Wadham School

A Church of England Community School

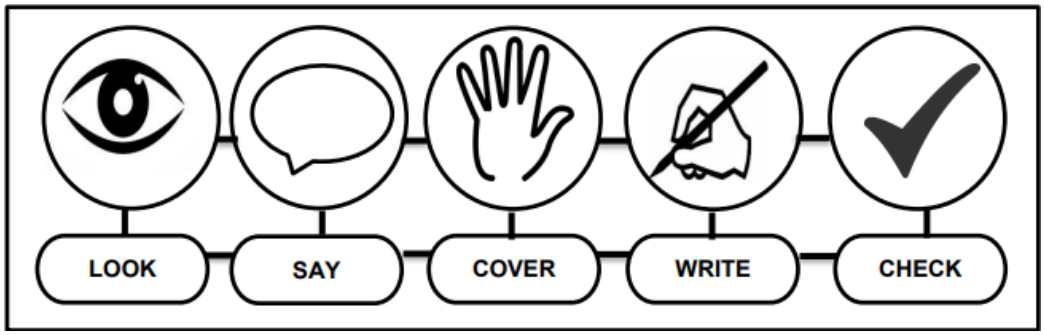
Knowledge Organisers
Year 7
Term 1 & 2
2025-2026

Name.....

Tutor group.....

"Life in all its fullness" John 10:10

Using Your Knowledge Organiser



Look-Say-Cover-Write-Check

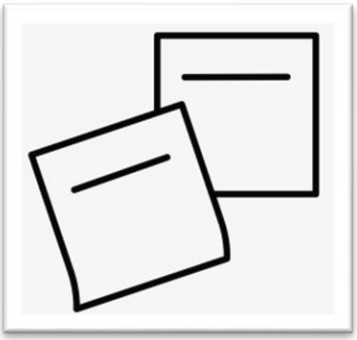
Retrieval practice using the look-say-cover-write-check technique, when done in regular small chunks, is one of the best ways you can learn relevant knowledge over time.

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

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

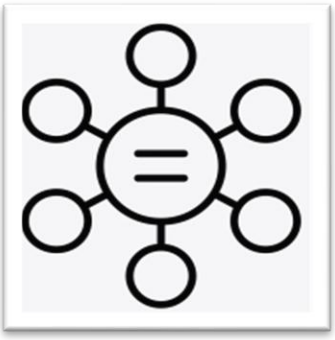


Self Quizzing

Write quizzes with answers to test yourself in the future.

Mind maps

Create mind maps linking key information you need to remember.



LIBRARY INFORMATION

Library Days

MON - MINDFULNESS & COLOURING

WED-YEAR 7 ONLY BOOK CLUB

FRI - PUZZLE CLUB & LEGO

BORROWING A BOOK

- YOU MAY BORROW ONE BOOK AT A TIME
- YOUR BOOK CAN BE RETURNED DURING SOCIAL TIME OR LIBRARY TUTOR TIME
- BOOKS CAN BE LEFT IN THE YELLOW BOX IF THERE ARE NO STAFF
- PLEASE MAKE SURE YOU RENEW YOUR BOOK EVERY TWO WEEKS IF YOU'RE NOT FINISHED YET!
- PLEASE LET MRS GEORGE KNOW IF A BOOK GETS LOST OF DAMAGED

IF YOU LOSE A BOOK, DONT PANIC! IT CAN BE REPLACED WITH ANOTHER BOOK OR WITH A SMALL CHARGE

ACCESSIT

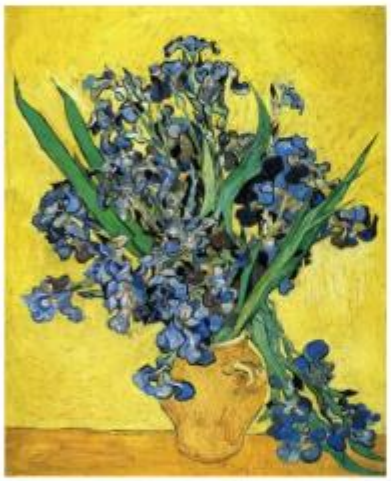
DID YOU KNOW THE LIBRARY CATALOGUE CAN BE FOUND ONLINE? THERE IS A LINK ON THE DESKTOP OF ALL THE COMPUTERS AND ON TEAMS.
(THE LOG IN IS THE SAME AS YOUR SCHOOL EMAIL AND PASSWORD)

THE LIBRARY IS OPEN TO ALL.
IT IS A 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

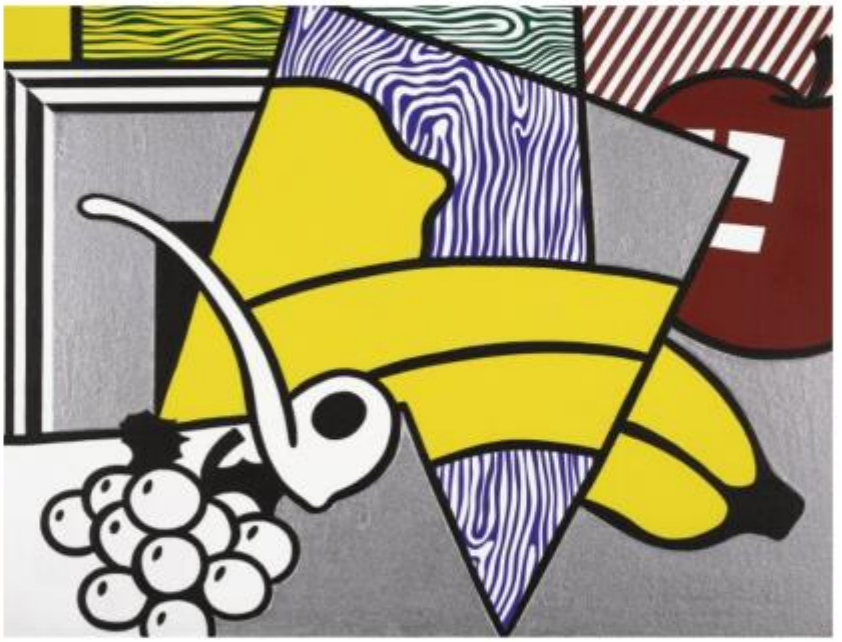
DISCOVERING FORMAL ELEMENTS

The formal elements are the ingredients of a piece of art. Every time you make a piece of art, you will consider these elements - even if you do not always use all of them. They are:

- FORM - this means a 3-dimensional object such as a sphere or cube
- TONE - use of light and dark
- PATTERN - a design formed by repeating a motif, shape or lines
- COLOUR - Colour is the part of our visual perception caused by the way a surface absorbs light. It consists of different hues; for example red, orange or green.
- TEXTURE - the quality of a surface
- LINE - a linear mark from one point to another
- SHAPE - a two dimensional area enclosed by a line, such as a circle or square



Vase with Irises by Vincent Van Gogh. This work explores the formal element of **colour**.



Cubist Still Life by Roy Lichtenstein. This work uses **pattern**, **shape** and **line**.

Ram Horn by Georgia O'Keefe. This piece focuses on the formal element of **tone**, which is used to suggest **form**.

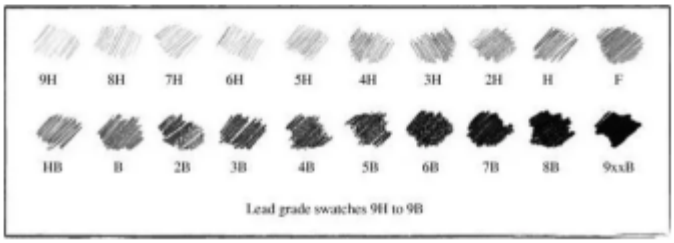
Art

Keywords:
Medium = what you use to make your art, eg. pencil, charcoal, paint etc.
Blend = to mix colours / tones together
Tonal = greyscale, rather than colourful. E.g. charcoal is a tonal medium.
Wash = mixing water with paint to make it translucent
Translucent = semi transparent, eg. watercolour paint
Opaque = not see-through, eg. oil pastel

Materials and how to use them:

Pencils: pencils come in a range of grades. The grades relate to the consistency of the graphite in the pencil. 'H' is hard; 'B' is soft. HB is the standard hardness of pencil that you use at school. As the pencil lead gets softer, so the mark the pencil makes becomes darker. The hardest pencils produce a paler grey line, and do not smudge so easily. Therefore, if you wish to make a tonal drawing with dark areas, you use a soft pencil; if you want to make a line drawing with little tonal range, you use a hard pencil.

Graphite is the material used to make pencil leads, and is a form of compressed carbon. It is also used as a stick. It is a **tonal** medium.



Lead grade swatches 9H to 9B

Paints: Watercolour and powder paints come in a block of compressed powder pigment. You then mix water to the paint to make a liquid that you can paint with. Both of these types of paint are **translucent**. This means you must work in layers, adding dark tones last. Acrylic paints are plastic based and come as a **liquid** or **gel.** Acrylic paints are more **opaque** than watercolours, meaning that you can paint over dark colours with lighter ones.

Charcoal is a tonal medium, made by slowly burning willow sticks. It produces a black or dark brown mark. Areas of charcoal can be lightened by using a **putty rubber** which is a special soft rubber.

Willow from the Somerset levels is used to make the best quality drawing charcoal. →

Oil pastels are made of compressed oil-based paint. They are opaque and produce rich colours.

Soft pastels are made of compressed powder. They are chalky in consistency and can be smudged to create soft effects. They can be layered to produce rich colour blends.

ART

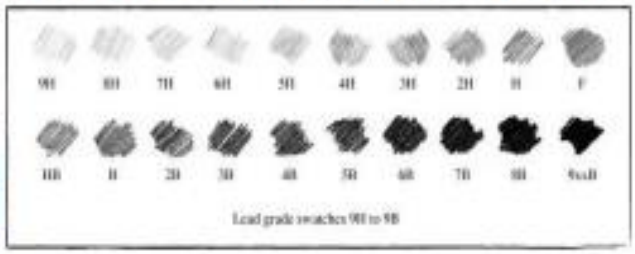
Keywords:

Medium = what you use to make your art, eg. pencil, charcoal, paint etc.
Blend = to mix colours / tones together
Tonal = Light and shade. E.g. charcoal is a tonal medium.
Translucent = semi transparent, eg. watercolour paint, coloured glass
Symmetrical = Same on both sides of a **line of symmetry**
Ellipse = Another word for an oval

Ellipse

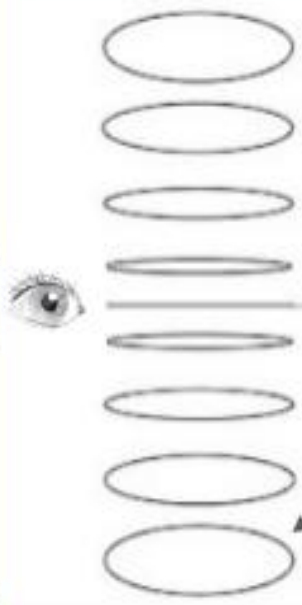
Materials and how to use them:

Pencils: pencils come in a range of grades. The grades relate to the consistency of the graphite in the pencil. 'H' is hard; 'B' is soft. HB is the standard hardness of pencil that you use at school. As the pencil lead gets softer, so the mark the pencil makes becomes darker. The hardest pencils produce a paler grey line, and do not smudge so easily. Therefore, if you wish to make a tonal drawing with dark areas, you use a soft pencil; if you want to make a line drawing with little tonal range, you use a hard pencil.



