

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 then get them to test you, or even test them!



Flash Cards



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.

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 it's full!



Back to front

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

BACK
TO
FRONT

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
MAKES
PERFECT

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!



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.

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

pp p mp mf f ff

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 (A¹A²A³A⁴), 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

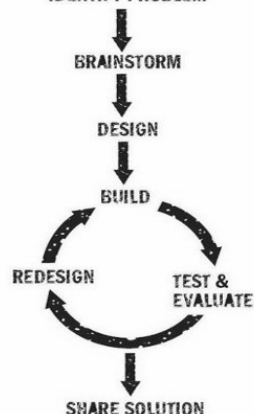
The speed of the music



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

The Design Process

THE DESIGN PROCESS



"The design process involves continually evaluating and redesigning to develop ideas"

"Research like product analysis helps to inspire our own ideas"

Product Analysis

A	is for	Aesthetics	
C	is for	Cost	
C	is for	Customer	
E	is for	Environment	
S	is for	Size	
S	is for	Safety	
F	is for	Function	
M	is for	Material	

Primary and secondary data

Primary sources of information are gathered by the designer and used to help improve their designs.

Secondary sources of information use data already found by other people or organisations that are relevant.

User centred design.

User centred design consider who the target market will be and thinks about their needs and wants. Examples of this could be:

- designing fastenings for small children to use
- creating products for the partially sighted, which might include bright colours or large buttons
- redesigning products using the ergonomic data of a wheelchair user

Year 8 - Textiles Design and Technology

Fabric Construction

Woven	Knitted	Non- Woven
(a)	(b)	(c)
Strong, non stretch, different weaves: plain, twill, satin. Use for shirts, jeans, bed linen	Cheaper to produce, stretch due to loop structure, can snag and cause runs. Used for sportswear, tights and jumpers	Very cheap, not strong (unless bonded), can be easily torn. Use for disposable products e.g. jay clothes, disposable hats, felt.

Cotton V's Polyester

Material	Source of origin	Sustainable?
Cotton		More sustainable than Polyester, because the plants can continually grow. Uses a large amount of water to grow, clean and process the fibres. Pesticides and dyes can be poisonous and cause pollution. Organic cotton is produced more
Polyester		Made from a fossil fuel (coal/oil) so not sustainable. Can be recycled though. Each time polyester is washed microfibre are release which is polluting the oceans and getting into the eco system.

The 6Rs

Rethink	Do we make too many products? Design in a way that considers people and the environment.	
Refuse	Don't use a materials or buy a product if you don't need it or if it's bad for people or the environment	
Reduce	Cut down the amount of material and energy you use as much as you can.	
Reuse	Use a product to make something else with all or parts of it.	
Recycle	Reprocess a material or product and make something else.	
Repair	When a product breaks down or doesn't work properly, fix it.	

The Impact Of Fast Fashion



Textile production produces harmful emissions and other pollution from chemicals and dyes.



Poor-quality clothing leads to more textile waste. Plastic based fibers release harmful gases in landfills.



Textile production uses scarce resources. The industry uses 100 billion cubic meters of water annually — about 4% of global freshwater withdrawal.



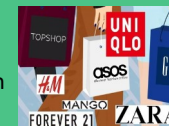
Microplastics enter the water system when synthetic materials are washed. Ocean species consume these plastics, and so do people eating seafood.

Key Terms:

Fast Fashion—clothes that are made quickly and cheaply to meet everchanging fashion trends. Often linked to poor working conditions.

Sustainability — when materials or products can be made without damage to people of the environment. E.g. Organic cotton and Bamboo.

Fairtrade— trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers



Year 8 Spanish

Sub-Unit 2 sentence builder Comparing people

Él he
Ella she
name e.g. Dani Ceballas
Mi madre – My mum
Mi padre – My dad
Mi hermano – My brother
Mi hermana – My sister
Mi primo – My cousin (m)
Mi prima My cousin (f)
Mi abuelo – My grandad
Mi abuela – My grandma
Mi tío – My uncle
Mi tía – My aunty
Mi mejor amigo – my best friend (m)
Mi mejor amiga – My best friend (f)

Ellos – they (m)
Ellas – they (f)
Mis primos – My cousins
Mis padres – my parents
Mis abuelos – my grandparents
Mis tíos- my aunty and uncle
Mis amigos – my friends

es...
is...

son...
are

más...
more...

menos...
less

tan...
as

Spanish	English
aburrido/a	boring
alto/a	tall
amable	kind
antipático/a	unfriendly
bajo/a	short
cariñoso/a	affectionate
débil	weak
delgado/a	slim
deportista	sporty
divertido/a	funny
feo/a	ugly
fuerte	strong
gordo/a	fat
guapo/a	good-looking
hablador(a)	talkative
inteligente	intelligent
joven	young
perezoso/a	lazy
ruidoso/a	noisy
serio/a	serious
simpático/a	friendly
tonto/a	stupid
trabajador(a)	hard-working
tranquilo/a	relaxed
viejo/a	old

que...
than...

como-
as

él he
ella she
name e.g. Dani Ceballas
mi madre – My mum
mi padre – My dad
mi Hermano – My brother
mi hermana – My sister
mi primo – My cousin (m)
mi Prima My cousin (f)
mi abuelo – My grandad
mi Abuela – My grandma
mi tío – My uncle
mi tía – My aunty
mi mejor amigo – my best friend (m)
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ellos – they (m)
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mis primos – My cousins
mis padres – my parents
mis abuelos – my grandparents
mis tíos- my aunty and uncle
mis amigos – My friends



Questions

¿Cómo es..... (name)? What is... like?
¿Quién es más.....? Who is more...?
¿Quién es menos....? Who is less..?

Year 8 Spanish

Sub-Unit 2 knowledge organiser

Comparing people



Grammar

Adjective endings change depending on who we are talking about → If they end in O in the masculine form they follow the pattern below

	Masc.	Fem.	Masc. plural	Fem. plural
fun	divertido o	divertida a	divertido s	divertida s

If an adjective ends in an E we just add an S in the plural form

	Masc	Fem	Masc. plural	Fem. plural
intelligent	inteligente	inteligente	inteligentes	inteligentes

Generally adjectives which end in a consonant follow this pattern

	Masc	Fem	Masc. plural	Fem. plural
chatty	hablador	habladora a	hablador es	habladora s

Year 8 universals

y – and
pero – but
También – also
sin embargo – however

pienso que- I think that
creo que – I believe that
en mi opinión – in my opinion

es – it is
era – it was
será – it will be



aburrido - boring
divertido - fun
interesante - interesting
emocionante - exciting



con... with

- mis amigos – my friends
- mi familia – my family
- mi mejor amigo/a – my best friend
- mis padres – my parents
- mis hermanos – my brothers and sisters

Time phrases

A menudo
(often)

A veces
(sometimes)

Casi nunca
(almost never)

Cuando hace mal tiempo
(when the weather is good)

Dos veces a la semana
(twice a week)

Raramente
(rarely)

Todos los días
Every day

Juego (I play)

- al ajedrez – chess
- al baloncesto – basketball
- a las cartas – cards
- al fútbol – football
- al tenis – tennis

hago (I do)

- ciclismo - cycling
- la natación- swimming
- deporte – sport
- equitación – horseriding
- escalada – rock climbing
- esquí – skiing
- footing – jogging
- los deberes – my homework

Past tense

En el pasado – in the past
Cuando era pequeño/a – when I was little

solía jugar - I used to play
solía hacer – I used to do

Future tense

En el futuro – in the future
Cuando sea mayor– when I am older

me gustaría jugar – I would like to play
me gustaría hacer – I would like to do



Questions

¿ Qué deporte haces? What sport do you do?

