# Wadham School

*A Church of England Community School*

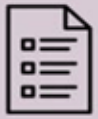
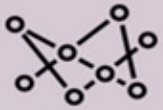
# Knowledge Organisers
# Year 8
# Term 3
# 2023-2024


Name.....

Tutor group.....

*"Life in all its fullness" John 10:10*

# How to use a knowledge organiser – step by step guide

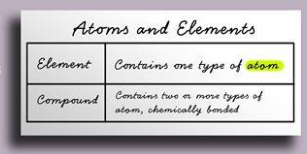
| | Look, Cover, Write, Check | Definitions of Key Words | Flash Cards | Self Quizzing | Mind Maps | Paired Retrieval |
|---|---|---|---|---|---|---|
| **Step 1** | Look at and study a specific area of your KO.  | Write down the key words and definitions.  | Use your KO to condense and write down key facts or information onto flash cards.  | Use your KO to create a mini quiz. Write down your questions using your KO.  | Create a mind map with all the information you can remember from your KO.  | Ask a friend or family member to have the KO or flash cards in their hands.  |
| **Step 2** | Cover or flip the KO over and write down everything you can remember.  | Try not to use your KO to help you.  | Add pictures to help support. Then self-quiz using the flash cards. You could write questions on one side, and answers on the other!  | Answer the questions and remember to use full sentences.  | Check your KO to see if there are any mistakes on your mind map.  | They can test you by asking you questions on different sections of your KO.  |
| **Step 3** | Check what you have written down. Correct any mistakes in green pen and add anything you have missed. Repeat.  | Use your green pen to check your work.  | Ask a friend or family member to quiz you on the knowledge.  | Ask a friend or family member to quiz you using the questions.  | Try to make connections, linking the information together.  | Write down your answers,  |

How to use Knowledge Organisers?

# HOW TO USE KNOWLEDGE ORGANISERS TO CHECK YOUR UNDERSTANDING

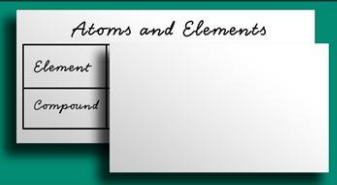
## 1 READ

CHOOSE A 'CHUNK' OF KNOWLEDGE ...
BUT DON'T CHOOSE TOO MUCH (2 - 9 FACTS)
WRITE DOWN YOUR LIST OF FACTS / DEFINITIONS
READ AND HIGHLIGHT KEYWORDS
RE-READ FOR A FEW MINUTES



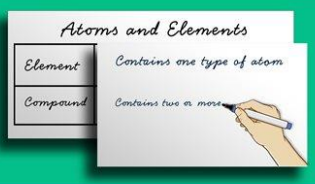

## 2 COVER

NOW COVER THE DEFINITIONS - CAN YOU STILL REMEMBER THEM?



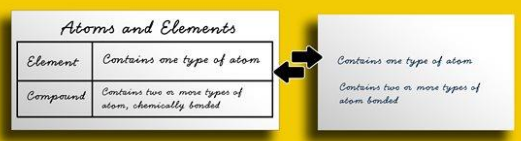

## 3 WRITE

NOW WRITE THE DEFINITIONS/FACTS AS ACCURATELY AS YOU CAN




## 4 CHECK

CHECK WHAT YOU GOT RIGHT AND WRONG




## 5 CORRECT

IT IS REALLY IMPORTANT TO CORRECT ANY MISTAKES AND ADD ANYTHING YOU MISSED

# YEAR 8 ART (Portraiture)

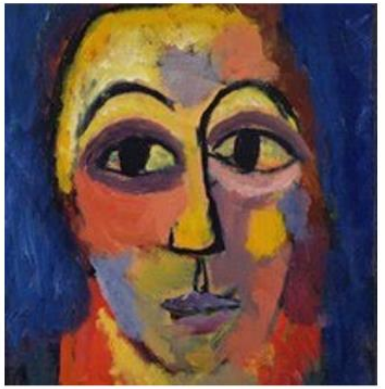
Portraiture is a huge area of art, with many different approaches and styles. Here are some key artists:

**Russ Mills** is a contemporary British artist. He often combines animal and human faces. How do you think this portrait is make you feel?

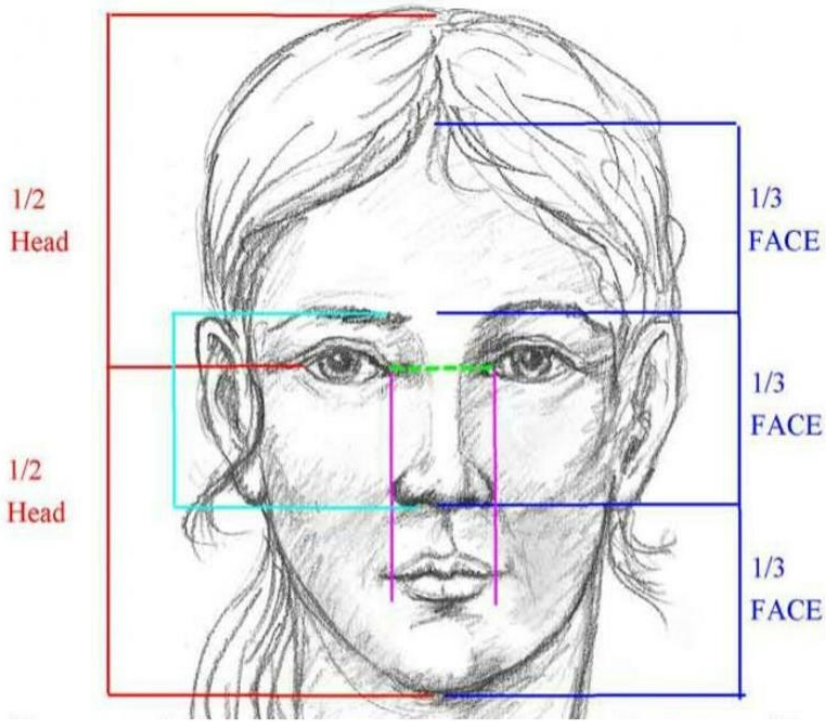
**Peony Yip** is an illustrator living and working in Hong Kong. She combines human and animal faces, overlaying them rather than merging them together. How would you describe this effect?

In this study of a girl, by **Leonardo Da Vinci,** notice how he uses tone to make the head feel solid, and the features soft.

In this portrait by **Alexej von Jawlensky**, painted in 1930, he has not tried to make it realistic. Instead, he used colours to show the emotion. This is known as expressionism.



# YEAR 8 ART (Portraiture)




- The eyes are halfway between the top of the head and the bottom of the chin.
- The face is divided into 3 parts: From hairline to eyebrow, eyebrow to bottom of nose and from nose to chin.
- The distance between the eyes is approximately the width of one eye.
- This is the same width as the nose.
- The ear length is from the eyebrow to the bottom of the nose.

| Word | Definition |
|---|---|
| Features | The nose, mouth, ears and eyes. |
| Proportion | The relationship between height, width and position of these features. |
| Form | The appearance of 3-dimensional depth. |
| Tone | Use of light and dark to create the illusion of form. |
| Profile | The view of the side of the face. |
| Composition | How the artist chooses to arrange the elements of the image onto the paper. |
| Realist | Accurately portraying the visual appearance of the person. |
| Expressionist | Portraying the feeling or personality rather than the appearance of the person, often through use of colour. |

# Drawing from Observation

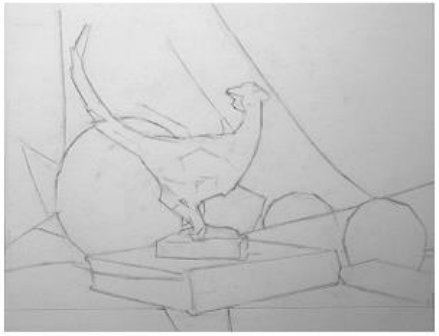
1. **Don't trace.** This shows minimal skill and teaches you very little.

2. **Draw from real objects rather than photographs.** You cannot simulate the changing light conditions, rich textures views from different angles as well as information from other senses. It results in more authentic drawings.

3. **Use grids, guidelines or rough forms** to get the proportions right before you add details.

4. **Look at what you are drawing.** The only way to record shape, proportion and detail accurately is to look at the source of information. Human memory does not suffice!

5. **Understand perspective.** Objects get smaller as they get further away.



6. **Use mark-making to convey surface quality and texture.** Strike the paper in different ways to create a variety of effects.

8. **Include/omit detail as necessary.** It can be disheartening when drawing very complex subjects like trees but it is not necessary to replicate every leaf or stick. Sometimes a certain area of a drawing is rendered in full, with other parts trailing away.

9. **Be wary of ellipses** (the oval shapes that are visible at the top of cylindrical objects. Frequently a 'trip up' point.

10. **Keep the outlines light.** Real objects do not have dark lines running around every edge.

7. **Include a range of tones.** Observe where the light and dark areas are.