Oil pastels are made of compressed oil-based paint. They are **opaque** and produce rich colours. They can be **blended,** but **not erased.**

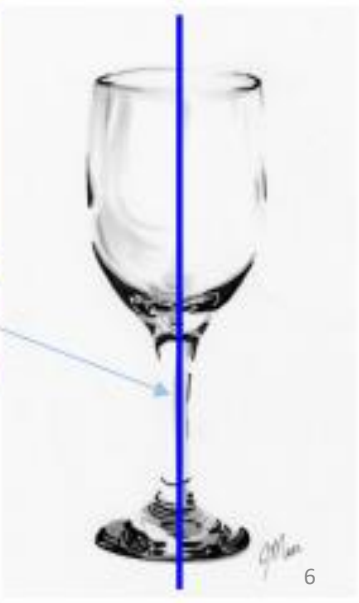
Soft pastels are made of compressed powder. They are chalky in consistency and can be smudged to create soft effects. They can be layered to produce rich colour blends.



A wine glass has a **line of symmetry** down the centre. You can use this, plus your knowledge of **ellipses** to make your drawing **accurate**.

Line of symmetry

Ellipses change shape as they move above or below your eye line, getting nearer to a circle shape.



Beliefs and Worldviews – Year 7 Term 1& 2

Topic 1: Introduction to Worldviews

1	1	**Worldview**	Set of beliefs that guide a person's life
2	2	**Theist**	Believer in God
	3	**Atheist**	Believes God does not exist
	4	**Agnostic**	Believes it is impossible to know if God exists or not
	5	**Soul**	The spiritual (non-physical) part of a person.
3	6	**Omnipotent**	All-powerful - Belief that God can do all things
	7	**Omnibenevolent**	All-loving - belief that God is infinitely good
	8	**Omniscient**	All– knowing—belief that God knows all things
	9	**Transcendent**	God is above all things—beyond human ability to understand
	10	**Eternal**	Lasting forever—without beginning and end
4	11	**Authority**	To be followed because it comes from God
	12	**Interpretation**	Different ways of understanding a Holy Book
	13	**Truth**	Fact or reality—that which actually is
	14	**Bible**	Christian Holy book
	15	**Qur'an**	Islamic Holy book
5	16	**Values**	Beliefs about what is important in life. Principals/standards
	17	**Agape**	Love for all people - The love Jesus showed
6	18	**Abrahamic**	Religions that developed from Abraham *(Judaism, Christianity, Islam)*
	19	**Dharmic**	Religions that developed in India *(Hinduism, Buddhism, Sikhism)*

Topic 2: Creation

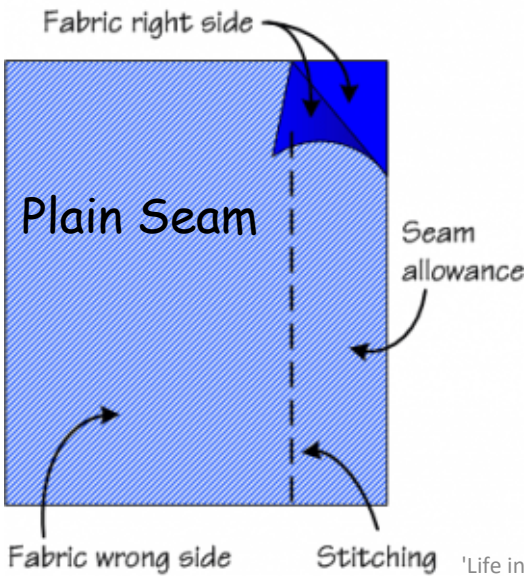
1	1	**Creation**	Creating of the universe
	2	**Creator**	One who creates the universe (e.g. *God*)
	3	**Genesis**	'*Beginning*' First book in the Bible, contains the creation story
2	4	**Big Bang**	Theory on the origin of the universe
	5	**Evolution**	Process of life developing over millions of years
	6	**Chance**	Atheists believe the universe is created by chance – there is no creator
3	7	**Liberal**	The Bible should Interpreted as a 'metaphor'
	8	**Metaphor**	Symbolic language with double meaning (*allegory*)
	9	**Literal**	God using evolution as his process of creating life.
	10	**Creationism**	Name for literal belief that God created in 6 x 24-hour days
4	11	**Brahman**	Creator God – Four Faces and Four arms
	12	**Vishnu**	God of preservation - Maintaining and looking after creation
	13	**Shiva**	God of destruction – Removing the old to make way for the new
5	14	**Stewardship**	Humans must care for creation e.g. recycle
	15	**Dominion**	Humans can use creations resources e.g. eat meat and burn fuel
	16	**Imago Dei**	'Image of God' Humans are made like God – with soul and power
6	17	**Adam and Eve**	First Man and Women – Were gifted free-will and chose to sin
	18	**Original Sin**	Wrongdoing before God – Results in death for all humanity
	19	**Free will**	The ability to choose how to act

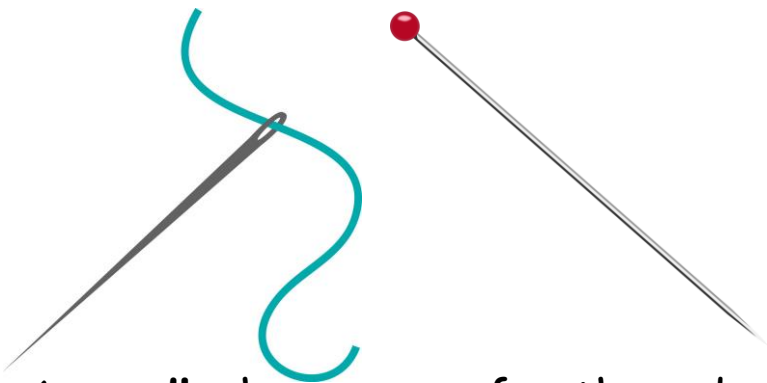
Computing

Key Vocabulary	
Attachment	A file that is sent with an email.
Anti-virus	Anti-virus software scans all forms of storage devices for viruses and, if found, attempts to remove them.
Computer system	Computer system is one that is able to take a set of inputs, process them and create a set of outputs.
Cyberbullying	Cyberbullying involves sending offensive texts or emails, posting lies or insults on social networking sites and sharing embarrassing videos or photos online.
File sharing	The act of sharing files over the internet.
Hack	Gaining unauthorised access to a computer.
Malware	Malicious software created to damage or gain illegal access to computer systems.
Phishing	Trying to trick someone into giving out information over email is called 'phishing'.
Troll	A derogatory name used as a term for a person who posts offensive messages online.

Folders, sub-folders & files

Keyword	Core Knowledge
Sewing machine	Sewing machines are used to sew fabrics together using thread.
Tie-Dye	Tie-Dye is a resist technique. Elastic bands are used to act as a resist. Dye can not stain the fabric where the elastic bands are placed.
Seam Allowance	Seam allowance is the extra fabric between the seamline and the edge of the fabric when two (or more) pieces of fabric are sewn together.
Hem	A hem in sewing is a garment finishing method, where the edge of a piece of cloth is folded and sewn to prevent unravelling of the fabric and to adjust the length of the piece in garments, such as at the end of the sleeve or the bottom of the garment.
Embellish	In textiles, embellishment refers to the addition of decorative elements using visual arts. It enhances the appearance of garments or fashion accessories, adding value without necessarily serving a functional purpose.
Applique	Is an embellishment technique. This technique involves adding or taking away layers of fabric to create a surface design.





A **needle** has an eye for thread to go through, a **pin** doesn't.

Routines in Drama:

1- Line up outside the studio in register order

2-Register

3-Take your shoes off

4-Put your shoes, coat, bag into the storage cages

5-Sit down so you can see the board

Being safe in the studio:

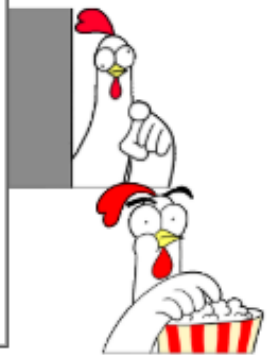
- Stay out of the lighting area unless instructed to be there
- Be careful around the curtains – there may be something behind them that you can't see
- If there is a stage up, wait until you have been given instructions on how to use the space safely and asked to use it before going onto the stage
- Your bags and shoes need to be stored in the cages so that no one trips over them
- Follow the instructions for games and activities – some of them will need your full concentration

Key terms for Drama:

- Improvisation: Making something up on the spot.
- Freeze Frame: A living picture/photograph.
- Mime: Using actions without words.
- Body as Prop: Using your body to create an object.
- Still Image: A frozen picture.
- Narration: A spoken commentary to accompany a performance.
- Role Play: Acting out a situation or character.
- Audience: The people who are watching your work
- Status: How important a character is to other characters, or how much power they have

The Five Things...

1. Facial Expressions/eye contact – Using your face can help make it obvious what you are feeling. Making eye contact and help an audience to understand what they should notice.
2. Use of space Aim for the centre of the stage so that you look confident and the audience can see you
3. Levels Not everything happens at the same level. You may sit, stand, kneel or lie. Have a combination of these and your work will look more interesting
4. One point of focus The audience will only really notice one thing at a time, what do you want them to look at?
5. Where is the audience? How are the audience sitting and can they see you?



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.

Myths and 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.

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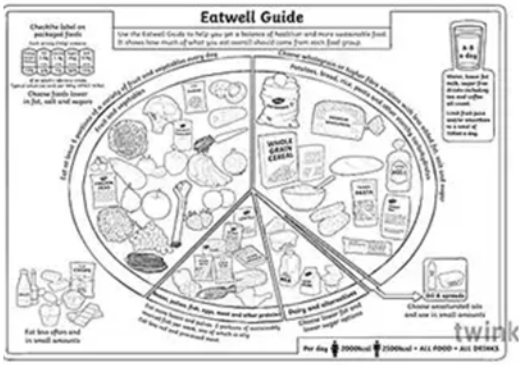
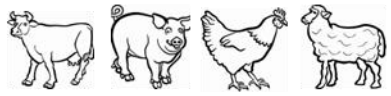
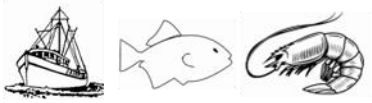
Coraline

Key words	Definition
Genre	A category of literature – Coraline is fantasy
Fantasy	Stories based in supernatural or improbable things
Familial relationships	Family links – these are strained at the start of Coraline
Trauma	A deeply distressing or disturbing experience that has a lasting impact
Gothic	A genre that deals with dark, mysterious and often supernatural ideas
Protagonist	The main character. Coraline is the protagonist
Trope	Something that often occurs in a particular genre
Beldam	An old-fashioned term for a hag or terrifying woman.