¿ Cuándo haces _____? When do you do?

¿ Cuándo juegas _? When do you play?

¿Con qué frecuencia? How often?

¿Con quien ? Who with...

Grammar

- Infinitive verbs verbs in their base form
- In Spanish the verb endings change so we know who we are talking about

Hacer	To do
Hago	I do
Haces	You do
Hace	He/she does

Jugar	To play
Juego	I play
Juegas	You play
Juega	He/she plays

Year 8 Spanish

Sub-Unit 1 knowledge organiser

Free time

Days of the week

lunes - Monday
 martes- Tuesday
 miércoles - Wednesday
 jueves - Thursday
 viernes - Friday
 sábado- Saturday
 domingo - Sunday



Year 8 universals

Y – and
 Pero – but
 También – also
 Sin embargo – however

Pienso que- I think that
 Creo que – I believe that
 En mi opinión – in my opinion

es – it is
 era – it was
 será – it will be

aburrido - boring
 divertido - fun
 interesante - interesting
 emocionante - exciting





Year 8 Social Studies - Autumn Term

Crime

Key Words



Offender
Justice
Value
Influence
Community
Punishment
Retribution
Death Penalty
Atonement
Evil

Key Questions



- What is crime?
- Why do people commit crime?
- If you are a criminal are you a bad person?
- What are the punishments for crime?
- What influences people?
- What type of crime is the highest?
- What happens in my local area?
- How do I make decisions?
- How can I make sure I am safe?
- What is impact of crime?
- How does crime link to other negative behaviour?

Punishment in the UK

Types of Punishment:

- Prison Sentence
- Suspended Sentence
- Electronic Tag
- Fine
- Rehabilitation
- Curfew
- Community Service
- Compensation Order



Crime in the UK

Examples of high-profile criminal cases:

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



Aims of Punishment

Why do we Punish?

- Punishment for offenders
- To protect the public
- To change an offender's behaviour
- To make offenders do something to make up for their crime
- To reduce crime in the future



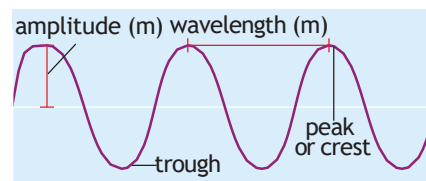
Whole Life Order

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.

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

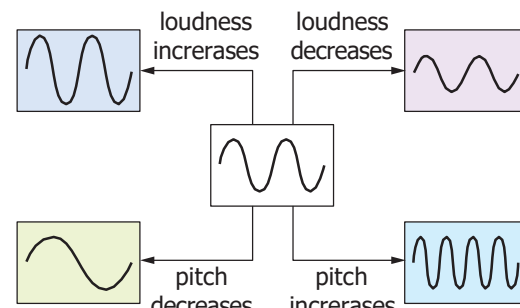
- Travel at 90° direction of energy transfer
- Do not need a medium to travel through

Longitudinal waves, e.g. sound

- Travel in the direction of energy transfer
- Need a medium to travel through

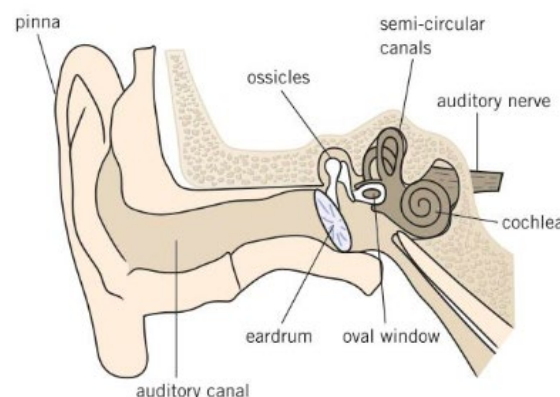
Sound waves

- 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**, these sound waves are too high pitched for humans to hear



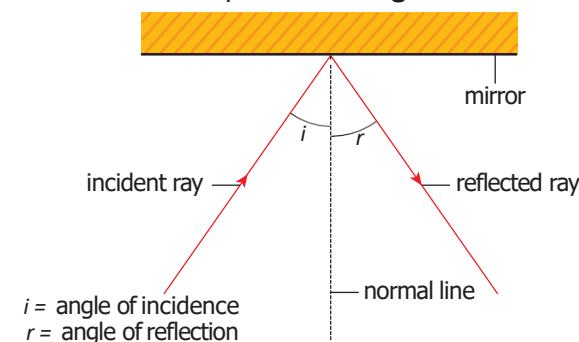
Hearing

- 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

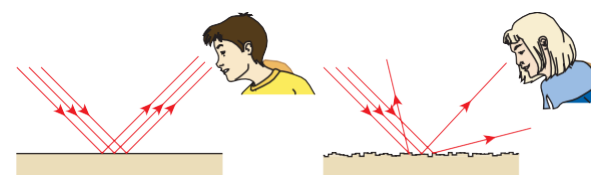


Reflection

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

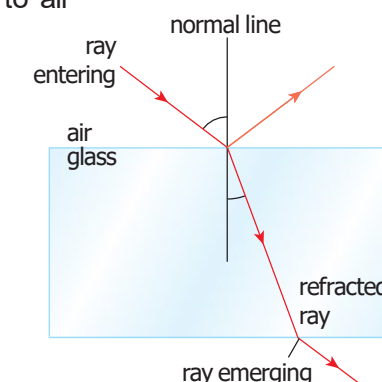


- For light reflecting off a smooth surface will form an image is called **specular reflection**
- Reflection off of a rough surface will not form an image and is known as **diffuse scattering**



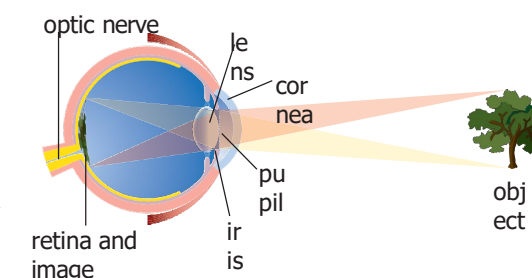
Refraction

- 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



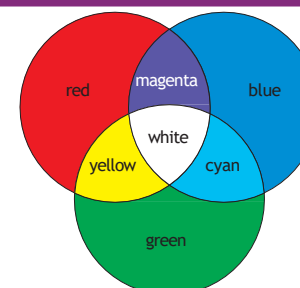
Light and the eye

- 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.



