

KNOWLEDGE

ORGANISER

Year 8
Half Term 3



Name:

Tutor Group:

Academic Year:



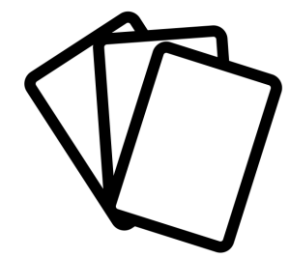

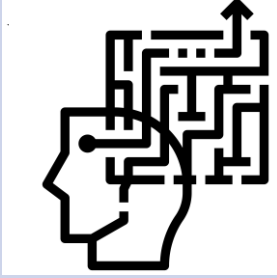
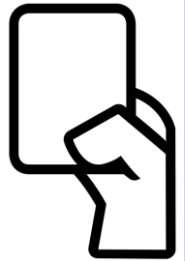



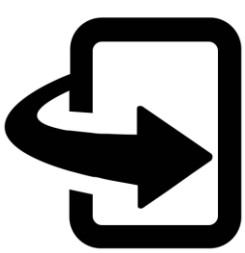
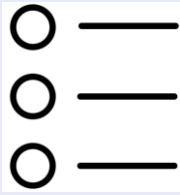


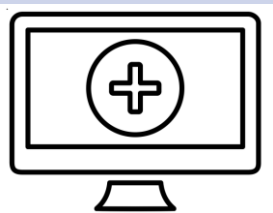
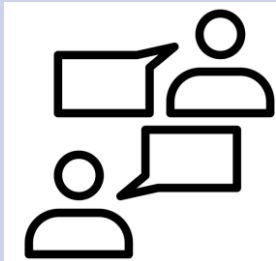
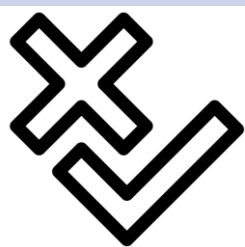
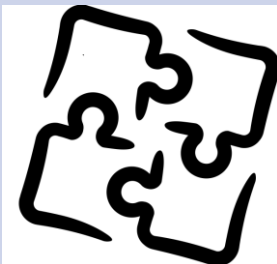

How to use your Knowledge Organiser



The aim of the knowledge organiser is to ensure that **ESSENTIAL KNOWLEDGE** is stored and retrieved over a long period of time.



You need to ensure that you keep your knowledge organiser in your bag, ready for revision, quizzing and to refer to at any time in all of your subjects.

	Look, Cover, Write, Check	Definitions to Key Words	Flash Cards	Self Quizzing	Mind Maps	Paired Retrieval
Step 1	<p>Look at and study a specific area of your knowledge organiser</p> 	<p>Write down the key words and definitions.</p> 	<p>Use your knowledge organiser condense and write down key facts and/or information on your flash cards.</p> 	<p>Read through a specific area of your knowledge organiser</p> 	<p>Create a mind map with all the information that you can remember from your knowledge organiser.</p> 	<p>Ask a partner or someone at home to have the quiz questions or flash cards in their hands.</p> 
Step 2	<p>Flip the knowledge organiser and write everything you can remember.</p> 	<p>Try not to use the solutions to help you.</p> 	<p>Add diagrams or pictures if appropriate. Write the solutions on the back of the cards.</p> 	<p>Turn over and answer the questions related to that area.</p> 	<p>Check your knowledge organiser to correct or improve your mind map.</p> 	<p>Ask them to test you by asking questions on the section you have chosen from your knowledge organiser.</p> 
Step 3	<p>Check what you have written. Correct mistakes and add extra information. Repeat.</p> 	<p>Check your work. Correct using red pen and add more information if appropriate.</p> 	<p>Self quiz using the cards or ask some to help by quizzing you.</p> 	<p>Turn back over and mark your quiz. Keep quizzing until you get all questions correct.</p> 	<p>Try to make connections that links information together.</p> 	<p>Either say or write down you answers.</p> 

CORE

YEAR 8 - ALGEBRAIC TECHNIQUES...

Brackets, Equations & Inequalities

@whisto_maths

What do I need to be able to do?

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

- Form Expressions
- Expand and factorise single brackets
- Form and solve equations
- Solve equations with brackets
- Represent inequalities
- Form and solve inequalities

Keywords

- Simplify:** grouping and combining similar terms
- Substitute:** replace a variable with a numerical value
- Equivalent:** something of equal value
- Coefficient:** a number used to multiply a variable
- Product:** multiply terms
- Highest Common Factor (HCF):** the biggest factor (or number that multiplies to give a term)
- Inequality:** an inequality compares two values showing if one is greater than, less than or equal to another

Form expressions

For unknown variables, a letter is normally used in its place

More than - ADD


Less than/ difference - SUBTRACT

e.g 4 more than t \longrightarrow $t + 4$
 8 less than k \longrightarrow $k - 8$

Only similar terms can be grouped together

e.g Find the perimeter of this shape

(Perimeter = length around outside of shape)

t  $t + 2t + 1 + t + 2t + 1 \longrightarrow 6t + 2$

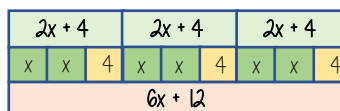
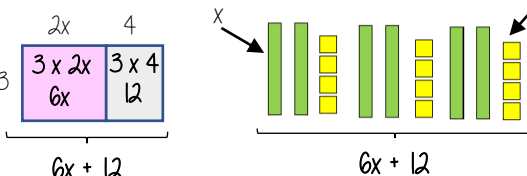
Directed numbers

- $++ \longrightarrow +$
- $-- \longrightarrow +$
- $+ - \longrightarrow -$
- $- + \longrightarrow -$

e.g $a = -5$ and $b = 2$
 $a^2 = a \times a = -5 \times -5 = 25$
 $b + a = 2 + -5 = -3$

Multiply single brackets

$3(2x + 4)$



Different representations of $3(2x+4) = 6x + 12$

Factorise into a single bracket

$8x + 4$



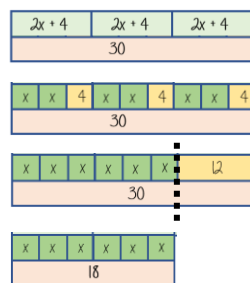
The two values multiply together (also the area) of the rectangle

$8x + 4 \equiv 4(2x + 1)$

Note:
 $8x + 4 \equiv 2(4x + 2)$
 This is factorised but the HCF has not been used

Solve equations with brackets

$3(2x + 4) = 30$



$3(2x + 4) = 30$

Expand the brackets

$6x + 12 = 30$

-12

Substitute to check your answer. This could be negative or a fraction or decimal

$6x = 18$

-6

$\frac{x}{3} \quad x = 3$

Simple Inequalities

< less than

\leq Less than or equal to

> More than

\geq More than or equal to

$x < 10$

Say this out loud "x is a value less than 10"

Note:
 $x < 10$ and $10 > x$ represent the same values

$x + 2 \leq 20$

"my value + 2 is less than or equal to 20"

