns or for medical reasons. • **religion and culture** - People choose to eat or avoid certain foods according to their religious beliefs • **cost of food;** • **food availability-** seasonal food • **time of day and occasion;** • **food preferences;** food taste, odour, appearance, shape, colour • **social and economic considerations** – As consumers we are influenced by those around us, location, occupation, lifestyle, education, knowledge • **Environmental and ethical considerations** -personal beliefs about what is morally right and wrong. • **Food provenance** - Where food is grown, caught or reared, and how it was produced. • **advertising and other point of sale information**

Food

1	Food waste	Foods deteriorate when killed or harvested. Preservation techniques extend the shelf life of products: **freezing, additives, processed foods** (strawberries into jam), **dehydration** (reduces the water), **pasteurisation** (killing food spoilage organisms and pathogenic organisms), packaging Common foods wasted: **Bread and bread products, fruit and vegetables, starchy foods, meat, chicken, fish, milk,** **Reasons for food waste:** incorrect storage and packaging, buying large quantities, portion size too big; leftovers thrown away, impulse shopping/ offers, limited cooking skills
2	Cost and availability	**Budgeting (save money).** Ways to spend money wisely on food. Examples can include: eating the seasons; stocking up on food with a long shelf-life; plan meals and write a shopping list; cooking using one pot; making fake-aways rather than buying takeaways; using leftovers; replacing branded items with cheaper items; comparing prices and shop around to find the cheapest items; growing your own food.
	Costing a recipe	Using a costing chart can help to calculate the cost per portion Ingredient name | Quantity purchased | Cost of quantity purchased (£) | Quantity needed in recipe | Cost of ingredient used in recipe (£)
3	Food labelling	Information is provided on food and drink packaging to help consumers choose between different products, brands and flavours.
	Legally required information (Mandatory)	· Name of food or drink. · List of ingredients (including additives and allergens) · Weight or volume. · Date mark (Best-before and use-by). · Storage and preparation conditions. · Name and address of the manufacturer, packer or seller. · Country of origin and place of provenance. · Nutrition information.   
	Voluntary information	Cooking instructions, serving suggestions, price; customer guarantee; photograph or image of the food; bar code, environmental information (recycling), vegetarian, vegan, organic  
	Nutrition and health claims:	These are controlled by European regulations. Claims on a food or drink should have been authorised and listed on the European register of claims and have met certain conditions.
4	Food availability and food provenance	**Food certification** and **assurance schemes** guarantee defined standards of food safety or animal welfare. **Traceability** – identify the movement of a food product and its ingredients through all steps in the supply chain **Sustainability**-avoid damaging or wasting natural resources. **Food security** - access to sufficient safe and nutritious food **Fairtrade** - help producers in developing countries achieve sustainable and equitable trade **Red Tractor** **The British Lion mark**

Year 9 French Term 3: J'adore les fêtes (1)!

Les fêtes	*Festivals*
1. le premier avril	*April Fool's Day*
2. Noël	*Christmas*
3. la veille de Noël	*Christmas Eve*
4. Pâques	*Easter*
5. la Chandeleur	*Candlemas*
6. le Nouvel An	*New Year*
7. la Saint-Sylvestre	*New Year's Eve*
8. la Saint-Valentin	*Valentine's Day*
9. Aïd	*Eid*
10. mon anniversaire	*my birthday*
11. le 14 juillet	*Bastille Day*
12. manger du chocolat	*eating chocolate*
13. acheter des cadeaux	*buying presents*
14. aller chez mes cousins	*going to my cousins' house*

C'est carnaval!	*It's carnival!*
15. Ma fête préférée, c'est…	*My favourite festival is…*
16. le carnaval	*carnival*
17. Je retrouve mes copains.	*I meet my friends.*
18. Je porte un masque.	*I wear a mask.*
19. Je porte un déguisement.	*I wear a costume.*
19. Je regarde le parade.	*I watch the parade.*
20. Je partage des photos.	*I share photos.*
21. Je chante et je danse.	*I sing and I dance.*

Phonics Focus:	
silent final consonant ***trois***	**[ou] = /oo/** ***écoute***
silent final 'e' ***fête***	**[em] [en] [an] = /on/** ***serpent***
[on] = /on/ ***bonbon***	**[in] = /euhn/** ***numéo un***

Je vais manger…	*I am going to eat…*
22. une salade niçoise	*a tuna salad*
23. une tarte flambée	*a pizza-like tart*
24. un couscous aux legumes	*a vegetable couscous*
25. une crêpe	*a pancake*
26. des moules-frites	*mussels and chips*
27. une quiche lorraine	*a bacon quiche*
28. C'est comment?	*What is it like?*
29. C'est délicieux.	*It's delicious.*
30. C'est savoureux.	*It's tasty.*
31. C'est un plat typique.	*It's a speciality.*

Le marché de Noël	*Christmas market*
32. Je vais…	*I am going…*
33. visiter le marché	*to visit the market*
34. acheter un cadeau	*to buy a present*
35. admirer les maisons illuminées	*to admire the illuminated houses*
36. écouter des chorales	*to listen to some choirs*
37. manger une tarte flambée	*to eat a pizza-like tart*
38. boire un jus de pomme chaud	*to drink a hot apple juice*

Les opinions	*Opinions*
39. J'aime/Je n'aime pas…	*I like/don't like…*
40. J'adore/Je déteste…	*I love/I hate…*
41. Je préfère…	*I prefer*

Vital verb: ***manger (to eat)***	
Present:	**Near future:**
*Je mang**e***	*Je **vais** mang**er***
*Tu mang**es***	*Tu **vas** mang**er***
*Il/elle/on mang**e***	*Il/elle/on **va** mang**er***
*Nous mange**ons***	*Nous **allons** mang**er***
*Vous mange**ez***	*Vous **allez** mang**er***
*Ils/elles mang**ent***	*Ils/elles **vont** mang**er***

Year 9 French Term 4: J'adore les fêtes (2)!

Je vais manger…	*I am going to eat…*
1. une salade niçoise	*A tuna and salad salad*
2. une tarte flambée	*A pizza-like tarte*
3. un couscous aux legumes	*Vegetable couscous*
4. une crêpe	*A pancake*
5. des moules-frites	*Mussels and chips*
6. une quiche lorraine	*A bacon quiche*
7. C'est comment?	*What is it like?*
8. C'est délicieux.	*It's delicious.*
9. C'est savoureux.	*It's savoury.*
10. C'est un plat typique.	*It's a typical dish*

Le marché de Noël	*Christmas market*
11. Je vais…	*I am going…*
12. visiter le marché	*to visit the market*
13. acheter un cadeau	*to buy a present*
14. admirer les maisons illuminées	*to admire the illuminated houses*
15. écouter des chorales	*to listen to carols*
16. manger une tarte flambée	*to eat a tarte*
17. boire un jus de pomme chaud	*to drink hot apple juice*
18. Ça va être…	*It is going to be…*
19. L'année prochaine	*Next year*
20. Le mois prochain	*Next month*

Les vêtements	*Clothes*
21. un blouson	*a jacket*
22. un chapeau	*a hat*
23. un imperméable	*a raincoat*
24. un manteau	*a coat*
25. un pantalon	*trousers*
26. une jupe	*a skirt*
27. une robe	*a dress*
28. un sac (à main)	*a (hand)bag*
29. des chaussures	*shoes*
30. des gants	*gloves*
31. des lunettes de soleil	*sunglasses*
32. des baskets	*trainers*
33. Je porte…	*I wear…*
34. Je vais porter…	*I am going to wear…*
35. J'ai porté…	*I wore…*

L'année dernière	*Last year*
36. Je suis allé(e) en France.	*I went to France.*
37. Je suis allé(e) à l'Église.	*I went to church.*
38. J'ai joué à des jeux.	*I played games.*
39. J'ai mangé beaucoup de choses délicieux.	*I ate lots of delicious things.*
40. J'ai réçu et ouvert beaucoup de cadeaux.	*I received and opened lots of presents.*
41. J'ai chanté beaucoup de chansons de Noël.	*I sang lots of carols.*
42. J'ai décoré le sapin de Noël.	*I decored the Christmas tree.*
43. C'était…	*It was…*

Phonics Focus:	
silent final consonant ***trois***	**[ui] = /we/** ***fruits***
[é] = 'ay' ***fêté***	**[ain] = /an/** ***prochain***
[aine] = /ayn/ ***prochaine***	**[ou] = /ooh/** ***douze***

Vital verb: *fêter (to celebrate)*		
Present:	**Near future:**	**Past perfect:**
*Je fêt**e***	*Je **vais** fêter*	*J'**ai** fêt**é***
*Tu fêt**es***	*Tu **vas** fêter*	*Tu **as** fêt**é***
*Il/elle/on fêt**e***	*Il/elle/on **va** fêter*	*Il/elle/on **a** fêt**é***
*Nous fêt**ons***	*Nous **allons** fêter*	*Nous **avons** fêt**é***
*Vous fêt**ez***	*Vous **allez** fêter*	*Vous **avez** fêt**é***
*Ils/elles fêt**ent***	*Ils/elles **vont** fêter*	*Ils/elles **ont** fêt**é***

Geography

Knowledge Organiser Year 9
Topic: MIDDLE EAST

The Middle East is very diverse when it comes to religions. Three of the world's major religions, Islam, Judaism and Christianity, originated there. The conflicts between these groups over land, resources and people are the cause of huge conflicts.

The Middle East has 5% of the world's population but only 1% of its water, conflicts over basic resources can be a source of underlying tension in a region characterised by ethnic and religious diversity.

The physical Geography of a place can have a major impact on conflict.

- Inside bend of a river meander or the top of a hill, which could be easily defended in the event of an enemy attack.
- Desert landscapes provide little cover and the lack of landmarks makes navigation difficult. Can present some advantages. For example, the flat terrain means that the pace of advance is fast and the lack of cover favours coalition forces who possess weapons with a greater range than the insurgents.
- Marsh land - the land is unstable and it is difficult to set up a base or equipment
- Mountainous regions are also notoriously difficult environments in which to engage in conflict as temperatures are low and conditions harsh.

Vocabulary Key terms and definitions	
Biome	A major regional group of distinctive plant and animal communities best adapted to the region's physical natural environment, latitude, altitude and terrain factor.
Development	Use of resources, natural and human, to achieve higher standards of living
GDP	Gross Domestic Product – the total value of all goods and services produced in a country
Middle East	A geographical and cultural region located primarily in western Asia, but also in parts of northern Africa and south eastern Europe.
Peninsula	A long piece of land that sticks out from a larger area of land into the sea or a lake.
Plateau	An area of highland, usually consisting of relatively flat terrain.
Steppe	A large area of flat unforested grassland.

Further Research:
https://www.bbc.com/education/topics/zvwtsbk
http://news.bbc.co.uk/go/pr/fr/-/1/hi/world/south_asia/country_profiles/1162108.stm

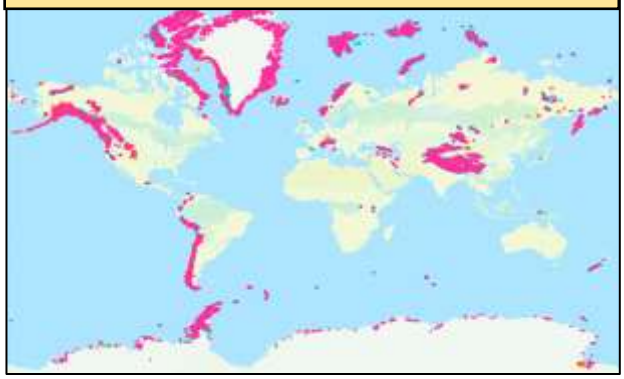
Geography

Y9 Glaciers Knowledge Organiser

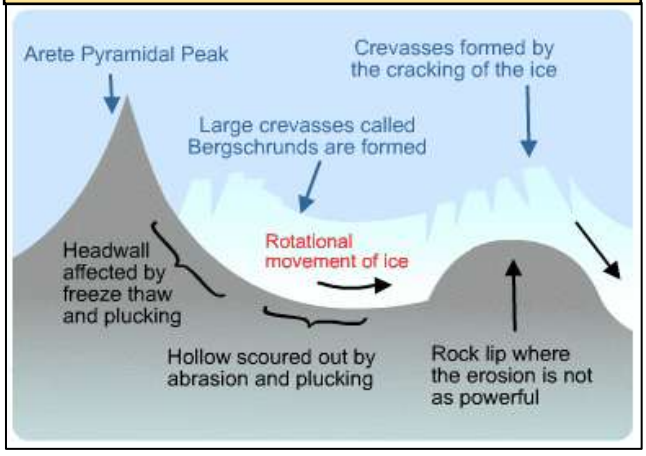
Key Term	Definition
Abrasion	The scraping away of the valley walls and floor as glaciers drag sediment.
Plucking	The process where the base of glacier freezes to the valley and pulls away rock.
Rotational Slip	The vertical rotation of ice inside a corrie as ice gathers and gravity takes over.
Freeze Thaw	When water freezes inside the cracks of exposed valley sides, breaking away sharp fragments of rock.
Glacial retreat	When glaciers melt and appear to move up the valley as temperatures rise.
Erosional	A feature formed when a glacier breaks away rock.
Depositional	A feature formed when a glacier deposits glacial

A glacier is a slowly moving river of ice that Is formed in areas that are extremely cold and experience lots of snow. They move because of gravity and they erode the land as they move. To be classed as a glacier they must be over 164 feet thick.