Food

1	Food hygiene	Buying, storing, preparing and cooking food safely and hygienically are vital for health. Good hygiene is needed to prevent food poisoning Food can spoil and decay due to the action of microbes, insects and other pests/pets.	**Let's get ready to cook** Tie back long hair Roll up long sleeves Wear an apron Remove jewellery Wash our hands Get ingredients ready Get equipment ready
2		**Senses**: Sight, smell, hearing, taste (sweet, salt, sour, bitter, umami) and touch are all used when eating food and drink. A combination of these senses helps to evaluate a food **Sensory attributes**: Words used to describe the appearance, odour, taste and texture of a food product **Sensory evaluation**: Analyses and measures human responses to food and drink. **Sensory analysis**: evaluating consumer products **Appetising**: looks or smells like it would taste delicious **seasoning** -- salt, herbs, or spices added to food to enhance the flavour	
3	The Eatwell guide	**The Eatwell Guide** shows the different food groups we need to eat to have a healthy diet. ***Fruit and vegetables** Eat at least five portions every day ***Foods high fat, salt and sugar** This type of food is not needed to be healthy. Have less often and in small amounts. ***Beans, pulses, fish, eggs, meat and other protein** Eat some foods every day. ***Dairy and alternatives** Have some of these foods every day, Lower fat varieties ***Hydration** Water and lower fat milk are healthier drink choices. A max of 150ml of juice or smoothie a day. ***Potatoes, bread, rice, pasta or other starchy carbohydrates** Eat a food from this group at every meal. Go for wholegrain varieties. *Oils and spreads Eat in small amounts. 	
4	8 Tips for Healthy eating	• Base your meals on high-fibre starchy carbohydrates (like whole grains). • Eat plenty of fruits and vegetables. • Include more fish in your diet, especially oily fish. • Reduce saturated fat and sugar intake. • Limit salt consumption to less than 6g a day. • Stay active and maintain a healthy weight. • Drink plenty of water to stay hydrated. • Don't skip breakfast to kickstart your metabolism.	
5	Energy	Energy is needed in our diet for our bodies to function and be active The amount of energy we need from food varies depending on our age and how active we are. CARBOHYDRATES, are a main source of energy. starchy carbohydrates give us **slow-release energy** so we can do lots of tasks! We also get energy from FATS + PROTIEN ENERGY INTAKE is measured in joules (J) OR Calories (kcal). Different activities use different amounts of energy.	

Food

6	Reared	Animals are bread and raised Meat comes mainly from: cattle (beef), pigs (pork), sheep (lamb) and poultry (chicken).	
7	Caught	Fish and shellfish are caught	
8	Dairy	Dairy cows are reared by farmers around the UK. Cows are milked 2-3 times per day. • Milk is chilled and stored • A tanker takes it to be processed. • Milk is treated to make it safe to drink and bottled • Transported to shops or used to make cheese, yogurt and butter.	
9	Meat	Cuts of meat are prepared by butchers in shops and supermarkets  mince chops steak whole	
		Meat is also bought ready prepared  saussages ham burgers	
		Meat can be cooked in many different ways.  barbeque stir fry roasted	
10	Poultry	Types of poultry meat include chicken, turkey, duck, goose and game birds e.g., pheasants and partridges.	
11	Fish and shellfish	Fish can be found in freshwater (rivers and lakes) or saltwater (seas and oceans). It can be caught in the wild or farmed. Fish can be caught in many different ways, using rods, lines or nets.  It is sold at market and bought by fish processing companies, fishmongers and restaurants. The 'big five' are the most common seafood items that are eaten in the UK: cod; haddock; tuna; salmon; prawns	
		Oily fish: Contain a healthy fat called omega-3. Salmon, trout, Mackerel, herring, sardines.	
		White fish, Cod and haddock are popular fish in the UK. Plaice, sole, halibut and turbot are flatfish classified as white fish	
		Shrimp and prawns are a wide group of small shellfish. Mussels and oysters are 'bivalve molluscs'. They have two shells that close around the soft body inside. Cockles, whelks, and winkles are small shellfish that are common around the UK.	
12	Meat alternatives	Vegetarian – chooses not to eat meat Vegan – avoiding animal products Tofu, Myco-protein (Quorn) Tempeh, Textured vegetables protein (TVP)	
13	Recipe modification	Making changes to recipes to alter tastes, texture and a[appearance sensory analysis – human senses (sight, smell, taste, touch and hearing) to describe and evaluate foods	

Year 7 French Term 1: Je me présente (1)

En classe	*In the classroom*
1. C'est vrai.	*It's true.*
2. C'est faux.	*It's false.*
3. Pardon.	*Sorry.*
4. Voilà!	*There it is/here it is!*
5. Je ne sais pas.	*I don't know.*
6. Répétez, s'il vous plaît.	*Can you repeat, please?*
7. merci	*Thank you.*
8. J'ai fini.	*I've finished.*
9. Je n'ai pas de stylo.	*I don't have a pen.*
10. Comment dit-on…en anglais?	*How do you say…in English?*
11. Comment dit-on…en français?	*How do you say…in French?*
12. Puis-je aller aux toilettes?	*Can I go to the toilet?*
13. Puis-je utiliser mon portable?	*Can I use my phone?*

Les salutations	*Greetings*
14. Bonjour!	*Hello!*
15. Bonsoir!	*Good evening!*
16. Salut!	*Hi*
17. Au revoir!	*Goodbye!*
18. Comment ça va?	*How are you?*
19. Ça va (très) bien.	*(Very) good.*
20. Ça va (très) mal.	*(Very) bad.*
21. Comment tu t'appelles?	*What is your name?*
22. Je m'appelle…	*My name is…*
23. Quel âge as-tu?	*How old are you?*
24. J'ai …ans.	*I am…years old.*

Les mois	*Months*
25. janvier	*January*
26. février	*February*
27. mars	*March*
28. avril	*April*
29. mai	*May*
30. juin	*June*
31. juillet	*July*
32. août	*August*
33. septembre	*September*
34. octobre	*October*
35. novembre	*November*
36. décembre	*December*
37. Mon anniversaire, c'est le…	*My birthday is…*

'avoir'	*'to have'*
38. J'ai	*I have*
39. Tu as	*You have*
40. Il a	*He has*
41. Elle a	*She has*
42. Nous avons	*We have*
43. Vous avez	*You (plural) have*
44. Ils ont	*They (masc.) have*
45. Elles ont	*They (fem.) have*

Les chiffres	*Numbers*
un	*1*
deux	*2*
trois	*3*
quatre	*4*
cinq	*5*
six	*6*
sept	*7*
huit	*8*
neuf	*9*
dix	*10*

Les chiffres	*Numbers*
onze	*11*
douze	*12*
treize	*13*
quatorze	*14*
quinze	*15*
seize	*16*
dix-sept	*17*
dix-huit	*18*
dix-neuf	*19*
vingt	*20*

Les chiffres	*Numbers*
vingt-et-un	*21*
vingt-deux	*22*
vingt-trois	*23*
vingt-quatre	*24*
vingt-cinq	*25*
vingt-six	*26*
vingt-sept	*27*
vingt-huit	*28*
vingt-neuf	*29*
trente	*30*

Year 7 French Term 2: Je me présente (2)

La personnalité	*Personality*
1. amusant / amusante	*funny*
2. arrogant /arrogante	*arrogant*
3. bavard / bavarde	*chatty*
4. fort / forte	*strong*
5. grand / grande	*tall*
6. méchant / méchante	*mean*
7. intelligent / intelligente	*intelligent*
8. patient /patiente	*patient*
9. petit / petite	*small*
10. timide	*shy*

'Être'	*'to be'*
11. Je suis	*I am*
12. Tu es	*You are*
13. Il est	*He is*
14. Elle est	*She is*
15. Nous sommes	*We are*
16. Vous êtes	*You (plural) are*
17. Ils sont	*They (masc.) are*
18. Elles sont	*They (fem.) are*

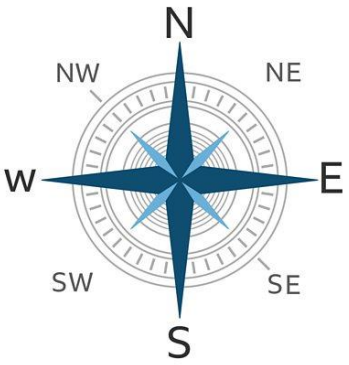
Les petits mots	*Small words*
19. très	*very*
20. un peu	*a bit*
21. assez	*quite*
22. trop	*too*
23. et	*and*
24. mais	*but*
25. ou	*or*
26. aussi	*also*

Les opinions	*Opinions*
27. J'aime…	*I like…*
28. J'aime beaucoup…	*I really like…*
29. J'aime assez…	*I quite like…*
30. Je n'aime pas…	*I don't like…*
31. J'adore…	*I love…*
32. Je déteste…	*I hate…*
33. parce que c'est…	*because it is*
34. génial	*great*
35. nul	*rubbish*

Tu aimes ça?	*Do you like that?*
36. le sport	*sport*
37. le foot	*football*
38. le vélo	*cycling*
39. le collège	*school*
40. le cinéma	*cinema*
41. le poisson	*fish*
42. la danse	*dance*
43. la musique	*music*
44. les pizzas	*pizzas*
45. les serpents	*snakes*
46. les glaces	*ice creams*
47. les jeux vidéo	*video games*
48. les vacances	*holidays*
49. les BD	*comics*
50. les mangas	*mangas*
51. les araignées	*spiders*

Geography - Fantastic Places – Map Skills

British Isles	The British Isles is a geographical term referring to an archipelago off the northwestern coast of Europe. It includes the island of Great Britain (containing England, Scotland, and Wales), the island of Ireland (containing the Republic of Ireland and Northern Ireland), and numerous smaller islands like the Isle of Man, Shetland, and the Hebrides.
Compass	A compass is primarily used for indicating directions, specifically the cardinal directions (North, South, East, and West). It helps in navigation and orientation by showing the direction of magnetic north, which allows users to determine other directions and plot a course.
Ordnance Survey (OS)	Ordnance Survey (OS) is Great Britain's national mapping agency, responsible for surveying and creating maps of the country. They provide detailed, up-to-date geographic data that is used by various sectors
Six-figure grid reference	A **six-figure grid reference** is a system used to pinpoint a location on a map with greater accuracy than a four-figure grid reference.
Contour lines	Contour lines are lines on a map that connect points of equal elevation, representing the shape and height of the land. They are used to show hills, slopes, and valleys, and help to understand the terrain of an area. The closer the lines are, the steeper the slope; conversely, widely spaced lines indicate a gentle slope or flat land.



GENERAL FEATURES

+	Place of worship
Current or former place of worship	with tower / with spire, minaret or dome
	Building; important building
	Glasshouse
	Youth hostel
	Bunkhouse/camping barn/other hostel
	Bus or coach station
	Lighthouse; disused lighthouse; beacon
	Triangulation pillar; mast
	Windmill, with or without sails
	Wind pump; wind turbine
pylon pole	Electricity transmission line
	Slopes
	Gravel pit / Sand pit
	Other pit or quarry / Landfill site or slag/spoil heap
BP/BS	Boundary post/stone
CG	Cattle grid
CH	Clubhouse
FB	Footbridge
MP; MS	Milepost ; milestone
Mon	Monument
PO	Post office
Pol Sta	Police station
Sch	School
TH	Town hall
NTL	Normal tidal limit
W; Spr	Well; spring

MAP SCALE

10,000cm

Real World

10cm

Map

10,000 / 10 = 1,000

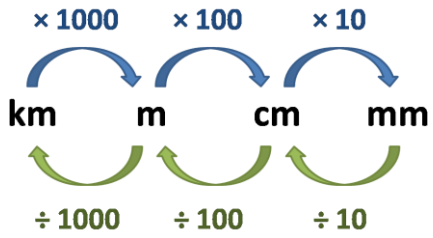
Scale Ratio = 1 : 1,000

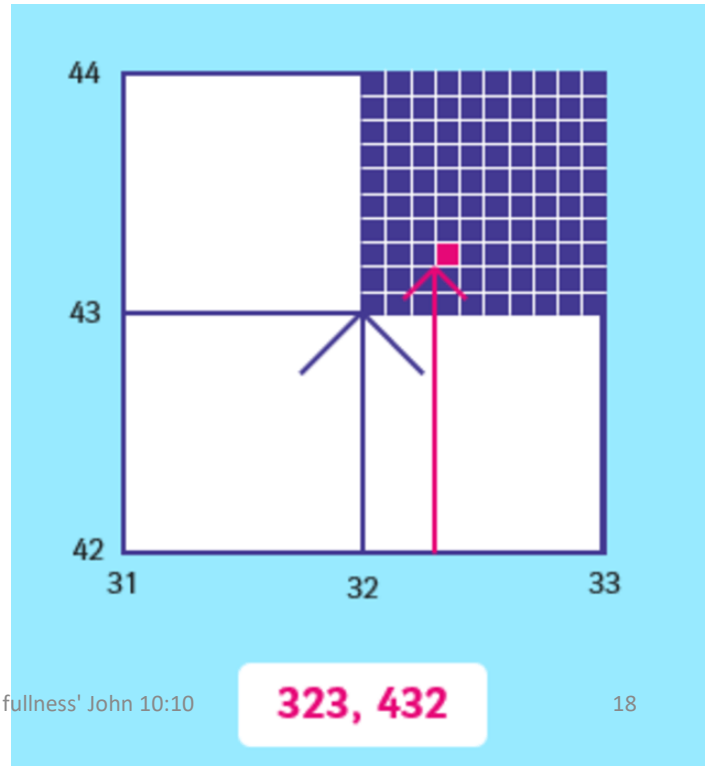
1cm on the map is equivlent to 1,000cm on the ground

