

Bottisham Village College

KNOWLEDGE ORGANISER YEAR 7 TERM 1



KNOWLEDGE ORGANISERS

At Bottisham Village College, we are striving to create a five-year curriculum plan that builds effective revision strategies into homework and lessons, to ensure that students are able to place powerful knowledge into their long-term memories. Additionally, we hope that this will help build effective learning strategies from early in their time here at the college.

Based on evidence, we know that regular recall activities are the best way of achieving this goal and committing powerful knowledge into the students' memories.

At the start of each term, we shall publish all the knowledge organisers that students will require for their studies in each curriculum area. These will cover a range of aspects: facts, dates, characters, quotes, precise definitions and important vocabulary. We are clear: if this fundamental knowledge is secured, students can then develop their higher-level skills of analysis and critical understanding with greater depth.

They will be given an electronic A4 Knowledge Organiser (KO) booklet for each term containing all of the knowledge required. In lessons, Bottisham staff will be regularly testing this fundamental knowledge, using short-quizzes or even more formal "Faculty Knowledge Tests".

The best way to use these organisers at home, is to follow a simple mantra:



 Look at a certain aspects of a particular knowledge organiser
 Cover up part of their knowledge organiser
 Write it out from memory
 Check and correct any spelling mistakes,

missing bits or mistakes

So simple but so effective.

Fantasy Heads

You will learn how to successfully draw Fantasy Heads by using a smart start approach

How to learn how to draw what you see. There are many approaches about how to start a drawing and here is one for you to START SMART 1. Break you image down into its most simplistic shapes KEY WORDS: Observation, Simplistic shapes, Proportion, Angles, Curves, Sketching, Placement.



You will learn how to create a double page of research that creatively combines pictures, notes and sketches



Year 7 Knowledge Organiser: term 1

You will learn about the mechanics of shading and apply this learning to some design work







You will learn how to use clay to construct a three dimensional fantasy head.







Key words Hollow Smooth and compress. Score and slip Modelling



Depending on which Technology rotation students are on, they may be working in Computing, D&T or Food Technology

Computing

Yr 7 Knowledge <u>Organiser</u>

Unit Topics:

Social Media Use How computers work Programming

Digital Literacy

ICT Legislation:

Computer Misuse Act. (1998) Data Protection Act. (2018) ICT Health and Safety Act. (1974) Copyright and Patents Act. (1988)

Password Management:

Between 5 - 12 characters. A mixture of letters, numbers and symbols. Memorable but not obvious.

File Management:

Save as - saving for the first time so you can choose a name and location. Save - updating an already saved file.

Networks:

A network is a collection of computers connected digitally. There are different types of networks

including Local Area Networks, Wide Area Networks and the Internet.





Input devices - put information into the computer. For example a keyboard, microphone or mouse. Output devices - allow the user to get data out of a computer (printed, seen, heard, watched). For example a screen, printer or headphones. Algorithm - an algorithm is a step by step

procedure to solve logical problems.

Binary Code - a number system in which there are only two possible states, off and on, symbolized by 0 and 1.



Programs use: GoogleSlides, GoogleDocs Microsoft Office Small Basic **Crocodile Clips**

E-safety

Target Audience - the audience which a product is aimed at.

Age Restriction - an age limit in place to help protect users from seeing inappropriate content. Online Reputation - the image of yourself which is created through the things you do online.

Privacy Settings - the settings which can be applied so that you choose who sees your content. False accounts - social media accounts create to scam people.

Fake News - content which has been manipulated or incorrectly reported.



Need help? Search for: Childline, internetmatters, ceop or thinkuknow for information and advice.

COMPUTING

Key Vocabulary:

Action – The movements that a dancer does.

Space – Where the dancer is or is travelling to.

Dynamic – How the dancer performs a movement.

Relationship – The way in which dancers interact.

Warm Up – A way of preparing for physical exertion or a performance by exercising gently beforehand.

Cool Down – A slow and gradual decrease in the effort exerted through exercise.

Stimulus – An inspiration or a starting point. **Choreographic Intent** - What the choreographer wants the dance to show.

Warm Ups

- 1. Pulse raiser
- 2. Joint mobility
- 3. Stretching

We do warm ups to ...