Art

# Beliefs and World Views

**The Buddha**

| | | |
|---|---|---|
| 1 | Siddhartha | The man who became the Buddha. |
| 2 | Four sights | Four things Siddhartha saw, old person, sick person, dead person, holy man. |
| 3 | Bodhi tree | The tree under which Siddhartha became the Buddha. |
| 4 | Mara | Demon which tried to distract and tempt Siddhartha. |
| 5 | Enlightenment | Understanding where suffering comes from and escaping it. |
| 6 | Middle way | Middle path between materialism and spiritualism. |
| 7 | Materialism | Being focused only on the physical things in life. |
| 8 | Spiritualism | Being focused only on the spiritual things in life. |
| 9 | Asceticism | Starving the body of food and comfort. |

**Key teachings**

| | | |
|---|---|---|
| 10 | Four noble truths | Four truths Buddha teaches about life; suffering exits, suffering comes from desire, we can overcome suffering, to do this we must overcome desire through the 8 fold path. |
| 11 | 3 fold way | The three routes to removing suffering; meditation, wisdom and ethics. |
| 12 | 8 fold path | Eight steps to escaping suffering according to the Buddha. |
| 13 | Wheel of life | Diagram that shows the cycle of life, death and rebirth. |
| 14 | Reincarnation | Being born again in a new body after death. |
| 15 | Karma | The belief that intentional actions have consequences, good or bad, for the person who does them. |
| 16 | Samsara | The cycle of being reborn over and over again. |
| 17 | Nibbana | Escaping the cycle of death and rebirth. |

**Monks and Buddhist life**

| | | |
|---|---|---|
| 18 | Mahayana | School of Buddhism focused on following the Buddha. |
| 19 | Theravada | School of Buddhism focused on compassion. |
| 20 | Monk | A person who has dedicated their life to following Buddhist teachings. |
| 21 | Laity | People who follow a religion but have not dedicated their life to it. |
| 22 | Meditation | Focusing on quieting your mind and being present in the moment. |
| 23 | Mindfulness | Being aware and focused on the present moment no matter what your doing. |

**Christian ideas**

| | | |
|---|---|---|
| 24 | Irenaeus | Christian philosopher who put forward an explanation of evil. |
| 25 | Image of God | Christian belief God made people to be a bit like him in some way. |
| 26 | Likeness of God | Christian belief people can grow to be more like God. |
| 27 | Veil of soul making | Irenaeus' idea that the world has evil in it to help us make our souls into Gods likeness by helping people and being good. |

# Computing

| | | |
|---|---|---|
| 1 | HTML | Hypertext Markup Language (HTML) is used by website developers to define the structure of a website. A website user then uses a browser (which can understand the HTML and render it) to view the webpage |
| 2 | HTML Tag | Used to define a HTML element (part of a page) such as a paragraph or heading |
| 3 | Formatting | Changing the appearance of a webpage; usually to make it clearer and easier to understand the content |
| 4 | Directory | A directory (or folder) is a file on a computer which contains references (pointers) to other files. These other files may also be directories. |
| 5 | CSS | Cascading style sheets (CSS) is the language that is used to format and style HTML web pages |
| 6 | Head | The head of a HTML page is a container for metadata (data about data) |
| 7 | Body | The body of a HTML web page is the part where the visible content goes |
| 8 | Search term | A word that the user types into a search engine as part of a search query |
| 9 | Hyperlink | A clickable element on a web page which takes the user to another web page |
| 10 | Indexing | The process by which search engines organise large amounts of information to enable very fast access times |
| 11 | Search query | A search query is the collection of search terms that a user enters into a search engine to perform a search of the world wide web |
| 12 | Ranking algorithm | A sequence of steps followed by a search engine to determine the order in which search results appear for a particular search term |
| 13 | Navigation | The part of a website, which is often a menu of some kind, which allows the user to move between pages on the website easily (i.e. without having to manually edit the URL in their browser) |
| 14 | Browser | A program (such as Google Chrome, Mozilla Firefox or Microsoft Edge) which can understand HTML, CSS and JavaScript code and display a website on a user's computer |

# 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. |

## A Monster Calls

| Key words | Definition |
|---|---|
| **Connotation** | Associated concepts |
| **Empathy** | Understanding others' feelings |
| **Sympathy** | Feeling sorry for someone |
| **Narrative framing** | Stories within stories |
| **Ambiguity** | Multiple interpretations |
| **Repression** | Holding down emotions |
| **Projection** | Displacing emotions onto something else |
| **Allegory** | A story that has a moral message |
| **Foil** | A character that reflects the main character |
| **Foreboding** | Suggesting bad things will happen |
| **Emphasis** | Intensifying certain things |
| **Subverting** | Flipping expectations |
| **Recklessness** | Not caring about consequences |
| **Paradox** | Contradictory meanings |
| **Narrative coherence** | Linking story ideas together |
| **Dissociation** | Losing sense of self |

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

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

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

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

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

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

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

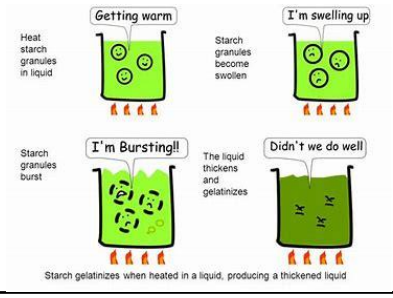
| Vital verb: *manger (to eat)* | |
|---|---|
| **Present:** | **Near future:** |
| *Je mang**e*** | *Je **vais** manger* |
| *Tu mang**es*** | *Tu **vas** manger* |
| *Il/elle/on mang**e*** | *Il/elle/on **va** manger* |
| *Nous mange**ons*** | *Nous **allons** manger* |
| *Vous mangeez* | *Vous **allez**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

# Year 8 Design and Technology

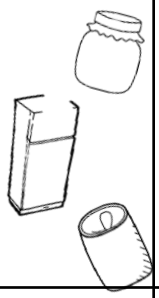
| | Keyword | Key information |
|---|---|---|
| 1 | Fibre | Fibres are hair like strands that are natural or synthetic. |
| 2 | Natural Fibres | Natural fibres come from plant, animal or insect sources. |
| 3 | Synthetic Fibres | Synthetic fibres are man-made. |
| 4 | Yarn | Fibres are spun to create 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. |

# Year 8 Food

| | | |
|---|---|---|
| 1 | Energy | The power the body requires to stay alive and function. |
| | Macro-nutrients | Nutrients needed in large amounts to provide energy<br>**Carbohydrates, protein, fats** |
| | Micro-nutrients | Nutrients needed in the diet in very small amounts-<br>**Vitamins and minerals** |
| | Vitamins | **Fat-soluble** vitamins can be stored in the body:<br>**Vitamin A** - dim light vision, healthy skin and eyes, resistance to infection; Leafy green vegetables, Orange/ yellow vegetables<br>**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<br>**B vitamins: thiamine - Releases energy from food**<br>**B1 Thiamine**: energy from carbohydrate and the nervous system.<br>**B2 Riboflavin**: energy from protein, carbohydrate and fat. Transport and use of iron in the body<br>**B3: Niacin**: required for the normal function of the skin, mucous membranes and nervous system<br>**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<br>**Sodium (salt)-** regulating the amount of water and other substances in the body: Breads and rolls, Pizza, Sandwiches, cured meats, Soups, tacos.<br>**Iron** - formation of haemoglobin in red blood cells. Red blood cells carry oxygen around the body: meat, green leafy vegetables, pulses |
| 2 | Protein | **Protein**: made up of chemical 'building blocks' called **amino acids.**<br>Essential for growth and repair and keeping cells healthy.<br>Boys need more protein than girl for growth.<br>**Animal sources** (meat; fish; eggs; milk; cheese) contains the full range of essential amino acids needed by the body.<br>**Plant sources** (nuts; seeds; pulses, e.g. beans, lentils; mycoprotein; soya products) typically contain fewer essential amino acids.<br>**Protein complementation** - certain foods can be combined so that the different protein can complement each other, e.g. bread (cereal) and pulses (baked beans). |
| | Functions | **Aeration** (foam) e.g. whisking egg whites; **thicken sauces** (coagulation) e.g. egg custard; **Binding (coagulation)** e.g. fishcakes;<br>**form structures**, e.g. gluten development in bread; **gel**, e.g. lime jelly **Glazing**- (coagulation) egg is used to give shing golden colour<br>**emulsifying** – **mayonnaise**; **Coating (coagulation)** – covering with breadcrumbs, fish; adding colour/flavour/moisture/nutrients. |
| 3 | Gelat-inisation | The process of thickening which takes place when a mixture of starch and liquid is heated.<br>*starch granules swell and eventually rupture, absorbing liquid, thickening the mixture.<br>Eg – white sauce |



