Wadham School

A Church of England Community School

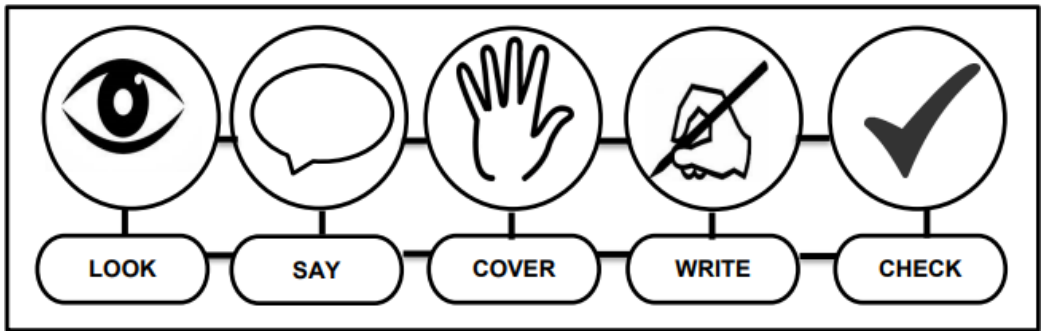
Knowledge Organisers
Year 8
Term 3 & 4
2025-2026

Name.....

Tutor group.....

"Life in all its fullness" John 10:10

Using Your Knowledge Organiser



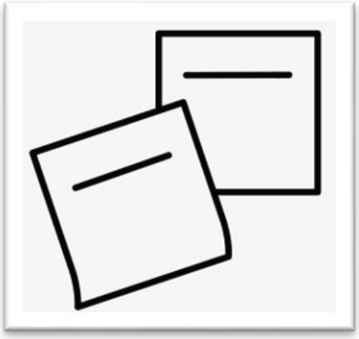
Look-Say-Cover-Write-Check

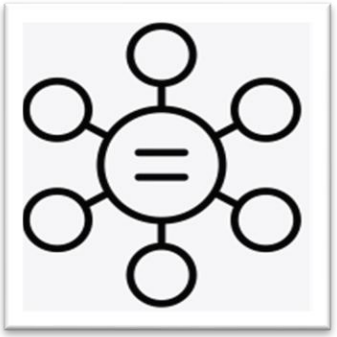
Retrieval practice using the look-say-cover-write-check technique, when done in regular small chunks, is one of the best ways you can learn relevant knowledge over time.

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	**Self Quizzing**	**Mind maps**
Make flast cards with the definition on one side and key word on the other.	Write quizzes with answers to test yourself in the future.	Create mind maps linking key information you need to remember.





LIBRARY INFORMATION

Library Reward Card

For terms 3 and 4 receive a stamp every time you read a book from the library. Prizes to be earned along the way. See posters in the library for more details.

DON'T FORGET

Friday lunchtime is LEGO club in the library

IF YOU LOOSE A BOOK, DON'T PANIC! IT CAN BE REPLACED WITH ANOTHER BOOK OR WITH A SMALL CHARGE.

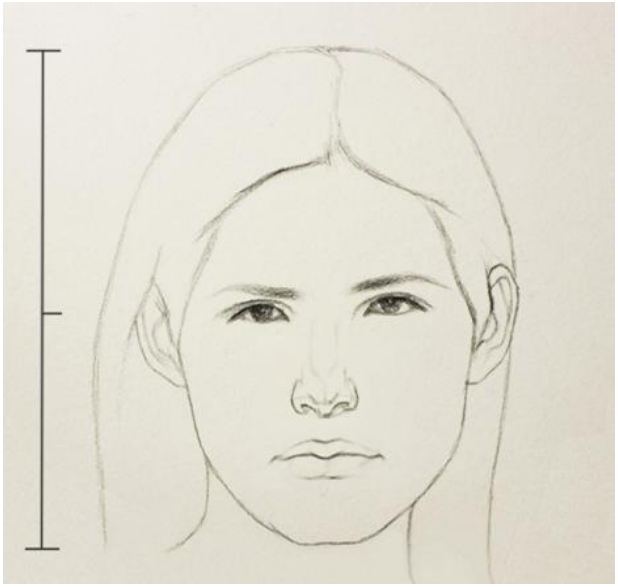
DID YOU KNOW THE LIBRARY CATALOGUE CAN BE FOUND ONLINE? THERE IS A LINK ON ALL SCHOOL COMPUTERS AND ON TEAMS. (THE LOG IN IS THE SAME AS YOUR SCHOOL EMAIL AND PASSWORD)

THE LIBRARY IS OPEN TO ALL.
IT IS A SAFE SPACE WHERE YOU WILL ALWAYS FIND AN ADULT AT BREAK OR LUNCH.
THERE ARE TABLETS IN THE LIBRARY THAT CAN BE USED FOR COMPLETION OF HOMEWORK, PLEASE ASK MRS GEORGE FOR ACCESS.

ART

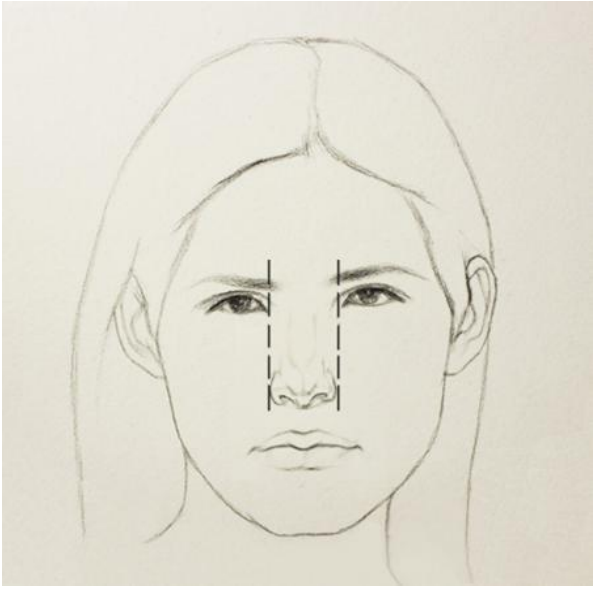
Rules of Portraiture

Although the proportions of a head will vary from person to person and change slightly with age, there are some basic principles you can follow to improve your drawing.
Portraiture involves a bit of Maths. Maths in art? Yes, faces can be divided into areas that are proportionate to the rest of the other parts.
You can use these to check the general size, shape and position of features in your drawings.



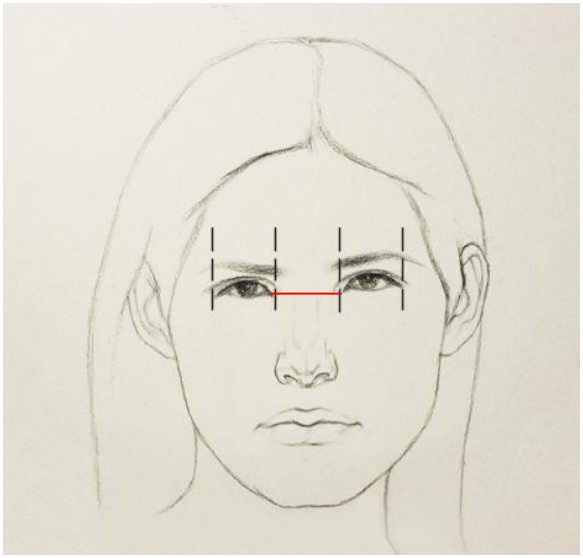
1. **The eyes are halfway down the head.**
   Many artists' start with the eyes, as they are the focal point of any face.

2. The edges of the nostrils line up with the tear ducts of the eyes.
If you look in the mirror, you can trace the eye to your nose (you might need to close one eye to see this clearly)

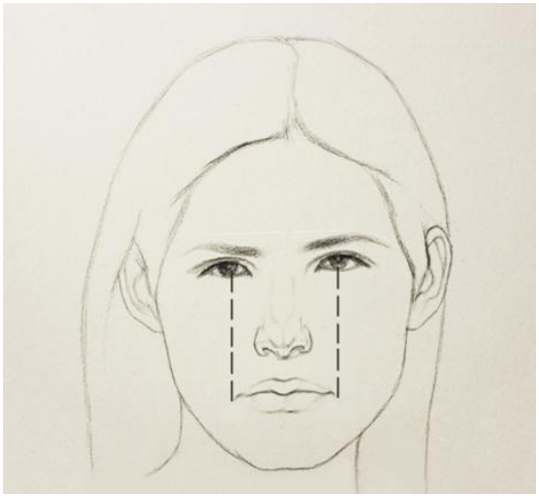


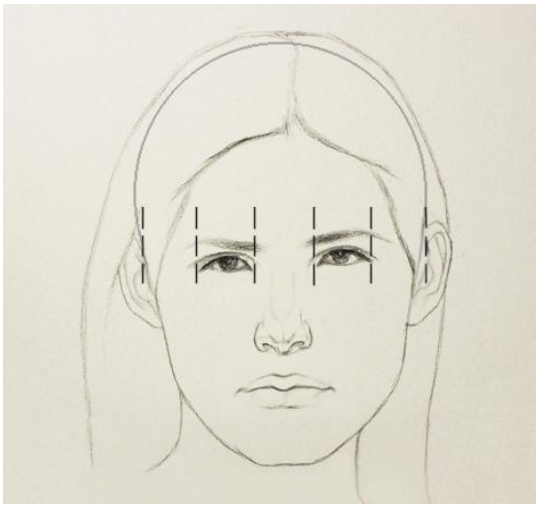
ART

Rules of Portraiture



3. The space between the eyes is about the same as the width of an eye
This can vary and does depend very much on the person.
For young children this distance is a bit wider than for adults.





4. The corners of the mouth line up with the pupils of the eyes.

5. The head is about five eyes wide.
This one can be tricky because the shape of the head is often obscured by hair.
Visualising a "headband" similar to the one drawn in the image (above right) can be helpful in finding the shape of the head.

Use a mirror, take a good look at your face and look at the 5 basic proportions.
You could also analyse the face of a friend or family member.

Beliefs and World Views

Beliefs and Worldviews – Year 8 Term 3 & 4

Topic 2: Christian Beliefs and Practices

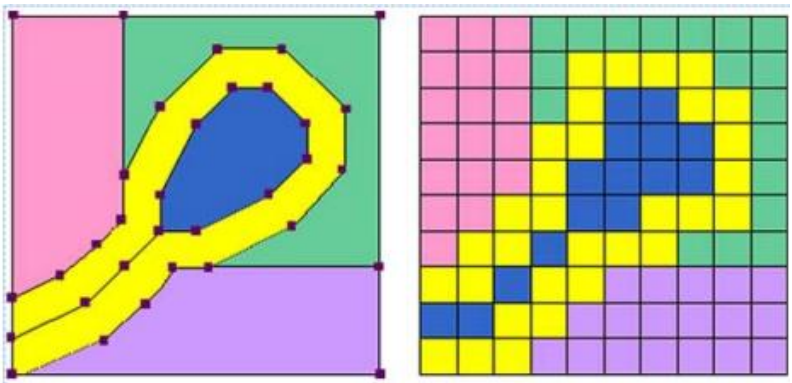
1	1	**Trinity**	One God in three persons: Father, Son & Holy Spirit
	2	**Father**	The creator aspect of God in heaven
	3	**Son**	Jesus the Incarnation of God on earth
	4	**Holy Spirit**	The person of God that connects to Christians through prayer
2	5	**Denomination**	Different group within Christianity
	6	**Interpretation**	Different way of reading & understanding the Bible
	7	**Roman Catholic**	Conservative denomination led by the Pope
	8	**Protestant**	Moderate denominations including Church of England
	9	**Quaker**	Liberal denomination with modern views
3	10	**Immanent**	Close to humans: Part of Space & Time
	11	**Worship**	Celebrating faith and expressing adoration for God
	12	**Liturgical**	Worship that follows a set structure
	13	**Charismatic**	Worship that is free and improvised
	14	**Eucharist**	Act of worship: sharing bread and wine in memory of Jesus
4	15	**Atonement**	Healing of the rift between God and humans
	16	**Salvation**	Being saved from the effects of sin and eath
	16	**Baptism**	Initiation into the church - symbolises cleansing of sin
5	17	**Revelation**	God showing himself & his plan to humans
	18	**Church**	Global Christian family – all believers worldwide
	19	**Evangelism**	Sharing the faith with the intention of converting others
	20	**Mission**	Serving the poor motivated by faith
6	21	**Lent**	Time or preparation for Easter – Give up something pleasurable
	22	**Advent**	Time of preparation for Christmas
	23	**Pentecost**	Commemorates the decent of the Holy Spirit