- Raise body temperature to loosen joints and muscles
- Prepares mind for exercise
- Reduces likelihood of injury

Introduction to Dance





DANCE



a the body until toxic level are encommutation of something of things which have been collecquired over a period of time. C opene sort of science, but an accur





5

Choreography:

Relationships:

<u>Canon</u>: Starting a sequence one after the other. <u>Mirroring</u>: Doing the same thing on the opposite side to a partner to create a mirror image

Space:

<u>Direction:</u> Where you face and travel towards <u>Levels:</u> Distance from the ground:_High, medium, low

<u>Formations</u>: The order and shape your group stands in the space.

Thriller!

Key Terms

<u>Pirouette</u>: an act of spinning on one foot, typically with the raised foot touching the knee of the supporting leg.

<u>Projection</u>: The energy the dancer uses to connect with and draw in the audience

<u>Musicality:</u> The ability to make the unique qualities of the accompaniment evident in the performance

Direct Correlation: movement closely matches the music's beat,

Performance Environment: Dance for Camera

Technical, Expressive, Mental & Physical Skills

T- Accuracy of dynamic content E- Facial expressions, Projection, Musicality M- Planning of rehearsal

Dynamic Descriptors: Rigid Stiff Laboured Jerky Heavy Lifeless

DANCE



Facial Expressions:

Wide eyes, vacant expression, scowl, mouth hanging open, staring, scrunched up face

Helpful videos:

Original Thriller Music video: https://www.youtube.com/watch?v=sOnqjkJTMaA Example of adapted Thriller dance: https://www.youtube.com/watch?v=55h-XfjNO24

Physical Theatre

Key Vocabulary

Physical Theatre – theatre in which physical movement is important prominent.

Naturalistic – representing events, situations or feelings rather than acting them out in a realistic manner.

Abstract – a style of theatre that is true to life.

Proxemics – How close to or far away things and people are from each other on stage.

Stylised – movement in a mannered and non-realistic style.

Verbatim - the exact words spoken by people interviewed about a particular event or topic.





Rules of Lifting

1. Lift with your knees not with your back.

2. NOBODY lifts until EVERYONE is ready.

3. Always put people down feet first.

4. Listen to the person being lifted.If they want to come down, bring them down safely and immediately.5. Counting. 1 prepare, 2 bend, 3 lift.



Key Practitioner - Frantic Assembly

https://www.youtube.com/watch?v=H_M7t-kdVLw https://www.youtube.com/watch?v=nLrabSNRHhg https://www.youtube.com/watch?v=Af7lbwW8cFY

3 Stages of Devising

- Creation of Ideas
- Selection
- Refinement



Depending on which Technology rotation students are on, they may be working in Computing, D&T or Food Technology

What you will learn

- Workshop and tool safety
- · How to measure and mark out materials
- How to cut wood and polymers
- How to assemble parts and join materials
- How to read and draw simple plans (Orthographic Drawing)
- How to draw three dimensional objects and add shade, colour and annotation. (Isometric Drawing)
- The design process and key designers.

Designer—Dieter Rams Company—Braun







Designer—William Morris Meaning **Key Term** Face Side – Face Edge Markings to show which way round you started to mark out your wood. **Steel Ruler** For measuring in millimetres (mm). For drawing 90 degree angles. **Try-square or Carpenters Square** Waste Wood The wood not needed (Marked with XXX's). **Scroll Saw** For cutting curves in thin plywood. **Pedestal Drill** For drilling holes. **Disc Sander** For sanding down to the line. **Tenon Saw** For cutting straight lines. **Bench Hook** Used to hold the wood on the bench. **G** Clamp Used to hold wood in place on the bench hook. Used to hold the bench hook and the wood Vice when sawing the ends.