# Year 8 Food

| | | |
|---|---|---|
| 4 | **Season-ality** | The times of year when a given type of food is at its peak, either in terms of harvest or its flavour.<br>**Seasonal food:** Food grown at a particular time of year.<br>Foods often cheaper and fresher, supports British farmers and producers; summer = strawberries, winter = turnips  |
| | Food waste  | Foods deteriorate when killed or harvested. Preservation techniques extend the shelf life of products: **freezing, additives, processed foods** (strawberries into jam), **dehydration** (reduces the water), **pasteurisation** (killing food spoilage organisms and pathogenic organisms), packaging<br>Common foods wasted: **Bread and bread products, fruit and vegetables, starchy foods, meat, chicken, fish, milk,**<br>**Reasons for food waste:** incorrect storage and packaging, buying large quantities, portion size too big; leftovers thrown away, impulse shopping/ offers, limited cooking skills |
| | Enzymic browning | The rapid browning of fruit (particularly when cut)<br>Eg. when an apple is cut, some of the cells are broken and the enzymes are released – when exposed to oxygen they turn brown |
| 5 | Food choice | People choose to eat different food for many different reasons:<br>• **individual energy and nutrient needs;** requirements depend on age, gender, activity level, genes, body size<br>• **Energy needs also depend on activity levels**<br>• **diet and health;** People might have their own or their family's health concerns or for medical reasons.<br>• **religion and culture -** People choose to eat or avoid certain foods according to their religious beliefs<br>• **cost of food;**<br>• **food availability-** seasonal food<br>• **time of day and occasion;**<br>• **food preferences;** food taste, odour, appearance, shape, colour<br>• **social and economic considerations** – As consumers we are influenced by those around us, location, occupation, lifestyle, education, knowledge<br>• **Environmental and ethical considerations -**personal beliefs about what is morally right and wrong.<br>• **Food provenance -** Where food is grown, caught or reared, and how it was produced.<br>• **advertising and other point of sale information** |
| 6 | Dietary needs  | Nutritional needs vary depending on:<br>**life stages** – pregnancy, infancy and childhood, adolescence, adulthood, later adulthood;<br>**medical conditions** – diabetes (type 1 or 2), anaemia, lactose intolerance, coeliac disease;<br>**culture** – religious beliefs, vegans/vegetarians, lifestyle choices<br>**Adolescence** – a time of rapid growth and development, the requirements for **calcium** and **phosphorus** is fairly high.<br>Boys need more protein and energy than girls for growth.<br>Girls need more iron than boys to replace menstrual losses.<br>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:<br>plenty of fruit and vegetables<br>• plenty of unrefined starchy foods<br>• some meat, fish, eggs, beans and other non-dairy sources of protein<br>• some milk and dairy foods<br>• a small amount of food and drink high in fat, sugar and salt |

# 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 Spring Term 1: Ich liebe Ferien!

| 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/ |
| ***Wild**w**assersport*** | ***Bu**ch* (hard) / *i**ch*** (soft) |
| unvoiced [b] | unvoiced [d] |
| ***hal**b*** | ***kin**d*** |

| 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.*** |

# History

| Key Word | Definition |
|---|---|
| Back-to-Back Housing | Name given to houses that had no backs. Two houses stuck together back-to-back. |
| Cholera | A water born disease that killed 1000s, especially the young. |
| Excrement | Human waste, faeces. |
| 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. |
| Midden | The name given to the place where people would put their excrement. |
| Miasma | The name given to Bad air (bad smells) believed at the time to cause disease to spread. |
| Open sewer | A drain usually in the middle of the road where people dumped their waste. |
| Overcrowding | When a house has too many people living in it |
| Pauper | A poor person with no job |
| Poor Ventilation | Lack of good clean air in a building |
| Privy | Old word for toilet |
| Rookery | An area of a town that was full of poverty and crime. |
| Sanitation | Is the system of drains, sewers and water pipes that keep our towns clean. Therefore, poor sanitation means a lack of these things. |
| Textiles Industry | Making and selling cloth – this became the biggest industry across Britain |

# History

| | |
|---|---|
| Transportation | The process of sending people found guilty of crime to another country, e.g. Australia |
| Tuberculosis (TB) | A killer lung disease in the 19th Century |
| Typhoid | A disease spread by body lice |
| Workhouse | The place all people had to go if they lost their job and could not feed their families |
| Jack the Ripper | |
| Inadequacies | Inability to deal with a situation due to lack of quality (such as the police) |
| Leather Apron or Whitechapel Mur derer | Common names used for Jack the Ripper at the times of the murders. |
| Peeler or Bobby | Name given to the early police |
| Scapegoats | Blaming a person/group of people for wrongdoing when it is not their fault |
| Sensationalist | Newspapers presenting stories intended to provoke a reaction from the public. |
| Serial Killer | A person that kills multiple people – like Jack the Ripper |
| Suspect | A person that it is believed might have committed a crime. |
| Technology | machinery and equipment developed to help make things easier. |
| Victim | The person who was the target/suffered due to a crime. |
| Watchmen | A person or group employed to look out for, and deter, criminal activity. |
| Whitechapel | An area of East London – where Jack the Ripper committed his crimes. |

Mathematics

# 8.7 Brackets, equations & inequalities.....

## What do I need to be able to do?

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

- Form Expressions
- Expand and factorise single brackets
- Form and solve equations
- Solve equations with brackets
- Represent inequalities
- Form and solve inequalities

## Keywords

**Simplify**: grouping and combining similar terms
**Substitute**: replace a variable with a numerical 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 multiples to give a term)
**Inequality**: an inequality compares who values showing if one is greater than, less than or equal to another

Sparx

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

# Mathematics

## Form expressions

For unknown variables, a letter is normally used in its place

More than – ADD

Less than/ difference – SUBTRACT

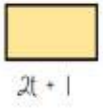
e.g 4 more than t → t + 4

8 less than k → k - 8

Only similar terms can be grouped together

e.g Find the perimeter of this shape

(Perimeter = length around outside of shape)




t + 2t + 1 + t + 2t + 1 → 6t + 2

## Directed numbers

+ + → +

- - → +

+ - → -

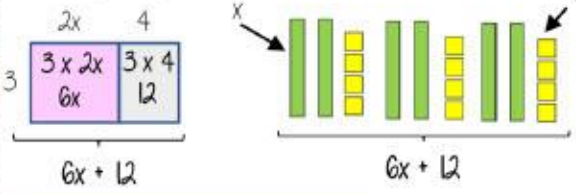
- + → -

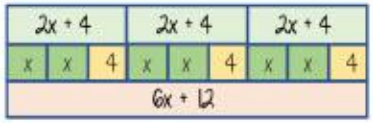
e.g a = -5 and b = 2

$a^2 = a \times a = -5 \times -5 = 25$

b + a = 2 + -5 = -3

## Multiply single brackets 3 (2x + 4)




Different representations of 3(2x+4) = 6x + 12

## Algebraic constructs

**Expression**

A sentence with a minimum of two numbers and one maths operation

**Equation**

A statement that two things are equal

**Term**

A single number or variable

**Identity**

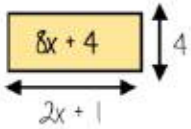
An equation where both sides have variables that cause the same answer includes ≡

**Formula**

A rule written with all mathematical symbols

e.g area of a rectangle A = b x h

## Factorise into a single bracket 8x + 4




Try and make this the **highest common factor**

The two values **multiply** together (also the area) of the rectangle

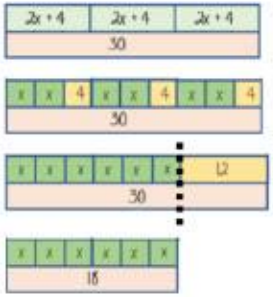
$8x + 4 \equiv 4(2x + 1)$

Note

$8x + 4 \equiv 2(4x + 2)$

This is factorised but the HCF has not been used

## Solve equations with brackets 3 (2x + 4) = 30




3 (2x + 4) = 30

Expand the brackets

6x + 12 = 30

-12 -12

Substitute to check your answer

This could be negative or a fraction or decimal

6x = 18

-6 -6


x = 3

## Simple Inequalities

< less than

≤ Less than or equal to

> More than

≥ More than or equal to

x < 10

Say this out loud

"x is a value less than 10"

10 > x

Say this out loud

"10 is more than the value"

Note:

x< 10 and 10>x represent the same values

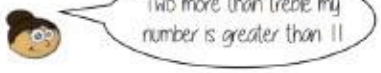
x + 2 ≤ 20

"my value + 2 is less than or equal to 20"

x ≤ 18

The biggest the value can be is 18

## Form and solve inequalities




Find the possible range of values

**Form**

x → x3 → +2 → 11

3x + 2 > 11

**Solve**

x ← -3 ← -2 ← 11

x > 3

**Check**

This would suggest any value bigger than 3 satisfies the statement

3 x 3 + 2 = 11 ✓

10 x 3 + 2 = 32 ✓

# Mathematics

# 8.8 Sequences.....

## What do I need to be able to do?

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

- Generate a sequence from term to term or position to term rules
- Recognise arithmetic sequences and find the nth term
- Recognise geometric sequences and other sequences that arise

## Keywords

**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 non zero number

**Linear and Non Linear Sequences: M981**

**Sequences in a table and graphically: M241**

**Sequences from algebraic rules: M166**

**Complex algebra rules: U958**

**Finding the algebraic rule: U498**

Sparx

# Mathematics

## 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'

eg

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

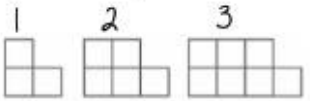
Algebraic rule

Solving this will find the position of the term in the sequence

ONLY an integer solution can be in the sequence

## Sequence in a table and graphically

Position: the place in the sequence



3 5 7

"The term in position 3 has 7 squares"