Topic 3: Islam Beliefs and Practices

1	1	**Islam**	Arabic Religion – World's second largest, around 2 billion followers
	2	**Muslim**	Follower of the Religion of Islam
	3	**Allah**	'God' in Arabic. Often used to refer to Islamic concept of God
	4	**Tawhid**	Belief in One God
	5	**Shirk**	Dividing God into smaller parts
	6	**Mohammed**	Most important prophet in Islam. 'Seal' of the prophets
2	7	**Shahadah**	Declaration of Faith – Statement spoken to become a Muslim
	8	**Salah**	Five times Daily prayer
	9	**Ra'ka**	Ritual movements before prayer used to develop positive intention.
	10	**Wu'du**	Ritual cleansing before prayer to symbolises purity before Allah
3	11	**Zakat**	Obligatory giving of 2.5% of wealth to charity
	12	**Khums**	Voluntary giving of an extra 20%
4	13	**Hajj**	Pilgrimage to Mecca – At least once in a Muslim's life
	14	**Mecca**	Holy City in Saudi Arabia – Location of the Ka'ba
	15	**Ka'ba**	Building dedicated to Allah by Mohammed
	16	**Pilgrimage**	Sacred journey to a special place of religious interest
5	17	**Sawm**	Ritual fasting to prove dedication to God
	18	**Fast**	Not eating food between sunrise and sunset
	19	**Ramadan**	Month of fasting
6	20	**Eid-up-Fitr**	Breaking of Fast – Feast and celebration at the end of Ramadan
	21	**Eid-ul-Adha**	Festival of Sacrifice – Remembers Abrahams willingness to sacrifice Isaac

Computing

Key words for Vector Graphics	
Vector Graphics	A computer made image that is made up of points, lines and curves based upon mathematical equations
Raster Graphics	A detailed image created with pixels
Pixel	A tiny square of colour
Logo	A symbol that is sued to represent an organisation or product
Union	An operation used to combine two or more paths to create a single path
Intersection	An operation use to create a single path from the overlapping portion of two paths
Scalable	When an object or image is able to be made bigger or smaller
Path	A line or a shape used to create vector graphics
SVG	Scalable Vector Graphic



Vector	Raster
Made up with paths	Made up with pixels
Simple images	Detailed/complex images
Maintains image quality when scaled	Loses image quality when scaled
Used for logos, icons and illustrations	Used for real photos

Year 8 Design and Technology

	Keyword	Key information
1	Fibre	Fibres are hair like strands that are natural or synthetic.
2	Natural Fibres	Natural fibres come from plant, animal or insect sources.
3	Synthetic Fibres	Synthetic fibres are man-made.
4	Yarn	Fibres are spun to create long threads called yarns.
5	Fabric	Fabric is produced by yarns which are knitted or woven together.
6	Stencil	A thin piece of material that has a design cut away from it.
7	Craft Knife	A very sharp knife used to cut paper and cardboard.
8	Iron	A handheld electrical item used to smooth the creases in fabric.
9	Cutting Mat	Protects the surface below the material from been damaged.
10	Marimekko	A Finnish textiles company founded in 1951.
11	Surface Design	The art that is applied to surfaces, such as fabric, wallpaper, home décor and clothes.
12	Pattern	A repeated decorative design.
13	Placement	The location of a design on an item.
14	Motif	A significant icon or recurring idea in a design.
15	Block repeat	The motif is repeated in a basic grid design.
16	Half drop repeat	The vertical repeat drops exactly half of the original motif.
17	Brick repeat	The horizontal repeat moves across exactly half of the original motif, like the bricks on a house.
18	Random repeat	Motifs are placed randomly and have no particular arrangement.
19	Embellishment	Decorative detail which is added for a more interesting aesthetic appeal. Sequins are an example of an embellishment.
20	Embroidery	Using stitches to form a decorative design.
21	Smart Materials	Materials that change in response to an external condition such as temperature or light.
22	Thermochromic Ink	An example of a smart material. The colour of this ink changes when the temperature is increased or decreased.

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

BACKSTAGE

UP STAGE RIGHT USR	UPSTAGE US	UP STAGE LEFT USL
STAGE RIGHT SR	CENTER STAGE US	STAGE LEFT SL
DOWN STAGE RIGHT DSR	DOWNSTAGE DS	DOWN STAGE LEFT DSL

AUDIENCE (HOUSE)

HOUSE LEFT HOUSE RIGHT

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.

Much Ado About Nothing

Key words	Definition
Sonnet	A type of love poem with 14 lines.
Hierarchy	A system where people are ranked according to status or authority
Destiny /fate	the development of events outside a person's control, regarded as predetermined by a supernatural power:
Prologue	A separate section at the beginning of a play that introduces themes, ideas and plot
Pathos	creating a feeling of pity, sympathy or sadness.
Tension	a state of stress, strain or expectation of something happening.
Soliloquy	A speech in a play delivered only for the audience to hear.
Comedy	a play with a happy ending, and other features like love, and mistaken identity.
Conflict	Serious disagreement or argument, usually long-running
Patriarchy	A male dominated society.

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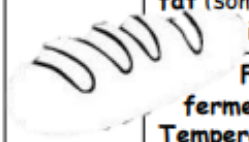
Conflict Poetry

Key words	Definition
Myth	A story that often explains an idea in a culture.
Legend	A story often about a famous figure in a culture.
Romantic poets	A group of poets who were interested in nature.
Propaganda	Promotion of war.
Patriotism	Love of your country.
Satire	Undermining, mocking or ridiculing people in power.
Remembrance	Considering the past and in particular those who lost their lives in war.
Conflict	A disagreement or violence like war.

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

4	Dietary needs	Nutritional needs vary depending on: **life stages** – pregnancy, infancy and childhood, adolescence, adulthood, later adulthood; **medical conditions** – diabetes (type 1 or 2), anaemia, lactose intolerance, coeliac disease; **culture** – religious beliefs, vegans/vegetarians, lifestyle choices **Adolescence** – a time of rapid growth and development, the requirements for **calcium** and **phosphorus** is fairly high. Boys need more protein and energy than girls for growth. Girls need more iron than boys to replace menstrual losses. Too little iron can lead to iron deficiency anaemia. Girls need more iron than boys to replace menstrual losses – 14.8mg p/day.
	School food plan	Standards for all food served in schools. A wide range of foods across the week must include: plenty of fruit and vegetables • plenty of unrefined starchy foods • some meat, fish, eggs, beans and other non-dairy sources of protein • some milk and dairy foods • a small amount of food and drink high in fat, sugar and salt
5	Carbo-hydrates   	**Carbohydrates** provides energy for the body. Too much can lead to obesity, **FRUIT SUGARS** (glucose) (simple carbohydrate) found naturally in the cell walls of fruit or vegetables. **FREE SUGARS** (added to food) table sugar, jam, confectionary, honey, syrups, unsweetened fruit juice. Too much sugar can lead to tooth decay **STARCH** (complex carbohydrate) made up of many sugar molecules (potatoes, rice, pasta, bread) **DIETARY FIBRE** – complex carbohydrate found in the cell walls of plants; Fruits, vegetables, cereals (wholegrains) beans; lentils; nuts, seeds. Keeps the digestive system healthy. Can reduce the chance of getting heart disease and type 2 diabetes. Recommendations – 30g adult per day.
6	Function of bread ingredients: 	**Dough-** mixture of dry ingredients that is mixed, kneaded and baked **Flour** (Gluten is a protein found in the wheat). Helps create the structure, softness and strength of the dough **yeast** Yeast is a biological raising agent, a single celled fungus plant the raising agent used in bread, doughnuts and currant buns **salt** (to add taste and aid proving); **prove** (leaving dough to rise) **water** (assists with fermentation - producing Co2 + alcohol and helping dough to rise. **fat** (sometimes added to make the loaf lighter and airier and extend its shelf life);
		Fermentation – The yeast uses the flour, sugar and water to **ferment**, and to produce carbon dioxide and alcohol **Temperature / moisture** - makes sure it is a soft dough. Use tepid/warm/blood heat liquid (37°C). Liquid is usually water but could be milk, water and milk mix, other liquids. Bread dough needs **time** to rise in first instance, yeast has to have time to grow, double in size. After shaping prove bread (another rising) before it goes into oven, it will almost double again. **Warm conditions** allow yeast to grow, carbon dioxide produced and bread rises slowly. Baking – in hot oven 220°C, yeast grows rapidly so bread rises rapidly. Yeast is killed by high temperature. Dough sets in the risen state.

Year 8 French Term 3: Vive les vacances (1)!

Les pays	*Countries*
1. la France	*France*
2. la Belgique	*Belgium*
3. la Suisse	*Switzerland*
4. l'Angleterre	*England*
5. l'Écosse	*Scotland*
6. l'Italie	*Italy*
7. l'Espagne	*Spain*
8. l'Allemagne	*Germany*
9. le Pays de Galles	*Wales*
10. l'Irlande	*Ireland*
11. le Portugal	*Portugal*
12. la Pologne	*Poland*
13. l'Ukraine	*Ukraine*
14. la Hongarie	*Hungary*

En vacances	*On holiday*
15. J'ai une semaine de vacances.	*I have a week of holiday.*
16. C'est pour Noël.	*It's for Christmas.*
17. C'est pour Pâques.	*It's for Easter.*
18. C'est pour les grandes vacances.	*It's for the summer holidays.*
19. C'est en octobre.	*It's in October.*
20. Je suis en vacances…	*I am on holiday…*
21. au bord de la mer	*at the seaside*
22. à la montagne	*in the mountains*
23. à la campagne	*in the countryside*
24. en colonie de vacances	*at a holiday camp*
25. chez mes grand—parents	*at my grandparents' home*

Phonics Focus:	
silent final consonant ***trois***	**[a] = /a/** ***avion***
[u] = /oo/ ***salut***	**[on] [en] [an] = /on/** ***serpent***
[é] [er] [ez] = /ay/ ***vélo***	**[in] [un] = /euhn/** ***numéo un***

Les opinions	*Opinions*
26. C'est…	*It's…*
27. amusant	*fun*
28. ennuyeux	*boring*
29. intéressant	*interesting*
30. sympa	*nice*
31. nul	*rubbish*
32. un peu	*a bit*
33. assez	*quite*
34. très	*Very*
35. complètement	*completely*
36. C'est comment?	*What is it like?*

J'ai visité…	*I visited…*
37. le château	*the castle*
38. le lac	*the lake*
39. le musée	*the museum*
40. le parc	*the park*
41. le stade	*the stadium*
42. la cathédrale	*the cathedral*
43. la mosquée	*the mosque*
44. la chocolaterie	*the chocolate shop*
45. d'abord	*first of all*
46. ensuite	*next*
47. puis	*then*
48. après	*after*
49. finalement	*finally*

Vital verb: *visiter (to visit)*	
Present:	**Perfect (past):**
*Je visit**e***	*J'**ai** visit**é***
*Tu visit**es***	*Tu **as** visit**é***
*Il/elle/on visit**e***	*Il/elle/on **a** visit**é***
*Nous visit**ons***	*Nous **avons** visit**é***
*Vous visit**ez***	*Vous **avez** visit**é***
*Ils/elles visit**ent***	*Ils/elles **ont** visit**é***

Year 8 French Term 4: Vive les vacances (2)!