Global Distribution of glaciers.



How are glaciers born?



About 150,000 years ago the earth was beginning to warm up. 140,000 years ago tropical life would live in Britain and it was about 6℃ .

About 40,000 years later (100,000 years ago) the ice age began. Throughout the ice age glaciers flowed through valleys and polar bears were in Britain.

Until 10,000 years ago the ice age ended and the climate began to warm, polar life left and glaciers melted away. Today we are left with our new landscape, but pollution and climate change is increasing the worlds temperature at an unnatural rate!

Glacial periods
Times when the earth was colder.
When we have ice ages!

Inter-glacial periods
Times when the earth was warmer, most of the ice melts!

Erosional and depositional glacial features.

Year 9 German Term 3: Wir feiern (1)!

Feste	*Celebrations*
1. Karneval	*carnival*
2. Weihnachten	*Christmas*
3. Heiligabend	*Christmas Eve*
4. Ostern	*Easter*
5. Fastnacht	*Mardi gras*
6. Neujahr	*New Year*
7. Silvester	*New Year's Eve*
8. Valentinstag	*Valentine's Day*
9. Eid	*Eid*
10. Nikolaustag	*6th December*
11. mein Geburtstag	*my birthday*
12. eine Hochzeit	*a wedding*

Prost Neujahr!	*Happy New Year*
13. Wir machen eine Party.	*We have a party.*
14. Wir sagen 'Prost Neujahr'.	*We say: 'Happy New Year'.*
15. Wir machen ein Feuerwerk.	*We have fireworks.*
16. Wir trinken Sekt oder Limo.	*We drink sparkling wine or lemonade.*
17. Wir machen eine Wanderung.	*We go for a walk.*
20. Wir essen Linsensuppe und Schweinefleisch.	*We eat lentil soup and pork.*
21. Das ist eine Tradition.	*That is a tradition.*
22. Es bringt Glück.	*It brings luck.*

Phonics Focus:	
[eu] = /oi/	**[au] = /ow/**
Freund	***Haus***
[ei] = /eye/	**[ie] = /ee/**
Eis	***Biene***

Essen und Trinken	*Food and Drink*
23. Ich werde…essen.	*I will eat….*
24. Ich werde…trinken.	*I will drink…*
25. schöne Sachen	*lovely things*
26. Gans	*goose*
27. Blaukraut	*red cabbage*
28. Kartoffeln	*Potatoes*
29. Schokolade	*chocolate*
30. Lebkuchen	*gingerbread*
31. Stollen	*stollen*
32. Fondue	*fondue*
33. Raclette	*melted cheese*
34. Bockwürstchen	*sausages*
35. Glühwein	*mulled wine*

Der Weihnachtsmarkt	*Christmas market*
36. Ich werde…	*I will…*
37. Wir werden…	*We will…*
38. den Markt besuchen.	*visit the market.*
39. Geschenke kaufen.	*buy presents.*
40. den Weihnachtsschmuck bewundern.	*admire the Christmas decorations.*
41. Weihnachtslieder singen.	*sing Christmas carols.*
42. Kastanien essen.	*eat chestnuts.*
43. Glühwein trinken.	*drink mulled wine.*

Vital verb: *essen (to eat)*

Present	*Future*
Ich esse	*Ich **werde…essen.***
*Du **isst***	*Du **wirst…essen.***
*Er/sie **isst***	*Er/sie **wird…essen.***
*Wir ess**en***	*Wir werden**…essen.***
*Ihr ess**t***	*Ihr werdet**…essen.***
*Sie/sie ess**en***	*Sie/sie werden**…essen.***

Year 9 German Term 4: Wir feiern (2)!

Ich werde…essen.	*I am going to eat…*
1. Schnitzel	*schnitzel*
2. Weihnachtsganz	*Christmas goose*
3. Sauerbraten	*roast beef*
4. Kuchen	*cake*
5. Lebkuchen	*gingerbread*
6. Stollen	*stollen*
7. Wie schmeckt das?	*What does it taste like?*
8. Es ist lecker.	*It's delicious.*
9. Es ist salzig.	*It's salty/savoury.*
10. Es ist süß.	*It's sweet.*

Der Weihnachtsmarkt	*Christmas market*
11. Ich werde…/Wir werden…	*I will…/We will…*
12. den Markt besuchen.	*visit the market*
13. Geschenke kuafen.	*buy a present*
14. den Weihnachtsschmuck bewundern.	*admire the Christmas decorations.*
15. Weihnachtslieder singen.	*Sing carols*
16. Kastanien essen.	*eat roasted chestnuts.*
17. Glühwein trinken.	*drink mulled wine.*
18. Es wird…sein.	*It is going to be…*
19. Nächstes Jahr	*Next year*
20. Nächsten Monat	*Next month*

Die Kleidung	*Clothes*
21. Normalerweise trage ich…	*Normally, I wear…*
22. Wenn es mein Geburtstag ist, trage ich…	*When it's my birthday, I wear…*
23. Ich werde…tragen.	*I will wear…*
24. Ich habe…getragt.	*I wore…*
25. Sportschuhe	*trainers*
26. Sandalen	*sandals*
27. ein Kleid	*a dress*
28. eine Jeanshose	*jeans*
29. eine Hose	*trousers*
30. ein Mantel	*a coat*
31. Stiefel	*boots*
32. ein Hemd	*a shirt*
33. ein Rock	*a skirt*
34. ein Anzug	*a suit*
35. ein Kapuzenpulli	*a hoody*

Letztes Jahr	*Last year*
36. Ich bin nach Deutschland gefahren.	*I went to Germany.*
37. Ich bin in die Kirche gegangen.	*I went to church.*
38. Ich habe Spiele gespielt.	*I played games.*
39. Ich habe schöne Sachen gegessen.	*I ate lots of delicious things.*
40. Ich habe Geschenke bekommt und geöffnet.	*I received and opened lots of presents.*
41. Ich habe Weihnachtslieder gesungen.	*I sang lots of carols.*
42. Ich haben den Weihnachtsbaum geschmückt.	*I decorated the Christmas tree.*

Phonics Focus:	
[d] = /t/ ***hund***	**[w] = /v/** ***wie***
[z] = 'ts' ***Zug***	**[ö] = /urgh/** ***höre***
[ß] = /ss/ ***groß***	**[v] = /f/** ***vier***

Vital verb: ***feiern (to celebrate)***		
Present:	**Near future:**	**Past perfect:**
Ich feiere	*Ich werde…feiern.*	*Ich habe…gefeiert.*
Du feierst	*Du wirst…feiern.*	*Du hast…gefeiert.*
Er/sie feiert	*Er/sie wird…feiern.*	*Er/sie hat…gefeiert.*
Wir feiern	*Wir werden…feiern.*	*Wir haben…gefeiert.*
Sie/sie feiern	*Sie/sie werden…feiern.*	*Sie/sie haben…gefeiert.*

History

Year 9 History: Knowledge Organiser Term 3 + 4, Nazi Germany and The Holocaust

Key Words	
1. **Antisemitism**	Hostility to or prejudice against Jews.
2. Aryan	Germans of pure blood characterised by their blue eyes and blond hair.
3. **Collaborators**	People, organisations and governments that helped the Nazis persecute and/or murder Jews.
4. Concentration camps	Places where large numbers of people were kept as prisoners under armed guard.
5. **Death Camp**	Killing centres established by the Nazis in Central Europe during WW2
6. Demonised	Something or someone portrayed as wicked and threatening.
7. **Deportation**	Forcibly removing someone from one country to another.
8. Discrimination	Unfairly treating an individual or a group differently from others.
9. **Einsatzgruppen**	Nazi soldiers that carried out mass shootings in Eastern occupied countries.
10. Ghettos	Areas in towns/cities where Jews were separated from other people.
11. **Genocide**	The killing of, and attempted destruction of an entire group of people.
12. Liberation	Setting someone free.
13. **Partisan**	A member of an armed group formed to fight against an occupying force.
14. Persecution/ Persecuted	Being treated badly, usually because of 'race' or religion or political beliefs.
15. **Prejudice**	An unfair opinion, judgement or feeling towards someone.
16. Work camps	Camps in which prisoners were forced to work as slave labourers.

Timeline of Jewish persecution in Germany	
1933	The SA organised a boycott of Jewish shops and businesses. Jewish civil servants, lawyers and teachers were sacked, and Jewish doctors and dentists could not treat Aryans (pure Germans. Science lessons about race were introduced which taught that Jews were subhuman.
1934	Jewish shops were marked with a yellow star. Jews had to sit on separate seats on buses and trains. Many councils banned them from public spaces.
1935	The Nuremberg Laws stripped Jews of German citizenship, outlawed marriage and sexual relations between Jews and Germans, and removed all the civil and political rights of the Jews. These laws were to be the foundation for much of the extreme persecution which took place later.
1938	Jews were ordered to register all wealth and property. They could no longer practice as doctors or lawyers, and Jewish businessmen could not have Aryan clients. Jews were forced to change their first names: males would be known as Israel, females as Sarah. Jewish children were forbidden to go to school and universities. Kristallnacht - 9 November (The Night of Broken Glass). The SS organised attacks on Jewish homes, businesses and synagogues in retaliation for the assassination of the German ambassador to France by a Jew. During Kristallnacht, 400 synagogues and 7,500 shops were destroyed. Jews were then made to clear up the destruction on their hands and knees and pay a fine of one billion marks to the government. The remaining Jewish property was then confiscated.
1939	The Nazis, who had been encouraging Jews to emigrate from 1933 onwards, now started "forced" emigration. Göring set up the Reich Central Office for Jewish Emigration. 150,000 Jews were deported, but they had to pay a large "tax" before they could leave. In March, there were mass arrests. 30,000 Jews were sent to concentration camps.
1941	The 'Final Solution' agreed. The Nazi policy on Jews moved from expulsion to containment to commanders being ordered to systematically murder the Jews of Europe.

Maths: 9.06 Numbers…..