SCALE BAR

0 1,000 5,000 10,000

1cm
on the map





Year 7 German Term 1: Meine Welt und ich (1)

Im Klassenzimmer	*In the classroom*
1. Bitte	*Please.*
2. Danke	*Thank you.*
3. Es tut mir leid.	*I'm sorry!*
4. Ich bin fertig.	*I'm finished.*
5. Das ist richtig.	*That's right.*
6. Das ist falsch.	*That's wrong.*
7. Ich weiß es nicht.	*I don't know.*
8. Nochmal, bitte.	*One more time, please.*
9. Ich habe keinen Kuli.	*I don't have a pen.*
10. Kannst du mir helfen?	*Can you help me?*
11. Kann ich mein Handy benutzen?	*Can I use my phone?*
12. Kann ich auf die Toilette gehen?	*Can I go to the toilet?*
13. Wie sagt man…auf Englisch?	*How do you say…in English?*
14. Wie sagt man…auf Deutsch?	*How do you say…in German?*

Grüße	*Greetings*
15. Guten Tag! / Hallo!	*Hello!*
16. Guten Nachmittag!	*Good afternoon!*
17. Guten Abend!	*Good evening!*
18. Auf Wiedersehen!	*Goodbye!*
19. Wie geht es dir?	*How are you?*
20. Mir geht es (sehr) gut.	*(Very) good.*
21. Mir geht es nicht (sehr) gut.	*(Very) bad.*
19. Wie heißt du?	*What are you called?*
20. Ich heiße…	*I'm called…*
21. Wie alt bist du?	*How old are you?*
22. Ich bin…Jahre alt.	*I am…years old.*

Die Zahlen	*Numbers*
eins	*1*
zwei	*2*
drei	*3*
vier	*4*
fünf	*5*
sechs	*6*
sieben	*7*
acht	*8*
neun	*9*
zehn	*10*

Die Zahlen	*Numbers*
elf	*11*
zwölf	*12*
dreizehn	*13*
vierzehn	*14*
fünfzehn	*15*
sechszehn	*16*
siebzehn	*17*
achtzehn	*18*
neunzehn	*19*
zwanzig	*20*

Die Zahlen	*Numbers*
einundzwanzig	*21*
zweiundzwanzig	*22*
dreiundzwanzig	*23*
vierundzwanzig	*24*
fünfundzwanzig	*25*
sechsundzwanzig	*26*
siebenundzwanzig	*27*
achtundzwanzig	*28*
neunundzwanzig	*29*
dreißig	*30*

Die Monaten	*Months*
25. Januar	*January*
26. Februar	*February*
27. März	*March*
28. April	*April*
29. Mai	*May*
30. Juni	*June*
31. Juli	*July*
32. August	*August*
33. September	*September*
34. Oktober	*October*
35. November	*November*
36. Dezember	*December*
37. Ich habe am…….. Geburtstag.	*My birthday is on the….*

'haben'	*'to have'*
38. Ich habe	*I have*
39. Du hast	*You have*
40. Er hat	*He has*
41. Sie hat	*She has*
42. Wir haben	*We have*
43. Ihr habt	*You (plural) have*
44. Sie haben	*They have*
45. Sie habem	*You (formal) have*

Year 7 German Term 2: Meine Welt und ich (2)

Eigenschaften	*Characteristics*
1. intelligent	*intelligent*
2. musikalisch	*musical*
3. sportlich	*sporty*
4. freundlich	*friendly*
5. kreativ	*creative*
6. laut	*loud*
7. lustig	*funny*
8. launisch	*moody*
9. faul	*lazy*
10. gesprächig	*chatty*

'sein'	*'to be'*
11. Ich bin	*I am*
12. Du bist	*You are*
13. Er ist	*He is*
14. Sie ist	*She is*
15. Wir sind	*We are*
16. Ihr seid	*You (plural) are*
17. Sie sind	*They are*
18. Sie sind	*You (formal) are*

Kleine Worte!	*Small words*
19. sehr	*very*
20. ein bisschen	*a bit*
21. ganz	*quite*
22. zu	*too*
23. und	*and*
24. aber	*but*
25. oder	*or*
26. auch	*also*

Meinungen	*Opinions*
28. Ich mag…	*I like…*
29. Ich mag…nicht.	*I don't like…*
30. Ich liebe…	*I love…*
31. Ich hasse…	*I hate…*
32. Mein(e) Lieblings…	*My favourite…*
33. denn es ist…	*because it is…*
34. denn sie sind…	*because they are…*
35. prima	*great*
36. schlecht	*rubbish*

Was ist dein Lieblings…?	*What is your favourite…?*
37. Sport	*sport*
38. Spiel	*game*
39. Musik	*music*
40. Film	*film*
41. Land	*country*
42. Monat	*month*
43. Tag	*day*
44. Auto	*car*
45. Deutschland	*Germany*
46. Österreich	*Austria*
47. Schottland	*Scotland*
48. Fußballmannschaft	*football team*
49. Pizza	*pizza*
50. Eis	*ice cream*
51. Bonbons	*sweats*
52. Schlangen	*snakes*

History Term 1
Knowledge Organiser: Year 7 Normans and the Battle of Hastings

Keyword	Definition
Anglo Saxon	The name 'Anglo-Saxon' comes from the Angles and the Saxons, two of the North European tribes that invaded and lived in Britain from the fifth century onwards
Bailey	Outer area that surrounded the castle motte. This was where houses, stables and so on were built
Barons	Member of the lowest order of the British nobility (Lord).
Cavalry	Military units or soldiers mounted on horseback. Being on horse helped them move quickly around a battlefield. William had cavalry but Harold did not.
Domesday book	The Domesday book is Britain's earliest public record. It contains the results of a huge survey of land and landholding commissioned by William I in 1085. William used it to know who owned what and what tax people needed to pay.
Fyrd	The name given to the group of soldiers in Harold Godwinson's army, formed from working men with basic weapons such as farming tools.
Harrying of the North	When William violently put down a revolt against him – people were killed and villages destroyed.
Heir	A person who has the legal right to receive somebody's property, money or title when that person dies
Hierarchy	A system in which people or things are put in ranks according to their importance. For example, in a typical family system, the parents have the most authority, followed by the children, then followed by the pets.
Housecarls	Harold Godwinson's best soldiers – paid and trained.
Keep	Most secure building in a castle which housed the Norman earls or those important people that needed shelter!
Motte	Earth mound on which a castle keep was built.
Norman	Someone from Normandy in France. The Normans would rule and control England after 1066
Rebellion	Fighting against something you disagree with.
Shield Wall	Barrier created by soldiers standing shoulder to shoulder, holding their shields in front of them so that they formed a wall
Tactics	A plan or method of employing forces in combat to achieve victory
Viking	Vikings is the modern name given to invaders from Scandinavia (mainly Denmark and Norway) who raided, attacked and settled in Britain from the late 8th to the late 11th century.
Witan	A group of important people in Anglo Saxon England. They met to help the king make decisions. The Witan's most powerful role came if there was doubt about who would be the next king.
Key Individuals	
Harold Godwinson	As Eral of Wessex, he was a powerful noble. Chosen to be king by the Witan in January 1066, was killed at the Battle of Hasting
Harald Hardrada	King of Norway. Invaded England believing he had been promised the English throne. Killed at the battle of Stamford Bridge.
William of Normandy	The Duke of Normandy, he was a powerful French noble, Claimed Harold Godwinson had promised him the throne. Invade England and defeated Harold at the Battle of Hastings.

History Term 2
Knowledge Organiser: Year 7 The Crusades

Keyword	Meaning
Byzantine Empire	The eastern part of the old Roman Empire and had its capital city in Constantinople (which is now Istanbul, Turkey).
Crusades	Crusades - a series of military expeditions launched by the Church and Christian Europeans, to win the Holy Land back from Muslim control
Franks	The term given by Muslims to Western European Christians - particularly those from France, Germany, and Italy.
Holy Land	Jerusalem and parts of the surrounding area where Jesus lived and taught. The land sacred to Jews, Christians and Muslims.
Hospitaller	A medieval Catholic military order founded in the 12th century, initially to care for pilgrims in Jerusalem, later evolving into a powerful fighting force.
Infidel	An infidel was someone that had no religious beliefs.
Jerusalem	A city in the Holy Land, regarded as sacred by Christians, Jews and Muslims
Outremer	The French term for "the land beyond the sea," it describes the four states established after the First Crusade in around 1100.
Pilgrim	A person who went on a religious journey to a sacred place e.g. Jerusalem.
Pilgrimage	A journey which has religious or spiritual significance, usually to an important religious place.
Saracen	A term used by European Christians to refer to Muslims, particularly those who opposed the crusaders in the Holy Land
Templars	A group of knights, established in Jerusalem in 1119, initially to protect Christian pilgrims and later to fight in the Crusades.
Key Individuals	
Pope Urban II	The leader of the church that called for Christians to go on the first crusade.
Saladin	The most famous Muslim leader who recaptured Jerusalem from the Christians in 1187.
King Richard I "the Lionheart"	An English King who won many battles against the Muslim armies but did not recapture Jerusalem. He negotiated a treaty with Saladin,

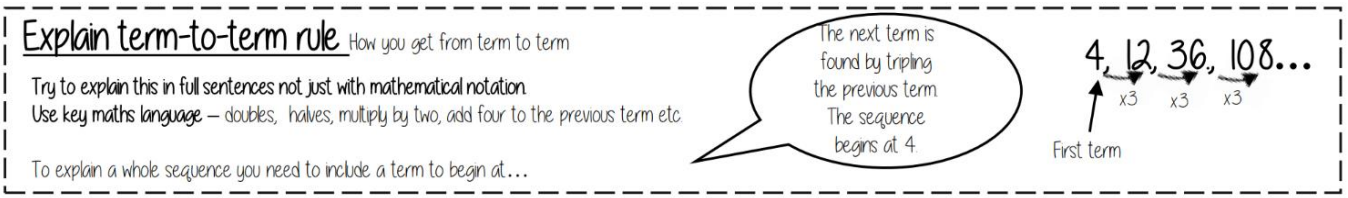
Important Crusades		
1096-1099	First Crusade	▪ First an army of peasants led by Peter the Hermit set off for the Holy Land. They were massacred by the Turks. ▪ An army of knights followed, led by Godfrey of Bouillon, which captured Jerusalem in 1099. The Crusaders massacred the Muslims until, it was said, the streets ran with blood.
1145-1149	Second Crusade	▪ King Louis VII of France invaded the Holy Land but was defeated at Damascus.
1189-1192	Third Crusade	▪ In 1187, the Muslim ruler Saladin had recaptured Jerusalem ▪ The Crusaders (who included King Richard I of England) captured the port of Acre, but quarrelled, and failed to capture Jerusalem.