Qu'est-ce que tu as fait?	*What did you do?*
1. J'ai joué au tennis.	*I played tennis.*
2. J'ai joué au foot.	*I played football.*
3. J'ai mangé des glaces.	*I ate ice creams.*
4. J'ai mangé une pizza.	*I ate pizza.*
5. J'ai écouté de la musique.	*I listened to music.*
6. J'ai acheté des baskets.	*I bought some trainers.*
7. J'ai acheté un tee-shirt.	*I bought a t-shirt.*
8. J'ai acheté des BD.	*I bought some comics.*
9. J'ai regardé des clips vidéo.	*I watched video clips.*
10. J'ai nagé dans la mer.	*I swam in the sea.*
11. J'ai retrouvé Léo.	*I met up with Leo.*
12. J'ai traîné au lit.	*I hung around in bed.*
13. J'ai dormi.	*I slept.*
14. J'ai visité un parc d'attractions.	*I visited a theme park.*
15. J'ai bu un coca.	*I drank a cola.*
16. J'ai vu un spectacle.	*I saw a show.*
17. J'ai vu mes personnages préférés.	*I saw my favourite characters.*
18. J'ai fait une balade en bateau.	*I went on a boat ride.*
19. J'ai fait les manèges.	*I went on the rides.*
20. J'ai pris des photos.	*I took photos.*
21. Je n'ai pas mangé de glaces.	*I didn't eat any ice cream.*
22. Je n'ai pas acheté de souvenirs.	*I didn't buy any souvenirs.*
23. C'était…	*It was…*

Phonics Focus:	
silent final consonant ***trois***	**[a] = /a/** ***avion***
[u] = /oo/ ***salut***	**[on] [en] [an] = /on/** ***serpent***
[é] [er] [ez] = /ay/ ***vélo***	**[in] [un] = /euhn/** ***numéo un***

Le transport	*Transports*
24. J'ai voyagé…	*I travelled…*
25. en avion	*by plane*
26. en bateau	*by boat*
27. en car	*by coach*
28. en train	*by train*
29. en voiture	*by car*
30. C'était…	*It was*
31. confortable	*comfortable*
32. rapide	*quick*
33. pratique	*practical*
34. bon marché	*cheap*
35. lent	*slow*
36. cher	*expensive*

Tu es allé(e) où?	*Where did you go?*
37. Je suis allé(e) en Espagne.	*I went to Spain.*
38. Je suis allé(e) en Grèce.	*I went to Greece.*
39. Je suis allé(e) au Maroc.	*I went to Morocco.*
40. Je suis allé(e) aux État—Unis.	*I went to the USA.*
41. avec ma famille/mes amis.	*with my family/friends.*

Le temps	*Weather*
42. Il faisait beau/mauvais.	*It was good/bad weather.*
43. Il faisait chaud/froid.	*It was hot/cold.*
44. Il y avait du soleil/vent.	*It was sunny/windy.*
45. Il pleuvait/neigait.	*It rained/snowed.*

Vital verb: *aller (to go)*	
Present:	**Perfect (past):**
Je ***vais***	*Je* ***suis*** *allé(e)*
Tu ***vas***	*Tu* ***es*** *allé(e)*
Il/elle/on ***va***	*Il/elle/on* ***est*** *allé(e)*
*Nous all****ons***	*Nous* ***sommes*** *allé(e)s*
*Vous all****ez***	*Vous* ***êtes*** *allé(e)*
Ils/elles ***vont***	*Ils/elles* ***sont*** *allé(e)s*

Geography

Topic

Development

Development categories. Measuring development using data.
Opportunities and barriers for development.
Issues and challenges for developing countries.
Focus on Brazil.

Key Words

Development
The progress of a country in terms of economic growth, the use of technology and human welfare.

Development gap
The difference in standards of living and wellbeing between the world's richest and poorest countries (between HICs and LICs).

Gross national income (GNI)
A measurement of economic activity that is calculated by dividing the gross (total) national income by the size of the population. GNI takes into account not just the value of goods and services, but also the income earned from investments overseas.

Human Development Index (HDI)
A method of measuring development in which GDP per capita, life expectancy and adult literacy are combined to give an overview. This combined measure of development uses economic and social indicators to produce an index figure that allows comparison between countries.

International aid
Money, goods and services given by the government of one country or a multilateral institution such as the World Bank or International Monetary Fund to help the quality of life and economy of another country.

Life expectancy
The average number of years a person might be expected to live.

Literacy rate
The percentage of people who have basic reading and writing skills.

Squatter settlement
An area of poor-quality housing, lacking in amenities such as water supply, sewerage and electricity, which often develops spontaneously and illegally in a city in an LIC.

Year 8 German Term 3: Ich liebe Ferien (1)!

Früher und Heute	*Then and today*
1. Die Stadt ist/war…	*The town is/was…*
2. alt/modern	*old/modern*
3. klein/groß	*small/big*
4. schön/industriell	*beautiful/industrial*
5. laut/ruhig	*loud/quiet*
6. Die Stadt hat/hatte…	*The town has/had…*
7. Es gibt/gab…	*There is/are…*
8. einen Strand	*a beach*
9. einen Marktplatz	*a town square*
10. einen Hafen	*a harbour*
11. eine Arena	*an arena*
12. eine Skatehalle	*a skate hall*
13. ein Einkaufszentrum	*a shopping centre*
14. ein Stadion	*a stadium*

Länder	*Countries*
15. Deutschland	*Germany*
16. Belgian	*Belgium*
17. die Schweiz	*Switzerland*
18. England	*England*
19. Schottland	*Scotland*
20. Italien	*Italy*
21. Spanien	*Spain*
22. Frankreich	*France*
23. Wales	*Wales*
24. Irland	*Ireland*
25. Portugal	*Portugal*
26. Polen	*Poland*
27. Ukraine	*Ukraine*
28. Ungarn	*Hungary*

Phonics Focus:	
[w] = /v/	[ch] = /k + ch/
Wildwassersport	***Buch (hard) / ich (soft)***
unvoiced [b]	unvoiced [d]
halb	***kind***

Wo hast du gewohnt?	*Where did you stay?*
29. Ich habe…gewohnt.	*I stayed…*
30. in einem Hotel	*in a hotel*
31. in einem Ferienhaus	*in a holiday house*
32. in einem Wohnwagen	*in a caravan*
33. in einer Jugenherberge	*in a youth hostel*
34. auf einem Campingplatz	*on a campsite*
35. bei Freunden	*with friends*

Was hast du gemacht?	*What did you do?*
36. Ich habe viele Sachen gemacht.	*I did a lot of things.*
37. Ich habe…/Wir haben…	*I/we…*
38. …Musik gehört.	*…listened to music.*
39. …Volleyball gespielt.	*…played volleyball.*
40. …einen Bootsausflug gemacht.	*…did a boat trip.*
41. …viele Souvenirs gekauft.	*…bought lots of souvenirs.*
42. …viel Fisch gegessen.	*…ate lots of fish.*
43. …die Kirche gesehen.	*…saw the church.*
44. …ein Buch gelesen.	*…read a book.*
45. Ich bin zu Hause geblieben.	*I stayed at home.*

Vital verb: ***wohnen (to live/stay)***	
Präsens (present)	***Perfekt (past)***
*Ich wohn**e***	*Ich **habe…gewohnt.***
*Du wohn**st***	*Du **hast…gewohnt.***
*Er/sie wohn**t***	*Er/sie **hat…gewohnt.***
*Wir wohn**en***	*Wir **haben…gewohnt.***
*Sie/sie wohn**en***	*Sie/sie **haben…gewohnt.***

Year 8 German Term 4: Ich liebe Ferien (2)!

Was hast du gemacht?	*What did you do?*
1. Ich habe viele Sachen gemacht.	*I did a lot of things.*
2. Ich habe.../Wir haben…	*I/We…*
3. Musik gehört.	*listened to music.*
4. Volleyball gespielt.	*played volleyball.*
5. einen Bootsausflug gemacht.	*did a boat trip.*
6. viele Souvenirs gekauft.	*bought lots of souvenirs.*
7. viel Fisch gegessen.	*ate lots of fish.*
8. die Kirche gesehen.	*saw the church.*
9. ein Buch gelesen.	*read a book.*
10. Ich bin zu Hause geblieben.	*I stayed at home.*

Was hast du sonst gemacht?	*What else did you do?*
11. Ich bin…gegangen.	*I went…*
12. an den Strand	*to the beach*
13. in die Stadt	*into town*
14. windsurfen	*windsurfing*
15. kitesurfen	*kite surfing*
16. schwimmen	*swimming*
17. Ich bin…gefahren.	*I went…*
18. Wakeboard	*wakeboarding*
19. Snowboard	*snowboarding*
20. Ski	*skiing*
21. Ich habe Snowtubing gemacht.	*I went snowtubing.*
22. Ich habe Eistennis gespielt.	*I played ice tennis.*
23. Es war…	*It was…*

Phonics Focus:	
[j] = /y/ ***jung***	**[z] = /ts/** ***Flugzeug***
[ge] = /guh/ ***gekauft***	**[ß] = /ss/** ***groß***
[ig] = /ik/ ***neblig***	**[sch] = /sh/** ***schneit***

Was hast du gewohnt?	*Where did you stay?*
24. Ich habe…gewohnt.	*I stayed…*
25. in einem Hotel	*I/We…*
26. in einem Ferienhaus	*listened to music.*
27. in einem Wohnwagen	*played volleyball.*
28. in einer Jugendherberge	*did a boat trip.*
29. auf einem Campingplatz	*bought lots of souvenirs.*
30. bei Freunden	*ate lots of fish.*

Wie bist du gefahren?	*How did you get there?*
31. Ich bin…gefahren.	*I travelled…*
32. mit dem Flugzeug	*by plane*
33. mit dem Schiff	*by boat*
34. mit dem Reisebus	*by coach*
35. mit dem Zug	*by train*
36. mit dem Auto	*by car*
37. Ich bin zu Fuß gegangen.	*I walked.*
38. Die Reise war…	*The journey was…*
39. lang/kurz	*long/short*
40. langweilig	*boring*
41. interessant	*interesting*

Das Wetter	*Weather*
42. Es war….	*It was…*
43. sonnig/wolkig	*sunny/cloudy*
44. heiß/kalt	*hot/cold*
45. windig/neblig	*windy/foggy*
46. Es hat geregnet/geschneit.	*It rained/snowed.*

Vital verb: *fahren (to go)*	
Präsens	**Perfekt (past):**
Ich fahre	*Ich bin…gefahren.*
Du fährst	*Du bist…gefahren.*
Er/sie fährt	*Er/sie ist…gefahren.*
Wir fahren	*Wir sind…gefahren.*
Sie/sie fahren	*Sie/sie sind…gefahren.*

History

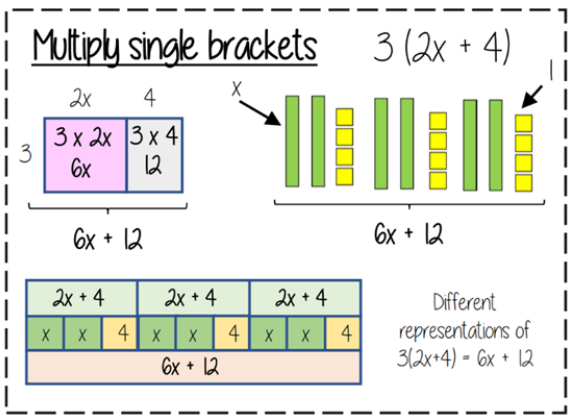
Year 8 History: Knowledge Organiser Term 3 + 4, The Industrial Revolution

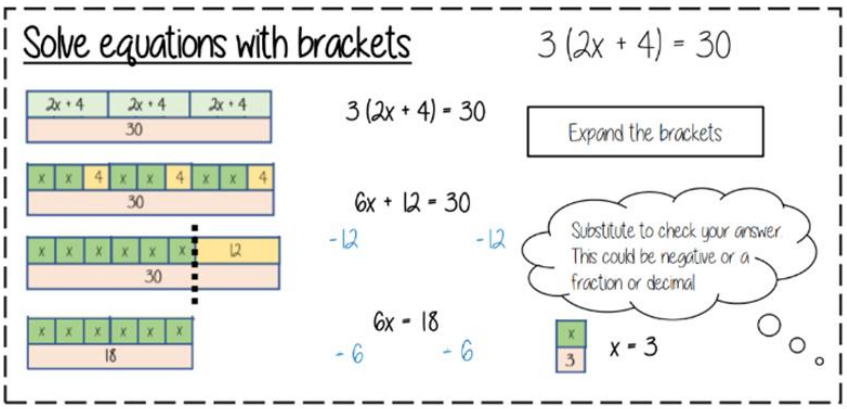
Key Word	Definition
1. Back-to-Back Housing	Name given to houses that had no backs. Two houses stuck together back-to-back.
2. Cholera	A water born disease that killed 1000s, especially the young.
3. Gaol	The Victorian spelling of jail/prison.
4. Hard Labour	When prisoners were forced to carry out physical tasks as punishment e.g. breaking rocks.
5. Industrial Revolution	The period between 1750 -1900 (approx.) where there was a significant rise in factories powered by wheels and engines. The result was increased production and a move from a mainly rural society to an urban one.
6. Larceny	The act of stealing/theft.
7. Midden	The name given to the place where people would put their toilet waste.
8. Miasma	The name given to Bad air (bad smells) believed at the time to cause disease to spread.
9. Overcrowding	When a house has too many (often multiple families) people living in it.
10. Pauper	A poor person with no job.
11. Privy	Old word for toilet
12. Rookery	The poorest area of a town that was full of poverty and crime.
13. Sanitation	Is the system of drains, sewers and water pipes that keep our towns clean. Therefore, poor sanitation means a lack of these things.
14. Separate System	When prisoners were kept on their own. When they were let out, to go to chapel or for exercise, communication was not allowed and often mask had to be worn.
15. Transportation	The process of sending people found guilty of crime to another country, e.g. Australia
16. Tuberculosis (TB)	A killer lung disease in the 19th Century
17. Victorian	The period (1837 – 1901) when Queen Victoria was on the throne.
18. Workhouse	The place all people had to go if they lost their job and could not feed their families.
Jack the Ripper	
19. Leather Apron or Whitechapel Murderer	Common names used for Jack the Ripper at the times of the murders.
20. Peeler or Bobby	Name given to the early police.
21. Scapegoats	Blaming a person/group of people for wrongdoing when it is not their fault.
22. Penny dreadfuls	Cheap newspapers that told **sensationalist** (intended to provoke a reaction from the public) stories, including crime.
23. Serial Killer	A person that kills multiple people – like Jack the Ripper.
24. Suspect	A person that it is believed might have committed a crime.
25. Technology	machinery and equipment developed to help make things easier.
26. Victim	The person who was the target/suffered due to a crime.
27. Watchmen	A person or group employed to look out for, and deter, criminal activity.
28. Whitechapel	An area of East London – where Jack the Ripper committed his crimes.

Maths: 8.07 Brackets, equations & inequalities…..

Key words	
Simplify	grouping and combining similar terms
Substitute	replace a variable with a numerical value Equivalent: something of equal value
Equivalent	something of equal value
Coefficient	a number used to multiply a variable
Product	multiply terms
Highest Common Factor (HCF)	the biggest factor (or number that multiplies to give a term)
Inequality	an inequality compares who values showing if one is greater than, less than or I equal to another

Sparx codes for this topic	
M957	Form expressions
M106	Directed numbers
M792	Multiply single brackets
M100	Factorise into a single bracket
M902	Solve equations with brackets
M118	Simple inequalities
U337	Form and solve inequalities





Maths: 8.08 Sequences…..

Key words	
Sequence	items or numbers put in a pre-decided order Term: a single number or variable
Position	the place something is located
Linear	the difference between terms increases or decreases (+ or -) by a constant value each time
Non-linear	the difference between terms increases or decreases in different amounts, or by x or ÷
Difference	the gap between two terms
Arithmetic	a sequence where the difference between the terms is constant
Geometric	a sequence where each term is found by multiplying the previous one by a fixed nonzero I number

Sparx codes for this topic	
M981	Linear and Non-Linear Sequences
M241	Sequences in a table and graphically
M166	Sequences from algebraic rules
U958	Complex algebra rules
U498	Finding the algebraic rule

Linear and Non Linear Sequences

Linear Sequences – increase by addition or subtraction and the same amount each time

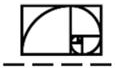
Non-linear Sequences – do not increase by a constant amount – quadratic, geometric and Fibonacci

- Do not plot as straight lines when modelled graphically
- The differences between terms can be found by addition, subtraction, multiplication or division

Fibonacci Sequence – look out for this type of sequence

0 1 1 2 3 5 8 …

Each term is the sum of the previous two terms.



Sequences from algebraic rules

This is substitution!

$3n + 7$

This will be linear - note the single power of n. The values increase at a constant rate

$3n^2 + 7$

This is not linear as there is a power for n

$2n - 5$ → Substitute the number of the term you are looking for in place of 'n'

e.g.

1st term = $2(1) - 5 = -3$

2nd term = $2(2) - 5 = -1$

100th term = $2(100) - 5 = 195$

Checking for a term in a sequence

Form an equation

Is 201 in the sequence $3n - 4$?

$3n - 4 = 201$ ← Term to check

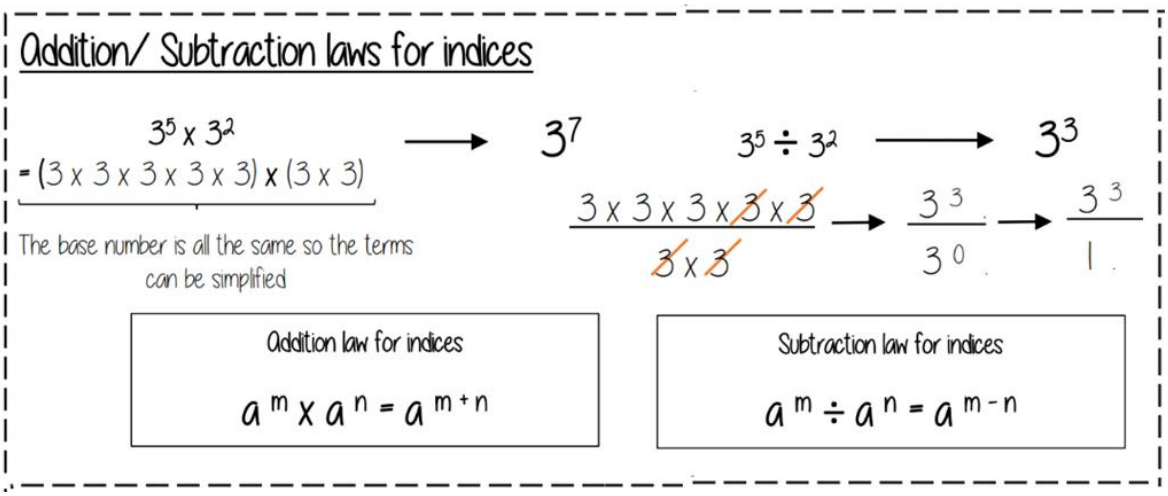
Algebraic rule

Solving this will find the position of the term in the sequence. ONLY an integer solution can be in the sequence.

Maths: 8.09 Indices…..

Key words	
Base	The number that gets multiplied by a power
Power	The exponent — or the number that tells you how many times to use the number in multiplication
Exponent	The power - or the number that tells you how many times to use the number in multiplication
Indices	The power or the exponent
Coefficient	The number used to multiply a variable
Simplify	To reduce a power to its lowest term
Product	Multiply

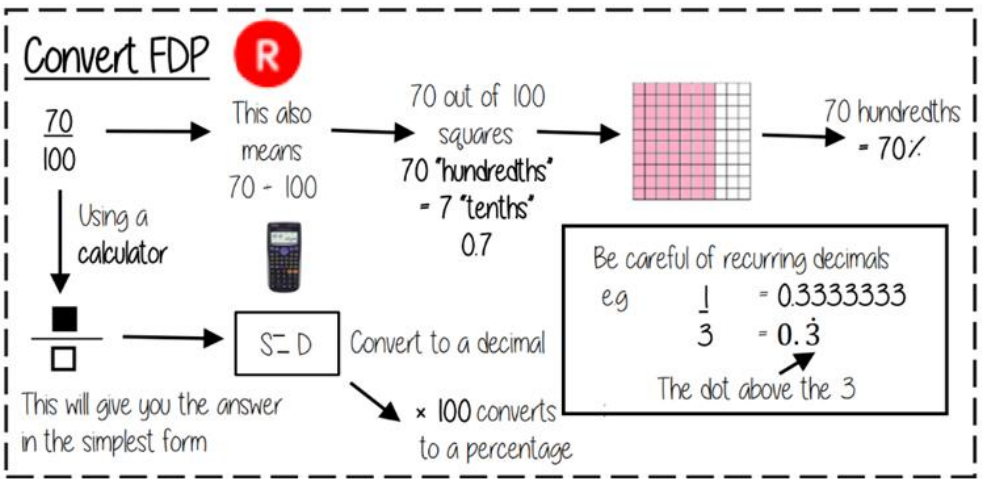
Sparx codes for this topic	
M949	Addition/Subtraction with Indices
M608, M120	Addition/Subtraction laws for indices
M120, U235	Multiply expressions with indices
M120, U235	Divide expressions with indices



Maths: 8.10 Fractions & 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)

Sparx codes for this topic	
M264, M958	Convert FDP
M695, M437	Fraction/Percentage of amount
M695, M437	Convert FDP < and > 100
M533	Percentage increase
M533	Percentage decrease
M958	Express as a % - Non calculator
M235	Express as a % - Calculator
M533	Percentage change



Maths: 8.11 Standard index form.....

Key words	
Standard (index) Form	a system of writing very big or very small numbers
Commutative	an operation is commutative if changing the order does not change the result
Base	The number that gets multiplied by a power
Power	The exponent — or the number that tells you how many times to use the number in multiplication
Exponent	The power - or the number that tells you how many times to use the number in multiplication
Indices	The power or the exponent
Negative	a value below zero

Sparx codes for this topic	
M113	Positive powers of 10
M719	Standard form with numbers > 1
M678	Numbers between 0 and 1
M678	Negative powers of 10
U290	Mental calculations
U290	Addition and subtraction
U264	Multiplication and division
U161	Using a calculator

Standard form with numbers > 1

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

Example

3.2×10^4

$= 3.2 \times 10 \times 10 \times 10 \times 10$

$= 32000$

Non-example

0.8×10^4

5.3×10^{07}

Numbers between 0 and 1

0.054

$= 5.4 \times 10^{-2}$

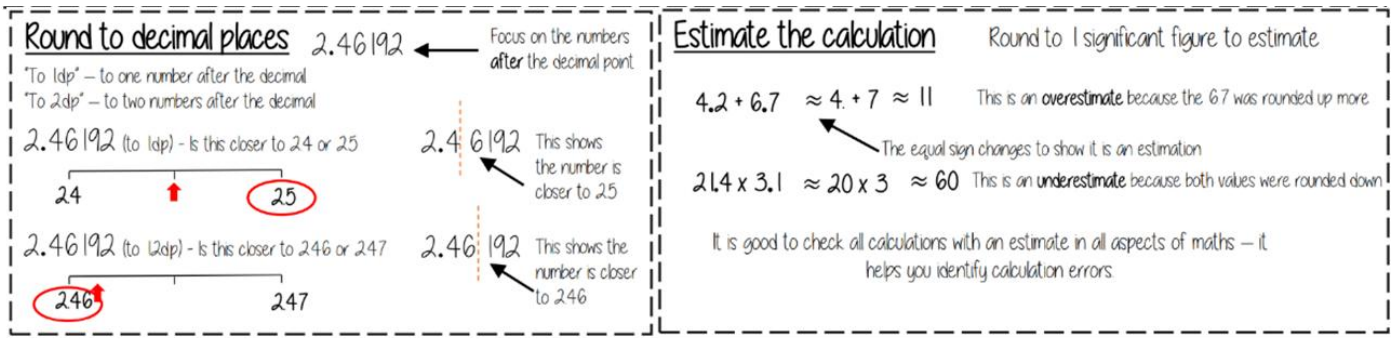
1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
10^0	10^{-1}	10^{-2}	10^{-3}
0	0	5	4

A negative power does not mean a negative answer – it means a number closer to 0

Maths: 8.12 Number sense…..

Key words	
Significant	Place value of importance
Round	Making a number simpler but keeping its value close to what it was. 1 Decimal: Place holders after the decimal point
Overestimate	Rounding up — gives a solution higher than the actual value
Underestimate	Rounding down — gives a solution lower than the actual value
Metric	a system of measurement
Balance	The amount of money in a bank account
Deposit	Putting money into a bank account

Sparx codes for this topic	
M111, M994, M131	Round to powers of 10 and 1 sig figure
M431	Round to decimal places
U225	Estimate calculations
M521	Order of operations
M901	Calculations with money
M772, M530, M761, M728, M465, M774	Units are important
M515, M627, M963, M747	Time and the calendar

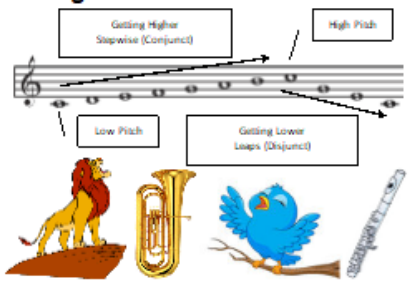


Building Bricks

Exploring the Elements of Music MAD T SHIRT

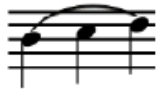
Melody - Pitch

The **highness** or **lowness** of a sound.



Articulation

How individual notes or sounds are **played/techniques**.



LEGATO – playing notes in a long, smooth way shown by a **SLUR**.

STACCATO – playing notes in a short, detached, spiky way shown by a **DOT**.

Dynamics

The **volume** of a sound or piece of music.

VERY LOUD: *Fortissimo (ff)*
LOUD: *Forte (f)*
QUITE LOUD: *Mezzo Forte (mf)*
QUITE SOFT: *Mezzo Piano (mp)*
SOFT: *Piano (p)*
VERY SOFT: *Pianissimo (pp)*

GETTING LOUDER: *Crescendo (cre*
GETTING SOFTER: *Diminuendo (dim.)*

Texture

How much sound we hear.

THIN TEXTURE: *(sparse/solo)* – small amount of instruments or melodies.

THICK TEXTURE: *(dense/layered)* – lots of instruments or melodies.

Structure

Mow the music is put together in sections and how often they are repeated

Harmony and Tonality

Harmony refers to the sound that is made when more than one pitch is sounded at the same time, often these are **chords**

Tonality is the key or scale used for a piece of music that gives it colour or character usually **Major or Minor**

Instruments (Timbre/Sonority)

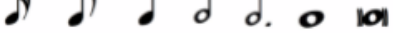
Describes the **unique sound or tone quality** of different instruments voices or sounds.

Velvety, Screechy, Throaty, Rattling, Mellow, Chirpy, Brassy, Sharp, Heavy, Buzzing, Crisp, Metallic, Wooden etc.

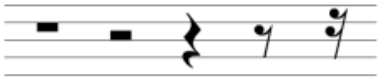
Rhythm (Duration)

The **length** of a sound.

SHORT ⟶ **LONG**



The opposite or absence of sound, **no sound**. In music these are **RESTS.**



Tempo (speed)

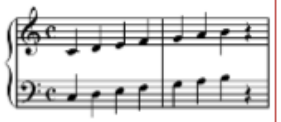
The **speed** of a sound or piece of music.

FAST: *Allegro, Vivace, Presto* **SLOW:** *Andante, Adagio, Lento*
GETTING FASTER – *Accelerando (accel.)*
GETTING SLOWER – *Ritardando (rit.) or Rallentando (rall.)*

Music can create an **atmosphere**
Music can create an **image** *e.g., in response to art or, a story*– this is called **PROGRAMME MUSIC**.
Music can be **calming**
Music can be used for **spiritual reasons**

Notation

How music is **written** down.

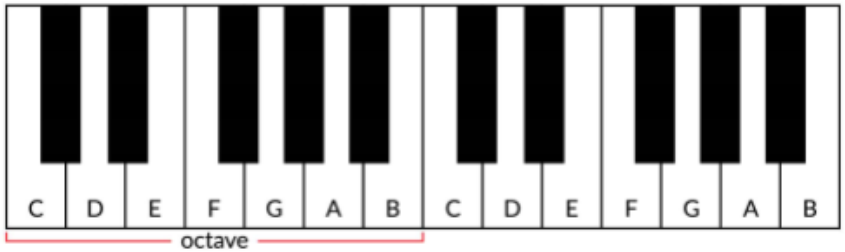


STAFF NOTATION – music written on a **STAVE** (5 lines and spaces)
GRAPHIC NOTATION/SCORE – music written down using shapes and symbols to represent sounds.

Keyboard Skills

Exploring Treble Clef Reading and Notation

A. Layout of a Keyboard/Piano



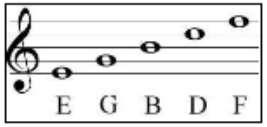
A piano or keyboard is laid out with **WHITE KEYS** and Black Keys (see section G). C is to the left of the two Black Keys and the notes continue to G then they go back to A again. Notes with the same letter name/pitch are said to be an **OCTAVE** apart. **MIDDLE C** is normally in the centre of a piano keyboard.

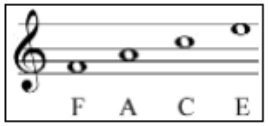
B. Treble Clef & Treble Clef Notation

A **STAVE** or **STAFF** is the name given to the five lines where musical notes are written.

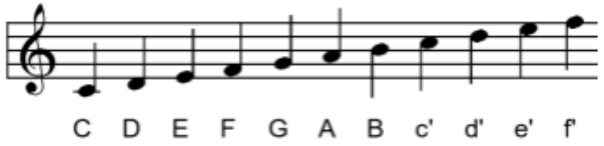
The position of notes on the stave or staff shows their **PITCH** (how high or low a note is). The **TREBLE CLEF** is a symbol used to show high-pitched notes on the stave and is *usually* used for the right hand on a piano or keyboard to play the **MELODY** and also used by high pitched instruments such as the flute and violin. The stave or staff is made up of 5 **LINES** and 4 **SPACES**.

Every Green **B**ogie **D**eserves **F**licking. Notes in the **SPACES** spell **"FACE"**

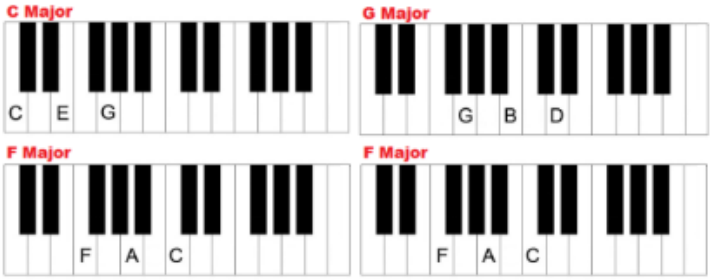




Notes from **MIDDLE C** going up in pitch (all of the white notes) are called a **SCALE.**

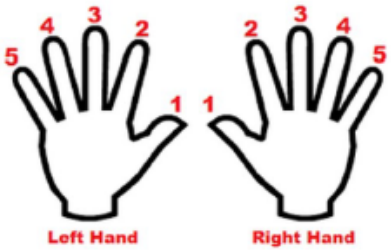


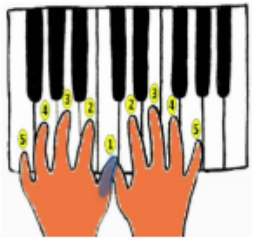
C. Keyboard Chords



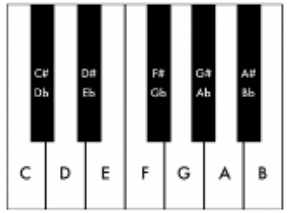
Play one – Miss one – play one – miss one – play one

D. Left Hand/Right Hand (1-5)





E. Black Keys and Sharps and Flats



There are five different black notes or keys on a piano or keyboard. They occur in groups of two and three right up the keyboard in different pitches. Each one can be a **SHARP** or a **FLAT**. The # symbol means a **SHARP** which raises the pitch by a semitone *(e.g. C# is higher in pitch (to the right) than C)*. The *b* symbol means a **FLAT** which lowers the pitch by a semitone *(e.g. Bb is lower in pitch (to the left) than B)*. Each black key has 2 names – C# is the same as D*b* – there's just two different ways of looking at it! Remember, black notes or keys that are to the **R**IGHT of a white note are called SHA**R**PS and black notes to the **L**EFT of a white note are called FL**A**TS.

Personal Development

Key Vocabulary

Mental health	Emotional, psychological and social wellbeing
Wellbeing	Overall sense of health and happiness
Stress	Body's response to pressure
Resilience	Ability to recover from challenges
Coping strategy	Something you do to manage difficult feelings
Body image	How you see and feel about your body
Self esteem	Confidence in your own worth and abilities
Mindfulness	Focusing calmly on the present moment

What is Mental Health?

Mental health refers to how we *think, feel and act*. Everyone has mental health, just like physical health. Good mental health helps us:

- Cope with challenges
- Build positive relationships
- Make decisions
- Feel confident

Emotional Wellbeing

Emotional wellbeing means:

- Understanding your feelings
- Managing emotions in a healthy way
- Asking for help when you need it

Feelings change every day – this is normal. All emotions are valid and part of being human.

Body Image

Body image is how you see your body and how you feel about it. There are many influences on body image, including:

- Social media
- Friends and peers
- Family comments
- Cultural expectations
- Puberty and body changes

Healthy Body Image

- Understanding that everyone develops differently
- Focusing on what your body can DO, not just how it looks
- Avoiding comparison to edited or unrealistic images

Personal Development

Pressures on Body Image

- Edited photos online – follow positive, realistic accounts and think critically about what you see
- "Perfect" influencers and celebrities – take breaks from social media if needed/unfollow pages that make you feel bad
- Comments about appearance
- Trends around weight, size, fitness or beauty

Coping with Stress

Stress = the body's response to challenge or pressure. Short-term stress can motivate us. Long-term stress can negatively affect health.

Signs of stress:

- Feeling overwhelmed
- Trouble sleeping
- Headaches or stomach aches
- Irritability
- Loss of concentration
- Wanting to avoid people or tasks

Healthy Coping Strategies

Positive Strategies

- Talking to someone you trust
- Taking breaks
- Exercise or movement
- Listening to music
- Deep breathing or mindfulness
- Journalling thoughts and feelings
- Getting outdoors
- Setting small, achievable goals
- Limiting screen time

Unhelpful Strategies (Avoid these)

- Bottling up emotions
- Self-harm
- Excessive screen time
- Substance misuse (alcohol, vaping, drugs)
- Shutting people out
- Avoiding responsibilities

Building Resilience

Resilience = the ability to bounce back after challenges. Building resilience:

- Learn from mistakes
- Stay connected to friends and family
- Look after physical health
- Ask for help when needed
- Practise problem-solving
- Use positive self-talk

Where to get Help

- Trusted adult
- Blue lanyards in school (Safeguarding team)
- Childline: 0800 1111
- YoundMinds (information and support)
- NHS Mental Health support pages
- Samaritans: 116 123 (for emergencies or crisis)

Personal Development

Discrimination

Key Terms

Discrimination	Unfair or negative treatment of a person or group because of who they are.
Prejudice	A judgement or opinion made about someone *before* knowing them.
Stereotype	A fixed idea about a group of people that is often untrue and unfair.
Protected Characteristics (Equality Act 2010)	The law protects people from discrimination based on: • Race • Religion or belief • Sex • Sexual orientation • Gender reassignment • Disability • Age • Marriage/civil partnership • Pregnancy/maternity

Types of Discrimination

Racism	Unfair treatment because of someone's race, ethnicity, skin colour or cultural background. **Examples**: Racial slurs, exclusion, assumptions based on race, racist bullying.
Religious Discrimination	Negative treatment because of someone's religious beliefs or lack of belief. **Examples**: Mocking someone's faith, banning religious clothing, excluding people from activities.
Disability Discrimination	Unfair treatment towards someone because they have a physical or mental disability. **Examples**: Lack of accessibility, refusing reasonable adjustments, bullying based on disability.
Sexism	Discrimination based on sex or gender, often against women and girls but can affect everyone. **Examples**: Saying certain jobs are only for men, unequal expectations, sexist language.
Homophobia	Discrimination or negative behaviour towards people who are gay or lesbian. **Examples**: Using "gay" as an insult, excluding someone because of their sexuality.
Biphobia	Discrimination towards people who are bisexual. **Examples**: Ignoring or invalidating bisexual identities.
Transphobia	Negative attitudes or actions towards transgender people. **Examples**: Mocking pronouns, refusing to recognise someone's gender, spreading misinformation.

Personal Development

How Discrimination Affects People

- Low self-esteem
- Anxiety or depression
- Feeling unsafe
- Social isolation
- Reduced opportunities (education, work)
- Impact on physical health
- Barriers to participation in school or community life

Challenging Discrimination

How Students Can Act:

- **Speak up** when you hear hateful or discriminatory language
- **Support others** by being an ally
- **Report** incidents to a trusted adult or safeguarding lead
- **Use inclusive language**
- **Challenge stereotypes** by seeking accurate information
- **Listen respectfully** to different experiences and identities

What the Law Says

- **Equality Act 2010:** Makes it illegal to discriminate against someone because of a protected characteristic.
- **Hate Crimes:** Crimes motivated by hostility towards race, religion, disability, sexual orientation, or transgender identity. These are taken very seriously by the police.

Respect and Inclusion in School

Everyone has the right to:

- Feel safe
- Be treated fairly
- Learn without bullying
- Express their identity
- Have their culture and beliefs respected

Help and Support

- Trusted adults (teachers, form tutor, safeguarding lead)
- Parents and carers
- School counsellor or safeguarding team (blue lanyards)
- Childline: 0800 1111
- NSPCC
- Young Minds (mental health support)
- Report Hate Crime (via police or online support)
- Police 111

WADHAM KS3 PE KNOWLEDGE ORGANISER: Gymnastics

Physical Education

Skill

Rolls:

Forward roll, Backwards roll, Log roll, Teddy bear roll & circle roll

Jump:

Tuck, star, straddle & pike.

Travel:

Twisting and turning, rotation, cartwheel, leap, slide, hop & skip

Balances:

Tuck, straddle, pike, dish, arch, star, v-sit, shoulder stand, front support, back support, pair/group balances & arabesque.

Sequence:

Three or more skills which are performed together creating a different combination skill

Technique

Starting and finishing position – clearly shows when the gymnast is starting and finishing a routine

Pointed toes – pointing your toes will make your gymnastics aesthetically pleasing and encourages whole body tension

Extension – making the limbs long. Pointing toes, fingers, keeping your head up.

Aesthetically pleasing – means it looks good or pleasing to the eye

Equipment

Gymnastics mat

Trampette

Spring board

Vaulting box

Landing (crash) mat

Health and Safety

- Shoes and socks need to be **off** during a gymnastics lessons to prevent you slipping and injuring yourself
- When carrying equipment, shoes and socks need to be **on** in case any equipment is

Key Words:

Aesthetically pleasing

Precision

Centre of gravity

Fluency

Canon

Unison

Mirror

Matching

Key Words:

Levels

Rolls

Travels

Balances

Routine

Sequence

Tension

Extension

WADHAM KS3 PE KNOWLEDGE ORGANISER: Health Related Fitness (HRF)

Physical Education

Components of Fitness

Agility the ability to change the direction of the body at speed, whilst maintaining control

Balance the ability to stay upright or stay in control of the body movement

Cardiovascular Endurance (Stamina) The ability to continue exercising whilst getting energy for muscular movement from the aerobic energy system

Coordination The ability to use two or more body parts together to complete a skill under control, smoothly and efficiently

Flexibility The range of movement at a joint

Muscular endurance the ability to repeatedly use your muscle and body without tiring

Power A type of fitness. The ability to exert maximal force in as shortest time possible

Reaction Time The ability to respond quickly to a stimulus

Speed The ability move part or the whole body quickly

Strength The maximum force a muscle or group of muscles can exert against a resistance

Fitness Tests

- Sit and Reach Test
- Sit Up Test
- Press up
- Multistage Fitness Test (Bleep test)
- Wall Toss Test
- Illinois Agility Test
- 30 Meter Sprint test
- Rule Drop Test
- Standing Stalk Test
- The Cooper Run
- Hand Grip Test

Key Words

Health A complete state of physical, mental and social wellbeing.

Fitness The ability to meet the demands of the environment you are in.

Heart Rate How many times your heart beats in a minute.

Pulse A place on your body where you can feel/measure your heart rate.

Aerobic Exercise When oxygen is used to make energy, usually at moderate intensity at a continuous rate.

Anaerobic exercise Without oxygen'. High intensity exercise for short periods of time where oxygen is not predominantly used to produce energy

Energy Balance When the energy consumed equals the energy used and body weight stays the same

Calories- a measure of the energy found in food

Heart pumps blood carrying oxygen around your body

Oxygen is taken from the air we breathe in and used to make energy for exercise.

Carbon Dioxide Is a waste product of energy production which we breathe out

Lactic Acid A waste product of energy production which causes pain when it builds up in out muscles.

Science - 8C

Types of respiration

All living cells **respire** to release energy. Organisms need energy for everything they do (for example, making new substances, moving).

Aerobic respiration is a series of **chemical reactions** that can be summarised as:

glucose + oxygen → carbon dioxide + water

Energy is released (but is not a chemical substance and so is not shown in the word equation).

Carbon dioxide can be detected using:

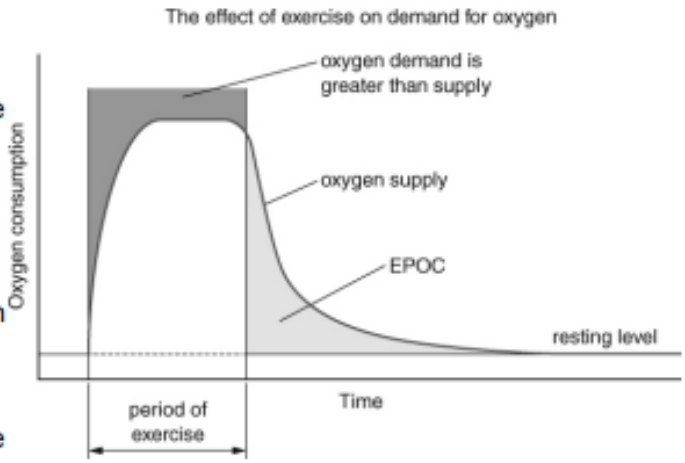
- **limewater** (which it turns cloudy)
- an **indicator** (such as hydrogen carbonate) because it is acidic.

Anaerobic respiration does not require oxygen. In humans it is used to release energy from glucose when more energy is needed than can be supplied by aerobic respiration (for example, during strenuous exercise).

glucose → lactic acid

Anaerobic respiration causes muscles to tire quickly and so cannot be used for extended periods. A lot of the lactic acid travels from the muscles to the liver, where it is converted back to glucose. Anaerobic respiration releases less energy than aerobic respiration.

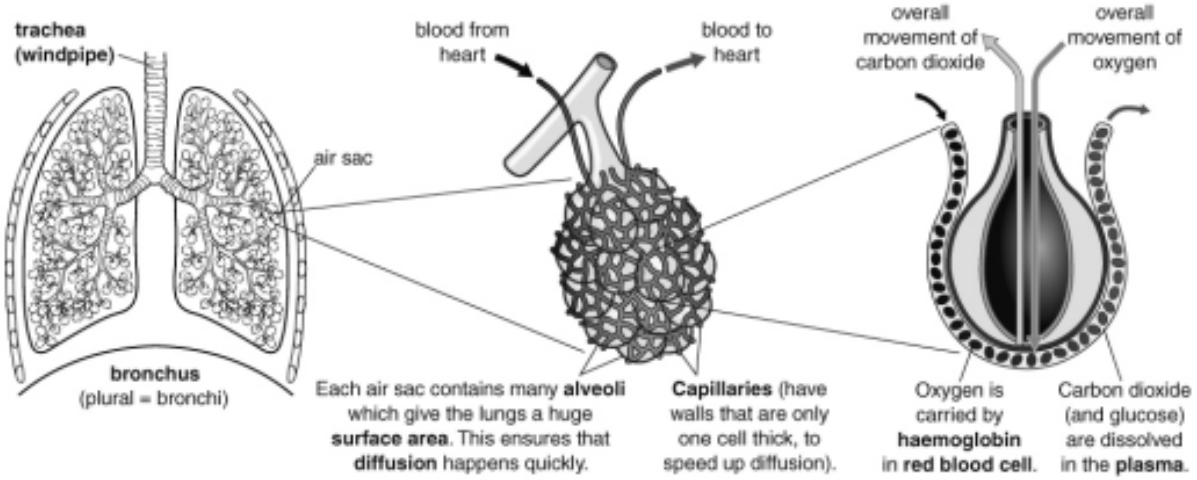
After strenuous exercise, the body needs extra oxygen. This **excess post-exercise oxygen consumption** (**EPOC**) (or 'oxygen debt') replaces oxygen lost from oxygen stores (in the blood and in muscles) and provides oxygen for increased levels of aerobic respiration (for example, to provide energy for removing lactic acid, for faster breathing, for faster heart rate).



Gas exchange

Different organisms use different organs for **gas exchange** (swapping one gas for another):

- **gills** (e.g. fish)
- **skin** (e.g. frogs)
- **stomata** in leaves (plants)
- lungs.

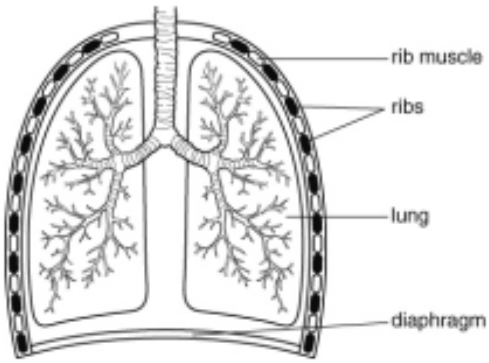


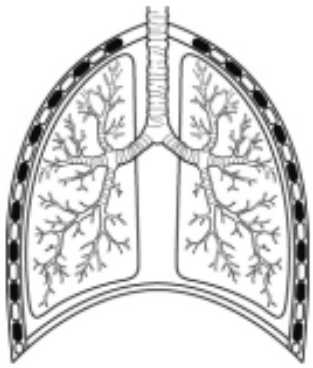
Science - 8C

Ventilation and breathing

When you exercise, your **breathing rate** (number of breaths in one minute) and your **pulse rate** (number of times your heart beats in one minute) increase. This is because your cells need more oxygen and glucose for respiration.

Breathing is the movement of muscles in the **diaphragm** and attached to the ribs.
These movements change the volume of the chest.





Breathing in (**inhalation**):

- Diaphragm contracts and moves downwards.
- Rib muscles contract and lift ribs up and outwards.
- Volume of the chest increases.
- Lungs expand.
- Pressure in lungs is reduced.
- Pressure outside is now higher than inside the lungs, so air flows into the lungs.

Breathing in (**exhalation**):

- Diaphragm relaxes and moves upwards.
- Rib muscles relax and move ribs down and inwards.
- Volume of the chest decreases.
- Lungs get smaller.
- Pressure in lungs is increased.
- Pressure inside the lungs is now higher than outside, so air flows out of the lungs.

Breathing **ventilates** the lungs. **Ventilation** is the movement of air into and out of the lungs.

Smoking

The chemicals in cigarette smoke are harmful.

Found in cigarette smoke:	Harm it causes:
nicotine	makes arteries narrower, causes heart disease
tar	can cause cancer, coats lungs reducing surface area, can cause alveoli to break apart (**emphysema**)
carbon monoxide	stops red blood cells carrying so much oxygen
high temperature of smoke	stops **cilia** working so lungs are not cleaned and **mucus** collects

Means, estimates and ranges

range = highest value – lowest value (with smaller ranges you can be more certain of your results)

$$\text{mean} = \frac{\text{total of all values}}{\text{number of values}}$$

Mean can be used to **estimate** a true value from repeated readings.

Science - 8F

Dalton's atomic theory

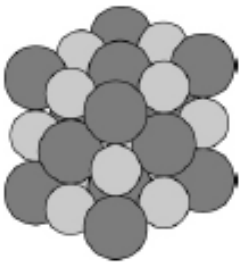
Dalton's theory stated that:

- All matter is made up of tiny particles called atoms.
- Atoms are indestructible, and cannot be created, or destroyed.
- The atoms in an element are all identical.
- In compounds, each atom of an element is always joined to a fixed number of atoms of the other elements.
- During chemical reactions, atoms rearrange, to make new substances. For example:

Reactants Products

No atoms are lost or gained so the mass of the reactants is equal to the mass of the products.