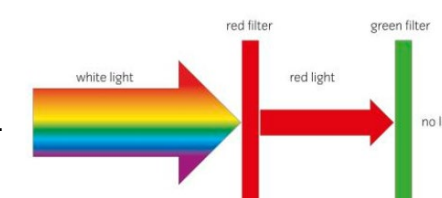
Colour

- 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

Bond energies

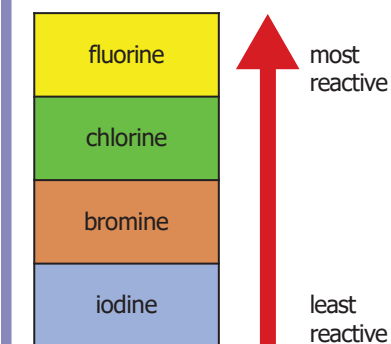
- Energy must be used to break **chemical bonds**, meaning that this reaction is endothermic
- Energy is given out when chemical bonds are made, meaning that this reaction is exothermic
- To see if a reaction is endothermic or exothermic, you must find the difference in the energy needed to break and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

1		2												group number					7	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

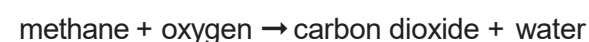
- Group 0** elements are known as the **noble gases**
- They are all non metals with low melting and boiling points, meaning all are gases at room temperature
- The boiling point decreases going down the group
- All of the group 0 elements are unreactive
- When electricity is passed through the gas,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

Halogens



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



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

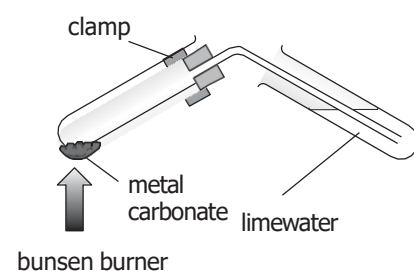


Thermal decomposition

- 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:



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



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

$$\text{lithium} + \text{water} \rightarrow \text{lithium hydroxide} + \text{hydrogen}$$

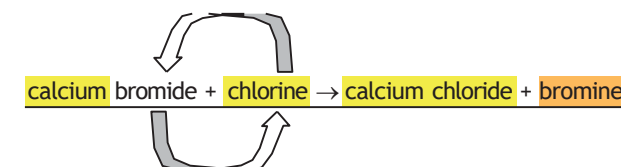
$$\text{metal} + \text{water} \rightarrow \text{metal hydroxide} + \text{hydrogen}$$
- The further down the group that the metal is, the more vigorous the reaction will be. This is called a **trend**
- Another trend seen in Group 1 is with the boiling and melting points: the further down the group, the 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:

$$\text{iron} + \text{chlorine} \rightarrow \text{iron chloride}$$

$$\text{iron} + \text{bromine} \rightarrow \text{iron bromide}$$
- 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

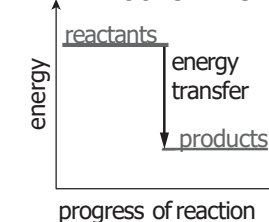


Energy level diagrams

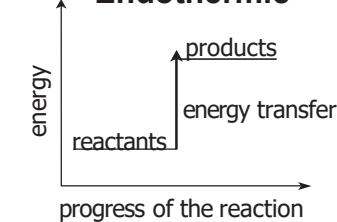
Energy level diagrams show the values of energy between the reactants and the products in a reaction

- 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

Exothermic



Endothermic



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

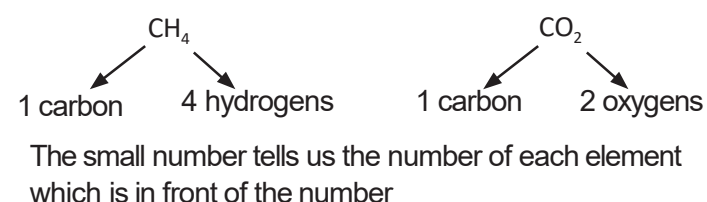
Elements and the periodic table

- An **element** is a substance that only contains one type of atom, it is found on the **Periodic Table**
- Each element has its 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 is 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 tell us how many atoms of each element are in the compound in relation to each other



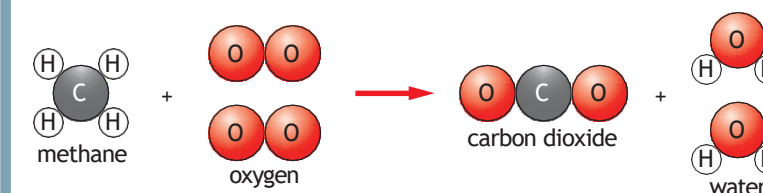
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1	2																			He
Li	Be																			Ne
Na	Mg																			Ar
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr			
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe			
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn			
Fr	Ra																			

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**:

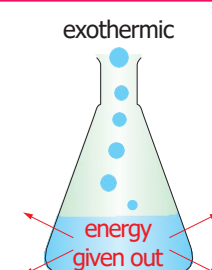


- The **reactants** are on the left side of the arrow and the **products** are on the right side of the arrow
- We use an arrow instead of an equals sign as it represents that the reactants are changing into a new substance
- In a reaction, the amount of each type of atom stays the same, however they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

Exothermic and endothermic reactions

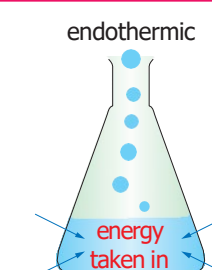
Exothermic reactions involve a transfer of energy from the reactants to the surroundings

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



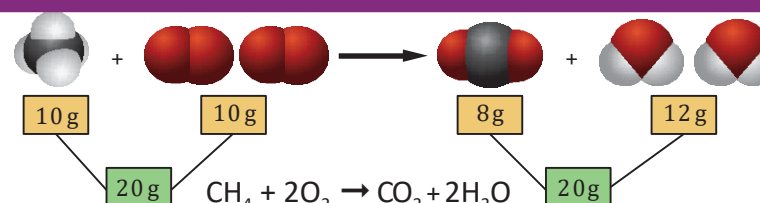
Endothermic reactions involve a transfer of energy from the surroundings to the reactants

- 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:

- Formulae of reactants and products.
- How the atoms are rearranged.
- 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**

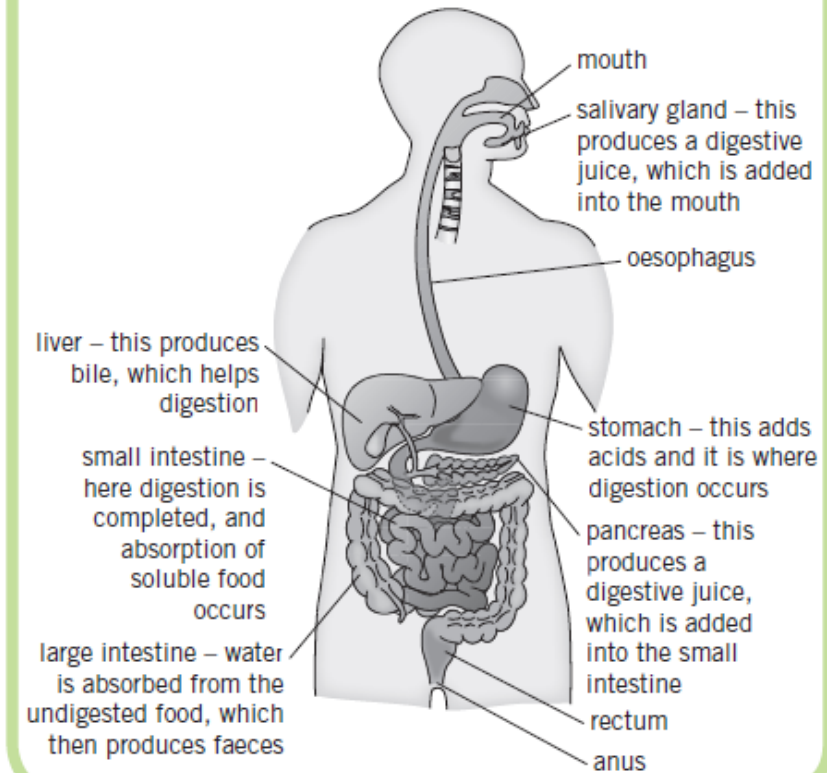
Nutrient	Role in your body
carbohydrates	main source of energy
lipids	fats and oils provide energy
proteins	growth and repair of cells and tissues
vitamins and minerals	essential in small amounts to keep you healthy
water	needed in all cells and body fluids
fibre	provides bulk to food to keep it moving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