Maths: 7.01 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
Rule	instructions that relate two variables
Linear	instructions that relate two variables
Non-linear	the difference between terms increases or decreases in different amounts
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 non zero number

Sparx codes for this topic	
M381	Term to term rule for numerical sequences
M241	Term to term rule for sequences of patterns
M981	Special sequences

Core knowledge

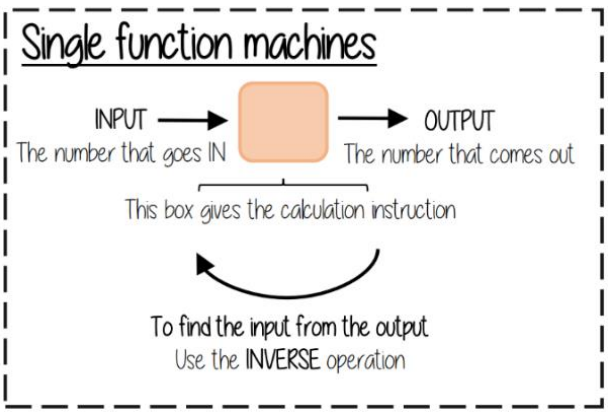


Maths: 7.02 Understand & use algebraic notation……

Key words	
Function	a relationship that instructs how to get from an input to an output
Input	the number/symbol put into a function
Output	the number/ expression that comes out of a function
Operation	a mathematical process
Inverse	the operation that undoes what was done by the previous operation. (The opposite operation)
Commutative	the order of the operations do not matter
Substitute	replace one variable with a number or new variable
Expression	a maths sentence with a minimum of two numbers and least one math operation (no equals sign)
Evaluate	work out
Linear	the difference between terms increases or decreases by the same value each time
Sequence	items or numbers put in a pre-decided order

Sparx codes for this topic	
M175, M428	Function machines
M813	Algebraic notation
M417, M327, M166	Substituting

Core knowledge



Maths: 7.03 Equality & equivalence…..

Key words	
Equality	two expressions that have the same value
Equation	a mathematical statement that two things are equal
Equals	represented by '=' symbol - means the same
Solution	the set or value that satisfies the equation
Solve	to find the solution
Inverse	the operation that undoes what was done by the previous operation. (The opposite operation)
Term	a single number or variable
Like	variables that are the same are 'like'
Coefficient	a multiplicative factor in front of a variable eg. 5x (5 is the coefficient, x is the variable)
Expression	a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)

Sparx codes for this topic	
M795	Simplifying expressions – 1 variable
M531	Simplifying expressions - multiple variables
M707	Solving expressions

Core knowledge

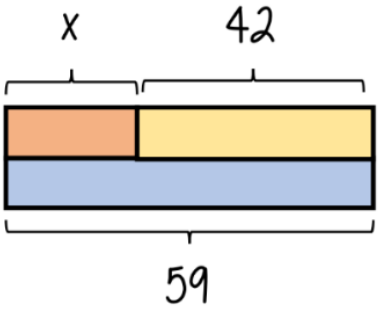
Solve one step equations (+/-)

There is more to this than just spotting the answer

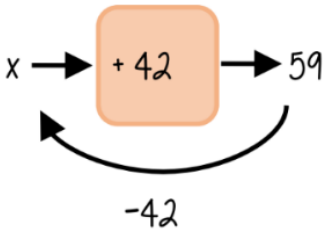
$x + 42 = 59$

$x + 42 = 59$
$42 + x = 59$

$59 - x = 42$
$59 - 42 = x$



Don't forget you know how to use function machines

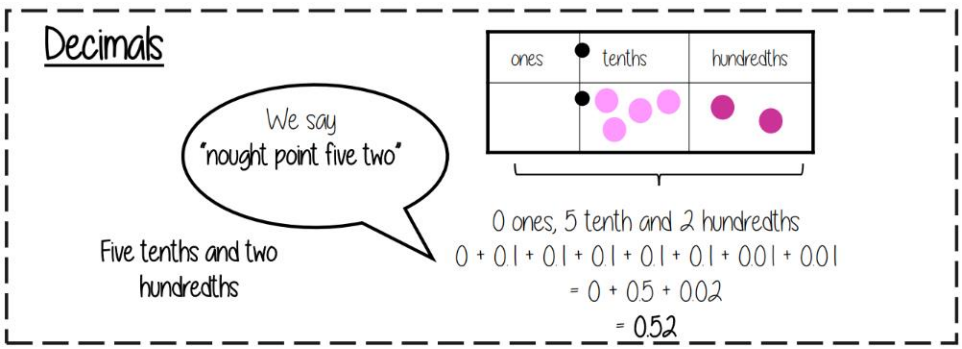


Maths: 7.04 Place value & ordering integers & decimals…..

Key words	
Approximate	To estimate a number, amount or total often using rounding of numbers to make them easier to calculate with
Integer	a whole number that is positive or negative
Interval	between two points or values
Median	a measure of central tendency (middle, average) found by putting all the data values in order and finding the middle I value of the list
Negative	Any number less than zero, written with a minus sign
Place holder	We use O as a place holder to show that there are none of a particular place in a number
Place value	The value of a digit depending on its place in a number. In our decimal number system, each place is 10 times ! bigger than the place to its right
Range	The difference between the largest and smallest numbers in a set
Significant figure	a digit that gives meaning to a number. The most significant digit (figure) in an integer is the number on the left. The most significant digit in a decimal fraction is the first non-zero number after the decimal point

Sparx codes for this topic	
M763, M704, M522	Place value
M328, M934	Range & median
M111, M431, M994, M131	Rounding
M719, M768	Additional higher content

Core knowledge

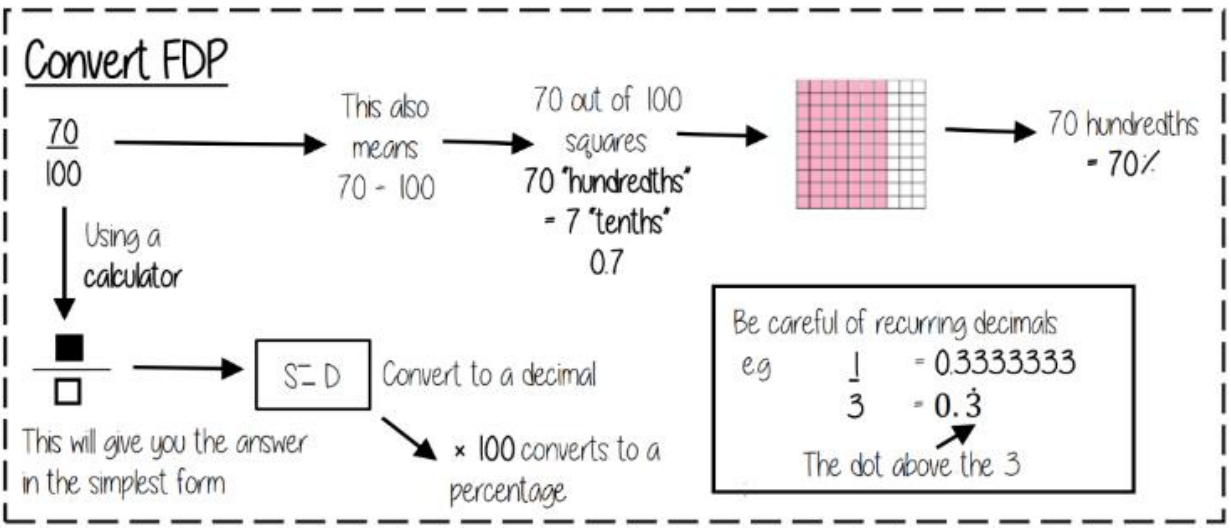


Maths: 7.05 Fraction, decimal & percentage equivalence…

Key words	
Fraction	how many parts of a whole we have
Decimal	a number with a decimal point used to separate ones, tenths, hundredths etc.
Percentage	a proportion of a whole represented as a number between 0 and 100
Place value	the numerical value that a digit has decided by its position in the number
Placeholder	a number that occupies a position to give value
Interval	a range between two numbers
Tenth	one whole split into 10 equal parts
Hundredth	one whole split into 100 equal parts
Sector	a part of a circle between two radius (often referred to as looking like a piece of pie) Recurring: a decimal that repeats in a given pattern

Sparx codes for this topic	
M158, M939	Fractions basics
M410, M671, M335	Equivalent, simplifying & ordering fractions
M958, M264, M553	Converting between FDP

Core knowledge

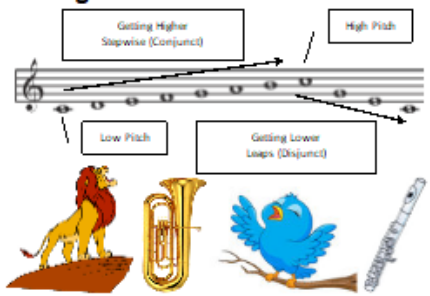


Building Bricks

Exploring the Elements of Music MAD T SHIRT

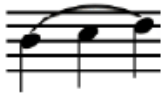
Melody - Pitch

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.

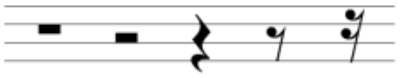
Velvety, Screechy, Throaty, Rattling, Mellow, Chirpy, Brassy, Sharp, Heavy, Buzzing, Crisp, Metallic, Wooden etc.

Rhythm (Duration)

The **length** of a sound.

SHORT ⟶ **LONG**

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



Tempo (speed)

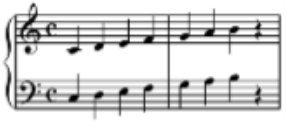
The **speed** of a sound or piece of music.

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.

