Y7: Architecture

Key Figures

Architecture

The art or practice of designing and constructing buildings. The style in which a building is designed and constructed, especially with regard to a specific period, place, or culture. It is both the process and the product of sketching, conceiving, planning, designing, and constructing buildings or other structures.

Friedensreich Hundertwasser

Born Vienna, Austria in December 1928 and died February 2000. Friedensreich Regentag Dunkelbunt Hundertwasser, was an Austrian visual artist and architect who also worked in the field of environmental protection. He was known for his colourful and patterned artwork and buildings.

Knowledge Links: History, English, Geography, Maths

Key Terms

Architect	A person who is qualified to design buildings and to plan and supervise their construction.
Structure	A building or other object constructed from several parts.
Ornamental	A decorative object. Something added for its beauty rather than for use.
Colour	What the eye sees when light is separated.
Tone	Light to dark shade used to create form in an artwork.
Pattern	A repeated decorative design.
Form	An element in art where an object appears to have three-dimensions.
Line	A line is a mark made in art. A line has a width and a length. A line can be straight, curved, continuous, dashed or broken.
Shape	The external form, contours, or outline of someone or something.
Composition	The way in which an artworks elements work together to produce an overall effect.
Analogous Colour	A group of related colours that are near each other on the colour wheel.
Sampling	Creating a series of small artworks to explore designs or techniques.
Design	A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is made.
Clay	A stiff, sticky fine-grained earth that can be moulded when wet, and is dried and baked to make bricks, pottery, and ceramics.
Build up	Construct by putting parts or material together.
Carve	Cutting, scratching, marking soft clay with clay tool or other object.

Timeline

10,000 BC

The origin of architecture can be placed back in the Neolithic period. Where structures like Stonehenge were made.

850 BC

Classical architecture such as Greek and Roman buildings were built.

1949

Frienensreich Hundertwasser born.

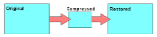
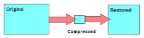
1969

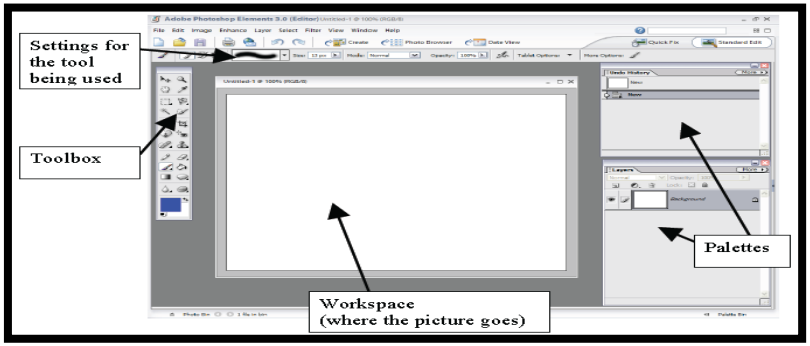
The Apollo Pavilion was constructed.

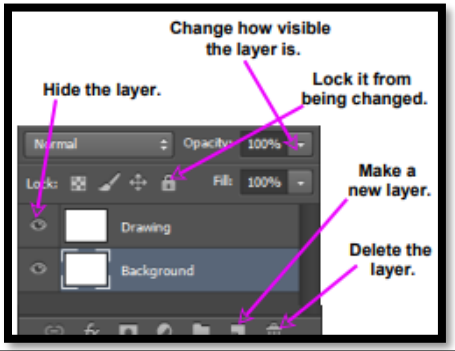
2023

Architectural styles are still growing and changing with the current movement to 'Biophilic' architecture that aims to develop buildings with a relationship with nature.

Year 7 - Computing - Photoshop Knowledge Organiser

Key Words	
Vector Image 	• Is created in graphics packages and consist of shapes called objects. • Even if an object in a vector graphic is quite large, it doesn't need a lot of computer. memory. Therefore the file size of a vector graphic is often very small. • Are scalable - i.e. when you resize them, they do not lose quality.
Bitmap (raster) Image 	• Is composed of many tiny parts, called pixels. The pixels are often many different colours. • It is possible to edit each individual pixel. • Since the computer has to store information about every single pixel in the image, the file size of a bitmap graphic is often quite large. • Are NOT scalable – i.e. when you resize a bitmap graphic, it tends to lose quality.
Compression 	• Used to reduce a files size so it can be uploaded/downloaded or transferred more quickly.
Lossless Compression 	• Takes advantage of the limitations of the human eye and removes data that cannot be seen. Losing quality. • Data is lost and is not added back when the file is uncompressed.
Lossy Compression 	• Reduces file size with no loss of data or image quality. • Data is not lost and is added back when the file is uncompressed. • Cannot compress to as small a file as a lossy method does.
Manipulation 	• Transforming or altering an asset using methods/techniques to achieve desired results.
Composition 	• Is the result of 2 or more images that have been combined or overlaid.
Layer 	• Photoshop layers are like sheets of stacked acetate. • Transparent areas on a layer let you see layers below. You use layers to perform tasks such as compositing multiple images, adding text to an image, or adding shapes.





Why someone might use Photoshop to manipulate an image.

- To improve it in some way, e.g. by removing a spot from a supermodel's nose!
- To use as proof that something actually happened, e.g. UFO flying over your house!
- To provoke a shock reaction.
- To create a piece of art.

File Types.

- . BMP - Microsoft file type, not usually compressed, so large files, widely accepted.
- . GIF (Lossy) - Graphics Interchange Format, limited to 256 colours, keeps transparency.
- . JPG (Lossy) - Joint Photographic Experts Group, does not keep transparency.
- . PNG (Lossless) - Portable Network Graphic, good for images in colour, larger file size than a jpeg, keeps transparency.
- . TIFF (Lossless) - Tagged Image File Format, not used on the WWW due to its very large file size, file standard in printing.

Shortcuts		
	Ctrl + D	Deselect
	Ctrl + T	Free transform
	Ctrl + alt + z	Go backwards a step
	Ctrl + "-" (or use +)	Zoom in and out

Lindy Hop Y7 Dance

Key Vocabulary	
Posture	The way you are standing.
Action	Any movement you are performing.
Timing	The speed of the music.
Unison	At the same time as one another.
Canon	One after the other.
Performance	Presenting your work to an audience.

Historical Context

The Lindy hop is an American dance that evolved in Harlem, New York City, in the 1920s and 1930s and originally evolved with the jazz music of that time. It was very popular during the Swing era of the late 1930s and early 1940s. Lindy was a fusion of many dances that preceded it or were popular during its development but is mainly based on jazz, tap, breakaway, and Charleston. It is frequently described as a jazz dance and is a member of the swing dance family.

In its development, the Lindy hop combined elements of both partnered and solo dancing by using the movements and improvisation of Black dances along with the formal eight-count structure of European partner dances – most clearly illustrated in the Lindy's basic step, the swingout. In this step's open position, each dancer is generally connected hand-to-hand.

There was renewed interest in the dance in the 1980s from American, Swedish, and British dancers and the Lindy hop is now represented by dancers and loosely affiliated grass-roots organizations in North America, South America, Europe, Asia, and Oceania.

Basic Lindy Hop Steps

Swing Arms - stand with feet together reach alternate arms forward.

Kick Step - flick right foot forwards then left forward & repeat.

Tap Step - hands bounce ball, feet step right and left.

Side Step – 2 steps to the right and repeat to the left.

Swivel Feet - feet together twist toes to left then heels hand looks like its holding a tray.

Scarecrow - feet apart balance on toes hands in air.

Frog Jump - jump touching the soles of the feet touch together.

Falling off the Log – Step side, behind, side and kick. Repeat right and left.

Working safely with a Partner

Always discuss what you are going to do first so both of you know what your role is.

Don't attempt anything you haven't been shown first.

Ensure you have sufficient space around you.

Always make sure your partner lands on their feet when finishing a lift.

Bare feet, Hair tied up and all jewellery removed.

Lesson Overview

1 Introduction to Lindy Hop basic and moves and step patterns
2 Lindy Hop motif
3 Lindy Hop partner sequences
4 Lindy Hop choreography
5 Performance
6 Evaluation

Year 7, Term 2
Introduction to From Page to Stage

Ways to communicate meaning

Vocal expression, facial expression, gesture, physicality, interaction, transition, posture, levels, stance, atmosphere and mood.

Vocal Skills

Tone, pitch, pace, projection, volume, pause, accent, emphasis, articulation, inflection.

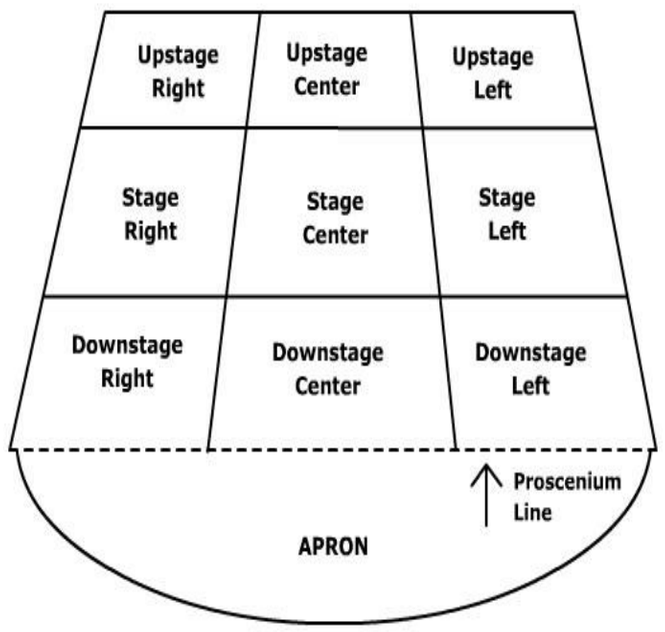
Keywords

Stage Directions	These are the parts written in italics to inform the actor what they should be doing/how they should deliver a line.
Theme	This is a central idea or concept which runs through a piece of literature. It is usually essential to the plot and recurs in different ways throughout the action.
Prologue	This is an opening of a story or play that establishes the context and gives background details, often some earlier story that ties into the main one.
Writing in Role	This is a drama strategy when an actor writes something from the characters perspective.
Given Circumstance	Information given within the text about characters and their situations.

Main Characters

Matilda – She is clever brave and loves books!
Mrs Wormwood – Mrs Wormwood is the neglectful mother of Matilda and her brother Michael. She's more interested in her TV programmes and playing bingo to notice that her daughter is bordering on genius.
Mr Wormwood - Husband to Mrs Wormwood and father of Michael and Matilda. He is a second-hand car salesman who likes to swindle his customers.
Miss Trunchbull – She is the "formidable female" headmistress of Crunchem Hall Primary School. A former Olympic hammer-thrower with a hatred of children.
Miss Honey – Miss Honey is Matilda's class teacher at Crunchem Hall Primary School. She fully appreciates Matilda's incredible abilities and tries to bring them to the attention of Miss Trunchbull and Matilda's parents.

Stage Positions



Approaching a piece of script

Who is the character? - What type of person are they? What happens to them in the production and does this change them in any way?
Vocal skills – How am I going to become the character vocally?
Physicality – How am I going to become the character physically in the way I sit/stand/move?
Relationships – What is my character's relationships to other people in the production and how am I going to show this?

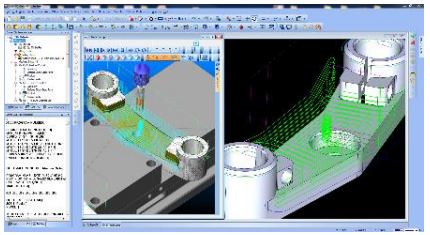
STUDENT KNOWLEDGE ORGANISER

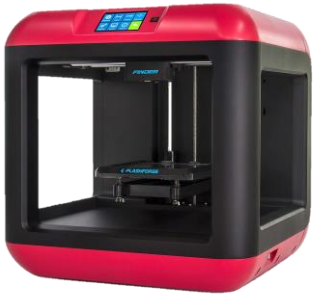
CAD Packages: CAD programmes come in a variety of versions to carry out different design tasks. Believe it or not PowerPoint and Word are CAD packages because you can use the design features to create documents and designs for printing. The programmes help you design something even if it is a written document. For designing objects there are different programmes. Often these files can then be sent to a machine for manufacturing.

Autodesk | Photoshop | PowerPoint | TechSoft 2D Design | SolidWorks | Word

CAD

CAD is the shortened term for Computer Aided Design. Computer programmes are used to make complex models in 2D or 3D and these can be run through simulators or spun about 360deg to see what the design looks like.





CAM

CAM is the shortened term for Computer Aided Manufacture. Machines such as laser cutters and 3D printers follow instructions from a 3D model drawn in CAD and make the item. A 3D printer prints with softened plastic, building up layers. A laser cutter cuts material such as boards of plywood.

Materials and applications

Various materials can be cut, engraved, scored, machined or moulded using CAM. A 3D printer softens a polymer so it can then layer it in a pattern that its been programmed to follow. Over time (this can be many hours) the layers build up to the desired shape. Laser cutters can cut materials such as plywood, acrylic and some fabrics, card and paper and can engrave many of them too using a high powered laser beam. More powerful laser cutters can be used on harder materials such as metal. Vinyl plotters can be loaded with a sticky vinyl tape available in various colours. This then cuts with a blade following a 2D pattern. Some CAM machines such as printers lay ink or using cutting tools to remove material from blocks or 'billets' of material.

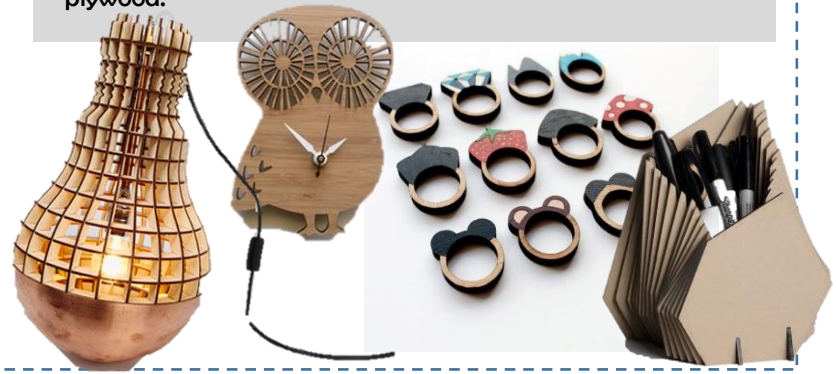
Papers and Boards and Timbers

Papers and boards primarily come from trees or wood pulp. Trees are debarked and then processed to make various grades of paper and board. Corrugated cardboard is often found in packages we order online. The inner layer insulates the object inside but also protects it from impact. The triangular structure inside the inner and outer layer of the card add the strength. Other boards such as foil lined board can be used for wrapping hot food.

Hardwood, Softwood or Man-made boards?

Woods can be grouped into 3. Softwoods, Hardwoods and man made boards. Softwoods are woods that come from trees that don't lose their leaves in the winter. We call these coniferous trees such as Pine or Spruce. Hardwoods come from slower growing deciduous trees such as Oak or Mahogany.

Man-made boards are woods that have been processed into flat often large sheets using waste wood material. Sometimes they are made using layers of wood which are glued and compressed together. An example would be plywood.



English Year 7 Term 2.1 Gothic

1. Gothic Trope	
Pathetic Fallacy	Using the weather to set the moon and tone of the writing
Fear of the Unknown	Using characters, places and ideas that are unusual or abnormal to scare the audience
Dark and mysterious settings	Graveyards, castles, old mansions, ruined houses, deserted cities etc
The hidden or secret	Locked doors, doors/windows that can't be opened, hints that the main character has a secret.
Monstrous central characters	Dracula, Frankenstein, ghosts, monsters, vampires, evil men

2. Sentence Structures	
Simple	A sentence with one independent clause. *"She went to the shop."*
Compound	A sentence with multiple independent clauses. *"She went to the shop and bought a banana"*
Complex	A sentence with one independent clause and at least one dependent clause. *"Sometimes, when she goes to the shop, she likes to buy a banana."*

3. Language Techniques	
Simile	Something is presented as like something else.
Metaphor	Something is presented as something else.
Imagery	When the writer provides mental "pictures".
Personification	Giving human traits to something non-human.
Pathetic Fallacy	When the weather and atmosphere reflects the mood of the writing
Alliteration	The occurrence of the same sound/letter at the beginning of words
Hyperbole	Over-exaggeration
Oxymoron	Placing two opposite words next to eachother
Repetition	Repeating something to emphasises or reinforce.
Emotive Language	Words/phrases which appeal to the emotions.

4. Stereotypical Female Characters in Gothic Novels	
The Femme Fatale	The evil, seductive woman that leads the main male character astray.
The Damsel in Distress	The helpless woman in need of men to protect her.
The Mad woman	The insane woman, often in the attic.

5. Tier 2 Vocab	
Dauntless	Fearless
Sagacious	Wise
Tangible	Able to be touched or felt
Beguiling	Charming
Placid	Calm and collected
Tempest	A violent storm
Vivacious	Full of life
Fitfully	Jerking movements
Aghast	Shocked
Encroach	To move into someone's space

6 Sentence Starters	
Simile starter	Like a dulled mirror, the lake reflected...
Adjective starter	Beautiful flowers decorated the side of the road...
Subordinate clause starter	Although it wasn't visible, tension filled the air...
Verb starter	Swirling furiously...
Adverb starter	Suddenly, the storm stopped...
Anaphora—the repetition of a phrase at the start of a clause/ sentence	It couldn't be denied it was beautiful. It couldn't be denied it was deadly.

7. Gothic Authors Covered	
Bram Stoker	Dracula
Emily Bronte	Wuthering Heights
Mary Shelley	Frankenstein

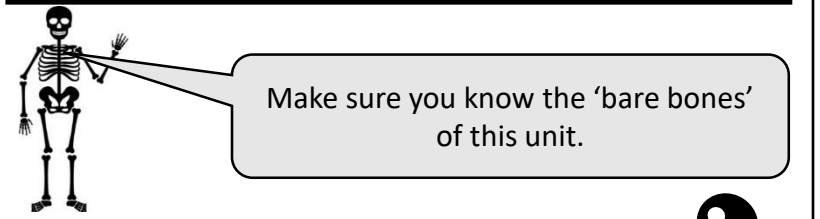
Other Writing Skills

8. Structural Devices to be used in your writing.	
Motif	A recurring image that build up to symbolise something
Foreshadowing	Giving a hint or indication of a future event
Juxtaposition	Placing two ideas or events deliberately next to each other
Cyclical structure	The end of your writing links back to the beginning.

9. Narrative Styles	
Linear	Events are told chronologically.
Non-Linear	Events are not told chronologically.
Dual	Told from multiple perspectives.
Cyclical	Ends the same way it begins.

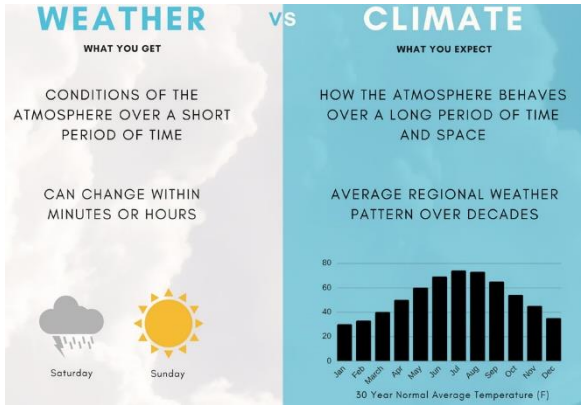
10. Sophisticated Punctuation	
Brackets ()	To contain extra information
Semi-colon ;	To link two main clauses which link in some way e.g. it was raining; I grabbed my coat.
Comma ,	To separate a main clause and subordinate clause
Colon :	To introduce a list or an idea. The worst thing about school: the homework.
Dash—	To add further information in a sentence.

Year 7
Weather and Climate



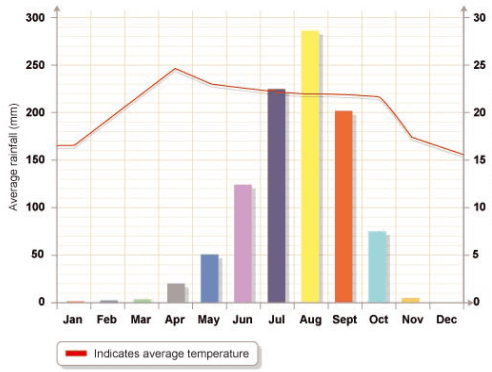
Keywords:

1. **Weather** – the day to day conditions of the atmosphere
2. **Climate** – the average temperature & rainfall over 25years



3. **Precipitation** – rain, hail, sleet, snow
4. **Air mass** – an amount of air that influences the temperature and amount of rainfall
5. **Extreme weather** – dangerous and unusual weather than is a threat to people
6. **Low pressure** – rising air that condenses to make the clouds and can lead to rainfall
7. **High Pressure** – sinking air that leads to clear and calm weather
8. **Microclimates** – A small area within a climate where the conditions vary to the wider climate e.g. eg the top of a hill, the sunny side of a hill, the shaded side of a hill and the bottom of a hill.

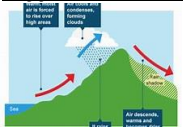
Climate Graphs



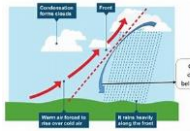
Remember the bar chart shows the rainfall – make sure you look at the left axis to read this.

The line graphs shows the average temperature – make sure you look at the right axis to read this.

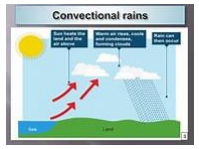
Types of rainfall



Relief rainfall- the moist air is forced to rise over the mountains, air rises cools, condenses and falls as rain.

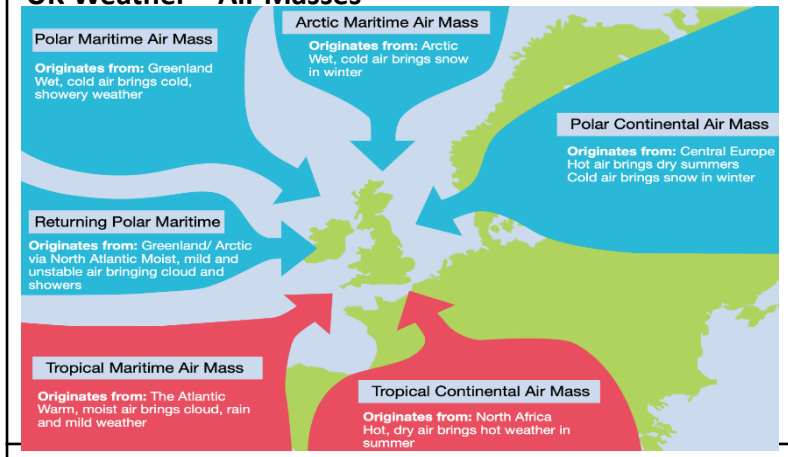


Frontal rainfall- as mass of warm air meets a mass of cold air. Warm air is lighter than cold air and it is forced to rise, cools, condenses and falls as rain



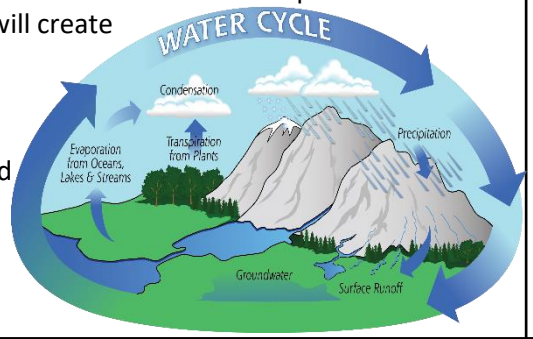
Convectional rainfall- the sun warms the ground and the air above is warmed. The warm air rises, cools condense and falls as rain

UK Weather – Air Masses



Water Cycle

Evaporation occurs as the sun causes water in seas, lakes and rivers to heat. It will turn into a gas (**water vapour**). The cool air then causes **condensation** of the water vapour and clouds being to form. This will create **precipitation** (rain, hail, sleet or snow) which causes water to return to lakes and rivers through **surface run off** (water running over the ground).



Microclimates

Microclimate is the distinctive climate of a small-scale area, such as a garden, park, valley or part of a city. The weather variables in a microclimate, such as temperature, rainfall, wind or humidity.

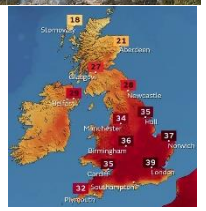
Factors that influence microclimates

Physical features- trees provide shade and shelter leading to cooling.
Water areas can cause cooling. Hilltops are usually cool and windy.
Buildings- they give out heat that has been stored from the sun. **Temperatures** next to buildings can be 2-3 degrees higher. Buildings break the wind and can reduce wind speeds.
Shelter- Trees, hedges, walls can provide shelter from the wind. Places sheltered will be warmer.
Surface- the colour of the ground affects warming. Dark surfaces such as tarmac and soil become warmer than lighter surfaces such as grass.
Aspect- direction the place is facing. Places facing the sun will be warmer. South facing are warmer.

UK Extreme Weather

E.g. heatwaves, heavy rainfall, snow storms, high winds.

Example: UK Summer 2022 Heatwaves



The UK recorded its hottest-ever temperature of 40.3°C
5 people died when they got into difficulties in open water. A fire broke out in London causing 41 properties to be set alight. Electric equipment failed and people had power cuts (social)
People were unable to get to work as trains in Manchester were cancelled as the tracks over heated (economic)
Wildfires occurred destroying important habitats (environmental)

Year 7 Urban Areas

Make sure you know the 'bare bones' of this unit.

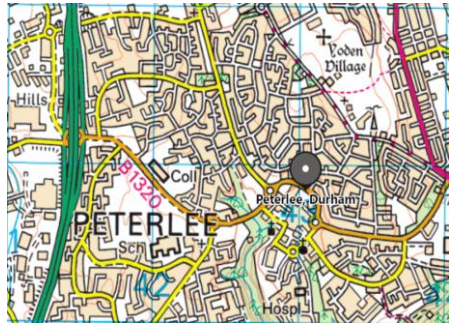
Keywords:

- **City –** an urban area with a large number of people. They usually have universities, large sport stadiums and large hospitals
- **Urbanisation**– the increase in the population in an urban area, e.g. a town or city
- **Regeneration** – the improvement of a run down area to make people come back to the area
- **Urban Sprawl** - cities growing into the countryside
- **Green Field** – area of land that has not been built on
- **Brown Field** - used, derelict land that is built on again
- **Natural increase –** population naturally increases, as more people are born than are dying
- **Megacity –** a city with a population over 10 million
- **Push factor** – something that is bad that makes people want to leave an area
- **Pull factor** – something that is good about a place that makes people want to move there
- **Squatter settlements –** areas of poor-quality housing, lacking in amenities (basic facilities) such as clean water

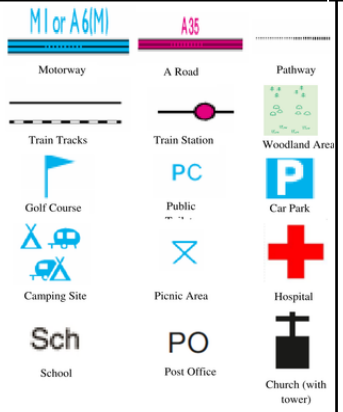
Urban Growth and Megacities

- Over half the world's population now live in cities
- Causes of urbanisation: **migration** (people moving to the city) and **natural increase** (young people having families so population goes up)
- Push factors – more jobs, better housing
- Pull factors – war, no access to water, no jobs
- A megacity is a city which has over 10 million people or above living there.

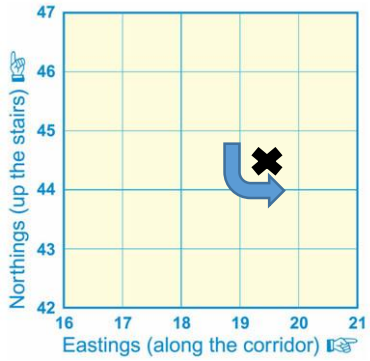
Your Local Area – Map skills



When using a map we need to understand how to read a key. These are some of the key symbols.



Grid Refences

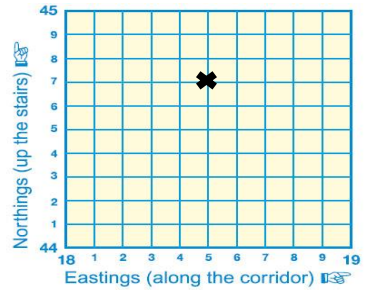


Remember the lines help use find locations on a map

When you give a 4 figure grid reference you need 4 numbers and you are locating the whole square

1. Go along the corridor
2. Go up the stairs
3. Make an a letter 'L' shape around the square to help you check your answer

E.g. 19 44



We use 6 figure grid references to give a specific location within a grid square

1. Work out the 4 figure grid reference and write this down E.g. 18 44
2. Then remember the whole square is split into 10 along the bottom and 10 up the side
3. Count along the bottom and write the number down after the first 4 figure number E.g. 18**7**
4. Then do the same up the side E.g. 44**5**

HIC Urban Area: London, UK

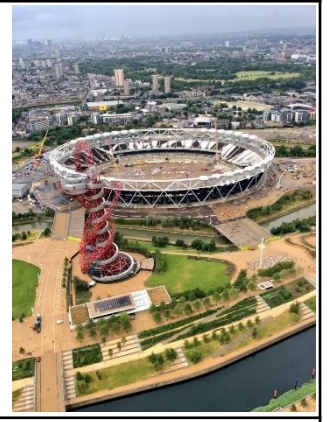
Opportunities: Entertainment opportunities such as Natural History Museum, 02 Music arena, sports such as football and Wimbledon for tennis. ***(social)*** Canary Wharf is the heart of finance, employing 100,000***(economic)*** London has 8 million trees - good to reduce CO2 ***(environmental)***

Challenges: Very expensive housing prices ***(social)*** Unemployment is 10% ***(economic)*** More people leads to more waste - 40% of waste goes to landfill (**environmental**)

London Regeneration

EXAMPLE: London Olympic Park.

The area was deprived (very poor) with a lack of employment and the area was very run down. The area was regenerated to improve the area. It was built on a brownfield site (derelict and unused land) to reduce urban sprawl. It created 2800 homes and 25,000 jobs, contaminated land was cleaned and turned into wetland area. BUT new houses that were built were too expensive for locals who were forced to leave.



NEE Urban Area: Mumbai, India Opportunities: 1000 schools, good access to hospitals/ doctors meaning life expectancy is 73 (*social*) *Lots of manufacturing due to the port. Mumbai Stock Exchange creating well paid tertiary jobs (economic)*

Challenges: Dharavi Slum – home to 1m with 1 toilet per 1,000 people causing poor sanitation and disease, people queue for 2hrs for water. Hard to provide schools and doctors for everyone in Mumbai – there is 1 doctor per 1000 people. Hard to provide clean water for everyone – 77% of people don't have clean water. Not enough jobs for everyone and people are low skilled. People work in the **informal economy** carrying out jobs selling valuable rubbish and earn only £1 a day. 7,000 tonnes of rubbish every day. Congestion due to 22m cars = air pollution is 3x higher than safe *(environ)*

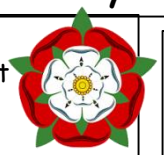
Sustainable Cities – Freiburg, Germany

- The city centre is car free – people use public transport like trams which are easily accessed by all people and they arrive evert 8 minutes
- They collect and reuse the rain water to cut down on water wastage
- They ensure they recycle – with 350 community recycling points

Year 7 History : The Reformation

Key Vocabulary	Definitions
Monarch	The king or queen.
Catholicism	An ancient, worldwide Christian religion led by the **Pope** in Rome.
Protestantism	A form of Christianity that began in northern Europe in the early 16th century. It began as a **protest** against the corruption of the Catholic Church.
The Reformation	A split in the Catholic Church where a new type of Christianity called Protestantism was born. It was started by **Martin Luther** in Germany.
Heir to the throne	The person **next in line** to the throne. Usually the monarch's eldest son.
Execution	Carrying out a **death sentence** e.g. beheading or burning at the stake.
Monastery	A building where monks live & work.
Heretic	Someone whose **religion** goes against the official position of the Church. **Heresy** was a crime in Tudor times.
Treason	The crime of **betraying** one's king or country.
Armada	A fleet of warships.

Henry VII (1485-1509)



Henry Tudor became the first Tudor king after **defeating Richard III** at the **Battle of Bosworth** in 1485. This was the **end of the Wars of the Roses**.

Henry VIII (1509-47)

Wives

1. **Catherine of Aragon** (Child: Mary) DIVORCED
2. **Anne Boleyn** (Child: Elizabeth) BEHEADED
3. **Jayne Seymour** (Child: Edward) DIED
4. **Anne of Cleves** DIVORCED
5. **Catherine Howard** BEHEADED
6. **Catherine Parr** SURVIVED

The Reformation in England

Henry wanted to **divorce** Catherine of Aragon because she did not produce a **male heir** for him, but the Catholic Church would not let him. He decided to **split from the Roman Catholics** & create the **Church of England**. The **1534 Act of Supremacy** declared Henry to be the **Supreme Head of the Church of England**. Henry ordered the **closure of over 800 monasteries**.

Edward VI (1547-53) 'The Boy King'

Crowned age 9 & **died aged 15**. He was raised as a **Protestant**. Because of his youth, the country was run by his **protectors**: the **Duke of Somerset**, then the **Duke of Northumberland**. Edward's reign saw **major changes to religion**. This was **a major break from Catholicism**.

Lady Jane Grey (The Nine Day Queen, 1553)

Henry VIII said that Mary, should reign next if Edward died young. However, Edward's **ministers persuaded him to make a will naming Lady Jane Grey** (married to the son of his Protector) **his successor**. They wanted to keep England a Protestant country. **Jane was only 16.** English people supported Mary, so she took the throne **9 days later**. Jane was imprisoned in the Tower of London & Queen Mary had her executed.

Mary I (1553-58)

Mary Tudor was Henry's eldest daughter. She **reversed** Edward's religious changes as she was a strict **Catholic**. Nearly 300 Protestants were **burned at the stake** during her reign for being **heretics;** hence her nickname, ***Bloody Mary***.

Elizabeth (1558-1603)

Raised as a Protestant. She knew religion had caused a lot of problems for England. She tried to find a **'middle way'** that both Catholics & Protestants could accept. The **Act of Uniformity (1559)** stated that everybody had to attend the Church of England & use the Book of Common Prayer.

Elizabeth ordered the execution of her cousin **Mary Queen of Scots** in 1587, for committing **treason** (plotting her murder).

In 1588 Spanish **King Philip II** launched the **Spanish Armada**, an **invasion fleet** of 130 ships & 30,000 soldiers & sailors. He wanted to conquer England & restore Catholicism. After several fights in the Channel, the English navy scattered the Spanish fleet using **fire ships**. 5,000 Spanish sailors died & **only half of the fleet returned to Spain**.

Life in Tudor times

Huge differences between lives of rich & poor. The rich had feasts, entertainment & education. Poorer people struggled to survive day-to-day. Life was harsh; average life expectancy was just 35 years. Most people lived in the countryside.

Voyages of Discovery

English sailors, such as **Walter Raleigh & Francis Drake**, went on daring expeditions. Raleigh sailed to **the New World** & claimed North Carolina & Virginia for England. Virginia was named after Elizabeth, ***the Virgin Queen.***

1485	1509	1547	1553	1558	1588	1603
Henry VII	Henry VIII	Edward VI	(Lady Jane Grey) Mary I	Elizabeth I	Spanish Armada	Elizabeth dies James Stuart crowned

Year 7 Topic 5 Fractions Student Knowledge Organiser

Key words and definitions

Fraction – represents part(s) of a whole

Percentage – how many parts per hundred

Equivalent – equal in value

Improper – a fraction where the numerator (top number) is larger than the denominator (bottom number)

Finding a fraction of an amount

When we work out a fraction of an amount we

multiply by the numerator
and
divide by the denominator

For example,

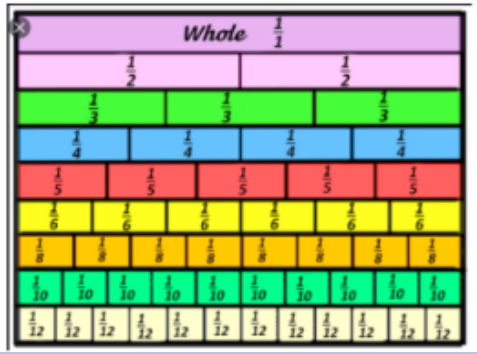
$\frac{2}{3}$ of 18 litres = 18 litres ÷ 3 × 2

= 6 litres × 2

= 12 litres

Equivalent fractions

Represent equivalence with fraction walls



Calculating with fractions

Add	$\frac{1}{2}+\frac{1}{3}=\frac{1\times3}{2\times3}+\frac{1\times2}{3\times2}=\frac{3}{6}+\frac{2}{6}=\frac{5}{6}$	6 is the lowest **common denominator** for 2 and 3
Subtract	$\frac{7}{8}-\frac{1}{3}=\frac{7\times3}{8\times3}-\frac{1\times8}{3\times8}=\frac{21}{24}-\frac{8}{24}=\frac{13}{24}$	24 is the lowest **common denominator** for 8 and 3
Multiply	$\frac{3}{4}\times\frac{1}{3}=\frac{3}{12}=\frac{1}{4}$	Multiply the numerators, multiply the denominators and the then simplify if possible
Divide	$\frac{1}{2}\div\frac{1}{3}=\frac{1}{2}\times\frac{3}{1}=\frac{3}{2}=1\frac{1}{2}$	Turn the 2nd fraction over (reciprocal) and change the sign to multiplication

Improper fractions and mixed numbers

$\frac{14}{3}$ How many 3's fit into 14? $4\frac{2}{3}$

$7\frac{2}{5}$ $(5\times7)+2=$ $\frac{37}{5}$

Equivalent fractions

$\frac{6}{48}$ (÷2) → $\frac{3}{24}$ (÷2) → $\frac{1}{8}$ (÷3)

Hegarty Maths Skills Links

Fraction, decimal, percentages	73, 74, 75, 76
Equivalent fractions	59, 60, 61, 62
4 operations with fractions	65, 66, 67, 68, 69, 70, 71, 72
Fraction of an amount	77, 78
Improper fractions/mixed numbers	63, 64
Percentage of an amount	84, 85, 86

North East Learning Trust

Year 7 Expressions Student Knowledge Organiser

Key words and definitions

Expression – numbers, symbols and operators grouped together

Term – number or variable or numbers and variables multiplied together

Equation – a mathematical statement that shows two things are equal

Expand – multiply to remove brackets

Factorise – the reverse of expanding, taking out a common factors

Substitution – putting numbers in place of letters

Simplify – collect like terms

Simplifying expressions

Simplifying

$3e + 6r - e + 5t$

$2e + 11t$

If there is **no sign** in front of the term, it is *POSITIVE*

Substitution

Evaluate 3a - 2b, for a = 10 and b = 4

$3a - 2b \quad (a = 10 \quad b = 4)$

$= 3(10) - 2(4)$

$= 30 - 8$

$= 22$ ✓

Expand a single bracket

Expanding single brackets

$3(x + 2)$

$3x + 6$

Common misconceptions

$3(x + 2)$

$3x + 5$ ✗

This is incorrect

The last term has been **added INSTEAD of multiplying.**

Solve simple equations

Balancing method

$8a - 5 = 11$

$+5 \quad +5$

$8a = 16$

$\div 8 \quad \div 8$

$a = 2$

Function machine method

$8a - 5 = 11$

$a \rightarrow \times 8 \rightarrow -5 \rightarrow 11$

$2 \leftarrow \div 8 \leftarrow +5 \leftarrow 11$

$a = 2$

Factorising

$4x + 16$

4 is a factor of both 4 and 16.

$4(x + 4)$

Hegarty Maths Links

Expression – 156, 157, 158, 159

Expand – 160, 161

Factorise – 167, 168, 169, 170, 171

Substitution – 780, 781, 782, 783, 784

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Year 7 Topic 7 Fractions, decimals and percentages Student Knowledge Organiser

Key words and definitions

Fraction – represents part(s) of a whole

Percentage – how many parts per hundred

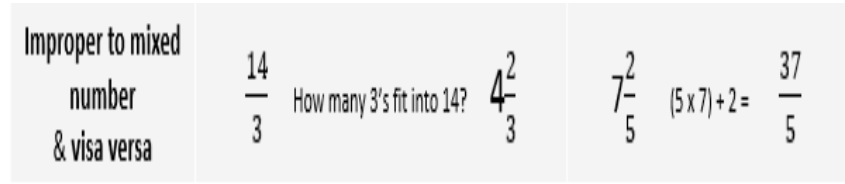
Equivalent – equal in value

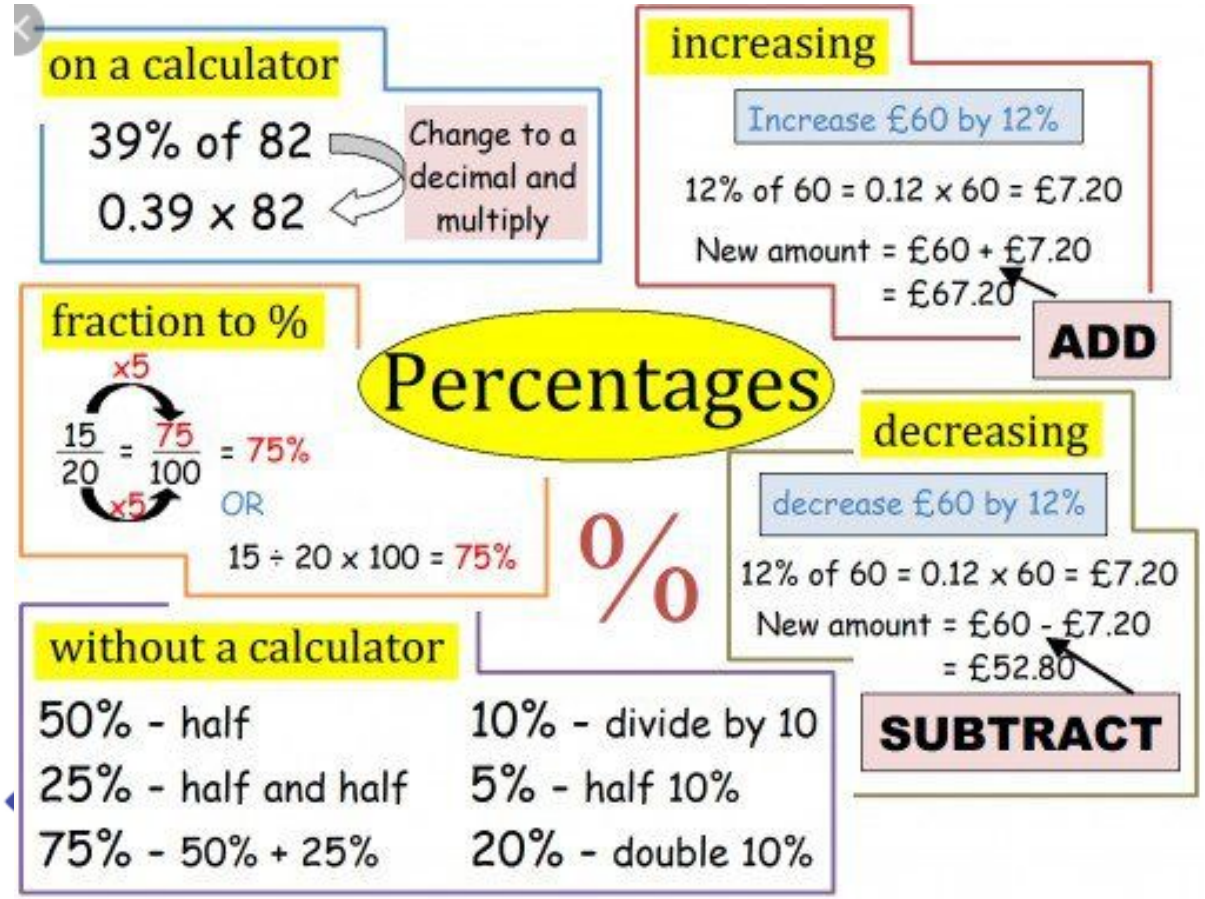
Improper – a fraction where the numerator (top number) is larger than the denominator (bottom number)

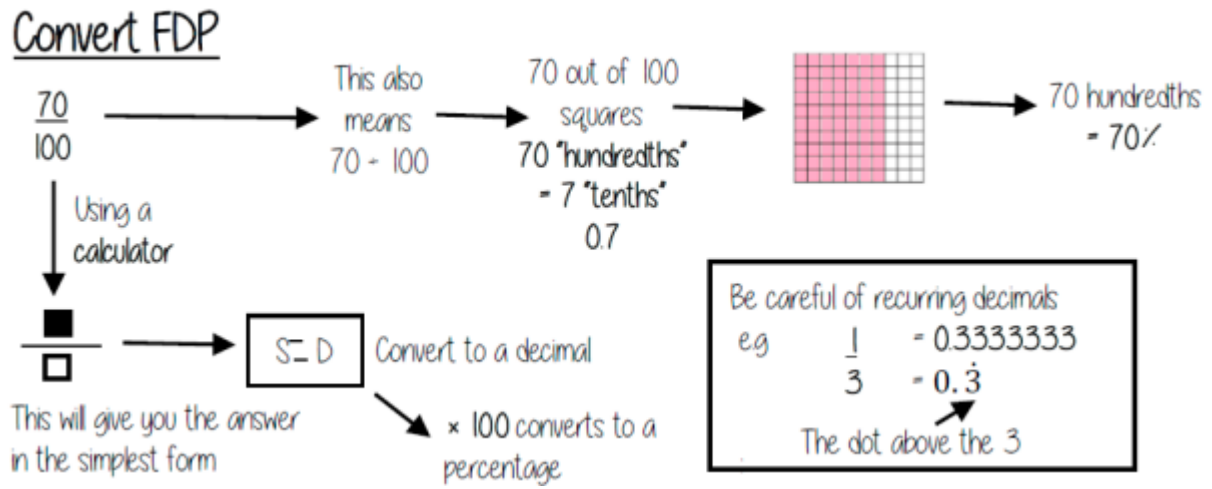
Fraction, decimal and percentage equivalence

Fractions	Decimals	Percentages
$\frac{1}{5}$	0.2	20%
$\frac{3}{4}$	0.75	75%
$\frac{1}{8}$	0.125	12.5%
$\frac{1}{2}$	0.5	50%

Improper fractions and mixed numbers







Hegarty Maths Skills Links

Fraction, decimal, percentages	73, 74, 75, 76
Equivalent fractions	59, 60, 61, 62
4 operations with fractions	65, 66, 67, 68, 69, 70, 71, 72
Fraction of an amount	77, 78
Improper fractions/mixed numbers	63, 64
Percentage of an amount	84, 85, 86

Year 7 Topic 8 Ratio Student Knowledge Organiser

Key words and definitions

Ratio – Measuring how two quantities compare to each other in size

Proportion – comparing two or more things against the whole

Bar model – a pictorial representation of a number to help understanding

Simplify – reduce to its simplest terms

Highest common factor – the highest number that can be divided exactly in to two or more numbers

Simplify ratio

Ratios can be fully **simplified** just like fractions.

To simplify a ratio, divide all of the numbers in the ratio by the same number (**highest common factor**) until they cannot be divided any more.

Simplify: 6 : 12

Divide both by 6

1 : 2

Write in the form 1:n

When asked to write a ratio in the format 1 : n, you need to **divide BOTH sides** by **the ratio where the 1 is.**

Write 7 : 21 in the ratio 1: n

7 : 21 divide both sides by 7

1 : 3

Share in a given ratio

Monty and Mosaurus get A TOTAL of £72 pocket money.

They share it in the **ratio 5 : 3**

How much do they each get?

- **Add the ratios: 3 + 5 = 8**
- **Divide 72 by 8 (72 ÷ 8 = 9)**

Each ONE portion is worth £9

Monty has 5 portions

5 x 9 = £45

Mosaurus has 3 portions

3 x 9 = £27

In a school the ratio of boys to girls is 9 : 4.

There are 270 boys in the school.

How many students are there in the school altogether?

Divide the total number of boys by the boy's ratio

270 ÷ 9 = 30

This gives the number for 1 'portion'

Girls

4 x 30 = 120

Total = 270 + 120 = 390

Recipes

A recipe for 6 people uses 900 g of mince. How much mince is needed for

a 12 people

P : M

6 : 900g (x2) → 12 : 1800g (x2)

b 3 people

P : M

6 : 900g (÷2) → 3 : 450g (÷2)

c 9 people?

6 people + 3 people = 9 people

900 + 450 = 1350 g

Exchange rates

The exchange rate is:

£1 buys $2.12

Find how many dollars ($) can be bought for £1500

£1 = $2.12 (x1500)

£1500 = $.....

(1)

Maps and scales

6. Each diagram is part of a map. Find the actual distance between the two places for each map. Give your answers in metres.

(a) Scale 1 : 12 500

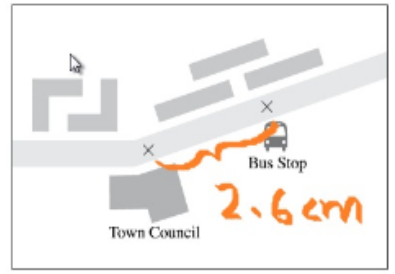
1 cm : 12 500cm (x2.6)

2.6 cm : 32 500 cm

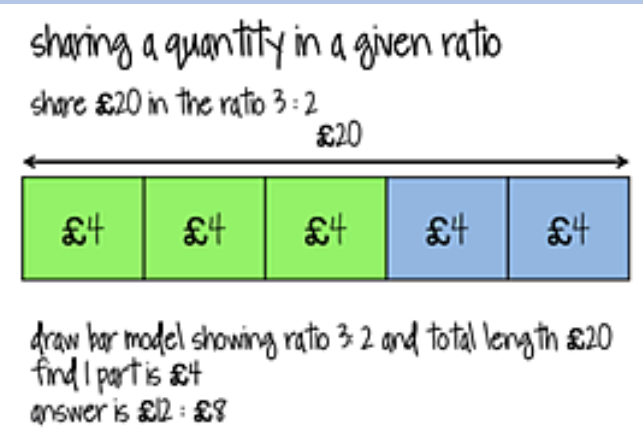
if 100 cm is 1m

32 500cm is 325 m

32500



Bar modelling



Hegarty Maths Links

Ratio – 328, 329, 330, 331, 332, 333, 334

Proportion – 339, 340

Recipes – 739, 740, 741, 742

Maps and scales – 864, 865, 866

North East Learning Trust

Year 7 French Sentence Builder 4

School subjects, opinions and reasons

Au collège (At school)	ma matière préférée, c'est (My favourite subject is) j'adore (I love) j'aime (I like) je n'aime pas (I don't like) je déteste (I hate)	le français (French) l'anglais (English) le théâtre (drama) le dessin (art) la religion (P4L) la géographie (geography) la musique (music) la technologie (technology) la danse (dance) l'histoire (history) l'informatique (computer science) l'EPS (PE) les maths (maths) les sciences (science)	car (because) parce que (because)	c'est (it is) ce n'est pas (it is not)	très (very) vraiment (really) un peu (a bit) assez (quite) extrêmement (extremely)	bon (good) mauvais (bad) utile (useful) important (important) intéressant (interesting) amusant (fun, amusing) ennuyeux (boring) inutile (pointless) nul (rubbish)

Sentence Builder 5

School subjects, opinions and reasons

Year 7

Phonics

u

in/ain

qu

Vocabulary

School subjects

Opinions and reasons

Grammar and complexity

Present tense – opinions

Connectives and modifiers

Year 7 French Sentence Builder 6
School essentials

Dans mon sac
(In my bag)

Dans ma trousse
(In my pencil case)

j'ai
(I have)

il y a
(there is)

je n'ai pas de
(I don't have)

il n'y a pas de
(there isn't)

un portable (a phone)

un miroir (a mirror)

un bâton de colle (a glue stick)

un crayon (a pencil)

un stylo noir (a black pen)

un stylo bleu (a blue pen)

un paquet de mouchoirs (a packet of tissues)

de l'argent (some money)

une gourde (a water bottle)

une gomme (a rubber)

une règle (a ruler)

des chips (some crisps)

des clés (some keys)

des surligneurs (some highlighters)

des lunettes de soleil (some sunglasses)

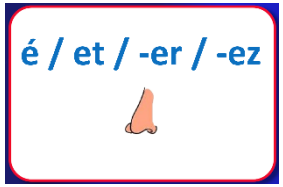
des baskets (some trainers)

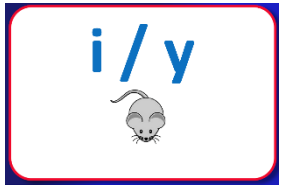
Sentence Builder 6

School essentials

Year 7

Phonics





Vocabulary

School equipment

Colours

Grammar and complexity

j'ai / il y a

Negatives:
je n'ai pas de
il n'y a pas de

Year 7 Sentence Builder 7

Places in town

J'adore (I love) J'aime (I like) Je n'aime pas (I don't like) Je déteste (I hate) Je prefere (I prefer)	ma ville car il y a (my town because there is) ma ville car nous avons (my town becausewe have)	un (a)	grand (big) petit (small) beau (beautiful) joli (pretty) vieux / vieil (old) nouveau (new) bon (good) mauvais (bad)	café (café) marché (market) magasin de vêtements (clothes shop) musée (museum) stade (stadium) centre sportif (sports centre) cinéma (cinema) supermarché (supermarket)	moderne (modern) intéressant (interesting) vivant (lively) propre (clean) agréable (pleasant) ennuyeux (boring)	
		une (a)	grande (big) petite (small) belle (beautiful) jolie (pretty) vielle (old) nouvelle (new) bonne (good) mauvaise (bad)	mairie (town hall) bibliothèque (library) boulangerie (bakery) poste (post office) piscine (swimming pool) église (church)	moderne (modern) intéressante (interesting) vivante (lively) propre (clean) agréable (pleasant) ennuyeuse (boring)	

Sentence Builder 7

Places in town

Year 7

Phonics

eau/au/o

en / an / em

i / y

Vocabulary

Places in a town

Opinions

Grammar and complexity

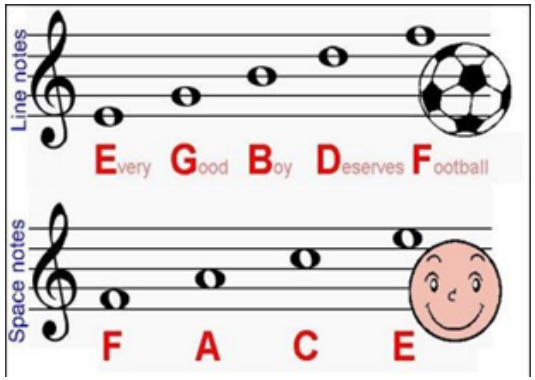
il y a

Gender of nouns

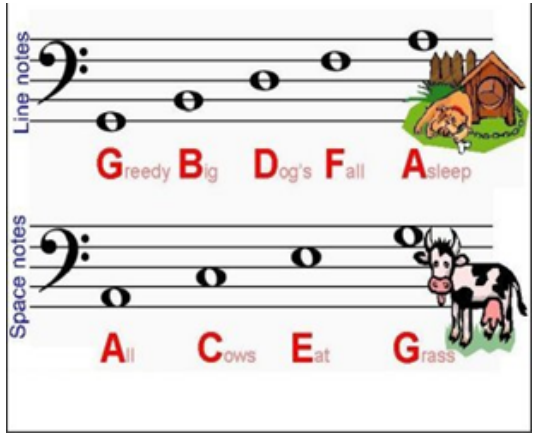
BAGS and non-BAGS adjectives

Year 7 Term 2—Performance

TREBLE CLEF NOTES

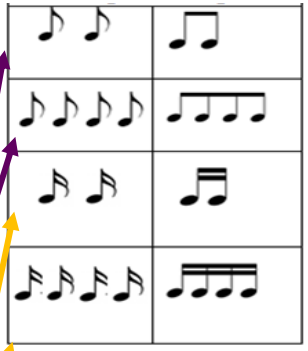


BASS CLEF NOTES



Name of note	Appearance	Rest	Value (Beats)
Semibreve			4
Dotted Minim			3
Minim			2
Dotted Crotchet			1 ½
Crotchet			1
Quaver			½
Semiquaver			¼

Grouping quavers and semiquavers

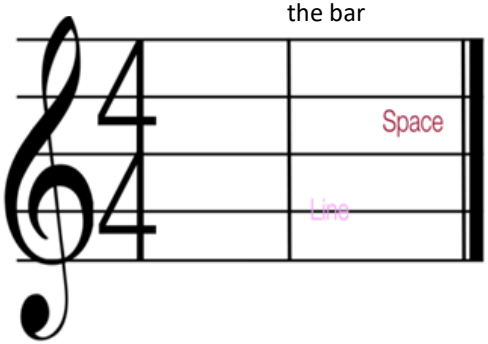


Clef symbol

Tells you which set of notes to use

Time Signature

Tells you how many beats are in the bar



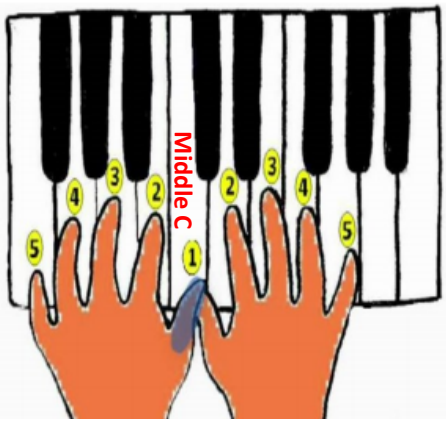
Bar line

Divides the music up into easier sections

Final bar line

Tells you the music has finished

Hand positions

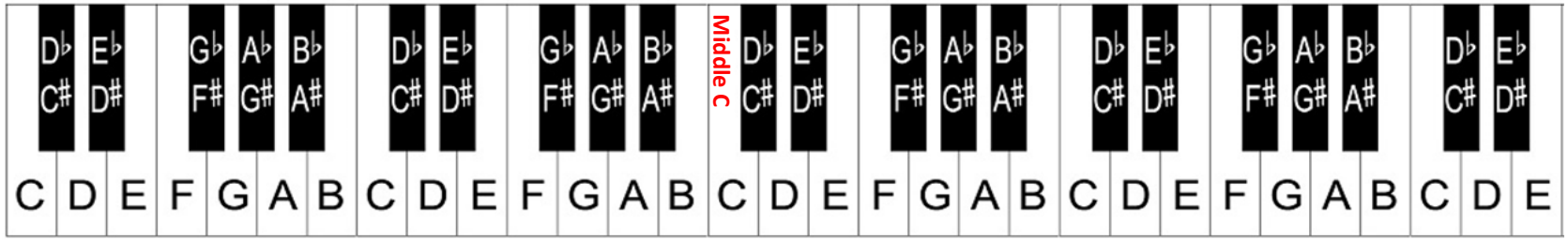


BOTH thumbs are on key 'C'

Lower pitch

Higher pitch

Keyboard notes



Y7 P4L

Year 7 – Careers Knowledge Organiser

KEY WORDS:	
Career	The jobs you work in over the course of your life.
Employment	Being paid by someone to do work for them or running a business of your own.
Skills	Things you have learnt which help you do a job well.
Qualities	Aspects of your personality and who you are.
Employer	Someone who hires other people to work for them.
Employee	Someone who earns their money by working for another person.
Interview	A meeting between you and an employer to find out if you are suitable for the job.
Sector	A group of careers or industries related by what they do

What is success?

Definitions of success are different for everyone; it is up to you to decide what makes you successful.

Where can I get advice?

There are many different career opinions available to you when you leave school. What you choose will depend on many factors, but it is important to understand this is a personal decision.

Setting targets is a great way to support you in achieving your goals. A target is something to aim for. Targets should be realistic but not too easy to achieve, they should challenge you.

Targets can be personal, academic or career related. They can also be something you hope to achieve in the short term or long term.

Personal Target	
Short term	Save money to buy a concert ticket
Long term	Pass my driving test
Academic Target	
Short term	Complete every piece of homework on time next term
Long term	Pass all of my GCSE exams

Who influences you?

During your life you will make many important choices, and these will often be influenced by other people or things around you. It is important to be aware of the things that influence you and to understand that it is good to have your own opinions.

Skills that future employers will be looking for:

- Communicating with others
- Critical thinking
- Using maths
- Teamwork
- Problem solving
- Creativity
- Using ICT
- Being well organised
- Leadership skills
- Being able to work alone (independent)
- Being actively involved in your community

Christianity: Christianity is the largest religion in the world with over **2 billion followers** (almost 1/3 of everyone alive on the planet). In the UK, **42 million people** describe themselves as Christian. Christianity is based on the life and teachings of **Jesus Christ**, who Christians believe was the Son of God. Christians rely on the **Bible** for many of their beliefs about the world and how to live in it. There are thousands of different **Christian denominations**.

Y7 – P4L

God

Christians are **monotheists** (they believe in one God). They believe He is **omnipotent** (all powerful), **omniscient** (all knowing), and **omnibenevolent** (all loving). Most Christians believe in the **Holy Trinity**, the three persons of God in one. These are the **Father**, **Son** (Jesus) and **Holy Spirit**.

Jesus Christ

The Incarnation – The Christian belief that God took human form by becoming Jesus. Through the incarnation of Jesus, humans were able to start repairing their damaged relationship with God. The relationship has been imperfect since Adam and Eve disobeyed God.

The Crucifixion – Jesus was crucified, a slow painful death on a Friday alongside two robbers. Christians believe that Jesus' crucifixion was a crucial moment in his life as this act brought human salvation (the healing of a broken relationship between humans and God) from sin. Jesus can understand human suffering because he suffered during the crucifixion.

The resurrection – After the crucifixion Jesus' bod was buried in a tomb guarded by Roman soldiers. Early on the Sunday morning, 3 days after his crucifixion, some of Jesus' female followers went to anoint the body with spices however the tomb was empty. His rising from the dead demonstrates Jesus' power over death itself.

Ascension – This reminds Christians that Jesus has gone to heaven to prepare a place for them, so they do not need to fear death. As Jesus is no longer restricted by time, he is always with them.

Teachings of Jesus

10 Commandments

Love your neighbour as yourself, forgive others who have wronged you, love your enemies, treat others as you want to be treated, forgive everyone, don't judge others.

Parables

Parables are short stories that teach a moral or spiritual lesson by comparing something from everyday life.

Parable of the Good Samaritan – A traveller is beaten up and robbed and left for dead along the road. A priest comes by, but deliberately avoids him. A lawyer also comes by, but he too avoids him. Finally, a Samaritan comes by ad he helped the injured man, in an act of mercy and compassion.

Evil and suffering

Moral evil - Evil that is caused by humans misusing their free will e.g. murder. **Natural evil** - This is suffering that has not been caused by humans e.g. earthquakes

GOOD AND EVIL

Christians believe that God is completely good and is the source of all goodness. Everything that God created was good, until humans chose to use their free will to disobey God.

THE FALL, ORIGINAL SIN AND REDEMPTION

Eve picked and ate the fruit from the Tree of Good and Evil when it had been forbidden by God. She then tempted Adam and he also ate it. As a punishment, God expelled Adam and Eve from the Garden of Eden and condemned them to lives of suffering and death. This is called 'The Fall'.

Forgiveness

'Forgive and you will be forgiven.'

Parable of the Prodigal Son – we are lost, but when you decide to change your life, if you go back to the Father and ask for forgiveness of what you did wrong, God is always happy to forgive.

Parable of the Unforgiving Servant – God wants us to keep on forgiving and to have mercy on others.

Miracles

If a miracle has really happened, it means that God has acted on earth. A miracle is an event that seems to break all the laws of science, and so the only explanation of what has happened is that God has caused it to happen.

Why do people believe in miracles?

- Shows that God is active in the world and he responds to prayers
- Proof God is loving and caring

Why do people not believe in miracles?

- Impossible in modern day
- No scientific proof

Life After Death

Judgement – Many Christians believe that after death, they will be taken into the presence of God and they will be judged for the deeds they have done or failed to do during their lifetime. The good will go to heaven and the bad will go to hell.

Heaven – Christians believe heaven means being in the eternal presence of God. The bible describes heaven using many images – blinding light, singing and beauty, a rainbow.

Hell – A place of indescribable, eternal torture for non-believers. Roman Catholics believe in purgatory which is the intermediate state where the soul are cleansed in order to enter heaven.

Religious Authority

The Bible – inspired by God. It contains Jesus' teachings, parables and teachings of leaders.

The Church – the body of Christ. God speaks through the Church.

Conscience – the voice of God telling us to do right.

Situation Ethics – the most loving thing to do.

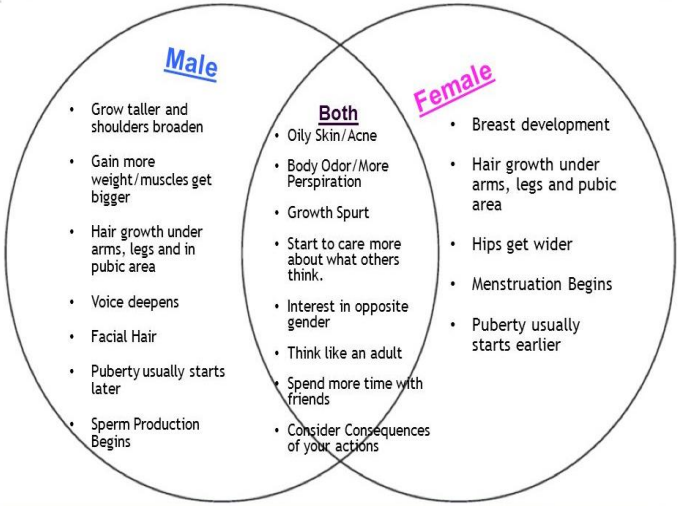
Healthy Relationships
Y7 – P4L

Puberty

Everyone experiences puberty. Young people, male and female, as they grow into adults will experience puberty. Though this can start at different times for each person.

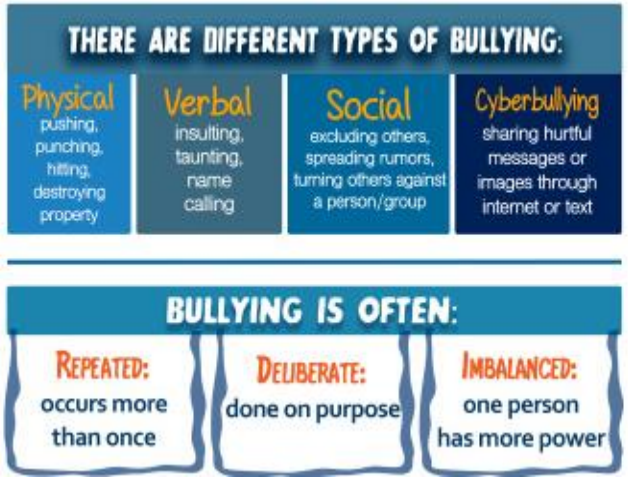
Puberty starts at different times for different people, and it starts when the body is ready.
For girls this is usually between ages 8 and 13. For boys this is usually between ages 9 and 15.
Puberty may continue into the early 20s.

Puberty is the process through which the body changes from that of a child to an adult.
This change is caused by changing hormones, which are special chemicals in the body.

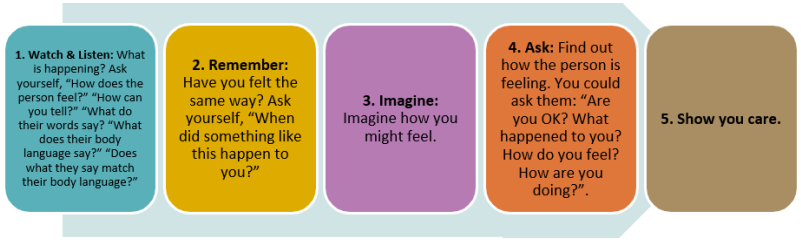


Bullying

Bullying is intentionally harmful behaviour that is often repeated over time. Bullying can occur anywhere and to anyone. It can happen online or face-to-face in schools, workplaces and in the



How to practice empathy



Qualities of a good friend:	
Safe	Listened to
Valued	Like your opinion doesn't matter
Happy	Respected
Accepted	Judged for what you do or what you like

Families

There are various different types of family in the UK.

Nuclear family - a family unit consisting of two adults and any number of children living together.
Extended family - grandparents, aunts, uncles, and cousins, either all living nearby or within the same household.
Reconstituted family - also known as a blended family or step family.
Single parent family - consists of a parent not living with a partner, who has most of the day-to-day responsibilities for raising the children.
Same-sex family - same-sex marriage was legalised in 2014. Their children may be adopted or be the biological children of one member of the couple.

Boundaries and Consent

We all have **boundaries** depending on how well we know someone.
We have **different boundaries** for what is **safe** or **comfortable** for us to do with our family, with our friends or with other people we know.

What is meant by 'consent'?
Consent is about agreeing to let something happen

What should happen if consent for something is not given?
If consent isn't given, then that thing should not happen

Once someone has given consent, can that consent always be assumed (e.g., if someone agrees to lend their friend a pencil, does their friend need to ask again if they want to borrow it again a week later?)
Any person who has given consent always has the right to change their mind. It is as important to understand about gaining consent as about giving consent.

Key Vocabulary
Passing
Receiving
Footwork
Sagging
Defending
Attacking
Marking
Shoot
Transition
Interception
Rebound
Throw in
Chest Pass
Bounce Pass
Contact
Javelin Pass
Position
Screening
Drive
Tactic

Rules of the game

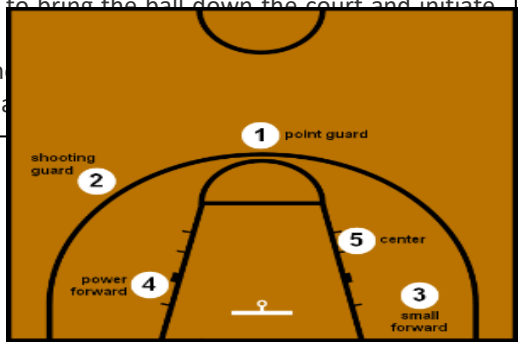
Personal Fouls - Hitting, Pushing, Slapping, Holding, Illegal pick/screen
Personal foul penalties: If a player is shooting while a being fouled, then he gets two free throws if his shot doesn't go in, but only one free throw if his shot does go in.
Three free throws are awarded if the player is fouled while shooting for a three-point goal and they miss their shot. If a player is fouled while shooting a three-point shot and makes it anyway, he is awarded one free throw (four point play)
Inbounds - If fouled while not shooting, they get the ball at the nearest side or baseline, out of bounds, and have 5 seconds to pass the ball onto the court.
Charging. An offensive foul that is committed when a player pushes or runs over a defensive player. The ball is given to the team that the foul was committed upon.
Blocking. Blocking is illegal personal contact resulting from a defender not establishing position in time to prevent an opponent's drive to the basket.
Flagrant foul. Violent contact with an opponent.
Intentional foul. When a player makes physical contact with another player with no reasonable effort to steal the ball.
Technical foul. It does not involve player contact or the ball but is instead about the 'manners' of the game.
VIOLATIONS
Walking/Traveling. Taking more than '2 steps and a half' without dribbling the ball is traveling. Moving your pivot foot once you've stopped dribbling is traveling.
Carrying/palming. When a player dribbles the ball with his hand too far to the side of or, sometimes, even under the ball.
Double Dribble. Dribbling the ball with both hands on the ball at the same time or picking up the dribble and then dribbling again is a double dribble.
Held ball. Two or more opposing players will gain possession of the ball at the same time.
Backcourt violation. Once the offense has brought the ball across the mid-court line, they cannot go back across the line during possession. If they do, the ball is awarded to the other team to pass inbounds.

Y7 Knowledge Grid

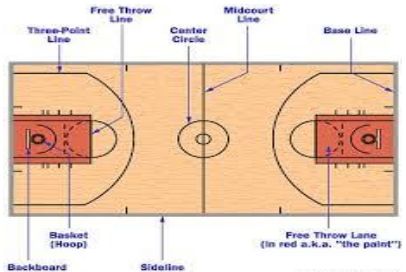
Basketball

Team Information
Playing Positions

1. Centre
The centre is generally the tallest player who is positioned near the basket as he must be able to get up as high as possible for rebounds.
Offensive -- The centre's goal is to get open for a pass and to shoot.
Defensive -- The centre's main responsibility is to keep opponents from shooting by blocking shots.
2. Power forward
The power forwards are usually the next tallest players in the team, who are closest to the centre in physical attributes and playing style, but with more speed. A forward may play under the hoop or are expected to operate in the wings and corner areas.
3. Small forward
The small forward is usually the shorter of the two forwards on the team.
Small forwards are also the second or third best shooters from distance of the five positions as they also play defensive roles.
4. Shooting guard
The shooting guard is potentially the shortest player in the team. However, he has to be good at dribbling fast, passing and having court vision by seeing the court. He is responsible for bringing the ball down the court and setting up offensive plays. The shooting guard is also the player who takes the most shots. He needs to be an accurate shooter from three-point range.
5. Point guard
The point guard needs to be the best ball handler, dribbler and passer as he handles the ball the most out of all the players on the team. He needs to bring the ball down the court and initiate offensive plays.
Point guards need to have a good long distance sh
shooting guards. However, some point guards take a



Playing Area



Lesson Overview

1. Passing to attack and retain possession.
2. Breaking free to receive the ball.
3. Dribbling to attack.
4. Shooting techniques
5. Defending.
6. Playing a position (Attack/Defence)

Key Vocabulary

Passing
Receiving
Footwork
Defending
Attacking
Marking
Shoot
Transition
Interception
Throw in
Side Pass
Bounce Pass
Contact Shoulder Pass
Position
Screening
Drive
Tactic

Rules of the game

Allowed	Not Allowed	Consequences
Throw and catch the ball using hands and arms	Block or kick the ball using your feet	Free throw to the defending team
Pass the ball to a team mate	Hold the ball for more than 3 seconds	Free throw to the defending team
Bounce the ball with one hand and catch it again	Bounce the ball, catch it and bounce it again – dribble fault	Free throw to the defending team
Take a maximum of 3 steps with the ball	Take more than 3 steps with the ball	Free throw to the defending team
Move outside of the goal area	Enter the goal area	Goalkeeper throw
Touch the ball in the air above the goal area	Touch the ball lying in the goal area	Goalkeeper throw
Break through the defence	Charge the opponent	Free throw to the defending team
Pass the ball in order to create a scoring chance	Keeping the ball in possession without creating a scoring chance – passive play	Free throw to the defending team
Use the hands and arms to block the ball	Pull or hit the ball out of the hands of the attacking player	Free throw to the attacking team
Make a frontal body contact with the attacking player	Hold the attacking players shirt/body, push/run or jump into him/her	Free throw/progressive punishment
Stay outside of the goal area	Use the goal area as a defence position/prevent a clear scoring chance	7 metre throw
Stay 3m away from a opposing player when restarting the game	Interfere with a player attempting the restart the game	Progressive punishment

Lesson Overview

1. Introduction – Rules.
2. Passing.
3. Catching.
4. Shooting.
5. Dribbling.
6. Blocking
7. Basic Goalkeeping.
8. Full 7V7 Competitive Game.

Handball

Y7 Knowledge Grid

Team Information
Playing Positions and Officials

Goalkeeper — the player who defends the goal with just about every part of the body! The goalkeeper is the only player who can touch the ball with their feet.

Centre — a creative handball player who directs play in both defence and attack. Also known as the 'playmaker' and sets up the tactics and the players in shooting positions.

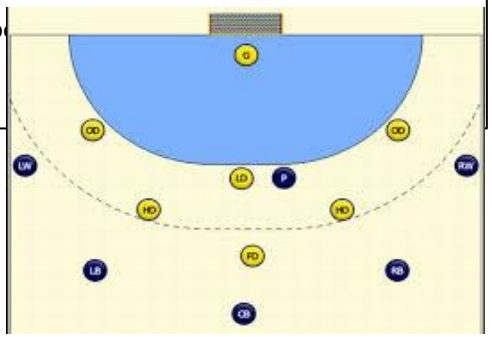
Left and right backs — usually the largest players on the handball team. When defending, they try to block shots, and in attack they are the long-range handball shooters.

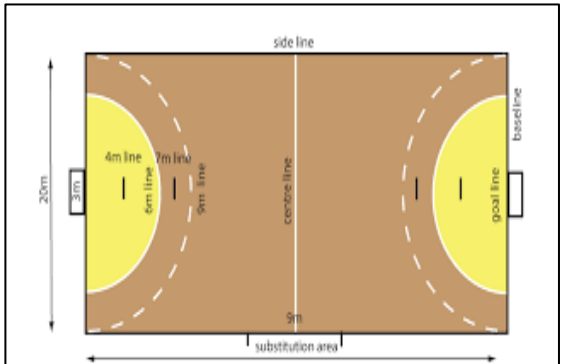
Circle runner — the creative force in attack and disruption to opponents when defending. The circle runner is quick and gets in among opposing defenders to either create openings for teammates or to get into a good scoring position themselves.

Left and right wingers — the fast players who patrol the sides of the court. They counter opposing wingers and in attack look to create openings for others, or shoot from the more difficult angles.

Substitutes — substitution is allowed at any moment, without limit and without time stoppage. There are seven substitutes on the side lines for each handball side. But a substitute can't play until the player they are swapping for is off the court.

The officials — there are four handball officials: a scorekeep
the play at close quarters.





Y7 Knowledge Grid

Netball

Key Vocabulary

Passing- sending the ball
Receiving- catching the ball
Footwork- how you land when in control of the ball (see footwork rule)
Dodging- a way to change direction quickly
Defending- preventing the other team from gaining possession of the ball and scoring
Attacking- making an attempt to score
Marking- a way to prevent your opponent from receiving or passing the ball or shooting
Shoot- attempt to score a goal
Offside- Moving into an area where you're not permitted (see offside rule)
Interception- preventing a pass between players
Throw in- a free pass taken off court
Centre Pass- taken to start or restart the game
Free Pass- awarded when there is an infringement of the rules by a player
Penalty Pass- as above, when two players are involved
Goal Third & Centre Third- areas of the court

Rules of the game

Starting the game- centre pass. A centre pass alternates between the teams, regardless of which team has scored. Before the whistle, all players must start in the goal thirds except the two Centres (see diagram). The Centre stands in the centre circle with the ball. After the whistle the Centre pass must be caught or touched by a player standing in or landing within the Centre third.

Offside- A player cannot move into an area of the court that is not designated for their position. This will result in a free pass being awarded to the opposing team.

Footwork- A player can receive the ball:With both feet on the ground or jump to catch the ball and land on two feet simultaneously. You may then take a step in any direction with one foot (but not both) and pivot on the spot with the other foot. Once one foot is moved, the other is considered to be the landing foot.Hopping or dragging the landing foot is not allowed.This will result in a free pass being awarded to the opposing team.

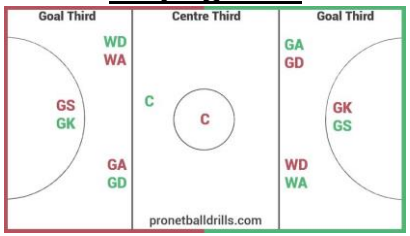
Obstruction-A player attempting to intercept or defend the ball must be at least 3ft (0.9m) away from the player with the ball. A penalty pass will be awarded if you obstruct.

Contact- You must not come into contact with another player whether they have the ball or not. A penalty pass or shot will be awarded if you contact an opponent. If two opposing players contact simultaneously a toss-up is taken between the two players concerned.

Held ball- you can only hold onto the ball for a maximum of 3 seconds.

Over a third-The ball cannot be thrown over a complete third of the court without being touched or caught by a player (i.e. it cannot cross two transverse lines).

Playing Area



Team Information

There are 7 players on a team each with a different role;

Goal Shooter (GS)-To score goals and to work in and around the circle with the GA.

Goal Attack (GA)-To feed and work with GS and to score goals.

Wing Attack (WA)-To feed the circle players giving them shooting opportunities.

Centre (C) - To take the centre pass and to link the defence and the attack.

Wing Defence (WD)-To look for interceptions and prevent the WA from feeding the ball to the GS and GA.

Goal Defence (GD)-To win the ball and stop the GA from scoring.

Goal Keeper (GK)-To work with the GD and to prevent the GA/GS from scoring.

Lesson Overview

1. Passing and receiving (chest pass, shoulder pass, one/two handed passing).
2. Footwork and movement (landing one/two feet and pivoting).
3. Passing and receiving on the move.
4. Dodging (single/double/sprint).
5. Marking a player.
6. Intercepting.
7. Shooting and rebounding.
8. Full 7v7 competitive game play.

Key Vocabulary

Passing
Receiving
Ruck
Maul
Defending
Attacking
Tackle
Carrier
Sidewards
Backwards
Penalty
Try
Drop Kick
Present
Contact
Prop
Position
Backs
Forwards
Flanker
Scrum
Centre

Rules of the game

The key elements of the Under 12s Rules of Play are:

- Team numbers: 11 or 12 a-side
- Maximum pitch size: 60 metres x 43 metres
- Ball Size: 4
- Up to 40 minutes playing time
- Nearest 5 players in scrum (all players trained, late specialisation)
- No limit on numbers contesting for the ball including in the maul and ruck

General:

a) The object of the game is to score a try by placing the ball with a downward pressure on or behind the opponents' goal line. A penalty try will be awarded if a try would probably have been scored but for foul or prohibited play by the defending team.
b) Only infringements that affect the oppositions' play should be penalised.

2. Teams:

a) Under 12 Rugby is played between teams of equal numbers of players, containing eleven or twelve players from each team on the pitch at any one time.
b) 5 of the players on each team will be forwards and form the scrum, with the remaining players forming the back line.

Starts and Restarts

a) A drop kick from the centre of the half way line will be used to start each half of the match, and for all restarts after a score. After a score, the opponents of the team who scored will have the option to receive the kick or kick.
b) The kicker's team must be behind the ball until it has been kicked and the non-kicking team must be at least 7 metres back from the half way line.

Passing:

The ball may only be passed sideways or backwards. If the ball is handed to another player who is in front of the ball carrier, or passed or knocked forwards towards the opponents' dead ball line, a scrum is awarded to the non-offending team, Referees should play advantage wherever it is safe to do so.

The Tackle, Maul and Ruck

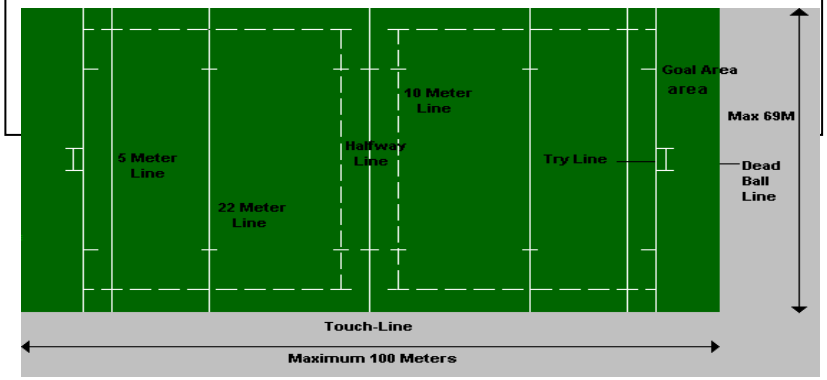
a) A "tackle" is any contact below the armpits of the ball carrier which results in the ball carrier being held by an opponent. Where the ball carrier is taken to ground, the referee will call "Tackle-Release".
b) A "maul" is formed when the ball carrier is joined by one or more additional players from each team. Open play has ended.
c) A "ruck" is formed when one or more player from each team, are on their feet, in physical contact and close around the ball on the ground. Players are rucking when they are in a ruck and using their feet to try to win or keep possession of the ball, without being guilty of foul play. Open play has ended.
d) Only the ball carrier can be tackled.
e) The tackler must grasp the ball carrier below the armpits, on the shirt, shorts or around the legs.
f) When the ball carrier is taken to ground, the tackler must immediately release the ball carrier and must get to their feet as soon as possible before they are permitted to contest the ball or block the pass.

Y7 Knowledge Grid

Rugby Union

Team Information
Playing Positions

Scoring System



Lesson Overview

1. Passing to attack and retain possession.
2. Running with the ball.
3. Passing and Receiving.
4. Passing and Receiving (Timing and Distance)
5. Tackling.
6. Attacking Play

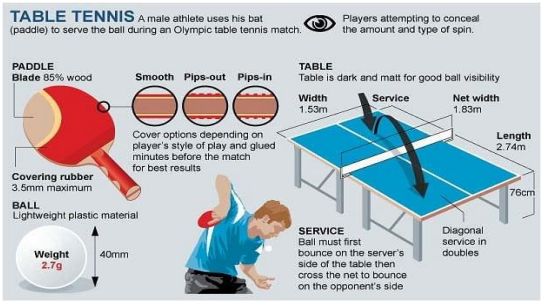
Table Tennis

Y7 Knowledge Grid

Key Vocabulary

Backhand: A shot done with the racket to the left of the elbow for a right hander, the reverse for a left hander.
Backspin: Backward spin placed on the ball.
Closed: Holding the bat such that the bat hitting surface is aimed downward.
Down the line: A ball that is hit along the side of the table.
Drive: The basic topspin shot or smash executed close to the table..
Forehand: Any shot done with the racket to the right of the elbow for a right hander, the reverse for a left hander.
Game: Set. Each game is played to 11 points unless a deuce occurs.
Game Point: Last point of a game.
Let: Service ball hitting the net.
Open: Holding the racket such that he racket's hitting surface is aimed outward, with the top edge leaning towards you.
Point: A unit of scoring in table tennis.
Push: A push is an underspin shot executed over the table, and usually close to the net. This is a passive shot that is used when it is impossible to attack a ball.
Rally: The period in which the ball is in play.
Receive: The return of a serve.
Serve: The first shot, done by the server.
Smash: A put-away shot. Ball is hit with enough speed so the opponent cannot make a return.
Spin: The rotation of a ball. Topspin: Spin placed on a ball to allow it to curve down onto the table.
Stroke: Any shot used in the game, including the serve.
Topspin: Spin placed on a ball to allow it to curve down on table.

Rules of the Game



Starting a game: Service is decided by a coin toss.

Service: The player serving the ball starts a point.
The player serving must stand with the ball held behind the endline of the table.
The ball must be held over the height of the table in the palm of the free hand.
The server must toss the ball without spin, upwards, at least 16 centimeters.
During the serve the ball must remain above the height of the table at all times.
The server cannot use his body or clothing to obstruct sight of the ball; the opponent and the umpire must have a clear view of the ball at all times
The ball must be hit from behind the baseline so that it bounces once on his or her half of the table, and then bounces at least one time on the opponent's half.
If the ball strikes the net but does not strike the opponent's half of the table, then a point is awarded to the opponent.
However, if the ball hits the net, but goes over and bounces on the other side, it is called a let (or net-in). Play stops, and the ball must be served again with no penalty. A player may commit any number of lets without penalty.

Returning service: To make a "good" return of service the ball must be returned before it bounces twice on your side of the table.

Hitting the ball: The ball must be hit so that it passes over or around the net.
If a player cannot return a hit over or around the net so that the ball bounces on the opposite side of the table, the player loses the point.

Lesson Overview

1. Bat Technique
2. Basic Serve.
3. Backhand Push.
4. Basic Backhand Drive.
5. Forehand Push.
6. Basic Forehand Drive.
7. Singles Tournament Play.
8. Single Tournament Play.

Year 7 Knowledge Grid

Football

Key Vocabulary

Passing- sending the ball
Receiving- controlling the ball
Dribbling- running with the ball whilst avoiding opposition tackles
Tackling- act of dispossessing a player with the ball
Defending- preventing the other team from gaining possession of the ball and scoring
Attacking- making an attempt to score
Marking- a way to prevent your opponent from receiving or passing the ball
Shoot- attempt to score a goal
Offside- Moving into an area of the pitch which isn't allowed determined by opposition players (see offside rule)
Interception- preventing a pass between players
Throw in- a throw taken to restart game after the ball has gone out the side line.
Goal Kick- taken to restart the game after the ball has gone out the goal line by an attacker but not in the goal.
Centre Kick- kick taken to start the game or restart after a goal has been scored.
Penalty Kick- free shot at goal when a foul has been committed in the penalty box.
Corner kick-taken to restart the game after the ball has gone out the goal line by a defensive player but not in the goal
Defensive Third, midfield Third and Attacking Third- areas of the pitch
Direct Free kick- Ball can go straight into goal.
Indirect free kick- Ball must go off another player

Rules of the game

Starting the game- centre kick. A centre pass alternates between the teams, regardless of which team has scored. Before the whistle, all players must start in their own half of the pitch. The ball may be played forwards or back from the kick off.
Fouls and Misconduct- A player who intentionally commits any of the following 9 offences shall be penalised by the award of a **direct free kick** to be taken where the foul occurred, A **penalty kick** shall be awarded if any of these offences are committed by a defender within their own penalty area:

1) Kicks or attempts to kick an opponent.
2) Trips an opponent.
3) Jumps at an opponent.
4) Charges at an opponent in a violent or dangerous manner.
5) Charges an opponent from behind.
6) Strikes or attempts to strike an opponent.
7) Holds an opponent.
8) Pushes an opponent.
9) Handles the ball, carries or propels the ball with a hand (except the goalkeeper in their box).

All other offences such as obstruction, a pass back which is picked up by the goalkeeper and after an offside shall be restarted using an **indirect free kick**.
Offside- A player is in an offside position when nearer to the opponents' goal line than the ball, unless:

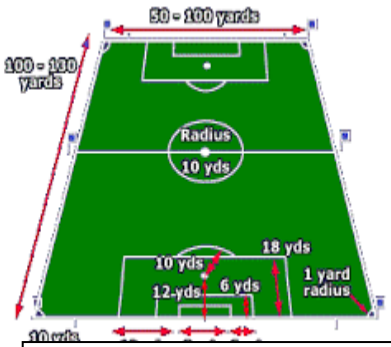
- in own half of the field, or
- not nearer opponents' goal line than at least two opponents.

A player shall be offside if, in the opinion of the referee, at the moment the ball touches or is played by a team mate the player is:

- interfering with play or an opponent;
- seeking to gain an advantage by being in that position.

A player shall not be offside:

- just by being in an offside position;



Team Positions

Goal Keeper x1– To work with the defence to stop the opposition from scoring.

Full Backs x2 – Play on the left and right, defend but get up the wings to join attack.

Centre Backs x2 – Defend in front of the goal keeper and stay central.

Wingers x2 – Play left and right, try to get the ball to the opposition bye line to whip crosses in.

Centre Midfield x2 – One is usually defensive and the other attacking. Both win the ball in the middle of pitch.

Attackers x2 – Get on the end of crosses from the wingers and receive the ball from midfielders to try to score a goal.

Lesson Overview

1. Passing and receiving (either foot). 2. Dribbling and movement with the ball (either foot). 3. Decisions of when to pass and when to dribble. 4. Making progress with the ball. 5. Tackling 6. Shooting (either foot). 7 & 8. Game play

Y7 Gymnastics

Key Vocabulary

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Balance: Holding a static position that demonstrate strength, agility and flexibility for 3 seconds.

Aesthetically pleasing: A way that gives pleasure through beauty.

Fluency: Being capable to move effortlessly and smooth with ease once mastered a skill/technique.

Posture: the position in which someone holds their body when standing or sitting.

Flexibility: To have a wide range of motion in a joint.

Roll: A rotation over an axis in the body over a surface.

Forward roll: a gymnastic exercise in which a person tucks their head down and rolls their body in a forward circle on the floor.

Backward roll: a gymnastic exercise in which a person tucks their head down and rolls their body in a backward circle on the floor.

Cartwheel: The manoeuvre where one moves sideways, from hands to feet, in a straight line (in the motion that the wheel of a cart would follow), while keeping the back, arms, and legs straight, and the feet pointed.

Handstand: To stand straight up with a tight body and hands on floor.

Headstand: an act of balancing on one's head and hands with one's feet in the air.

Round-off: A type of cartwheel where the gymnast pushes off the ground and lands on two feet.

Warm up: The period and techniques that aim to warm up the gymnasts muscles in order for them not to injure

Matching Balance

Copying exactly how your partner is balancing. E.g. same limbs.

Mirroring Balance

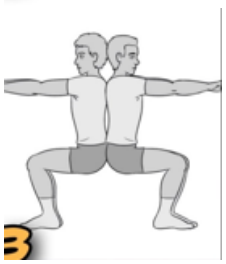
Doing the opposite of how your partner is balancing.

Full body weight balances

Having a partner hold your full body weight during a balance.

Part body weight balances

Having a partner hold part of your body weight during a balance.

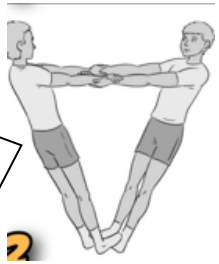


Counter Balance

PUSHING against your partner

Counter Tension

PULLING against your partner

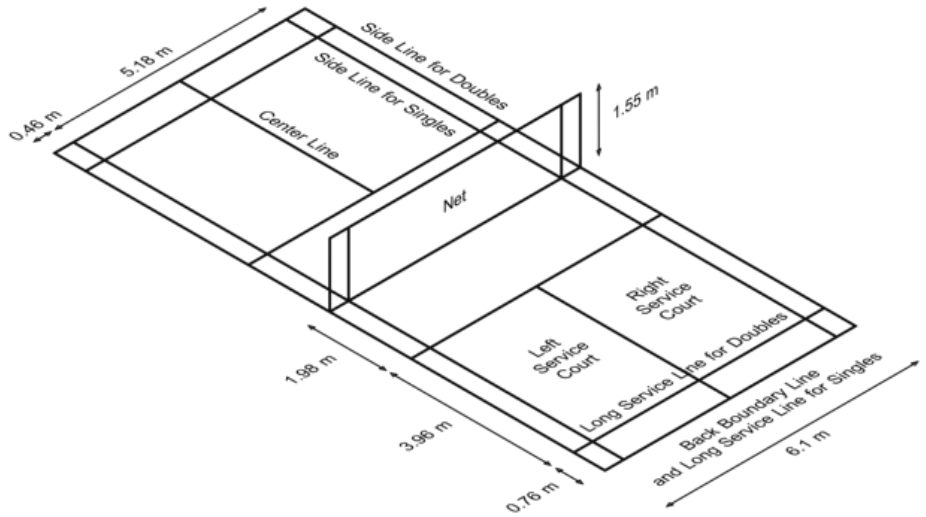


Lesson Overview

3. Travelling.
4. Balancing.
5. Partner Balances (Matching/Mirroring).
6. Partner Balances (Weight Baring).
5. Rolls and Rotation.
6. Jumps/Flight.
7. Routine Composition.
8. Routing Performance/Evaluation.

Y7 Knowledge Grid

Badminton Court



Lesson Overview

1. Pre Assessment – Grips, Court and Rules
2. Forehand High Serve and Backhand Short Serve
3. Forehand Net Lift
4. Forehand Overhead Clear
5. Forehand Smash
6. Forehand Drop Shot
7. Backhand Net Shot
8. Backhand Overhead Clear
9. Match play

Badminton

Rules of the game

Scoring system and service

A point shall be added to a player's score whenever he wins a rally, regardless of who served.

In doubles, the players remember their service positions from the previous rally; the receivers remain in the same service courts. When a receiving pair wins a point and regains the service, they do not change their service court positions. If their new score is even, then the player in the right service court serve; if their new score is odd, then the player in the left service court serves. After, if they continue to win points, the server alternates between the service courts, so that he serves to each receiver in turn.

Receiver side, whoever served last, stays, and then serve according to score:
Service from right side of the court = Even score
Service from left side of the court = Odd score

Faults

A serving player faults if he strikes the shuttle from above his waist (defined as his lowest rib), or if his racket is not pointing downwards at the moment of impact.

Neither the server nor the receiver may lift a foot until the shuttle has been struck by the server.

Each side may only strike the shuttle once before it passes back over the net; but during a single stroke movement.

It is a fault if the shuttle hits the ceiling.

Lets

A let is called; the rally is stopped and replayed with no change to the score.

Examples:
Unexpected disturbance such as a shuttle landing on court (from another game)
If the receiver is not ready when the service is delivered.

Key Vocab

Backhand, forehand, grip, racket, drop, clear, smash, net, rally, receiver, service, court, fault, shuttle, stroke, let

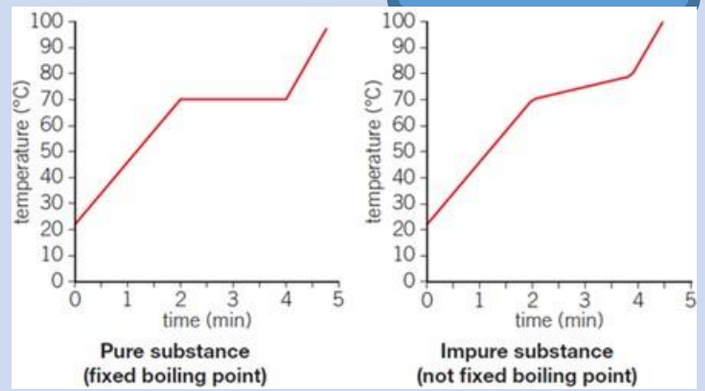
Knowledge Organiser – Year 7 – Pure and Impure Substances

1. Key Words!

Solvent: A substance, normally a liquid, that dissolves another substance.
Solute: A substance that can dissolve in a liquid.
Dissolve: When a solute mixes completely with a solvent.
Solution: Mixture formed when a solvent dissolves a solute.
Soluble (insoluble): Property of a substance that will (will not) dissolve in a liquid.
Solubility: Maximum mass of solute that dissolves in a certain volume of solvent.
Pure substance: Single type of material with nothing mixed in.
Filtration: Separating substances using a filter to produce a filtrate (solution) and residue.
Distillation: Separating substances by boiling and condensing liquids.
Evaporation: A way to separate a solid dissolved in a liquid by the liquid turning into a gas.
Chromatography: Used to separate different coloured substances.

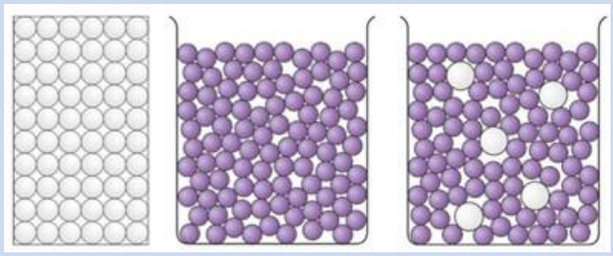
2. Purity

- The **melting point** of a substance is the temperature at which it turns from a solid to a liquid, or a liquid to a solid
- The **boiling point** of a substance is the temperature at which it turns from a liquid to a gas or a gas to a liquid
- **Pure substances** have a fixed (sharp) boiling or melting point, whereas impure substances have a range which appears as a diagonal line on a graph



3. Solutions

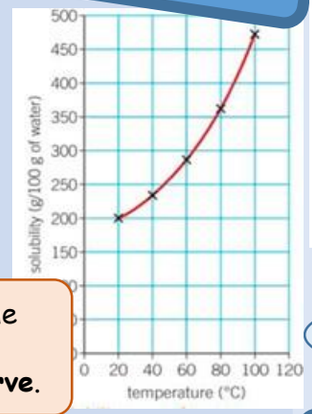
When you dissolve salt in water you get salt solution. Water is the **solvent** and salt is the **solute**.



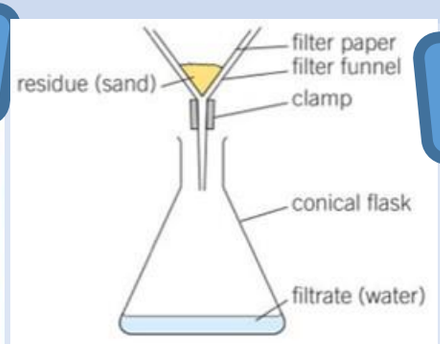
The water particles surround each salt particle. The particles can move freely

If no more of a substance can be dissolved the solution is **saturated**.

Increasing the temperate **usually** increases the solubility of a substance.
You can investigate this and plot a **solubility curve**.



4. Filtration



Separates an insoluble solid from a liquid.

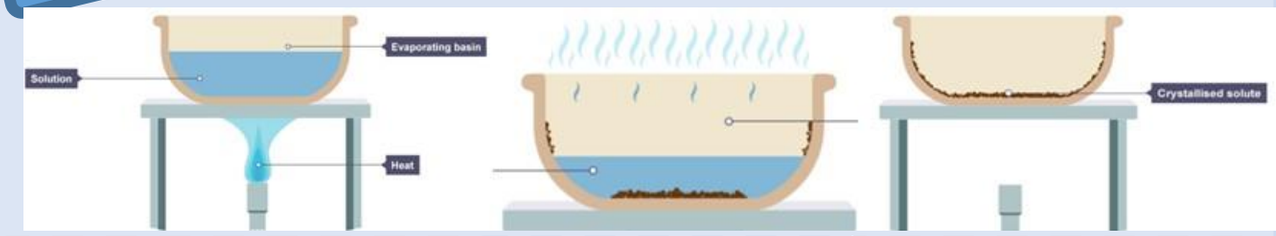
The mixture is poured into the filter funnel.

The liquid particles are small enough to pass through the holes in the filter paper and are collected as the filtrate.

The solid particles are too big to pass through and instead are trapped by the filter paper. This is the residue.

5. Evaporation

Separating a soluble solid from a liquid to collect the solid.



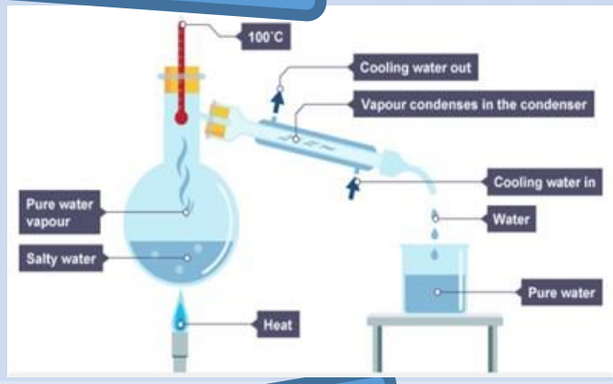
Gently heating with a Bunsen burner removes the **excess** water.

The volume decreases and crystals start to form.

The solution is left to evaporate until all of the liquid is gone.

6. Distillation

Water has a lower boiling point than the salt in the solution.



When heated the water boils, forming steam.

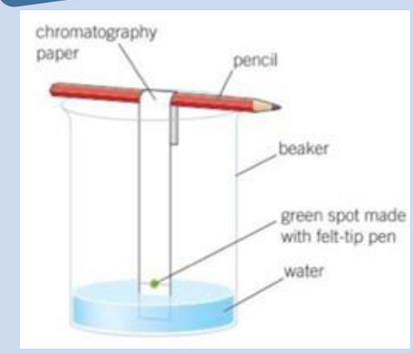
The steam moves into the condenser where it cools.

The cooled steam condenses to form liquid water.

The liquid water drips into a beaker while the salt remains in the distillation flask.

7. Chromatography

For the chromatography to work all of the dyes must be soluble in the chosen solvent.



A dye that is more strongly attracted to the solvent than the chromatography paper will travel further than a dye that is more attracted to the paper.

The separated dyes make a **chromatogram**.

A pure substance will produce only one coloured dot on the chromatogram. A mixture would have more than one coloured dot in different positions.

8. Further Reading

Separating techniques	https://www.bbc.co.uk/bitesize/guides/zgvc4wx/revision/1
Atoms, element & compounds	https://www.bbc.co.uk/bitesize/guides/zt2hpv4/revision/1
Chromatography	https://www.youtube.com/watch?v=kxrjvLvbY28
Distillation and filtration	https://www.youtube.com/watch?v=tUabxsvfuPk

Knowledge Organiser – Describing Forces and Motion

1. Key Words!

Speed: How much distance is covered in how much time.
Average speed: The overall distance travelled divided by overall time for a journey.
Relative motion: Different observers judge speeds differently if they are in motion too, so an object's speed is relative to the observer's speed.
Acceleration: How quickly speed increases or decreases.
Weight: The force of gravity on an object (N). Non-contact force: One that acts without direct contact.
Non-contact force: One that acts without direct contact.
Mass: The amount of stuff in an object (kg).
Gravitational field strength, g: The force from gravity on 1 kg (N/kg).
Field: The area where other objects feel a gra[illegible] force.

2. Types of force

A **force** can be a **push** or a **pull**. For example, when you push open a door you have to apply a force to the door. You also have to apply a force to pull open a drawer.
You cannot see a force but often you can see what it does. When a force is exerted on an object, it can change the object's speed, direction of movement or shape

Magnetic force: A magnetic force is experienced by any magnetic material.
Electrostatic force: An electrostatic force is experienced by any charged particle.
Gravitational force: A gravitational force is experienced by any mass.

Reaction force: An object at rest on a surface experiences .
Tension: An object that is being stretched experiences a force.
Friction: Two objects sliding past each other experience forces.
Air resistance.: An object moving through the air experiences

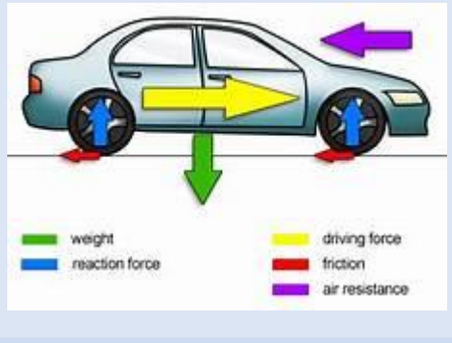
3. Balanced and unbalanced

When two forces acting on an object are equal in size but act in opposite directions, we say that they are **balanced** forces.
If the forces on an object are balanced (or if there are no forces acting on it), this is what happens:

- a stationary object stays still
- a moving object continues to move at the same speed and in the same direction

When two forces acting on an object are not equal in size, we say that they are unbalanced forces.

Remember that an object can be moving, even if there are no forces acting on it.



4. Force Diagrams

We can show the forces acting on an object using a force diagram. In a force diagram, an arrow represents each force. The arrow shows:

- The size of the force (the longer the arrow, the bigger the force)
- The direction in which the force acts

weight in N = mass in kg × gravitational field strength in N/kg

The **weight** of an object is the gravitational force between the object and the Earth.
The **mass** of an object stays the same wherever it is, but its weight can change.

5. Weight, mass & Gravity

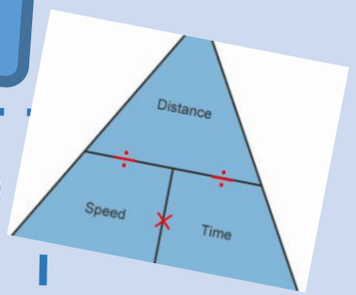
Weight can change different on different planets as they have different gravitational field strengths

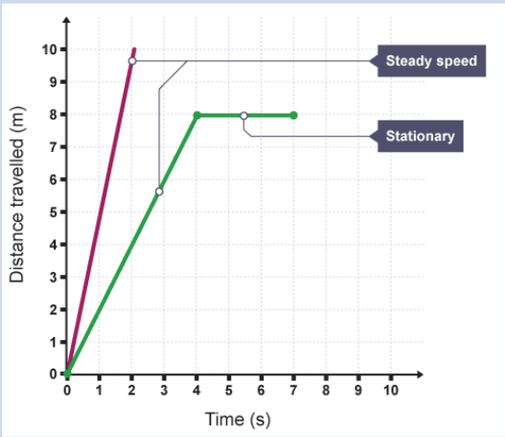
The gravitational force **pulls** in the direction towards the centre of any object. So we are pulled towards the **centre of the Earth**.