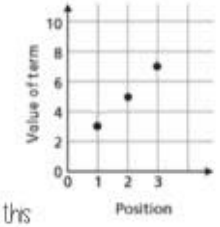
Term: the number or variable (the number of squares in each image)

In a table

| Position | 1 | 2 | 3 |
|---|---|---|---|
| Term | 3 | 5 | 7 |

+2 +2

Graphically




Because the terms increase by the same addition each time this is **linear** – as seen in the graph

## Complex algebraic rules

Misconceptions and comparisons

$2n^2$

2 times whatever n squared is

eg

1st term = 2 x $1^2$ = 2

2nd term = 2 x $2^2$ = 8

100th term = 2 x $100^2$ = 2000

$(2n)^2$

2 times n then square the answer

eg

1st term = $(2 \times 1)^2$ = 4

2nd term = $(2 \times 2)^2$ = 16

100th term = $(2 \times 100)^2$ = 40000

$n(n + 5)$ ←

eg

1st term = 1 (1 + 5) = 6

2nd term = 2 (2 + 5) = 14

100th term = 100 (100 + 5) = 10500

You don't need to expand the expression

## H Finding the algebraic rule

This is the 4 times table → 4n → 4, 8, 12, 16, 20...

7, 11, 15, 19, 22 ← This has the same constant difference – but is 3 more than the original sequence

4n + 3

This is the constant difference between the terms in the sequence

This is the comparison (difference) between the original and new sequence

4n + 3

# Mathematics

# 8.9 Indices.....

## What do I need to be able to do?

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

- Add/ Subtract expressions with indices
- Multiply expressions with indices
- Divide expressions with indices
- Know the addition law for indices
- Know the subtraction law for indices

## Keywords

**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

**Addition/Subtraction with Indices: M949**

**Addition/Subtraction laws for indices: M608, M120**

**Multiply expressions with indices: M120, U235**

**Divide expressions with indices: M120, U235**

Sparx

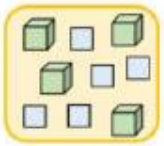
# Addition/ Subtraction with indices

Coefficient — Power

$5x^2 + 4x^4$

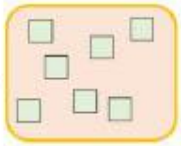
Term Term

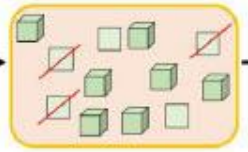
Expression



Each square represents $x^2$ and each cube represents $x^4$

Only similar terms can be simplified
If they have different powers, they are unlike terms

$5x^2 + 2x^2 \rightarrow$  $\rightarrow 7x^2$

$5x^2 + 6x^4 - 3x^2 + x^4 \rightarrow$  $\rightarrow 2x^2 + 7x^4$

# Divide expressions with indices

$$\frac{24}{36} \rightarrow \frac{2 \times 2 \times 2 \times 3}{2 \times 3 \times 2 \times 3} \rightarrow \frac{2}{3}$$

$$\frac{5a^3b^2}{15ab^6} \rightarrow \frac{5 \times a \times a \times a \times b \times b}{3 \times 5 \times a \times b \times b \times b \times b \times b} \rightarrow \frac{a^2}{3b^4}$$

Cross cancelling factors shows cancels the expression

$\frac{23a^7y^2}{5db^6}$ This expression cannot be divided (cancelled down) because there are no common factors or similar terms

# Addition/ Subtraction laws for indices

$3^5 \times 3^2 = (3 \times 3 \times 3 \times 3 \times 3) \times (3 \times 3) \rightarrow 3^7$

The base number is all the same so the terms can be simplified

$3^5 \div 3^2 \rightarrow 3^3$

$\frac{3 \times 3 \times 3 \times \cancel{3} \times \cancel{3}}{\cancel{3} \times \cancel{3}} \rightarrow \frac{3^3}{3^0} \rightarrow \frac{3^3}{1}$

**Addition law for indices**

$a^m \times a^n = a^{m+n}$

**Subtraction law for indices**

$a^m \div a^n = a^{m-n}$

# Multiply expressions with indices

$4b \times 3a$
$\equiv 4 \times b \times 3 \times a$
$\equiv 4 \times 3 \times b \times a$
$\equiv 12ab$

$5t \times 9t$
$\equiv 5 \times t \times 9 \times t$
$\equiv 5 \times 9 \times t \times t$
$\equiv 45t^2$

$2b^4 \times 3b^2$
$\equiv 2 \times b \times b \times b \times b \times 3 \times b \times b$
$\equiv 2 \times 3 \times b \times b \times b \times b \times b \times b$
$\equiv 6b^6$

There are often misconceptions with this calculation but break down the powers

Mathematics

# Rhythm

*Exploring Rhythm and Pulse*

Music

## A. Key Words

**PULSE** – A regular **BEAT** that is felt throughout much music. Certain beats of the pulse can be emphasised to establish regular pulse patterns *e.g.*
***1** 2 3 4, **1** 2 3 4 = a 4-beat pulse*
***1** 2 3, **1** 2 3 = a 3-beat pulse (often called a **WALTZ**)*
***1** 2, **1** 2, **1** 2 = a 2-beat pulse (often called a **MARCH**)*
**RHYTHM** – A series of sounds or notes of different lengths that create a pattern. A rhythm usually fits with a regular pulse. Everyday sentences can be used to create rhythms. The patterns made by words create rhythms and this rhythm has a 4-beat pulse:

**DURATION** – The length of a sound – *long/short*
**TEMPO** – The speed of a sound or piece of music – *fast/slow*
**TEXTURE** – Layers of sound or how much sound is heard – *thick/thin*
**STRUCTURE** – The organisation of sound or how sounds are ordered
**SILENCE** – The absence of sound or no sound, shown in music by **RESTS**.
**RHYTHM GRID NOTATION** – A way of writing down and recording rhythms using boxes

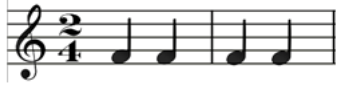
## B. Time Signatures

A **TIME SIGNATURE** tells us how many beats (and what type of beats) there are in each **BAR** of music and is made up of two numbers at the beginning of a piece of music.

Top Number = **HOW MANY BEATS**

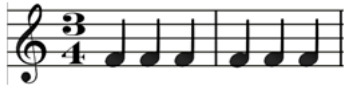
Bottom Number = **TYPE OF BEAT**

2/4 = **TWO CROTCHET** beats per **BAR**



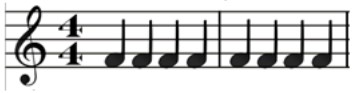
*e.g. a **MARCH***

3/4 = **THREE CROTCHET** beats per **BAR**



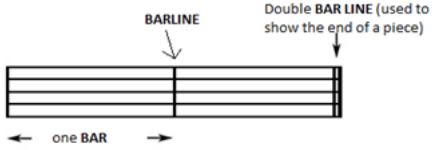
*e.g. a **WALTZ***

4/4 = **FOUR CROTCHET** beats per **BAR**



Bottom Numbers:
2 = Minim 4 = Crotchet 8 = Quaver

**BARS AND BARLINES**




## C. Ostinatos, Cyclic and Polyrhythms

**RHYTHMIC OSTINATO** – a short repeated pattern made up of notes of different lengths but without a particular pitch.
**CYCLIC RHYTHM** – a rhythm which is repeated over and over again (in a cycle) many times.
**POLYRHYTHM** - the use of several rhythms performed simultaneously, often overlapping to create a thick, **POLYRHYTHMIC TEXTURE**. A common polyrhythm often used in Latin-American and African Music is to play a 3-beat and 2-beat rhythm simultaneously as shown below. This is called a "3 against 2 Polyrhythm"

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 beat rhythm | X | | X | | X | | X | | X | | X | |
| 2 beat rhythm | X | | | X | | | X | | | X | | |

## E. Note Values - Note Names, Symbols and Duration

| Note Name | Note Symbol | Note Value |
|---|---|---|
| **Semibreve** |  | **4 beats** |
| **Minim** |  | **2 beats** |
| **Crotchet** |  | **1 beat** |
| **Quaver** |  | **½ of a beat** |
| **Pair of Quavers** |  | **2 x ½ beats = 1** |

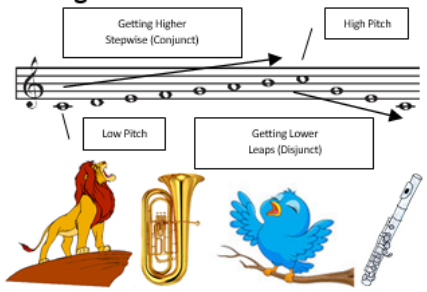
# Building Bricks

*Exploring the Elements of Music MAD T SHIRT*

Music

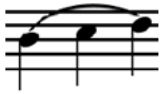
## Melody - Pitch

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.