Year 7 Knowledge organizer Design and Technology 'Out of the Box' Project

1: JOINING METHODS

Permanent:	Temporary:		
When we do not want to take the	When we will, or		
pieces apart again Glues, welding,	pieces apart again Screws, bolts, nails		
rivets Wood joints can b temporary depending	be either permanent of gon the type and if glue is used.		
Lap Joint Mor Tenc Joint	tise + Dovetail on Joint t		
2. Scales of Production One off: when you make a unique item Batch: when you make a few/set amount	3. Scales of Measurement: mm = millimetre cm = centimetre m = metre		
Mass: when you make thousands <u>Continuous</u> : open ended production	1 cm = 10mm 1 m = 100cm or 1000mm		

4.1 Woods:		
Hardwoods:	Softwoods:	
Beech	Scots Pine	
Oak	Cedar	
Ash	Spruce	

4.2 Engineered Boards

Engineered boards are manmade materials usually made by mixing wood chips and glues to make wooden sheets. Examples: Medium Density Fibreboard (MDF) Chipboard, Plywood and Hardboard

4.3 Plastics

Plastics are made o mostly refined from categ	f <i>polymers</i> , and are oil. There are 2 main ories:
Thermoplastics	Thermosetting plastics
Acrylic	Urea Formaldehyde
Polypropylene (PP)	Melamine Formaldehyde
High Impact Polystyrene (HIPS)	Epoxy Resin

4.4 Metals

Metals are hard and usually shiny, containing one or more elements dug and Refined from the ground

Ferrous metals are any No metal that contains no iron and will rust

Non-Ferrous metals do not contain iron and will not rust



B: SUIRIFACE FINISHIES

Finishing is usually one of the last stages of making a project. It will usually involve sanding and applying a surface coating to protect your material and make it look better. <u>Some examples:</u>

Paint, Varnish, Oil, Wax, Polish & Dip Coating. Electroplating = coating one metal with another.

Key Word Focus

CAD	Computer Aided Design
CAM	Computer Aided Manufacture
Materials	Pewter, Medium Density
Tolerance	Allowable amount of variation of a specific quantity
Alloy	A mix of 2 or more metals

You should be able to explain the meaning of each of these words by the end of this rotation.

Year 7 - Knowledge Organiser – My Swordhand is Singing and the Gothic genre							Key vocabulary							
My Swordhand is Singing is a modern 'Gothic' novel. Definition of 'Gothic' writing: "Tales of the macabre, fantastic, and supernatural, usually set amid haunted or isolated landscapes."								Abstruse Afflicted Alienate	Forbidding Grotesque Honeless					
Туріса	al 'Gothic' g	enre featur	es:	Typical 'Gothic' characters: Key characters in MSIS:						Anguish	Lamentable			
1. Death and	darkness			1. Mysterious characters with high social status e.g. Princes, counts Peter - son of Tc he's moved arou				Tomas. His ound for m	mother died v ost of his life.	vhen he was y	ounger and	Apprehensions Beguile	Mournfully Obscured	
2. Supernatur	ral (magic, gho	sts, vampires,	curses)	2. Female or femi hreatened by po	Female or feminine characters that are reatened by powerful men Tomas – father of Peter. His wife died when his son was a baby. He drinks a lot and hides dark secrets from his son. Clauble of the comparison of the compari					Decomposing Despair	Superstition Sinister			
3. Curses or p	rophecies			3. Threatening wo vampires	omen who are	monsters or	ers or Agnes – lives in Chust and has her eye on Peter, even though he's "just a woodcutter's son".				Dilapidated Discomfort Disfigured	Torturous Unleashed Vengeful		
4. Madness ar	4. Madness and intense emotions/paranoia		ia '	4. Powerful, tyrannical male figures			Sofia – a gypsy who moves around with her family. A bold and confident young lady.			Enigma Entrapment	Withered Wretched			
5. Mystery, te	error and susp	ense		5. Villains, vampires, ghosts, werewolves, g			The Shadow Queen. Rumoured to cause all kinds of problems in Chust. Some say she brings back people from the dead and you must protect your home from her. Is she real?					Еттру		
	Social and Historical Context Values and ideas held by gothic writers					Key t	echniques							
 The story takes place in the 17th Century. The story is set in Chust, which is in Eastern Europe. In Eastern Europe in the 17th Century people were very superstitious. 				•	 Gothic writers are preoccupied with the supernatural. They believed that nature is 'sublime': it has the power to simultaneously inspire awe and terror in people. 			Narrative voice Narrative arc						
particularly with a strong belief in vampires.Folklore (traditional stories and myths passed down through generations)					•	 They explored the role of the female characters: often in gothic texts, there are powerful female roles, which contrasted the 				Plot structure Tension				
was cor • Chust is	affected people's lives and fear, particularly in winter, of supernatural beings was common. Chust is a real place in Ukraine: it is now a city, but it was more isolated in the					Pathetic fallacy Alliteration								
 17th Cel St Andr marked 	 17th Century. St Andrew's Eve is a real event (it takes place on the 29th November) and is still Big question: why is a genre that is so frightening is so nonular? 						Fore	eshadowing magery						
and sup	and superstitions.								Simile Ietaphor					
	Further reading. Notable Gothic texts (in chronological order)							Mood						
The Castle of Otranto –	Vathek – William	Frankenstei n – Mary	The Hunchback of Notre Dame	The Raven – Edgar Allen	Wuthering Heights –	The Strange of Dr Jekyll a	e Case and Mr	The Picture of Dracula – Rebecca – The Woman The Night			e The Picture of Dracula – Rebecca – The Woman The Night Ar Dorian Gray, Bram Du Maurier, in Black – Circus - Frin		Pers	sonification
Horace Walpole, 1765	Beckford, 1786	Shelley, 1818	– Victor Hugo, 1831	Poe, 1845	Emily Bronte, 1847	Hyde – R.L. Stevenson, 1	-R.L. Oscar Wilde, Stoker, 1931 Susan Hill, Morgenstern nson, 1887 1890 1897 1983 2011				At Pat	mosphere netic fallacy		