Personal Development

Year 7 – Gangs, Substances and Staying Safe	
Caffeine	A stimulant chemical (something that makes people more active)
Stimulant	Something that gives you energy
Substances	A particular kind of matter with uniform properties
Medicines	A treatment for illness or injury
Side effects	A secondary, typically undesirable effect of a drug or medical treatment
Controlled drugs	Drugs or chemicals that are subject to strict government control because they may cause addiction or be misused
Dependence	The situation in which you need something or someone all the time
Addiction	The fact or condition or being addicted to a particular substance or activity
Tobacco	A substance smoked in cigarettes, pipes etc. that is prepared from the leaves of a tobacco plant
Nicotine	A naturally produced alkaloid in the nightshade family of plants. Used recreationally as a stimulant
E-cigarette/Vape	An electronic device that sometimes looks like a cigarette and allows someone to breath in nicotine
Peer influence	The ability or group members to influence individual behaviours based on group norms and the need for acceptance
Alcohol	Drinks such as beer and wine that contain a substance that can make people drunk
Risk	A situation involving exposure to danger
Consequence	A result or effect, typically one that is unwelcome or unpleasant
Gang	A group of people who spend time together, who share a common identity and general engage in criminal behaviour
County lines	Urban gangs supplying drugs to rural areas. They use dedicated mobile phone lines or "deal lines" for drug distribution. This criminal activity often involves child exploitation, as gangs used children to move drugs and money
Cuckooing	Criminal gangs taking over the homes of vulnerable people for illegal activities
Hazing/initiation ceremony	Occurs when new members enter certain social groups. Most often this involves degrading, humiliating or dangerous tasks and behaviours
CPR	Cardiopulmonary resuscitation. It combines chest compressions and rescue breaths to give a person the best chance of survival following cardiac arrest
Defibrillator	A device used to restore the normal restoration of a heart beat, using a controlled electric shock

Personal Development

Personal Development

Year 7 Knowledge Organiser – Careers & Economics	
Skill	An ability to do an activity or job well
Attribute	A quality or characteristic that something or someone has
Career	An occupation undertaken for a significant period of a person's life and with opportunities for progress
Enterprise	An organisation, especially a business
Goal	The object of a person's ambition or effort
Ambitious	Having or showing a strong desire and determined to succeed
Communication	The imparting or exchanging of information by speaking, writing or using some other medium
Analyse	Research something carefully in order to form a judgement
Consumer	Someone who buys goods or services. We are all consumers in some way or form
Employee	Someone who works for a person or business
Employer	A person or business who employs people
Income	Money we earn or receive from working for a wage or salary or from investing in assets e.g. money in a bank, in stocks and shares, in property
Loan	Money borrowed, usually from a bank or building society
Pension	Income received by retired people either from the Government as benefit or from their former employer, to which they will have contributed during their working lives by paying tax or by making payments into a pension fund
Manufacturer	A person or business that makes a product
Tax	Contributions from individuals, consumers and businesses to fund Government policies and services such as schools, hospitals, defence, the Civil Service and other Government spending
Wages	Money paid to an employee for working
Self-employed	When someone is in business on their own account, providing goods or services either as an individual sole trader or in partnership with other individuals
Risk	A situation that could cause harm or loss

WADHAM KS3 PE KNOWLEDGE ORGANISER: Hockey

Skills and Techniques:

Dribbling: Allows you to move the ball around the pitch without losing possession. Keep the ball close to your stick at all times. 'Sit on the toilet'. When running, keep the ball in front of you and at the 1 o'clock position

Don't look down when running with the ball. Keep your head up.

Passing: Push pass - stand side onto the ball. Bend your back leg and keep your front leg straight, with your foot pointing towards where you want the ball to go. With a slight bend in your arms, place your stick on the ball and push it forwards, transferring your weight from your back foot to your front foot.

Tackling: Keep your stick on the ground.

Block tackle – put your stick flat on the ground with your body in a lunge position.

Rules:

- A game consists of two 30 minute halves.
- The game is started with a centre pass/push back from the centre of the pitch.
- Two umpires officiate the game.
- You can only use the flat side of the stick to control the ball.
- You cannot use your feet or hands to control the ball unless you are the goalkeepers
- Players can 'self-pass' from free hit and pass ins. The opposition need to be 5m away from where it is taken
- Only 1 defender can tackle the player with the ball at a time.

Positions:

11 players on a team

CF - centre forward
RF - right forward
LF - left forward
CM - centre midfield
RM - right midfield
LM - left midfield
SW - sweeper
CB - centre back
RB - right back
LB - left back
GK- goalkeeper

Scoring System:

Players can only shoot within the D.

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.

Pass to your team mates 'stick side'.

Key Words:

Penalty flick
16 yard hit out
Self-pass
Short corner
Long corner
PPE gum shield / shin pads
Centre pass

Key Words:

Indian dribbling
Dribbling
Push pass
Hockey stick
Block tackle
Reverse stick
Jab tackle

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 Defense
WD - Wing Defense
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

WADHAM KS3 PE KNOWLEDGE ORGANISER: Football

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 center 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:

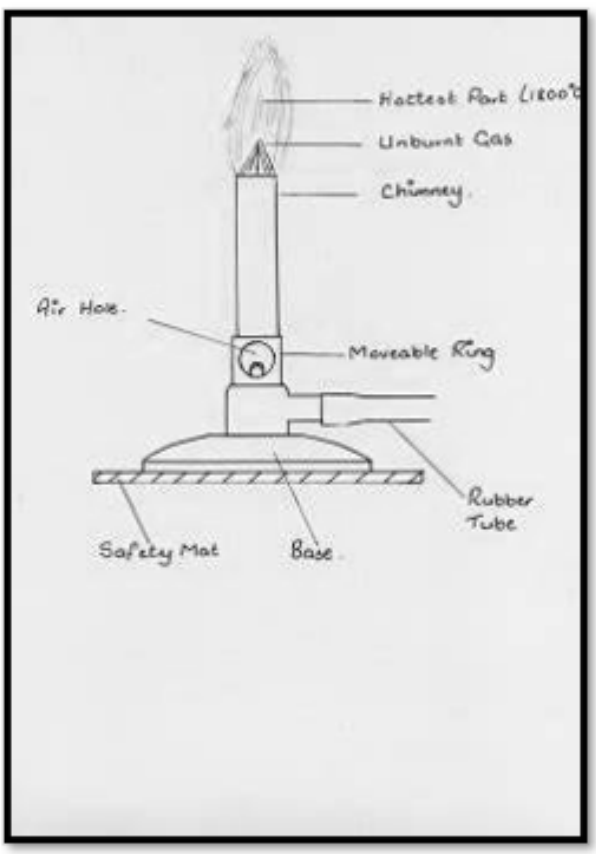
Jockey
Dribble
Laces
Throw in
Keepy ups
Toe taps
Happy feet
Cruyff turn
Off-side

Science

Science Safety – Lab safety rules and how to use a Bunsen Burner

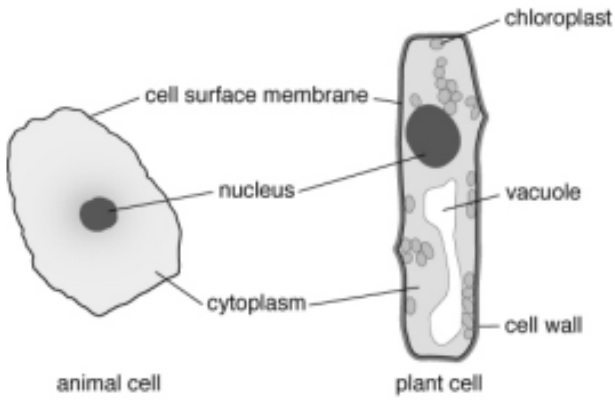
Lab rules for students

- Do not enter the lab without permission
- Dress for practical work – tie long hair back, tuck in anything that is trailing, roll up sleeves.
- Follow instructions from your teacher or other adults.
- Make sure your working area is safe – stools, bags and coats should be tucked in, out of the way.
- Never run in the lab
- Don't eat or drink
- Do not taste or sniff chemicals
- Never leave an unattended Bunsen burner on a blue flame
- Check that electrical equipment is safe
- Know what to do in case of accidents



Cells, tissues, organs and organ systems

All **organisms** carry out **seven life processes** (movement, reproduction, sensitivity, growth, respiration, excretion, nutrition). All organisms are made from **cells**:



Cell part	Function
cell surface membrane	keeps cell together and controls what goes into and out of the cell
nucleus	controls the cell
cytoplasm	where activities happen, including respiration (which occurs in **mitochondria**)
chloroplast	contains **chlorophyll** to trap sunlight for photosynthesis
cell wall	made of **cellulose** and provides support
vacuole	storage space

A **microscope** is used to **magnify** tiny things such as cells.

total magnification = magnification of **objective lens** × magnification of **eyepiece lens**.

The object you look at is the **specimen**. It has to be thin to let light get through it. It is placed with a drop of water onto a **slide**. A **coverslip** is carefully lowered on top, to stop the specimen drying out, hold it flat and stop it moving. A **stain** can be used to help you see parts of the cell.

To use a microscope:

A Place the smallest objective lens over the hole in the stage.

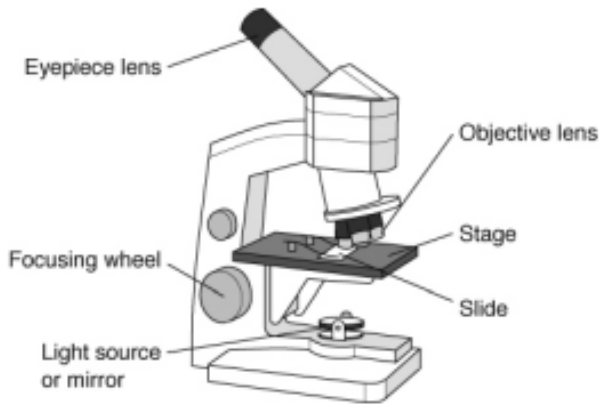
B Turn the focusing wheel to move the objective lens close to the stage.

C Place the slide on the stage.

D Adjust the light source or mirror.

E Look into the eyepiece lens.

F Turn the focusing wheel until what you see is in focus.



Science – 7A

Some cells are specialised and have special **functions**.

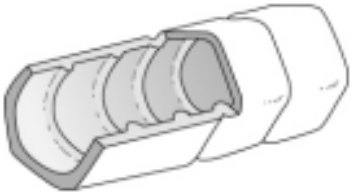
In animals

***Muscle cells** shape to move things.*

***Fat cells** in animals store fat.*

In plants

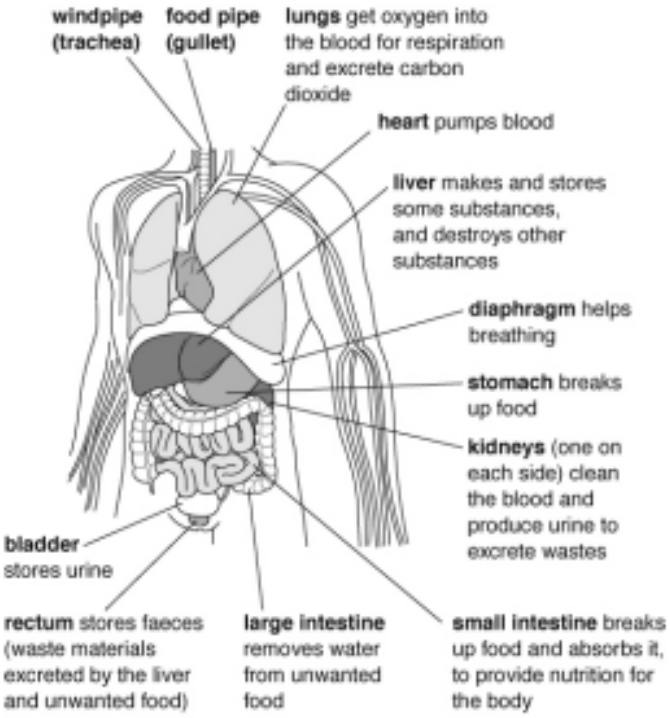
***Root hair cells** take in water.*

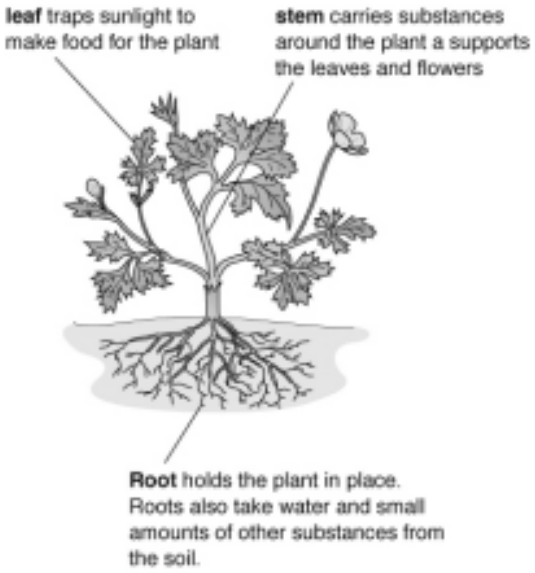


***Xylem cells** carry water.*

A group of cells that are the same, all doing the same job, is called a **tissue** (e.g. muscle tissue).