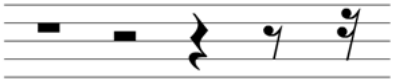
*Velvety, Screechy, Throaty, Rattling, Mellow, Chirpy, Brassy, Sharp, Heavy, Buzzing, Crisp, Metallic, Wooden etc.*

## Rhythm (Duration)

The **length** of a sound.

**SHORT** ⟶ **LONG**

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



## Tempo (speed)

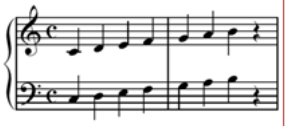
The **speed** of a sound or piece of music.

**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.

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# HEALTHY DIET AND EXERCISE

Personal Development

## Define: *Calories*

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

## Define: *Obesity*

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

## Define: *BMI*

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

## Define: *Nutrition*

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

## Define: *Veganism*

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

## Define: *Vegetarianism*

A diet where a person does not eat meat or fish

## The Eat Well Plate



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

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

## How much exercise should you do?

Children
5-12 years
60 minutes
of moderate-to-vigorous intensity physical activity every day

Young People
13-17 years
60 minutes
of moderate-to-vigorous intensity physical activity every day

Adults
18-64 years
150 to 300 minutes (2 ½ to 5 hours) of moderate-intensity physical activity
OR
75 to 150 minutes (1 ¼ to 2 ½ hours) of vigorous-intensity physical activity
or an equivalent combination of both moderate and vigorous activities, each week

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

## Impacts of poor Nutrition

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

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

## Where to get more help and support

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

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# SLEEP

Personal Development

### Define: *Sleep Disorders*

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

### Define: *REM Sleep*

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

### Define: *Sleep Apnoea*

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

### Define: *Insomnia*

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

### Define: *Sleep Deprivation*

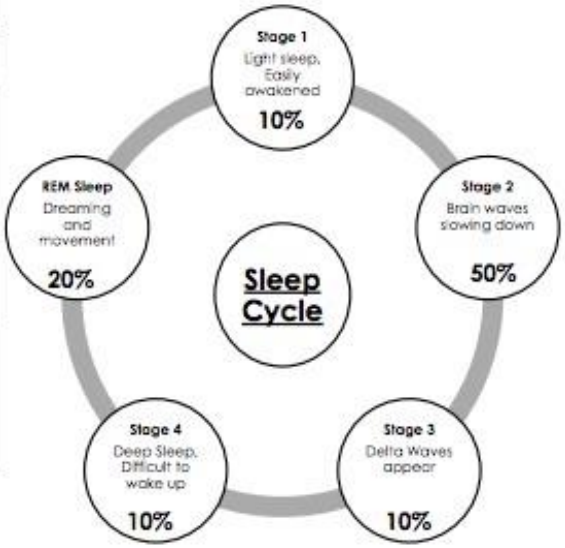
Sleep deprivation means you're not getting enough sleep. This can be caused intentionally or not. It can be either chronic or acute and may vary widely in severity.

## How Much Sleep Is "Enough"?

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

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

Mercola.com




## What can cause problems with our sleep?

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

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

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

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

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

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

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

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

## Consequences of Sleep Deprivation

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

## Top Tips for a Good nights sleep

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

## More Information & Support

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

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# DRUGS: EFFECTS AND WITHDRAWAL

Personal Development

**Define: *Stimulant***

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

**Define: *Depressant***

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

**Define: *Hallucinogen***

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

**Define: *Analgesic***

A drug which reduces the feeling of pain.

**Define: *Withdrawal***

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

**Define: *Addiction***

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

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

## Mental and Emotional Withdrawal Symptoms

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

## Physical Withdrawal Symptoms

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

## Dangerous Withdrawal Symptoms

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

## Who Can you turn to for help and Support

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

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# TYPES OF DRUGS

Personal Development

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

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

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

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

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# SMOKING AND VAPING

Personal Development

## Define: *Nicotine*

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

## Define: *Vaping*

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

## Define: *Smoking*

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

## Define: *E-Cigarette*

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

## Effects Of Nicotine

**Nicotine is both a sedative and a stimulant.**

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

## How do E-Cigarettes Work

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

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

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

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

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



## Smoking and the Law

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

It's illegal:

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

## Vaping and the Law

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

## Who Can you turn to for help and Support

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

# WADHAM KS3 PE KNOWLEDGE ORGANISER: Football

Physical Education

## Skills and Techniques:

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

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

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

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

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

## Rules:

- A game consists of two 45-minute halves.
- The game is started with a centre kick, from the centre spot. The opposition can then come into the 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

# WADHAM KS3 PE KNOWLEDGE ORGANISER: Hockey

Physical Education

## 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

# Science – 8D unicellular organisms

## Kingdoms

Organisms are classified into five **kingdoms**. **Viruses** are not living and so are not in a kingdom.

| Cell part | Kingdom | | | | |
|---|---|---|---|---|---|
| | prokaryotes (all unicellular) | protoctists (mainly unicellular) | fungi (mainly multicellular) | plants (all multicellular) | animals (all multicellular) |
| cytoplasm | ✓ | ✓ | ✓ | ✓ | ✓ |
| cell membrane | ✓ | ✓ | ✓ | ✓ | ✓ |
| nucleus | × | ✓ | ✓ | ✓ | ✓ |
| mitochondria | × | ✓ | ✓ | ✓ | ✓ |
| cell wall | ✓ | ×/✓ | ✓ | ✓ | × |
| chloroplasts | × | ×/✓ | × | ✓ | × |

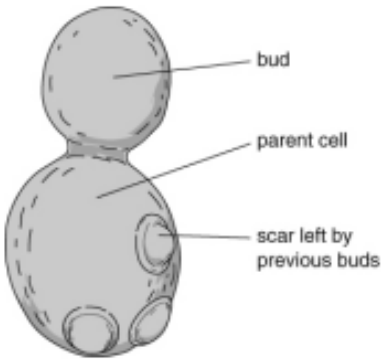
Unicellular organisms can only grow to a certain size. If the organism is too big, it cannot get enough of the substances it needs throughout the cell because diffusion is too slow.

The tissues in multicellular organisms need to have raw materials transported to them because diffusion would be too slow.

## Microscopic fungi

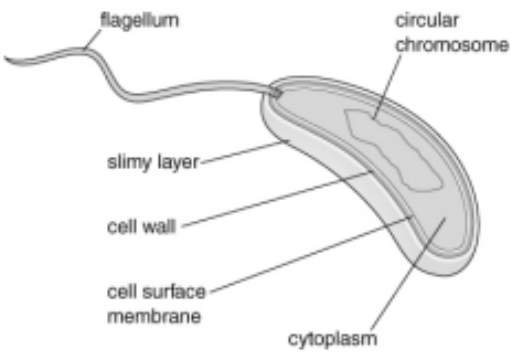
These include, for example, yeast. They:

- reproduce asexually by budding
- can use aerobic respiration, which is important in baking
- can use anaerobic respiration (fermentation), which is important in alcoholic drink manufacture.




glucose → carbon dioxide + ethanol (alcohol)

## Bacteria




**Parts of a bacterium**

Some bacteria are important in making yoghurt and cheese. These bacteria use a type of anaerobic respiration to ferment milk:

glucose → lactic acid

## Feeding

Bacteria and fungi feed by releasing **enzymes** into their surroundings to digest large **organic molecules**. The digested molecules are then absorbed.

# Science -

## Protoctists

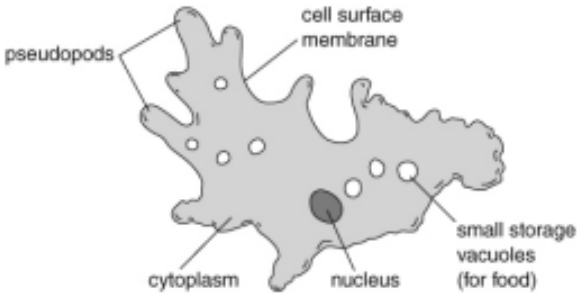
There are many different types of protoctist and some can **photosynthesise**:

carbon dioxide + water → glucose + oxygen

Photosynthesising protoctists are therefore **producers** in a **food chain**, for example:

algae (producer) → pond snail (**consumer**, **herbivore**) → minnow (consumers, **carnivores**, **predators**) → grey heron

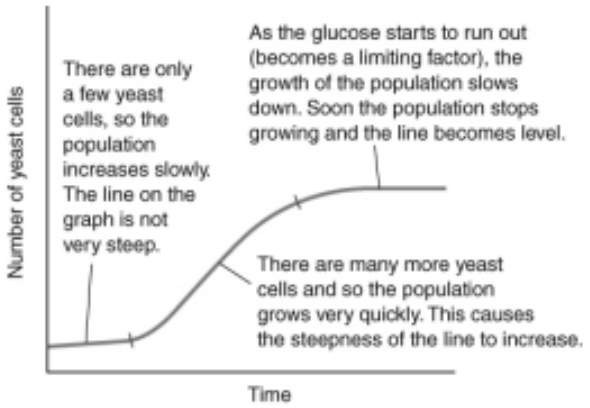
Some protoctists move using **pseudopods**, while others use **cilia** and others use **flagella**.