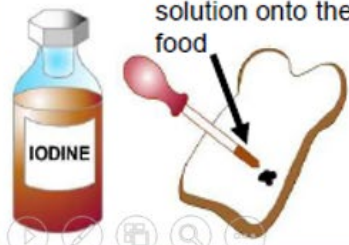
B3

Animal Nutrition
 Knowledge organiser

Food tests

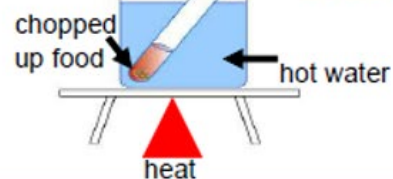
Starch Test

Drop iodine solution onto the food



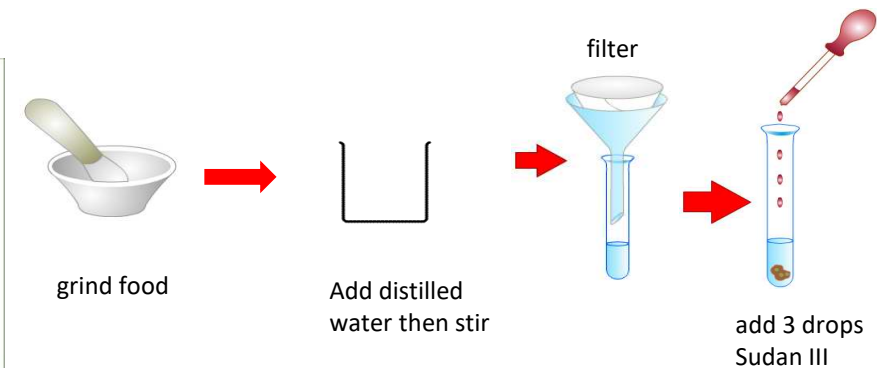
Mix Benedict's with food and boil.

Glucose Test



potassium hydroxide & Copper Sulfate

Protein Test



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.



2D Design, 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

Large Tool Set

- | | | | |
|-------------------|--|-------------------|--|
| Select (Spacebar) | | Make Component | |
| Paint Bucket (B) | | Eraser (E) | |
| Line (L) | | Freehand | |
| Rectangle (R) | | Rotated Rectangle | |
| Circle (C) | | Polygon | |
| Arc | | 2 Point Arc (A) | |
| 3 Point Arc | | Pie | |
| Move (M) | | Push/Pull (P) | |

Computer aided manufacturing machines

Laser cutter



3D printer



Accurate, can be used to make multiple copies

Input Components



Process Components



Output 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.

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

Solder



Soldering iron



Side cutters



Tenon saw



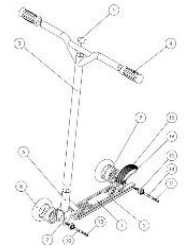
Printed circuit board. Electronically connect components using copper tracks.

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.

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.



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.

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 an example.

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

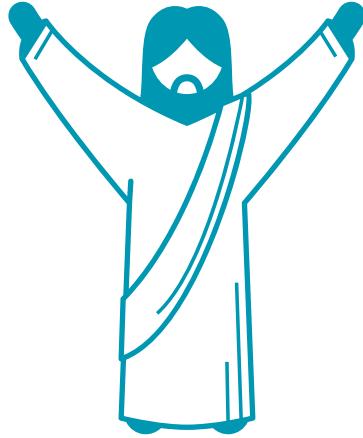


Year 8 Religious Education - Autumn Term

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*

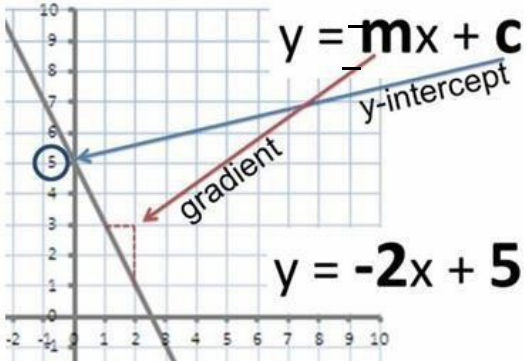
Matthew 7:12

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.

Topic	Key fact
Expanding single brackets	 $2(y - 3) = 2 \times y - 2 \times 3 = 2y - 6 \checkmark$
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.
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). 
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, multiply both numbers by 10, 100 or 1000. Do not put decimal back in.
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 (Keep the first, Flip the second and Change the sign to $\times$)
Sharing in a given ratio	Always find 1 part
Ratio problems	Set out in columns and put information below the appropriate column
Proportion	Direct proportion: as one quantity increases so does the other Inverse proportion: as one quantity increases the other decreases
Multi-step Angle Reasoning	Angles on a straight line add up to 180°. Angles in a triangle add up to 180°. Angles in a quadrilateral add up to 360°. Vertically opposite angles are equal. Angles around a point add up to 360°.

–

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

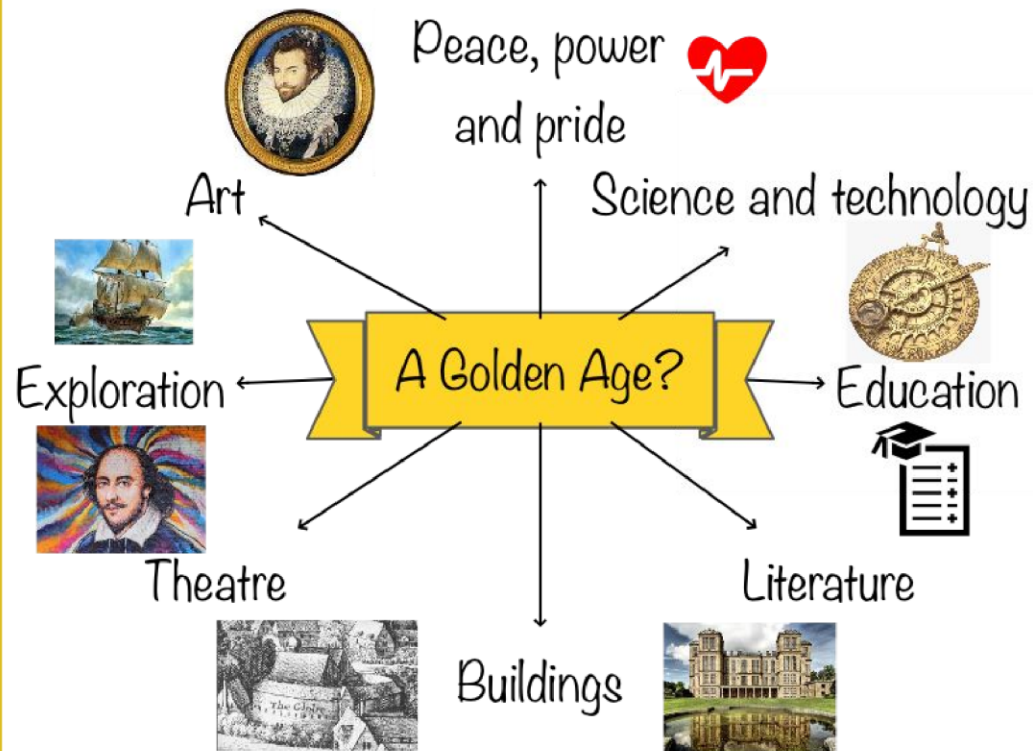
Linear Graph – straight line graph $y = mx + c$

Y-intercept – where the graph crosses the y axis

History Knowledge Organiser

Elizabethan England c.1568-1603 Life in Elizabethan times

A Golden Age?