Atoms of an element.



Atoms in a compound.

Word equations

The word equation for the above change is:

hydrogen + chlorine → hydrogen chloride
REACTANTS **PRODUCTS**

Some signs of a chemical reaction include:

- colour change
- gas produced
- solid formed from solution
- energy change.

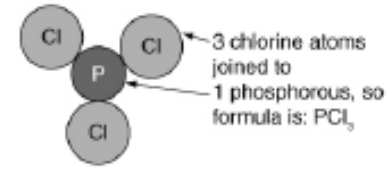
Elements and their symbols

The **symbols** for the elements used today have been agreed by scientists in all countries. They are either a single or double letter. The first letter is always a capital letter.

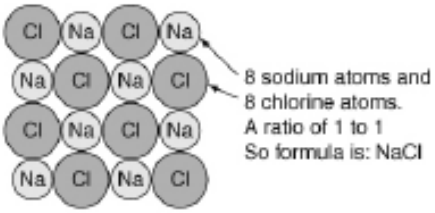
Examples:

nitrogen = **N**	lithium = **Li**
sulfur = **S**	copper = **Cu**
chlorine = **Cl**	iron = **Fe**

Formulae



Phosphorous chloride
PCl_3



Sodium chloride
NaCl

The **chemical formula** of a substance tells you the number of atoms of each element that are joined in its molecules, or the ratio of atoms of each element in the compound.

Science - 8F

Metals and non-metals

The common **properties** of most **metals** are:

- high melting points
- solids at room temperature
- strong and **flexible**
- malleable
- shiny (when polished)
- good **conductors of heat and electricity**.

The common properties of most **non-metals** are:

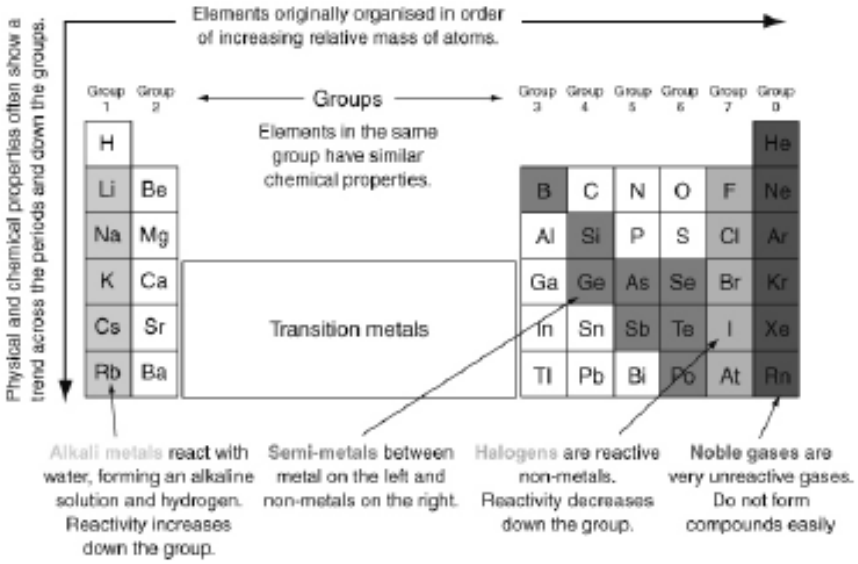
- low melting point
- **brittle**(when solid)
- not shiny
- poor conductors of heat and electricity.

The properties of a substance are what it looks like or what it does. There are two types of properties:

- **chemical properties** (e.g. flammability, pH, reaction with acid)
- **physical properties** (e.g. melting point, boiling point, density).

The periodic table

The **periodic table** arranges the elements so that elements with similar properties are in the same vertical **group**. The periodic table also allows us to spot trends and patterns.



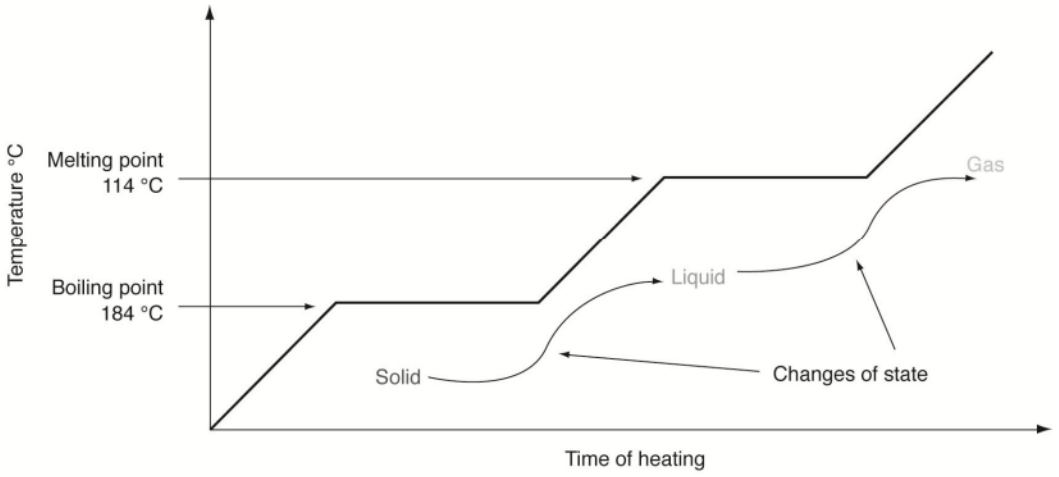
Science - 8F

Metal and non-metal oxides

Many elements burn in air/oxygen to form oxides; e.g.:

- calcium + oxygen → calcium oxide
- metal oxides tend to form alkaline solutions.
- carbon + oxygen → carbon dioxide
- non-metal oxides tend to form acidic solutions.

Changes of state



Science - 8G

The physical properties of metals

Metals	Non-metals
good conductors of heat and electricity	poor conductors of heat and electricity
shiny	dull
solids with a high melting point (except for mercury)	most are low melting point solids or gases
flexible and malleable	brittle (break easily instead of bending)

The chemical properties of metals

The **chemical properties** of metals refers to their reactions with other substances.

For example, metals can react with many non-metals:

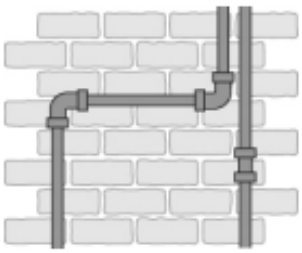
e.g. calcium + chlorine → calcium chloride

(Note: When naming a compound the ending of the non-metal is changed to **_ide**)

Metals can also react with air (oxygen), water and acids. Some metals react very quickly; they are **reactive**. Calcium is a reactive metal. Other metals do not react quickly; they are **unreactive**. Gold is a very unreactive metal.

Uses of metals

Metals have many **uses** depending on their different **properties**. For example, copper is used in electrical wires as it is flexible and a good conductor of electricity. It is also used for roof sheets as it is malleable and doesn't react quickly with water.



Metals as catalysts

Some metals act as **catalysts**. These are substances that speed up chemical reactions without being used up themselves. Catalysts have many uses, for example, platinum is used in catalytic converters in cars.

Corrosion and oxidation of metals

The reaction of metals with oxygen forms **metal oxides**:

metal + oxygen → metal oxide

e.g. **word equation**: calcium + oxygen → calcium oxide

This is called an **oxidation** or **corrosion** reaction.

Some metals like sodium react quickly with water and oxidise immediately when scratched. Other metals do not react easily, for example silver changes colour very slowly as it reacts with oxygen.

Rusting

The corrosion of **iron** is called **rusting**. It destroys iron and steel structures because **rust** is weak and crumbly. Water and oxygen must be present for iron to rust.

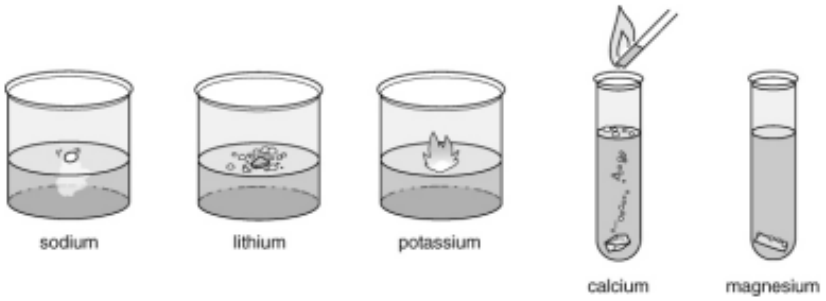
iron + water + oxygen → iron hydroxide

Coating the iron with paint, plastic, etc. acts as a barrier to oxygen and water and stops iron rusting.

Science - 8G

Metals and water

Some metals can react with cold water.



All the metals that react with water form a metal hydroxide (an alkaline solution) and hydrogen gas.

metal + water → metal hydroxide + hydrogen

The test for hydrogen gas is that it burns with a 'squeaky pop'.

Again, the equations can be written using words or symbols:

sodium + water → sodium hydroxide + hydrogen

$2Na + 2H_2O \rightarrow 2NaOH + H_2$

Metals and acids

The metals that react with water react very quickly with acids. Some metals that don't react with water do react with acids. When metals react with acids, they produce hydrogen and a salt.

metal + acid → salt + hydrogen

The name of the salt formed depends on the name of the acid:

- hydrochloric acid → chlorides
- sulfuric acid → sulfates
- nitric acid → nitrates

Again, the equations can be written using words or symbols:

magnesium + sulfuric acid → magnesium sulfate + hydrogen

$Mg + H_2SO_4 \rightarrow MgSO_4 + H_2$

Reactivity series

The reactions of metals with oxygen, water and acids allows us to put the metals in order of reactivity:

Potassium
Sodium
Lithium
Calcium
Magnesium
Aluminium
Zinc
Iron
Tin
Lead
Copper
Mercury
Silver
Gold

Decreasing reactivity

The reactivity of metals can be linked to their uses.

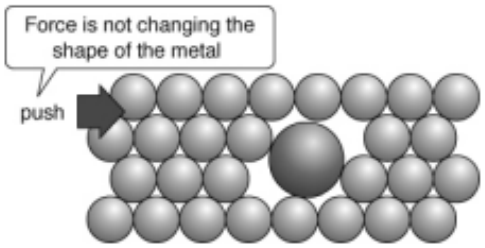
For example, metals used for building need to have a low reactivity, otherwise they will corrode away.

Alloys

Alloys are mixtures of metals with one or more other elements. Alloys have different properties from the pure metal and so can be more useful.

For example, steel, an alloy of iron, is stronger and does not rust as quickly.

Pure metals have a fixed, precise melting point where as alloys have a lower melting point and melt over a range of temperatures. Melting points can therefore be used to identify pure metals.



Alloys are usually also harder than pure metals because the different sized atoms disrupt the regular structure making it harder for the layers of atoms to slip over each other.

Science - 8J

Light

Light travels in straight lines from a **source**. Light travels as **transverse** waves. It travels much faster than sound, and does not need a substance to travel through.

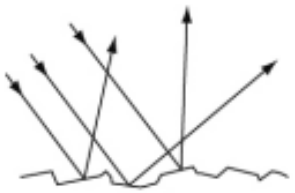
Light travels through **transparent** objects but not through **opaque** objects. **Shadows** are made when light is blocked by an object. Opaque objects block all light. **Translucent** objects allow some light to pass through, but it is scattered so you do not see a clear image.

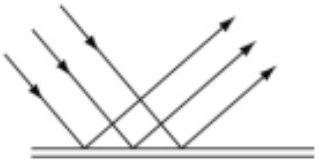
Transmission and absorption

Transparent materials let light pass straight through. We say they **transmit** light. Opaque surfaces can **absorb** or **reflect** light. White surfaces reflect most of the light that hits them. Black surfaces absorb light very well and reflect very little. This is why they look so dark.