$x \leq 18$

The biggest the value can be is 18

$10 > x$

Say this out loud "10 is more than the value"

Form and solve inequalities



Two more than treble my number is greater than 11

Find the possible range of values

Form

$x \longrightarrow x3 \longrightarrow +2 \longrightarrow 11$

$3x + 2 > 11$

Solve

$x \longleftarrow -3 \longleftarrow -2 \longleftarrow 11$

$x > 3$

Check

This would suggest any value bigger than 3 satisfies the statement

$3 \times 3 + 2 = 11 \checkmark$

$10 \times 3 + 2 = 32 \checkmark$

Algebraic constructs

Expression

A sentence with a minimum of two numbers and one maths operation

Equation

A statement that two things are equal

Term

A single number or variable

Identity

An equation where both sides have variables that cause the same answer includes \equiv

Formula

A rule written with all mathematical symbols e.g area of a rectangle $A = b \times h$

YEAR 8 - ALGEBRAIC TECHNIQUES...

Brackets, Equations & Inequalities

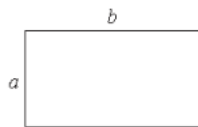
@whisto_maths

Form Expressions

Write an algebraic expression for the following:

- a) 3 more than a
- b) Y lots of three then squared

Write an expression for the area and perimeter of the rectangle below



Directed numbers

Work out the missing numbers

4 - 8 =

2 - = -8

-3 + 23 + 30 =

-2 + = 42

Multiply single brackets

Expand the following

$3(2x + 3)$

$2(4x - 1)$

$2x(1 + 2x)$

$4x(3x + 2)$

Factorise into a single bracket

Factorise the following

$8x - 16$

$3(2x + 3)$

$2(4x - 1)$

$12xy^2 + 18xy$

Solve equations with brackets

Solve the following equations

1) $2(x + 3) = 10$

2) $5(x - 1) = 20$

3) $5(2x - 1) = 5x + 15$

Simple Inequalities

Write the following as an inequality

a) n is less than 5

b) 6 is less than x

What is the meaning of the following inequalities

a) $x + 4 > 7$

b) $n < -5$

Form and solve inequalities

Solve the following inequalities

a) $2x + 4 < 10$ b) $8 < 2x - 10$




Can you write the following problem as an inequality and solve it?

Sam and Alex play in the same soccer team.

Last Saturday Alex scored 3 more goals than Sam, but together they scored less than 9 goals.

What are the possible number of goals Alex scored?


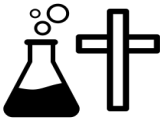

The Gothic- Portrayal of Victorian Monsters – Y8- Unit 2

Context	
<p>The Gothic Genre</p> 	<p>Gothic Genre : Gothic fiction, which is largely known by the subgenre of Gothic horror, is a genre or mode of literature and film that combines fiction and horror, death, and at times romance. Its origin is attributed to English author Horace Walpole, with his 1764 novel <i>The Castle of Otranto</i>, subtitled (in its second edition) "A Gothic Story." It originated in England in the second half of the 18th century and had much success in the 19th, as witnessed by Mary Shelley's <i>Frankenstein</i> and the works of Edgar Allan Poe. The name Gothic refers to the (pseudo)-medieval buildings, emulating Gothic architecture, in which many of these stories take place. Vocabulary linked to Gothic genre: macabre, supernatural, eerie, uncanny, curse, entrapment, grotesque, terror, reverent, introspective, deduction, scandal, enlighten, context, mythology, judicious, intention, ornithological, psychological, societal, commentary, detective, archetypal</p>
<p>Science and Religion</p> 	<p>Throughout the Victorian age, religion was a dominant force in the lives of many. However, there was a growing seam of doubt. Social life for ordinary people revolved around choir and Sunday School outings. Many employers insisted that their employees go to church. The Victorian era is famous for being prim and proper, even though there was a seedy 'underworld' of prostitution, drugs and crime in the 'wrong' parts of town. Karl Marx, who wrote the <i>Communist Manifesto</i> described religion as "the opiate of the masses" i.e., a trick to keep the poor in their place. Charles Darwin's <i>On the Origin of Species</i> (1859) seemed to disprove creation (the belief that God created the world and that it had started with Adam and Eve), and substituted the new idea of 'evolution'.</p>
<p>Industrialisation</p> 	<p>In 1837, Britain was still a rural nation with 80% of the population living in the countryside. Most people were farmers or spun wool and cotton to weave into cloth. Soon new machines were invented that could do these jobs in a fraction of the time. This left many people out of work, so they flocked to the towns in search of jobs in new industries. By the middle of the nineteenth century over 50% of the population lived in towns and cities. Despite the growing wealth due to trade and commerce, many of the working people, who actually produced the wealth, lived, worked and died in very poor conditions.</p>

Key tropes of Gothic writing	
Nature	Whereas Romantic writers tended to look at the beauty of nature, during the Gothic period writers began to explore the darker side of nature. Gothic literature often includes settings like dark forests, unnerving mountain regions, ominous climatic conditions, threatening storms or creepy graveyards. Writers used these settings to explore the power and mystery of nature and to highlight the fears of their characters.
The Supernatural	The theme of the supernatural occurs regularly in gothic fiction. This can be in the form of supernatural creatures/ beings as well as unusual themes and events. Gothic writers would often include inexplicable events in their stories such as inanimate objects coming to life, ghosts, spirits, and vampires like that of Bram Stoker's 1897 Gothic fantasy, <i>Dracula</i> .
The Duality of Man	Gothic literature often explores how human beings have the capacity for both good and evil. Gothic stories like Poe's <i>The Tell Tale Heart</i> and Stephenson's <i>Strange Case of Doctor Jekyll and Mr Hyde</i> highlight how behind closed doors people who are seemingly good, may do bad things. Gothic Literature also often encourages us to think about the difference between right and wrong and who decides what is 'morally good'.
Mystery and Fear	Gothic writing often evokes feelings of suspense and fear.. Many Gothic works contain scenes, events and objects such as burials, flickering candles, evil potions, and other frightful concepts. Many believe this is because the conflict between Science and Religion during the Victorian period led to a lot of people being confused and fearful.
Damsel in Distress	Gothic works often include a woman who suffers at the expense of a villain. These women often carry feelings of sadness, oppression, and loneliness, and many were depicted as virginal in early Gothic pieces. The damsel's character is often held captive and presented as weak and helpless, reinforcing some of the patriarchal views of the period. An example of a damsel in distress can be found in Horace Walpole's character Matilda, whose unwavering loyalty to her father ultimately makes her weak and powerless.

Transferable Knowledge		
Trope	A significant or recurring theme that is typical of a genre.	A trope of gothic fiction is the supernatural.
Symbol	A thing that represents or stands for something else.	The blood that Dracula drinks from his victims symbolises life and youth.
Narrative Poetry	Narrative poetry is a form of poetry that tells a story, often making the voices of a narrator and characters as well; the entire story is usually written in metered verse.	The <i>Raven</i> by Edgar Allan Poe is an example of narrative poetry.