Key individuals

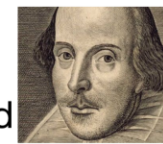


John Hawkins was a key figure at court. He was responsible for building up the Royal Navy. Was also involved in the slave trade and introduced tobacco



Sir Walter Raleigh very loyal to Elizabeth and a favourite. Attempted to establish a colony in North America. He was banished for 5 years (secret marriage)

William Shakespeare was the most celebrated playwright of all time with 38 plays. Wrote for the Lord Chamberlain's Men



Francis Drake was English hero but Spanish called pirate. Led defeat of the Was a privateer.



Key dates

1576	The Theatre was opened by James Burbage
1587	The Rose opened
1588	The Spanish Armada
1599	The Globe opened

Poverty

Not everyone in Elizabethan England benefited from the increased prosperity and trade. A growing population, bad harvests and enclosure created a very poor group at the bottom of society. The poor were categorised into; the deserving poor who could not help themselves, the undeserving poor who were untrustworthy and did not want honest work, the idle poor seen as lazy and the able poor. Beggars could be whipped, branded, have a hole burned in the ear or hung. Towns such as York, Ipswich and Norwich had their own ways to deal with the poor. The 1601 Poor Law taxed the wealthy to care and support the old, sick and vulnerable. The fit and healthy were to be given work. The idle could be whipped and placed in the house of correction.

Voyages of exploration

Several European countries were investigating the new world, bringing home treasures and claiming land. Drake circumnavigated the globe from 1577-80. He and his cousin John Hawkins made one of the first voyages to sell slaves. New technology such as the and astrolabe helped make this possible. Spain was often the target of the privateers 'sea dogs'



KEY VOCABULARY/TERMS

Tier 2 - significant, conclude, attitude, contrast, overall, furthermore, convincing, involve, feature, impact, previous, contribute, demonstrate, illustrate, participate, despite, hence, facilitate, nevertheless, globe, exploit, likewise.

Tier 3 - exploration, theatre, poverty, beggars, vagabond, Armada, privateers, circumnavigation, voyages, enclosure.

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.

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 Martin 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 VIII 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.

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 16 th 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.



Historical Interpretation

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

Historian – Professor Eamon Duffy

Historical Interpretation

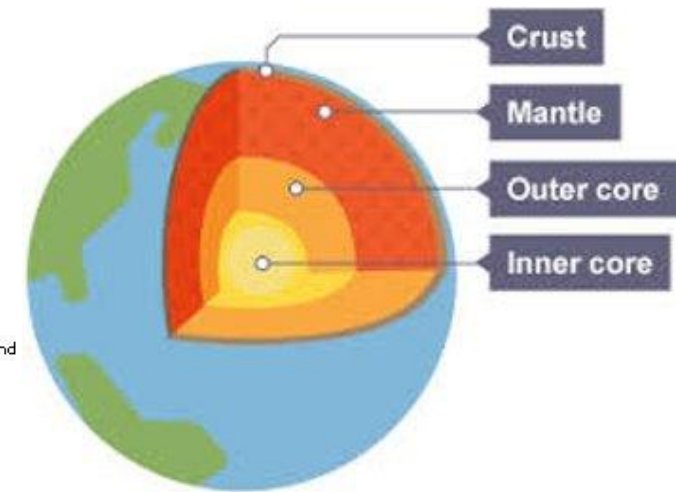
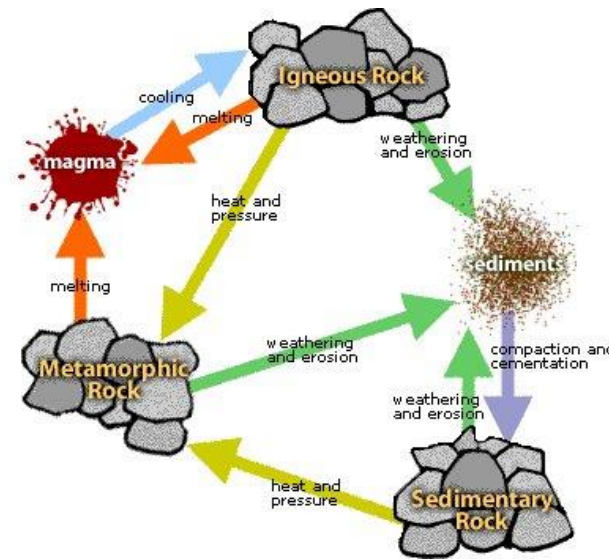
'The seeds of the Reformation were present before the king officially broke away from Rome. Many people desired change.'

Historian – Professor A. G. Dickens

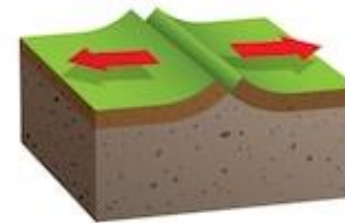


Year 8 Knowledge Organiser – Tectonics

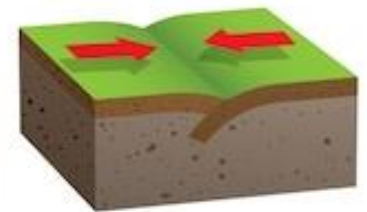
Key Word	Definition
Crust	The solid outer layer of the Earth.
Mantle	The semi-molten layer of the Earth that the crust 'floats' on.
Outer Core	The liquid layer of the Earth below the mantle.
Inner Core	The solid layer of the Earth at its very centre.
Tectonic Plates	The Earth's crust (and upper part of the mantle) are broken into large pieces called tectonic plates.
Plate Boundary	Where two tectonic plates meet. There are four types: constructive, destructive, collision and conservative.
The Rock Cycle	The processes that turn one type of rock into another over time.
Igneous	Rock that has been melted.
Sedimentary	Rock that has been eroded and compressed.
Metamorphic	Rock that has been heated and pressured.
Glacier	A large mass of ice often shaped like a river that flows very slowly, under the force of gravity.