Key words	
Integer	a whole number that is positive or negative
Rational	a number that can be made by dividing two integers
Irrational	a number that cannot be made by dividing two integers
Inverse operation	the operation that reverses the action
Quotient	the result of a division
Product	the result of a multiplication
Multiples	found by multiplying any number by positive integers
Factor	integers that multiply together to get another number

Sparx codes for this topic	
M157, M197, M110, M265	Multiplication/Division of fractions
M106, M288	Directed number
M227, M698, M365	Highest common factor/Lowest common multiple
M187, M354	Integers, real and rational numbers
M719, M678	Standard form
M835	Addition/subtraction of fractions

Multiplication/ Division of fractions

R

Shade in 3 parts

Repeat it on this many rows

$\frac{3}{4} \times \frac{2}{3}$

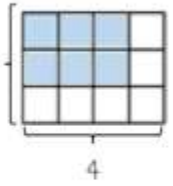
This many columns

This many rows

$\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$ ← Parts shaded

Total number of parts in the diagram

Modelled:



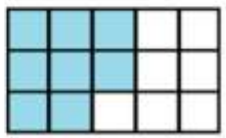
Remember to use reciprocals

$\frac{2}{5} \div \frac{3}{4}$

$\frac{2}{5} \times \frac{4}{3}$

Multiplying by a reciprocal gives the same outcome

Represented



$= \frac{8}{15}$

Directed number

R

Addition

$2 + -4 = -2$

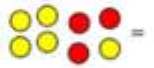
Zero pair (-1 + 1 = 0)

Two "-1" left = -2

Generalisation

+ − = −

Subtraction



= 2

Representation for calculation

Generalisation

− − = +

"Subtract" – means take away or remove

$2 - -1 = 3$

Take away one

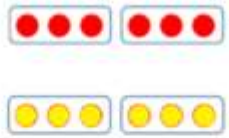
= 3

Start with the representation of 2

Multiplication

● = −1

● = 1



The act of making counters into their negative is turning them over

$-2 \times -3 = 6$

Divisions are the inverse operations

$a = 5$

$b = -4$

Brackets around negative substitutions helps remove calculation errors

$2a - b = 2 \times 5 - (-4) = 10 + 4 = 14$

HCF/LCM

R

1 is a common factor of all numbers

Common factors are factors two or more numbers share

HCF – Highest common factor

HCF of 18 and 30

18: 1, 2, 3, 6, 9, 18

30: 1, 2, 3, 5, 6, 10, 15, 30

HCF = 6

LCM – Lowest common multiple

LCM of 9 and 12

9: 9, 18, 27, 36, 45, 54

12: 12, 24, 36, 48, 60

LCM = 36

The first time their multiples match

Integers, real and rational numbers

Rational – root word: ratio

Real numbers: $\frac{2}{3}$ stems from 2 1 ($\frac{2}{3}$ of the whole)

Irrational numbers: $\sqrt{2}$ the solution is a decimal that never ends and does not repeat

The square root of a negative is not a real number and cannot be found

Standard form

R

Any number between 1 and less than 10 → $A \times 10^n$ ← Any integer

$6 \times 10^5 + 8 \times 10^5$

$= 600000 + 800000$

$= 1400000$

$= 1.4 \times 10^6$

$(1.5 \times 10^5) \div (0.3 \times 10^3)$

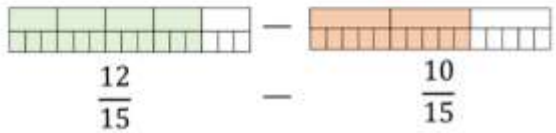
$15 \div 0.3 \times 10^5 \div 10^3$

$= 5 \times 10^2$

Addition/ Subtraction of fractions

R

$\frac{4}{5} - \frac{2}{3}$



$= \frac{2}{15}$

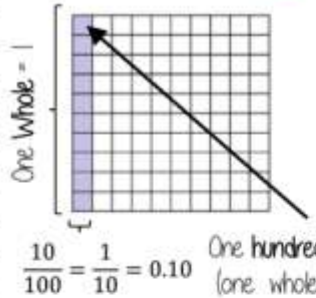
Use equivalent fractions to find a common multiple for both denominators

Maths: 9.07 Using percentages…..

Key words	
Percent	parts per 100-written using the symbol
Decimal	a number in our base 10 number system. Numbers to the right of the decimal place are called decimals
Fraction	a fraction represents how many parts of a whole value you have
Equivalent	of equal value
Reduce	to make smaller in value
Growth	to increase/ to grow
Integer	whole number, can be positive, negative or zero
Invest	use money with the goal of it increasing in value over time (usually in a bank)
Multiplier	the number you are multiplying by
Profit	the income take away any expenses/costs

Sparx codes for this topic	
M410	FDP Equivalence
M264, U594	Converting FDP
U286	Reverse percentages
U773, U671	Percentage increase/decrease
U278	Percentage change

FDP Equivalence



$\frac{10}{100} = \frac{1}{10} = 0.10$

One **hundredth** (one whole split into 100 equal parts)

Percentage

100% = a whole = 100 hundredths

10 hundredths
10 out of 100
10%

ones	tenths	hundredths
•	•	

Converting FDP

$\frac{70}{100}$ → This also means 70 ÷ 100 → 70 out of 100 squares → 70 "hundredths" = 7 "tenths" = 0.7

→ 70 hundredths = 70%

Using a **calculator**

$\frac{\blacksquare}{\square}$ → S⇔D Convert to a decimal

× 100 converts to a percentage

Be careful of recurring decimals

e.g. $\frac{1}{3} = 0.3333333$

$= 0.\dot{3}$

The dot above the 3

Reverse Percentages

40% of my number is 16
What am I thinking of?

Original Number (100%)

4 4 4 4 4 4 4 4 4 4

16

40% = 16
10% = 4
100% = 40

140% of my number is 84 What is the original number?

Original Number (100%)

6 6 6 6 6 6 6 6 6 6 6 6 6 6

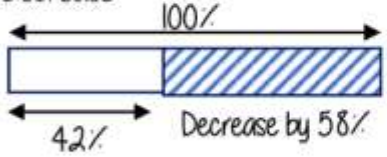
84

140% = 84
10% = 6
100% = 60

Try to scale down to 10% or 1% and then scale back up to 100%

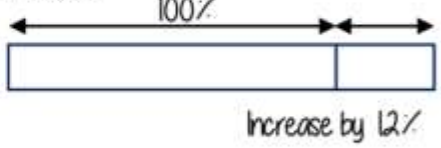
Percentage Increase/ Decrease

Decrease



100 − 058 = 042 ← Multiplier Less than 1

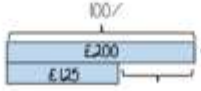
Increase



100% + 12% = 112%
100 + 0.12 = 1.12 ← Multiplier More than 1

Percentage change

I bought a phone for £200
A year later sold it for £125



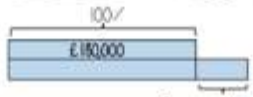
All values of change compare to the ORIGINAL value

Percentage loss

$\frac{75}{200} \times 100 = 37.5\%$

$$\frac{\text{Difference in values}}{\text{Original value}} \times 100$$

I bought a house for £180,000, I later sold it for £216,000



Percentage profit

Money made (profit value) → $\frac{36000}{180000} \times 100 = 20\%$

Maths: 9.08 Maths and money…..

Key words	
Credit	money being placed into a bank account
Debit	money that leaves a bank account
Balance	the amount of money in a bank account
Expense	a cost/ outgoing
Deposit	an initial payment (often a way of securing an item you will later pay for)
Multiplier	a number you are multiplying by. (Multiplier more than 1 = increasing, less than 1 = decreasing)
Per Annum	each year
Currency	the type of money a country uses
Unitary	one - the cost of one

Sparx codes for this topic	
M901	Bills and Bank statements
U533	Simple Interest
U332	Compound Interest
U610	Exchange Rates
M901	Value Added Tax (VAT)
M901	Wages and Taxes
U721	Unit Pricing

Bills and Bank Statements

Bills – tell you the amount items cost and can show how much money you need to pay

Some can include a total

Look for different units (Is it in pence or pounds)

Menu	Price
Milk	89p
Tea	£1.50

Bank Statements

Bank statement can have negative balances if the money spent is higher than the money coming into the account

Date	Description	Credit	Debit	Balance
19th Sept	Salary	£1500		£1500
19th Sept	Mortgage		£600	£900
25th Sept	Bday Money	£15		£915

Simple Interest

For each year of investment the interest remains the same

$$\frac{\text{Principal amount} \times \text{Interest Rate} \times \text{Years}}{100}$$

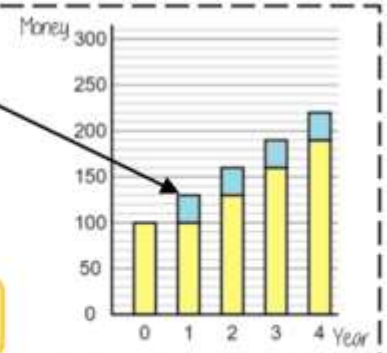
Principal amount is the amount invested in the account

e.g Invest £100 at 30/ simple interest for 4 years

$\frac{100 \times 30 \times 4}{100} = £120$

This account earned **£120** interest

At the end of year 4 they have **£220**



Compound Interest

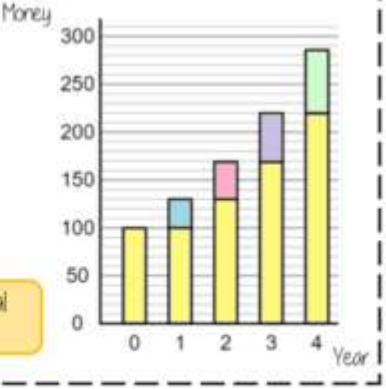
Interest is added to the current value of investment at the end of each year so the next year's interest is greater

$$\text{Principal amount} \times \text{Multiplier}^{\text{Years}}$$

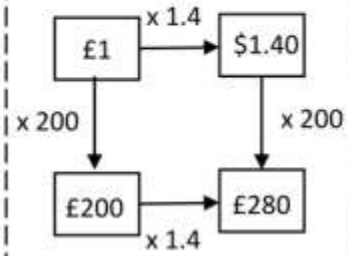
e.g Invest £100 at 30/ compound interest for 4 years

$100 \times 1.3^4 = £285.61$

This account has **£285.61** in total at the end of the 4 years



Exchange Rates



When making estimates it is also useful to use estimates to check if our solution is reasonable

Use inverse operations to reverse the exchange process

Common Currencies

United Kingdom	£ Pounds
United States of America	$ Dollars
Europe	€ Euros

Value Added Tax (VAT)

VAT is payable to the government by a business In the UK VAT is 20/ and added to items that are bought

Essential items such as food do not include VAT

Wages and Taxes

Salaries fall into tax brackets – which means they pay this much each month from their salary

Taxable Income	Tax Rate
£12 501 to £50 000	20%
£50 001 to £150 000	40%
over £150 000	45%

Over time

Time and a half – means 1.5 times their hourly rate

Double – 2 times their hourly rate

Unit Pricing

4 Oranges	5 cupcakes
£1	£1.20

$4 = £1.00 \div 2$

$2 = £0.50 \div 2$

$1 = £0.25$

$5 = £1.20 \div 5$

$1 = £0.20$

Cost per Unit

To calculate unit per cost you divide by the cost

Cupcakes are the best value as one item has the cheapest value

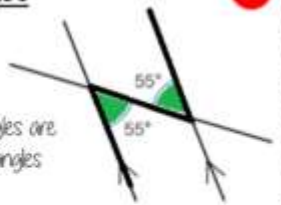
There is a directly proportional relationship between the cost and number of units

Maths: 9.09 Deduction.....

Key words	
Parallel	two straight lines that never meet with the same gradient
Perpendicular	two straight lines that meet at 90°
Transversal	a line that crosses at least two other lines
Sum	the result of adding two or more numbers
Conjecture	a statement that might be true but is not proven
Equation	a statement that says two things are equal
Polygon	a 2D shape made from straight edges
Counterexample	an example that disproves a statement

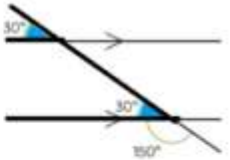
Sparx codes for this topic	
M606	Angles on parallel lines
M319, M163, M818, M502, M393, M653	Solving angle problems
M276	Making conjectures with shapes

Alternate angles



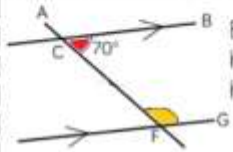
Because alternate angles are equal the highlighted angles are the same size

Corresponding angles



Because corresponding angles are equal the highlighted angles are the same size

Co-interior angles

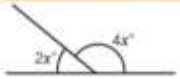


Because co-interior angles have a sum of 180° the highlighted angle is 110°

As angles on a line add up to 180° co-interior angles can also be calculated from applying alternate/ corresponding rules first