The Gothic- Portrayal of Victorian Monsters – Y8- Unit 2

<p>The Gothic Genre</p> 	<p>List 8 features of the gothic genre. Use this video to support you: https://www.youtube.com/watch?v=fUNuFLHvVng</p> <p>Write a short story in which you include features of the gothic genre. Use the Gothic Literature booklet on Google Classroom to support you.</p> <p>Watch this video and produce a page of Cornell Notes: https://www.youtube.com/watch?v=gNohDegnaOQ</p>
<p>Science and Religion</p> 	<p>Research and record 5 key facts about Karl Marx's communist manifesto- must be in full sentences. Use this video to support you: https://www.youtube.com/watch?v=SDHsJC2q-W8</p> <p>Research and record 5 key facts about Darwinism- must be in full sentences. Use this video to support me: https://www.youtube.com/watch?v=BcpB_986wyk</p> <p>Produce a paragraph in response to this question: Why do you think people began to question religion during the Victorian era? Use this resource to support you https://www.bbc.co.uk/bitesize/guides/z22x6sg/revision/2</p>
<p>Industrialisation</p> 	<p>Research and find 10 additional facts about the industrial revolution in the Victorian era. Use this section of BBC Bitesize to support you: https://www.bbc.co.uk/bitesize/topics/zm7qtfr</p> <p>Create a dual coding poster summarising industrialisation</p> <p>Write the opening to a short story. The protagonist should be a child, living in poverty during the Victorian era.</p>

Key tropes of Gothic writing

Nature	Write a story set in an abandoned forest. Ensure you use natural imagery and build setting. Use the Gothic Literature booklet on Google Classroom to support you.
The Supernatural	Produce a page of Cornell notes around how the supernatural is used in Gothic Literature. Use this link to support you. https://www.bartleby.com/essay/The-Purpose-Of-The-Supernatural-In-Literary-PK8TVE936ZZA
The Duality of Man	Respond to the following question in your knowledge organiser: What is meant by 'The duality of man'? https://www.slanglang.net/slang/duality-of-man/
Mystery and Fear	Write a story set that build mystery and fear. Ensure you raise clues in the reader's mind. Use the Gothic Literature booklet on Google Classroom to support you.
Damsel in Distress	Write a page of Cornell notes based on the following information: https://www.dictionary.com/e/pop-culture/damsel-in-distress/

Transferable Knowledge

Trope	
Symbol	
Narrative Poetry	<p style="text-align: center;">Define these key terms and use each of them in a paragraph discussing the texts we have studied so far this term. For example, In Edgar Allan Poe's narrative poem the Raven we see many tropes of Gothic Literature. To begin with we see...</p>

The Gothic- Portrayal of Victorian Monsters – Y8- Unit 2

Context

The Gothic Genre



1. List 8 features of the gothic genre
2. Write a short story in which you include features of the gothic genre.
3. Find, record the titles of and summarise, three other texts that are classed as 'gothic'

Science and Religion



Industrialisation



7. Research and find 10 additional facts about the industrial revolution in the Victorian era.
8. Create a dual coding poster summarising industrialisation
9. Write the opening to a short story. The protagonist should be a child, living in poverty during the Victorian era.

Key Ideas

Narrative Poetry

10. Research narrative poetry, find an example, and write a summary of what the poem is about.

The Supernatural

11. Design a supernatural character. Write at least two paragraphs (show don't tell) exploring who your character is and what makes them supernatural.

Transferable Knowledge

Pathetic Fallacy

Imagery

Trope

Genre

Symbol

Motif

Gothic

Narrative Chronicle

Archetype

Convention

Five at a time, define the key term and use it in a sentence.

Neutralisation



Acids contain H⁺ ions

Alkalies contain OH⁻ ions

Catalyst

A catalyst changes the rate of a chemical reaction but is not used in the reaction.

Enzymes

These are biological catalysts.

How do they work?

Catalysts provide a different reaction pathway where reactants do not require as much energy to react when they collide.

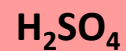
Chemical Symbols and Formulae

Atomic (proton) number

The atomic number is the smallest number on the periodic table. This tells us how many protons are in an element. There will always be the same number of electrons as protons.

Relative atomic mass

The relative atomic mass is always the larger number on the periodic table. This tells us how heavy the atoms of each element are – this is also the number of protons + neutrons in the nucleus



This chemical formula tells us that there are 2 atoms of Hydrogen, 1 atom of Sulfur and 4 atoms of Oxygen in the chemical (sulfuric acid).

Gas	Test
Hydrogen	Squeaky pop
Oxygen	Relighting a glowing splint
Chlorine	Bleaching litmus paper
Carbon dioxide	Limewater goes milky

Y8 Chemical Reactions

Chemical Bonds	<i>All atoms want to be stable. All atoms want to have a full outer shell of electrons.</i>	<i>The electron shells fill with a total of 2, 8, 8.</i>
Ionic Bonding	<i>Ionic bonds occur between a metal and a non-metal</i>	<p>Ionic Bond</p> <p>Atom 1 (metal) Atom 2 (nonmetal) Ionic molecule</p> <p>ChemistryLearner.com</p>
	<i>The metal transfers its outer electrons to the non-metal and becomes a positively charged ion.</i>	<p>The force between the positive and negative ions is called an ionic bond.</p>
	<i>The non-metal gains electrons and becomes a negatively charged ion.</i>	
Covalent Bonding	<i>There is a force of attraction between the positive and negative ions.</i>	<p>Covalent Bond</p> <p>Atom 1 (nonmetal) Atom 2 (nonmetal or metalloid) Covalent molecule</p> <p>ChemistryLearner.com</p>
	<i>Covalent bonds occur between two non-metals.</i>	
	<i>Non-metals share pairs of electrons when forming chemical bonds with each other.</i>	<p>The shared pair of electrons is called a covalent bond.</p>

Endothermic	<i>Energy is taken in from the surroundings so the temperature of the surroundings decreases</i>	<ul style="list-style-type: none"> Thermal decomposition Sports injury packs
Exothermic	<i>Energy is transferred to the surroundings so the temperature of the surroundings increases</i>	<ul style="list-style-type: none"> Combustion Hand warmers Neutralisation

Chemistry Knowledge Organiser

Year 8 Chemical Reactions

Self Quizzing Questions

Red section – Chemical Reactions

1. Which two chemicals react in a neutralisation reaction?
2. Which number tells us the number of protons in an element?
3. Which number tells us the number of electrons in an element?
4. Which number tells us how heavy an atom of an element is?
5. What is a catalyst?
6. Name the ions found in acids.
7. Name the ions found in alkalis.

Orange section – Gas tests

1. Name the gas test for Oxygen.
2. Name the gas test for Hydrogen.
3. Which gas turns limewater milky?
4. Which gas bleaches litmus paper white?