**Parts of an *Amoeba***

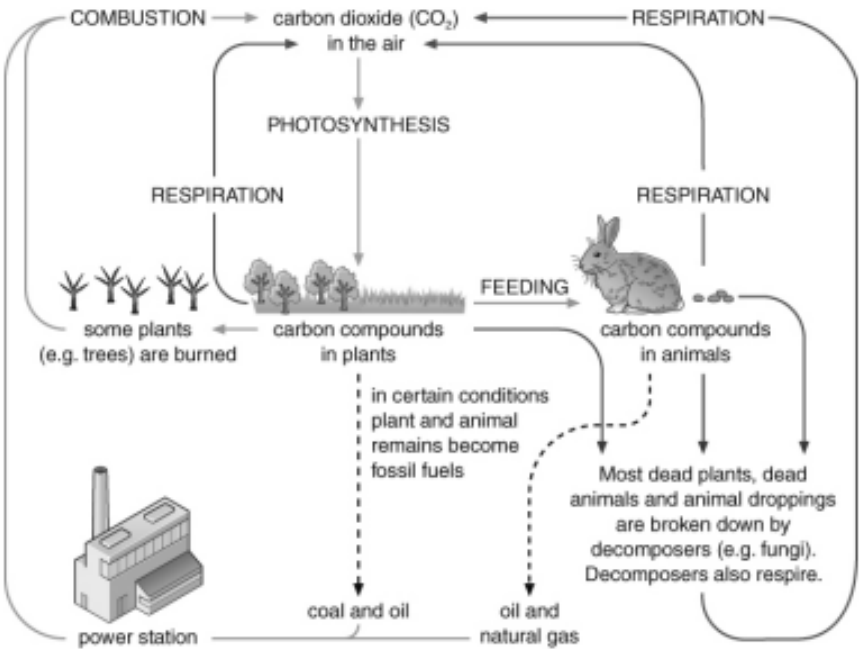
## Growth

All microorganisms need warmth, food and moisture to grow well. Some need light for photosynthesis. Some need oxygen for aerobic respiration. The increase in a population can be shown on a growth curve. Something that stops a population from increasing further is called a **limiting factor**.




## The carbon cycle

Many unicellular microorganisms are **decomposers** and play an important part in the **carbon cycle**.



# Science – 8D unicellular organisms

## 8Da – Unicellular or multicellular

| Word | Pronunciation | Meaning |
|---|---|---|
| animal | | A member of the animal kingdom. Animals are multicellular and have cells without cell walls. |
| bacterium | *bac-**teer**-ee-um* | A type of prokaryote organism. Plural is bacteria. |
| cell (biology) | *sell* | The basic unit of all life. All organisms are made of cells. |
| diffusion | *diff-**you**-zshun* | When particles spread and mix with each other without anything moving them. |
| fungus | | A member of the fungus kingdom. A fungus can be multicellular or unicellular but does not make its own food. Plural is fungi. |
| kingdom | | There are five kingdoms into which organisms are divided: plants, animals, fungi, protoctists and prokaryotes. |
| microorganism | | An organism too small to be seen with the naked eye. |
| multicellular | | An organism made of many cells. |
| plant | | A member of the plant kingdom. Plants have chloroplasts and so can photosynthesise. |
| prokaryote | *prO-**ka**-ree-oat* | A member of the prokaryote kingdom. Prokaryotes are all unicellular and have cells that lack nuclei. |
| protoctist | *prO-**tock**-tist* | A member of the protoctist kingdom. Many protoctists are unicellular. |
| unicellular | | An organism made of one cell. |
| virus | | A non-living particle that can change how a living cell functions when it enters a cell. Inside a cell, a virus often causes the cell to make copies of the virus. |

## 8Db – Microscopic fungi

| Word | Pronunciation | Meaning |
|---|---|---|
| aerobic respiration | *air-**O**-bick* | A type of respiration in which oxygen is used to release energy from substances such as glucose. |
| anaerobic respiration | ***an**-air-O-bick* | A type of respiration that does not need oxygen. |
| asexual reproduction | | Producing new organisms from one parent only. |
| budding | | A type of asexual reproduction in which a new small cell, a bud, grows out from a parent cell. |
| fermentation | *fer-ment-**ay**-shun* | Anaerobic respiration occurring in microorganisms. |
| limiting factor | | Something that stops a population growing. |
| population | *pop-U-**lay**-shun* | The number of a certain organism found in a certain area. |

# Science – unicellular organisms

## 8Dc – Bacteria

| Word | Pronunciation | Meaning |
|---|---|---|
| binary fission | | When a cell splits in two. |
| chromosome | ***krow***-*mO-sOwm* | A long molecule that contains instructions for organisms and their cells. |
| enzyme | | A substance that can speed up some processes in living things (e.g. by breaking down food molecules). |
| flagellum | | A tail-like structure that rotates, allowing a unicellular organism to move. Plural is flagella. |
| statement key | | A series of descriptive statements used to work out what something is. |

## 8Dd – Protoctists

| Word | Pronunciation | Meaning |
|---|---|---|
| chlorophyll | ***klor***-*O-fill* | The green substance found inside chloroplasts. |
| cilium | ***sill***-*ee-um* | A small hair-like structures on the surface of some cells. Plural is cilia. |
| food chain | | A way of showing what eats what in a habitat. |
| organic molecule | | A molecule that is built using a chain of carbon atoms. |
| photosynthesis | *fO-tow-****sinth***-*e-sis* | A process that plants use to make their own food. It needs light to work. |
| producer | | An organism that is able to produce its own food (e.g. by photosynthesis). |
| pseudopod | ***syoo***-*dO-pod* | An extension from a cell that can extend and contract and so pull a cell in a certain direction. |
| pyramid of numbers | | A way of showing the numbers of different organisms in a food chain. |
| vacuole | ***vack***-*you-oll* | A storage space in cells. |

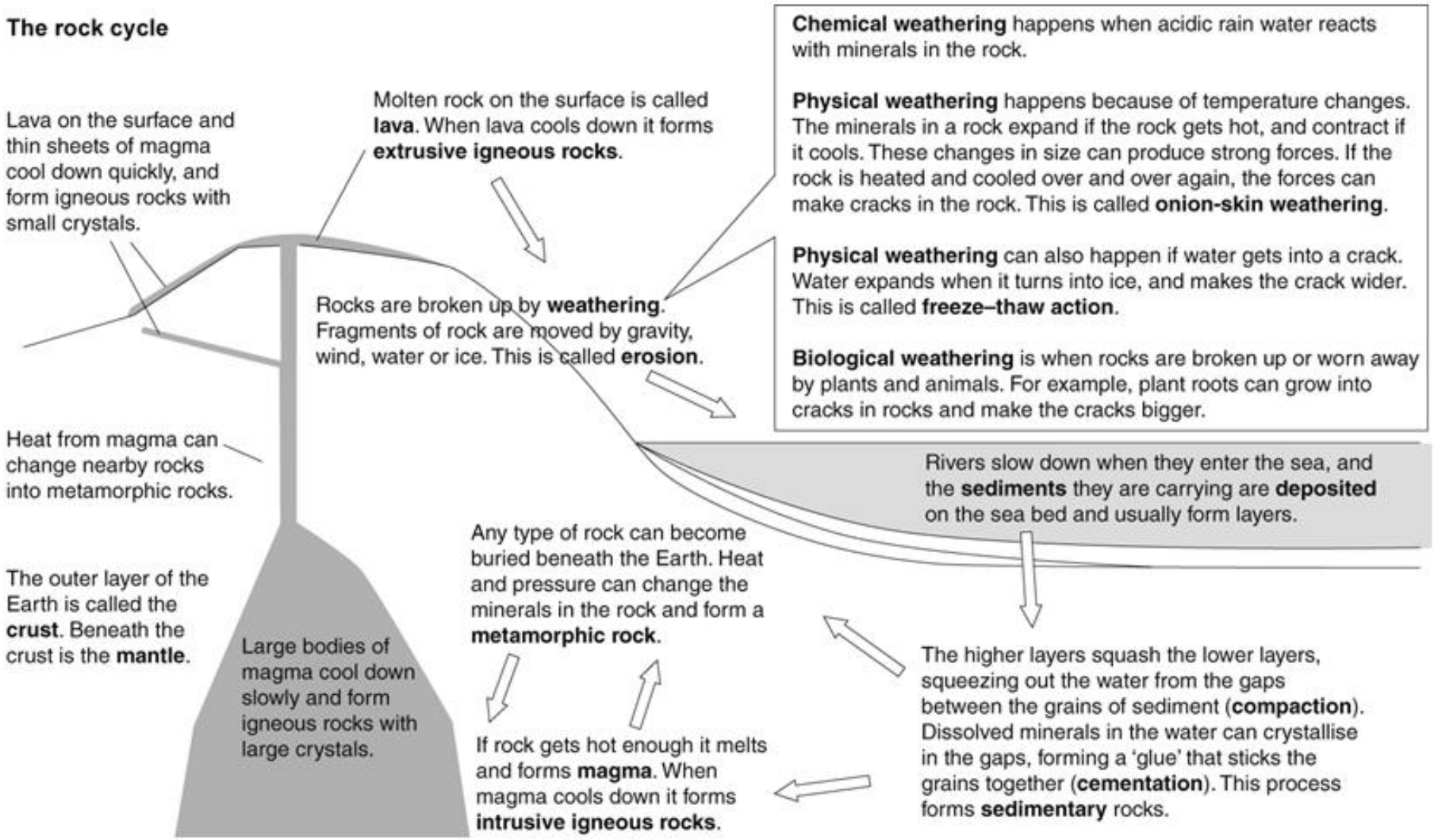
## 8De – Decomposers and carbon

| Word | Pronunciation | Meaning |
|---|---|---|
| carbohydrate | *car-bO-****high***-*drate* | A nutrient that is used as the main source of energy. |
| carbon cycle | | A model used to show how carbon compounds are recycled in an ecosystem. |
| decay | | The breakdown of dead organisms or animal wastes, which allows the substances they contain to be recycled. |
| decomposer | | An organism that feeds on dead organisms or animal wastes, causing them to decay. |
| ecosystem | | All the physical environmental factors and all the organisms that are found in a habitat. |
| fat | | A nutrient that is stored to be used for energy in the future. It also acts as a thermal insulator. |
| protein | ***prO***-*teen* | A nutrient used for growth and repair. |