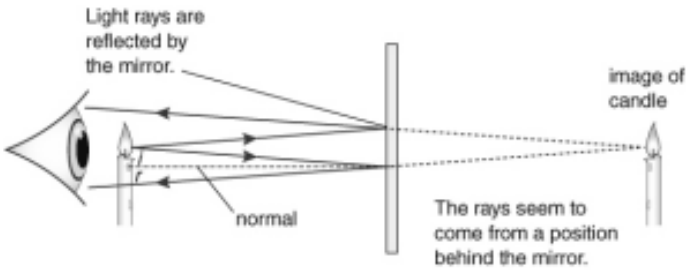
Reflection

Light rays are scattered by rough surfaces (**diffuse reflection**), which means that you cannot see an **image** in an object with a rough surface.





Mirrors and shiny materials such as polished metals reflect light evenly. This is called **specular reflection**. The **angle of incidence** (*i*) is equal to the **angle of reflection** (*r*) – this is known as the **law of reflection**. Angles are measured between the light rays and the **normal** (a line drawn at right angles to the reflecting surface).

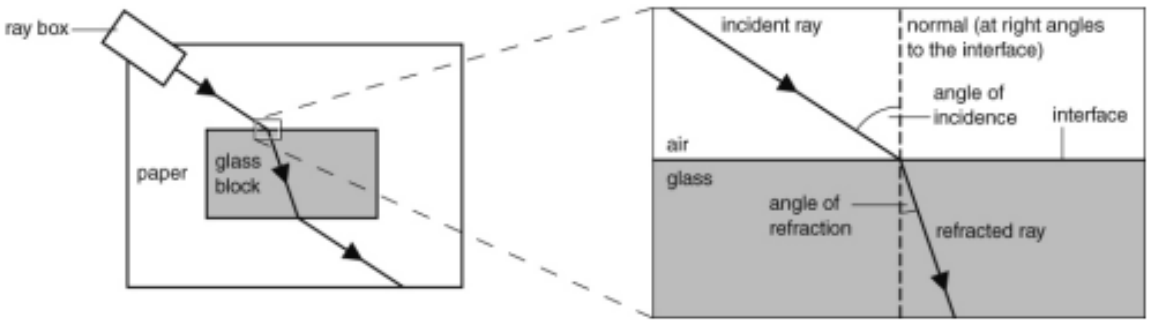


You can see an image in a mirror because the reflected rays of light appear to come from a point behind the mirror.

The image in a plane mirror is the same size as the object, and the same distance away from the mirror. In the image, left becomes right and right becomes left.

Refraction

When light hits something transparent it changes speed and direction. This is called **refraction**. Refraction takes place at the **interface** between two substances. When light is transmitted through glass it slows down and changes direction towards the **normal**. When it travels back out it speeds up again and changes direction away from the normal.

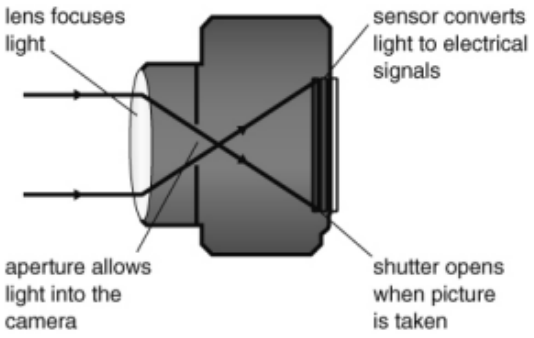


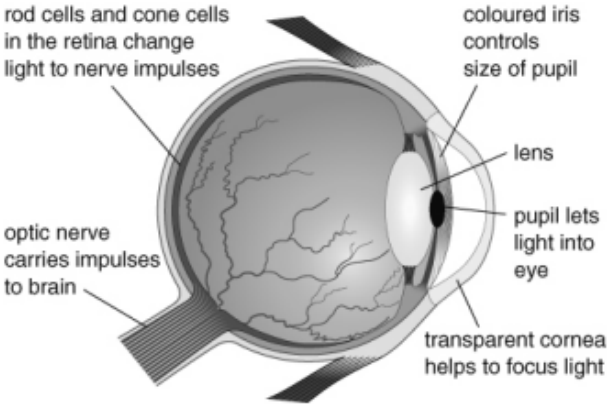
Science - 8J

Lenses are curved pieces of glass or transparent plastic that are designed to refract light in particular ways. **Converging** lenses make rays of light come together. The **focal point** of a lens is the point where parallel rays of light are brought together by the lens, and the **focal length** is the distance of this point from the centre of the lens.

Lenses are used in cameras, microscopes and telescopes.

Cameras and eyes





Rod cells in our retinas detect faint light but not colours and cone cells detect the primary colours of red, blue and green. We see combinations of primary colours as secondary colours (magenta, cyan and yellow).

Colour

White light is a mixture of colours. White light can be split up using a **prism** to give a **spectrum** of seven colours (red, orange, yellow, green, blue, indigo, violet). The splitting of colour into a spectrum is called **dispersion**.

We are able to see colours because objects do not reflect all the colours in light. White objects reflect all the colours, but a red object only reflects red and all other colours are absorbed. This idea applies to all colours except black – black objects absorb all colours.

Filters are used to make coloured light. They transmit one of the colours in white light and let the other colours through. If you look at a coloured object in coloured light, its colour may appear to be different.

Science - 8K

Energy transfers

Energy and temperature

When we know the **temperature** of something, we know how hot it is, not how much **internal energy (thermal energy)** is in it.

Temperature is measured in **degrees Celsius (°C)**.

Internal (thermal) energy is measured in **joules (J)**.

The amount of thermal energy stored in something depends on:

- how hot it is (its temperature)
- the material it is made from
- its mass.

When two objects are at different temperatures, energy will be transferred from the hotter one to the cooler one until they are at the same temperature.

Transferring energy by heating

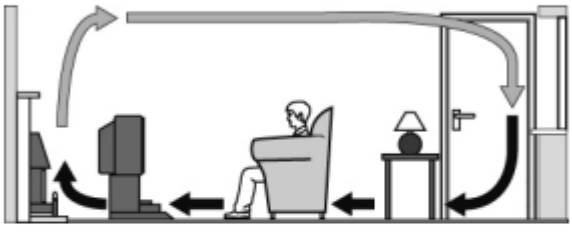
Energy can be transferred by heating in different ways.

Evaporation can take place from a liquid at any temperature. When part of a liquid evaporates, it is the fastest-moving particles that escape to form a gas. The particles that are left are storing less energy as movement and so the temperature of the remaining liquid is lower.

Conduction takes place in solids and can also happen in liquids (although not very well). The particles in a solid are held together tightly. When they gain energy they vibrate faster and further, and the vibrations are passed on. Metals are the best conductors. Most other solids are poor conductors.

Particles are not as close in a liquid, so conduction is not very good. Particles are a long way apart in gases, so gases hardly conduct heat at all. Something that does not conduct heat very well is a thermal insulator. Liquids, gases, and solids that contain a lot of trapped air are insulators.

Convection takes place in fluids (liquids and gases). When part of a fluid is heated, the particles spread further apart and the fluid becomes less dense. This makes it rise. As it rises it meets cooler fluid and passes the energy on. More cool fluid moves in to replace the rising fluid, setting up a **convection current**.



Infrared radiation can transfer energy through empty space and also through transparent materials. Radiation does not require the movement of particles. Any hot or warm object gives off or emits radiation. When something takes in energy from radiation, it is said to absorb it.

Infrared radiation is similar to light. It can be absorbed or reflected, and it can also be focused.

Dark, dull surfaces are good emitters and absorbers of radiation. Light, shiny surfaces are good at reflecting radiation. They are poor absorbers and emitters of radiation.

Power

Power is the rate at which energy is transferred. Power is measured in **watts** (**W**) or **kilowatts** (**kW**). One watt is one joule of energy being transferred each second. 1000 W = 1 kW.

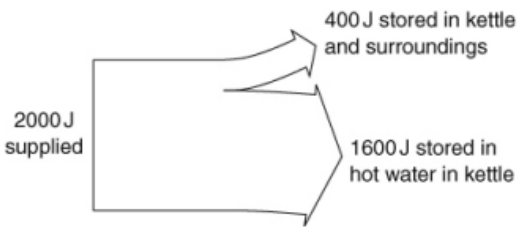
Science - 8K

Efficiency

Not all energy is transferred usefully. Wasted energy is often transferred by heating.
The percentage of useful energy produced by something is known as its efficiency.

$$\text{efficiency} = \frac{\text{useful energy transferred}}{\text{total energy supplied}} \times 100\%$$

The **Sankey diagram** shows the energy transfers in a kettle. The width of each arrow shows the amount of energy it represents. The energy stored in the kettle and the surroundings is wasted energy.



$$\text{efficiency of kettle} = \frac{1600\ \text{J}}{2000\ \text{J}} \times 100\%$$

$$= 80\%$$

Paying for energy

We pay for the amount of energy we use in our homes. Electricity companies use units of **kilowatt-hours** on electricity bills. One kilowatt-hour is the amount of energy transferred when a one kW appliance is used for one hour.

We can reduce bills by insulating our homes and by using more efficient appliances.

The **payback time** of installing something that makes a home more energy efficient is the time taken for the cost of installation to be matched by the money saved. Sometimes buying a more efficient appliance may not save you energy overall because it costs more to buy than it will save.

$$\text{payback time} = \frac{\text{cost of change}}{\text{savings per year}}$$

Accuracy and precision

A measurement is accurate if it is close to the true value of the thing being measured.
Measuring devices that have small divisions can measure more accurately than instruments with larger divisions if they are set up correctly.

A measurement is precise if several measurements of the same thing give similar results.
Precise measurements may not be accurate if the measuring instrument was not set up correctly.

Academic Vocabulary

Sequencing	Comparing
First (ly) Second (ly) Third (ly) Subsequently Finally In conclusion	Similarly Likewise Like In the same way Equally Akin to
Contrasting	**Qualifying**
Alternatively Conversely On the other hand In contrast Instead Besides	However Although But Except Notwithstanding Nonetheless
Supporting	**Emphasising**
Moreover Furthermore Also Additionally	Significantly Indeed Notably Significantly
Exemplification	**Time**
For example Such as Illustrated by For instance	Meanwhile Since Before After

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Projection

Project your voice so all that should hear can hear

Body Language

Use of gesture and position

Listen

Show you are actively listening

Good Talk

If you disagree, use respectful language

Eye Contact

Eye contact shows Belonging

SAYING OR STATING AN IDEA

I think ...

I strongly believe ...

It is my opinion that...

CLARIFYING OR CHECKING

Please could you clarify that?

Please could you explain what you mean?

SEEING THINGS FROM A DIFFERENT PERSPECTIVE OR VIEWPOINT

What if ...

Some people think ...

SUPPORTING OR AGREEING

I agree ...

I agree with Sarah because ...

CHALLENGING OR DISAGREEING

I have a different idea ...

I disagree ...

I would like to challenge something that Samia said ...

I would like to respectfully challenge ...

EXPANDING OR BUILDING ON

Adding to what Zack said ...

Building on what Ella said ...

I have been listening carefully, and I would like to add a new point ...

PARAPHRASING OR REWORDING

I think Mo is saying that ...

In other words, Matt is saying ...

THINKING ALOUD OR SHARING PARTIAL THINKING

Why is it that ...?

I am wondering if ...

I'm not certain but ...

I'm not completely sure but what I'm thinking is ...

JUSTIFYING OR GIVING REASONS

Because ...

If ... then ...

I know ... because ...

ASKING FOR THINKING TIME OR HELP

I'm not sure yet. Please can I have some time to think?

I'm a bit confused about ...

Please can I talk to a partner?

I'm stuck because ...

Please could you speak a bit louder?

Please could you repeat the question?

PASSING ON THE DIALOGUE

Ali, what do you think?

Ben, what do you think about what I said?

Jo, do you agree or disagree?

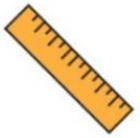
CONCLUDING OR END WORDS

My final thoughts are ...

There are lots of powerful arguments, but my own opinions is ...

For me, the strongest argument is ...

The Learning Eight

Pen (Blue or Black)		Ruler	
Pencil		Purple Pen	
Calculator		Knowledge Organiser	
Mini-Whiteboard		Whiteboard Pen