Blue section – Exothermic and Endothermic reactions

1. Give 2 examples of endothermic reactions.
2. Give 3 examples of endothermic reactions.
3. Which type of reaction gives off heat?
4. Which type of reaction takes in heat?

Purple section – Bonding

1. Which type of bonding occurs between two non-metals?
2. Which type of bonding occurs between a metal and a non-metal?
3. Do metals or non-metals form positive ions?
4. Do metals or non-metals form negative ions?

Further opportunities:

Try heading to BBC bitesize KS3 Science – Chemistry and check out the ‘*Types of reaction*’ pages:

<https://www.bbc.co.uk/bitesize/guides/zqd2mp3/revision/1>

KS3

Types of reaction

Atoms are rearranged during chemical reactions, and are not lost or gained. Chemical reactions can be represented using equations. Catalysts speed up reactions without being used up.

Part of **Chemistry** | Chemical reactions and tests

EBACC

Prior Knowledge

Subject Pronouns

Je	I
Tu	You (sing/fam)
Il	He
Elle	She
On	We
Nous	We (pl/polite)
Vous	You
Ils	They (male)
Elles	They (female)

Frequently used adjectives

super	super
fantastique	fantastic
génial	great
intéressant	interesting
amusant	fun
marrant	funny
drôle	funny
bon(ne)	good
bien	well/good
nul	rubbish
ennuyeux	boring
barbant	awful

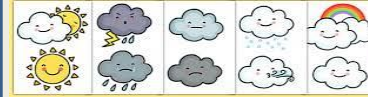
Definite/Indefinite articles and the gender of nouns

All nouns in French have a gender. This is either M - masculine or F - feminine

Definite articles -The
le (m) la (fem) les (plural)

Indefinite articles a/some
un (m) une (fem) des (pl)

E.g **le** train (masculine noun) est arrivé



La Météo

Il fait beau	It's fine
Il fait chaud	It's hot
Il fait du vent	It's windy
Il fait gris	It's grey
Il fait froid	It's cold
Il pleut	It's raining
Il neige	It's snowing

Mes passe-temps

Je joue	I play
Je fais	I do
au basket	basketball
au foot	football
au rugby	rugby
au tennis	tennis
du sport	sport
du skate	skateboarding
du velo	cycling
du roller	rollerskating
de la danse	dance

Les médias

Describing TV shows, films and books.

Qu'est-ce que tu regardes/lis?

les séries	series
les émissions	shows
les documentaires	documentaries
Les infos	the news
La météo	the weather
Les jeux télévisés	game shows
Les dessins animés	cartoons
Les films	films
Les comédies	comedies
un livre	a book
un roman	a novel
un magazine	a magazine
une bande dessinée	a comic book

Les verbes importantes

Regarder - to watch (regular er verb)

Je regarde	Nous regardons
Tu regardes	Vous regardez
il/Elle/On regarde	Ils/Elles regardent

Lire - to read (irregular re verb)

Je lis	Nous lisons
Tu lis	Vous lisez
il/Elle/On lit	Ils/Elles lisent



L'internaute

Que fais-tu quand tu es connecté(e)?

Je fais beaucoup de choses...

a Je fais des achats.

b Je fais des recherches pour mes devoirs.

c Je fais des quiz.

d Je lis des blogs.

e J'envoie des e-mails.

f Je joue à des jeux en ligne.

Write a short paragraph describing what you like or don't like to watch on the television.
Use your vocabulary booklet to help you.
Try to also include conjunctions, opinions and reasons.
e.g. *Je regarde les émissions de sport parce qu'ils sont bons, mais je deteste les émissions de télé-réalité parce qu'ils sont ennuyeux.*

Lis les textes. Copie et remplis le tableau.

Read the texts. Copy and fill in the grid.

1 Zacharie	action films, ...	horror films



1 Zacharie

Moi, j'adore les films d'action et j'aime bien les comédies, mais je ne regarde pas les films d'horreur. Je n'aime pas ça.



2 Mélanie

Moi, j'adore les films d'arts martiaux, mais je ne suis pas fan de films fantastiques. J'aime les films de science-fiction. Mon film préféré, c'est *La Guerre des étoiles*. Un classique!

3 Fouad

Moi, j'adore les dessins animés, mais je ne suis pas fan de westerns. J'aime les films d'horreur. Mon film préféré, c'est *L'Enfant du cauchemar*. Génial!

Écris les phrases.

E.g. *Quand il pleut, je regarde un film.*

Write the sentences.

1 Quand ... on ... 2 Quand ... on ... 3 Quand ... on ... 4 Quand ... on ...



a

Mon émission de télé préférée s'appelle *Glee*. C'est une série et je trouve que c'est passionnant. L'action se passe aux États-Unis dans un collège. Mon personnage préféré, c'est Rachel parce qu'elle est jolie et intelligente. Je pense que le scénario est super. À mon avis, c'est cool. Je recommande cette émission à tout le monde.



Virginie

b

Mon film préféré s'appelle *Tonnerre sous les tropiques*. C'est une comédie et je trouve que c'est très amusant. L'action se passe dans la jungle. Mon personnage préféré, c'est Kirk Lazarus parce qu'il est stupide! Je pense que le scénario est très drôle. À mon avis, c'est génial. Je recommande ce film à tout le monde.



Akim

c

Mon livre préféré s'appelle *Bilbo le hobbit*. C'est un roman fantastique et je trouve que c'est très bien. L'action se passe dans la «Terre du Milieu». Mon personnage préféré, c'est Bilbo parce qu'il est gentil et très amusant. Dans ce livre, j'aime les créatures fantastiques, les dragons, les elfes et les gobelins. À mon avis, c'est passionnant. Je recommande ce livre à tout le monde.



Frank

Copie et remplis le tableau en anglais pour chaque revue.

Copy and fill in the grid in English for each review.

title	genre	takes place	favourite character	opinion

Computer Science

8.2 Networks

Overview

A **computer network** is when two or more computers are connected together to allow them to communicate.

Imagine a world without **computer networks**, and how different your life would be, it is hard to imagine. society has become increasingly reliant on the services networks provide as they have evolved.



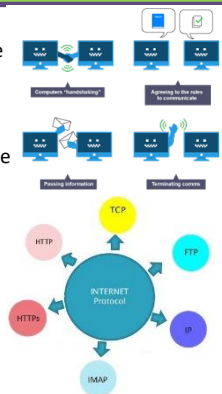
Protocols

All methods of communication need rules in place in order to pass on the message successfully. These sets of rules are called **protocols**.

A **network protocol** is an established set of rules that determine how data is transmitted between different devices. Similar to the way that speaking the same language simplifies communication between two people, **network protocols** allows connected devices to communicate with each other, regardless of any differences in their internal processes, structure or design.

Common protocols are:

- TCP/IP** (Transmission control protocol/ Internet protocol)
- HTTP** (Hypertext transfer protocol)
- VOIP** (Voice over internet protocol)
- FTP** (File transfer protocol)



What is the internet?

The **internet** is a worldwide network of computers. It is the physical hardware. Any device connected to the internet is part of this network (e.g. Laptops, games consoles, PCs, Tablets, and Mobile Phones).



The **World Wide Web** – aka **WWW** – is not the same as the **Internet**. The **WWW** is a service provided on the internet. It is the websites, web pages, and links found on the internet.



Network Hardware

A switch connects a number of computers together using a network cable.



A server is a powerful computer which provides different services to other devices on a network.



A router is used to connect one network to another.

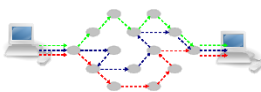


A common job of a router is to join a home network to the internet

Data transfer

Data is sent across networks in chunks known as **packets**. Each packet is part of the larger file being sent.

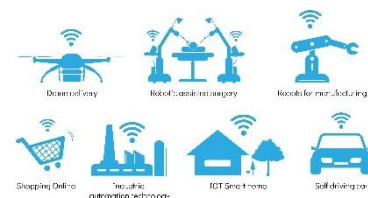
The **packets** are sent individually across a network, moving from one device to another until they reach their destination. Packets can take different routes and arrive out of order so they have to be rearranged when they arrive.



Bandwidth measures the amount of data that can be transferred over a given period of time.

IoT (the Internet of Things)

The Internet of things (IoT) describes the network of physical objects – a.k.a. "things" – that are embedded with sensors, software, and other technologies for the purpose of connecting and exchanging data with other devices and systems over the Internet.



Wired and Wireless Networks

Wired networks use cables (e.g. Ethernet, fibre optic) to connect devices – the choice of cable depends on cost, how far you want to transmit data, and the speed you want to transmit data.

Benefits of Wireless Networks

1. Wireless networks are convenient, as you can get your device to automatically connect to the network, and can also move around while connected to the network.
2. They can be cheaper and better for the environment as you don't need any wires.
3. Its very easy to add more users to a wireless network – you don't need to install extra wires or do any complex set up.

Drawbacks of Wireless Networks

1. Wireless networks are generally less secure than wired networks – access points (WAPs) are usually visible to all devices, not just trusted ones, which can allow hackers to gain access.
2. Distance from the WAP, interference from other wireless networks, and physical obstructions (e.g. walls) can reduce signal strength. This means there's a limit on how far a wireless network can reach.
3. They're generally less reliable than wired networks.



Wireless networks use radio waves to transmit data. To set one up, you will need a Wireless Access Point (WAP). A WAP is similar to a switch- it allows devices to connect wirelessly to a network.

Credibility

A credible source is one that you can trust. You can check how credible it is by following this check list:

- **Who made it?** A news site has to tell the truth but someone on social media doesn't
- **Are other sources saying the same?** Check more than one source, if others are saying something different it might not be true
- **Do they have evidence?** If they can't back up their claims with facts or data they might have made it up

Computer Science - 8.2 Networks

What I need to know:

Networks (features, components and facts)

- What is a computer network?
- What is the difference between a wired and a wireless network?
- What are the benefits of a wireless network?
- What are the drawbacks of a wireless network?
- What do wireless networks use to transmit data?
- List three pieces of hardware that can be used to create a computer network.
- What device is needed to connect one network to another?
- What is switch used for?
- What is the internet?
- What is the World Wide Web?
- How is the world wide web different from the internet?
- What are the small chunks of data being transferred called?
- Define bandwidth.
- What is a protocol?
- List three common protocols
- What is a benefit of having protocols?
- What is the 'Internet of Things'?
- What does credible mean?
- Explain how you can check a sources credibility.
- Describe how packets get to their destination.
- What does HTTP stand for?
- What is the purpose of the internet of things?



SCAN ME

Match the features to the network type

Wired	Wireless

Can be a trip hazard

More portable

Faster connection

Less secure

Higher bandwidth

Match the protocol to its function

FTP		1. Used to transfer files across a network
HTTP		2. Used to transfer voice data
VOIP		3. Splits data into packets
TCP		4. Connects you to a website
IP		5. Chooses the route for the packets
		6. Is not secure
		7. Reassembles packets in the correct order

Describe an appropriate image to use

- A poster about bullying: _____
- A cat adoption website: _____
- A webpage about computer networks: _____
- An advert for a hotel: _____

Define these keyword:

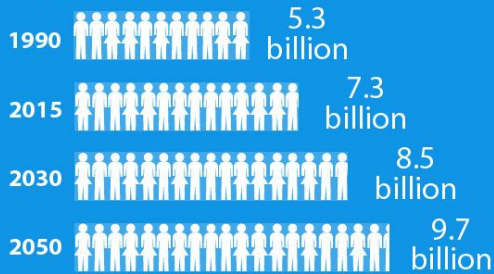
Network	
Protocols	
Internet	
Packets	
Bandwidth	

1 - Global population change

Global population reached 8 billion on 15th November 2022. It will continue to rise, but at a slower rate until 2086.

World Population

Projected world population until 2100



Factors affecting global population:

On average, birth rates remain higher than death rates so there is an overall **natural increase**.

Countries with **youthful populations** have high rates of natural increase.

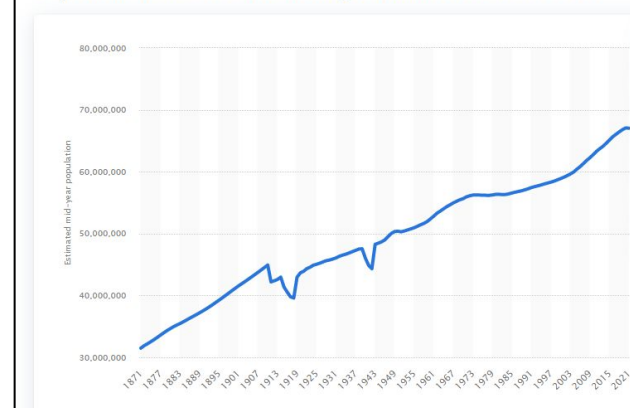
Birth rates fall as **women** gain education and status in society

Countries with **ageing populations** have low rates of natural increase or in some cases a natural decrease.

2 - Population of the UK

The UK population is over 66 million and continues to grow due to both natural change and net migration.

Population of the United Kingdom from 1871 to 2021



In the UK a **census** is carried out every ten years. The most recent census was carried out in 2021.

Legally a census must be carried out for **each household** with details about **every person** living in that household.

The information is used to **develop policies** and to **plan for spending** on public services such as transport, policing, healthcare and education.

3 - Migration

Migrations take place as a result of a combination of push and pull factors.



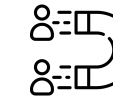
Push factors are features of the **place a person is living** which makes them want to leave:

Famine caused by drought

Fear due to high crime rates, civil war or conflict.

Few opportunities for education or employment

Poor access to services and amenities



Pull factors are features of the **destination** which attract a person to it:

Reliable and well paid work

Educational opportunities

Access to services and amenities



Intervening obstacles are factors which **may prevent or delay a migration**:

Access to or funds for transport

Health or safety concerns

Permission to cross borders

4 - Key terms

Birth rate: Number of births per 1000 per year

Death rate: Number of deaths per thousand per year

Natural increase: The difference between the birth rate and the death rate when the birth rate is larger.

Census: A count of population

Net migration: the difference between immigration and emigration

Refugee: a person who has been forced to leave their country to escape war, persecution or a natural disaster





1 - Global population change

1. When did the global population reach 8 billion?
2. How will total global population change in the future?
3. What is the global population projected to be by 2050?
4. How much did global population increase from 1990 to 2015?
5. Why is there a natural increase in global population?
6. What feature of a population can result in high rates of natural increase?
7. Which two changes to the role and lives of women can result in falling birth rates?
8. What are the features of countries which have an ageing population?

2 - Population of the UK

1. What is the population of the UK?
2. Which two factors cause changes to the UK population?
3. How will the UK population change in the future?
4. How often is a UK census carried out?
5. When was the most recent census carried out?
6. When will the next census be carried out?
7. Does a census have to be completed?
8. Who does the census have to be completed for?
9. What is the information from the census used for?

3 - Migration

1. Which two factors lead to a migration taking place?
2. What are push factors of migration?
3. Give two examples of push factors.
4. What are pull factors of migration?
5. Give two examples of pull factors?
6. What are intervening obstacles of migration?
7. Give two examples of intervening obstacles.
8. What do you notice about push factors when compared to pull factors?
9. Summarise what the conditions need to be for a migration to be possible.

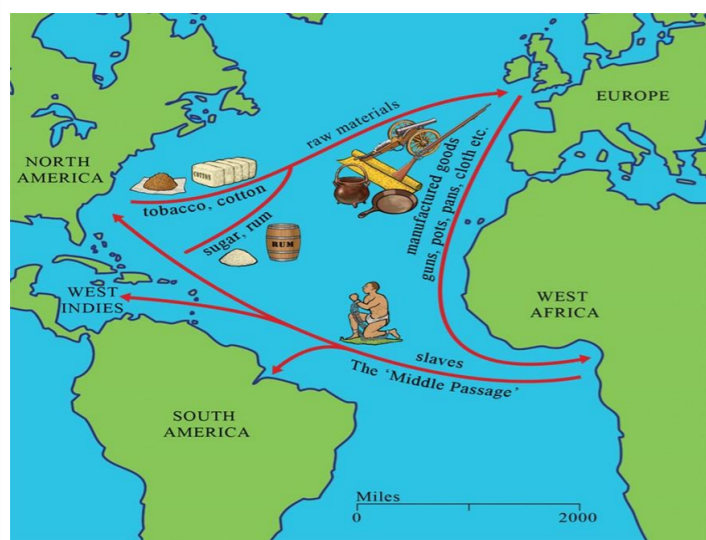
4 - Key terms

1. What is the birth rate of a country?
2. What is the death rate of a country?
3. What is the natural increase of a population?
4. What is a census?
5. What is net migration?
6. What is a refugee?
7. How are a refugee and an economic migrant different?

History Knowledge Organiser

British Empire and Slavery

The Triangular Trade



Empire Key Facts

- The Empire of which the sun never sets.
- Land on every continent
- Controlled almost ¼ of the land on earth
- 490 million people, 1/5 of the world's population lived in the empire.
- Much of the British Empire's Wealth originated from their involvement in the slave trade.
- Britain competed with other countries to have the largest Empire
- People moved from the Empire to Britain in the 20th Century





Where was the Empire



Key Dates

Date	Event
1718	British convicts start being transported to Australia.
1747	Liverpool overtakes Bristol as Britain's busiest slave trading port.
1789	Former slave Olaudah Equiano published his autobiography.
1801	Act of Union creates the United Kingdom.
25/3/1807	Slavery abolished across the British Empire
1833	Slavery abolished across the British Empire
1931	The British Commonwealth of Nation was formed as Britain made countries independent.
1949	The Commonwealth was formed. An organisation that still exists. Independent countries work together in trade and other areas. Today King Charles III is the symbolic leader.

Key People

William Wilberforce		A deeply religious English MP and social reformer who was very influential in abolition of the slave trade and eventually slavery itself in the British empire .
Olaudah Equiano		A former enslaved African, seaman and merchant who wrote an autobiography depicting the horrors of slavery and lobbied Parliament for its abolition .
Thomas Clarkson		Clarkson was a leading campaigner against the slave trade and slavery in Britain and the British empire.
Cecil Rhodes		Rhodes was an imperialist , businessman and politician who played a dominant role in Africa in the late 19th Century, taking vast swathes of land for Britain.

Key Vocabulary

Abolition	Middle passage	Triangular Trade	Transportation
The action of abolishing a system, practice, or institution	The sea journey undertaken by slave ships from West Africa to the West Indies	Shipping goods from Britain to West Africa to be exchanged for slaves, these slaves being shipped to the West Indies and exchanged for sugar, rum, and other commodities which were in turn shipped back to Britain	The action or practice of transporting convicts to a penal colony

History Knowledge Organiser

British Empire and Slavery

Quiz questions

1. How many people were in the Empire?

2. What was transportation?

3. What goods were transported from Britain to Africa on the Triangular trade?

4. What year was the Commonwealth of Nations formed?

5. How much of the earth's surface did the Empire cover?

6. What was the Middle Passage?

7. What year was slavery abolished across the British Empire?

8. Who was Olaudah Equiano?

9. Who was Cecil Rhodes?

10. What was taken to Britain from America on the Triangular trade route?

11. List three countries in the British Empire.

12. What phrase was associated with the British Empire?

13. Where were prisoners transported to from 1718?

14. Who was William Wilberforce?

15. Who is the current head of the Commonwealth?

16. Who was Thomas Clarkson?

17. Name two British trading ports.

18. What did the 1801 Act of Union do?

RE Knowledge Organiser

Parables

What is a Parable?

Religion can be personal to anyone. When looking at personal meaning we look at stories and parables that different religions use as a method of teaching. A parable is a simple story told to illustrate a moral or spiritual lesson.

Parables feature in all different religions. For example, Hinduism draws upon a rich tradition of parables and stories dating back to the 'Manusmriti,' one of the ancient legal texts of Hinduism. In Christianity they feature in the Gospels of the Bible and also feature in the Qur'an, the Islamic holy book. These religious teaching give provide us with a story that we can usually relate to and, as a result, alter the way we act around others.

The Fox and the Fish

The Torah hold great importance to Jews. To demonstrate this Jews tell the parable of the Fox and the Fish. The story was first told by Rabbi Akiva, a Rabbi living in Israel under Roman rule. The story told is about a fox trying to convince a fish to allow it to help it and influence it. The parable teaches the importance of being true to what you believe and not allow yourself to be influenced by others. Jews have found this particularly important in times of persecution as they have used it to remind them about following their beliefs and religion and not to discard the Torah from their lives.