Science – 8H rocks

# Rocks

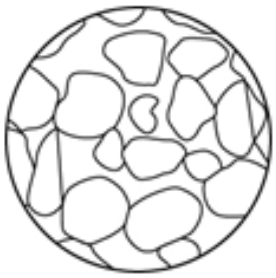
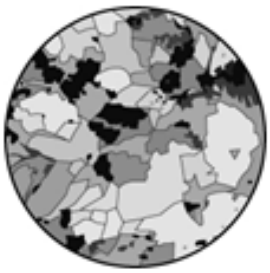
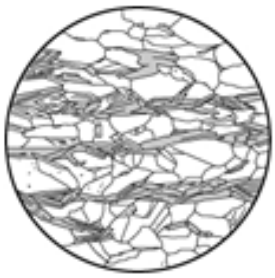
## The rock cycle



# Science – 8H Rocks

## Rock textures

Rocks are made of **grains**. Each grain is made of a naturally occurring compound called a **mineral**. The **texture** of a rock is a description of the size and shape of the grains.

| Type of rock | Sedimentary | Igneous | Metamorphic |
|---|---|---|---|
| Examples | limestone, sandstone, mudstone, chalk | basalt, gabbro, granite | marble, quartzite, slate, schist, gneiss |
| Grains or crystals? | separate grains | interlocking crystals that are not lined up | interlocking crystals, often lined up in bands of different colours |
| Hard or soft? | often soft or crumbly | hard | hard |
| Porous? | often | not usually | not usually |
| Example of texture |  |  |  |

## Fossils

Fossils can form when dead plants or animals fall to the bottom of the sea. If their remains get covered by other sediments they do not rot. As the sediments turn into sedimentary rock, the shape of the organism is preserved in the rock. When a dead organism forms a fossil, its form can still be seen because its hard parts have been turned into stone.

## Materials from the Earth

Many of the materials we use are obtained from the Earth. We use stone for building. **Cement** is made from **limestone**, and **concrete** is made by mixing cement, sand and **gravel** with water.

We also obtain metals from the Earth. Unreactive metals like gold and silver are found in their **native states**. Other metals are found as parts of minerals. An **ore** is a rock with enough of a particular mineral in it to make it worth mining. Pure metals are obtained from minerals using chemical reactions.

Mining for metals can destroy habitats and cause pollution.

If we **recycle** metals we will:

- make supplies of metals last longer
- reduce amounts of mining (and so reduce the pollution and environmental damage this causes)
- reduce pollution caused by putting metals in landfill sites.

# Science – 8H Rocks

## 8Ha – Rocks and their uses

| Word | Pronunciation | Meaning |
|---|---|---|
| cement | | A building material made using limestone and other materials. It also means 'to stick things together'. |
| compound | | A substance that can be split up into simpler substances, since it contains the atoms of two or more elements joined together. |
| concrete | | A building material made by mixing sand, cement and gravel with water. |
| crystal | *kris-tal* | A grain in a rock that interlocks with other grains. |
| earthquake | | When the ground shakes. |
| gabbro | | A type of igneous rock with large crystals. |
| geologist | | A scientist who studies rocks and the Earth. |
| grain | | A distinct part of a rock, made of one or more minerals. |
| granite | *gran-it* | A type of igneous rock with large crystals. |
| gravel | | Small pieces of rock used in building. |
| interlocking | | When crystals fit together with no gaps between them. |
| limestone | | A sedimentary rock made from the shells of dead sea creatures. It consists mainly of calcium carbonate. |
| mineral (chemistry) | | A naturally occurring mineral or compound that can form distinct grains in rocks. |
| mixture | | Two or more substances jumbled together but not joined to each other. The substances in mixtures can often be separated from each other. |
| permeable | | Permeable rocks let water soak through them. |
| porous | | Porous rocks have tiny holes in them. |
| quartz | *kwartz* | The mineral that forms the grains in sandstone. |
| rock | | A naturally occurring substance made of one or more minerals. |
| sandstone | | A sedimentary rock made out of grains of quartz. |
| sinkhole | | A large hole in the ground caused by limestone dissolving. Sinkholes can sometimes form in other types of rock as well. |
| texture | | The scientific word used to describe the shapes and sizes of grains in a rock and how the grains are packed together. |

# Science – 8H Rocks

## 8Hb – Igneous and metamorphic rocks

| Word | Pronunciation | Meaning |
|---|---|---|
| basalt | ***bas**-salt* | An igneous rock with very tiny crystals. |
| bond | | A force that holds some atoms tightly together. |
| crust | | The solid rocks at the surface of the Earth. |
| extrusive | | Igneous rocks formed when lava freezes above the ground. |
| gneiss | ***nice*** | A metamorphic rock formed when schist is heated and squashed more. It usually has bands of different coloured minerals. |
| igneous rock | ***igg**-nee-us* | Rock made from interlocking crystals that are not in layers. Formed when magma or lava cooled down and solidified. |
| intrusive | | Igneous rocks formed when magma freezes underground. |
| lava | ***lar**-va* | Molten rock that runs out of volcanoes. |
| magma | | Molten rock beneath the surface of the Earth. |
| mantle | ***man**-tel* | The part of the Earth below the crust. |
| metamorphic rock | *met-a-**mor**-fik* | A rock formed from interlocking crystals that are often lined up in layers. It is formed when existing rocks are heated or compressed. |
| particles | ***part**-ick-als* | The tiny pieces of matter that everything is made out of. |
| schist | *shist* | A metamorphic rock formed when slate or other rocks are heated and squashed more. It is usually shiny with flat crystals in wavy layers. |

## 8Hc – Weathering and erosion

| Word | Pronunciation | Meaning |
|---|---|---|
| abrasion | *a-**bray**-shun* | When rock fragments bump into each other and wear away. |
| biological weathering | | When rocks are worn away or broken up due to the activities of living things. For example, growing plant roots can split rocks apart. |
| chemical weathering | | When rocks are broken up or worn away by chemical reactions, usually with rainwater. |
| contract | | Get smaller. |
| erosion | *eh-**ro**-shun* | The movement of loose and weathered rock. |
| expand | | Get bigger. |
| freeze–thaw | | A type of physical weathering that happens when water gets into a crack in a rock and freezes. The freezing water expands and makes the crack bigger. |
| glacier | | Ice that fills a valley and moves slowly downhill. |
| landslide | | Sudden movement of rocks and/or soil downwards. |
| onion-skin weathering | | A type of physical weathering that happens when a rock is heated and cooled over and over again. |
| physical change | ***fiz**-zi-kal* | A change in which no new substances are formed (e.g. changes of state). |

# Science – 8H Rocks

| Word | Pronunciation | Meaning |
|---|---|---|
| physical weathering | | When rocks are worn away or broken up by physical processes such as changes in temperature. |
| sediment | | Rock grains and fragments dropped by moving air or water. |
| transport | | The movement of rock grains and fragments by wind, water or ice. |
| weathering | | When rocks are broken up by physical, chemical or biological processes. |

## 8Hd – Sedimentary rocks

| Word | Pronunciation | Meaning |
|---|---|---|
| cementation | *sem-en-**tay**-shun* | A process in which water is squeezed out of the spaces between pieces of rock, leaving mineral salts behind that stick or cement the rock pieces together. |
| compaction | | When layers of sediment or rock are squashed by the weight of sediment above them. |
| deposit | | When moving wind, water or ice drops rock fragments or grains. |
| fossil | | The remains of a dead animal or plant that became trapped in layers of sediment and turned into rock. |
| marble | | A metamorphic rock formed from limestone. |
| mudstone | | A sedimentary rock made of tiny particles |
| rock cycle | | All the processes that form sedimentary, igneous and metamorphic rocks linked together. |
| sedimentary rock | | A rock formed from grains stuck together. The grains are often rounded. |
| slate | | A metamorphic rock with tiny crystals that are lined up. It is formed from mudstone, and can be split into layers. |

## 8He – Materials from the Earth

| Word | Pronunciation | Meaning |
|---|---|---|
| mining | | Obtaining metal ores or other substances from the Earth. |
| native state | | When a metal is found in the Earth as an element. |
| ore | | A rock that contains enough of a certain mineral or metal to make it worth mining. |
| recycling | | Using a material again, often by melting it and using it to make new objects. |
| toxic | | A toxic substance is poisonous. |

# Science – 8L Earth and Space

## Earth and space

### The Solar System

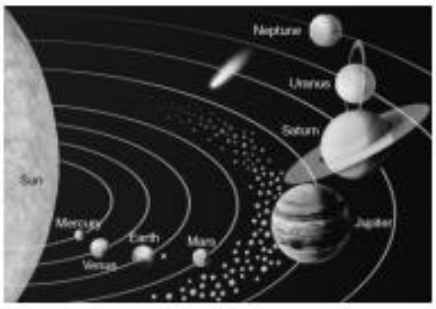
We live on a **planet** called the **Earth**. The Earth gets energy from the Sun. The Earth spins on its axis once every 24 hours. The side of the Earth facing the Sun has daylight, and it is night on the side facing away from the Sun.