Constructive



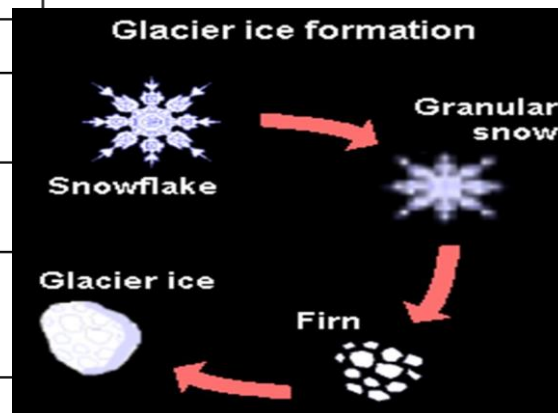
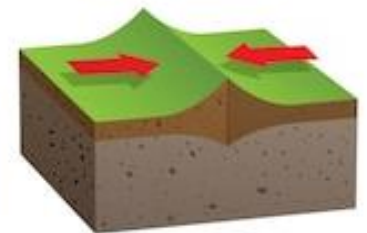
Destructive



Conservative



Collision

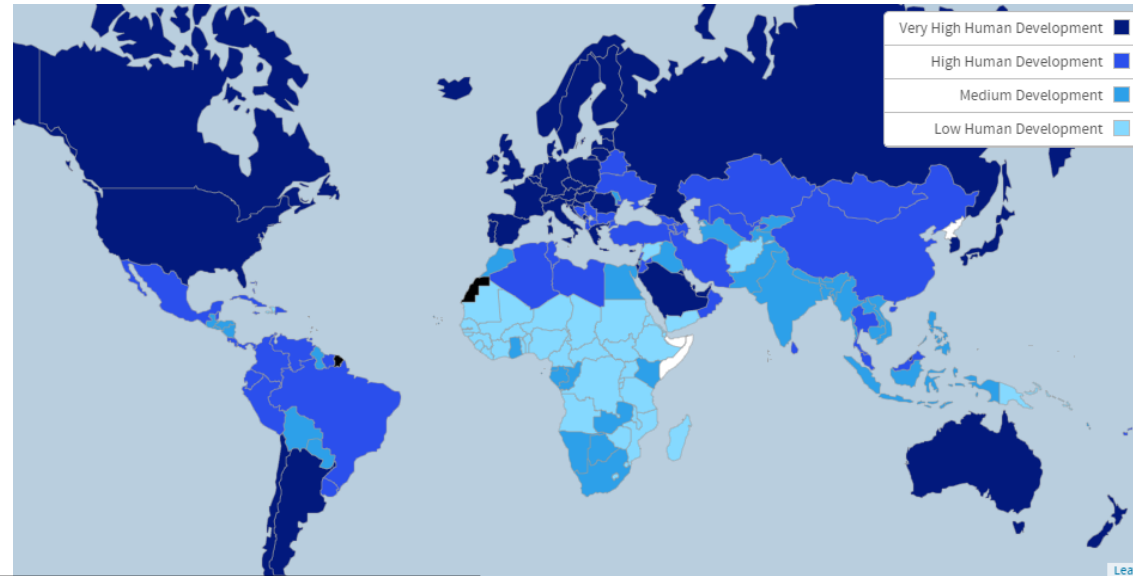


Year 8 Knowledge Organiser – Development

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

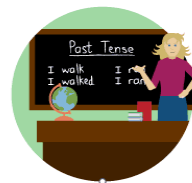
AC = Advanced Country

EDC = Emerging Developing Country

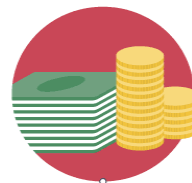
LIDC = Low Income Developing Country



Life expectancy



Education



GNI per capita

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

UNIT 16

Talking about my daily routine

Vers... <i>[around...]</i>		je me brosse les dents <i>[I brush my teeth]</i>	ensuite... <i>[then]</i>
A... <i>[at]</i>		je me coiffe <i>[I do my hair]</i>	
...cinq heures <i>[5]</i>		je me couche <i>[I go to bed]</i>	
...six heures <i>[6]</i>		je déjeune <i>[I have lunch]</i>	après... <i>[after]</i>
...sept heures <i>[7]</i>		je dîne <i>[I have dinner]</i>	
...huit heures cinq <i>[8.05]</i>		je fais mes devoirs <i>[I do my homework]</i>	 finalement... <i>[finally]</i>
...huit heures dix <i>[8.10]</i>	du matin <i>[in the morning]</i>	je m'habille <i>[I get dressed]</i>	
...huit heures et quart <i>[8.15]</i>		je joue sur l'ordinateur <i>[I play on the computer]</i>	
...huit heures vingt <i>[8.20]</i>		je me lève <i>[I get up]</i>	
... huit heures vingt-cinq <i>[8.25]</i>	de l'après-midi <i>[in the afternoon]</i>	je prends le petit-déjeuner <i>[I have breakfast]</i>	
... huit heures et demie <i>[8.30]</i>		je regarde la télé <i>[I watch telly]</i>	
...neuf heures moins vingt-cinq <i>[8.35]</i>		je rentre à la maison <i>[I go back home]</i>	
...neuf heures moins vingt <i>[8.40]</i>	du soir <i>[in the evening]</i>	je me repose <i>[I rest]</i>	
...neuf heures moins le quart <i>[8.45]</i>		je sors de chez moi <i>[I leave my house]</i>	
...neuf heures moins dix <i>[8.50]</i>		je vais au collège en bus <i>[I go to school by bus]</i>	
... neuf heures moins cinq <i>[8.55]</i>			
A midi <i>[12 pm]</i>			
A minuit <i>[12 am]</i>			

Unit 15

Talking about weather and free time

Quand j'ai le temps <i>[when I have time]</i> Quand le ciel est dégagé <i>[when the sky is clear]</i> Quand il y a des nuages <i>[when it is cloudy]</i>	je joue <i>[I play]</i> mon amie Marie joue <i>[my friend Marie plays]</i>	au basket <i>[basketball]</i> au foot <i>[football]</i> au tennis <i>[tennis]</i> aux cartes <i>[cards]</i> aux échecs <i>[chess]</i> avec mes amis <i>[with my friends]</i> avec ses amis <i>[with her friends]</i>
Quand il fait beau <i>[when the weather is good]</i> Quand il fait mauvais <i>[when the weather is bad]</i> Quand il fait chaud <i>[when it is hot]</i> Quand il fait froid <i>[when it is cold]</i>	je fais <i>[I do]</i> mon ami Lionel fait <i>[my friend Lionel does]</i>	du footing <i>[jogging]</i> du ski <i>[skiing]</i> du sport <i>[sport]</i> du vélo <i>[cycling]</i> de l'équitation <i>[horse riding]</i> de l'escalade <i>[rock climbing]</i> de la natation <i>[swimming]</i> de la randonnée <i>[hiking]</i> mes/ses devoirs <i>[my/his homework]</i>
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UNIT 14

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

je joue <i>[I play]</i>	au basket <i>[basketball]</i> au foot <i>[football]</i> au tennis <i>[tennis]</i> aux cartes <i>[cards]</i> aux échecs <i>[chess]</i> avec des amis <i>[with some friends]</i>	de temps en temps <i>[from time to time]</i> deux fois par semaine <i>[twice a week]</i> pendant le week-end <i>[during the weekend]</i> tous les jours <i>[every day]</i> tous les samedis <i>[every Saturday]</i> tous les soirs <i>[every evening]</i> tous les week-ends <i>[every weekend]</i> une fois par mois <i>[once a month]</i>
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UNIT 16