Christian Parables

There are a number of Parables that feature in the gospels in the New Testament of the Bible. In total there are there are 37 different parables that feature within the Gospels, each with a different lesson. These parables are told during the life of Jesus, as he used these stories to teach those around him. The audience of these stories varied, and Jesus aimed to use stories that people could relate to in order to teach them about how they should live their lives.

The parables that feature in the gospels include The Prodigal Son, The Lost Sheep and The Good Samaritan. These parables are told as they have a moral that can help teach people different things about life and how God wanted them to live. For example, The Good Samaritan story is centred on helping others even if you do not know the person and The Prodigal Son teaches about forgiveness, even in difficult circumstances. The Parable of the lost sheep stresses the importance of making up for past mistakes, and the role that plays in terms of moving on the heaven after life on earth. Jesus told parables such as this to anyone he met who was willing to listen to his teachings, regardless of their background. This is because he believed it was important not to judge and to help anyone who asks for it.



Story of Guru Nanak

In Sikhism there are multiple parables linked to Guru Nanak, the first of the ten Gurus. These are stories about his life and as Sikhism was founded in India has links to both Hinduism and Islam. The parables are told to give Sikhs an example on what qualities a person should have in life. These stories hold great personal meaning to Sikhs as they link to different topics such as Wealth, Charity and Respect. There is a lot of links with Sikhism, Hinduism and Islam, and these other religions feature in multiple stories involving Guru Nanak. Each of these religions teach very similar values, as Nanak was born a Hindu and raised around Muslim teachings, therefore he took influence from the teachings of these other religions.

Story of Kisa Gotami

The story of Kisa Gotami is a famous parable from Buddhism. The story is set in an Indian village and follows a woman who's son has died and looks to Buddha to ask for his help. The moral of the story is important as it teaches people that nothing lasts forever and that if a person does not accept this it can negatively impact their lives.

The Parable has been told for hundreds of years and regardless of if people are Buddhist or not, it is a popular story told in India to children. It helps with acceptance and moving on from adversity. This links to the Four Noble Truths in Buddhism, which is on of the key teachings of the Buddha.

KEY VOCABULARY/TERMS

Parable, Halal, Haram, Rabbi, Torah, Qu'an, New Testament, Moral, Ramadan, Persecution, Guru, Prodigal, Samaritan, Sawm, Spiritual Allah, Islam, Gospels, Fasting, Pillars of Islam, Guru Nanak, Kisa Gotami

RE Knowledge Organiser

Parables

Quiz questions

Name three Christian parables

What religion teaches the story of Kisa Gotami?

Which Christian parable teaches about helping others?

What is the definition of a parable?

What is the moral of the story The Prodigal Son?

Where does the story of Kisa Gotami originate?

What Religion was Guru Nanak born into?

What is the moral of the Story of Kisa Gotami?

Parables are found in which part of the bible?

Who first told the parable of The Fox and the Fish?

What does the parable of The Fox and the Fish teach Jews?

Which Christian parable teaches about forgiveness?

Where are parables found in Hinduism?

How many Gurus have there been in Sikhism?

Which Christian parable teaches about making up for your mistakes?

How many different parables can be found in the Gospels?

Which two religions influenced Guru Nanak when he was younger?




What is the name of the Islamic Holy book?

INNOVATION

ART Knowledge Organiser

Year 8 : Term 2:1

OBSERVATION STUDIES

	<p>Michael English</p> <p>Michael English was a British artist known for poster designs and several series of hyper realist paintings. His career started in 1966, painting murals and posters for concerts. In the 1970s, his style developed towards a Hyper Realist style, producing highly detailed and realistic paintings of everyday objects. Posters of his images from this period sold in the millions.</p>	<p>Andy Warhol</p> <p>Andy Warhol was an American artist, director and producer who was a leading figure in the visual art movement known as Pop Art. His works explore the relationship between artistic expression, celebrity culture, and advertising. His work became very well known in the 1960's and included such images as the Campbell's Soup Cans (1962) and Marilyn Monroe (1962),.</p>
	<p>He used an airbrush to produce his detailed paintings. He enjoyed using colour and creating paintings that made people look again at objects that they usually took for granted. This was also a method used by the American Pop artists of the 1960's and 1970's. His attention to detail and the use of light, dark and colour make his images look so realistic. To produce his work he copied from photographs as well as real life, often producing pencil drawings before starting the final airbrushed picture.</p>	<p>His work was completed in a variety of media, including painting, silk-screening, photography, film, and sculpture. Some of his best known works include the silkscreen paintings of repeated images, where he would change the colours of each picture to give a different feeling whilst using exactly the same image.</p>
	<p>1941 - 2009</p>	<p>1928 -1987</p>

KEY VOCABULARY

Primary Source – Looking at an actual object in front of you.

Secondary Source – Looking at a picture of an object.

Pop Art – An Art movement from the 1960's whose work was inspired by everyday items.

ASSESSMENT CRITERIA

Creativity - How you use and experiment with a range of materials to produce images.

Critical Understanding - How you have used the ideas of artists to develop your own work.

Write 3 relevant facts about each artist

Michael English:

Andy Warhol:

Write about your likes/dislikes of the different artist's work

Michael English:

Andy Warhol:

Write the definitions for these words

- Primary Source –
- Secondary Source –
- Pop Art –



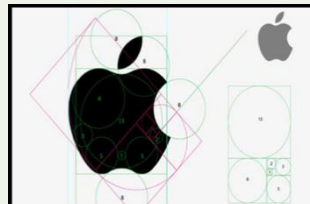
Components of Graphic design

What is Typography?

When looking at almost any magazine it is obvious that there are a wide and varied number of letter **styles / fonts** available for everyday use. There is a style of writing for almost every occasion from celebrations to formal events. More modern styles of writing are often named after the designer whereas many can be dated back hundreds of years. The different styles of writing are called **fonts** and they fall into four different categories .

Using a Logo Grid

A **logo grid** or construction guide is a popular starting point for many designers looking to create a logo. The use of a grid system, especially for a design that might often have to be adapted to **different sizes**– very large or small – can help you create something that has **visual harmony**, an **organized aesthetic** and **professional presentation**.



KEY VOCABULARY

Font, Grid, Serif, Script, Decorative, kerning

Four main font styles

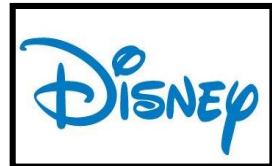
Serif – Serifs are the small lines tailing from the edges of letters and symbols. Serifs are easier to read in printed works like books and magazines and are often used in the logos of old, established and successful companies.



Sans-serif – is a typeface that does not have the small projecting features called ‘serifs’ at the end of the letters or symbols. Sans-serif is easier to read on a screen and are often used in the logos of modern and popular companies.