A group of different tissues working together to do an important job is an **organ**. For example, the **heart** is an organ and is made of muscle tissue and nerve tissue. Organs have important functions.





Organs often work together in **organ systems**.

Organ system	Organs	Job
breathing system	windpipe (trachea), lungs	takes air into the body and gets rid of waste gases
circulatory system	heart, blood vessels	carries oxygen and food around the body
digestive system	mouth, gullet, stomach, intestines	breaks down food
nervous system	brain, spinal cord, nerves	carries signals around the body
urinary system	bladder, kidneys	gets rid of waste
locomotor system	muscles, bones	allows movement
water transport system (plants)	roots, stem, leaves	carries water up a plant

Science – 7B

Reproduction

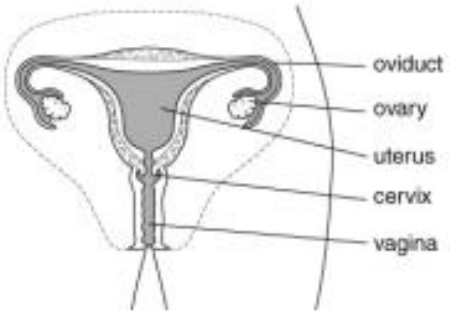
Reproduction produces new living things (**offspring**). Two **parents** are needed for **sexual reproduction**.

Males and females have **reproductive systems**, which contain **reproductive organs** to allow them to reproduce. The ovaries and testes produce **gametes** or **sex cells**.

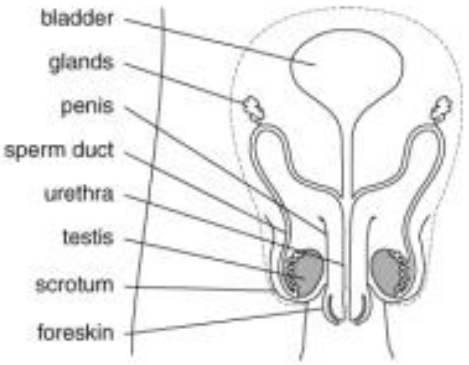
Sexual intercourse in mammals

During **sexual intercourse**, **semen** (sperm cells mixed with special liquids from the **glands**) is forced out of the penis and into the top of the **vagina**. This is called **ejaculation**. The semen travels into the top of the **uterus** and the sperm cells then swim down the **oviducts**.

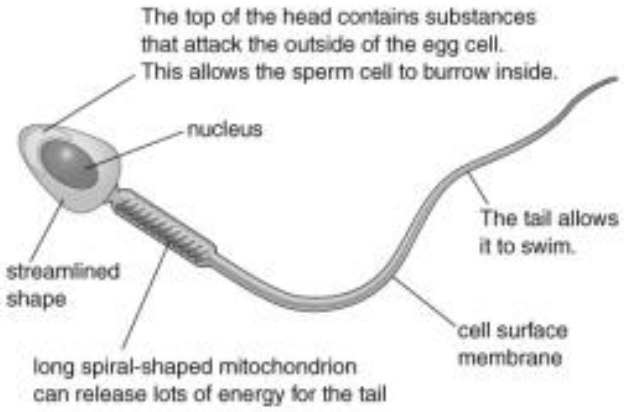
Sperm and egg cells are **adapted** to their **functions**. A sperm cell is much smaller than an egg cell.

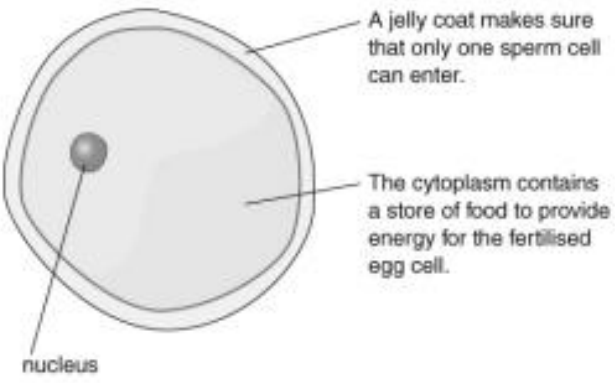


The female reproductive system



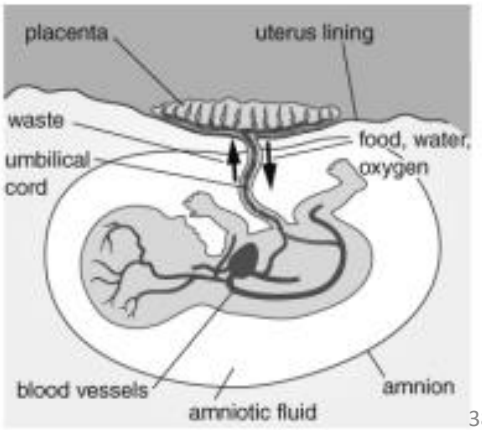
The male reproductive system





Pregnancy in mammals

If an egg cell meets a sperm cell in an oviduct, **fertilisation** can occur (the nuclei from the two cells **fuse**). The **fertilised egg cell** divides to form a ball of cells (an **embryo**). The embryo travels to the uterus where it sinks into the uterus lining (**implantation**). The woman is now **pregnant**. Once the embryo has developed all its organs it is called a **fetus**. It takes about 40 weeks (9 months) for a human fertilised egg cell to grow into a baby ready to be born. This time is called the **gestation period**.



While inside the uterus, the fetus is supplied with oxygen and food by the **placenta**. The placenta also gets rid of waste (especially carbon dioxide) from the fetus. The **umbilical cord** connects the fetus to the placenta.

If a mother smokes, drinks too much alcohol or takes drugs while pregnant, she might damage the baby. The baby might be **premature**.

Birth in mammals

- The uterus starts **contractions** and the woman goes into **labour**.
- The muscles of the **cervix** relax.
- The baby is pushed out head first through the cervix and the vagina.
- The baby starts to breathe and the umbilical cord is cut. The scar left behind is the **navel**.
- Then the placenta is pushed out of the uterus. This is the **afterbirth**.

The mother's breasts contain **mammary glands** that produce milk to feed the baby. Breast milk contains all the nutrients that a baby needs and **antibodies**, which help destroy micro-organisms that might cause diseases.

Growing up

The stages through which an organism goes as it grows and develops are its **lifecycle**. In the human lifecycle, a baby grows into a child. Between the ages of 10 and 14 years, most children start to go through **puberty**. During puberty, **sex hormones** cause big physical changes to occur. **Adolescence** is the time when emotional as well as physical changes occur. It ends at about 18.

Changes in boys	Changes in girls
• hair grows under arms, on face and on chest	• hair grows under arms
• pubic hair grows	• pubic hair grows
• shoulders get wider	• hips get wider
• body smell increases	• body smell increases
• testes start to make sperm cells	• ovaries start to release egg cells
• testes and penis get bigger	• breasts develop
• voice deepens ('breaks')	

After puberty, animals are able to sexually reproduce. Men produce sperm cells for the rest of their lives. Women stop releasing egg cells at the age of 45–55 and this is called the **menopause**.

In all mammals fertilisation happens inside the female. This is called **internal fertilisation**. In some animals (e.g. frogs, fish) fertilisation happens outside the female (**external fertilisation**).

The fertilised egg cells of many animals also grow and develop outside their parents. This is called **external development**. Amphibians, birds and fish use external development. Humans use **internal development** and produce fewer offspring than animals using external development because the growing embryos are protected inside the mother.

Science – 7E

Mixtures

A **mixture** contains two or more substances jumbled together. There are different kinds of mixture:

- **suspension**: the solids settle out of the mixture over time.
- **colloid**: the solid pieces are smaller so they don't settle out, and the mixture looks cloudy or **opaque**.
- **solution**: the solids break up into such small pieces that they are not visible, and the mixture is **transparent**.

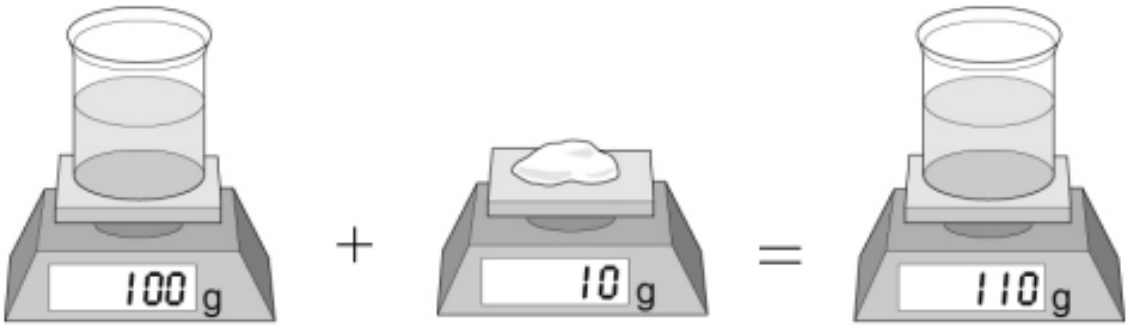
Solutions

Some solids **dissolve** in water to make a solution. These solids are **soluble**. A solution is made from a **solute** (usually a solid) and a **solvent** (liquid). Some gases, such as oxygen and carbon dioxide, can also dissolve in water.

solute solvent solution

Substances that do not dissolve in a solvent are **insoluble**. When an insoluble substance is mixed with water, the mixture formed may be a suspension or a colloid.

The total **mass** of a solution equals the mass of solvent added to the mass of solute.



solvent solute solution

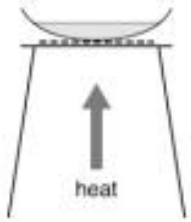
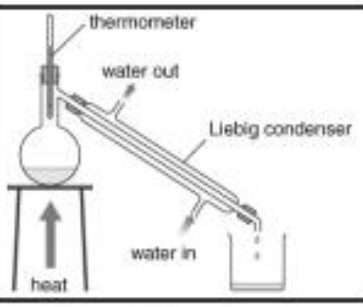
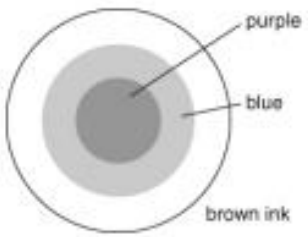
Water dissolves many different solutes. Other liquids (e.g. white spirit, ethanol) can also be used as solvents. Solutes that are insoluble in water may dissolve in other solvents.

If you keep adding solutes to a solvent, you will get to a point where no more will dissolve. The solution is **saturated** with solute. More solid may dissolve if you add more solvent (e.g. water) or increase the temperature.

The **solubility** of a solute is the amount that will dissolve in a fixed amount of solvent at a particular temperature.

Science – 7E

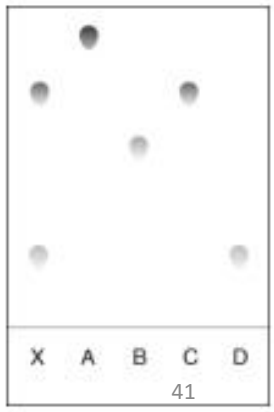
Mixtures and solutions can be separated using different methods.

Method	Used to separate	Apparatus used	Examples
filtering (filtration)	solids from a suspension (i.e. large pieces of solids that have not dissolved in a liquid)		• sand from a mixture of sand and water
evaporation	solid substances from a solution or colloid		• salt from a salt solution
distillation (evaporation followed by condensation)	liquid from a mixture		• pure water from a salt solution
chromatography	individual solutes from a mixture of solutes in a solvent		• colours found in ink

Interpreting a chromatogram

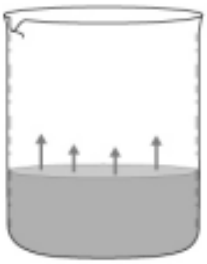
Chromatograms help to identify substances in a mixture.

