Thomas Estley Community College
Year 8 Autumn Term
Knowledge Organiser

What are Knowledge Organisers?

A knowledge organiser is an easy way that each subject can summarise the most important information. Each subject section will include key terms, short explanations, glossary words, diagrams etc making it clear to the student as to what is essential to learn. Each grid has an overall theme and these vary according to the subject being taught.

It will be the students responsibility to keep the knowledge organisers safe and refer to them over the whole academic year.

How will these be used at Thomas Estley?

At Key stage 3, you will be given a knowledge organiser each term. You need to keep these safe in your learning packs that you were provided with at the start of the academic year.

Your subject teachers will use these in a variety of ways, for both class work, remote learning opportunities and homework. They will be used to help with revision for class quizzes and retrieval practice activities. They will also be used for flip learning activities, where subject teachers will ask you to learn some information and then go in to it in more detail in class.

Revision Tips and Tricks!

Record It

Record yourself on your phone or tablet reading out the information. These can be listened to as many times as you want!

Teach it!

Teach someone your key facts and the get them to test you, or even test them!

Flash Cards

Write the key word or date on one side and the explanation on the other. Test your memory by asking someone to quiz you on either side.

Back to front

Write down the answers and then write out what the questions the teacher may ask to get those answers.

Hide and Seek

Read through your knowledge organiser, put it down and try and write out as much as you can remember. Then keep adding to it until its full!

Sketch it

Draw pictures to represent each of the facts or dates. It could be a simple drawing or something that reminds you of the answer.

Post its

Using a pack of post-it notes, write out as many of the keywords or dates as you can remember in only 1 minute!

Practice!

Some find they remember by simply writing the facts over and over again.

Read Aloud

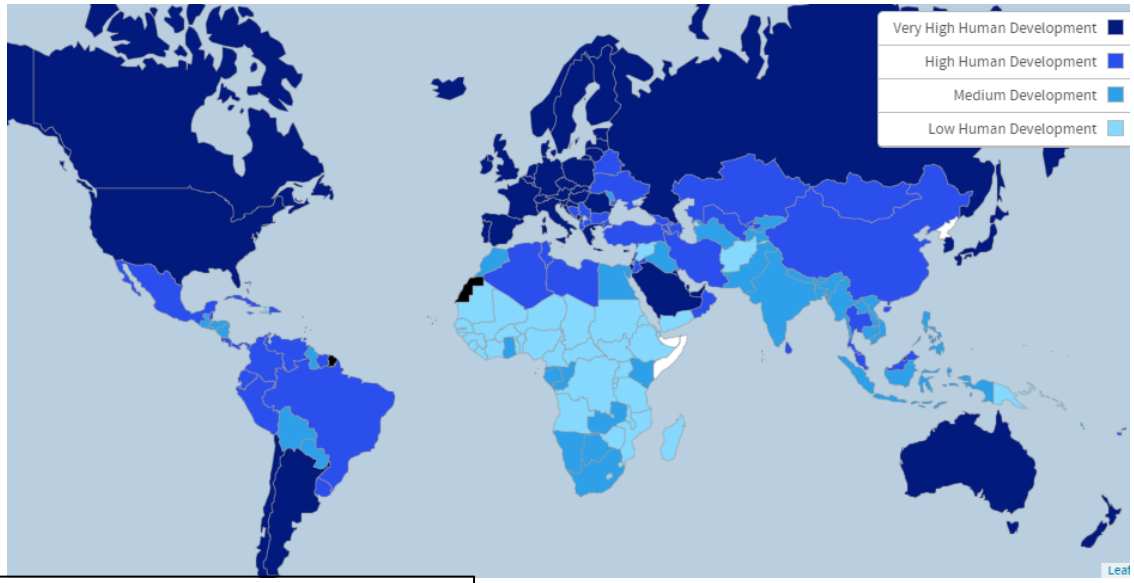
Simply speak the facts and dates out loud as you're reading the Knowledge Organiser. Even try to act out some of the facts – it really helps you remember!

Year 8 Knowledge Organiser – Development

Development Indicators

Data and statistics used to assess and compare each country's level of development.

Economic Indicators	• GNI per capita (in US$) • Government debt (as a % of GDP) • Unemployment %
Social Indicators	• Literacy rate % • Doctors per 1000 people • Infant mortality rate (per 1000 births)
Environmental Indicators	• Forest area (% of total land area) • CO2 emissions (metric tons per capita) • Methane emissions (kilotonnes of CO2 equivalent)



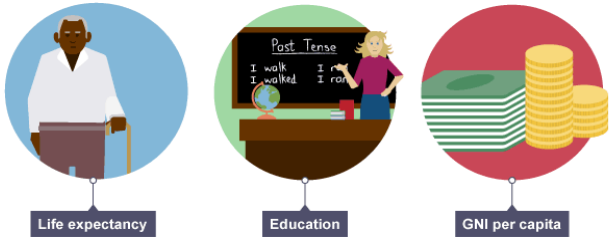
what should I already know?

Basic compass directions

Keywords:
Emerging: countries that have begun to experience high rates of economic development
Exports: send (goods or services) to another country for sale
Density: the number of people in that country divided by the area **Rural:** the countryside
Urban: the city
Distribution: the way something is spread out or arranged over a geographic area
Landlocked: a country surrounded by land with no access to a coast
Natural resources: materials or substances that are produced by the environment, gas, oil, coal
Infrastructure: structures, that facilitate serving the economy of a country road, rail etc.
Mechanisation: the introduction of machines to replace the work of people for example; a tractor will reduce the number of people on a farm

Country Rankings

AC = Advanced Country
EDC = Emerging Developing Country
LIDC = Low Income Developing Country

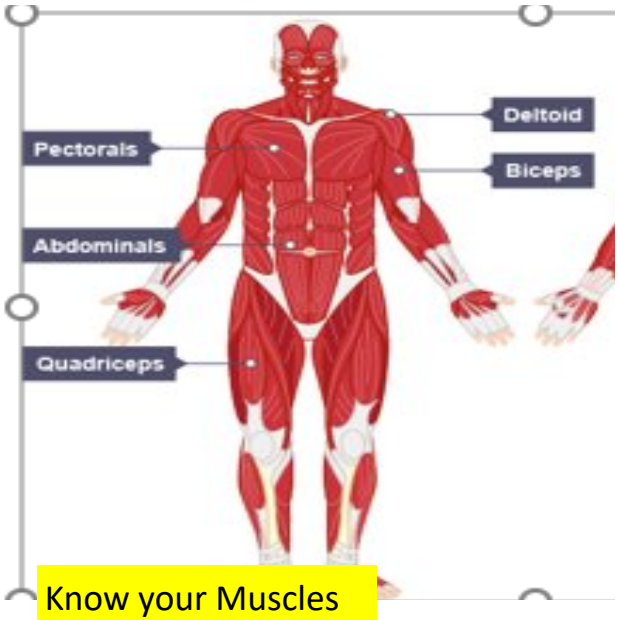


The most accurate development indicator?
Human Development Index (HDI)
A combined statistic of; 1) Life expectancy, 2) Education quality, 3) Per capita income.
A single number score per country between 0 and 1 (*closer to 1 = better)*.

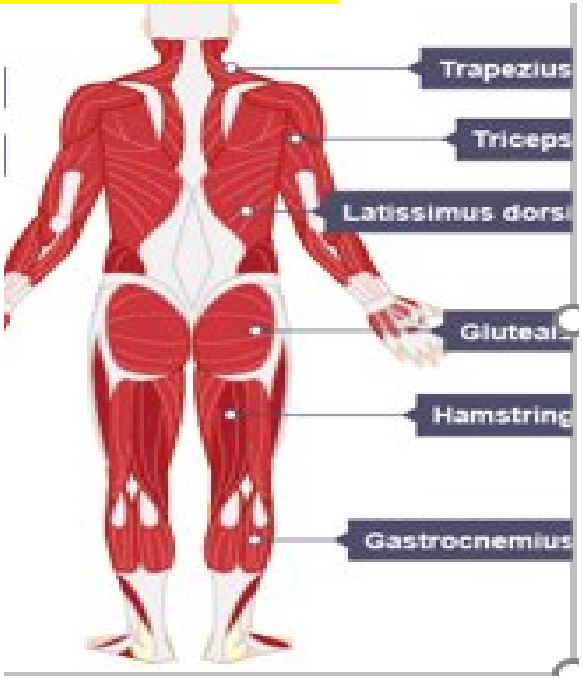
NICs
Countries in the 'Middle Income (MIC)' bracket who have recently experienced rapid economic development;
South Africa, Mexico, Brazil, China, India, Indonesia, Malaysia, Philippines, Thailand, Turkey.
Reasons leading to becoming NIC:

- Access to cheap labour
- Removal of tariffs to give market access to HICs
- Investment from Multi-National Companies (MNCs) into factories
- Relaxed environmental and planning laws
- Relaxed employment laws on working age, conditions and hours

Year 8 PE Knowledge Organiser



Know your Muscles



The Basic Principles of Handball

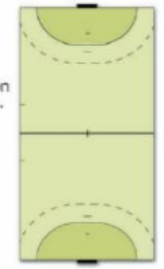
- Handball is a team sport based on "fair play" principles.
- On court there are two male or female teams playing against each other, both trying to score goals with a handball.
- The team that has scored the most goals when the playing time is over is the winner.
- The winning team is given 2 points. If there is a draw, the two teams are awarded 1 point each.

Technical Facilities

- Different ball sizes are used for different age groups/genders.
- The goal height is 2 metres, the goal width 3 metres.
- The playing time can be varied and is up to 2x30 minutes in official games.

Teams/Players/Team Officials/Referees

- Each team consists of up to 14 players. On court a team has 6 field players and 1 goalkeeper.
- Within each team the players are interchangeable during the game.
- All field players of a team wear identical, coloured uniforms. Goalkeepers wear uniforms that differ from those of the field players.
- Players are not permitted to wear objects that could be dangerous (watches, rings, earrings, necklaces, etc.).
- Up to 4 team officials are responsible for coaching their team.
- 2 referees officiate the game on court in cooperation with the judges' table (timekeeper, scorekeeper).



Playing court 40x20m

Goals: 3x2m

BASICS

Warm ups should be .....

* activity spe-cific
* Pulse raising
* Prepare you properly for the activity

Fitness test Scores		Sit Ups	
Cooper Run		Ruler Drop	
30m Sprint		Stork Stand	
Illinois Agility Run		Grip Test	
Sit & Reach		Standing Long Jump	
Vertical Jump		Wall Throw	

Year 8 Social Studies – Crime

Key Words

Offender

Justice

Value

Influence

Community

Punishment

Retribution

Death Penalty

Atonement

Evil

Things to think about:

1. What is crime?
2. Why do people commit crime?
3. If you are a criminal are you a bad person?
4. What are the punishments for crime?
5. What influences people?
6. What type of crime is the highest?
7. What happens in my local area?
8. How do I make decisions?
9. How can I make sure I am safe?
10. What is impact of crime?
11. How does crime link to other negative behaviour?