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Recipes to learn:

- Fruit crumble
- Bread
- Bolognaise
- Omelette
- Cookies
- Rock cakes
- Tomato, bean and pasta soup
- Potato salad
- Pineapple upside-down cake
- Muffins

B NUTRITION

FOOD

Other topics to learn:

Nutrition and healthy eating – which foods are part of a healthy diet and to know why.

Food miles – what are food miles, what is your carbon footprint and what can we do to reduce these.

Vegetarianism and special diets – what are the medical, environmental, ethical and religious reasons to reduce eating meat. What does lactose intolerant and coeliac mean?

Skills to learn

- Chopping safely using the 'bridge and claw'
- How to 'rub in' butter and flour Kneading
- Mixing
- Whisking
- Frying





Scientific processes to learn

- Respiration yeast and bacteria break down sugars and carbohydrates
- Dextrinisation starch turns brown in dry heat
- Denaturation proteins change their structure when heated, whisked or mixed with acid
- Coagulation proteins set when heated
- Aerating adding air to a mixture to help it rise
- Caramelisation sugar turns brown

CONVECTION

where heat is transferred through a fluid (liquid or gas), such as water, steam, oil and air

when a pan of water of placed on the cooker, the pan heats through conduction, the water them moves around the pan in a 'convection current', and transfers the heat to the food



deep frying is similar to this

when baking, the air is heated and travels around the oven, transferring the heat to the food

GEOGRAPHY YEAR 7: THE UK

Key term	Definition
Continent	A land mass that covers a large area of the Earth's surface e.g. Africa
Country	A political area surrounded by a border e.g. France
Human geography	The study of people, their societies and the ways in which they interact with the world around them
Physical geography	The study of the natural features of the earth
Weather	The conditions of the atmosphere over a short period of time
Climate	The average weather conditions over relatively long periods of time
Migration	The process of moving from one place to live in another place

Key idea 1: Maps help us to understand a location



Maps can be used to show the location of a place in relation to other major features, such as the continents, oceans and lines of latitude on a world map.

At a smaller scale, Ordnance Survey (OS) maps are used to give a detailed description of an area. They include a huge amount of information including height, scale, grid references and both human and physical features. They are incredibly useful to geographers.

OS map symbols are used to represent key places on a map. There are a huge number of them, but the following are key ones to learn.



Height can be shown on a map in 3 ways: contour lines, spot heights and triangulation points

Grid lines are used to create grid references, which are then used to communicate precise locations on maps.



Migration	is influenced by push and pull factors.
Push	Something making you want to leave a country. E.g. war, famine, no jobs, political danger, unpleasant climate.
Pull	Something attracting you to a new place. E.g. Pleasant climate, job opportunities, better living conditions, proximity to heath care facilities, education, family and friends.

of immigrants coming the UK now include gees (those fleeing danger), im seekers (those seeking v in another country) and omic migrants (those ng for work reasons).

GEOGRAPHY

Human features

Cities, transport, population,

resources

Key idea 3: The human geography of the UK has changed over time

People have been moving in and out of the UK for many thousands of years. The earliest migrants to the UK were settlers and invaders. In more recent history, due to world politics and increased levels of transportation and interconnectivity, migration has taken place for

Medieval England: an overview

- Kings held the most power, but relied upon their <u>earls</u> and <u>barons</u> to help run the country.
- Nearly everyone in England was a Christian, and the <u>Church</u> therefore held a lot of power.
- England was an agricultural nation, which meant that the vast majority of people lived in villages and worked on farms: keeping animals and crops.

Key people

- Edward the Confessor: King of England who died in 1066, leaving no <u>heir</u>.
- Harold Godwinson: a Saxon <u>earl</u> who replaced Edward the Confessor as king in 1066.
- Harald Hardrada: Viking King of Norway who tried to take the English crown by force in 1066
- William the Conqueror: Norman, invaded England in 1066, killed Harold, became king.
- King Henry II: King of England (1154-1189) who badly argued with Thomas Beckett in 1170.
- Thomas Beckett: <u>Archbishop</u> of Canterbury, originally one of King Henry II's friends but became an enemy after becoming religious.

HISTORY

• **King John**: King of England (1199-1216), very unpopular, forced to sign *Magna Carta* in 1216.

Battle of Hastings

Key dates

- Jan 1066: Death of Edward the Confessor
- Sept 1066: Battle of Stamford Bridge
- Oct 1066: Battle of Hastings
- Dec 1066: William crowned King of England Key events
- In January 1066, Edward the Confessor died leaving no <u>heir</u> to the throne of England.
- Three men and one teenage boy all became contenders for the throne, which means they could become the new king. The most powerful English <u>earl</u>, Harold Godwinson, was crowned king.
- Another contender, a Viking called Harald Hardrada, invaded York in September 1066 in an attempt to claim the throne for himself
- Harold Godwinson marched his army north and defeated Hardrada at the Battle of Stamford Bridge in Sept 1066
- A third contender, a <u>Norman</u> duke called William of Normandy, invaded the south of England in October 1066. He claimed that Edward had promised him the throne and he was coming to claim it.
- William and Harold Godwinson fought at the Battle of Hastings in Oct 1066. Harold's mistakes, William's skill and some luck allowed William and his army to defeat the English.
- William was crowned King of England on Christmas Day, 1066.

Norman England

Key dates

- 1067-1077: Bayeux Tapestry made
- 1085: William orders Domesday Book
- 1087: William dies and his son William Rufus becomes King of England

Key events

- William I of England (or William the Conqueror, as he was known), needed to prove to the Saxon people that he was a powerful leader.
- He did this in several ways; building hundreds of castles across England (see picture below), violently defeating rebellions, and ordering the 'Bayeux Tapestry' to be made, which showed him defeating Harold Godwinson at Hastings in October 1066.
- William replaced many of the English <u>earls</u> with <u>Norman barons</u>
- William also ordered a large survey of the entire country, in which a record was made of what everybody owned. This was mainly to help tax collectors know precisely how much money was owed, but also demonstrated that William was very powerful. The survey was collected in Latin and recorded by hand in *Domesday Book*.

King John

Key dates

- 1199: John became King of England
- 1208: Pope Innocent III placed England under interdict
- 1214: John started another war against the French and raised taxes
- 1215: John was forced to sign Magna Carta

Key events

HISTORY

- Throughout the medieval period, kings of England had many difficulties keeping control of the various parts, people, and positions within the country and its government
- One of these kings was John, who was king in 1199-1216
- John was a very unpopular king, particularly amongst the <u>barons</u> (who he constantly fell out with over how much power he thought they should have)
- In 1206, John argued with <u>Pope</u> Innocent III, the Head of the <u>Church</u>, over who should be the next <u>Archbishop</u> of Canterbury. This resulted in England being placed under <u>interdict</u> in 1208. This meant all churches were locked and no one could go to services, no one could get married and no one could be buried in church ground. People were terrified that this would mean they were going to hell.
- John fought many unsuccessful wars against King Philip of France over French land. This was expensive and meant that John had to keep raising taxes. The barons worried that John was ruining the country
- John was forced to sign Magna Carta in 1215, a set of rules that reduced his power and gave the barons more control. This document is seen as significant as it starts the idea that everyone has to follow the law, even the king.
- However, he did not follow it for long, and was fighting his barons when he died in 1216.

Key topic terms

- Archbishop: the leader of the Church in a country
- Baron: like an earl, but less powerful
- **Church:** all the church buildings and priests.
- Earl: powerful landowner who helped run England
- Heir: person who will become king or queen next
- Interdict: Order from the pope closing all the churches
- Monarch: a king or queen
- Normans: the men led by William the Conqueror.
- Pope: Head of the Catholic Church
- Saxons: the 'English' people

Key history terms

- Evidence: information from the past that can be used to support/challenge a statement
- Infer: to work something out from evidence and reasoning
- Interpretation: a particular person's version of what happened in the past. Can be influenced by a person's background or time they lived

The number of castles in England







MATHS

Year 7 Music – Pitch & Notation



Year 7 Physical Education

LEARN

OU WIL

THE 5 STAGES OF A WARM-UP

Stage 1-Pulse Raising

AUTUMN

TERM

Exercises that slowly increase heart rate and gradually increase body temperature, for example jogging, cycling, skipping or gentle running not sprinting.

Stage 2-Mobility

Exercises that take joints through their full range of movement (ROM), e.g. arm swings, hip circles, high knee activities.

Stage 3-Stretching

Dynamic or static stretches which lengthens the muscle and supports the increase in range of movement.

Stage 4-Dynamic Movements

This involves movements that will show a change of speed and direction, e.g. shuttle runs. These movements should be related to the activity you are doing.

<u>Stage 5-Skill Rehearsal</u>

The practicing or rehearsing of common movement patterns and skills that will be used in the activity, for example dribbling or shooting for Football or passing in Netball.







Benefits of a Warm-Up

- Increased body temperature
- Speed up of delivery of oxygen to working muscles.
- Increase in range of movement (pliability in muscle fibres)
- Gradually increased heart rate
- Increased speed of muscle contractions

Key Definitions.

Heart Rate- The number of heart contractions (beats) per minute (bpm) Breathing Frequency-The number of inspirations or expirations each minute (breaths/min)

Haemoglobin-An iron-rich protein found in red blood cells which transports oxygen in the blood stream. found in red blood cells which transports



Can you plan a warm-up for 2 different sporting activities?

How does religion help us understand the world?

Key Term	Definition
Deity	a god or goddess or divine status.
Humanist	is a belief that human needs and values are more important than religious beliefs.
Theist	someone who does believe in God.
Atheist	someone who does not believe in God.
Agnostic	someone who is open to the idea of God.
Ethics	is a system of moral principles
Philosophy	is the love of knowledge

Origins of the World	Origins of Humanity
Science: Big Bang Theory argues that the universe started as a dense collection of mass which massively expanded creating stars, galaxies and planets	<u>Science: Evolution</u> comes from Charles Darwin's work who observed that animals change over time. People have used his work to argue that people are descended from apes
Christianity: Genesis 1 Christians believe the universe was designed and made by God - The creation story in Genesis 1 says that God made the world in six days	<u>Christianity: Genesis 2</u> Christians believe God created the first man, Adam, from the soil and breathed into life into him.



Key wordsBelieve / BeliefFaithMoralReligion

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Design Argument

Is a philosophical argument devised by William Paley and claims the world shows evidence of design. If there is design in the world – then there must be a designer

Moral Argument

In the world we have a set of morals – the action of right and wrong. There is an argument to suggest because we have morality then this could prove the existence of God.



Bottisham Village College

KNOWLEDGE ORGANISER YEAR 7 SCIENCE TERM 1

- PARTICLE MODEL OF MATTER
- HOMEOSTASIS AND RESPONSE
- ENERGY
- CELL BIOLOGY



Particle Model of Matter

Year 7

A. Keywords	
Atom	The smallest part of an element that can exist
Boil (boiling)	The change of state from liquid to gas that occurs when bubbles of the sub- stance in its gas state form throughout the liquid.
Condense (condenses)	The change of state from gas to liquid. It can happen at any temperature below the boiling point.
Evaporation	The change of state from liquid to gas that occurs when particles leave the surface of the liquid only.
Freeze (freezing)	The change of state from liquid to solid at the melting point of a substance.
Melt (melting)	The change of state from solid to liquid at the melting point of a substance.
Internal Energy	The energy of the particles of a sub- stance due to their motion and posi- tions.
Change of state	The process by which a substance changes from one state to another.
Particle	A very tiny object, such as an atom or molecule that materials are made from.
Particle model	A way to think about how substances behave in terms of small, moving parti- cles.
Pure Substance	A pure substance is made of one material with no other substances mixed with it. E.g. Diamond
Mixture	A mixture is made up of two or more substances that are mixed (not chemically joined) together.

B. The Particle Model

- Everything around us is made up of atoms.
- Atoms are the smallest particle of a chemical that can exist.
- We can draw diagrams to show the particles in different substances.

C. Changes of State

A change of state occurs as particles either gain or lose energy. This results in the movement of particles changing.



State Solid Liquid Gas Diagram Arrangement of Regular arrangement Randomly arranged Randomly arranged particles Move quickly in all Movement of Vibrate about a fixed Move around each particles position directions other Closeness of Very close Close Far apart particles

D. Pure Substances and Mixtures





Pure Substance







Homeostasis and Response Year 7

A. Keywor	A. Keywords			
Placenta	An organ that develop in the mother's uterus . It exchanges food, waste and oxygen with the foetus' blood.			
Zygote	A fertilised egg cell that will develop into an embryo.			
Embryo	A ball of cells that will develop into a foetus.			
Gamete	Sex cells—Sperm cells (spermatozoa) or egg cells (ova)			
Cervix	Ring of muscle at the lower end of the uterus. Sperm released here from the erect penis during sex.			
Oviduct	A tube that leads from an ovary to the uterus. Fertilisation happens here. Also called a fallopian tube.			
Sperm Duct	Tube that sperm travels down from testes to penis			
Puberty	Starts in teenage years, prepares body for sexual maturity			
Anther	Makes and stores pollen cells (male gamete)			
Ovary (plant)	Makes and stores egg cells (ovules- female gamete)			
Ovaries (human)	Females have two ovaries. These make and release egg cells (ova) and produce hormones like oestrogen.			
Uterus	Also called the womb. Muscular organ where the foetus grows and develops during pregnancy.			
Vagina	A muscular tube that leads from the cervix to the outside of a woman's body.			
Urethra	Urine tube leading from the bladder to the outside of the body.			
Bladder	The organ in the body where urine is stored.			
Glands	An organ or tissue that makes a hormone (or other chemical) to be released.			
Penis	The organ in the male reproductive system that carries urine and semen to the outside of the body.			
Testes	The male organ that produces sperm (gamete)			
Foreskin	A flap of skin covering the end of the penis.			
Scrotum	A skin covered sack that contains the testes.			

B. Human Reproductive System

Female







C. Plant Reproductive Systems



F Pregnancy and birth



Pregnancy lasts 40 weeks. Birth can be a natural vaginal birth or by caesarean section. The baby is usually delivered head first. If the feet come first the birth is breech.

D. Fertilisation

Sexual intercourse releases sperm to the cervix. An egg cell is released from an ovary. If the egg meets the sperm in the oviduct then fertilisation might occur. Fertilisation is when the sperm cell joins or fuses with the egg cell (ovum). The nucleus of the sperm cell joins with the nucleus of the egg cell and a zygote is formed. The zygote is a fertilised egg cell. The zygote divides by cell division to form a ball of cells called an embryo. The embryo develop for 3 months until it is called a foetus. The foetus looks like a human baby rather than a ball of cells. Pregnancy lasts approximately 9 months and is also called gestation . The Placenta filters the mother's blood and passes food and oxygen to the foetus via the umbilical cord. The umbilical cord also removes wastes from the baby like carbon dioxide. These go out via the placenta.

E. Puberty and Menstrual Cycle

Changes that happen to girls and boys •voice breaks •shoulders get breasts wider develop Get talle •hair grows •ovaries start Underarm on face and to release egg air grow chest cells Pubic ha testes and periods star penis get hips get Emotio wider. change testes start to produce sperm cells

The menstrual cycle occurs in

females who have gone through puberty.

Day 1-4: The uterus lining breaks down (period)

Day 14: Egg is released (ovulation).

Day 15 –28: The uterus lining is maintained before the cycle restarts.



A Keywords

Energy Year 7

, ,		
Renewable	Can be replenished (will not run out).	
Non-renewable	Will run out.	
Joule (J)	The unit of energy.	
Dissipation	Energy that has been transferred in a non useful way, usually to the environment.	
Kilowatt	This means 1000 watts. Kilo means 1000.	
Kilojoules	This means 1000 Joules.	
Fuel	A store of chemical energy.	
Energy requirements	The amount of energy needed for an action to happen.	

B. Working Scientifically



- Zero error when measuring the mass of the food the balance may fail to begin or return to zero.
- Systematic error unavoidable variation from the method or the equipment. For example the starting temperature of the water or the precision of the volume of water.
- Random error The variation in results gathered from repeat measurements.

C. Energy Resources



Non-renewable sources like coal, oil, and gas, are called **fossil** fuels. They are made from the decayed remains of plants and animals from millions of years ago.

Humans also use fuel to get energy. For us, food is fuel. Different foods contain different amounts of energy, so we have to eat the correct foods to balance out the energy we take in with the energy we use for daily activities.

D. Energy Stores

Energy within items is stored in one of the 5 main energy stores.



Chemical energy is stored in the bonds between atoms.

Gravitational Potential Energy is stored in objects lifted above the ground.

Kinetic energy is the store of movement energy in an object.

Thermal energy is stored in the vibration and movement of particles in a substance.

Elastic potential energy is stored in an object that has been stretched or squashed.

E. Transfer and Conservation of Energy

Energy can be transferred along pathways to move to another store. These pathways are

• Heating

Natural Ga

- Electricity
- Waves (sound)
- Radiation (light).

Conservation of energy

The law of conservation of energy states that energy cannot be created or destroyed. It can only be transferred between different stores.

When an object no longer has any energy, it has not been used up, it has been transferred to the environment, usually by heating. This increases the thermal store of the environment.



Cell Biology Year 7

A. Keywords.

Cell Membrane	Controls what moves in and out of the cell.
Nucleus	Controls the cell's activities and stores genetic information (DNA).
Diffusion	Movement of substances from a high to low concentration.
Cell Wall	Rigid structure around cell in plants. Supports and protects the cell. Stops it from bursting.
Vacuole	Store of sugars, nutrients and some waste in plant cells (cell sap).
Cell	Smallest basic unit of life, e.g. plant cells, animals cells, bacterial cells.
Tissue	Collection of similar cells, e.g. muscle cells that do the same job.
Organ	Group of different tissues working together to do the same job, e.g. heart
Organ System	Group of organs that work together to complete a specific function, e.g. circulatory system
Organism	Individual animal, plant or single celled life form, e.g. bacterium.
Lens	A device made of shaped glass that focuses light rays from objects to form an image.
Magnification	Makes small things look bigger.

B. Working Scientifically

Safety: Carry by the arm, start on the smallest objective lens, care with glass slides and cover slips, always clip in sample.

Course adjust and fine adjust: FOCUS the sample on the slide.

You may need to stain the sample to see the structures



C. Organisation

Multicellular organisms have billions of cells, often doing specialised jobs, working together in groups.

Cell	Basic structural and functional unit of a living organism	
Tissue	Group of cells with similar structures, working together to perform a shared function	
Organ	Structure made up of a group of tissues, working together to perform specific functions	
Organ System	Group of organs with related functions, working together to perform body functions	
Organism	Living thing performing all seven life processes	Â

D. Plant, Animal and Bacterial Cells



Nerve Cells - Carry electrical

impulses. Long and thin.

Muscle Cells - Contract and relax to move

Sperm Cells - Carry a male's genetic

information and have a tail (flagella) to swim

Egg Cells - Carry a female's genetic information

Red Blood Cells - Carry Oxygen around

the body. Have a large surface area and

no nucleus



Root Hair Cells - Increase surface area of

plant roots to help them absorb water and mineral ions