The Earth **orbits** around the Sun. It takes one year to go around once.

The **Moon** is a **satellite** of the Earth. We can see the Moon because it reflects light from the Sun. The Moon seems to change shape. The different shapes are called **phases of the Moon**. The phases happen because we cannot always see all of the part that is lit by the Sun.

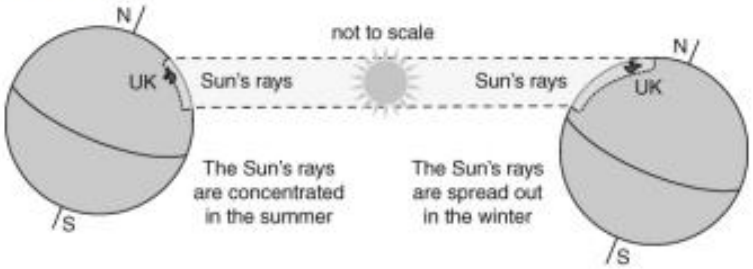
There are eight planets in **elliptical** (oval-shaped) orbits around the Sun. Most of the planets have moons orbiting around them. The Sun, the planets and their moons make up the **Solar System**.

The eight planets are Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune.




**Our current model of the Solar System**

The Earth's axis is tilted. When the **northern hemisphere** is tilted towards the Sun it is summer in the UK. Days are longer than nights, and the Sun is higher in the sky. The Sun's rays are more concentrated, so it feels hotter.

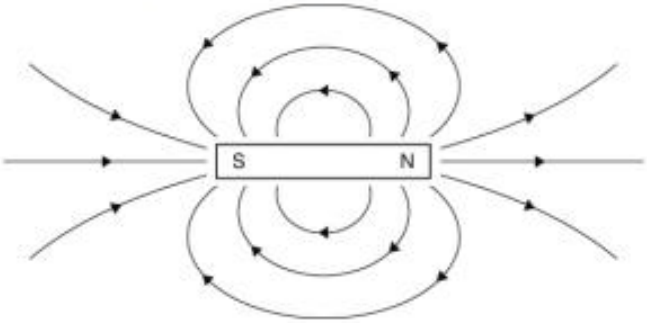



### Magnets and magnetic fields

**Magnets** attract **magnetic materials**. The two ends of a bar magnet are called the **north-seeking pole** and the **south-seeking pole**, or north pole and south pole for short. A north pole and a south pole attract each other. Two north poles or two south poles repel each other.

The space around a magnet where it has an effect is called its **magnetic field**. You can find the shape of the magnetic field using iron filings or using a plotting compass.

The Earth has a magnetic field. A compass is a small magnet that will point towards the Earth's North Pole. But magnetic materials placed near a compass can change the direction that the compass points towards.




**This is the shape of the magnetic field of a bar magnet.**

# Science – 8L Earth and Space

## Gravity and gravitational fields

The **mass** of something is the amount of substance or 'matter' it contains. It is measured in kilograms (kg). **Weight** is the force of gravity pulling on a mass. It is a force, so it is measured in newtons (N).

**Gravity** is the force of attraction between two masses. The force of gravity is stronger if:

- the objects have large masses
- the objects are close together.

On Earth, gravity pulls on every kilogram of mass with a force of about 10 N.

Gravity is not as strong on the Moon because the Moon has a much smaller mass than the Earth. If you went to the Moon your mass would not change, but your weight would be less than on Earth because the Moon's gravity is weaker.

You can calculate the weight of an object using this formula:

weight (N) = mass (kg) × **gravitational field strength** (N/kg)

The Sun's gravity keeps all the planets in our Solar System moving in elliptical orbits around it. If there was no gravity from the Sun, the planets would all fly off into space. The Earth's gravity keeps the Moon in orbit around the Earth.

A satellite is anything that orbits around a planet. The Moon is the only **natural satellite** of the Earth. **Artificial satellites** are put into orbit around the Earth or other planets. They can be used for taking pictures or transmitting TV programmes.

## Beyond the Solar System

Planets do not make their own light. We can sometimes see the planets because they reflect light from the Sun.

The Sun is a **star**. It is a ball of gas that gives out large amounts of energy. The Sun is like the stars you can see in the sky at night. The stars do not look very bright because they are a lot further away than the Sun. People often group stars into patterns called **constellations**.

The Sun is one of millions of stars in our **galaxy**, which is called the **Milky Way**. There are millions of galaxies in the **Universe**.

The stars are a very long way from Earth. Scientists measure distances to the stars using **light years**. A light year is the distance that light can travel in one year.

# Science – 8L Earth and Space

## 8La – Changing ideas

| Word | Pronunciation | Meaning |
|---|---|---|
| Earth | | The planet we live on. |
| Moon | | The Moon (with a capital M) is the moon that orbits the Earth. |
| model | | A way of showing or representing something that helps you to think about it or to find out about it. |
| orbit | | The path that a planet takes around a star, or the path that a moon or satellite takes around a planet. |
| planet | | A large object orbiting a star. The Earth is a planet. |
| Solar System | | A star with planets and other objects orbiting around it. |
| star | | A huge ball of gas that gives out energy – we see some of the energy as light. |
| Sun | | The star that the Earth orbits. |

## 8La – Gathering the evidence

| Word | Pronunciation | Meaning |
|---|---|---|
| elliptical | *e-**lip**-tick-al* | oval-shaped |
| moon | | A natural satellite of a planet. |
| phases of the Moon | | The different shapes the Moon seems to have at different times. |

## 8Lb – Seasons

| Word | Pronunciation | Meaning |
|---|---|---|
| Equator | *ee-**kwate**-er* | An imaginary line around the middle of the Earth. |
| hemisphere | ***hem**-ee-sfear* | Half of a sphere – the shape you would get if you cut a solid ball in half. |
| northern hemisphere | | The half of the Earth with the North Pole in it. The UK is in the northern hemisphere. |

## 8Lc – Magnetic Earth

| Word | Pronunciation | Meaning |
|---|---|---|
| attract | | Two things pulling towards each other. |
| compass | | A magnetised piece of metal that can swing around. One end always points north. |
| field | | The volume around something where a non-contact force can affect things. Examples are magnetic fields and gravitational fields. |
| field lines | | Lines drawn to show which way a magnetic field acts. |
| magnetic field | | The space around a magnet where it can affect magnetic materials or other magnets. |
| north-seeking pole | | The end of a magnet that points north if the magnet can move freely. Often just called the north pole. |
| repel | | Push away. |
| south-seeking pole | | The end of a magnet that points south if the magnet can move freely. Often just called the south pole. |

# Science – 8L Earth and Space

## 8Lc – Gravity and the Solar System

| Word | Pronunciation | Meaning |
|---|---|---|
| artificial satellite | | A satellite made by humans. |
| gravitational field | | The space around the Earth where the Earth's gravity affects things. |
| gravitational field strength | | The force with which a gravitational field pulls on each kilogram of mass. The gravitational field strength ('*g*') on Earth is approximately 10 N/kg. |
| gravity | | The force of attraction between any two objects. The Earth is very big and so has strong gravity that pulls everything down towards it. |
| natural satellite | | A satellite that has not been made by humans. The Moon is a natural satellite of the Earth. |
| satellite | | Anything that orbits a planet or a moon. |
| weight | | The amount of force with which gravity pulls things. It is measured in newtons (N). Your weight would change if you went into space or to another planet. |

## 8Le – Beyond the Solar System

| Word | Pronunciation | Meaning |
|---|---|---|
| constellation | *con-stell-**ay**-shun* | A pattern of stars. The stars in a constellation are not usually close together, they only appear to be close when seen from the Earth. |
| galaxy | | Millions of stars grouped together. |
| light year | | The distance that light travels in one year. |
| Milky Way | | The galaxy that our Solar System is in. |
| Universe | ***you**-nee-verse* | All the galaxies and the space between them. |