Examples of high-profile criminal cases:

- The murder of James Bulger.
- The murder of Stephen Lawrence.
- The crimes of Lucy Letby.

What is a whole life order?

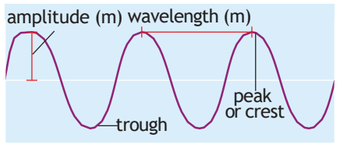
The Whole Life Order (WLO) is the single most severe punishment in English criminal law. A WLO means that the offender will spend the rest of their life in prison, with no minimum term and no chance of early release.

P3 Sound and Vision
Knowledge organiser

Activate
Question • Progress • Succeed

Properties of waves

- A **wave** is an **oscillation** or **vibration** which transfers energy from one place to another
- **Amplitude** – the distance from the middle to the top of bottom of the wave
- **Wavelength** – the distance between a point on the wave to the same point on the next wave
- **Trough** – The bottom of the wave
- **Peak** – The top of the wave
- **Frequency** – How many waves pass a fixed point per second, measured in Hertz (Hz)



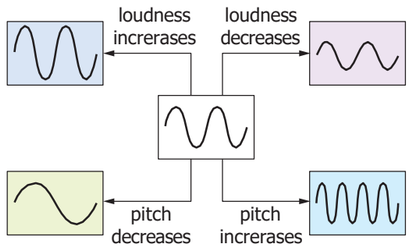
There are two main types of waves:

Transverse waves, e.g. light
- Travel at 90°direction of energy transfer
- Do not need a medium to travel through

Longitudinal waves, e.g. sound
- Travel in the direction of energy transfer
- Need a medium to travel through

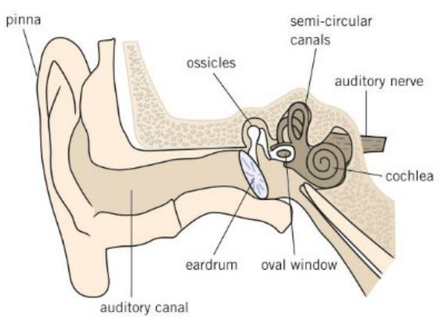
Sound waves

- Sound waves are caused by the vibration of particles, sound travels quicker in a solid than a gas as the particles are closer together
- **Oscilloscopes** display sound waves on a screen
- Humans can hear between 20–20 000 **hertz** (Hz), but other animals have different ranges of hearing
- Sound waves above 20 000 Hz are known as **ultrasound**, thesesound waves are too high pitched for humans to hear



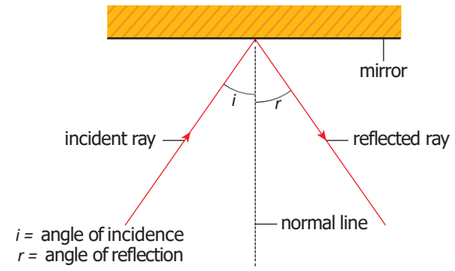
Hearing

- The **pinna** directs sound along the **auditory canal** to the **eardrum** which will vibrate
- The vibration from the ear drum moves onto the ossicles which amplifies the sound
- This passes the sound to the cochlea where tiny hairs detect the vibrations and passes this along to the **auditory nerve** as electrical signals for our brain

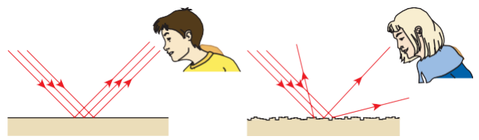


Reflection

- The **law of reflection** states that the **angle of incidence** will be equal to the **angle of reflection**

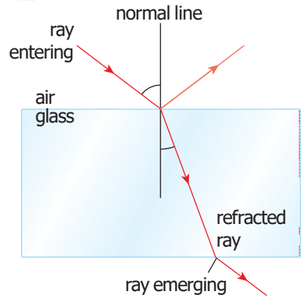


- For light reflecting off a smooth surface will form an image is called **specular reflection**
- Reflection off of a rough surface will not form an image and is know as **diffuse scattering**



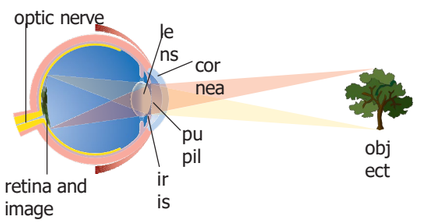
Refraction

- **Refraction** occurs when a wave passes between two different substances
- This happens as the wave will travel at different speeds in the different materials
- When the wave passes into a more dense material from a less dense material it will bend towards the **normal**, e.g. air into glass
- When the wave passes into a less dense material from a more dense material it bends away from the normal e.g. glass to air



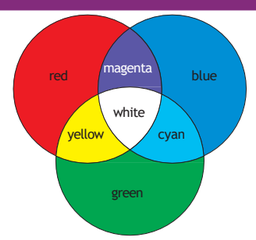
Light and the eye

- Light entering your eye is refracted by the **lens**, focusing it on the retina and creating an inverted image
- **Photoreceptors** detect the light hitting your retina and send an electrical impulse to your brain
- If the light is not focussed on the retina or the eye, people cannot see properly
- Long sighted people have the light focus behind the eye, short sighted people have the light focus in front of the retina.
- Lenses can be used to refract the light in a way in which it will focus on the retina.



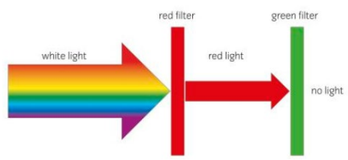
Colour

- Light can be split using a prism and is made up from different colours of light
- **Primary colours** can be mixed in order to form **secondary colours**



Filters

- A filter subtracts colours from white light.
- A red filter transmits red light but absorbs all of the others.
- It does not change the colour of the light.
- If you put a red filter and a green filter together, then no light would get through.



Key terms Make sure you can write definitions for these key terms.

Amplitude, angle of incidence, angle of reflection, auditory canal, auditory nerve, diffuse scattering, eardrum, frequency, hertz, law of reflection, lens, longitudinal, normal, oscillation, oscilloscope, peak, photoreceptors, primary colour, refraction, secondary colour, specular reflection, transverse, trough, ultrasound, wave, wavelength

C3 Particles matter 2

Knowledge organiser – page 2 (higher content)

Activate
Question • Progress • Succeed

Bond energies

- Energy must be used to break **chemical bonds**, meaning that this reaction is endothermic
- Energy is given out when chemical bonds are made, meaning that this reaction is exothermic
- To see if a reaction is endothermic or exothermic, you must find the difference in the energy needed to break and to make the bonds in the reaction
- If the energy needed to break the bonds is less than the energy given out when making the bonds, the reaction is exothermic
- If the energy needed to break the bonds is more than the energy released when making the bonds, the reaction is endothermic

Combustion continued

- **Combustion** is the burning of a **fuel** in oxygen
- A fuel is a substance which stores energy in a chemical store
- Examples of fuels include petrol, diesel, coal and hydrogen
- When a carbon based fuel undergoes combustion, it will produce water and carbon dioxide

methane + oxygen ➞ carbon dioxide + water

- Hydrogen can also be used as a fuel, this is much better than traditional fossil fuels as it does not produce carbon dioxide:

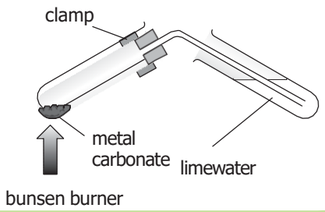
hydrogen + oxygen ➞ water

Thermal decomposition

- A **thermal decomposition** reaction is one where the reactants are broken down (decomposition) using heat (thermal energy)
- An example of this is with metal carbonates:

zinc carbonate ➞ zinc oxide + carbon dioxide

- We can test for this carbon dioxide by bubbling the gas through limewater, if the limewater turns cloudy, the gas is carbon dioxide

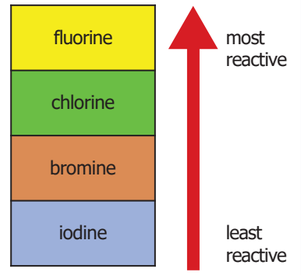


												group number					
1	2											3	4	5	6	7	0
						H											He
Li	Be											B	C	N	O	F	Ne
Na	Mg											Al	Si	P	S	Cl	Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
Fr	Ra																

Group 0

- **Group 0** elements are known as the **noble gases**
- They are all non metals with low melting and boiling points, meaning all are gases at room temperature
- The boiling point decreases going down the group
- All of the group 0 elements are unreactive
- When electricity is passed through the gas, they emit a brightly coloured light, this can be seen in neon signs

Halogens



Group 1

- **Group 1** elements are also known as the **alkali metals**
- They share similar properties with other metals such as:
  - Being shiny when freshly cut
  - Being good conductors of electricity and heat
- Group 1 metals are much softer than other metals and also have much lower melting and boiling points
- Group 1 elements react with water to form alkali solutions

lithium + water ➞ lithium hydroxide + hydrogen
metal + water ➞ metal hydroxide + hydrogen

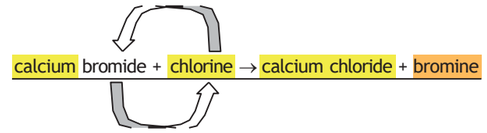
- The further down the group that the metal is, the more vigorous the reaction will be. This is called a **trend**
- Another trend seen in Group 1 is with the boiling and melting points: the further down the group, the lower the boiling and melting points are

Group 7

- **Group 7** elements are also known as the **halogens**
- They share similar properties with other non metals such as:
  - Having low melting and boiling points
  - Not conducting electricity
  - Moving down the groups the elements have an increased melting and boiling point
- The halogens also react in a similar way to one another, for example with iron:

iron + chlorine ➞ iron chloride
iron + bromine ➞ iron bromide

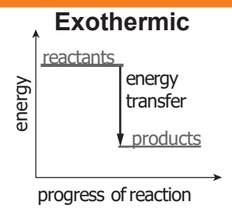
- Halogens can undergo **displacement reactions**, this is where a more reactive halogen will take the place of a less reactive halogen
- The most reactive halogens are at the top of the group, and the least reactive halogens are at the bottom of the group
- If the most reactive halogen is on its own, it will take the place of the less reactive halogen in a compound

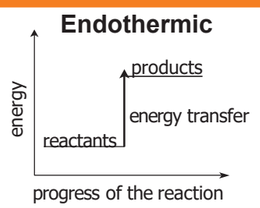


Energy level diagrams

Energy level diagrams show the values of energy between the reactants and the products in a reaction

- If the energy is greater in the reactants than the products then the reaction is exothermic as energy has been given out to the surroundings
- If the energy is lower in the reactants than the products then the reaction is endothermic as energy has been taken in from the surroundings





Keyterms Make sure you can write definitions for these key terms.

atom, alkali metals, noble gas, displacement reaction, group, Group 1, Group 7, Group 0, halogen, period, Periodic Table, physical properties, polymer, trend, Combustion, Thermal decomposition