Talking about my daily routine

Vers... <i>[around...]</i>		je me brosse les dents <i>[I brush my teeth]</i>	ensuite... <i>[then]</i>
A... <i>[at]</i>		je me coiffe <i>[I do my hair]</i>	
...cinq heures <i>[5]</i>		je me couche <i>[I go to bed]</i>	
...six heures <i>[6]</i>		je déjeune <i>[I have lunch]</i>	après... <i>[after]</i>
...sept heures <i>[7]</i>		je dîne <i>[I have dinner]</i>	
...huit heures cinq <i>[8.05]</i>		je fais mes devoirs <i>[I do my homework]</i>	 finalement... <i>[finally]</i>
...huit heures dix <i>[8.10]</i>	du matin <i>[in the morning]</i>	je m'habille <i>[I get dressed]</i>	
...huit heures et quart <i>[8.15]</i>		je joue sur l'ordinateur <i>[I play on the computer]</i>	
...huit heures vingt <i>[8.20]</i>		je me lève <i>[I get up]</i>	
... huit heures vingt-cinq <i>[8.25]</i>	de l'après-midi <i>[in the afternoon]</i>	je prends le petit-déjeuner <i>[I have breakfast]</i>	
... huit heures et demie <i>[8.30]</i>		je regarde la télé <i>[I watch telly]</i>	
...neuf heures moins vingt-cinq <i>[8.35]</i>		je rentre à la maison <i>[I go back home]</i>	
...neuf heures moins vingt <i>[8.40]</i>	du soir <i>[in the evening]</i>	je me repose <i>[I rest]</i>	
...neuf heures moins le quart <i>[8.45]</i>		je sors de chez moi <i>[I leave my house]</i>	
...neuf heures moins dix <i>[8.50]</i>		je vais au collège en bus <i>[I go to school by bus]</i>	
... neuf heures moins cinq <i>[8.55]</i>			
A midi <i>[12 pm]</i>			
A minuit <i>[12 am]</i>			

Unit 15

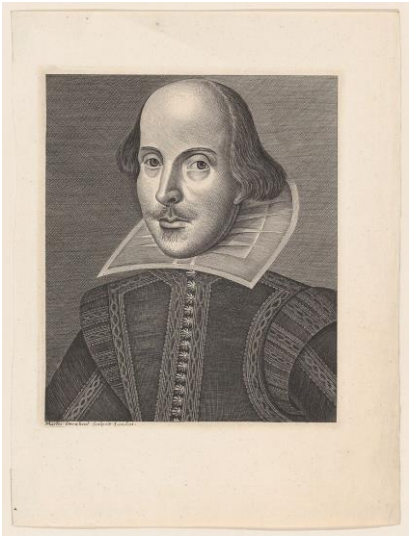
Talking about weather and free time

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UNIT 14

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

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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

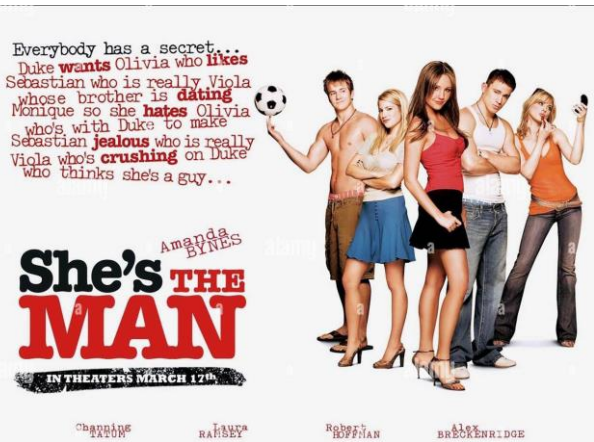
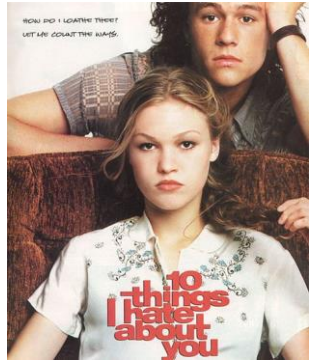
Hubris – a character's huge amount of pride or self-confidence

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.

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.

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

Shakespearean Structure

Iambic Pentameter	A form of meter where the lines consist of five pairs of syllables. 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.

Key Terms

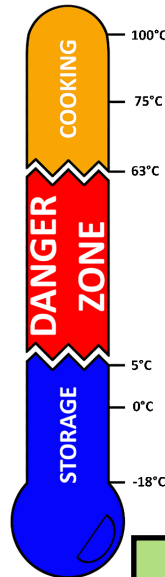
Regicide	The murder of the king or monarch
Foil	A character who contrasts with another, to highlight their qualities
Renaissance	The period of time when Shakespeare wrote his plays and sonnets.
Soliloquy	The act of speaking one's thoughts aloud when by oneself or regardless of any hearers, especially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

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 *macronutrients*.

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 *macronutrients*.

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

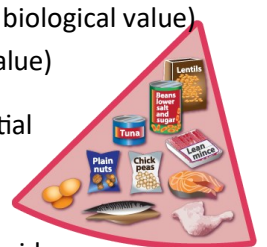
2 main types = **HBV** (high biological value) and **LBV** (low biological value)

HBV = contain all 9 essential amino acids;

LBV = contain some but not all 9 essential amino acids

<https://www.youtube.com/watch?v=61Lelea02ao>

<https://www.youtube.com/watch?v=KSKPgaSGSYA>



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

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=7MIE4G8ntss>

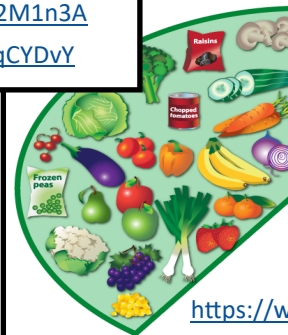
<https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/>

<https://www.youtube.com/watch?v=8aWqZd9RScQ>

vitamins

and **minerals** are *micronutrients*.

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>

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

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

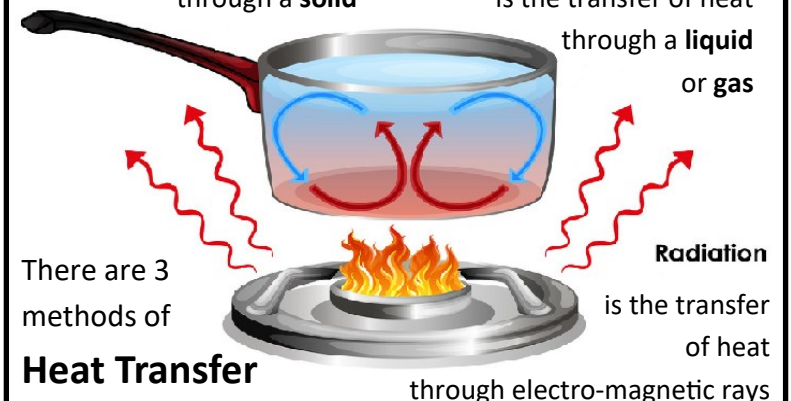
There are 3 methods of

Heat Transfer

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

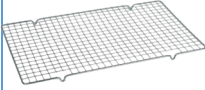


<https://www.youtube.com/watch?v=fiFi-d0RwKo>



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: pasta bake, Bolognese, pizza wheels, fajitas, chana palak masala, Dutch apple cake, cheese and onion pasties, Spanish omelette

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**.

PREVENT CROSS CONTAMINATION

USE CORRECT COLOUR CODED CHOPPING BOARDS & KNIVES

RAW MEAT

RAW FISH

COOKED MEATS

SALAD & FRUITS

VEGETABLES

DAIRY PRODUCTS



Computing Knowledge Organiser - Understanding Computers

Elements of a Computer

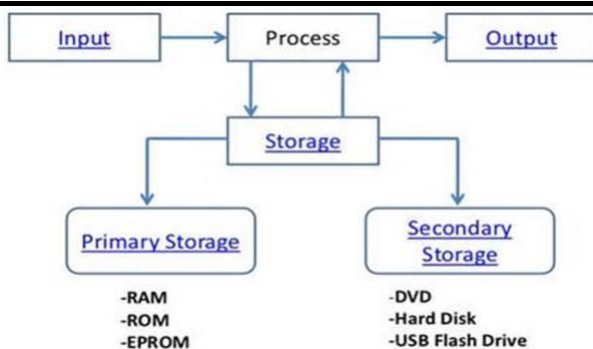
Hardware: objects you can touch. E.g. monitors, keyboards, printers, motherboard, CPU chip

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.

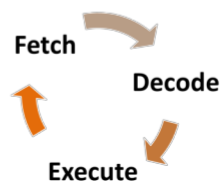
Storage: a device used to permanently record or store data. E.g. CD, hard drive.



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 carried each second

1 Kilohertz (KHz) = 1024 cycles per second

1 Megahertz (MHz) = 1,048,576 cycles per second

Gigahertz (GHz) = 1,073,741,824 cycles per second

(Approximately 1 billion!)

Processor Speed

One cycle per second = 1 Hertz (Hz) = 1 instruction carried each second

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(Approximately 1 billion!)

RAM vs ROM

RAM—random access memory

ROM—read only memory

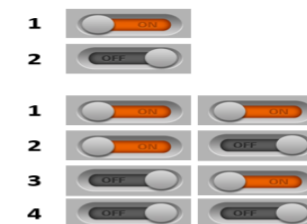
Understanding Binary

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

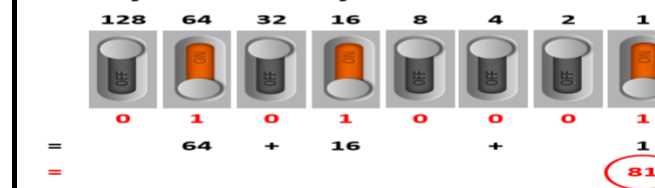
On is represented by 1 and Off is represented by 0

Binary representation

- One switch can only represent 2 possible states
– On or Off.
- Two switches can represent 4 states
– On & On
– On & Off
– Off & On
– Off & Off



Binary to Denary Conversion



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 (Binary Digit)

8 Bits = 1 Byte

1024 Bytes = 1 Kilobyte (Kb)

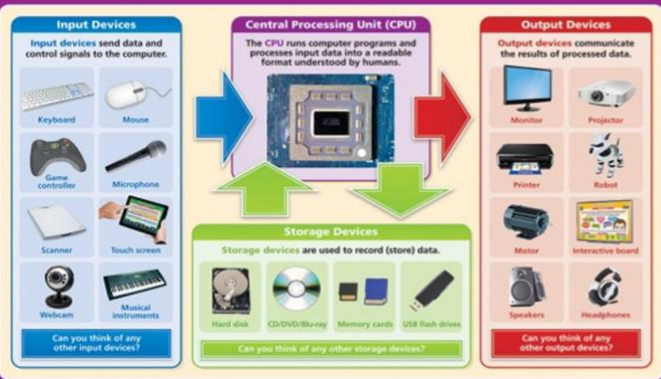
1024 Kb = 1 Megabyte (Mb)

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

INPUT, OUTPUT AND STORAGE



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

$$\begin{array}{r}
 11 \\
 1110 \\
 + 1100 \\
 \hline
 = 11010
 \end{array}$$

Carry Bit Rule 5 Rule 4 Rule 2 or 3 Rule 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.

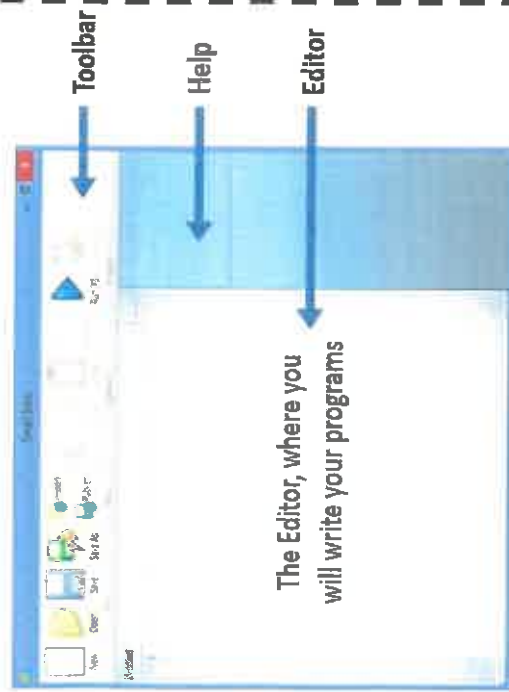
Key vocabulary: hardware, software, input, output, process, storage, memory, RAM, ROM, motherboard, CPU, fetch, decode, execute, graphics card, hard disk, data bus, binary, bit, byte, Kb, Mb, Gb, decimal, denary, integer, switch, optical media, CD-ROM, DVD, CD-R, CD RW, Blu-Ray, pits, lands, burn, read, 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 won't 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`

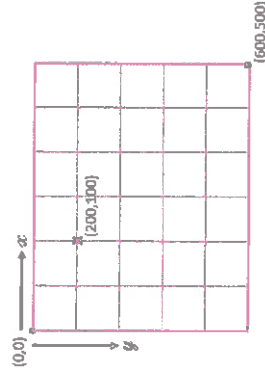
'make turtle face right

`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.WriteLine("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(" (c) Sussex")
TextWindow.WriteLine("Enter a, b or c ")
Answer = TextWindow.ReadLine()
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 PowerPoint 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?

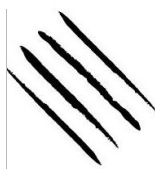


Monochromatic means varying tones of ONE colour from light to dark.

Complementary colours are opposite each other on the colour wheel.



meeting place



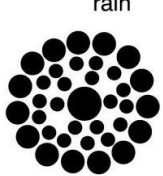
rain



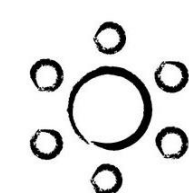
camp



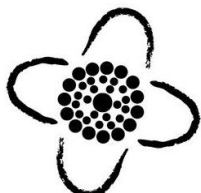
human



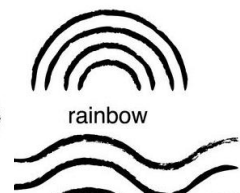
campfire



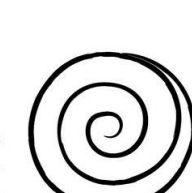
star



sitting



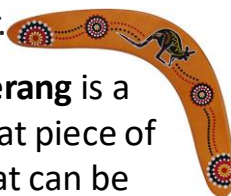
rainbow



smoke

waterhole

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.



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.



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

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

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.