Solving angle problems

Angles on a straight Line
180°



Link angle facts to algebra

Form an equation

$$2x + 4x = 180°$$

State the reason

The sum of angles on a straight line is 180 °

Solve

$$2x + 4x = 180°$$
$$6x = 180°$$
$$x = 30°$$

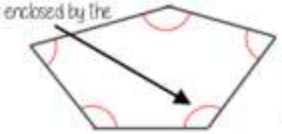
Vertically opposite angles
Equal

Angles around a point
360 °

Triangles
Sum of angles is 180 °

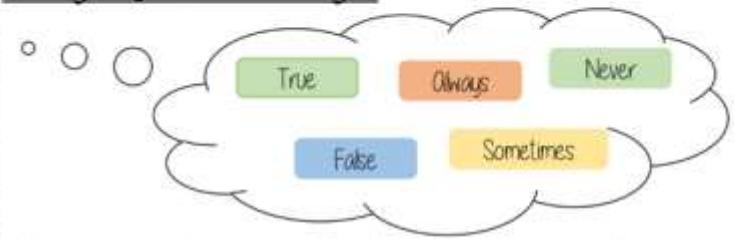
Isosceles have the same base angles

Interior Angles
The angles enclosed by the polygon



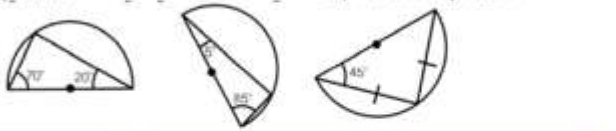
(number of sides – 2) x 180

Making conjectures with angles



Proving a conjecture
A pattern is noticed for many cases

Disproving a conjecture
Only one counterexample is needed to disprove a conjecture



Apply the angle rules	Test the theory	Make conjecture
The sum of angles in a triangle is 180°	$180 - 70 - 20 = 90$ $180 - 85 - 5 = 90$ $180 - 45 - 45 = 90$	The angle that meets the circumference in a semi circle is 90°

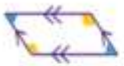
Making conjectures with shapes

Keywords and facts to recall with shape

Area: the amount of space inside a shape
Perimeter: the length around a shape
Regular Polygons: All sides and angles are equal

Quadrilateral Facts

Square
All sides equal size
All angles 90°
Opposite sides are parallel



Parallelogram
Opposite sides are parallel
Opposite angles are equal
Co-interior angles

Rectangle
All angles 90°
Opposite sides are parallel

Kite
No parallel lines
Equal lengths on top sides
Equal lengths on bottom sides
One pair of equal angles

Rhombus
All sides equal size
Opposite angles are equal

Maths: 9.10 Rotation & translation …..

Key words	
Rotate	a rotation is a circular movement
Symmetry	when two or more parts are identical after a transformation
Regular	a regular shape has angles and sides of equal lengths
Invariant	a point that does not move after a transformation
Vertex	a point two edges meet
Horizontal	from side to side Vertical: from up to down

Sparx codes for this topic	
M139	Translation
M290	Reflections
M523	Rotational symmetry
M910	Rotate from a point

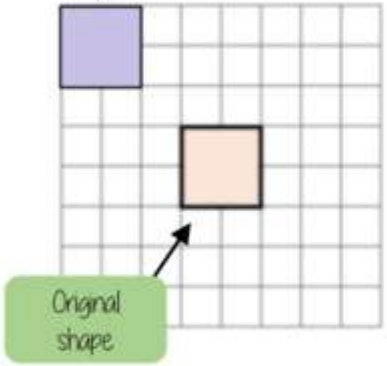
Translation and vector notation

Vector Notation → $\begin{pmatrix} 1 \\ -2 \end{pmatrix}$

How far left or right to move
Negative value (left)
Positive value (right)

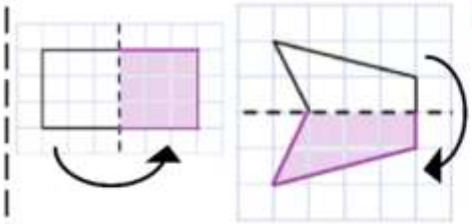
How far up or down to move
Negative value (down)
Positive value (up)

Translation $\begin{pmatrix} -3 \\ 3 \end{pmatrix}$



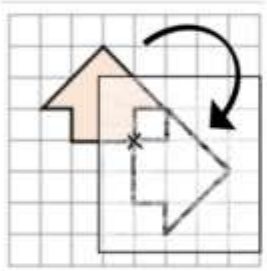
Every vertex has been translated by the same amount

Compare rotations and reflections



R Reflections are a mirror image of the original shape

Information needed to perform a reflection
- Line of reflection (Mirror line)

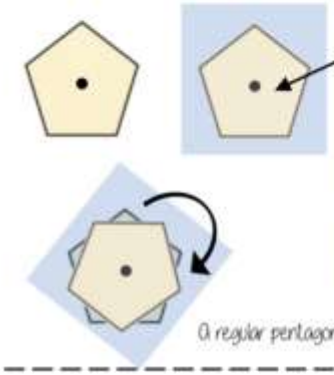


Rotations are the movement of a shape in a circular motion

Information needed to perform a rotation
- Point of rotation
- Direction of rotation
- Degrees of rotation

Rotational Symmetry

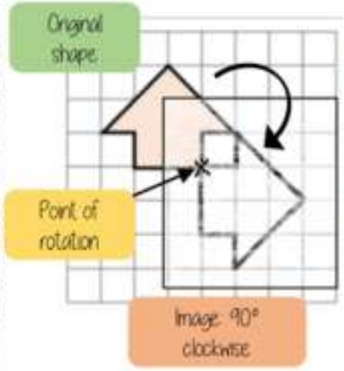
Tracing paper helps check rotational symmetry



1. Trace your shape (mark the centre point)
2. Rotate your tracing paper on top of the original through 360°
3. Count the times it fits back into itself

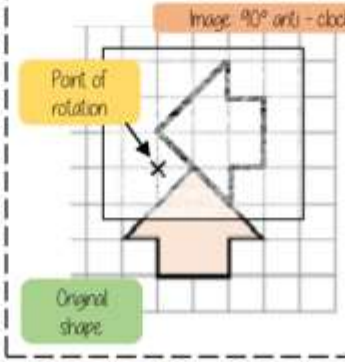
A regular pentagon has rotational symmetry of order 5

Rotate from a point (in a shape)



1. Trace the original shape (mark the point of rotation)
2. Keep the point in the same place and turn the tracing paper
3. Draw the new shape

Rotate from a point (outside a shape)



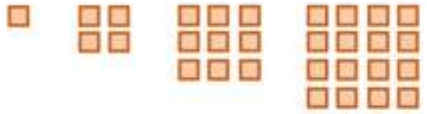
1. Trace the original shape (mark the point of rotation)
2. Keep the point in the same place and turn the tracing paper
3. Draw the new shape

9.11 Pythagoras' theorem .....

Key words	
Square number	the output of a number multiplied by itself
Square root	a value that can be multiplied by itself to give a square number
Hypotenuse	the largest side on a right-angled triangle. Always opposite the right angle
Opposite	the side opposite the angle of interest
Adjacent	the side next to the angle of interest

Sparx codes for this topic	
M677	Pythagoras in 2D
M147	Pythagoras in 3D

Squares and square roots R



This can also be written as 6^2

$\sqrt{\ }$ is the square root symbol

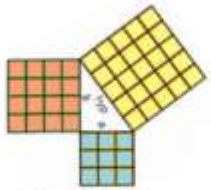
e.g $\sqrt{64} = 8$

Because $8 \times 8 = 64$

1 × 1	2 × 2	3 × 3	4 × 4	5 × 5	6 × 6	7 × 7	8 × 8	9 × 9	10 × 10
1	4	9	16	25	36	49	64	81	100

Square numbers

Determine if a triangle is right-angled



If a triangle is right-angled, the sum of the squares of the shorter sides will equal the square of the hypotenuse

$a^2 + b^2 =$ hypotenuse^2

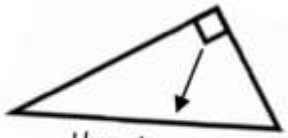
e.g $a^2+b^2 =$ hypotenuse^2

$3^2 + 4^2 = 5^2$

$9 + 16 = 25$

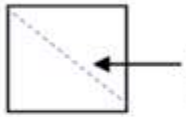
Substituting the numbers into the theorem shows that this is a right-angled triangle

Identify the hypotenuse



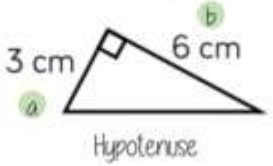
Hypotenuse

The hypotenuse is always the longest side on a triangle because it is opposite the biggest angle



Polygons can still have a hypotenuse if it is split up into triangles and opposite a right angle

Calculate the hypotenuse



Either of the short sides can be labelled a or b

$a^2 + b^2 =$ hypotenuse^2

1 Substitute in the values for a and b

$3^2+6^2 =$ hypotenuse^2

$9 + 36 =$ hypotenuse^2

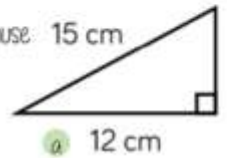
$45 =$ hypotenuse^2

2 To find the hypotenuse square root the sum of the squares of the shorter sides

$\sqrt{45} =$ hypotenuse

$6.71cm =$ hypotenuse

Calculate missing sides



Either of the short sides can be labelled a or b

$a^2 + b^2 =$ hypotenuse^2

$12^2+b^2 = 15^2$

1 Substitute in the values you are given

$144 + b^2 = 225$

$-144 \quad -144$

Rearrange the equation by subtracting the shorter square from the hypotenuse squared

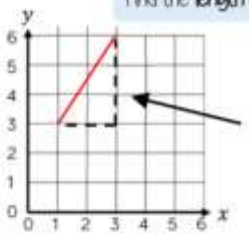
Square root to find the length of the side

$b^2 = 111$

$b = \sqrt{111} = 10.54\ cm$

Pythagoras' theorem on a coordinate axis

Find the **length** of the line segment



The segment can be made into a right-angled triangle by adding the sides on the diagram

The line segment is the **hypotenuse**

$a^2 + b^2 =$ hypotenuse^2

The lengths of a and b are the sides of the triangle

Be careful to check the scale on the axes

What Makes a Good Song?

Exploring Popular Songs and Musical Arrangements

Music

A. Popular Song Structure

SONG STRUCTURE – How a song is made up of or divided into different sections (see below) and the order in which these sections occur. To work out the structure of a song, it's helpful to analyse the **LYRICS and** listen to a recording for the song (for instrumental sections).

INTRO – often shortened to 'intro', the first section of a song which sets the mood of the song and is sometimes, but not always, an instrumental section using the song's chord pattern.

VERSES – songs normally have several verses. Verses introduce the song's theme and have the same melody but different lyrics for each verse which helps develop the song's narrative and story. Songs made up entirely of verses are called **STROPHIC**.

LINK – a optional short section often used to join different parts of a song together, often instrumental, and sometimes joins verses together or appears at other points within a song.

PRE-CHORUS – an optional section of music that occurs before the **CHORUS** which helps the music move forward and "prepare" for what is to come.

CHORUS – occurs several times within a song and contains the most memorable **HOOK/RIFF**. The chorus relays the message of the song and is repeated with the same melody and lyrics each time it is heard. In popular songs, the chorus is often repeated several times towards the end of the song.

MIDDLE 8/BRIDGE – a section (often 8 bars in length) that provides contrasting musical material often featuring an instrumental or vocal solo using new musical material allowing the performer to display their technical skill on their instrument or voice.

CODA/OUTRO – The final section of a popular song which brings it to an end (Coda is Italian for "tail"!)

B. Key Words

LYRICS – The words of a song, usually consisting of **VERSES** and a **CHORUS**.

HOOK – A 'musical hook' is usually the 'catchy bit' of the song that you will remember. It is often short and used and repeated in different places throughout the piece. Hooks can be either **MELODIC, RHYTHMIC** or **VERBAL/LYRICAL**.

RIFF – A repeated musical pattern often used in the introduction and instrumental breaks in a song or piece of music. Riffs can be rhythmic, melodic or lyrical, short and repeated.

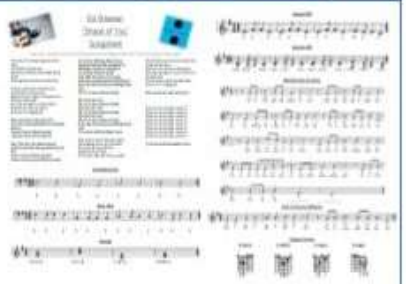
MELODY – The main tune of the song often sung by the **LEAD SINGER**.

COUNTER-MELODY – An 'extra' melody often performed 'on top of' the main melody that 'fits' with it a **DESCANT** or **INSTRUMENTAL SOLO**.

TEXTURE – The layers that make up a song *e.g., Melody, Counter-Melody, Hooks/Riffs, Chords, Accompaniment, Bass Line.*

C. Lead Sheet Notation and Arrangements

A **LEAD SHEET** is a form of musical **NOTATION** that contains only the essential elements of a popular song such as the **MELODY, LYRICS, RIFFS, CHORDS** (often as guitar chord symbols) and **BASS LINE**; it is not as developed as a ***FULL SCORE ARRANGEMENT*** and is open to interpretation by performers who need to use and adapt the given elements to create their own musical **ARRANGEMENT:** their "version" of an existing song.



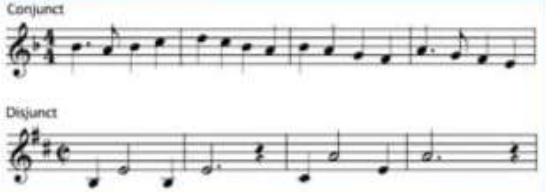
COVER (VERSION) – A new performance, remake or recording by someone other than the original artist or composer of the song.

D. Conjunct and Disjunct Melodic Motion

CONJUNCT MELODIC MOTION – Melodies which move mainly by step or use notes which are next to or close to one another.

DISJUNCT MELODIC MOTION – Melodies which move mainly by leap or use notes which are not next to or close to one another.

MELODIC RANGE – The distance between the lowest and highest pitched notes in a melody.



E. Song Timbre and Sonority (Instruments that are used to Accompany Songs)

Pop Bands often feature a **DRUM KIT** and **PERCUSSION** to provide the rhythm along with **ELECTRIC GUITARS (LEAD GUITAR, RHYTHM GUITAR** and **BASS GUITAR)** and **KEYBOARDS**. Sometimes **ACOUSTIC INSTRUMENTS** are used such as the **PIANO** or **ACOUSTIC GUITAR**. **ORCHESTRAL INSTRUMENTS** are often found in pop songs such as the **STRINGS, SAXOPHONE, TROMBONE** and **TRUMPET.**

Singers are essential to a pop song - **LEAD SINGER** – Often the "frontline" member of the band (most famous) who sings most of the melody line to the song. **BACKING SINGERS** support the lead singer providing **HARMONY** or a **COUNTER-MELODY** (a melody that is often higher in pitch and different, but still 'fits with' the main melody) and do not sing all the time but just at certain points within a pop song e.g. in the chorus.

THE HECTIC TEACHER
RESOURCE

HEALTHY DIET AND EXERCISE

Personal Development

Define: *Calories*

Calories refer to the energy people get from the food and drink they consume.

Define: *Obesity*

Obesity has been **defined** by the National Institutes of Health (the NIH) as a BMI of 30 and above.

Define: *BMI*

This is a numerical value of your weight in relation to your height. A **BMI** between 18.5 and 25 kg/m² indicates a normal weight.
BMI is a person's weight in kilograms (kg) divided by his or her height in meters squared.

Define: *Nutrition*

The process of providing or obtaining the food necessary for health and growth.

Define: *Veganism*

A diet where a person does not eat or use animal products.

Define: *Vegetarianism*

A diet where a person does not eat meat or fish

The Eat Well Plate

What does 1 portion of your 5 a day look like?

- 80g of fresh, canned or frozen fruit and vegetables
- 30g of dried fruit – which should be kept to mealtimes
- 150ml glass of fruit juice or smoothie – but do not have more than 1 portion a day as these drinks are sugary and can damage teeth
- Just 1 apple, banana, pear or similar-sized fruit is 1 portion each.
- A slice of pineapple or melon is also 1 portion.
- 3 heaped tablespoons of vegetables is another portion.

How much exercise should you do?

- Jogging or running
- Racewalking
- Hiking uphill
- Cycling more than 10 miles per hour or steeply uphill
- Swimming fast or lap swimming
- Aerobic dancing, fast dancing, step aerobics
- Heavy gardening with digging, hoeing, shoveling heavy snow, moving or pushing heavy objects, carrying loads of 50 pounds on level ground or 25 pounds or more upstairs.
- Martial arts
- Playing sports with lots of running such as basketball, hockey, soccer
- Singles tennis
- Court sports such as handball, racquetball, squash

Impacts of poor Nutrition

Short term:
- stress,
- tiredness
- limit capacity to work,

Long term it can contribute to the risk of developing some illnesses and other health problems such as:
- being overweight or obese
- tooth decay
- high blood pressure
- high cholesterol
- heart disease and stroke
- type-2 diabetes
- osteoporosis
- some cancers
- depression
- eating disorders.

Where to get more help and support

- Parents and trusted family
- School Staff and Wellbeing Team
- NHS Eat Well: https://www.nhs.uk/live-well/eat-well/
- British Nutrition Foundation: https://www.nutrition.org.uk/healthyliving/lifestages/teenagers.html
- Kids Health: https://kidshealth.org/en/teens/dieting.html

THE HECTIC TEACHER
RESOURCE

SLEEP

Define: *Sleep Disorders*

These are medical conditions which affect our sleep. They can only be diagnosed by a Doctor and can require medicinal intervention.

Define: *REM Sleep*

A kind of sleep that occurs at intervals during the night and is characterized by rapid eye movements, more dreaming and bodily movement, and faster pulse and breathing.

Define: *Sleep Apnoea*

Sleep apnea occurs when the upper airway becomes completely or partially blocked, interrupting regular breathing for short periods of time – which then wakes you up.

Define: *Insomnia*

Trouble falling asleep or may wake up frequently during the night or early in the morning. Acute insomnia is when this occurs infrequently. Chronic is when it occurs regularly.

Define: *Sleep Deprivation*

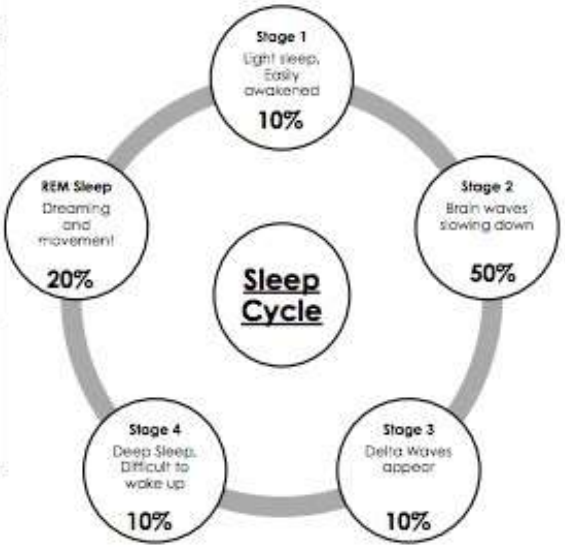
Sleep deprivation means you're not getting enough sleep. This can be caused intentionally or not. It can be either chronic or acute and may vary widely in severity.

How Much Sleep Is "Enough"?

Sleep is one of the cornerstones of health. Sleeping too much or too little can have adverse effects on your health. Sleeping less than 5 hours per night can double your risk of heart disease, heart attack, and stroke. There is also a persistent relationship between lack of sleep and weight gain, insulin resistance, and diabetes.

AGE GROUP	RECOMMENDED NUMBER OF HOURS OF SLEEP
Newborns (0-3 months)	14-17 hours
Infants (4-11 months)	12-15 hours
Toddlers (1-2 years)	11-14 hours
Preschoolers (3-5)	10-13 hours
School-age children (6-13)	9-11 hours
Teenagers (14-17)	8-10 hours
Young adults (18-25)	7-9 hours
Adults (26-64)	7-9 hours
Seniors (65 and older)	7-8 hours

Mercola.com



What can cause problems with our sleep?

Medical Issues – the are 89 recognised sleep disorders and the most common are insomnia, Sleep apnoea, Restless limb syndrome.

Technology - The blue light emitted by **screens** restrain the production of melatonin, the hormone that controls your **sleep**/wake cycle or circadian rhythm. Reducing melatonin makes it harder to fall and stay asleep.

Hunger – It is not recommended to eat a big meal before bedtime, a small bedtime snack helpful. If you go to bed hungry, you're likely to wake up with hunger pangs.

Stress causes hyperarousal, which can upset the balance between sleep and wakefulness.

Mental Health Issues – Mental health issues can have a variety of impacts on sleep, such as anxiety making it hard to settle due to racing thoughts, PTSD can lead to nightmares and night terrors, depression can lead to over sleeping.

Your Bed - Past research shows that sleeping on an uncomfortable mattress can rob you of up to an hour's vital, restful sleep.

Clutter and Messy Rooms - A cluttered bedroom makes for a cluttered mind. Don't use it as a dumping ground for the rest of the house. Your bedroom should be a sanctuary, somewhere you can go to turn off and relax.

Napping and Lie Ins: Trying to make up for lack of sleep with extra time in bed the following morning, or even a few days later, throws off your internal body clock. Naps of under 30 minutes can be refreshing any longer throws out your body clock

Consequences of Sleep Deprivation

- Emotional Affects
  - Irritability
  - Mood Swings
  - Fatigue / Tiredness
  - Lack of Motivation
  - Depression
- Physical Affects
  - High Blood Pressure
  - Reduced Sex Drive
  - Lower Immune system
  - Disrupt hormone regulation
  - Higher risk of type 2 diabetes
- Cognitive effects
  - Forgetfulness
  - Clumsiness
  - Difficulty focusing

Top Tips for a Good nights sleep

1. Routines – set a routine which your body can recognize is a wind down for sleep.
2. Tech free bedrooms – stop using technology such as tablets and phones 2 hours before bed or use a blue light filter.
3. Clutter free bedrooms – Keeping your bedroom clutter free and tidy and help make the room feel calmer and more relaxing.
4. Reduce stimulant food intake – foods and drinks which contain a lot of sugar and caffeine can impact your sleep so try not to consume too much after 3pm.
5. Temperature - the suggested bedroom **temperature** should be around 18 degrees Celsius .

More Information & Support

Sleep deprivation means you're not getting enough sleep. This can be caused intentionally or not. It can be either chronic or acute and may vary widely in severity.

Personal Development

THE HECTIC TEACHER
RESOURCE

DRUGS: EFFECTS AND WITHDRAWAL

Personal Development

Define: *Stimulant*

A drug which cause a person to feel like they have more energy or more awake.

Define: *Depressant*

A drug which cause a person to feel calmer or lethargic.

Define: *Hallucinogen*

A drug which cause a person to experience sensations that are not really there. This could be visual, auditory or physical.

Define: *Analgesic*

A drug which reduces the feeling of pain.

Define: *Withdrawal*

a predictable group of signs and symptoms that result from either the sudden removal of, or abrupt decrease in the regular dosage of a drug.

Define: *Addiction*

The feeling of needing a drug in order to get through the day.

Drug	Analgesic	Hallucinogen	Stimulant	Depressant
Caffeine			✓	
Cocaine			✓	✓
Heroin	✓			✓
Cannabis		✓		✓
Crack Cocaine			✓	
Amphetamines		✓	✓	
Ecstasy			✓	
Alcohol				✓
Inhalants		✓	✓	
Tobacco				✓
LSD		✓		
Magic Mushrooms		✓		
Steroids	✓			

Mental and Emotional Withdrawal Symptoms

- **Anxiety:** Anxiety, panic attacks, restlessness, irritability
- **Depression:** Social isolation, lack of enjoyment, fatigue, poor appetite
- **Sleep:** Insomnia, difficulty falling asleep or staying asleep
- **Cognitive:** Poor concentration, poor memory

Physical Withdrawal Symptoms

- **Head:** Headaches, dizziness
- **Chest:** Chest tightness, difficulty breathing
- **Heart:** Racing heart, skipped beats, palpitations
- **GI:** Nausea, vomiting, diarrhoea, stomach aches
- **Muscles:** Muscle tension, twitches, tremors, shakes, muscle aches
- **Skin:** Sweating, tingling

Dangerous Withdrawal Symptoms

- Grand mal seizures
- Heart attacks
- Strokes
- Hallucinations
- Delirium tremens (DTs)

Who Can you turn to for help and Support

Parents and Family members	School Staff and Safeguarding Team
Your GP or Practice Nurse	
NSPCC	Helpline: 0808 800 5000 nspcc.org.uk
Childline	Helpline: 0800 1111(https://www.childline.org.uk
NHS Live Well Website	www.NHS.UK/Livewell
The Mix	Helpline: 0808 808 4994
Talk to Frank	Helpline: 0300 123 6600 talktofrank.com
Action on Addiction	Helpline: 0300 330 0659 actiononaddiction.org.uk
DrugFAM	Helpline: 0300 888 3853 drugfam.co.uk

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TYPES OF DRUGS

Personal Development

Caffeine	Cocaine	Heroin	Cannabis	Crack Cocaine	Amphetamines	Ecstasy
Caffeine is a naturally occurring chemical stimulant called trimethylxanthine. In its pure **form**, **caffeine** is a white crystalline powder that tastes very bitter. **Caffeine** is in tea, coffee, chocolate, many soft drinks, and pain relievers and other over-the-counter medications.	The **hydrochloride** salt is usually in a powdered form by the time it makes it to street dealers and users. The texture is similar to baby powder. In fact, it is so similar that many dealers will cut their coke with baby powder in order to increase their profits. The color can range from a clear white to an off-white, and sometimes even a yellowish color.	In its purest form, heroin is a fine white powder. But more often, it is found to be rose gray, brown or black in color. The coloring comes from additives which have been used to dilute it, which can include sugar, caffeine or other substances. Street heroin is sometimes "cut" with strychnine1 or other poisons.	Soft black resin, furry green leaves dried to look like herbs or hard brown lumps, cannabis can look very different depending on its type – but it all comes from cannabis plants.	**Crack cocaine** is a purer form of cocaine and looks somewhat like rocks. Most of the time, crack cocaine is off-white in color, but it can have a rosy hue that makes it appear pink.	It's usually an off-white or pinkish powder and can sometimes look like crystals. It's also available in a paste form which is usually white/grey or brown in colour, and can be damp and gritty.	Ecstasy comes in pill or powder form. Ecstasy pills can be white, coloured, round, square or pressed into any shape. Some pills have designs stamped into them, like well known company logos that the pills are then named after. Ecstasy powder looks like white/grey crystals and is called MDMA, mandy or MD.

Alcohol	Inhalants	Tobacco	LSD	Magic Mushrooms	Steroids
While some drinks have more alcohol than others, the type of alcohol in all alcoholic drinks is the same – it's a type of alcohol called ethanol. Alcohol is a colourless, odourless and inflammable fluid.	The term inhalants refers to the various substances that people typically take only by inhaling. These substances include solvents (liquids that become gas at room temperature), aerosol sprays; gases; nitrites (prescription medicines for chest pain)	Tobacco is a plant grown for its leaves, which are dried and fermented before being put in tobacco products. People can smoke, chew, or sniff tobacco. Smoked tobacco products include cigarettes, cigars, bidis, and kreteks. Some people also smoke loose tobacco in a pipe or hookah (water pipe). Chewed tobacco products include chewing tobacco, snuff, dip, and snus; snuff can also be sniffed.	It is produced in crystal form laboratories, mainly in the United States. These crystals are converted to a liquid for distribution. It is odorless, colorless, and has a slightly bitter taste. LSD is sold on the street in small tablets ("microdots"), capsules or gelatin squares ("window panes"). It is sometimes added to absorbent paper, which is then divided into small squares decorated with designs or cartoon characters ("loony toons"). Occasionally it is sold in liquid form.	Magic mushrooms are often sold raw or dried. In the UK, the most common types are liberty caps (*Psilocybe semilanceata*) and fly agaric (*Amanita muscaria*). Liberty caps look like small tan-coloured mushrooms. Fly agarics look like red and white spotted toadstools	Anabolic steroids come in the form of tablets, capsules, a solution for injection and a cream or gel to rub into the skin. Weightlifters and bodybuilders who use steroids often take doses that are up to 100 times greater than those used to treat medical conditions.

Define: ***Drug***
Drugs are chemicals that alter, block, or mimic chemical reactions in the brain. This causes alterations of the body's normal process's causing physical or mental changes.

Define: ***Medicine***
A drug or other preparation for the treatment or prevention of disease.

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SMOKING AND VAPING

Personal Development

Define: *Nicotine*

A toxic colourless or yellowish oily liquid which is the chief active constituent of tobacco. It acts as a stimulant in small doses, but in larger amounts blocks the action of autonomic nerve and skeletal muscle cells.

Define: *Vaping*

The action or practice of inhaling and exhaling the vapour produced by an electronic cigarette or similar device.

Define: *Smoking*

The action or habit of inhaling and exhaling the smoke of tobacco or a drug. Usually through Cigarettes or Cigars.

Define: *E-Cigarette*

E-cigarettes are electronic devices that heat a liquid and produce an aerosol or mix of small particles in the air. Which is then inhaled.

Effects Of Nicotine

Nicotine is both a sedative and a stimulant.

When a body is exposed to nicotine, the individual experiences a "kick." This is partly caused by nicotine stimulating the adrenal glands, which results in the release of adrenaline.
This surge of adrenaline stimulates the body. There is an immediate release of glucose, as well as an increase in heart rate, breathing activity, and blood pressure. Indirectly, nicotine causes the release of dopamine in the pleasure and motivation areas of the brain.

How do E-Cigarettes Work

E-cigarettes produce an aerosol by heating a liquid that usually contains nicotine, flavorings, and other chemicals that help to make the aerosol.

The liquid used in e-cigarettes often contains nicotine and flavorings. This liquid is sometimes called "e-juice," "e-liquid," "vape juice," or "vape liquid."

Users inhale e-cigarette aerosol into their lungs. Bystanders can also breathe in this aerosol when the user exhales it into the air. E-cigarette aerosol is NOT harmless "water vapor." The e-cigarette aerosol that users breathe from the device and exhale can contain harmful and potentially harmful substances, including:

- Nicotine
- Ultrafine particles that can be inhaled deep into the lungs
- Flavoring such as diacetyl, a chemical linked to a serious lung disease
- Volatile organic compounds
- Cancer-causing chemicals
- Heavy metals such as nickel, tin, and lead

It is difficult for consumers to know what e-cigarette products contain. For example, some e-cigarettes marketed as containing zero percent nicotine have been found to contain nicotine.

Smoking and the Law

- You must be over 18 to buy cigarettes in the UK. If you're under 16 the police have the right to confiscate your cigarettes.

It's illegal:

- For shops to sell you cigarettes if you are underage
- For an adult to buy you cigarettes if you are under 18
- To smoke in all public enclosed or substantially enclosed area and workplaces.
- To smoke in a car with a child.

Vaping and the Law

- You must be 18 or over to purchase e-cigarettes or e-liquids in the UK. It also became illegal for an adult to buy e-cigarettes for someone under the age of 18.
- Although there is no legal restriction on where you can vape in the UK there are local laws and bylaws in force that prohibit the practice. The choice of whether or not to allow vaping is that of the property owner.
- Vaping generally is not allowed on the underground, planes, buses or trains and train stations in the United Kingdom.
- Vaping while you drive may not seem like such a big deal but it could land you with up to nine penalty points and a fine of £2,500.

Who Can you turn to for help and Support

Parents or trusted family members	School Safe Guarding Team or any member of staff.
Your GP or Practice Nurse.	
Smoke Free Future	https://smokefreefuture.co.uk
NHS – Stop Smoking	https://www.nhs.uk/live-well/quit-smoking
Smoke Free	https://smokefree.gov/

THE HECTIC TEACHER
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PHYSICAL PUBERTY

Personal Development

Define: *Puberty*

The process of physical maturity in a person that takes place in adolescence

Define: *Menstruation*

Also known as a period. The process in a woman of discharging blood and other material from the lining of the uterus at intervals of about one lunar month from puberty until the menopause, except during pregnancy.

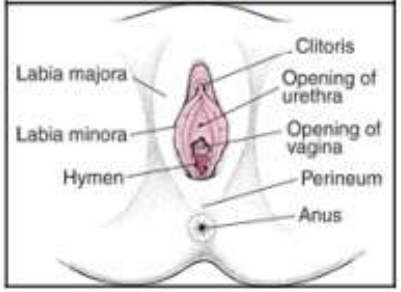
Define: *Hormones*

A chemical substance produced in the body that controls and regulates the activity of certain cells or organs.

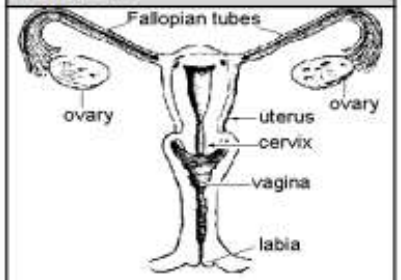
Define: *Wet Dream*

An involuntary ejaculation that occurs whilst a person is asleep.

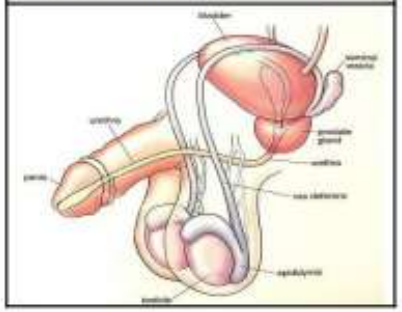
Female Genitalia – External (Vulva)



Female Genitalia – Internal



Male Genitalia



Physical Changes during Puberty

Boys only	• Starts between 10 and 12 years of age • Facial Hair • Voice Breaking • Erections • Wet Dreams • Widening of chest and Shoulders
Girls Only	• Starts between 9 and 11 years of age. • Menstruation / Periods begin • Breast growth • Stretch Marks • Cellulite • Hips widen
Both	• Grow taller • Sweat more • Changes to hair and skin • Spots and Pimples

Things to Remember

- Puberty begins at different times for different people.
- Changes will happen at different rates and in a different order for different people,
- Everyone goes through puberty, you are not alone.
- Good diet and exercise can help deal with some of the physical changes.
- Puberty is normal despite feeling very abnormal.

Who Can you turn to for help and Support

Parents or trusted family members	Teachers or school Staff
Your Doctor or Practice Nurse	School Nurse
NSPCC	Helpline: 0808 800 5000 (24 hours, every day) nspcc.org.uk
Childline	Helpline: 0800 1111(24 hours, every day) https://www.childline.org.uk
NHS Live Well Website	www.NHS.UK/Livewell

WADHAM KS3 PE KNOWLEDGE ORGANISER: Badminton

Physical Education

Skills and Techniques:

Ready Position: side on, racket up and ready, on toes.

Overhead Clear: A defensive shot played high to the back of the opponent's court.

Drop shot: A shot played just over the net to draw your opponent to the net.

Smash: A powerful offensive/ attacking shot. The shuttle is hit at the highest point possible and travels at a steep angle to ensure the shuttle lands as close to the net as possible.

Flick Serve: Short serve which is played typically in doubles. Aim is to get the shuttlecock to stay low over the net and land just over the service line.

Underarm serve: Serve typically played in singles. The aim is to get the shuttle as high as you can towards the backline forcing your opponent to the back of the court

Drive: Is played from mid-court to mid-court and is a quick, flat, powerful counter-attacking shot. It can be both a backhanded and forehanded shot. When it is executed correctly, a player will force their opponent to hit an upward return.

Rules:

*The aim is to hit the shuttle with your racket so that it passes over the net and lands inside your opponent's half of the court.

*When serving yours and your opponent's feet must be still

*You serve to the diagonally opposite service box

When your score is even, your serve from the right-hand service box, when it's odd, your serve from the left had box.

*The service box is 'long and thin' for singles and 'short and fat' for doubles.

*The side tramlines are not used for singles, but the back and side tramlines are all used for doubles.

*The shuttle is in if it touches the line

*If you think the shuttle is going out of the court, you must let it drop to the ground to win the point.

*You must not touch the net with your body or the racket

Scoring System:

*A 'rally point' system is used. This means whoever wins the rally is awarded a point (you don't have to be serving)

* If you win the point you get to serve, you continue to serve until you lose a point

*Games are played to 21 points, although they can be reduced (always to an odd number i.e. 11).

*A game will continue until a player/pair wins by 'two clear points' (i.e. 21-19, not 21-10). This means the final scores may be higher than 21 (i.e. 25-23)

Tactics Every shot, you must try to 'place' the shuttle, not just return it. Hit the shuttle into space.

Play the shuttle to your opponent's backhand side as this tends to be weaker shot for most players.

Disguise your shots (pretend to smash- then play a drop shot

Tactics Singles Return to the centre of the court (centre position) after every shot to give you the best chance of reaching your opponent's return shots.

Tactics Doubles Partners can choose whether to play 'sides' or 'front and back' or a combination of the two.

Key Words

Court
Racket
Shuttlecock
Net
Serve

Key Words

Centre Position
Rally
Smash
Clear
Drive

Key Words

Let
Double Hit
Fault
Drop Shot

WADHAM KS3 PE KNOWLEDGE ORGANISER: Basketball

Physical Education

Skills and Techniques:

Dribbling Used to keeppossession of the ball and travel around the court.The ball should be kept close to the body at all times (under control). Use your finger tips to 'push' the ball into the floor. Keep your eyes up.

Shooting Focus eyes on the target. Point feet towards 11 o'clock, elbow under the ball. Use your knees to generate power, Roll the ball off the fingertips to create back spin. 'Hand in the cookie jar' follow through.

Passing Used to move the ball up the court quickly. Anotherway for the team to maintain possession. Can be used to find a better scoring or dribbling opportunity. There are four types; chest, bounce, shoulder and javelin.

Rules:

- A game consists of four, 10-minute quarters.
- There are 2 or 3 referees.
- The game is started with a tip-off. The referee throws the ball in the air. Opposing players must try and win the ball by hitting it back to their teammates.
- The ball can move up the court by passing or dribbling.
- A player can only use one hand at a time to dribble the ball. A player can no longer dribble when they put two hands on the ball.

Positions:

5 players in a team
Point guard directs play going forward.

Shooting guard is the main shooter in the team but it is usually from long distance.

Small forward is normally the tallest player, shooting is a keypart of their game.

Centre will look to score from close to the basket and also block shots and deal withrebounds.

Power Forward specialises on the rebounds and defence.

Scoring System:

Inside three-pt line
Baskets scored within the 3-point lines are worth two points

Outside the three-pt line. These baskets will be rewarded with 3 points.

Free throw line A free throw is worth one point. It is an unchallenged shot at the basket. This is awarded after a technical foul, or a personal foul on a player in the act of shooting.

Tactics:

Defending tactics- Full courtand half court press

Attacking tactics -rebounding and manipulating the speed of play.

Key Words:

Chest pass
Bounce pass
Overhead pass
Javelin pass
Dribbling
Triple threat
Double dribble

Key Words:

- Basket
- Backboard
- Key
- Free throw
- Lay-up
- Tip-off
- Travelling
- Hand in the cookie jar

WADHAM KS3 PE KNOWLEDGE ORGANISER: Football

Physical Education

Skills and Techniques:

Passing / receiving: Play the ball to your team using different types of passes and then control the ball with different parts of your body.

Dribbling / moving with the ball: You can use different parts of your foot to dribble with the ball.

Shooting & Attacking play: You can take aim at the goal, you can cross the ball towards the attackers or you can play a through ball forward to the attackers.

Heading: This can be attacking to score a goal or defending to clear the ball away from the goal.

Defensive play: You can tackle, jockey, close down and mark a player.

Rules:

- A game consists of two 45-minute halves.
- The game is started with a centre kick, from the centre spot. The opposition can then come into the centre circle.
- One referee officiates the game with the help of two assistant referees.
- Players are not allowed to use their hands or arms to control the ball unless they are the goalkeeper.
- Players are prevented from 'goal hanging' by the off-side rule.
- If a team kicks the ball off the pitch, the opposition will receive a throw in or a corner

Positions:

11 players on a team (9 in year 7)

Goalkeeper
Right Back
Left Back
Centre Backs (2)
Centre Midfield (2)
Right Wing
Left Wing
Forwards/Striker (2)

Scoring System:

A player can shoot from anywhere to score a goal.

The ball must completely cross the goal line to count.

The team with the most goals at the end of the game wins.

Tactics:

Changing formations depending on the opposition/ score/ time remaining

Key Words:

Penalty
6-yard box
18-yard box
Indirect Free kick
Top bins
Corner
Pass Back
Kick off
Corner

Key Words:

Jockey
Dribble
Laces
Throw in
Keepy ups
Toe taps
Happy feet
Cruyff turn
Off-side

WADHAM KS3 PE KNOWLEDGE ORGANISER: NETBALL

Physical Education

Skills and Techniques:

Chest pass: Most accurate pass. Hands form W shape behind ball. Step forward into pass, keep elbows close to body. Push through with ball.

Shoulder Pass: Used to cover bigger distances. Place throwing hand behind ball, move opposite foot in front of body. Fully extend arm when passing, following through with pass.

Bounce Pass: Used when space is restricted.Standing with one foot forward. Push ball into floor.

Overhead Pass: Used for distance or height. Place the ball over your head, hands in the W position. Push through the ball and step forward.

Shooting: Ball on fingertips, use non-throwing hand to steady ball. Bend knees and elbows, liftingball up to net.

Rules:

- Matches last for 1 hour and are split into 15-minute quarters.
- The game is started by one 'centre' stepping into the centre circle and then passing the ball.
- Two umpires officiate the game.
- Players are not allowed to travel (run) with the ball
- Players must remain within their designated zones
- A defending player must defend from at least 1m away from the opposition player with the ball.
- It is a non-contact sport
- A player can only hold the ball for 3 seconds

Positions:

7 players on a team

GK - Goalkeeper
GD - Goal Defence
WD - Wing Defence
C - Centre
WA - Wing Attack
GA - Goal Attack
GS - Goal Shooter

Scoring System:

To score a goal, a player must shoot within the goal area (D) and the ball must fall through the opposition's goal ring.

The team with the most points at the end of the game wins.

Tactics:

Quick Passing

Dodging and changing speed to receive ball.

Key Words:

Chest Pass
Bounce Pass
Shoulder Pass
Overhead Pass
Centre Pass
Defensive Third
Centre Third
Attacking Third
Goal
Goal Area

Key Words:

Pivot
Footwork
Contact
Held ball
Obstruction
Intercept
Marking
Penalty

Science

SB1a Microscopes

Word	Pronunciation	Meaning
eyepiece lens		The part of the microscope you look down.
magnification	*mag-nif-ick-**ay**-shun*	How much bigger something appears compared with its actual size.
objective lens		The part of the microscope that is closest to the specimen.
resolution	*rez-O-**loo**-shun*	Smallest change that can be measured by an instrument. For example, in a microscope it is the smallest distance between two points that can be seen as two points and not blurred into one point.
stain		A dye used to colour parts of a cell to make them easier to see.

SB1b Plant and animal cells

Word	Pronunciation	Meaning
aerobic respiration	*air-**O**-bick*	A type of respiration in which oxygen is used to release energy from substances, such as glucose.
cell (surface) membrane		The membrane that controls what goes into and out of a cell. It is often called the cell surface membrane because eukaryotic cells contain other structures with membranes.
cell sap		Liquid found in the permanent vacuole in a plant cell.
cell wall		A tough layer of material around some cells, which is used for protection and support. It is stiff and made of cellulose in plant cells. Bacteria have a flexible cell wall.
chlorophyll	***klor**-O-fill*	The green substance found inside chloroplasts. It traps energy transferred by light.
chloroplasts	***klor**-O-plast*	A green disc containing chlorophyll, found in plant cells. Where the plant makes glucose, using photosynthesis.
chromosome	***krow**-mO-sOwm*	A structure found in the nuclei of cells. Each chromosome contains one enormously long DNA molecule.
cytoplasm	***site**-O-plaz-m*	The watery jelly inside a cell where the cell's activities take place.
DNA		A substance that contains genetic information. Short for deoxyribonucleic acid.
eukaryotic	*you-kar-ee-**ot**-ick*	A cell with a nucleus is eukaryotic. Organisms that have cells like this are also said to be eukaryotic.
field of view		The circle of light you see looking down a microscope.
mitochondrion	*my-tow-**kon**-dree-on*	A sub-cellular structure (organelle) in the cytoplasm of eukaryotic cells, where aerobic respiration occurs. Plural is mitochondria.
nucleus	***new**-clee-us*	The 'control centre' of a eukaryotic cell.
ribosome	***rY**-bow-sowm*	Tiny sub-cellular structure that makes proteins.

Science

Word	Pronunciation	Meaning
scale bar		A line drawn on a magnified image that shows a certain distance at that magnification.
scientific paper		An article written by scientists and published in a science magazine called a journal. It is like an investigation report but usually shows the results and conclusions drawn from many experiments.
vacuole	***vack**-you-oll*	A storage space in cells. Plant cells have a large, permanent vacuole that helps to keep them rigid.

SB1c Specialised cells

Word	Pronunciation	Meaning
acrosome	*ack-rO-sO'm*	A small vacuole in the tip of the head of a sperm cell, which contains enzymes.
adaptation	*add-app-**tay**-shun*	The features that something has to enable it to do a certain function (job).
adapted		If something has adaptations for a certain function (job), it is said to be adapted to that function.
ciliated epithelial cell	***sill**-ee-ay-ted ep-ith-**ee**-lee-al **sell***	A cell that lines certain tubes in the body and has cilia on its surface.
cilium	***sill**-ee-um*	A small hair-like structure on the surface of some cells. Plural is cilia.
digestion	*dye-**jes**-jun*	A process that breaks molecules into smaller, more soluble substances.
diploid	***dip**-loyd*	Describes a cell that has two sets of chromosomes.
egg cell		The female gamete (sex cell).
embryo	***em**-bree-O*	The tiny new life that grows by cell division from a fertilised egg cell (zygote).
enzyme		A substance that can speed up some processes in living things (e.g. breaking down molecules).
epithelial cell	*ep-ith-**ee**-lee-al **sell***	A cell found on the surfaces of parts of the body.
fertilisation	*fert-ill-l-**zay**-shun*	Fusing of a male gamete with a female gamete.
gamete	***gam**-meet*	A cell used for sexual reproduction.
haploid	*hap-loyd*	Describes a cell that has one set of chromosomes.
microvillus	***my**-crO-vill-us*	A fold on the surface of a villus cell. These folds increase the surface area so that digested food is absorbed more quickly. Plural is microvilli.
oviduct		A tube that carries egg cells from the ovaries to the uterus in females. Fertilisation happens here.
specialised cell	*spesh-ee-al-lz'd*	A cell that is adapted for a certain specific function (job).
sperm cell		The male gamete (sex cell).

Science

SB1d Inside bacteria

Word	Pronunciation	Meaning
chromosomal DNA		DNA found in chromosomes but the term is often used to describe the large loop of DNA found in bacteria.
DNA		A substance that contains genetic information. Short for deoxyribonucleic acid.
flagellum	*flaj-**ell**-um*	A tail-like structure that rotates, allowing a unicellular organism to move. Plural is flagella.
index		A small raised number after a unit or another number to show you how many times to multiply it by itself. For example, 10^3 means multiply 10 together 3 times ($10 \times 10 \times 10$).
plasmid	***plaz**-mid*	A small loop of DNA found in the cytoplasm of bacteria.
plasmid DNA	***plaz**-mid*	DNA found in plasmids.
prokaryotic	***prO**-kar-ee-ot-ick*	A cell with no nucleus is prokaryotic. Organisms such as bacteria, which have cells like this, are also said to be prokaryotic.
standard form		A very large or very small number written as a number between 1 and 10 multiplied by a power of 10. Example: $A \times 10^n$ where A is between 1 and 10 and n is the power of 10.

SB1e Enzymes and nutrition

Word	Pronunciation	Meaning
biological catalyst	*bio-**loj**-i-cal **cat**-a-list*	A substance found in living organisms that speeds up reactions (an enzyme).
catalyst	***cat**-a-list*	A substance that speeds up the rate of a reaction, without itself being used up.
digest	*die-**jest***	To break down large molecules into smaller subunits, particularly in the digestive system.
monomer		A small molecule that can join with other molecules like itself to form a polymer.
polymer		A substance made up of very long molecules containing repeating groups of atoms. (Formed by joining monomer molecules together.)
product		A substance formed in a reaction.
substrate		A substance that is changed during a reaction.
synthesis	***sinth**-eh-sis*	To build a large molecule from smaller subunits.

Science

SB1f Testing foods

Word	Pronunciation	Meaning
Benedict's solution		A bright blue chemical reagent that turns orange or red when warmed with a solution of reducing sugars.
biuret test		A test that uses copper sulfate solution and potassium hydroxide solution to test for proteins. The blue of the copper sulfate solution turns purple in the presence of proteins.
calorimeter		Equipment used to measure the energy released from a substance by burning it.
chemical reagent	*ree-**ay**-jent*	A substance or mixture used in chemical analysis or reactions.
iodine solution		A yellow-orange solution that turns black-blue when in contact with starch.
precipitate		Insoluble substance formed when two soluble substances react together.
reducing sugar		A simple sugar, such as glucose or fructose, that reacts with (reduces) Benedict's solution and changes its colour.