C3 Particles matter 2
Knowledge organiser – page 1

Activate
Question • Progress • Succeed

Elements and the periodic table

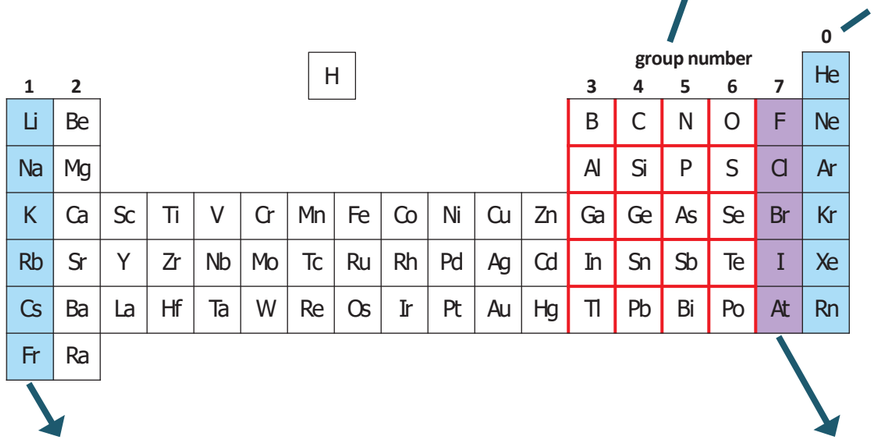
- An **element** is a substance that only contains one type of atom, it is found on the **Periodic Table**
- Each element has it's own unique chemical symbol which is the same in every language, these are also found on the Periodic Table
- An **atom** is the smallest part of which an element can be broken down into
- As there are around 100 types of elements that can occur naturally, there are around 100 different atoms

Compounds

- **Compounds** are formed when two or more different elements chemically bond together
- The compound will have different **physical properties** to the elements which make up the compound, for example water is a liquid, but it made from oxygen and hydrogen which are both gases
- Compounds are hard to separate and need a chemical reaction to do this

- When naming a compound, we always mention the metal first and the non metal second
- The name of the metal will not change but the name of the non metal will, for example oxygen can change to oxide
- Chemical formulae tells us how many atoms of each element are in the compound in relation to each other

- The small number tells us the number of each element which is in front of the number

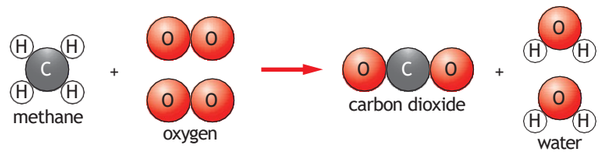


Groups and periods

- **Groups** are the columns in the Periodic Table, they go downwards
- **Periods** are the rows in the Periodic Table, they go sideways
- Elements in the same group normally follow the same trends in properties such as melting point, boiling point and reactivity
- By placing these elements into these groups, scientists can make predictions about their properties

Chemical reactions

- Word equations can represent a **chemical reaction:**

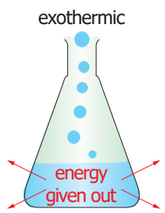


- The **reactants** are on the left side of the arrow and the **products** are on the right side of the arrow
- We use an arrow instead of an equals sign as it represents that the reactants are changing into a new substance
- In a reaction, the amount of each type of atom stays the same, however they are rearranged to form a new product

Exothermic and endothermic reactions

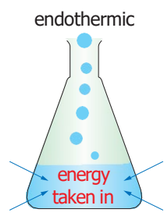
Exothermic reactions involve a transfer of energy from the reactants to the surroundings

- As energy is transferred to the surroundings this will show an increase in temperature
- Examples of exothermic reactions include combustion, freezing, and condensing



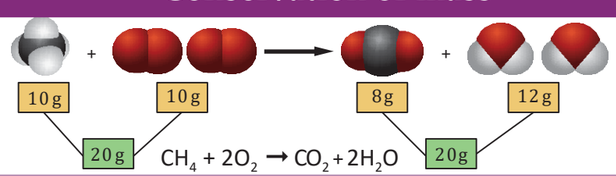
Endothermic reactions involve a transfer of energy from the surroundings to the reactants

- As energy is taken into the reactants a decrease in temperature will be shown
- Examples of endothermic reactions include thermal decomposition, melting, and boiling



Conservation of mass

- In a reaction the mass will be **conserved**, this means that the total mass of the reactants will be equal to the total mass of the products.
- If it appears that some of the mass has been lost, this means that a gas has been produced and escaped, accounting for the lost mass.



Balanced symbol equations show the amounts of all of the individual atoms in a reaction. The symbols used are from the Periodic Table. They show:
1 - Formulae of reactants and products.
2 - How the atoms are rearranged.
3 - Relative amounts of reactants and products

Key terms Make sure you can write definitions for these key terms.

atom, compound, conserved, displacement reaction, element, group, Group 1, Group 7, Group 0, halogen, balanced symbol equation, chemical bond, Conservation of mass, Period, Periodic Table, physical properties, endothermic, polymer, trend, chemical reaction, fuel, products, reactants

Nutrients

- A **balanced diet** involves eating the right amount of nutrients for your body to function
- Not eating enough of a nutrient means you have an unbalanced diet, and this can lead to a **deficiency**

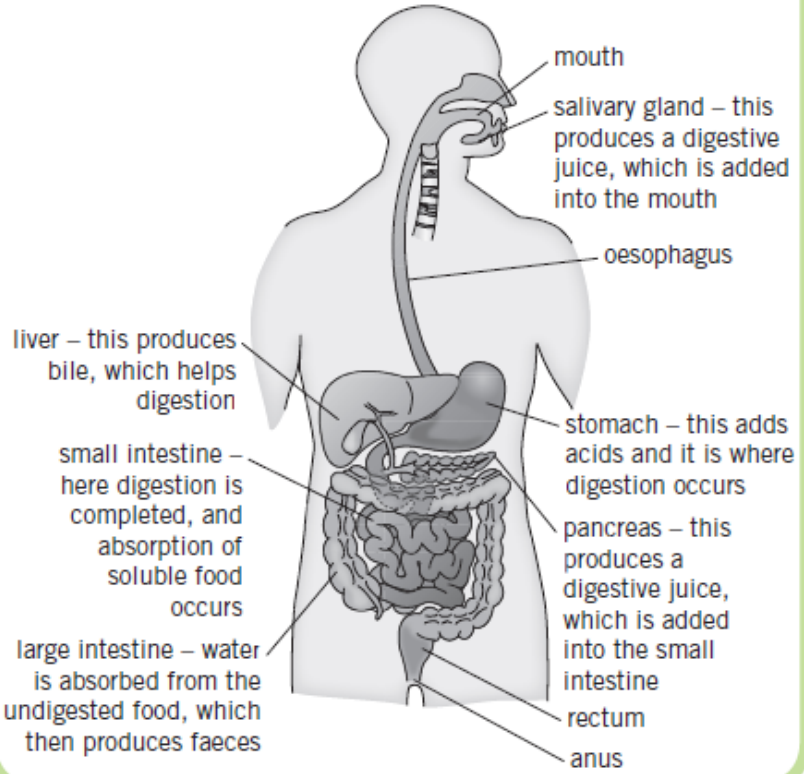
Nutrient	Role in your body
carbohydrates	main source of energy
lipids	fats and oils provide energy
proteins	growth and repair of cells and tissues
vitamins and minerals	essential in small amounts to keep you healthy
water	needed in all cells and body fluids
fibre	provides bulk to food to keep it moving through the gut

Enzymes

- **Enzymes** are biological **catalysts**, they speed up the digestion of **nutrients**
- Each enzyme is specific to each nutrient
- The way the enzyme and nutrient bind with each other is called a lock and key model

- **Carbohydrases** break **carbohydrates** down into simple sugars
- **Proteases** break **proteins** down into amino acids
- **Lipase** breaks **lipids** (fats) down into fatty acids and glycerol

The digestive system



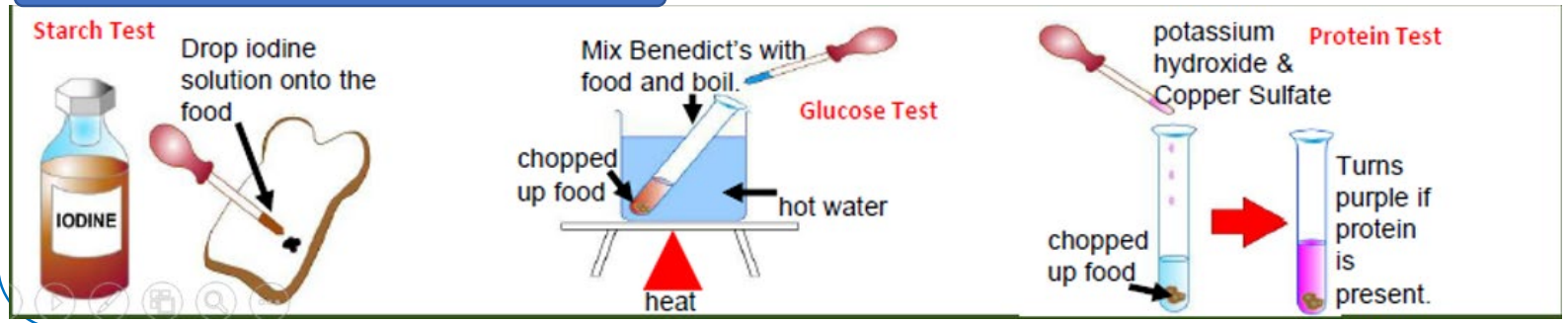
Key terms Make sure you can write definitions for these key terms.

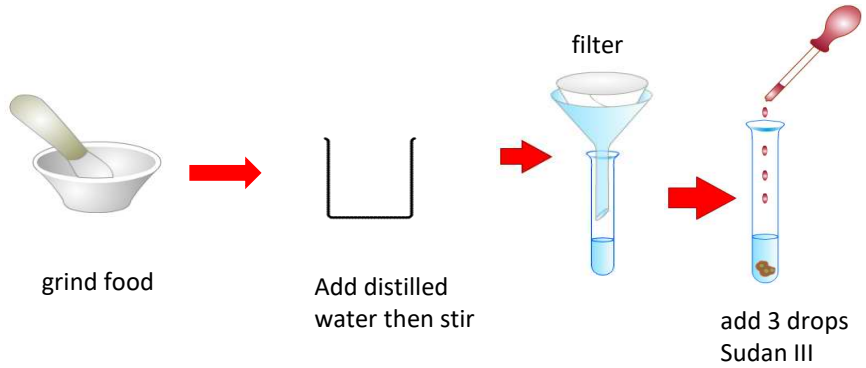
Amylase Balanced diet Benedict reagent Carbohydrase Carbohydrate Catalyst Deficiency Enzyme Fibre Glucose Iodine Lipid lipase Mineral Nutrient Protease Protein Vitamin

Activate
Question • Progress • Succeed

B3 Animal Nutrition
Knowledge organiser

Food tests





Year 8 Resistant Materials Knowledge Organiser

Design for maintenance and repair

Advantages of repairable products and those that can be maintained:

Can be updated, to be more efficient, lengthening their useful life time.
It is cheaper to repair than replace an entire product.
Repairable products are environmentally friendly

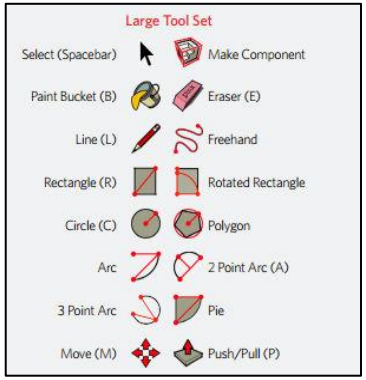
A **standard component** is a pre-manufactured product that is used in the manufacturing of another product. As well as saving time, using a standard component can ensure a consistent product is produced. Users can remove standard fittings to help them repair or replace parts . **Nuts , bolts , washers , zips , buttons are just some examples.**

CAD – Computer aided design.