6. Speed & distance / time graphs

Units of time: (s) (h)
Units of distance: (m) (Km)

Units of speed: m/s , Km/s m/h, Km/h





7. Measuring Forces

Forces can be measured using a force meter, also called a newton meter. Force meters contain a spring connected to a metal hook. The spring stretches when a force is applied to the hook. The bigger the force applied, the longer the spring stretches and the bigger the reading.

The unit of force is called the **newton**, and it has the symbol N. The greater the force, the bigger the number, so 100 N is a greater force than 5 N.

8. Further Reading

Types of forces:	https://www.youtube.com/watch?v=joVOE3sLeGI
Balanced and unbalanced forces:	https://www.youtube.com/watch?v=YyJSlcIbd-s
Resultant forces:	https://www.youtube.com/watch?v=fRwq8cRCko0
Calculating speed:	https://www.youtube.com/watch?v=_nAKwhZyXnw
Gravity:	https://www.youtube.com/watch?v=W2aBVbcHr_k

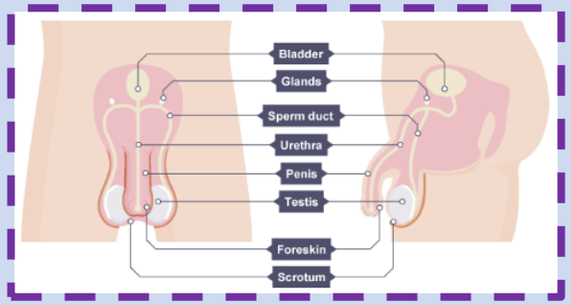
Knowledge Organiser – Year 7 – Reproduction

1. Key Words!

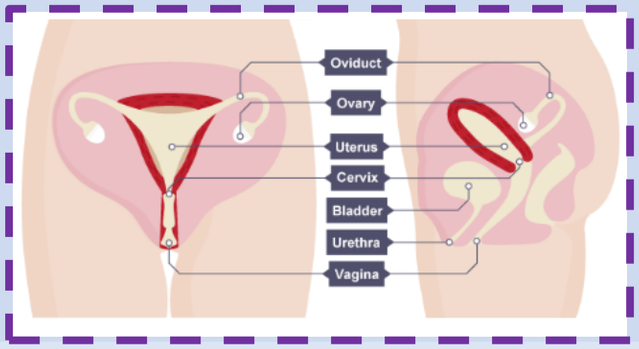
Species: A group of living things that have more in common with each other than with other groups.
Variation: The differences within and between species.
Continuous variation: Where differences between living things can have any numerical value.
Discontinuous variation: Where differences between living things can only be grouped into categories.
Gamete: The male gamete (sex cell) in animals is a sperm, the female an egg.
Fertilisation: Joining of a nucleus from a male and female sex cell.
Ovary: Organ which contains eggs.
Testicle: Organ where sperm are produced.
Oviduct, or fallopian tube: Carries an egg from the ovary to the uterus and is where fertilisation occurs.
Uterus, or womb: Where a baby develops in a pregnant woman.
Ovulation: Release of an egg cell during the menstrual cycle, which may be met by a sperm.
Menstruation: Loss of the lining of the uterus during the menstrual cycle.
Reproductive system: All the male and female organs involved in reproduction.
Penis: Organ which carries sperm out of the male's body.
Vagina: Where the penis enters the female's body and sperm is received.
Foetus: The developing baby during pregnancy.
Gestation: Process where the baby develops during pregnancy.
Placenta: Organ that provides the foetus with oxygen and nutrients and removes waste substances.
Amniotic fluid: Liquid that surrounds and protects the foetus.
Umbilical cord: Connects the foetus to the placenta.

2. Variation

The male reproductive system includes the:



The female reproductive system includes the:



3. Puberty in Males and Females

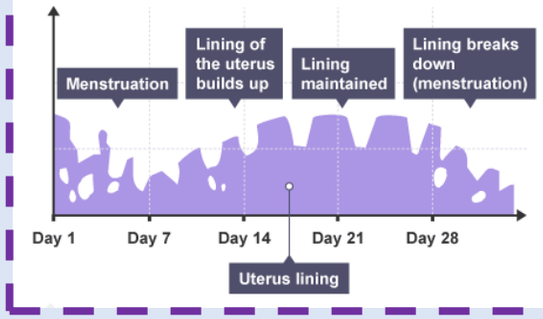
Females: between ages 8 and 14, with an average of 11.
Changes that happen only to girls:
- breasts develop
- ovaries start to release egg cells (the menstrual cycle starts)
- hips get wider

Males: between ages 9 and 14, with an average of 12.
Changes that happen only to boys:
- voice breaks (gets deeper)
- testes and penis get bigger
- testes start to produce sperm cells
- shoulders get wider
- hair grows on face and chest

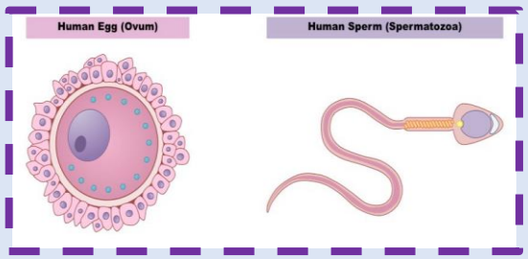
4. The menstrual cycle

It lasts about 28 days, but it can be slightly less or more than this.

These are the main features of the menstrual cycle:
- Day 1, is when bleeding from the vagina begins. This is called **menstruation.**
- Day 5, the loss of blood stops. The lining of the uterus begins to re-grow and an egg cell starts to mature.
- Day 14, the mature egg cell is released from the ovary. This is called **ovulation**. The egg cell travels through the oviduct towards the uterus.
- If the egg cell does not meet with a sperm cell in the oviduct, the lining of the uterus begins to break down and the cycle repeats.



5. Gametes



Gametes have adaptations to increase the chances of fertilisation and successful development of an embryo. For example, sperm cells are produced in large numbers to increase the chance of fertilisation.

Sperm cells have these adaptations:
- a tail to move them towards an egg cell
- many mitochondria to provide energy
- an acrosome (part of the tip of the head) that releases enzymes to digest the egg membrane.

6. Fertilisation

Fertilisation happens when an egg cell fuses with a sperm cell. The fertilised egg divides to form a ball of cells called an **embryo**.

The embryo attaches to the lining of the uterus and it begins to develop into a **fetus.**
The fetus relies upon its mother as it develops.
These are some of the things it needs:

oxygen for respiration

nutrients (food and water)

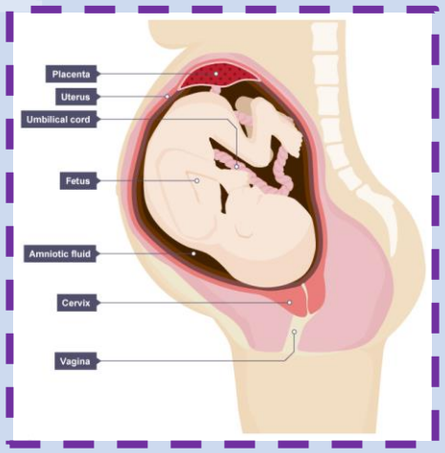
protection against knock and bumps, and temperature changes

7. Development of the fetus

The fetus is protected by the uterus and the **amniotic fluid**, a liquid contained in a bag called the amnion.

The **placenta** provides oxygen and nutrients and removing waste substances. It grows into the wall of the uterus and is joined to the fetus by the umbilical cord.

The mother's blood does not mix with the blood of the fetus, but the placenta lets substances pass between the two blood supplies:
- oxygen and nutrients **diffuse** across the placenta from the mother to the fetus
- carbon dioxide and other waste substances diffuse across the placenta from the fetus to the mother



8. Further Reading

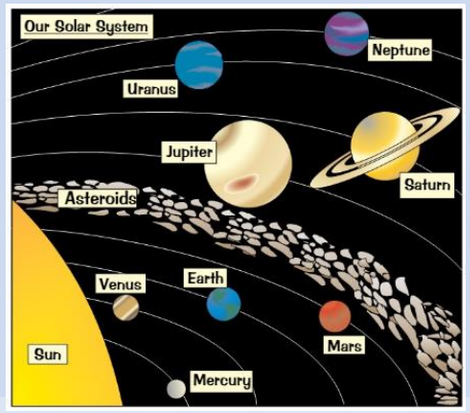
Human Reproduction	https://www.bbc.co.uk/bitesize/topics/zybbkqt/articles/zwb6xbk
Fertilisation	https://www.bbc.co.uk/bitesize/topics/zybbkqt/articles/zmx94xs
Menstrual Cycle	https://www.bbc.co.uk/bitesize/topics/zybbkqt/articles/zvwb3j6

Knowledge Organiser – Year 7 – Space Physics

1. Key Words!

Galaxy: Collection of stars held together by gravity. Our galaxy is called the Milky Way.
Light year: The distance light travels in a year (over 9 million, million kilometres).
Stars: Bodies which give out light, and which may have a solar system of planets.
Asteroid: Lumps of rock orbiting the Sun left over from when the Solar System formed.
Orbit: Path taken by a satellite, planet or star moving around a larger body. Earth completes one orbit of the Sun every year.
Exoplanet: Planet that orbits a star outside our solar system.
Axis: The imaginary line that the Earth spins around.
Milky Way: Galaxy containing our Sun, Solar System, and billions of other stars and planets.
Satellite: A satellite is a moon (natural), planet (natural) or machine (artificial) that orbits a planet or star.

2. The Solar System



Our solar system contains 4 inner planets and 4 outer planets. All the planets orbit the Sun because of the Sun's gravity. Each orbit is a slightly elongated circle called an ellipse. Between the orbits of Mars and Jupiter is an asteroid belt.

A planet is something which orbits around a star.

3. Space Exploration

Methods used to explore space include:

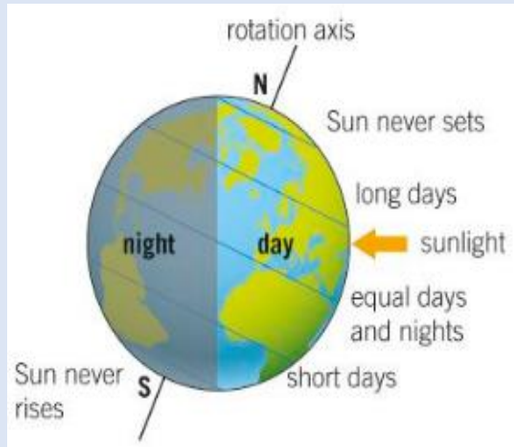
	Human Space Flight (astronauts)	Used to explore and investigate the surface of the Moon.
	Telescopes	To make observations of the night sky. Can take pictures of planets and other galaxies from Space.
	Artificial Satellites	Listens for life from other planets.
	Robots e.g. Mars Rover	Explores the surface of planets which are too far away for humans.

We use light years not km to measure distances in astronomy.

A light year is how far light travels in one year in a vacuum.

Light takes minutes to reach Earth from the Sun and 4 years from our nearest star.

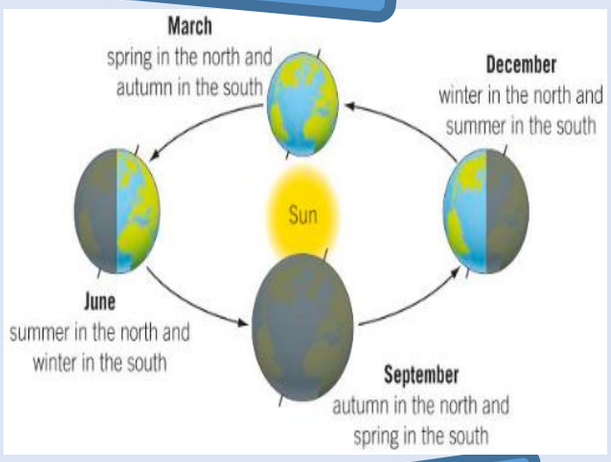
4. Day and Night



There is day and night on Earth because Earth spins on its axis.

A day is 24 hours long. This is because it takes 24 hours for the Earth to spin once on its axis. The half of the Earth facing the Sun is in daylight. The half facing away from the Sun has no sunlight and so becomes night-time.

5. The Seasons



The Earth's axis is tilted as it travels around the Sun. This gives rise to the seasons (spring, summer, autumn and winter).

The UK is in the top half (**northern hemisphere**) of the Earth. When the northern hemisphere is tilted towards the Sun it is summer in the UK.

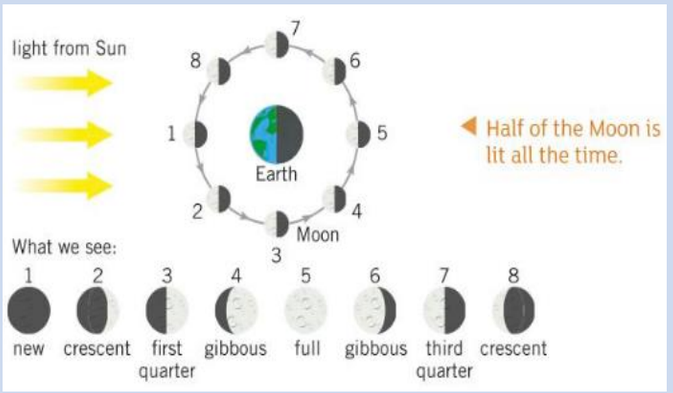
Six months later the northern hemisphere is tilted away from the Sun and it is winter.

6. Phases of the Moon

The Moon is a rocky body orbiting the Earth, it is Earth's only natural satellite. The Moon takes 27 days and 7 hours to orbit the Earth once.

Waxing – increasing light

Waning – decreasing light



←Waxing → ←Waning→

7. Additional Information

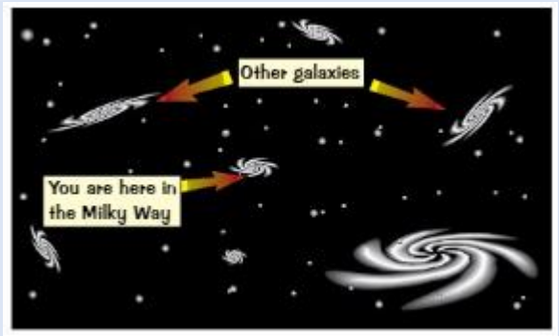
We see planets and moons because they reflect light. Stars emit light.

Our Sun is one of billions of stars in our galaxy. There are billions of galaxies in the universe. Other stars have planets in orbits around them

The speed of light is about 186,000 miles per second /300,000 km/s.

The Earth moves around the Sun once each year. The Earth takes $365\frac{1}{4}$ days to orbit the Sun. There is an extra day in a leap year every 4 years.

8. Further Reading



General	https://www.bbc.com/bitesize/topics/z8c9q6f
Phases of the Moon	https://www.youtube.com/watch?v=f4ZHdzl6ZWg
Solar System	https://www.youtube.com/watch?v=BZ-qLUIj_A0
Day, Night and Seasons	https://www.youtube.com/watch?v=l64YwNl1wr0