SB1g Enzyme action

Word	Pronunciation	Meaning
active site		The space in an enzyme where the substrate fits during an enzyme-catalysed reaction.
denatured		A denatured enzyme is one where the shape of the active site has changed so much that its substrate no longer fits and the reaction can no longer happen.
lock-and-key model		Model that describes the way an enzyme catalyses a reaction when the substrate fits within the active site of the enzyme.
specific	*spe-**sif**-ick*	Where an enzyme only reacts with one kind of substrate.

SB1h Enzyme activity

Word	Pronunciation	Meaning
optimum pH		The pH at which an enzyme-catalysed reaction works fastest.
optimum temperature		The temperature at which an enzyme-catalysed reaction works fastest.

Science

SB1i Transporting substances

Word	Pronunciation	Meaning
active transport		The movement of particles across a cell membrane from a region of lower concentration to a region of higher concentration (*against* the concentration gradient). The process requires energy.
diffusion	*diff-**you**-zshun*	When particles spread and mix with each other without anything moving them. Diffusion into and out of cells occurs for particles that are small enough to pass through the cell surface membrane.
concentration	*con-sen-**tray**-shun*	The amount of a solute dissolved in a certain volume of solvent. Measured in units such as g/cm^3.
concentration gradient		The difference between two concentrations. There will be an overall movement of particles *down* a concentration gradient, from higher concentration to lower concentration.
osmosis	*oz-**mO**-sis*	The overall movement of solvent molecules in a solution across a partially permeable membrane, from a dilute solution to a more concentrated one.
passive		A process that does not require energy is passive. A passive process is the opposite of an active process (which requires energy).
semi-permeable		Describes something that will allow certain particles to pass through it but not others. Another term for 'partially permeable'.
solute	***sol**-yoot*	The solid that has dissolved in a liquid to make a solution.
solvent		The liquid in which a substance dissolves to make a solution.

SC1a States of matter

Word	Pronunciation	Meaning
atom		The smallest neutral part of an element that can take part in chemical reactions.
attractive forces		The weak forces of attraction between molecules.
boiling point		The temperature at which a liquid boils.
chemical properties	***kem**-ik-al*	How a substance reacts with other substances.
melting point		Temperature at which a substance changes from the solid state to the liquid state when heated; or from the liquid state to the solid state when cooled.
molecule		Particle consisting of two or more atoms joined together by covalent bonding.
particle	***part**-ick-al*	A tiny piece of matter that everything is made out of.
particle model	***part**-ick-al*	A theory to explain the different properties and observations of solids, liquids and gases.
physical change	***fi**-zi-kal*	A change in which no new substances are formed – like changes of state.
states of matter		There are three different forms that a substance can have: solid, liquid or gas. These are the three states of matter.

Science

SC2a Mixtures

Word	Pronunciation	Meaning
compound		A substance that can be split into simpler substances, because it contains the atoms of two or more elements joined together.
element		A substance made up of only atoms with the same number of protons in the nucleus.
impure		A substance that is not pure.
melting point		A specific temperature at which a solid turns into a liquid.
mixture		Two or more substances jumbled together but not joined to each other. The substances in many mixtures can be separated from each other.
physical property	*fi-zi-kal*	A description of how a material behaves and responds to forces and energy. For example, hardness is a physical property.
pure		A single substance, with a fixed composition, that does not have anything else mixed with it.

SC2b Filtration and crystallisation

Word	Pronunciation	Meaning
crystallisation		Separating the solute from a solution by evaporating the solvent.
filtrate		Solution passing through a filter.
filtration		Using a filter to separate insoluble substances from a liquid.
hazard		Something that could cause harm.
insoluble	*in-**sol**-you-bul*	Describes a substance that cannot be dissolved in a certain liquid.
residue		Material remaining in the filter after mixture has passed through it.
risk		The chance of a hazard causing harm.
risk assessment		Identification of the hazards of doing an experiment.
saturated solution		Contains the maximum amount of solute that can dissolve in that amount of solvent at that temperature.
solute		Substance that dissolves in a liquid to make a solution.
solution		Formed when a substance has dissolved in a liquid.
solvent		The liquid in which a solute dissolves to make a solution.

Science

SC2c Paper chromatography

Word	Pronunciation	Meaning
chromatography	*krow-ma-**tog**-raff-ee*	A technique for separating the components of a mixture – for example different food colouring agents.
paper chromatography	*krow-ma-**tog**-raff-ee*	Chromatography carried out by spotting drops of the samples onto paper, and then allowing a solvent to move up the paper. Different components in the samples travel up the paper in the solvent at different rates.
stationary phase	***stay**-shun-air-ee*	The surface through which the solvent and dissolved substances move in chromatography.
mobile phase		In paper chromatography, the solvent that moves along the paper carrying the dissolved samples with it.
chromatogram	*krow-**mat**-tog-ram*	The piece of paper showing the results of carrying out chromatography on substances.
R_f value		The ratio of the distance travelled by the solute on a chromatogram (measured from the centre of the spot) to the distance travelled by the solvent under the same conditions. The values for different substances can be used to identify them.

SC2d Distillation

Word	Pronunciation	Meaning
condense		When a gas turns into a liquid.
distillation	*dis-till-**ay**-shun*	The process of separating a liquid from a mixture by evaporating the liquid and then condensing it (so that it can be collected).
evaporate		
fractional distillation	***frak**-shon-al dis-till-**ay**-shun*	A method of separating a mixture of liquids with different boiling points into individual components (fractions).
mixture		Two or more substances jumbled together but not joined to each other. The substances in mixtures can often be separated from each other.
still		The apparatus used to carry out distillation or fractional distillation

SC2e Drinking water

Word	Pronunciation	Meaning
aquifer	***ack**-wi-fer*	Underground layer of rock containing groundwater, which can be extracted using a well or pump.
chemical analysis	***kem**-ik-al*	Using chemical reactions or sensitive machines to identify and measure substances in a sample.
chlorination	*klor-in-**ay**-shun*	The process of adding chlorine to a substance, often to water.

Science

Word	Pronunciation	Meaning
desalination	*dee-sal-in-**ay**-shun*	Produces fresh drinking water by separating the water from the salts in salty water.
precipitate		Insoluble substance formed when two soluble substances react together.
sedimentation		The process in which rock grains and insoluble substances sink to the bottom of a liquid.
simple distillation	*dis-till-**ay**-shun*	The process of separating a liquid from a mixture by evaporating the liquid and then condensing it (so that it can be collected).

Science

SC3a Structure of an atom

Word	Pronunciation	Meaning
atom		Atoms are small particles from which all substances are made. They are the smallest neutral part of an element that can take part in chemical reactions.
electron		Tiny particle with a negative charge that is found in shells around the nucleus of an atom.
electron shell		Area around a nucleus that can be occupied by electrons, usually drawn as a circle (in 'target diagrams'). Also called an electron energy level or an 'orbit'.
element		A simple substance made up of only one type of atom.
neutron		Electrically neutral subatomic particle found in the nucleus of most atoms.
nucleus		The positively charged centre of an atom.
proton		A positively charge subatomic particle in the nucleus of all atoms.
relative charge		The electric charge of a subatomic particle compared to the charge on a proton.
relative mass		The mass of a subatomic particle compared to the mass of a proton.
subatomic particles		The smaller particles that make up atoms – protons, neutrons and electrons.

SC3b Atomic number and mass number

Word	Pronunciation	Meaning
atomic number		The number of protons in the nucleus of an atom (symbol *Z*). Also known as the proton number.
mass number		The total number of protons and neutrons in the nucleus of an atom (symbol *A*). Also known as the nucleon number.
periodic table		Chart in which the elements are arranged in order of increasing atomic number.

SC3c Isotopes

Word	Pronunciation	Meaning
A_r		Symbol for relative atomic mass (RAM).
isotopes		Atoms of an element with the same number of protons (atomic number) but different mass numbers due to different numbers of neutrons.
mean		An average calculated by adding up the values of a set of measurements and dividing by the number of measurements in the set.
nuclear fission		The reaction in which the nucleus of a large atom, such as uranium, splits into two smaller nuclei.
relative atomic mass (RAM)		The mean mass of an atom relative to the mass of an atom of carbon-12, which is assigned a mass of 12. The RAM of an element is the mean relative mass of the isotopes in the element.

Science

SC4a Elements and the periodic table

Word	Pronunciation	Meaning
chemical property	***kem**-ik-al*	How a substance reacts with other substances.
periodic table		An ordered list of all known elements.
physical property	*fi-**zi**-kal*	A description of how a material behaves and responds to forces and energy. Hardness is a physical property.
prediction	*pred-**ik**-shun*	What you think will happen in an experiment and why you think this.
relative atomic mass, A_r		The mean mass of an atom relative to the mass of one-twelfth of an atom of carbon-12, which is assigned a mass of 12. The A_r of an element is the mean relative mass of the isotopes in the element.

SC4b Atomic number and the periodic table

Word	Pronunciation	Meaning
atomic number		The number of protons in the nucleus of an atom (symbol Z). Also known as the proton number.
group		A vertical column of elements in the periodic table. Elements in the same group generally have similar properties.
inert		Does not react.
period		A horizontal row in the periodic table.
relative atomic mass		The mean mass of an atom compared to $1/12^{th}$ the mass of an atom of carbon-12. (One atom of carbon-12 has been assigned a mass of 12.)
X-ray		Electromagnetic radiation that has a shorter wavelength than UV but longer than gamma rays.

SC4c Electronic configurations and the periodic table

Word	Pronunciation	Meaning
electron		Tiny particle with a negative charge that is found in shells around the nucleus of an atom.
electron shell		Areas around a nucleus that can be occupied by electrons, usually drawn as circles. Also called an electron energy level.
electronic configuration		The arrangement of electrons in shells around the nucleus of an atom.

Science

SP1a Vectors and scalars

Word	Pronunciation	Meaning
acceleration	*ack-**sell**-er-ay-shun*	A measure of how quickly the velocity of something is changing. It can be positive if the object is speeding up or negative if it is slowing down. Acceleration is a vector quantity.
displacement		The distance travelled in a particular direction. Displacement is a vector, distance is not.
distance		How far something has travelled. Distance is a scalar, and has no direction.
force		At the simplest level a force is a push, pull or twist. Forces acting on an object can cause it to accelerate. Force is a vector quantity.
magnitude	***mag**-nee-tyood*	The size of something, such as the size of a force or the measurement of a distance.
mass		A measure of the amount of material that there is in an object. Mass is a scalar quantity.
momentum	*mO-**men**-tum*	A measure of motion, mass multiplied by velocity. Momentum is a vector quantity.
scalar quantity	***skay**-lar*	A quantity that has a magnitude (size) but not a direction. Examples include mass, distance, energy and speed.
speed		A measure of the distance an object travels in a given time. Usually measured in metres per second (m/s). It is a scalar quantity.
vector quantity		A quantity that has both a size and a direction. Examples include force, velocity, displacement, momentum and acceleration.
velocity		The speed of an object in a particular direction. Usually measured in metres per second (m/s). Velocity is a vector, speed is not.
weight		The force pulling an object downwards, it depends upon the mass of the object and the gravitational field strength. Weight is a vector.

SP1b Distance/time graphs

Word	Pronunciation	Meaning
average speed		The speed worked out from the total distance travelled divided by the total time taken for a journey. speed = distance travelled /time
distance/time graph		A graph of the distance travelled against time for a moving object. The gradient of a line on a distance/time graph gives the speed.
instantaneous speed		The speed at one particular moment in a journey.
gradient		A way of describing the steepness of a line on a graph in numbers. It is calculated by taking the vertical distance between two points and dividing by the horizontal distance between the same two points.

Science

SP1c Acceleration

Word	Pronunciation	Meaning
deceleration	*dee-**sell**-er-ay-shun*	When an object is slowing down.

SP1d Velocity/time graphs

Word	Pronunciation	Meaning
velocity/time graph		A graph of velocity against time for a moving object. The gradient of a line on the graph gives the acceleration and the area under the graph gives the distance travelled.