2DDesign , Google Sketch-up
Advantages
- Easy to make changes
- Show clients 3D models of your idea
- Files can be emailed across the world instantly
- You can test your idea in a virtual environment

Disadvantages
- Software can be expensive
- You need training

CAD Tools



Computer aided manufacturing machines

Laser cutter

3D printer

Accurate , can be used to make multiple copies

Design movement : A design movement is a group of designers with a common cause view or idea who then produce designs based upon their views or ideas. Memphis Design movement , Art Deco , modernism and Art Nouveau are examples from the 20th century.

Input Components

These devices form the crucial control needed for a product to operate. Most input components need to be bought but some can be manufactured especially for a project. For instance, a pressure sensor.

Light dependent resistors (LDRs) are a type of variable resistor whose resistance increases with light.

Switches are simple input devices which allow electrical current to flow when pushed.

Motion sensors use infrared to detect changes in the environment to activate the system.

Thermistors are a type of variable resistor whose resistance changes when it becomes hot or cold.

Process Components

These devices are used in combinations to turn the signal from the input component into the signal to the output component. Careful designing and a good knowledge of the way circuits are designed is crucial

Resistors limit current flow in an electronic circuit and have to be placed before some components to prevent damage.

Integrated circuits (ICs) are manufactured for many different uses and functions. A tiny circuit is encased in silicone (a semiconductor material). Although they look complex, they follow the same logic as simple circuits. Because of their reduced size, smaller products can be achieved as more technology can be made to fit into smaller spaces.

Microcontrollers are tiny integrated circuits used widely in automatically controlled devices such as engine management in cars. These can be combined with drivers to control devices such as motors. Raspberry Pi and BBC micro:bit computers are examples used in schools.

Analysing products
When a designer is developing a new design, it is useful to analyse existing products to see how successful they have been and identify any areas in which they could be improved

Output Components

The output is the end function of the product. In most cases, the output can be classed as light, sound, motion or a combination of two or more functions.

Light emitting diode (LED) come in different colours and levels of brightness. They have replaced the filament bulb in many everyday uses.

Light bulbs are not as widely used because of LEDs in an everyday context but minilight bulbs do not require soldering, so can still be useful.

Buzzers use electric current to create their own sound. Used in alarm systems.
Speakers allow a sound signal from a circuit to be amplified.

Motors are magnetic devices and are behind nearly all moving parts in electronic systems.

Solder

Soldering iron

Side cutters

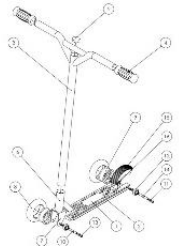
Tenon saw

Printed circuit board . Electronically connect components using copper tracks .

A **hazard** is any source of potential damage, harm or risk.

A **precaution** is a measure taken to prevent something dangerous or harmful happening

Exploded drawings show how a product is assembled. Each component is usually labelled.



Anthropometrics
Anthropometrics is the practice of taking measurements of the human body and provides categorised data that can be used by designers.

Soldering is a permanent addition method for electronic components.

Short-circuit In a circuit, often as the result of a solder bridge, electricity will flow in the shortest path back to the battery.

Insulator A material that does not conduct electricity and can therefore be used as a coating to components, circuit boards and wires. PVC is a example.

Conductor A material which allows heat or electricity to pass through it easily. Copper is an example .

Ergonomics is **a consideration that leads to a product being designed in a way to make it easy to use**. Size, weight, shape, position of buttons and controls are all aspects that contribute to it being ergonomically designed.

The Elements of Music – Knowledge Organiser

Describing Music using MAD T-SHIRT (The Elements of Music)

KS3 MUSIC (Eduqas)

Melody

The main tune

High or Low **Pitch.**
Ascending or Descending.
Wide or Narrow range.
Steps (**Conjunct**) or Leaps (**Disjunct**).
Major, Minor, Blues, Chromatic.

Articulation

How the notes are played or sung

Staccato – Short and detached (.)
Legato – Smoothly and connected (slur)
Accent – Emphasised and Stressed (>)
Strings: **Pizzicato** (plucked) or **Arco** (bow)

Dynamics

The volume of a piece of music

Pianissimo, Piano, Mezzo Piano, Mezzo Forte, Forte, Fortissimo.
Changes in Dynamics –
Crescendo – gradually getting louder;
Diminuendo/Decrescendo – gradually getting softer.

Texture

The layers of sound and how they fit together

Thick/Dense/Layered – lots of instruments or melodies.
Thin/Sparse/Solo – single or a few instruments or melodies.
Drone, Pedal Note, Call and Response, Countermelody.

Structure and Form

How a piece of music is organised and ordered into different sections

Binary (AB), **Ternary** (ABA), **Rondo** (ABACADA), **Ritornello, Popular Song, Variations** ($A^1A^2A^3A^4$), **12 Bar Blues.**

Harmony

The chords used in a piece

Major or **minor** key, **Triads**, **Primary Chords (I, IV and V)**, **Chord Sequence. Harmonic Rhythm** – do the chords change quickly or slowly?

Instruments

Each instrument and voice have a unique sound called its **Timbre** or **Sonority**

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

Rhythm

The pattern of notes against the beat

Duration – Long or Short Notes.
Pulse, **Beat**. **Note Values** – Semibreve, Minim, Crotchet, Quaver and **Rests**. **Time Signature**, **Ostinato**, **Syncopation**, **Dotted Rhythms, Cross Rhythms, Polyrhythms.**

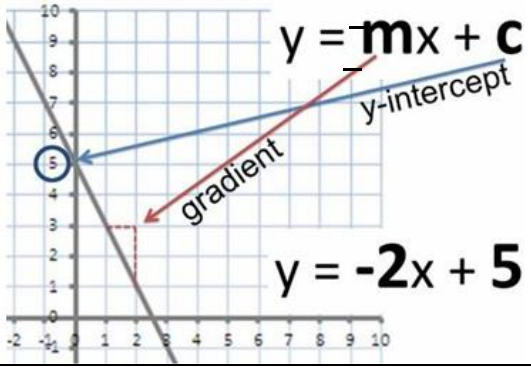
Tempo

The speed of the music

Fast – Allegro, Vivace, Presto
Moderate – Moderato
Slow – Largo, Andante, Adagio
Accelerando -gradually getting faster; **Rallentando** – gradually getting slower; **Rubato**.

Use this resource to help you analyse music in KS3

Y8 Autumn Maths Knowledge Organiser

Topic	Key fact	Hegarty maths clip number
Expanding single brackets	$2(y - 3) = 2xy - 2x3 = 2y - 6$ ✓	160 - 161
Plotting linear graphs using a table of values	▪ Need minimum 3 pairs of coordinates. ▪ Start at x = 0. ▪ Do the positive x co-ordinates first. ▪ X co-ordinate: along the corridor ▪ Y co-ordinate: up the stairs. ▪ Y = mx + c will be a straight line.	206
Identifying gradient and y-intercept	The number in front of x is called the gradient and tells us how many up (+) or down (-) the graph goes for every 1 across (right). 	207
Calculating with Decimals	Addition and subtraction: line up the decimal point. Multiplication: Change to whole numbers and remember to put the point in at the end. Division: If dividing by a decimal times both numbers by 10, 100 or 1000. Do not put decimal back in.	47 - 51
Four Operations with Fractions	To add and subtract fractions you need to write all fractions in a sum with the same denominator by writing equivalent fractions. Multiplying: Cancel down whenever possible, then multiply the numerators together and multiply the denominators together. Dividing fractions: KFC (**K**eep the first, **F**lip the second and **C**hange the sign to x)	65 -78
Sharing in a given ratio	Always find 1 part	332 to 334
Ratio problems	Set out in columns and put information below the appropriate column	335 to 338
Proportion	Direct proportion: as one quantity increases so does the other Inverse proportion: as one quantity increases the other decreases	339 to 342
Mean, Median, Mode and Range (recap averages)	Mean: Add up all the numbers and then divide by the number of items. Median: Put in order and then find the middle. If two middle values then add the two middle numbers and divide by 2. Mode: The number that appears the most. There can be more than one mode. Range: The difference between the largest and smallest numbers.	404 -410 And 419 – 421

Multi-step Angle Reasoning	Angles on a straight line add up to 180^{o}. Angles in a triangle add up to 180^{o}. Angles in a quadrilateral add up to 360^{o}. Vertically opposite angles are equal. Angles around a point add up to 360^{o}.	477 - 480, 484 - 491, 812 - 815
Pie Charts	• Find the angle for each category: • 360° ÷ total frequency = the number of degrees per piece of data • To work out each category's associated angle we multiply the number of degrees per piece of data by each frequency.  **Top Tip:** Always draw each angle clockwise, using the previous line drawn to start.	427 - 429

Key Vocabulary

- Numerator - the top number in a fraction.
- Denominator - the bottom number in a fraction.
- Mixed number - a number consisting of an integer and a proper fraction.
- Improper fraction - an improper fraction is a fraction where the top number (numerator) is greater than or equal to the bottom number (denominator): it is top-heavy.
- Direct proportion - one quantity increases at the same rate as the other quantity increases.
- Inverse proportion - one quantity increases at the same rate as the other quantity decreases.
- Rate - a price or charge set according to a scale or standard hotel rates.
- Quantity – the amount of something.
- Expand – to multiply the term before bracket by the terms in the bracket.
- Expression – collection of terms. E.g 4x + 8p.
- Gradient – the steepness of a curve
- Linear Graph – straight line graph $y = mx + c$
- Y-intercept – where the graph crosses the y axis

Year 8 – Henry VIII & The Reformation Knowledge Organiser

Background Info

- In 1485 Henry VII defeated Richard III at the battle of Bosworth. This ended the Wars of the Roses and started the Tudor Dynasty of control over England.
- Criticism of the Catholic church had been increasing throughout Europe in the late 15th and early 16th centuries by people such as the German monk Martin Luther.
- Henry VIII had been a devout follower of the Catholic faith throughout his younger life. He even wrote a book defending Catholicism against criticism. The pope even rewarded Henry by giving him the title **Fidei Defensor** or Defender of the Faith.
- However, Henry began to fall out with the pope over various issues which led to his Break from Rome.

Key Words

Tudor Dynasty	A group of kings and queens from the Tudor family that led England from 1485 to 1603.
Catholic	A group of Christians led by the Pope in Rome.
Protestant	A group of Christians, who broke away from the Catholic Church.
Pope	The leader of the Catholic church.
Reformation	A process of reforming the Christian church across much of Western Europe.
Martin Luther	A German monk who criticised the Catholic church in the 16th century
Break from Rome	When Henry VIII stopped England from taking its religious lead from the pope in Rome and set up a new protestant church.
95 Theses	A list of criticisms of the Catholic church written by German monk Martin Luther.

Chronology

1485	Henry VII becomes the first Tudor king of England after defeating Richard III at the Battle of Bosworth.
1509	Henry VIII becomes king of England and marries Catherine of Aragon.
1516	Catherine of Aragon gives birth to Mary.
1517	A German monk named Marting Luther pins his 95 Theses to the church door in Wittenburg.
1527	Henry VIII asks the Pope to annul his marriage to Catherine of Aragon but the Pope refuses.
1533	Henry III grants himself a divorce from Catherine of Aragon and marries Anne Boleyn.
1534	Henry VIII breaks away from the Roman Catholic Church in Rome and declares himself leader of the Church in England.

Historical Interpretation

'The Reformation was imposed on the people by King Henry VIII and his advisers.

Historian – Professor Eamon Duffy

Historical Interpretation

'The seeds of the Reformation were present before the king officially broke away from Rome. Many people desired change.

Historian – Professor A. G. Dickens

UNIT 16
Talking about my daily routine

Vers… *[around…]*

A… *[at]*

…cinq heures *[5]*

…six heures *[6]*

…sept heures *[7]*

…huit heures cinq *[8.05]*

…huit heures dix *[8.10]*

…huit heures et quart *[8.15]*

…huit heures vingt *[8.20]*

… huit heures vingt-cinq *[8.25]*

… huit heures et demie *[8.30]*

…neuf heures moins vingt-cinq *[8.35]*

…neuf heures moins vingt *[8.40]*

…neuf heures moins le quart *[8.45]*

…neuf heures moins dix *[8.50]*

… neuf heures moins cinq *[8.55]*

A midi *[12 pm]*

A minuit *[12 am]*

du matin *[in the morning]*

de l'après-midi *[in the afternoon]*

du soir *[in the evening]*

je me brosse les dents *[I brush my teeth]*

je me coiffe *[I do my hair]*

je me couche *[I go to bed]*

je déjeune *[I have lunch]*

je dîne *[I have dinner]*

je fais mes devoirs *[I do my homework]*

je m'habille *[I get dressed]*

je joue sur l'ordinateur *[I play on the computer]*

je me lève *[I get up]*

je prends le petit-déjeuner *[I have breakfast]*

je regarde la télé *[I watch telly]*

je rentre à la maison *[I go back home]*

je me repose *[I rest]*

je sors de chez moi *[I leave my house]*

je vais au collège en bus *[I go to school by bus]*

ensuite… *[then]*

après… *[after]*

finalement… *[finally]*

Unit 15
Talking about weather and free time

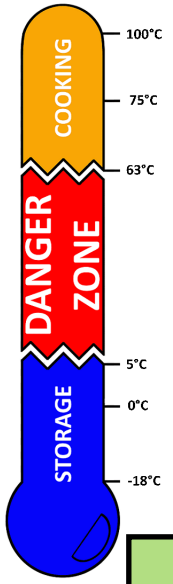
Quand j'ai le temps *[when I have time]* **Quand le ciel est dégagé** *[when the sky is clear]* **Quand il y a des nuages** *[when it is cloudy]* **Quand il fait beau** *[when the weather is good]* **Quand il fait mauvais** *[when the weather is bad]* **Quand il fait chaud** *[when it is hot]* **Quand il fait froid** *[when it is cold]* **Quand il y a du soleil** *[when it is sunny]* **Quand il y a du vent** *[when it is windy]* **Quand il y a du brouillard** *[when it is foggy]* **Quand il y a de l'orage** *[when it is stormy]* **Quand il pleut** *[when it rains]* **Quand il neige** *[when it snows]* **Parfois** *[sometimes]* **Pendant la semaine** *[during the week]* **Le week-end** *[at the weekend]*	**je joue** *[I play]* **mon amie Marie joue** *[my friend Marie plays]*	**au basket** *[basketball]* **au foot** *[football]* **au tennis** *[tennis]* **aux cartes** *[cards]* **aux échecs** *[chess]* **avec mes amis** *[with my friends]* **avec ses amis** *[with her friends]*
	je fais *[I do]* **mon ami Lionel fait** *[my friend Lionel does]*	**du footing** *[jogging]* **du ski** *[skiing]* **du sport** *[sport]* **du vélo** *[cycling]* **de l'équitation** *[horse riding]* **de l'escalade** *[rock climbing]* **de la natation** *[swimming]* **de la randonnée** *[hiking]* **mes/ses devoirs** *[my/his homework]*
	je vais *[I go]* **mon amie Anna va** *[my friend Anna goes]*	**au centre commercial** *[to the mall]* **au centre sportif** *[to the sports centre]* **au gymnase** *[to the gym]* **au parc** *[to the park]* **à la campagne** *[to the countryside]* **à la montagne** *[to the mountain]* **à la pêche** *[fishing]* **à la piscine** *[to the pool]* **à la plage** *[to the beach]* **chez mon ami** *[to my friend's house]* **chez son ami** *[to her friend's house]* **en boîte** *[clubbing*]
	je reste *[I stay]* **mon ami Philippe reste** *[my friend Philippe stays]*	**chez moi** *[at my home]* **dans ma chambre** *[in my room]* **chez lui** *[at his home]* **dans sa chambre** *[in his room]*

UNIT 14
Saying what I (and others) do in our free time

je joue *[I play]*	**au basket** *[basketball]* **au foot** *[football]* **au tennis** *[tennis]* **aux cartes** *[cards]* **aux échecs** *[chess]* **avec des amis** *[with some friends]*	**de temps en temps** *[from time to time]* **deux fois par semaine** *[twice a week]* **pendant le week-end** *[during the weekend]* **tous les jours** *[every day]* **tous les samedis** *[every Saturday]* **tous les soirs** *[every evening]* **tous les week-ends** *[every weekend]* **une fois par mois** *[once a month]*
je fais *[I do]*	**du footing** *[jogging]* **du ski** *[skiing]* **du sport** *[sport]* **du vélo** *[cycling]* **de l'équitation** *[horse riding]* **de l'escalade** *[rock climbing]* **de la natation** *[swimming]* **de la randonnée** *[hiking]*	
je vais *[I go]*	**au centre commercial** *[to the mall]* **au centre sportif** *[to the sports centre]* **au gymnase** *[to the gym]* **au parc** *[to the park]* **à la campagne** *[to the countryside]* **à la montagne** *[to the mountain]* **à la pêche** *[fishing]* **à la piscine** *[to the pool]* **à la plage** *[to the beach]* **chez des amis** *[to my friends' house - plural]* **en boîte** *[clubbing*]	

Year 8 - Nutrients

Food safety and hygiene is about protecting people and reducing the risk of food poisoning.



https://www.youtube.com/watch?v=zE0ypKtFuWQ

Carbohydrates are *macro*nutrients.

The main function is to **provide energy** to the body.

2 main types = **starchy** (complex) and **sugary** (simple)

Complex = long lasting energy;
Simple = short burst of energy

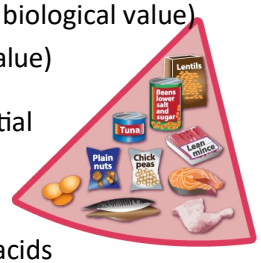
https://www.youtube.com/watch?v=PByM12M1n3A
https://www.youtube.com/watch?v=Xto8ZqCYDvY

Proteins are *macro*nutrients.

They're used by the body for **growth, repair** and maintenance of **muscle and tissue**.

2 main types = **HBV** (high biological value) and **LBV** (low biological value)

HBV = contain all 9 essential amino acids;
LBV = contain some but not all 9 essential amino acids



https://www.youtube.com/watch?v=61LeIea02ao
https://www.youtube.com/watch?v=KSKPgaSGSYA

vitamins and minerals are *micro*nutrients. They have a wide range of health benefits.

https://www.youtube.com/watch?v=K5pW7rpMTQw
https://www.youtube.com/watch?v=kteZneJm1EI
https://www.youtube.com/watch?v=1u5HOURq7kQ

The Eatwell Guide shows the types and proportions of foods people need for a healthy and well-balanced diet.

https://www.youtube.com/watch?v=7MlE4G8ntss
https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/
https://www.youtube.com/watch?v=8aWqZd9RScQ

Key vocabulary

safety / hygiene
nutrients / sources / function
carbohydrates / protein / amino acids
HBV / LBV / protein complementation
fibre / vitamins / minerals / fat / water
deficiency / excess
convection / conduction / radiation

https://www.youtube.com/watch?v=fiFi-d0RwKo

Conduction is the transfer of heat through a **solid**

Convection is the transfer of heat through a **liquid** or **gas**

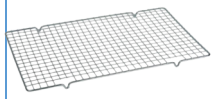
There are 3 methods of **Heat Transfer**

Radiation is the transfer of heat through electro-magnetic rays

https://www.youtube.com/watch?v=vg5k6t6uZwE

Year 8 - Cooking skills

Equipment

 Rolling pin	 Pastry cutter	 Cooling rack	 Baking tray	 Tin opener
 Juicer	 Garlic press	 Pasty mould	 Electric whisk	 Sieve

Skills and Processes

Bridge hold and Claw grip


Used in: fruit salad, pasta salad, sausage rolls, Spanish omelette, potato wedges and salsa

Rubbing in technique


Used in: jam tarts, bread rolls, Chelsea buns, cheese and onion pasties

Kneading

Used in: bread rolls, pizza wheels, Chelsea buns

Creaming

Used in: Dutch apple cake

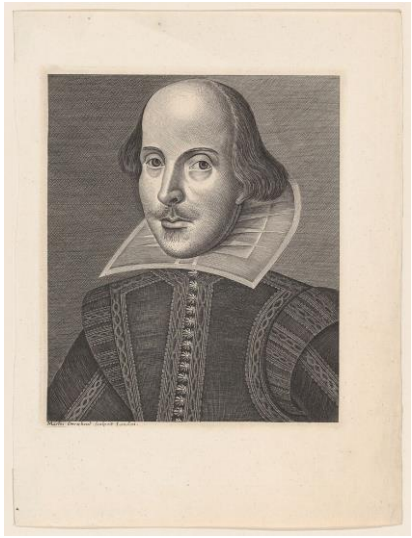
Key word	Meaning
Gluten	The protein found in wheat, which is responsible for the elastic texture of dough.
Kneading	Working bread dough with the hands to stretch the gluten so it is elastic (helps the yeast to make bread rise).
Gelatinisation	When liquid is added to starch grains making them swell. Used to thicken sauces eg. cheese.
Simmering	When water or food in a saucepan bubbles gently (stays below boiling point).
Vegan	Don't eat or use ANY animal products.

Independent skills I need to learn in Year 8

- **Use the bridge hold and claw grip** to cut food safely and accurately.
- **Use a range of other preparation techniques** eg. peeling, chopping, slicing, dicing, grating etc.
- **Organise** all my ingredients and follow a recipe.
- **Use the cooker** (eg. hob and oven) safely.
- **Temperature control** know when to turn heat up and down accordingly.

Food safety

Using **colour coded chopping boards** and equipment prevents **bacteria** spreading and causing **food poisoning**.



SHAKESPEARE

Circa 1585–1613.

William Shakespeare was a poet, playwright and actor. His body of writing is considered the most influential and important of the modern world.

His plays are sectioned into three categories: Histories, Tragedies and Comedies.

Shakespeare also expanded the English Language vastly, adding hundreds of words to our rich language during his time as a writer.

His work straddled the Elizabethan and Jacobean periods; this means he was writing when Queen Elizabeth I was on the throne, and when King James I (VI of Scotland) ruled England. This historical backdrop is important to note when studying his works as the monarchy had a lot more power over the country than they do in modern England.

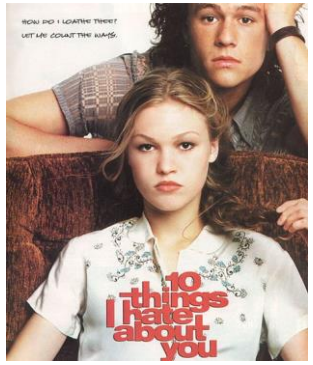
King James 1st of England (6th of Scotland)

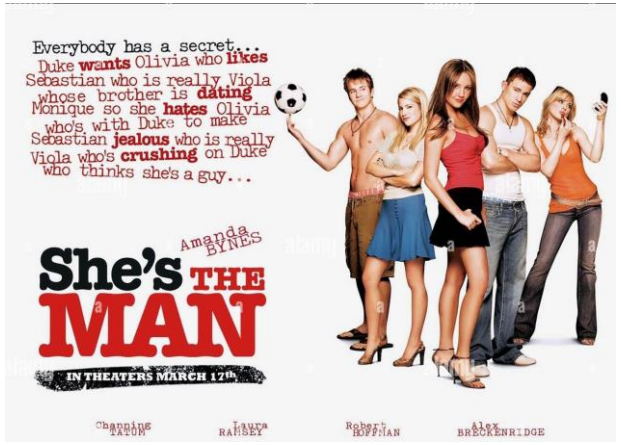
Queen Elizabeth 1st of England

Key terminology:

Iambic pentameter – ten syllables in a line
Sonnet – a form of poetry with 14 lines and a strong rhyme scheme
Hamartia – a character's fatal flaw leading to his/her downfall
Hubris – a character's huge amount of pride or self-confidence
Thee/Thou – A middle English way of saying "you"
Patriarchy - a system of society or government in which men hold the power and women are largely excluded from it
Jacobean Period - 24 Mar 1603 – 27 Mar 1625

Relevance - the quality or state of being closely connected or appropriate.





William Shakespeare

Different Types of Plays

Tragedy	These plays would typically end in death or violence. For example: Othello, Romeo & Juliet, Hamlet, King Lear.
History	These plays were based on historical events. For example: Henry V, Richard III, Henry VI, King John.
Comedy	These plays tended to focus on love, magic, and confusion. For example: A Midsummer Night's Dream, As You Like It, Much Ado About Nothing, The Tempest.

William Shakespeare's Life

- Born on 23rd April 1564
- In 1582, he married Anne Hathaway.
- 1589-1593—he wrote Comedy of Errors, and Richard III, and became an established playwright in London
- 1594-1596—He creates an acting company, and writes A Midsummer Night's Dream and Romeo and Juliet.
- 1597-1599—He buys the second biggest home in Stratford, and writes Julius Caesar and Much Ado About Nothing
- 1600-1608—Hamlet, Macbeth and Twelfth Night are written
- 1603—James I is crowned King—Shakespeare renames his acting group "The King's Men".
- 1609-1611—Shakespeare's Sonnets are published, and he writes The Tempest
- 1612-1616—Henry VIII is written
- He dies, 23rd April 1615

Key Terms

Regicide	The murder of the king or monarch
Foil	A character who contrasts with another, to highlight their qualities
Renaissance	The period of time when Shakespeare wrote his plays and sonnets.
Soliloquy	The act of speaking one's thoughts aloud when by oneself or regardless of any hearers, especially by a character in a play.

Shakespearean Form

Prose	This is ordinary language—no rhyme or rhythm.
Sonnet	A 14 line poem that is usually based on the theme of love. It is written in iambic pentameter.
Blank Verse	A type of poetry, often used in his plays, too. It has meter, but no rhyme.
Dramatic Irony	Where the reader knows more about the events of the play than the characters do.

Shakespearean Structure

Iambic Pentameter	A form of meter where the lines consist of five pairs of sullables. The first syllable is unstressed, and the second is stressed. (da-DUM)
Rhythm	A strong, regular, repeated pattern of movement or sound.
Caesura	A pause near the middle of the line, that breaks up the rhythm.
Rhyme	Where two or more words share the same vowel sound and ending.

Context of Shakespeare's Time

Courtly Love	A medieval tradition of love between a knight and an unattainable woman.
Duelling/ Honour	Honour was very important. If you refused a duel, your family's status would be weakened.
Patriarchal Society	Society was controlled by men, where women were seen as weaker. They needed to obey their fathers and husbands.
The Globe Theatre	Where most of Shakespeare's plays were performed. Only men were actors, and it had areas for people of all backgrounds.

DRAMA

AT THOMAS ESTLEY

Introduction to Year 8 Drama

Students will develop Skills through the devising process of both Plot and Performance, with a focus on Physical and Vocal skills. They will develop their own work through the stimulus 'Pandoras Box'.

Students will understand…

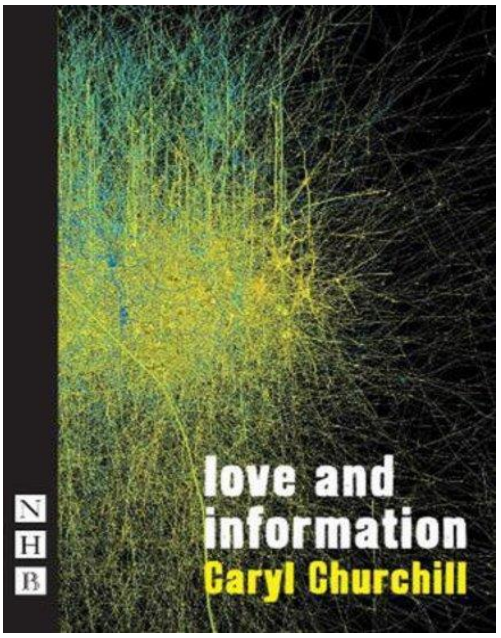
- Posture, Gesture, Mannerisms, Movement and Gait.
- Pitch, Projection, Phrasing, Pause and Pace.
- A variety of Theatrical devices, through the application of a Practitioner's methodology.

Love and Information

Students will explore, interpret and devise work through the stimulus of the play 'Love and Information' by Caryl Churchill.

Students will understand…

- Context.
- Sequence, Voice and Movement.
- Characterisation and Direction.
- Performing and Evaluating.
- Staging, levels, Multi role, Split role and Proxemics.
- Duologues, Monologues and Collaborative work.



KS3 Dance Skills KO – Autumn Term

Performance Skills

PHYSICAL:

Balance – Holding a steady position
Alignment – correct placement of body parts
Flexibility – range of movement in the muscles
Extension – lengthening of the muscles
Mobility – range of movements in the joints
Control – ability to stop, start and change direction
Co-ordination – combining the body parts
Isolation – independent movement of body parts
Posture – the way the body is held
Strength - muscle power

EXPRESSIVE:

Focus – use of the eyes
Facial Expressions – use of the face
Spatial awareness – using the space
Projection – energy used to connect with audience
Phrasing – distribution of the energy
Sensitivity to others – connecting with other dancers
Musicality – bringing out the music
Communication – portraying intentions and themes.

SAFE PRACTICE:

Safe execution, Appropriate dancewear- footwear, hairstyle, and no jewellery. Warm-up/cool down. Nutrition. Hydration

Actions

What the body is doing

Gesture – non-weight bearing action

Use of different body parts – head, shoulders, hips

Elevation – whole body in the air

Stillness – stationary/not moving

Travel – journey from A-B

Floorwork – movement at a low level

Turn – whole body rotation

Transfer – changing the weight-supporting body parts

SPIN TWIST KICK
STAND SLIDE CHOP
SCOOCH CARTWHEEL
COLLAPSE SHAKE GALLOP
PUNCH LEAP FLICK
RUN PIROUETTE STAMP
HIP ROLL PIVOT ROLL
RISE BALANCE STRETCH

Dynamics

How the body is moving.

Fast/**S**low

Sudden/**S**ustained

Flowing/**A**brupt

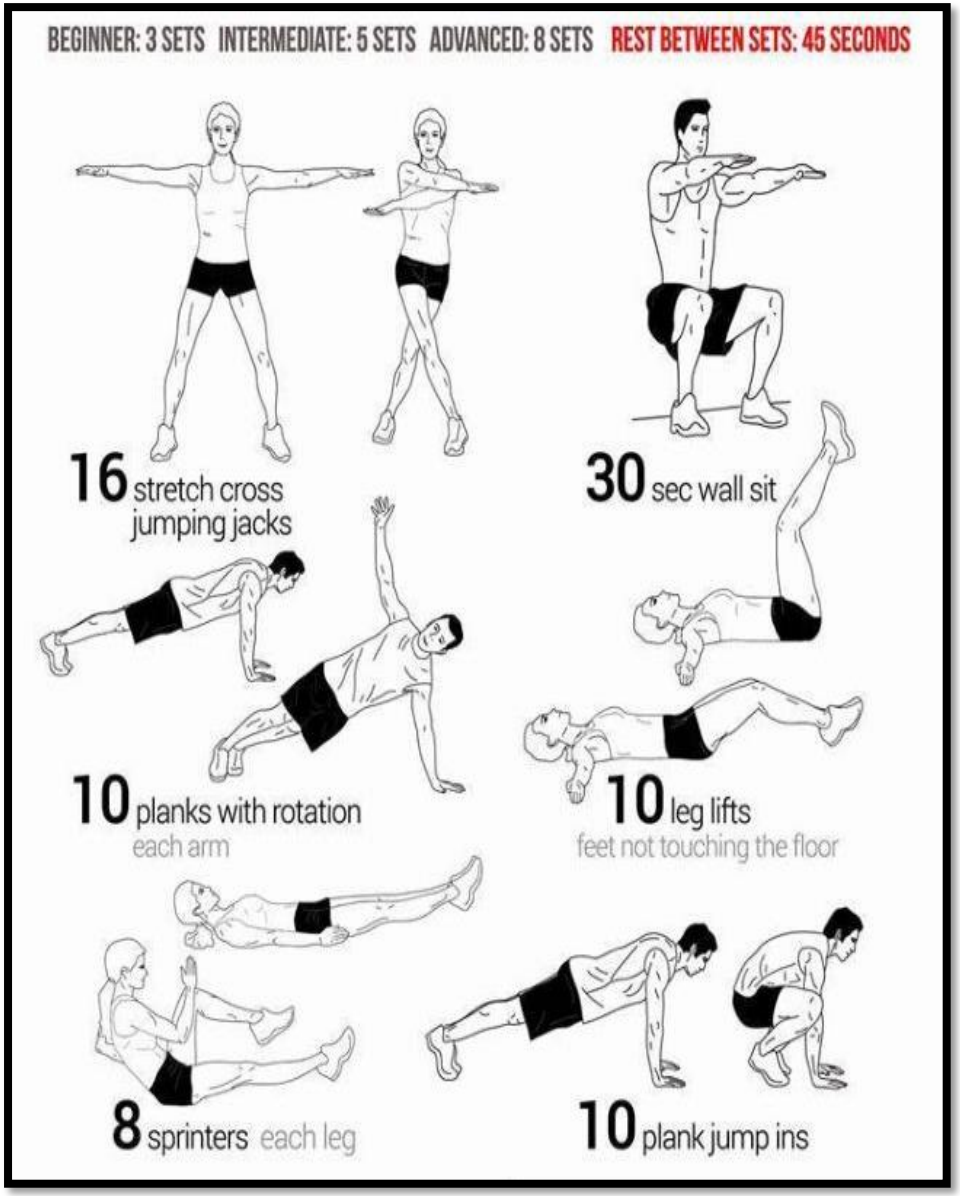
Direct/**I**ndirect

Accelerate/**D**ecelerate

Strong/**L**ight

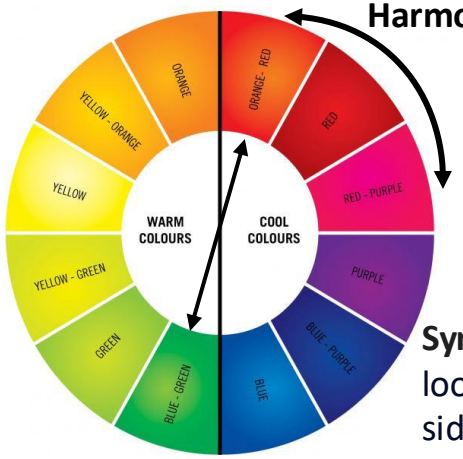
SMOOTH SHARP
EXPLODE JERKY
ROBOTIC MELTING
QUICKLY BOUNCY
AGGRESSIVE ERRATIC
GRACEFULLY SILKY
SOFT SPORADIC
FORCED FLUID
LETHARGIC HEAVY

Improve Core Strength



Improve Flexibility

ART & DESIGN KNOWLEDGE ORGANISER



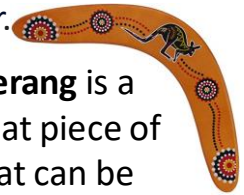
Harmonious colours are next to each other on the colour wheel.

Complementary colours are opposite each other on the colour wheel.

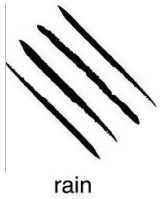
The **didgeridoo** is a long wooden wind instrument played by Australian Aborigines to produce a long deep sound.

Symmetry is when an object looks the exact same on one side as the other.

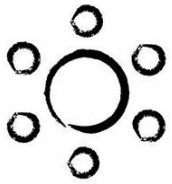
A **boomerang** is a curved flat piece of wood that can be thrown so that it will return to the thrower, traditionally used by Australian Aborigines as a hunting weapon.

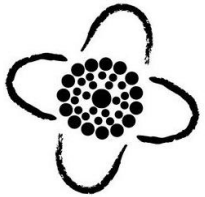


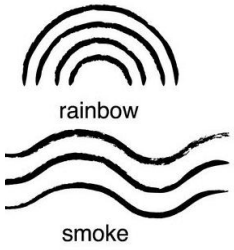
Clapping sticks are a traditional percussion instrument used during ceremonies and songs.



Symbols are used to tell the stories of the Dreamtime.







The **Bull-roarer** is a sacred object used in Aboriginal religious ceremonies, consisting of a piece of wood attached to a string, whirled round to produce a roaring noise.

Composition is the placement or arrangement of visual elements in a piece of work.

Monochromatic means varying tones of **ONE** colour from light to dark.

Media	Best practice
Coloured Pencils	• Apply using a soft circular motion • Start with the lightest colours and build up colour/tone • Harmonious colours add depth • Complimentary colours add definition • A sharp pencil will create a crisp finish • Avoid applying a thick stripy line of tone around the edge of shapes, blur it by applying soft pressure on the edge
Watercolour	• Mix your own variations of colour instead of using them straight out of the palette to make your work look more individual • Avoid adding too much water to your paint or the paper will start to bobble/wave • Apply colour in layers to build up tone • To blend colours on the page work quickly and place wet next to wet • When you want colour to stay separate make sure you don't apply wet next to wet • Consider layering mark-making on top of dry layers to add interest • Change your water regularly to avoid cross contamination
Pen / Biro	• Work from left to right (or right to left if you are left handed) to avoid smudging • Use a paper towel to blot any excess ink of the nib • Work quickly to avoid letting too much ink collect on the page • Experiment with thickness of line and mark-making techniques

The **Dreamtime** is the Aborigines belief of how the world and its creation began. Aboriginal culture includes ceremonies, body art, music, art and story telling.

Aborigines are the original inhabitants of Australia.

Computing Knowledge Organiser - Understanding Computers

Elements of a Computer

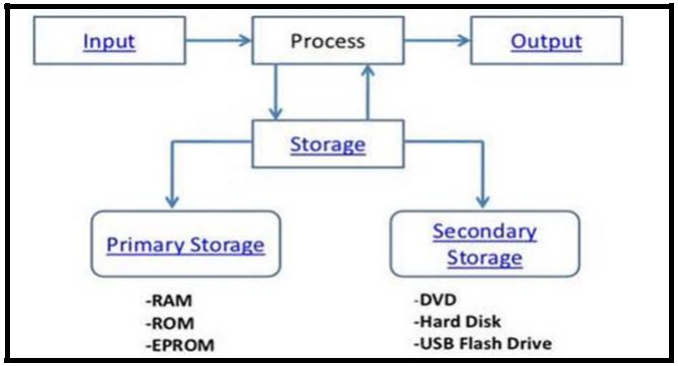
Hardware: objects you can touch. E.g. monitors, keyboards, printers, motherboard, CPU chip

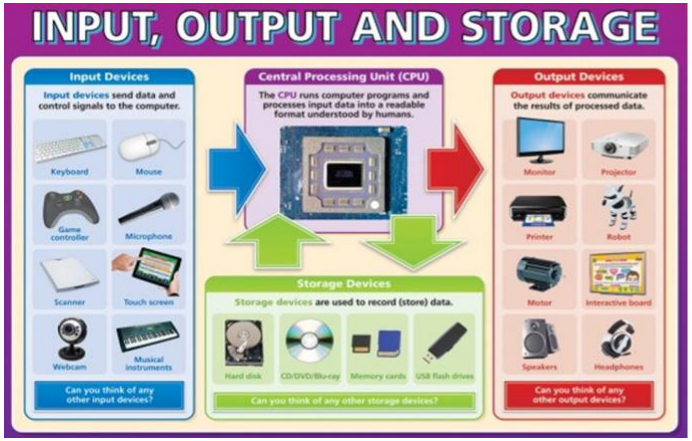
Software: you cannot 'touch' software. It is the programs that run on a computer. E.g. windows, MS Word, Kodu

Input: a device that can be used to enter data into a computer. E.g. Keyboard, mouse, microphone.

Output: a device used to display or output data which has been processed or stored in a computer. E.g. printer, speaker, monitor.

Storage: a device used to permanently record or store data. E.g. CD, hard drive.

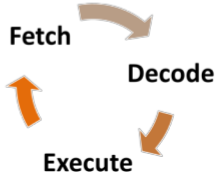




The CPU

Fetch—Decode—Execute Cycle

1. Computer has a list of instructions in memory to carry out
2. CPU **FETCHES** top instruction from the list
3. Instruction is passed to **DECODER** to interpret
4. **DECODER** passes on the instruction
5. Instruction is **EXECUTED** or carried out
6. CPU **FETCHES** top instruction from list … and cycle re-peats.



Processor Speed

One cycle per second = 1 Hertz (Hz) = 1 instruction car-

ried each second

1 Kilohertz (KHz) = 1024 cycles per second

1 Megahertz (MHz) = 1,048,576 cycles per second 1 Gigahertz (GHz) = 1,073,741,824 cycles per second

(Approximately 1 billion!)

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RAM vs ROM

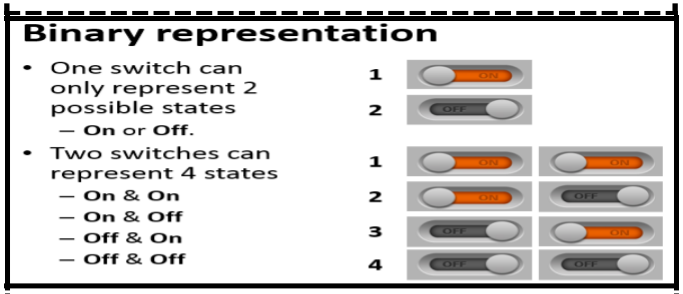
RAM—random access memory

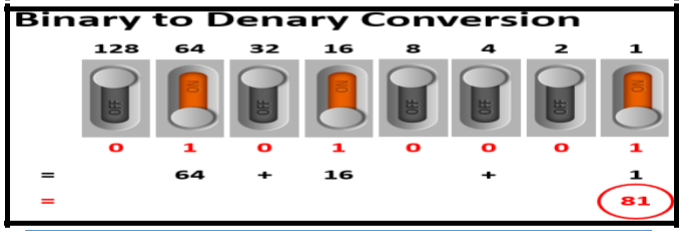
ROM—read only memory

Understanding Binary

Computers use millions of electronic circuits and switches which can either be On or Off

On is represented by 1 and Off is represented by 0





128	64	32	16	8	4	2	1
0	1	0	1	0	0	0	1

Therefore 64+16+1 = 81 , 81 converted to binary = 01010001

Bits and Bytes

0 or 1 = 1 Bit (**B**inary Digi**t**)

8 Bits = 1 Byte

1024 Bytes = 1 Kilobyte (Kb)

1024 Kb = 1 Megabyte (Mb)

1024 Mb = 1 Gigabyte (Gb)

1 Byte = 1 character of text

Decimal	Binary
0	0000
1	0001
2	0010
3	0011
4	0100
5	0101
6	0110
7	0111
8	1000
9	1001
10	1010

Computing Knowledge Organiser - Understanding Computers

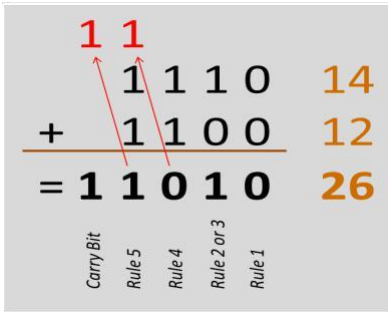
Binary Addition

Rules of binary addition

Work right to left 0+0=0 0+1=1 1+0=1

1+1=0 carry 1

1+1+1=1 carry 1



Here's another example:

0001 0101 + 0001 1001

	0	0	0	1	0	1	0	1
	0	0	0	1	1	0	0	1
Answer:	0	0	1	1	0	0	1	0
Carry line:			1	1	1	1	1	

ASCII code

You will need to use the worksheet from lesson 3 to revise ASCII code and how to represent characters.

Storage Devices

Hard disk 	Uses magnetic disks for storing software and data. Disks are circular and spin at high speed. Files can be read, edited, re-written and deleted. Can store huge amounts of data.
Solid-state drive 	Uses flash memory to store software and data. No moving parts in SSD—this makes them faster and more reliable than magnetic hard disks.
Optical device 	Uses CDs or DVDs to store data. The files can be read, edited, re-written or deleted only if CDR/RWs or DVD-R/RWs are used.
Flash memory 	Small memory sticks contain flash memory and are used in USB ports. Used to store data to transfer it between computing devices.
Cloud 	Very large data storage capacity. Facilities made available online so the data can be accessed remotely.

Convergence & New Technologies

The effect of changing technologies

- Connectivity
- Convenience
- Creativity & design
- Globalisation & collaboration
- Potential & innovation
- Research & discovery

Future & emerging technologies

RFID	Wireless charging
Robotics	Driverless cars
Medicine	Domestic robots
Space exploration	3D printers

Moore's Law

States the number of transistors in integrated circuit boards doubles every 2 years.

The capabilities of many digital electronic devices are strongly linked to Moore's law: processing speed, memory capacity, sensors and the number and size of pixels in digital cameras.

This means that a 32Gb memory chip now could be 1Tb memory chip in only 10 years if it doubles in capacity every 2 years.

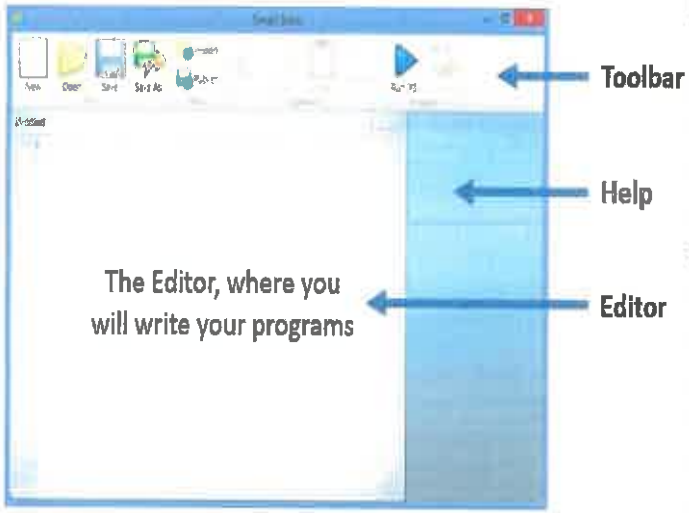
Key vocabulary: hardware, software, input, output, process, storage, memory, RAM, ROM, motherboard, CPU, fetch, decode, execute, graphics card, hard disk, data bus, binary, bit, byte, Kb, Mb, Gb, decimal, denary, integer, switch, optical media, CD-ROM, DVD, CD-R, CD RW, Blu-Ray, pits, lands, burn, read, write, data, track

Computing Knowledge Organiser - First Steps in Small Basic

Programming languages

- Programming languages are used to give computers **instructions on what to do**
- One reason there are so many languages is that computers are used in thousands of different ways
- Many languages were invented for a specific purpose or **application**
- Small Basic was invented to be easy to learn and fun to use
- You will be **typing instructions** for the computer to follow
- You have to write the instructions very precisely or the computer wont understand them
- The instructions you write are called **program code**

Small Basic "Environment"

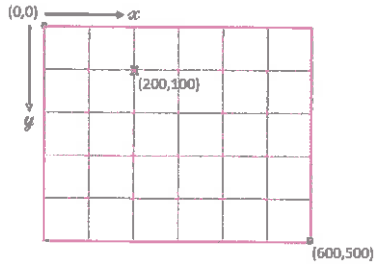


Moving the turtle without drawing a line

```
Turtle.PenUp()          'so line will not be drawn
Turtle.MoveTo(100,100)  'move the turtle
Turtle.Angle=90         'make turtle face right
Turtle.PenDown()        'put pen down
```

Screen Coordinates

- The graphics screen has x and y coordinates



Setting the size of the graphics window

You can change the size of the graphics window using the following code

```
GraphicsWindow.Width=600
GraphicsWindow.Height=400
```

Drawing a square

You can draw a square by writing these instructions 4 times:

```
Turtle.Move(100)
Turtle.TurnRight()
```

Using a For Loop

A **For...EndFor** loop to repeat a series of instructions several times. Here is an example that shows how to draw a square

```
For i = 1 To 4
  Turtle.Move(100)
  Turtle.TurnRight()
EndFor
```

i is a counter. It counts the number of times the instructions in the loop are to be performed. It can be called anything—"counter" or "finger" would work just as well

The text window

The text window is used for entering and displaying text and numbers. Some useful commands are listed below.

TextWindow.ForegroundColor—gets or sets the foreground colour of the text to be output in the text window.

TextWindow.BackgroundColor—gets or sets the background colour of the text to be output in the text window.

TextWindow.CursorLeft—gets or sets the cursor's column position on the text window.

TextWindow.CursorTop—gets or sets the cursor's row position on the text window.

TextWindow.Left—gets or sets the left position of the text window.

TextWindow.Title—gets or sets the title position of the text window.

TextWindow.Top—gets or sets the top position of the text window.

Computing Knowledge Organiser - First Steps in Small Basic

Using Variables

A variable is a piece of data that you can alter within a program. The variable must be given a name and it can be assigned a value. All programming languages can handle variables.

For example myname="Henry"
The variable is 'myname' and its value is 'Henry'.

Variables can hold any type of data. For instance a variable can represent a number.

Example:

In this program, the program will ask the user their name, store the name in a variable and then print out "Hello" with the user name.

```
TextWindow.Write("Enter your Name: ")
name = TextWindow.Read()
TextWindow.WriteLine("Hello " + name)
```

What happens when the program runs?

Conditional statements

```
If (Clock.Hour < 18) Then
  TextWindow.WriteLine("Good day")
EndIf
If (Clock.hour>=18) Then
  TextWindow.WriteLine("Good evening")
Endif
```

If...Then...Else

```
If (Clock.Hour < 18) Then
  TextWindow.WriteLine("Good day")
Else
TextWindow.WriteLine("Good evening")
Endif
```

Conditional Operators

=	Equals
>	Greater than
<	Less than
>=	Greater than or equal
<=	Less than or equal
<>	Not equal

A simple quiz program

```
TextWindow.WriteLine("Question 1. Which county is Bournemouth in?")
TextWindow.WriteLine("      (a) Hampshire")
TextWindow.WriteLine("      (b) Dorset")
TextWindow.WriteLine("      (a) Sussex")
TextWindow.Write("Answer a, b or c  ")
Answer = TextWindow.Read()
If (Answer = "b") Then
  TextWindow.WriteLine ("Correct")
Else
  TextWindow.WriteLine ("Wrong! It's in Dorset")
  TextWindow.WriteLine ("It used to be in Hampshire")
EndIf
```

Using a while...Endwhile loop

- To make a section of code repeat indefinitely, you can use a **While....Endwhile** loop

```
'Make the program continue until the user presses End
Program
ContinueForEver = "Yes"
While ContinueForEver = "Yes"
'insert statements in here
EndWhile
```

Drawing filled shapes

- We can easily draw and fill rectangles and ellipses without using the turtle
- To draw a red ellipse:

```
GraphicsWindow.BrushColor = "Red"
GraphicsWindow.FillEllipse(XCoord, YCoord, width,height)
```

Randomising

- To get a random colour, use a statement like

```
Colour = GraphicsWindow.GetRandomColor()
GraphicsWindow.BrushColor = Colour
```

Revision tips

Use your knowledge organiser to read through the key facts and information for this unit—use the Look-Cover-Write-Check method to learn key knowledge.

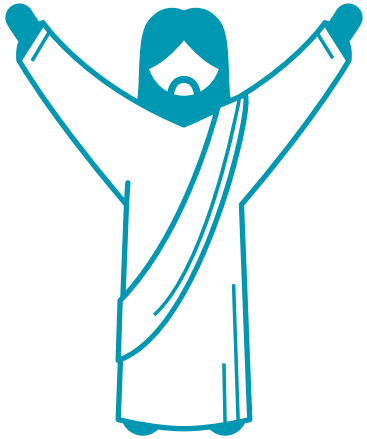
Read through the lesson PowerPoints for this unit on SharePoint.

Look at the programs you have written during this unit—do you know how they all work? What do they do? Can you identify key features of each program?

Year 8 Religious Education – Autumn Term
The Life and Teachings of Jesus

Miracles performed by Jesus

- Turned water into wine
- Fed 5,000 people with five loaves and two fish
- Walked on water
- Healed blind and sick people
- Calmed a storm on the sea
- Raised Lazarus from the dead
- Cast out demons



Key Teachings of Jesus

Love thy Neighbour
Matthew 22:39

Do not judge, or you too will be judged
Matthew 7:1-2

Do to others what you would have them do to you
Matthew 7:12

The Life of Jesus

- Born in Bethlehem
- Grew up in Nazareth
- Baptised by John
- Chose 12 disciples
- Taught people
- Performed miracles
- Entered Jerusalem
- Had the Last Supper
- Arrested and crucified
- Rose from the dead
- Ascended to heaven

Key Term	Definition
Messiah	The promised saviour in Jewish and Christian belief.
Gospel	'Good News'; accounts of Jesus' life.
Disciple	A follower of Jesus.
Compassion	Deep care for others.
Faith	Trust in God.
Parable	A story with a moral or spiritual lesson.
Neighbour	Anyone in need of help.
Forgiveness	Letting go of anger.
Crucifixion	Jesus' death on a cross.
Sacrifice	Giving up something for others.
Salvation	Being saved from sin.
Resurrection	Jesus rising from the dead.
Hope	Expectation of good things.
Eternal Life	Life with God forever.
Belief	Something accepted as true.