Script (Script) – is a typeface that represents hand written words and letters. It is difficult to read on paper and on screen however it is often used in invitations and is used in the logos of companies that product hand crafted traditional products.



Decorative (Decorative) – this typeface uses serif and sans-serif fonts and adapts them to make them look more interesting and original. Decorative is a very artistic style, it is often very popular with younger people because it is modern and creative.



ASSESSMENT CRITERIA

Competence - How you complete and improve your work using the project activities.

Technical ability – experiment with all of the different components of graphic designing explaining every aspect in detail.

Components of graphic design

Why is typography important in graphic design?

.....
.....
.....

How does a logo grid help create a successful logo?

.....
.....
.....

What font style is the easiest to read in print form?

•

What font style is used to reflect tradition and is difficult to read?

•

Why is kerning important in typography?

.....
.....

What does the 'sans' in sans serif mean?

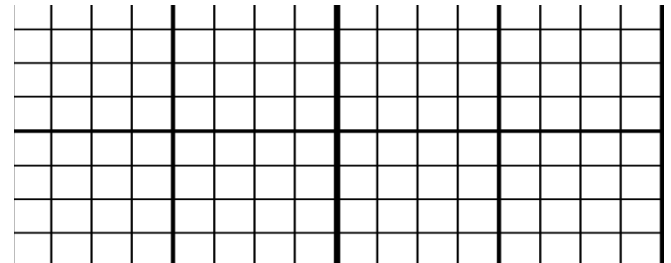
•

Give three examples of logos that use decorative text.

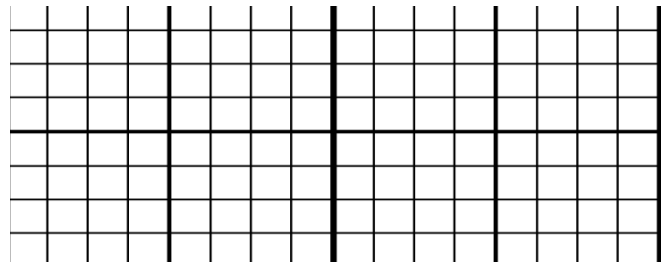
-
-
-

Using the logo grids below use three of the font styles to experiment with the FCAT logo.

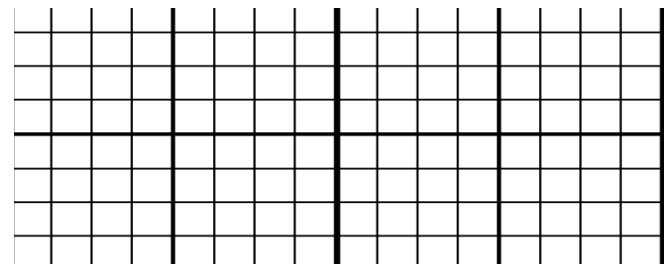
Serif



Sans serif



Decorative



What are Nutrients?

Nutrients are the building blocks that make up food and have specific and important roles to play in the body. Some nutrients provide energy while others are essential for growth and maintenance of the body.

Macro Nutrient	Role in the body	Food Example
Carbohydrate	The main source of energy for the body.	Bread, rice, pasta, potatoes
Protein	Provides the body with growth and repair.	Meat, poultry, beans, eggs, lentils, tofu, fish
Fat	Provides the body with insulation and a small amount protects vital organs. Provides essential fatty acids for the body.	Butter, oil, cheese, cream, nuts, oily fish, crisps

Wider thinking / further reading:

www.foodafactoflife.org.uk www.grainchain.com

Vitamin	Role in the body	Food examples
A	Helps to keep the eyes healthy and strengthen the immune system.	Dark green leafy vegetables, carrots, liver
B	Helps to release the energy from the food we eat.	Bread, milk, cereals, fish, meat
C	Help with skin healing and healthy skin. Help with the absorption of Iron.	Fresh fruit, broccoli, tomatoes
D	Important for absorbing calcium and help with healthy bone structure.	Oily fish, eggs, butter, Action of sunlight on the skin. (Sunshine)

Vitamins -Help to keep our immune system up and help our body to stay healthy – they are important for body maintenance.

Mineral	Role in the body	Food Examples
Calcium	Important for strong teeth and bones. It also helps with blood clotting.	Milk, yoghurt, soya, dark green leafy vegetables
Iron	Needed for red blood cells which help to transport oxygen around the body.	Nuts, whole grains, dark green leafy vegetables, meat, liver

Minerals- Help to keep our immune system high and help our body to stay healthy. Vitamins and minerals are Micronutrients.

Use the information to answer the questions in your reflection log.
Use full sentences.

1. What are nutrients?
2. What is the role of carbohydrate in the body?
3. What food provide the body with carbohydrate?
4. What is the role of protein in the diet?
5. What foods provide protein?
6. What nutrient provides essential fatty acids to the body?
7. What nutrient is provided by butter, oil, cheese, cream, nuts, oily fish and crisps?
8. Which mineral is needed for red blood cells and helps transport oxygen around the body.
9. Which vitamin can the body get from the action of sunlight on the skin?
10. What foods need to be eaten to get vitamin C?

Wider thinking / further reading:

www.foodfactoflife.org.uk
www.grainchain.com



KEY VOCABULARY/ TERMS

Learn the spelling of each word and look up any you do not know.

Nutrient	Micronutrient	Macronutrient	Vitamin
Mineral	Protein	Carbohydrate	Fat
Calcium	Iron	Energy	Obesity



Textiles Key Words

Sewing Machine	Machine used for sewing fabric together. It requires thread on the top and also in the bobbin.
Bobbin	Sits in the Bobbin Case in the sewing machine to hold the bottom thread.
Needle	Sharp metal object with an eye in one end to hold thread and a point at the other. They can come in a variety of sizes for different tasks.
Pins	They are used to hold fabric together while you sew and must be removed after sewing.
Hand embroidery	A technique used to decorate fabric using a needle and thread.
Tailors Chalk	Used to mark the seam allowance and add other markings on fabric. Can be brushed off after use.
Fabric Scissors	Large bladed scissors used for cutting FABRIC ONLY!
Quick unpick	Sharp pointed tool to help unpick stitches quickly.
Thread	Twisted yarns used for sewing. Sewing machine thread is thin and embroidery thread is usually thicker.
Seam	A method of joining two pieces of fabric together.
Seam allowance	The distance from the edge of the fabric to the sewing line.
Fabric	Yarns are woven, knitted or bonded together to make fabric. The base for all textiles is fabric.
Embellish	To add decoration such as beads, sequins and buttons to add decoration.

Textiles Key Words- Copy out the table and fill in the definition of each keyword.

Sewing Machine	
Bobbin	
Needle	
Pins	
Hand embroidery	
Tailors Chalk	
Fabric Scissors	
Quick unpick	
Thread	
Seam	
Seam allowance	
Fabric	
Embellish	

Extension task: Learn to sew on a button