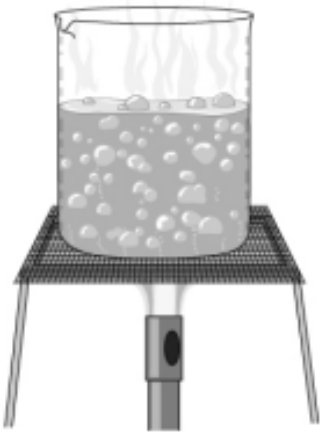
This paper chromatogram shows that A, B, C and D are all single substances and that X is a mixture of C and D.



Science – 7E

Evaporation and boiling





Evaporation is when a liquid turns to a gas at its surface.

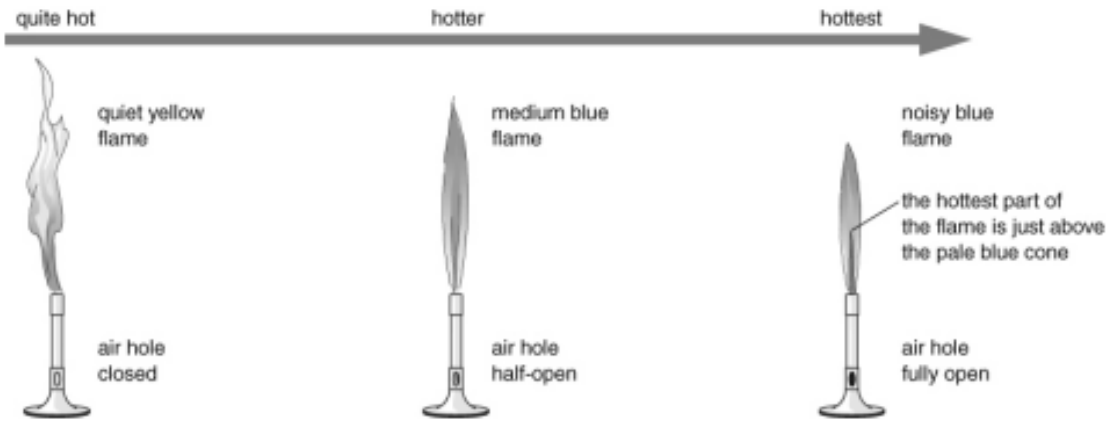
- It happens at any temperature.
- It is faster when the temperature is higher.

When a liquid **boils**, all the liquid is trying to turn into a gas at the same time.

- Boiling happens at the liquid's **boiling point**.
- Gas formed inside the liquid makes bubbles that rise to the surface.
- The boiling point of pure water is 100 °C.

Heating with a Bunsen burner

The air hole of a Bunsen burner can be adjusted to give different kinds of flame. Each kind is useful for different things.



Safety flame: should always be used when not heating.

This flame is used for gentle heating.

This flame is used for rapid heating.

Science – 7E

Hazards and risks

- A **hazard** is something that could cause harm.
- A **risk** is how likely it is that the hazard will cause harm.
- You should always plan to minimise risks in experiments.

Example of hazard	How to reduce the risk from the hazard
Burns or scalds from apparatus heated by a Bunsen burner.	Use heat-resistant gloves or tongs to touch apparatus.
Spitting liquid when heating to dryness.	Wear eye protection and make sure heat is turned off before the solution is completely dry.
Shaking of distillation flask by bubbling liquid.	Add anti-bumping granules to liquid to prevent large gas bubbles forming.

Writing a good method

Here is a **method** for lighting a Bunsen burner safely. The labels on the right show how to write a good method.

Method

A Check the gas hose for breaks or holes and return the Bunsen burner and hose to your teacher if it is damaged.

B Tie back loose hair and any loose clothing, such as a tie or scarf.

C Remove everything except what is needed for the experiment from your working area.

D Wear eye protection.

E Place the burner on a heat-resistant mat 30–40 cm from the edge of the bench.

F Make sure the air hole of the Bunsen burner is closed.

G Hold a lit splint or a long-armed sparker or lighter about 2 cm above the top of the Bunsen burner.

H Turn on the gas at the gas tap to light the burner.

The instructions are written as a set of steps in the correct order, or **sequence**, for carrying out the experiment.

Each step describes one action during the experiment.

Use **imperative verbs** (command words) to keep the sentence structure simple and the language clear.

Use the correct names for apparatus, and correct science terms where appropriate.

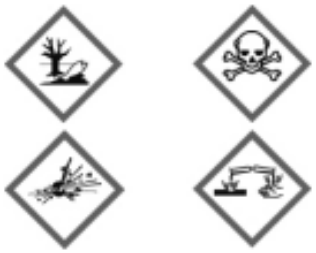
When you write up your method in your report at the end of the experiment, change the verbs to the past tense. For example:

- I made sure the air hole of the Bunsen burner was closed.

Science - 7F

Hazards

- A **hazard** is something that can cause harm.
- Chemicals are labelled with hazard symbols to warn people of potential dangers.
- Some common hazard symbols are:



Risk WS

- A **risk** is the chance that a hazard will actually cause harm.
- Risks can be reduced by taking **precautions**. E.g. wearing eye protection to prevent chemicals splashing in your eyes or tying long hair back to prevent it catching fire in a Bunsen flame.

Acids

- Common substances at home that contain acids include: citric acid, vinegar, fizzy drinks and car battery acid.
- Acids have a sour taste.
- Most concentrated acids are **corrosive**. If they are added to water they become more **dilute**. Dilute acids are less hazardous. Many dilute acids are **irritant**.

Alkalis

- Common substances at home that contain alkalis include: toothpaste, drain cleaner, oven cleaner.
- Many alkalis are metal hydroxide solutions.
- An alkali can be described as a soluble base. A base is any substance, soluble or insoluble, that neutralises an acid forming a salt and water.

Indicators

- Indicators change colour and can be used to detect acids, alkalis and neutral solutions.
- Litmus is a common indicator.

Solution	Colour of litmus
acid	red
neutral	purple
alkali	blue

pH scale

- A numbered scale from 1 to 14.
- Acids have a pH less than 7. The lower the pH, the more acidic the substance is. The lower the pH, the more hazardous the acid is.
- Neutral solutions have pH 7.
- Alkalis have a pH more than 7. The higher the pH, the more alkaline the substance is. The higher the pH, the more hazardous the alkali is.

strong acid			weak acid			neutral	weak alkali			strong alkali			
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**
stomach acid		vinegar lemon juice	fizzy drinks		skin milk	pure water	indigestion powder toothpaste			washing powder			oven cleaner

Neutralisation

- This is a reaction between an acid and an alkali.

  acid + alkali → salt + water

- It is also a reaction between an acid and a base.

  acid + base → salt + water

Word equation

- This summarises a reaction by writing the names of the substances you start with and the names of the new substances that are made.
- **Reactants** are the substances you start with and are written on the left side of the word equation.
- **Products** are the new substances that are made and are written on the right side of the word equation.
- There is an arrow between the reactants and products. The arrow means 'react to form'. Do not write an equals sign, =.
- For example

  hydrochloric acid + sodium hydroxide → sodium chloride + water

  Hydrochloric acid and sodium hydroxide are the reactants.

  Sodium chloride and water are the products.

  Notice the arrow between the reactants and the products.

Salts

- Salts are made when an acid reacts with an alkali or a base.
- Salts names are made of two words.
- The first part of the name of the salt is the same as the metal in the alkali or base.
- The second part of the name of the salt comes from the acid.

Acid	Second part of the name of the salt	Example
hydrochloric acid	chloride	Zinc chloride is made from zinc oxide and hydrochloric acid
nitric acid	nitrate	Magnesium nitrate is made from magnesium oxide and nitric acid
sulfuric acid	sulfate	Copper sulfate is made from copper oxide and sulfuric acid

Neutralisation in everyday life

- Antacids are indigestion remedies. People take these medicines if they have indigestion caused by too much acid in the stomach. The antacid contains a base that neutralises the extra acid.
- Soil can become too acidic for some crops to grow. Farmers spread lime (a base) on the soil to neutralise the acid.
- Toothpaste contains a mild alkali to neutralise the acid in our mouths.
- Alkalis are used to neutralise the acidic gases coming out of power stations.
- Sulfuric acid reacts with iron oxide in rust and removes it from the surface of an object.

Science – 7I

Energy from food

Humans and other animals need energy to live. The energy resource for our bodies is the energy stored in food. We need to choose our food so that we get the right amount of energy.

The unit for measuring energy is the **joule** (**J**). There is a lot of energy stored in food, so we usually measure the energy in food using **kilojoules** (**kJ**). 1 kJ = 1000 J.

Energy transfers and stores

Energy can be transferred by:

- heating
- light
- sound
- electricity
- forces.

Energy can also be stored in different ways.

Energy stored in…	Commonly called…
the chemicals in food, fuels and batteries	chemical energy
moving objects	kinetic energy
hot objects	thermal energy
objects that are stretched, squashed or twisted	strain energy or elastic potential energy
objects moved to high places	gravitational potential energy
inside the particles that everything is made up from	nuclear energy or atomic energy

Energy is not used up. It can be transferred and stored in different ways, but it cannot be created or destroyed. This is called the **law of conservation of energy**.

Fuels

Fuels store energy, and this energy is transferred when the fuels burn. Burning fuels are used to heat things.

Fossil fuels:

- are made from plants and animals that were trapped in mud and rocks millions of years ago
- include coal, oil and natural gas
- are non-renewable (they take millions of years to form, and so our supplies will run out)
- produce gases that cause pollution and global warming when burnt
- are relatively cheap to obtain
- originally got their energy from the Sun. The plants that became coal, oil and natural gas got their energy from the Sun, and the animals that became oil and natural gas got their energy from plants, which got their energy from the Sun.

Nuclear fuel is also non-renewable. Nuclear power stations produce dangerous waste materials.

Electricity is not a fuel. It has to be generated using other **energy resources**.

Making fossil fuels last longer

We can make fossil fuels last longer and help to reduce global warming by using less of them. We could walk or cycle whenever we can, or use a bus instead of using a car. Walking and cycling would make us fitter and healthier, and there would be less pollution if there were not as many cars on the roads. We could also save energy by keeping our houses cooler and putting on more clothes if we are cold instead of turning up the heating.

Renewable energy resources:

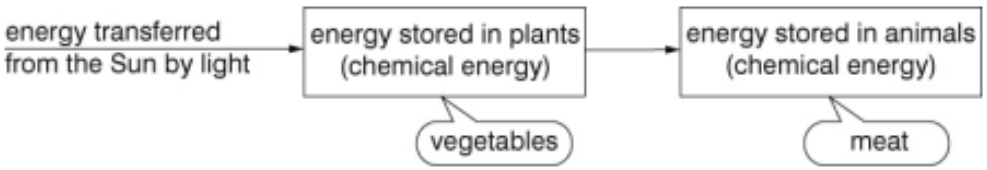
- include solar, wind, tidal, wave, biofuels, geothermal and hydroelectricity
- do not produce harmful gases or contribute to global warming
- are often more expensive than using fossil fuels
- will not run out
- are not always available.

Hydroelectricity, geothermal energy and biofuels are available at any time. Tidal power is not available all the time, but we can predict when it will be available. Energy from solar, wind and waves is only available some of the time.

Energy from the Sun

Most of the energy resources we use store energy that originally came from the Sun.
Only geothermal power, nuclear power and tidal power do not depend on energy from the Sun.

How energy is transferred to our food:



How energy is stored in the wind and in waves: