

Year 8 Knowledge Organiser

Summer Term (1) 2022

What you need to know!

Knowledge Organisers – FAQ

What is a Knowledge Organiser?

Every ½ term this academic year, a new Knowledge Organiser will be produced and put on the school website. These documents are produced for Year 7, Year 8 and Year 9 students and contain key information, specific subject terminology and links to additional resources to help you and your child fully understand topics within the different subject areas.

Can Knowledge Organisers be used for revision and preparing for assessments?

These Knowledge Organisers are designed around the content delivered in lessons each half term in Year 7, 8 and 9. Therefore, they are an excellent revision tool to help prepare your child for end of unit tests as well as their end of year exams which cover previously learned subject content.

How should I use the Knowledge Organiser?

In order that these documents are useful and not too complicated, the Knowledge Organiser is designed to include the basic facts and information being covered in a specific subject over that half term. You may choose to print a version in order that you annotate or tick off aspects once they are fully understood. You may also choose to use this as an electronic revision guide, using the hyperlinks to webpages to secure or deepen understanding.

What are the Arrow Tasks?

At Liskeard School & Community College, teachers use Arrow Tasks as a way of stretching your child. These tasks often involve extending their knowledge through research or applying a learned concept in another way. Try to complete all the Arrow Tasks within the Knowledge Organiser to increase your knowledge and extend your conceptual understanding.

Contents

Art
Drama
English
Ethics, Philosophy and World Views
French
Geography
History
ICT and Computer Science
Maths

Music
Physical Education
Science
Spanish
Technology: Food
Technology: Product Design
Technology: Textiles
Transition groups only
A guide to revision strategies

Please note: These subjects are hyperlinked. Click on the subject to take you to the relevant pages.

Topic: **Focus on Non Western Art and Artefacts: (2D/3D Mixed media)**

I need to know: How to read and interpret cultural influences in contemporary art. How to make connections and extract information to inform your creative process.

Key Words	Definitions
Shape	<i>A shape refers to the external boundary, outline, or external surface of a 3D object. Form refers to the three dimensional quality of an object. It is a surface or boundary that describes a volume or space.</i>
Form	
Volume	<i>Volume is the quantity of three-dimensional space enclosed by a closed surface, for example, the space that a substance or shape occupies or contains.</i>
Line	<i>As a visual element in art and photography, a line can be explicit and also implied. When joined it forms a shape. The quality of line used can convey meaning: i.e. thick - heavy, thin - fragile, faint - delicate, bold - loud, curved - natural, straight – mechanical...</i>
Primary Source	<i>In the study of art history, a primary source is an artefact, document, diary, manuscript, autobiography, recording, or other source of information. In practical work, the artist looks directly at the subject of study, i.e. the real face, object or landscape.</i>
Secondary Source	<i>In the study of art history, a secondary source interprets and analyses primary sources. Secondary sources are one or more steps removed from the event. In practical work, the artist may use a photograph/s to draw from combining multiple sources of information.</i>
Synthesis	<i>Bringing together a number of visual and tactile resources to design a unique sculptural form. The outcome might resemble elements of each but may not be recognisable.</i>
Visual Analysis	<i>When drawing you will ask yourself many silent questions. This internal conversation you will have with yourself is visual analysis, it is what will help you to make judgements about line, shape, tone, texture, contrast, colour.</i>
Measuring	<i>There are various techniques for measuring the real world to enable you to translate what you see onto a 2D surface for others to understand.</i>
Estimating	<i>Estimating in art usually occurs between the processes of measuring, comparing proportion and translating the real world to the 2D or 3D surface. By re-comparing, your estimations become progressively more accurate with increasing information.</i>
Modelling	<i>Refers to the manipulation of plastic, malleable materials such as clay.</i>
Joining	<i>Refers to the connection of flat, two dimensional surfaces to give the appearance of a three dimensional form. See examples opposite.</i>
Construction	<i>Refers to the complexity of a variety of methods coming together to create a three dimensional form.</i>
Low Relief	<i>Low Relief refers sculptural elements that are on top of a flat surface, like the friezes on the Parthenon or carvings on the side of old buildings. Low relief means they barely stand out from the background, almost like it's carved just around the edges.</i>

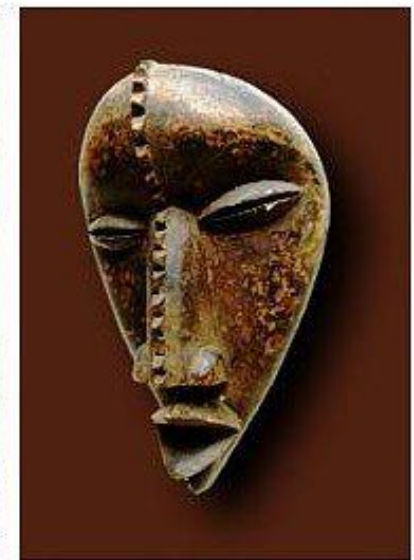
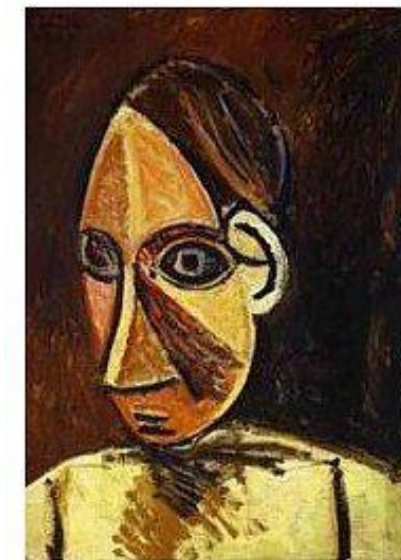
Arrow Tasks: Compare and reflect upon the influence of cultural artefacts in the making of contemporary art.



American Indian Mask Design



Student work.



Picasso Painting influenced by African Mask design.

Links to further resources: <https://mnch.uoregon.edu/collections-galleries/native-american-masks-northwest-coast-and-alaska>
<https://africa.si.edu/exhibits/mosaic/masks.html> <https://www.britishmuseum.org/>

Topic: **Focus on Non Western Art and Artefacts: (2D/3D Mixed media)**

Asymmetry	Something asymmetrical has two sides that don't match. In art this might result from accurate observation but might also be exploited to 'unsettle' the viewer. In composition, such as the rule of thirds or golden section, it is not unusual to use asymmetry to develop ideas of beauty and aesthetics.
Aesthetics	Aesthetics is a branch of philosophy that examines the nature of art and our experience of it. An aesthetic experience could include a mixture of feelings and determines our appreciation of beauty and taste. It is complex, relies heavily on objective rules, and often influences our decisions and choice. Since virtually everything made or caused by humans will have occurred through a conscious or unconscious design process, you are directly or indirectly influenced by art every day. Clothes, phones, cars, food, websites, buildings...



Wilfredo Lam. 1954. Idolo Foresta.



Victor Brauner. 1903-1966.

Thinking, questioning and communicating your visual intelligence using practical skills in ART.

You will be able to organise your thoughts, understanding and expertise in **ART** this term under the following headings.

Skills: *Selecting, composing, line, shape, form, 3D / mixed media dexterity...*

Contexts: *History, responsibility, connections, narrative, meaning...*

Rules: *Appreciation, analysis, exploration, heritage, aesthetics...*

Audience: *Personal space, community space, purpose, contemporary context...*

Resolution: *Primary and secondary sources, scale, representation, abstraction, resilience, resolving...*

Communication: *Abstraction, representation, evaluation, talk, community engagement, manage emotions...*

Legacy: *Materials, honesty, heritage, culture, celebration, purpose...*

Throughout the year we will be asking you to articulate (to say, explain and use), a number of **Personal, Learning and Thinking skills** to help you develop your knowledge and understanding. This term we will be asking you to reflect upon your **Effective Participation:** Interpret. Contextualise. Discuss issues, resolve questions, plan practical steps, identify improvements, share, influence others, negotiate, compromise, advocate.

Further thinking (why does this matter?):

It is important to us all that we recognize, appreciate and celebrate how humanity appropriates ideas. Art, design, architecture, fashion and film is influenced by a web of cultural references permeating our lives over time.

https://www.saatchigallery.com/artists/yasumasa_morimura.htm



Topic: Being a Theatre Technician

- I need to know: How to explore, select and develop ideas from real life and build them into a performance: Make, Perform, Respond

<u>Key Words</u>	<u>Definitions</u>
Process Drama	Exploring life through Drama.
Ensemble	Working together on stage to create.
Story	Developing content.
Auto-biographical	About your own life
Narrative	The way in which the story is told.
Verbatim	Theatre that uses the real words spoken
Docudrama	Theatre in a documentary style – based on a true story.
Forum Theatre	Performance technique that allows a performance to develop as it goes.
Audience interaction	The audience participating in the performance

Arrow Tasks: Research Augusto Boal and Forum Theatre

Develop a sequence of monologues charting your own lockdown experiences.



Wider Reading

Augusto Boal

The Laramie Project

Paper Birds

Any film / TV series based on the life of a real person.

What We Do:

- Explore and develop our own stories of life in lockdown.
- Develop skills in monologue writing and performance.
- Look at the work of others in docudramas and verbatim theatre.
- Write and perform our own work based on true stories.

Topic: Reading Fiction – Exploration in Creative Reading

I need to know how to respond to two non-fiction texts. I need to know what to look for and how to analyse key words and techniques in a text. I also need to begin to think about comparing the text's themes and ideas.

Key Words

Alliteration: two words starting with the same sound

Implicit: suggested though not directly expressed

Simile: a comparison of two objects using like or as

Metaphor: a comparison of two objects which isn't literally true

Narrator: the character who recounts the events

Perspective: a particular point of view

Rule of three: a pattern used by writers

Big questions of the texts

- How do readers use titles and details to understand a story?
- How do readers identify sequence; compare; contrast?
- How do readers make inferences about the characters, events, and setting?
- How do readers figure out the message or perspective of the writer?
- How do readers understand more about a story depending on who narrates?
- What choices does a writer make to accomplish the purpose of the writing?

Key Skills

Identify and interpret information and ideas: select evidence from a text

Explain, comment on and analyse how writers use language and structure to achieve effects and influence readers, (using relevant subject terminology to support your views).

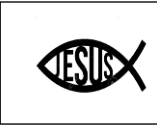
Evaluate texts critically and support this with appropriate textual references.

Read the question and start picking out what you need for your answer.

Aim for some perceptive details that aren't explicit – use your skills of inference.

Suggested activities:

- Read the question before you read the source so you know what you're looking for.
- Words and word classes, phrases, language features, language techniques, sentence forms
- Comment on the effect of language, making perceptive comments as to why the writer may have selected / used the language. (What is not there in black & white.)
- Select judicious quotes.



Topic: What is so radical about Jesus?

Enquiry question – What is so radical about Jesus?

Jesus. In this unit we will look at how Jesus treated society's least lovable people and the challenge this offers to Christians today. Jesus is seen to be radical in these stories because he publicly argues with authority. By his actions Jesus exemplifies what it is to live in accordance with God's will, providing a role model for Christians. Jesus doesn't just want to help people he meets, he wants to make the world a fairer and more just place, whether he is there to help individuals or not. This requires changes to what people think, to custom and tradition. His challenge is particularly focused on the powerful, on the side of the powerless. In this sense Jesus is radical.

Key Words and Definitions

- **Agape:** A Greek word meaning 'love'; refers to Jesus' sacrificial & generous love for others.
- **Blasphemy:** speaking against God.
- **Gospels:** The word 'gospel' means good news. The term is also used to describe first four books of the Bible (Matthew, Mark, Luke and John) where we read about the life of Jesus.
- **Messiah:** 'the anointed one'; a rescuer.
- **Parable:** a story with a hidden meaning.
- **Pharisee:** name means 'separated ones' – they had great religious authority, especially concerned with keeping religious laws.
- **Prophecy:** messages from God that sometimes gave a prediction about the future.
- **Rabbi:** religious (Jewish) teacher.
- **Resurrection:** when someone who is declared dead suddenly returns to life.
- **Salvation:** being saved from sin.
- **Sin:** disobedience of the law of God.

I need to know:

- To consider whether Jesus was radical in his behaviour & how Christians may follow his example in daily life.
- To explain how Christians respond to the teaching and example of Jesus.
- To examine the 'Nazareth Manifesto' to evaluate Jesus' role within messianic prophecy.
- To explain the impact of Jesus' teachings on the treatment of the marginalised today.

The Fall & salvation

The book of Genesis – the first book in the Bible – opens with God's creation and gift of a perfect world to humans. However, humanity (Adam & Eve) disobey and betray God's trust. As a consequence, they must leave God's perfect garden, bringing sin and suffering into the world. Christians believe that Jesus is 'good news', not only exemplifying how to live in accordance with God's will, but also by making the ultimate sacrifice (through his crucifixion) leading to salvation to all who turn to him.

Common misconceptions about Jesus

Although Jesus is the most painted figure in the world, there are no records anywhere in the New Testament that describe what he actually looked like, only the sort of person he was. This leads some people to doubt if he even existed because most of what we know about him was written by his follower. However, there is historical, and non-Christian evidence that could confirm Jesus was a real person.

Jesus the prophet

Prophets are messengers of God and Christianity has a long history in the Old Testament of prophets bring God's message to people in order to guide them back to living in accordance with God's will. Christians also claim that one Old Testament prophet, Isaiah, predicted the coming of a future messiah or saviour of humankind about 800 years before the Gospels. Jesus certainly brought God's message, but was this as a prophet or as the messiah?

Jesus the Rabbi

Jesus was a teacher, speaking on moral issues and ideas. His main message is of repentance and forgiveness, rooted in a central message of love. Much of Jesus' work involved healing the sick, some of whom had given up hope of being healed. However, at the time of Jesus, the Jewish people lived under Roman occupation. Some of Jesus' teachings conflicted with the practices of religious authorities at the time, making him a figure of controversy.

Sinners

The term 'sinners' does not necessarily mean people who are particularly immoral. 'Sinner' is a term used by Jewish rabbis of any ordinary Jews who did not follow their particular observance of the Law; similarly, Pharisees used this term to describe people who did not keep to their interpretations of the Law. People considered 'sinners' often belonged to marginalised groups. However, clearly the term also applies to those who deliberately flouted the Law, including prostitutes and tax collectors. Many of the Gospel stories tell of Jesus keeping the company with people considered 'sinners'.

Agape in action

Jesus taught Christians that they must "love your neighbour as yourself." The love Jesus is referring to in this teaching is *agape* love, the idea of doing actual good for others. Many Christians today demonstrate this through their work with marginalised groups. In this topic we explore the work of:

- Street pastors: these are volunteers who support people in need at night on the streets of towns and cities.
- Elizabeth Fry: a 19th century Quaker who dedicate her life to improving conditions in British prisons.

You may also wish to explore how Christian theology was used to attack the slave trade, linking to your History learning.

https://www.bbc.co.uk/religion/religions/christianity/history/slavery_1.shtml

Subject: French

Year 8: Summer 1 Term 1

There will be more specific vocabulary.

This will be given to you by your class

Topic: Quel talent!

I need to be able to: talk about your talents and ambitions in life

Key Words	Definitions
Verb	Words which tell you the action
Subject pronouns	Words that tell you who is doing the action.
Noun	A place, person or a thing.
Gender	In French, nouns and adjectives can be either masculine or feminine.
Adjective	Words which describe nouns. In French adjectives are the same gender as the noun which they describe.
Definite article	'the'
Indefinite article	'a' 'some'
Singular	One
Plural	More than one
Positive phrase	'is', 'do' 'does
Negative phrase	'is not', 'does not', 'don't', 'never'
Possessive adjectives	My (in French, there are 3 forms; masculine, feminine and plural)

devoir: to have to

je dois = I have to

Tu dois = You have to

Il/elle doit = he/she has to

Nous devons = We have to

Vous devez = You have to

Ils/elles doivent = they have to

vouloir: to want

je veux = I want

Tu veux = You want

Il/elle veut = he/she wants

Nous voulons = We want

Vous voulez = You want

Ils/elles veulent = they want

pouvoir to be able to

je peux = I can

Tu peux = You can

Il/elle peut = he/she can

Nous pouvons = We can

Vous pouvez = You can

Ils/elles peuvent = they can

Adjectives

Many adjectives change their endings depending on whether the noun they describe is feminine or plural.

This called **agreement**.

- Add an **"e"** for feminine adjectives: joli/ jolie
-adjectives ending in **"eux"** end in **"euse"** in the feminine = ennuyeux /ennuyeuse
- Add an **"s"** for **plural** adjectives = riche/riches
- Adjectives ending in **"e"** in masculine, do not change in feminine : il est riche/elle est riche

Infinitive

The infinitive of a verb ends in "er", "ir, or "re".

It is the form of the verb listed in the dictionary

The infinitive of a verb often means "to.." or "...ing"

Jouer = to play

Finir= to finish

Écouter = to listen

The comparative: *plus ... que = more ...than* = il est plus grand que moi = *he is taller than me.*

moins ... que = less ... than = il est moins patient que moi = *he is less patient than me .*

WOW sentences: Si seulement! = If only!

Si je pouvais, je serais ...= If I could I would be...

je rêve d'être...= I dream of being....

Arrow Tasks: research talent shows in France, watch a few videos. How do they compare to English talent shows? What are the most popular ones in France?

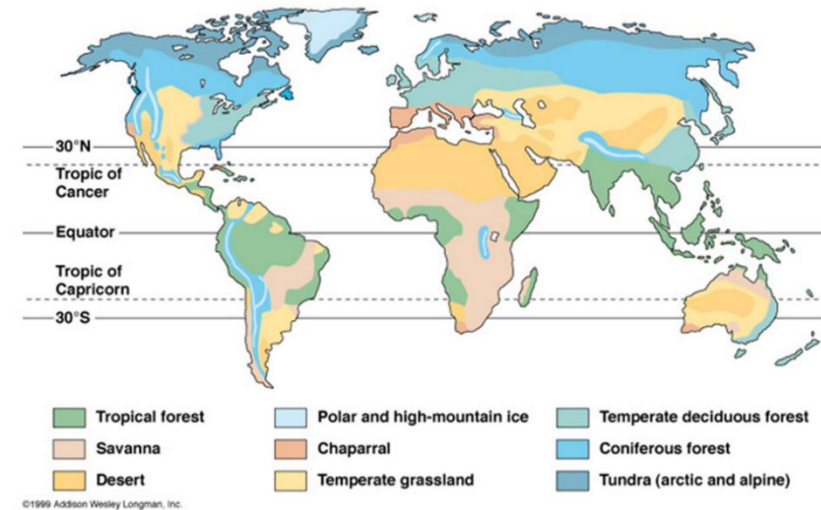
1. Que est ton talent?	What are your skills?
2. Moi, mon talent c'est chanter et jouer du piano.	My talent is singing and playing the piano.
3. Un jour, je veux être chanteur.	I would like to be a singer.
4. Et toi, qu'est-ce que tu veux être?	What about you? What would you like to be?
5. Je veux être magicien et être célèbre!	I want to be a magician and be famous!
6. Je voudrais vraiment être une vedette à la télé!	I really want to be a TV celebrity.
7. Tu dois faire un concours!	You must do a contest!
8. Qu'est-ce que je dois faire?	What do I have to do?
9. Tu dois répéter tous les jours et aller aux auditions.	You must rehearse everyday and go to auditions!
10. C'est trop difficile, je ne peux pas et j'ai trop de devoirs!	It is too hard, I can't, I have too much homework!
11. Si, tu peux! Je vais t'aider!	Of course you can! I am going to help you.
12. Qu'est-ce que je dois faire maintenant?	What do I have to do now?
13. C'est facile, chante plus fort et regarde la caméra!	It is easy, sing louder and look at the camera !
14. Voilà! Ça va?	Here you go! Is it ok?!
15. Non, fais plus d'efforts et jette ton chewing-gum!	No, try harder and throw away your chewing gum!
16. Tu penses que je peux gagner!	Do you think I can win?
17. Mais oui! Tu es très travailleur et marrant.	You are very hardworking and funny
18. Je suis timide aussi....	I am shy too...
19. Oui mais tu es sympa!	Yes, but you are nice!
20. Je dois gagner parce que je veux être célèbre!	I must win because I really want to be famous!
21. Bonne chance!	Good luck!

Topic: Ecosystems

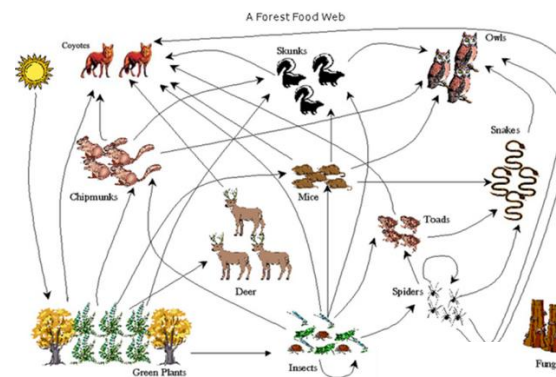
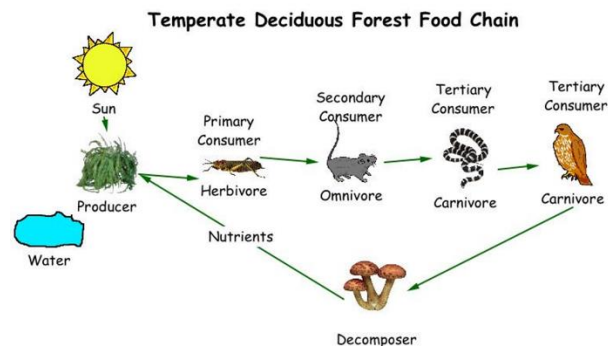
I need to know: The location of global ecosystems and reasons for their location and basic food chains and food webs. Different classes will study different ecosystems. For the ones that you study you need to know; characteristics, adaptations of at least one plant and one animal, the threats that ecosystem faces and how it can be managed.

Key Words	Definitions
Ecosystem	A system where plants and animals interact with each other and their natural environment.
Biome	A specific geographic area notable for the species living there. A biome can be made up of many ecosystems.
Food chain	A series of organisms each dependent on the next as a source of food.
Food web	A series of interlinked food chains.
Producer	Plants that get their energy from the sun.
Herbivore	Animals that only eat plants.
Carnivore	Animals that only eat meat.
Omnivore	Animals that eat both plants and meat.
Decomposer	An organism such as a bacterium or fungus, that breaks down dead tissue which is then recycled to the environment.
Adaptation	How a plant or animal has changed to survive in its surroundings.

Global Ecosystems

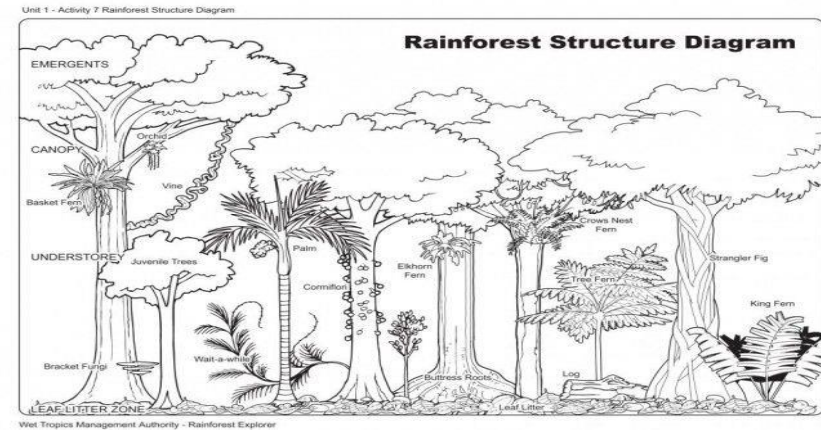


The location of the major global ecosystems is determined by climate. This will depend on latitude, ocean currents and prevailing winds.



Arrows show the direction of movement of energy through the food chain or food web. Energy moves from the plant or animal being eaten to the one consuming it.

Tropical Rainforests



Species adaptations



Gibbons have special ball and socket joints in their wrists so that they can cover 12 meters in one swing! This allows them to move quickly through the rainforest and cover large areas to find food.



Trees in tropical rainforests have drip tips. This helps them shed water as there is heavy rainfall every day. Without these the leaves could get covered in fungus and bacteria because of the hot, humid conditions.

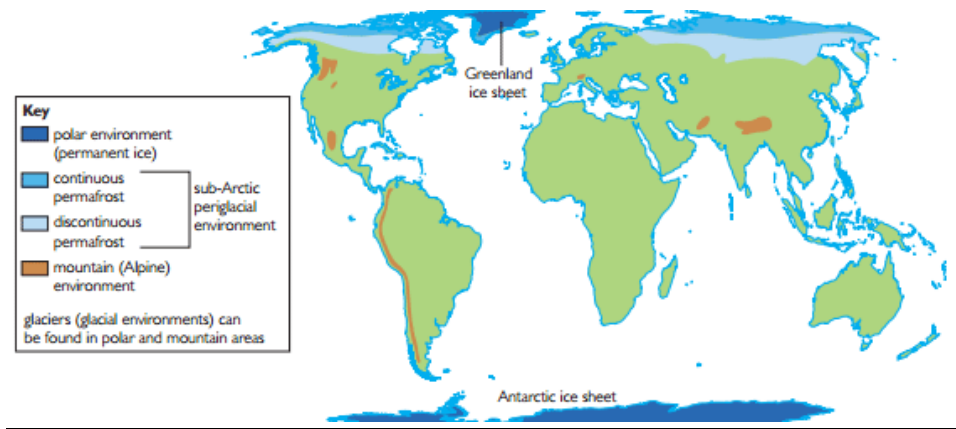
Threats to tropical Rainforests

- Cattle ranching
- Agriculture
- Logging
- Mining
- Increases in population

How can Tropical Rainforests be managed?

- Selective logging
- Replanting
- Education
- Ecotourism
- International agreements

Cold environments



Species adaptations



Polar bears have adapted to cold environments by having small ears to reduce heat loss. They have large paws so it is easier to walk through the snow. They have a thick layer of fat and thick fur to keep them warm.



The hairs on the stems of the Arctic crocus help to trap heat near the plant and act as protection from the wind. They have small waxy leaves to prevent the loss of precious water in this dry environment.

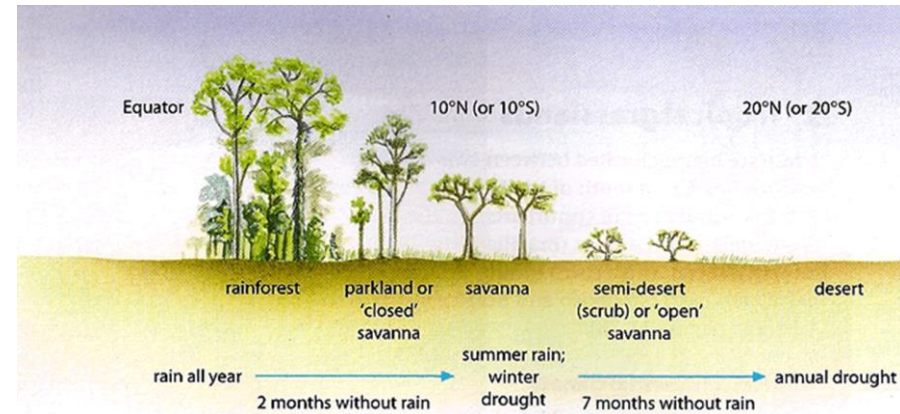
Threats to cold environments

- Climate change
- Invasive species
- Population increase
- Expansion of industry

How can cold environments be managed?

- Using appropriate technology in cold environments to preserve the areas
- Governments creating laws
- International agreements (like the Antarctic Treaty)
- Conservation groups

Savannah Grasslands



Species adaptations



Baobab trees have adapted to the long dry season by having large trunks which they can store water in. It only has leaves in the wet season to preserve energy. It is also fire proof as lightening often starts fires in the Savannah.



Giraffes drink water when it is available but can go weeks without it, they rely on morning dew and the water content of their food. Their very long necks are an adaption to feeding at high levels in the treetops.

Threats to the Savannah Grasslands

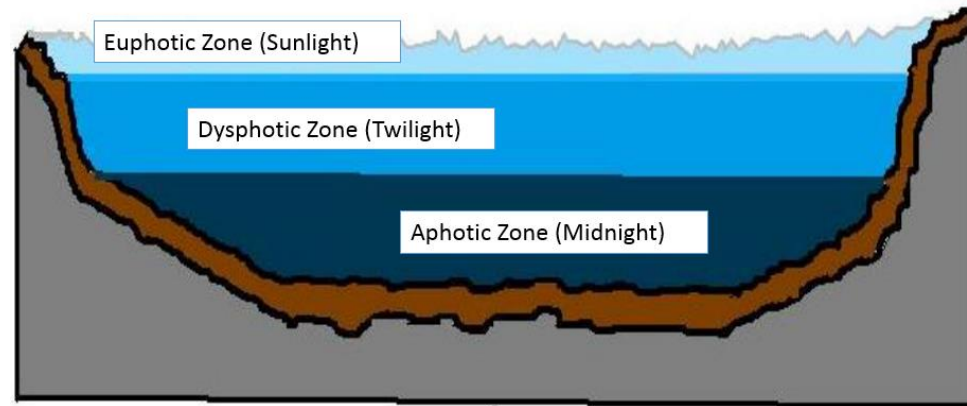
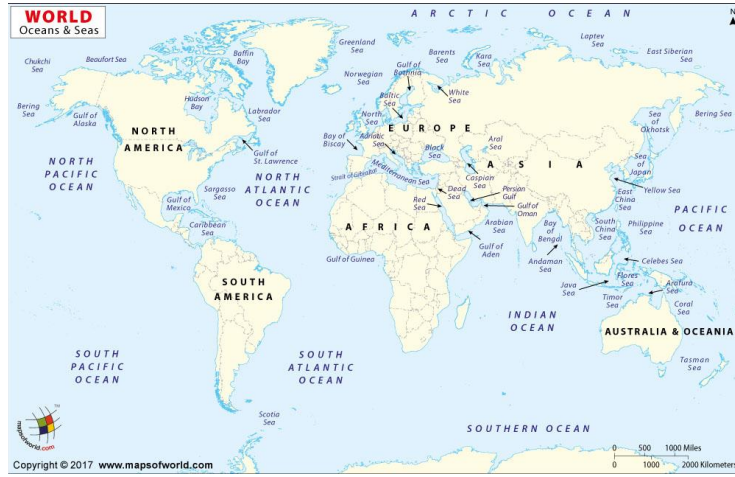
- Climate change
- Farming practices
- Overgrazing
- Deforestation
- These lead to desertification

How can Savannah Grasslands be managed?

- Harvesting branches rather than whole trees to prevent deforestation, soil erosion and desertification.
- Controlled burning of grassland to avoid wildfires.
- Crop rotation to keep a varied supply of nutrients in the soil and prevent soil erosion and desertification.
- The Great Green Wall

Oceans

Structure of the oceans



Species adaptations



Cuttlefish can change their colour and texture to blend into the environment they are in to avoid predators and sneak up on their prey.



Kelp has adapted to live in the ocean by having very fast growing long roots so it can attach itself to the ocean floor to stop it being washed away by storms. Gas bladders allow the kelp to float towards sunlight and perform more photosynthesis.

Threats to the oceans

- Overfishing
- Coastal pollution
- Habitat destruction
- Global Warming
- Acidification

How can oceans be managed?

- Reducing carbon footprints and reduce energy consumption
- Make sustainable seafood choices
- Use fewer plastic products
- Support organizations working to protect the ocean

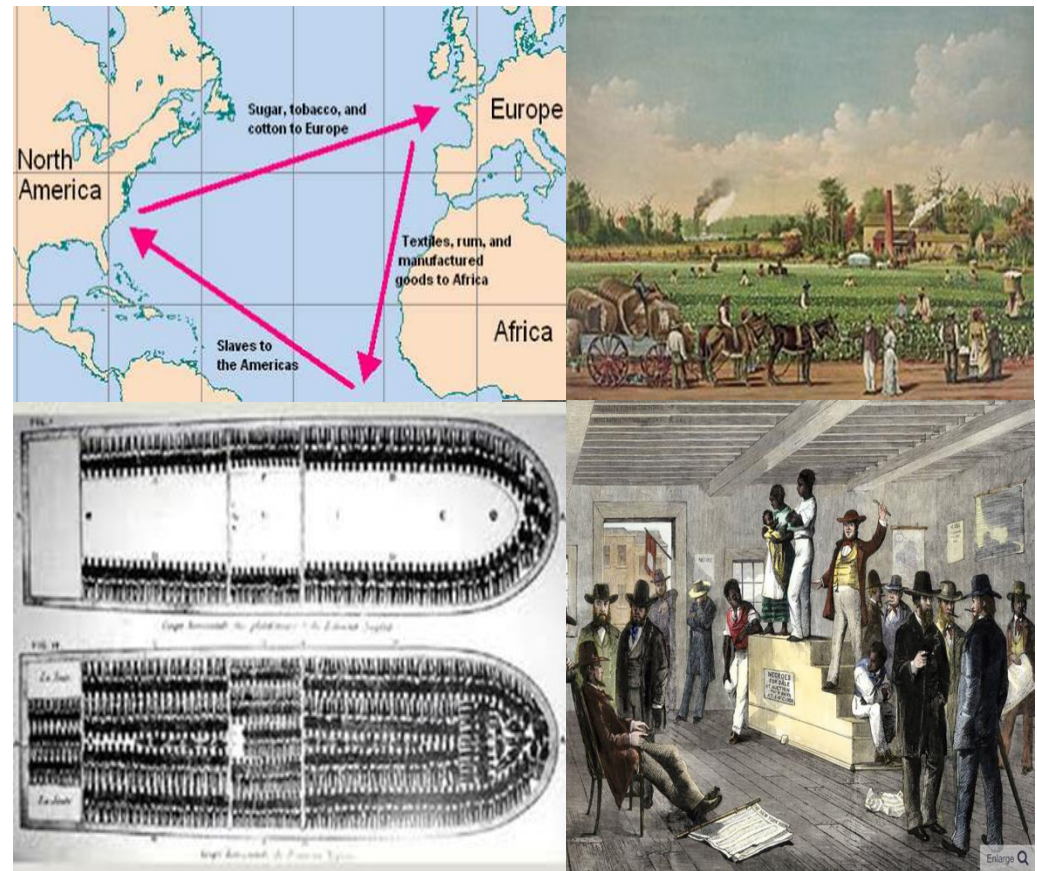
Topic: The Slave Trade and Slavery

I need to know: The slave trade saw Europeans buy and sell slaves to the Americas. Using the 'Slave Trade Triangle' Black People would be taken from Africa to the Americas and sold, mainly to plantation owners, new goods (like cotton or tobacco) would then be taken back to Europe where more money could be raised to go and buy more slaves. On the plantations life was very difficult for slaves. Slave resistance and the work of abolitionists led to the end of the Slave Trade and Slavery.

Key Words	Definitions
Slave Trade Triangle	The system that saw slaves taken from Africa to the Americas and then the money made re-invested and started again.
Outward voyage	The voyage from Europe to Africa with money (or goods to exchange) to collect slaves
Middle Passage	The journey from Africa to America – horrible conditions on the slave ships
Return journey	The return from America to Europe with goods to sell
Brookes	One of the most famous slave ships
Auction	Where slaves were bought and sold
Plantation	A very big farm (very big!)
Cotton	A crop grown on plantations and also taken back to Europe
Tobacco	A crop grown on plantations and also taken back to Europe
Sugar	A crop grown on plantations and also taken back to Europe
Abolitionists	The group of people who campaigned for slavery to be stopped – for both religious and moral reasons
Abolition	The banning and preventing of something happening
William Wilberforce	One of the main abolitionists who devoted his life to getting slavery banned
Thomas Clarkson	Founder of the Society for the Abolition of the Atlantic Slave Trade
Olaudah Equiano	A 'freed' slave who campaigned to stop slavery

Arrow Tasks: What factor was the most significant in the abolition of slavery?

What was the worst aspect of life on the plantations?



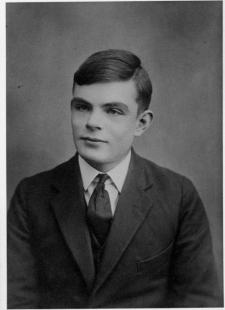
Top left: Slave Trade Triangle
Bottom left: The layout of the Brookes

Top Right: A cotton plantation
Bottom Right: A slave auction

Links to further resources: <https://www.bbc.co.uk/bitesize/guides/zy7fr82/revision/1>

Computing | Back to the future | Summer Term

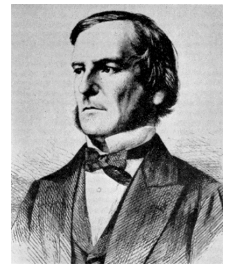
I need to know: Some of the famous figures in the world of computing e.g. **Alan Turing**, **Sir Tim-Berners-Lee**, To understand how messages can be encrypted using ciphers. To understand how to use a cipher key to decipher codes. To consider the impact that the world wide web has had on the world and where we would be without it. To understand the basic Boolean logic gates of **AND**, **OR** and **NOT**.



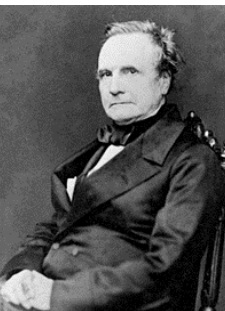
Alan Turing played a vital role in deciphering the messages encrypted by the **German Enigma machine**, which provided vital intelligence for the Allies. He took the lead in a team that designed a machine known as the '**bombe**' that successfully decoded German messages.



Berners Lee is a British computer scientist who invented the World Wide Web. He also created the first **web browser** and editor. The world's first **website**, <http://info.cern.ch>, was launched on 6 August 1991. It explained the World Wide Web concept and gave users an introduction to getting started with their own websites.



English mathematician who helped establish modern symbolic logic and whose algebra of logic, now called Boolean algebra, is basic to the design of digital computer circuits. He **invented Boolean Logic** which is a logical theory which is centred around three simple words known as Boolean Operators: "**OR**," "**AND**" and "**NOT**"



The **calculating engines** of English mathematician Charles Babbage (1791-1871) are among the most celebrated icons in the prehistory of computing. Babbage's **Difference Engine No. 1** was the first successful automatic calculator and remains one of the finest examples of precision engineering of the time.

Cipher	A Cipher is a 'Secret Message' often written in code
Decipher	A method to unscramble a cipher so that the 'Secret Message' can
Encryption	A method used to scramble messages so that if they are intercepted
The Enigma	This is the machine that the Germans invented to write their
www	The world wide web, or web for short, are the pages you see when
The	Is the network of connected computers that the web works on, as
HTML	Stands for Hyper Text Markup Language. <i>HTML</i> is the standard markup language for Web pages. <i>HTML</i> elements are the building blocks of <i>HTML</i> pages.
CPU	The brain of the computer
Logic	The formal processes used in thinking and reasoning
Logic Gates	The basic building blocks of a digital circuit

AND



Inputs		Output
A	B	C
0	0	0
0	1	0
1	0	0
1	1	1

OR



Inputs		Output
A	B	C
0	0	0
0	1	1
1	0	1
1	1	1

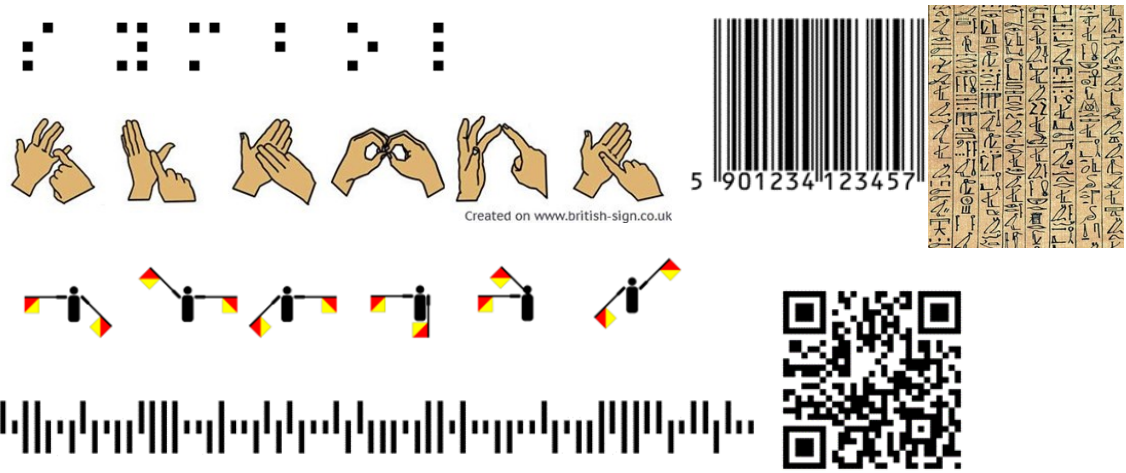
NOT



Input	Output
A	C
0	1
1	0

Computing | Programming | Key Concept– Data Representation

I need to know: How **representations**, some of which date back a millennia, are used and their characteristics. You will learn what **binary digits** are and solve simple problems that reinforce the connection between (**alphanumeric**) information and its **binary** representation. You will become familiar with the terms **byte** and the prefixes used for measuring representation size e.g. **kilo**, **mega**, **giga** and **tera**.

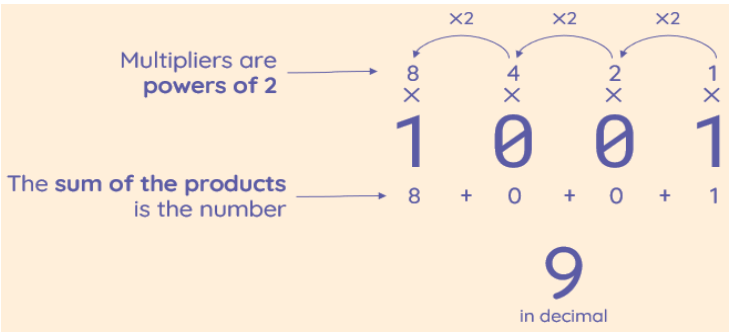


Sequences of symbols can be used to represent information. Flag semaphores, sign language and braille are used to communicate between humans. Machine-readable representation is used to communicate information digitally e.g. barcodes or QR codes.

ASCII	The ASCII character set is a 7-bit set of codes that allows 128 different characters . Enough for every upper-case letter, lower-case letter, digit and punctuation mark on most keyboards.
Binary	Is the base-2 system for numbers. The multipliers in binary are powers of 2.
Binary Digit (bit)	Bit comes from ‘ binary digit ’. All characters are represented using sequences of bits. Computers use two symbols because they are built out of switches.
Byte	Group of eight binary digits.
Kilobyte	Thousand bytes.
Megabyte	Million bytes.
Gigabyte	Billion bytes.
Terabyte	Trillion bytes.
Transistors	A tiny switch activated by the electronic signal it receives. The digits 1 & 0 used in binary reflect the on and off states of a transistor

Counting sequences

How many 1-bit sequences can there possibly be?	1 bit	2 bit	3 bit
2	0	00	000
	1	01	001
How many 2-bit sequences can there possibly be?		10	010
		11	011
4 (twice the number of 1-bit sequences)			100
			101
How many 3-bit sequences can there possibly be?			110
			111
8 (twice the number of 2-bit sequences)			



Denary and their binary equivalents.			
0 = 0	4 = 100	8 = 1000	12 = 1100
1 = 1	5 = 101	9 = 1001	13 = 1101
2 = 10	6 = 110	10 = 1010	14 = 1110
3 = 11	7 = 111	11 = 1011	15 = 1111

For a fun way to practice your binary to denary skills– Type binary game into google and click onto the Cisco link. <https://learningcontent.cisco.com/games/binary/index.html>

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What do I need to be able to do?

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

- Identify alternate angles
- Identify corresponding angles
- Identify co-interior angles
- Find the sum of interior angles in polygons
- Find the sum of exterior angles in polygons
- Find interior angles in regular polygons

Keywords

Parallel: Straight lines that never meet

Angle: The figure formed by two straight lines meeting (measured in degrees)

Transversal: A line that cuts across two or more other (normally parallel) lines

Isosceles: Two equal size lines and equal size angles (in a triangle or trapezium)

Polygon: A 2D shape made with straight lines

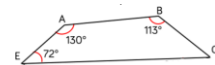
Sum: Addition (total of all the interior angles added together)

Regular polygon: All the sides have equal length; all the interior angles have equal size.

Basic angle rules and notation



The letter in the middle is the angle
The arc represents the part of the



Angle Notation: three letters ABC
This is the angle at B = 113°



Line Notation: two letters EC
The line that joins E to C.

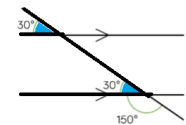
Vertically opposite angles

Equal

Angles around a point

360°

Alternate/ Corresponding angles

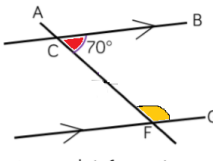


Because alternate angles are equal the highlighted angles are the same size

Because corresponding angles are equal the highlighted angles are the same size



Co-interior angles



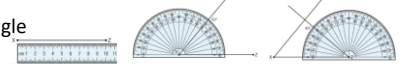
Because co-interior angles have a sum of 180° the highlighted angle is 110°

As angles on a line add up to 180° co-interior angles can also be calculated from applying alternate/ corresponding rules first

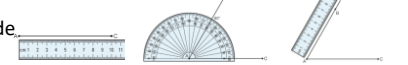
Triangles & Quadrilaterals



Side, Angle, Angle



Side, Angle, Side



Side, Side, Side



Properties of Quadrilaterals



Square

All sides equal size
All angles 90°
Opposite sides are parallel



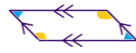
Rectangle

All angles 90°
Opposite sides are parallel



Rhombus

All sides equal size
Opposite angles are equal



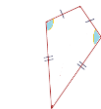
Parallelogram

Opposite sides are parallel
Opposite angles are equal
Co-interior angles



Trapezium

One pair of parallel lines



Kite

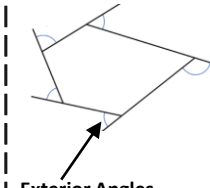
No parallel lines
Equal lengths on top sides
Equal lengths on bottom sides
One pair of equal angles

Sum of exterior angles

Exterior angles all add up to 360°

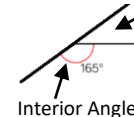
Using exterior angles

Interior angle + Exterior angle = straight line = 180°



Exterior Angles

Are the angle formed from the straight-line extension at the side of the shape



Exterior Angle

Exterior angle = $180 - 165 = 15^\circ$

Number of sides = $360^\circ \div \text{exterior angle}$

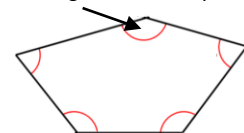
Number of sides = $360 \div 15 = 24$ sides

Sum of interior angles

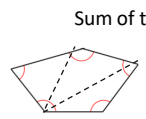
$$(\text{number of sides} - 2) \times 180$$

Interior Angles

The angles enclosed by the polygon



This is an **irregular** polygon – the sides and angles are different sizes



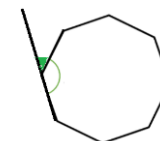
Sum of the interior angles = $(5 - 2) \times 180$

This shape can be made from three triangles
Each triangle has 180°

Sum of the interior angles = $3 \times 180 = 540^\circ$

Remember this is **all** of the interior angles added together

Missing angles in regular polygons



Exterior angle = $360 \div 8 = 45^\circ$

Interior angle = $\frac{(8-2) \times 180}{8} = \frac{6 \times 180}{8} = 135^\circ$

Exterior angles in regular polygons = $360^\circ \div \text{number of sides}$

Interior angles in regular polygons = $\frac{(\text{number of sides} - 2) \times 180}{\text{number of sides}}$

What do I need to be able to do?

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

- Recall area of basic 2D shapes
- Find the area of a trapezium
- Find the area of a circle
- Find the area of compound shapes
- Find the perimeter of compound shapes

Keywords

Congruent: The same

Area: Space inside a 2D object

Perimeter: Length around the outside of a 2D object

Pi (π): The ratio of a circle's circumference to its diameter.

Perpendicular: At an angle of 90° to a given surface

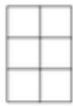
Formula: A mathematical relationship/ rule given in symbols. E.g. $b \times h$ = area of rectangle/ square

Infinity (∞): A number without a given ending (too great to count to the end of the number) – never ends

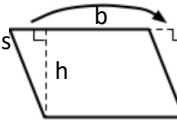
Sector: A part of the circle enclosed by two radii and an arc.

Area – rectangles, triangles, parallelograms

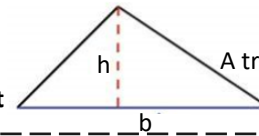
Rectangle
Base x
Height



Parallelogram/ Rhombus
Base x Perpendicular
height



Triangle
 $\frac{1}{2} \times \text{Base} \times$
Perpendicular height

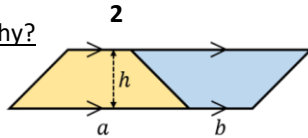


A triangle is half the size of the rectangle it would fit in

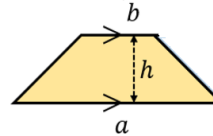
Area of a trapezium

Area of a trapezium
 $\frac{(a + b) \times h}{2}$

Why?



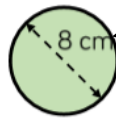
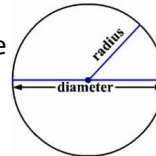
- Two congruent trapeziums make a parallelogram
- New length $(a + b) \times \text{height}$
- Divide by 2 to find area of one



Area of a circle (Non-Calculator)

Read the question – leave in terms of π or if $\pi \approx 3$ (provides an estimate for answers)

Area of a circle
 $\pi \times \text{radius}^2$



Diameter = 8cm
 \therefore Radius = 4cm

$$\begin{aligned}\pi \times \text{radius}^2 \\ &= \pi \times 4^2 \\ &= \pi \times 16 \\ &= 16\pi \text{ cm}^2\end{aligned}$$

Find the area of one quarter of the circle



Circle Area = $16\pi \text{ cm}^2$
Quarter = $4\pi \text{ cm}^2$

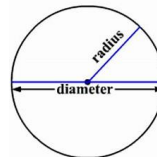
Area of a circle (Calculator)



SHIFT $\times 10^x$

How to get π symbol on the calculator

Area of a circle
 $\pi \times \text{radius}^2$

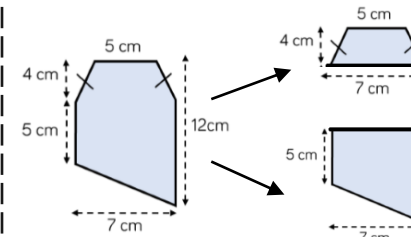


It is important to round your answer suitably – to significant figures or decimal places. This will give you a decimal solution that will go on forever!

Compound shapes

To find the area compound shapes often need splitting into more manageable shapes first.

Identify the shapes and missing sides etc. first.



Shape A - Isosceles trapezium

Shape B - nonstandard trapezium

Shape A + Shape B = total area

$$\frac{(5 + 7) \times 4}{2} + \frac{(5 + 8) \times 7}{2} = 24 + 45.5 = 69.5 \text{ cm}^2$$

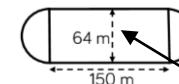
Compound shapes including circles

Circumference
 $\pi \times \text{diameter}$

Compound shapes are not always area questions.

For Perimeter you will need to use the circumference

Spotting diameters and radii



This dimension is also the diameter of the semi circles.

$$\begin{aligned}\text{Arc lengths} &= \pi \times 64 \\ &= 64\pi\end{aligned}$$

Arc lengths + Straight lengths = total perimeter

$$\begin{aligned}&= 64\pi + 150 + 150 \\ &= (300 + 64\pi) \text{ m} \\ \text{OR} &= 501.1 \text{ m}\end{aligned}$$

Don't need to halve this because there are 2 ends which make the whole circle

Still remember to split up the compound shape into smaller more manageable individual shapes first




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Subject: **Music**
Topic: **Celtic Music**

Year 8: Summer Term 1

*"Carry the lad that's born to be King
Over the sea to Skye".*

I need to be able to: Recognise the characteristics, style and instruments of Celtic music. Know where it comes from. Be able to play 2 well known pieces of Celtic music and compose in a similar style, following Ternary Form.

<u>KEY WORDS</u>	<u>MEANING</u>	OTHER CHARACTERISTICS OF CELTIC MUSIC & TRADITIONS		
Pentatonic scale	A scale pattern of 5 notes. It can be created by playing only black notes on a piano	Celtic Cross – see below – elaborate Celtic design on a cross		
Scotch Snap	A dotted rhythm (jerky) where a very short note is followed by a longer one	Jigs and Reels – <u>traditional</u> dance music which is usually <u>upbeat</u>		
Ternary Form = ABA structure	A piece of music which has 3 sections to it, the first and last being the same .	Lyrics – folk song words usually have a <u>narrative</u> = they tell a story.		
Compound time Eg – 6 8	A time signature with 8 on the bottom. It usually creates music that is faster with some dotted rhythms.	Instruments – Usually: fiddle, flute, penny whistle, bodhran (drum), accordion, bagpipes, guitar, harp, banjo, bouzouki.		
		Oral tradition – music that is passed down from person to person through imitation rather than music that is written down.		
		SOME OF THE INSTRUMENTS 	CELTIC CROSS 	PENTATONIC SCALE ON C 
		Where can you see these?		

LISTEN The Corrs 'Toss the Feathers' = <https://www.youtube.com/watch?v=a41IPN7sKNk>

Irish jigs = . https://www.youtube.com/watch?v=VL2XC-RyL7Y&list=PLjHTKsnI473CG93_Rxo0vuKtI2n6i3E1M



Arrow Tasks: Celtic music is mostly associated with Scotland and Ireland but 3 other places are also Celtic. Where are they? Name 2 British folk musicians or bands. Listen to some of the instruments named above. Which do you like the best and why?

I need to know: To understand the principles of training

Fitness for Sport

Key Terminology:

- **Principles of training** – guidelines that, when applied, ensure that training is effective and results in positive adaptations.
- **Adaptations** – a change in structure or function of a muscle or body system as a result of specific physical training.

Principles of Training For Task 1

Specificity

Progression

Overload

Reversibility

Optimising Training For Task 2

Frequency

Intensity

Time

Type

Homework Task 1

Create an information leaflet for a local sports centre explaining the 4 principles of training.

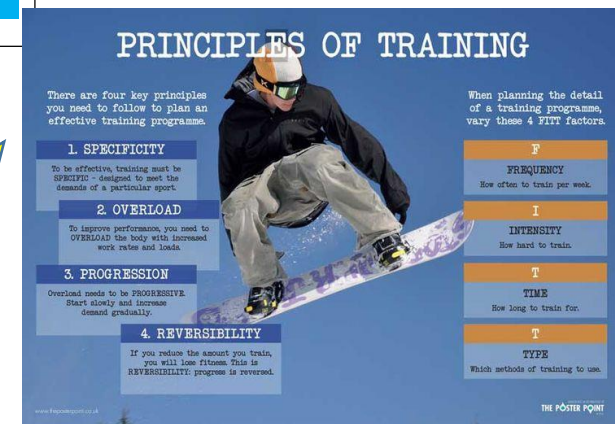
Arrow /Extension Tasks

If an athlete trains using the principles of training, then the adaptation on the body can be positive. Describe what types of adaptations can be seen after training for 6 months. Make sure you talk about the aerobic and muscular adaptations.

Homework task 2:

Using the knowledge of the principles of training from task 1, explain the principles of optimising training and how it links to the principles of training.

Choose a famous sportsperson and describe how the principles of training apply to them and how you would use optimising training to create an elite athlete.



Links to further resources:

[Definitions and descriptions of the principles of training - Principles of training - OCR - GCSE Physical Education Revision - OCR - BBC Bitesize](#)

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Subject: Science

Year: 8 Summer Term 1

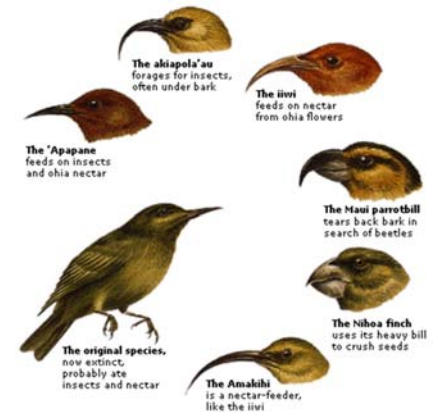
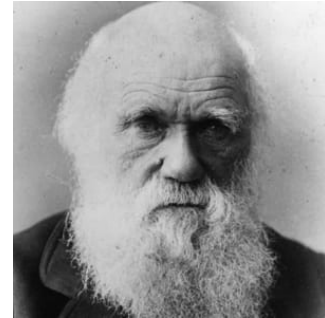
Topic: Evolution

I need to be able to: **Review the evidence for theories about how a particular species went extinct.**

Key Words	Definitions
Population	Group of organisms of the same kind living in the same place.
Natural selection	Process by which species change over time in response to environmental changes and competition for resources.
Extinct	When no more individuals of a species remain.
Biodiversity	The variety of living things. It is measured as the differences between individuals of the same species, or the number of different species in an ecosystem.
Competition	When two or more living things struggle against each other to get the same resource.
Evolution	Theory that the animal and plant species living today descended from species that existed in the past.

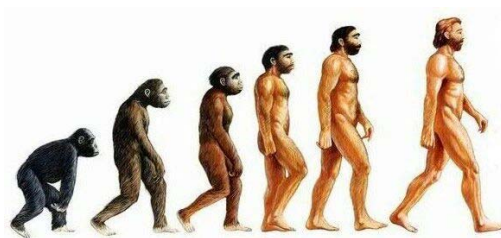
Why does it matter?

- Bacteria are evolving to become resistance to our antibiotics. Scientists need to be able to understand this evolutionary process in the interest of public health.
- How will natural populations of organisms adapt and evolve to climate change?



Arrow Tasks:

- Predict and explain the changes in a population over time due to natural selection.
- Suggest an explanation, based on data, for how a particular evolutionary change occurred.
- Evaluate ways of preserving plant or animal material for future generations.



Links to further resources:

<https://www.bbc.com/bitesize/topics/z6pp34j/resources/1>

Subject: Science

Year: 8 Summer Term 1

Topic: Inheritance

I need to be able to: Model the inheritance of a specific trait and explore the variation in the offspring produced.

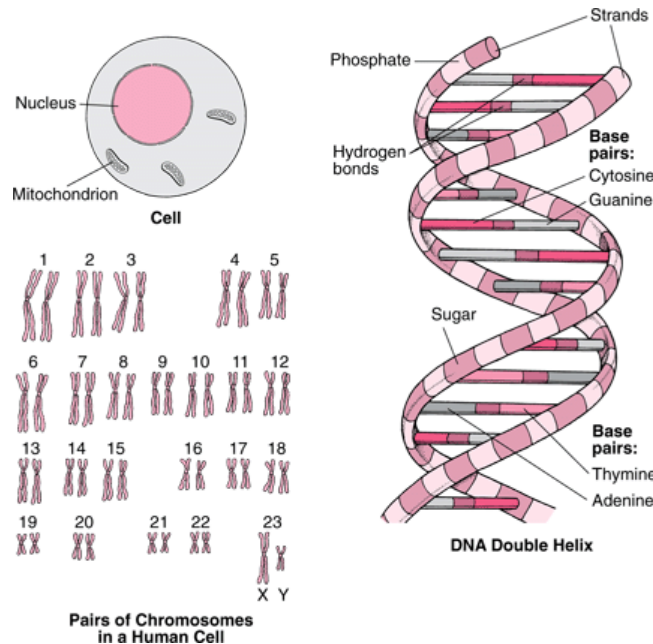
Key Words	Definitions
Inherited characteristics	Features that are passed from parents to their offspring.
DNA	A molecule found in the nucleus of cells that contains genetic information.
Chromosomes	Thread-like structures containing tightly coiled DNA.
Genes	A section of DNA that determines an inherited characteristic.

Why does it matter?

- Forensic scientists use DNA profiles to help solve crimes.
- Geneticists can use DNA and genetic screening to determine the chances of inheriting certain diseases and disorders.
- Scientists can alter the genetic makeup of crops to ensure that they are resistant to herbicides, drought or pests or even produce food that is more nutritious and enriched with certain vitamins.
- Genetic engineering is the manipulation of DNA to alter a characteristic in an organism, this can be used to provide patients with drugs such as insulin to treat diabetes.

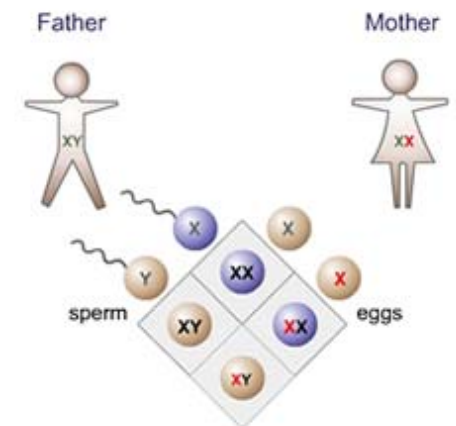
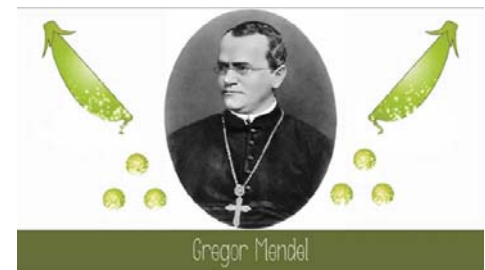
Arrow Tasks:

- Suggest arguments for and against genetic modification.
- Suggest benefits from scientists knowing all the genes in the human genome.
- Determine how the number of chromosomes changes during cell division, production of sex cells and fertilisation.
- Find out why scientists Watson, Crick and Franklin were so important.



Parental Genotypes		♂	
		D	d
♀	D	DD	Dd
	d	Dd	dd

D = Dominant Allele
d = Recessive Allele



Links to further resources:

<https://www.bbc.com/bitesize/topics/zpffr82>

Topic: Wave Effects

I need to be able to: describe how the frequency of a wave and the energy carried by the wave can impact living cells

Key Words	Definitions
Loudspeaker	Turns an electrical signal into a pressure wave of sound.
Microphone	Turns the pressure wave of sound hitting it into an electrical signal.
Pressure Wave	An example is sound, which has repeating patterns of high-pressure and low-pressure regions.
Ultrasound	Sound waves with frequencies higher than the human auditory range.
Ultraviolet (UV)	Waves with frequencies higher than light, which human eyes cannot detect.

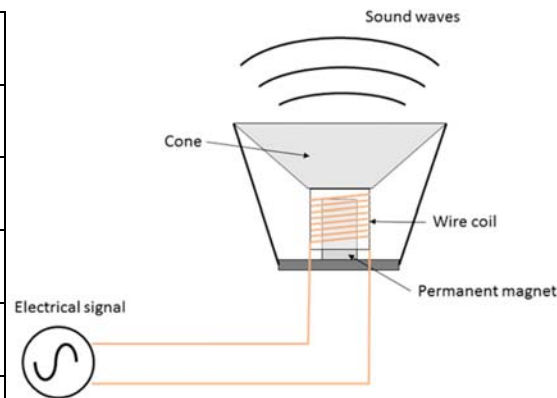
How does light move?

Light travels as waves. Light waves don't always need particles to travel through. They can also travel through outer space or a vacuum.

Light waves travel in straight lines. You can detect them with your eyes, and also with instruments such as cameras. They are reflected by mirrors and change direction when they travel from the air into glass or water.

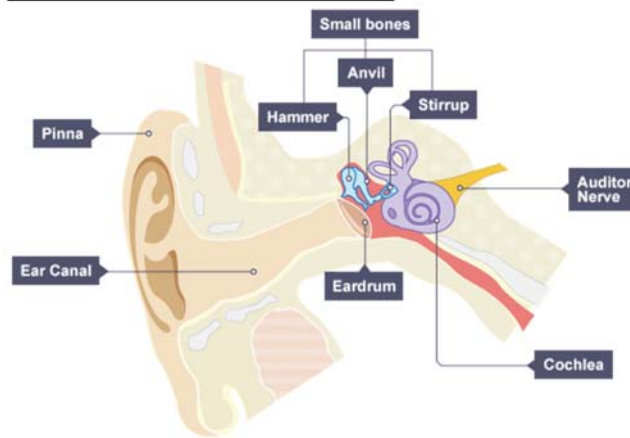
Light travels very fast. It has a speed of 300 million metres per second in a vacuum. It only takes 8 minutes and 20 seconds for light to travel from the Sun to the Earth. Light travels through the air about a million times faster than through sound, which explains why you see lightning before you **hear thunder**.

↑ Arrow Task: How do sound waves help when cleaning jewellery?



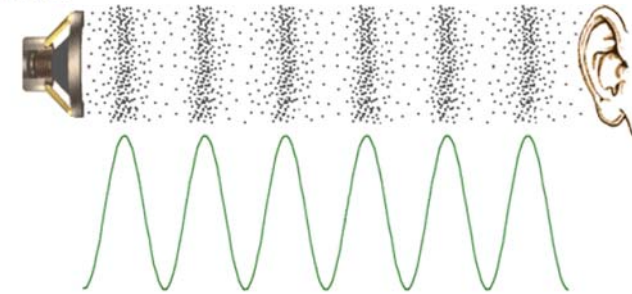
Why does it matter?

An ultrasound scan produces an image of a developing baby; how can sound produce an image?



How is sound produced?

When you bang a drum its skin vibrates. The harder you bang, the bigger the vibrations. The vibrating drum skin causes nearby **air particles** to vibrate, which in turn causes other nearby air particles to vibrate. These vibrating particles make up a **sound wave**.



Detecting sound - ears

An ear has an eardrum inside, connected to three small bones. The vibrations in the air make the eardrum vibrate, and these vibrations are passed through the three small ones (called ossicles) to a spiral structure called the cochlea. Signals are passed from the cochlea to the brain through the auditory nerve, and our brain interprets these signals as sound.

Links to further resources: <https://www.bbc.com/bitesize/guides/z8d2mp3/revision/1>
 ↑ <https://www.physicscentral.com/explore/action/ultrasonic-cleaning.cfm>

Topic: Wave Properties

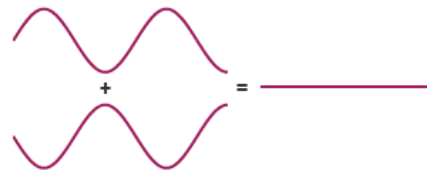
I need to be able to: use the wave model to describe the properties of different types of waves.

Key Words	Definitions
Transmission	Where waves travel through a medium rather than be absorbed or reflected.
Transverse wave	Where the direction of vibration is perpendicular to that of the wave..
Waves	Vibrations that transport energy from place to place without transporting matter.

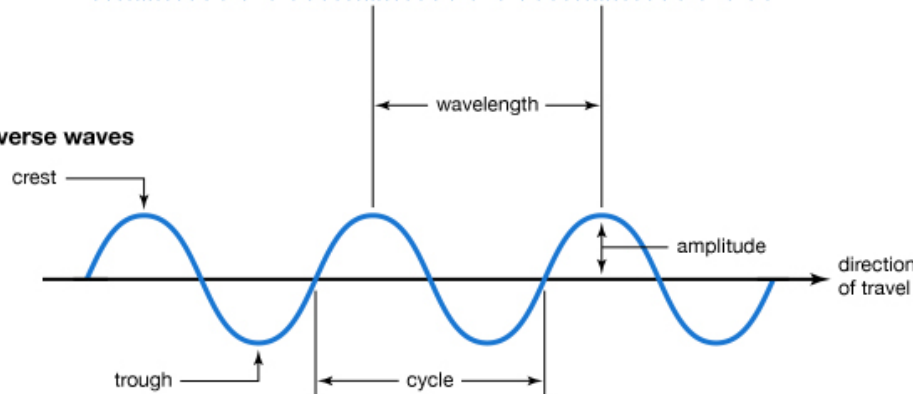
Where two waves meet, they affect each other. This is called **superposition**.

Cancelling

If two waves meet each other out of step, they cancel out.

**Adding**

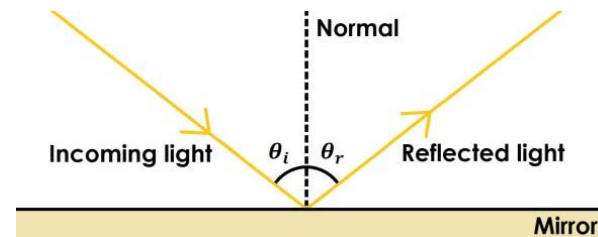
If two waves meet each other in step, they add together and reinforce each other. They produce a much higher wave, a wave with a greater **amplitude**.

**Longitudinal waves****Transverse waves**

↑ Arrow Task: Compare and contrast the differences between sound waves and light waves, and their different properties.

Reflection

Water waves can **reflect** or 'bounce off' a surface. For example, waves at sea are **reflected** when they hit a harbour wall, and waves in washing up water are reflected off the sides of the sink.

**Why does it matter?**

What happens if you stand in a tunnel and shout?
Why does that happen?

Links to further resources: <https://www.bbc.com/bitesize/guides/zgr8d2p/revision/1>
 ↑ <https://www.absorblearning.com/physics/demo/units/DJFPh064.html#Introduction>

[Return to contents page](#)

Summer 1: Y8 Spanish: Operación Verano

I need to be able to: talk about holidays I need to try and use 3 tenses.

Key Words	Definitions
Verb Infinitive	Words which tell you the action Original form of verb ending in –ar,-er,-ir
Subject pronouns	Words that tell you who is doing the action.
Noun	A place, person or a thing.
Gender	In Spanish, nouns and adjectives can be either masculine or feminine.
Adjective	Words which describe nouns. In Spanish adjectives are the same gender as the noun which they describe.
Definite article	‘the’
Indefinite article	‘a’ ‘some’
Singular	One
Plural	More than one
Positive phrase	‘is’, ‘do’ ‘does
Negative phrase	‘is not’, ‘does not’, ‘don’t’, ‘never’
Possessive adjectives	My (in Spanish, there are 2 forms; singular and plural – Mi /mis

Present Tense- Stem changing verbs!

Querer- to want

Quiero- I want
 Quieres- you want
 Quiere- he/she wants
 Quieremos- we want
 Quereis-you want (pl)
 Quieren- they want

Poder- to be able to

Puedo- I can
 Puedes- you can
 Puede- he/she can
 Podemos- we can
 Podeis- you can (pl)
 Pueden- they can

Comparative

You use the comparative to say that something 'is more modern' or 'bigger' and so on, than something else.

**más + adjective + que-
more.... than**

**menos + adjective + que-
less...than**

The adjective must agree with the noun.

e.g

El castillo es más antiguo que...

La ciudad es más antigua que...

Imperative:

You use the imperative to tell someone what to do.

Take the *tu* form of the verb in the present tense and take off the -s.

Doblas (you turn)-
idobla! (turn)

Tomas (you take)-
itoma!- (Take)

There will be more specific vocabulary.

This will be given to you by your class teacher.

Arrow Tasks: Research holiday destinations of Hispanic countries, which are the most/least popular? Why do you think this is?

Where are Hispanic countries located around the world? Why are they so far away from Europe?

	español	inglés
1	¿Qué casa prefieres?	Which house do you prefer?
2	Esta casa es amplia y bonita	This house is spacious and nice
3	La casa está cerca de la playa	The house is near the beach
4	Pero es más bonito que el piso de mi hermano	But is nicer then my brothers flat
5	Mi casa es cómodo y enorme	My house is comfortable and big
6	Tiene una cocina y un comedor	It has a kitchen and a dining room
7	Pero no tiene un jardín con jacuzzi	But it doesn't have a garden with a jacuzzi
8	Me gustaría las vistas al mar	I would like views of the sea
9	¿Qué se puede hacer en Liskeard?	What can you do in Liskeard?
10	Lo mejor de Liskeard es que se puede hacer senderismo, o ir al cine	The best thing about Liskeard is that you can go hiking or go to the cinema.
11	Lo peor de Liskeard es que no se puede ir de compras.	The worst thing about Liskeard is that you can't go shopping.
12	Pero ¿Dónde está la catedral en Liskeard?	But where is the cathedral in Liskeard?
13	No hay una catedral pero en el centro hay una iglesia	There isn't a cathedral, but in the centre, there is a church
14	Se puede ir al cine, sigue todo recto y está a la derecha.	You can go to the cinema, keep straight on and it's on the right
15	Madrid es más grande y más antiguo que Liskeard	Madrid is bigger and older than Liskeard.
16	Pienso que Barcelona es más bonita que Liskeard y menos aburrida para los turistas.	I think that Barcelona is prettier than Liskeard and less boring for tourists.
17	Liskeard es bastante histórico.	Liskeard is quite historic.

Topic: Food

I need to be able to: understand how the functional properties (science) of ingredients affect the physical, and sensory qualities of a recipes . To ensure you can design a balance meal using ingredients to supply protein, carbohydrate, fat, vitamin and minerals. To ensure that you take into account your knowledge about diet related diseases.

Key word	Definition
Type 2 diabetes	A health problem when too much sugar is consumed on a regular basis.
Coronary heart disease	A health problem when too many calories or saturated fat is consumed on a regular basis.
Constipation, diverticular	A diet low in fibre can cause these dietary related diseases.
Obesity	A health problem when you are not eating too many calories for the amount of energy expended.
Shortening	Rubbing fat into flour prevents long chains of gluten forming resulting in a short crumbly pastry texture.
Proving	Time allowed for the yeast to breathe out carbon dioxide gas to make bread rise.
Glazing	To apply an egg and milk mixture to improve the appearance of a product (shiny brown surface).

Arrow Tasks -

* Explain how the ingredients are produced and link to the affect upon the environment. Are they sustainable? Could alternatives be used? Explain why. Try to link to environmental pollution, the effect of deforestation, use of fossil fuel to power or make the materials.



Rolling—To make a dough flat by rolling with a rolling pin.

Quality control—level and the thickness stated for the recipes.

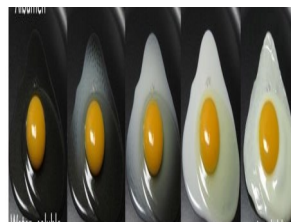


Reduction sauce— to simmer a sauce to evaporate the water to increase the thickness and intensity of the flavour. **Quality control**—thick rich viscosity.



Stir fry—to fry using a small amount of oil (healthy low fat cooking method. FIRE RISK

Quality control—slightly crunchy



Coagulation of egg—heat causes the amino acid protein bond to reform and go from liquid to solid.

Quality control—set structure



How to use industrial equipment correctly to reduce making time.

Quality control—smooth cake batter and creamy topping.



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Topic: Treasure Box

I need to be able to:

- learn about the Art deco design era and to show the influence of Art Deco style in designing the box lid.
- learn about CAD (computer aided design) and develop CAD skills through designing using 'Techsoft 2D design' software and learn about CAM (computer aided manufacture) as knowledge of how the laser cutter works affects the design stage.
- Develop practical skills with particular emphasis on detail and finish.

Stages of the Design Process:

Context	Design Brief	Task Analysis	Research
Investigation	Specification	Design & Development	
Making	Testing	Evaluation	

Key Words

* Design process



*

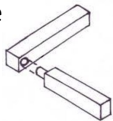
CAD



* CAM



* Dowe



* QCC

QUALITY CONTROL



Definitions

The steps a designer/maker goes through from identifying a problem and need for a product to its final making, testing and evaluating and improving.

Computer Aided Design is a vital tool for a Product Designer. CAD software allows a designer to quickly produce 3D images/ designs. The design can then be rotated, colour rendered and analysed/evaluated.

Computer Aided Manufacture: once a prototype design has been produced, it can be manufactured on a CNC machine or Rapid Prototyping machine. Products and components can be made repeatedly to the same high standard. CAM is much faster than machining by human control / by hand. Large quantities can be produced 24 hours a day, reducing the final cost/price.

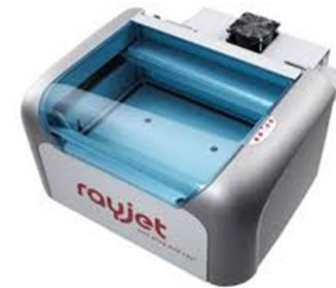
Dowel joints are used to strengthen a joint. It can also be made to swivel, allowing a lid to open and close on a horizontal plane.

Quality Control Checks are used in all areas of manufacturing to check quality against a set standard or a specification. In industry Quality Control requires constant inspection throughout the manufacturing process in order to detect products which are not up to the required standard.

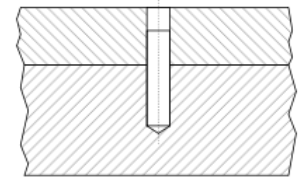
New materials, tools and equipment used in the treasure box project



Techsoft 2D design Software used to produce the surface design for the lid



Rayjet 50 Laser engraver/cutter used to engrave and cut the lid design



The lid could open using a swivelling dowel joint



The treasure box design will be based on Art Deco—a design era that spanned from 1925—1950



Example treasure boxes



Arrow Task:

Design and make a wooden hinge.

Here is just one example...



Link to further resources:

<http://www.technologystudent.com>
<http://www.mr-dt.com/>
http://wiki.dtonline.org/index.php/Main_Page

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Topic: Eco Bag

Who is Jasper Johns?

An American painter (born May 15, 1930). His style of work is often very **abstract** and **expressive**. Early pieces of his work were composed on a large scale, using simple graphics such as letters and numbers.



Arrow Task: Compare the environmental impact between a calico shopping bag, a rayon shopping bag and a nylon shopper.

Key Words

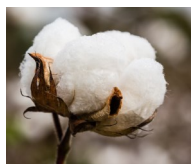
* Stencil



* Calico



* Natural fibres



* Man-made fibres

**Definitions**

A thin sheet of card with letters cut out of it, used to produce the cut design on the surface below by sponging paint through the holes.

A strong, coarse fabric made from the jute plant.

Fibres that have been produced by plants and animals. These fibres can be spun and then woven.

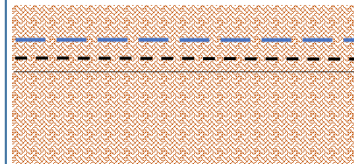
A type of fibre that is made artificially, such as polyester. These are often called 'synthetic'.

Stage 1



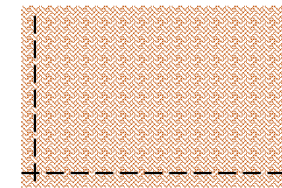
Firstly, get two pieces of calico and scrape paint on one side in the style of Jasper Johns and then stencil the lettering.

Stage 2



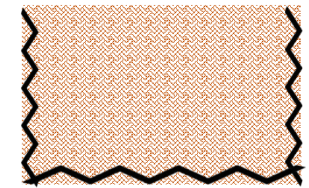
To create the top hem, fold the top of the bag 1.5cm and fold again. Then pin, tack and machine sew. Do this for the top of both panels.

Stage 3



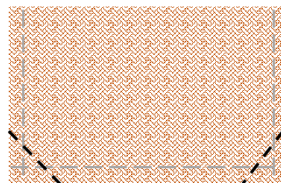
Then pin, tack and sew the two panels of the bag together, with the printed sides facing inwards.

Stage 4



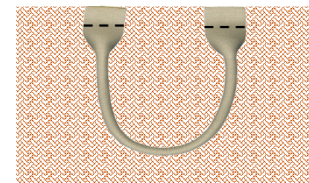
Using the sewing machine's zig zag setting, sew the sides and bottom of the fabric to stop it from fraying.

Stage 5



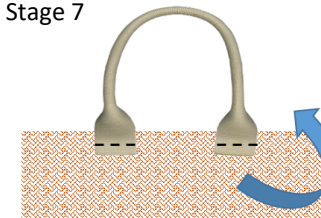
Pinch the two bottom corners and pull them to create a straight edge. Machine stitch along the straight line.

Stage 6



With the bag still inside out, sew the handle strap onto one side, in a downwards position. Then repeat on the other side of the bag.

Stage 7



Now turn the handles up the correct way and sew along the bottom so they are secure.

Stage 8



Turn the entire bag inside out so that the 'correct' side of the bag can be seen. Your Eco bag is now complete!

What do I need to be able to do?

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

- Add/Subtract unit fractions (same denominator)
- Add/Subtract fractions (same denominator)
- Use equivalent fractions
- Draw and measure lines
- Measure angles
- Identify parallel and perpendicular lines
- Identify polygons

Keywords

Numerator: the number above the line on a fraction. The top number. Represents how many parts are taken

Denominator: the number below the line on a fraction. The number represent the total number of parts

Equivalent: of equal value

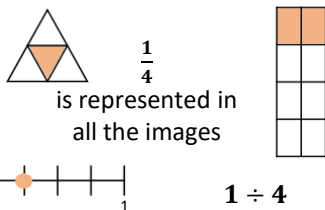
Place value: the value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right

Polygon: A 2D shape made with straight lines

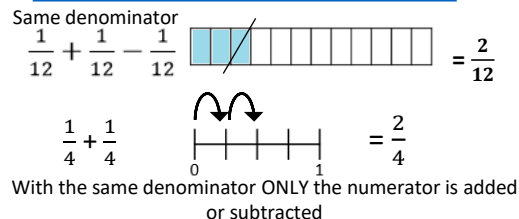
Rotation: turn in a given direction

Protractor: equipment used to measure angles

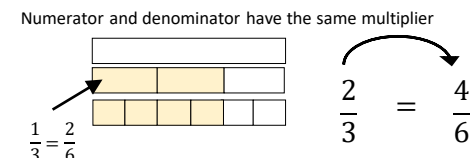
Representing Fractions



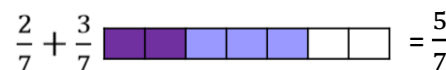
Add/Subtract unit fractions



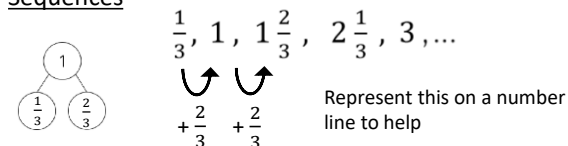
Equivalent fractions



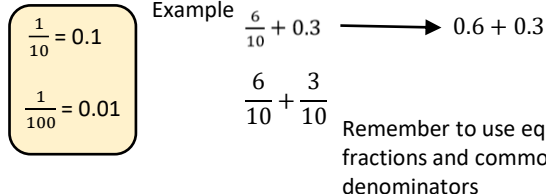
Add/Subtract fractions



Sequences



Fractions and decimals



Addition Subtraction

Column method

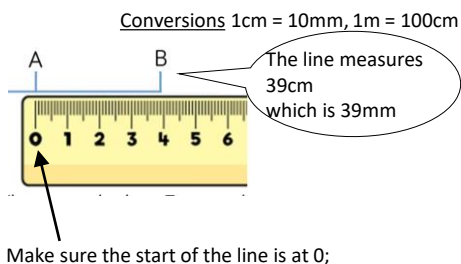
Multiplication

Grid method
Formal method

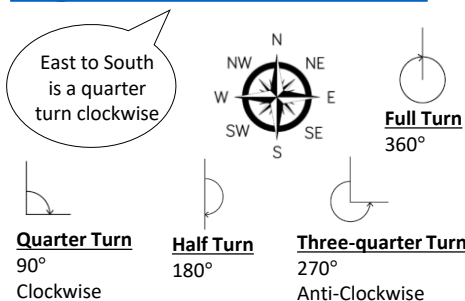
Division

Bus stop method

Draw and measure lines



Angles as measures of turn

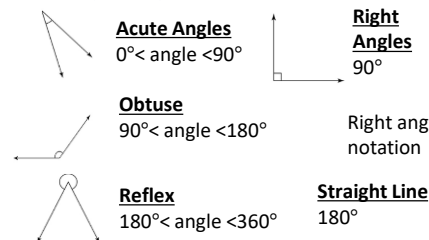


Polygons

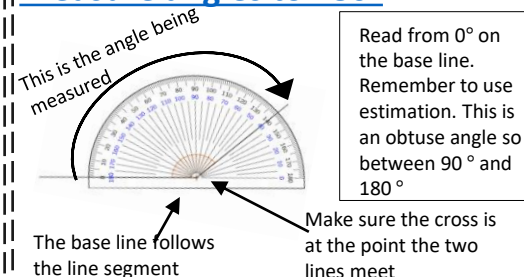
3 - Triangle
4 - Quadrilateral
5 - Pentagon
6 - Hexagon
8 - Octagon

If all the sides and angles are the same, it is a **regular** polygon

Classify angles



Measure angles to 180°



Parallel and Perpendicular lines

Parallel lines
Straight lines that never meet
(Have the same gradient)

Perpendicular lines
Straight lines that meet at 90°

Keyword	Definition
The Solar System	The Sun together with all the planets and bodies that revolve around it.
Earth	The 3 rd planet from the Sun, the planet we live on.
season	A particular period of the year characterised by weather, temperature etc
winter / summer / autumn / spring	The four seasons of the year.
planet	A large heavenly body revolving around the sun and reflecting light
orbit	To move / travel around
weather	The state of the atmosphere with respect to wind, temperature, cloudiness, moisture and pressure.
Tectonic plates	Plates that make up the Earth's surface.

Knowledge

The Earth is a planet in the Solar System. It is the planet we live on.

There are four seasons on Earth and these occur at particular times of the year characterised by the weather, light and temperature.

The Earth orbits the sun. One complete journey around the Sun is called an orbit. For Earth, one orbit takes 365 days = 1 year.

Every planet has a different orbit, as it takes different lengths of time for each planet to complete one full journey around the Sun.

There are different physical processes that can occur linked to the movement of the Earth's tectonic plates.

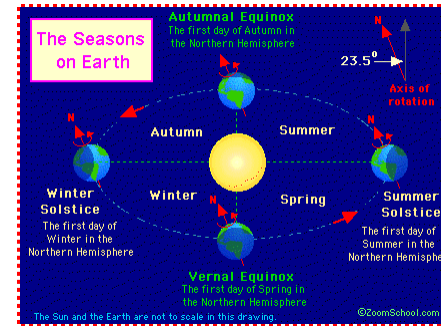
There have been natural disasters in many different countries, some of these are:

- Pompeii
- Montserrat
- St Helens volcano eruption
- Indian ocean boxing day tsunami

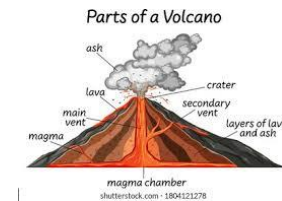
What happened in these places? What was the impact then and now?



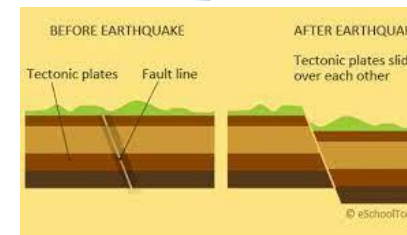
Pompeii



The four seasons—**spring, summer, autumn, and winter**—follow one another regularly. Each has its own light, temperature, and weather patterns that repeat yearly.



Physical processes and hazards



Skills:
 Use Geographical vocabulary
 Use Scientific vocabulary
 Use secondary sources
 Use ICT
 Identify places where natural disasters have occurred
 Identify the impact of physical processes on the Earth, people

At the end of this unit you will be able to: Explain and describe what is meant by each physical process and what happens. Explain how the Earth's tectonic plates play a part in the physical processes that impact the Earth.

A Guide to Revision

We hope you find these pages about revision useful. You will need to use these skills throughout your time at school, from Year 7 all the way through to Year 13. Developing these skills early means they will become second nature and revision will become easy!

We want you to achieve the best possible results throughout your time at school and achieve results that will not only increase your life chances but also take you to the next step on your chosen career pathway. Speak to any one of your teachers for more advice on revision.

Points to remember

- Revision is re-looking at information you have learnt previously.
- The idea is that you know the information that will be tested and can remember it for the exam.
- Your attitude is important.
- You only fail if you give up.
- If you fail to plan, you plan to fail.

Believe in yourself, be positive.
If you think you can succeed you will.

Attendance

- Every lesson counts and your attendance is vital.
- Try your best in all lessons and make them work for you.
- It is what you are getting out of it that matters.
- This is YOUR result, so make it count.
- You will get out of it what you put in - so do your best.

Revision materials you'll need



These are to help you organise your revision and keep everything in one place.

Top Tip: Revision materials are available from the school shop in the library.

You can also buy these items very cheaply from a local pound shop!

Revision Strategies

Revision Planner							
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Morning							
Afternoon							
Evening							

- Plan your time – create a revision timetable
- Break revision into chunks
- Find a quiet space to revise



- Revise in 20 minute blocks
 - This is the optimum concentration time
 - Have a short break between blocks



- Avoid distractions!
 - Turn off your phone
 - Turn off the TV



Brain Dump

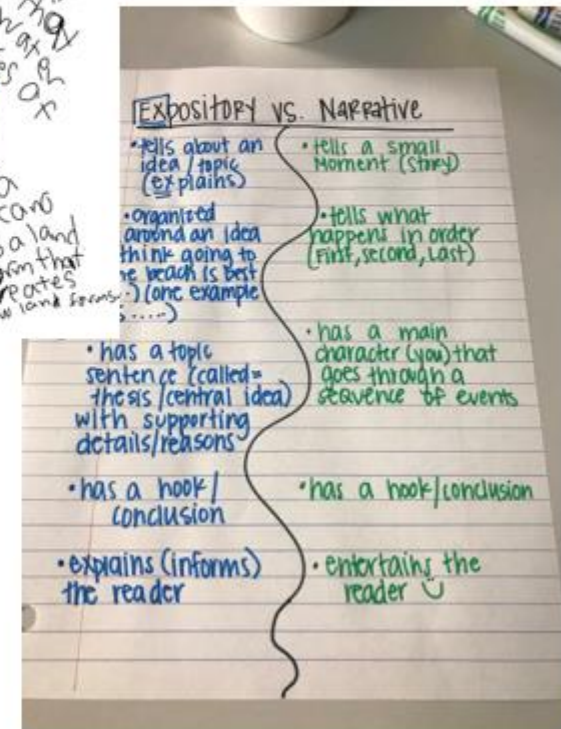
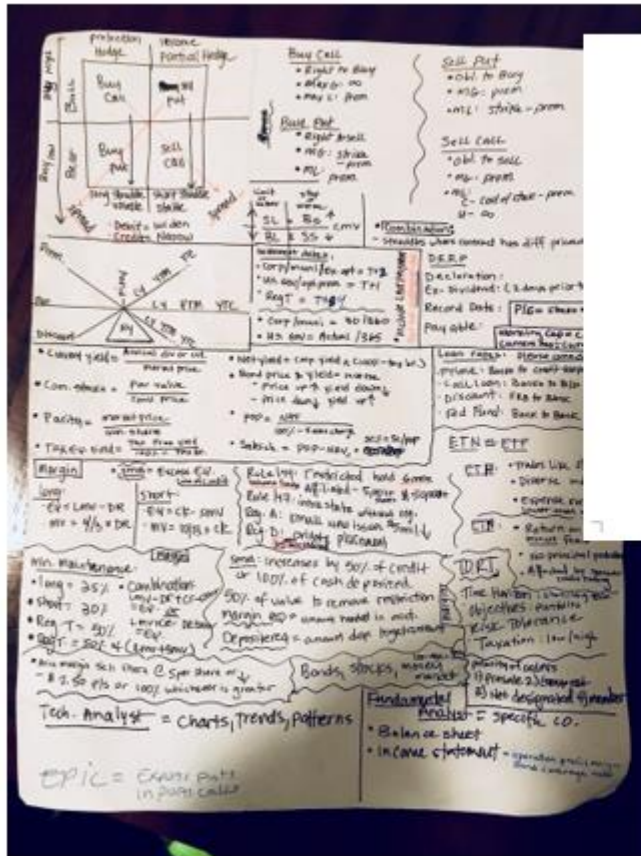
WHEN: beginning of 20 minute revision block

HOW:

- Take a blank piece of paper
- Write down (DUMP!) everything you know about the topic
 - No books
 - No notes
 - Be as messy as you like
- Time limit of 60 seconds
- Now revise the topic (15 minutes)
- Finally, go back to your DUMP and add everything you have learnt
 - Use a different colour pen

IMPACT: you should be able to add 7-15 new things to your DUMP

Examples of Brain Dumps



Top Tip: Repeat a brain dump regularly.

This will help identify which aspects of a topic you have **forgotten** to include. These are the areas you need to **focus on** when revising!

MIND MAPS

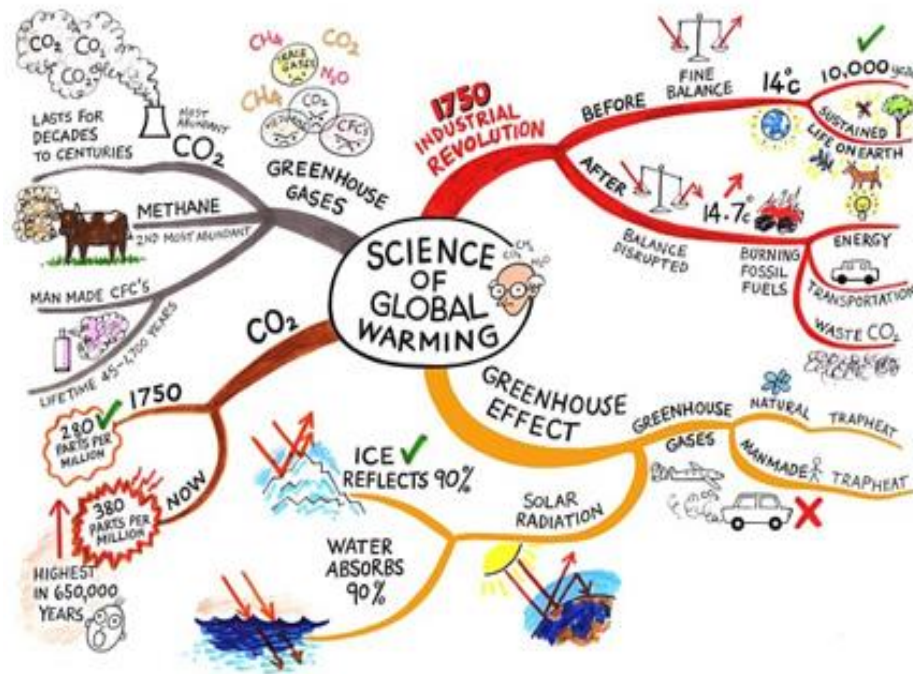
WHEN: to organise information from your exercise/text book.

HOW:

- Put the topic in the centre of a blank page
- Add big branches with the main ideas/themes of the topics
- Add small branches to these with more detail
- Try to write only 1 or 2 words per branch
 - Focus on the key points only
- Add an image to each branch (dual code)
- Revisit your mind map next time you DUMP

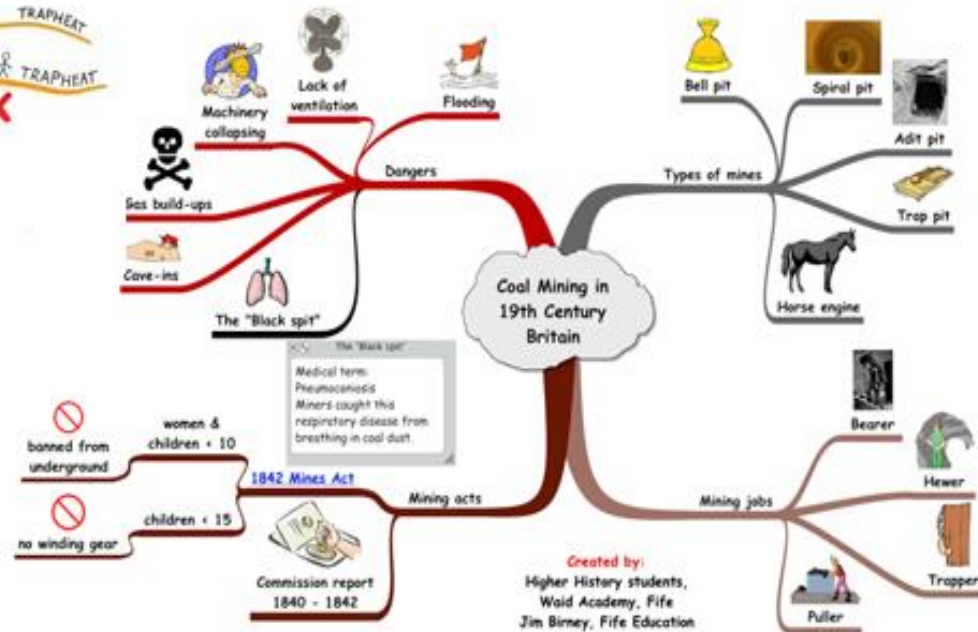
IMPACT: whole topic with the key ideas on a single page.

Examples of Mind Maps



Top Tip: Use 'dual coding' in your mind maps.

Dual coding means using both words and images to record the information you need to remember.



Top Tip: Use different colours for each branch of your mind map.

This helps your brain distinguish between each of the different information stems.

FLASH CARDS

WHEN: to organise information from your exercise or text book.

HOW:

- Put a key question on one side
- Bullet point the key points that answer the question on the other side
- Put a formula / word on one side
- Put the definition on the other side
- You might be able to group key formulae/words together
- Bullet point the key points of a topic on one card (use both sides)

IMPACT: great for targeting key questions/formulae/words that you are finding hard to remember. Easy to carry around.

Examples of Flash Cards



Top Tip: Once you have created your flash cards, take a photo with your phone.

Create revision folders in your gallery so that you can revise in the car, on the bus... in fact anywhere when you've got a few spare minutes!

Mnemonics

WHEN: remembering a list of things or items in a particular order

HOW:

- Create a song, rhyme or poem using the first letter of each word in a sequence

For example:

- Richard of York gave battle in vain (to remember the colours of the rainbow)
- **Red Orange Yellow Green Blue Indigo Violet**



- Write out the first letter of each word in a sequence or list then make up your own rhyme

IMPACT: great for remembering sequences and orders of words relating to a topic.

Top Tip: Be **creative** when using mnemonics.

The sillier the rhyme, the more likely you are to remember it! **Repeat** the rhyme **regularly** to make sure it goes into your long term memory

Liskeard's Six Effective Learning Strategies

Check out the link on our school website for more information:

<http://www.liskeard.cornwall.sch.uk/students/six-strategies-for-effective-learning>

1. SPACE IT OUT



Don't just revise what you've just learnt.
Study older information to keep it fresh.

2. RETRIEVE



Without using your books, write or sketch
everything you know. Then check it!

3. ELABORATE



Think about the detail.
Describe, Explain, Compare, Question...

4. INTER-LEAVE



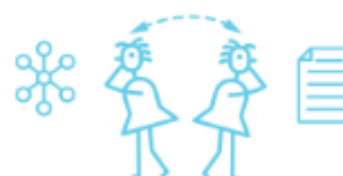
Don't study one topic for too long.
Switch between topics when studying.

5. USE EXAMPLES



Collect examples you have used in
class, or found yourself.
Link the examples to what you are studying.

6. DUAL CODE



Turn your words & notes into diagrams or pictures.
Turn your diagrams & pictures into words or notes.

Revision Websites

In addition to the website links within the subject pages, there are as a wide range of resources available online. Below is just a small section of those available.

<https://www.educationquizzes.com/ks3/>

Interactive resources for a wide range of subjects

<https://www.bbc.com/bitesize/levels/z4kw2hv>

Resources for a wide range of subjects

<https://mathsmadeeasy.co.uk/ks3-revision/>

Great for maths, also offers English and science resources

<https://www.senecalearning.com/>

Quick fire interactive questions across a range of subjects

Top Tip: Ask your teacher for a list of the topics you need to revise.

Websites contain a lot of information, some of which that will not be relevant to your course. Make sure you revise everything you need to know!