

Haggerston School



Year 7 Knowledge Organiser Term 3

2024

Aspiration Creativity Character

Knowledge Organiser - Guidance

- You must bring your Knowledge Planner to school every day in your school bag.
- You should place your Knowledge Planner on your desk at the start of every lesson so that you can refer to it when instructed by your teacher.
- If you lose your Knowledge Planner, you will need to purchase a replacement one from Student Services.
- **In the Study Centre**, you will use your Knowledge Planner to study the relevant subject's Knowledge Organiser and **learn** the information provided.
- Use your blue exercise book to make notes to help revise and learn the information provided in each Knowledge Organiser.

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Term 3



Dadaism

The Dadaists produced a bewildering variety of art, but the roots of Dada were in performance.

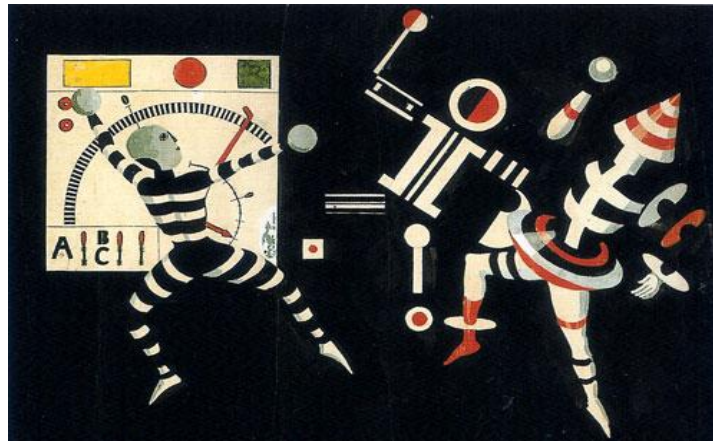
Their aim was to **‘to create a center for artistic entertainment’**.

The **Cabaret Voltaire** was a venue in Zurich, Switzerland where the Dadaists held daily performances.

Dada was an **art movement** formed in the early 20th century during the First World War in Zurich in negative reaction to the horrors and folly of the war. The art, poetry and performance produced by dada artists is often **satirical** and nonsensical in nature.

Dada artists made art as a response to the first world war that was going on at the time. They felt that it was so cruel and terrible that they had to rethink everything in their lives – including the art they were making. Their aim was to destroy traditional ideas about art and to create a new art to replace the old.

The word ‘Dada’ means ‘hobby-horse’ in French. Hugo Ball chose it as the name of the art movement because he liked that it was a playful word that didn’t really mean anything. The Dada artists wanted their artwork to be playful, childish, naive and funny - but most importantly, they wanted it to be nonsense!



Task:

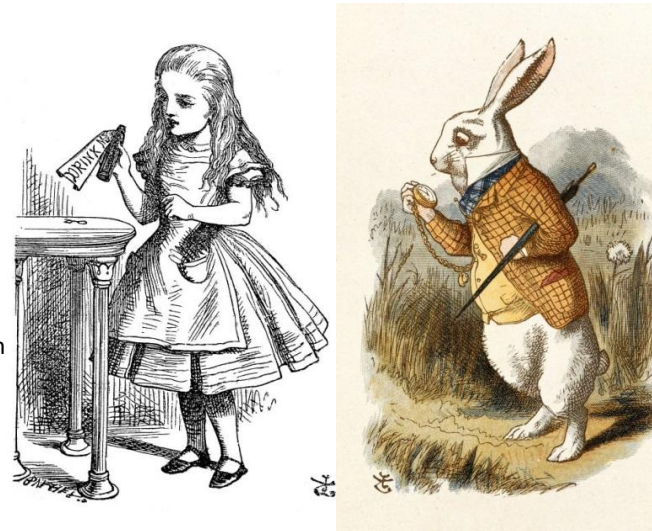
Design a character inspired by Oskar Schlemmer’s Triadic Ballet. Create a scene using the character that you have just designed.

Quiz:

1. What is Dadaism?
2. What kind of art did the Dada artists make?
3. What was going on in the world at the time of Dadaism?
4. How did the Dada artists react to the events that were going on in the world at the time?
5. Describe Oscar Schlemmer’s costume designs. Which formal elements did he use?

Sir John Tenniel (28 February 1820 – 25 February 1914) was an English [illustrator](#), graphic humorist, and [political cartoonist](#) prominent in the second half of the 19th century. He was [knighted](#) for his artistic achievements in 1893. Tenniel is remembered especially for his illustrations to [Lewis Carroll's](#) *Alice's Adventures in Wonderland* (1865) and *Through the Looking-Glass, and What Alice Found There* (1871).

The style associated with the [Nazarene movement](#) of the nineteenth century influenced many subsequent artists including Tenniel. This style can be characterized as "shaded outlines" where the lines on the side of figures or objects are given extra thickness or are drawn as double lines in order to suggest shading or volume. Additionally, this style is **extremely precise**, with the artist making a hard clear outline along its figures, creating dignified figures and compositions, as well as a restraint in expression and paleness of tone.



Eye for detail

After the 1850s, Tenniel's style modernized to incorporate more detail in backgrounds and in figures. Tenniel's more precisely-designed illustrations depicted specific moments of time, locale, and individual character instead of just generalized scenes.

In addition to a change in specificity of background, Tenniel developed a new interest in human types, expressions, and individualized representation, something that would carry over into Tenniel's illustrations of Wonderland.

Tenniel's "grotesqueness" was one of the main reasons why Lewis Carroll wanted Tenniel as his illustrator for the *Alice* books. The [grotesque](#) is an abnormality that imparts the disturbing sense that the real world may have ceased to be reliable. Tenniel's style was characteristically grotesque in his dark atmospheric compositions of exaggerated fantasy creatures that were carefully drawn in outline. Often though, the mechanism was to use animal heads on recognizable human bodies or vice versa.



Alice in Wonderland summary:

Major Conflict · Alice attempts to come to terms with the puzzle of Wonderland as she undergoes great individual changes while entrenched in Wonderland.

Rising Action · Alice follows the White Rabbit down a well and pursues him through Wonderland.

Climax · Alice gains control over her size and enters the garden, where she participates in the trial of the Knave of Hearts.

Falling Action · Alice realizes that Wonderland is a sham and knocks over the playing card court, causing her to wake up and dispel the dream of Wonderland.

Themes · The tragic and inevitable loss of childhood innocence; Life as a meaningless puzzle; Death as a constant and underlying menace

Motifs · Dream; subversion; language; "curious," "nonsense," and "confusing"

Key Characters:

- Alice
- Jabberwocky
- White Rabbit
- Caterpillar
- Mad Hatter
- Cheshire Cat
- Queen of Hearts

Self Quiz:

1. Can you list the characters from Alice in Wonderland and describe each one of them?
2. Can you draw them?
3. Can you write a summary of **Sir John Tenniel's** biography?
4. Can you describe and identify characteristics of the style of his illustrations?

Practical application of art history:

1. Create a drawing of an value (tonal) scale using hatching and cross-hatching methods (in pen or pencil)?
2. Can you recreate 1 of the illustrations from this print out?
3. Can you use tone to create a 3D drawing of an object or a person in the room in the style **of Sir John Tenniel**?
4. Can you create a drawing of a creature from **Alice in Wonderland** using your imagination?
5. Write in full sentences WWW and EBI.

YR7 Computing: E-Safety and Flowcharts



Advanced: Digital footprint is a trail of data you create while using the Internet like websites you visit, emails you send, messages / pictures you post. Once you do something online it is **there forever**. In the future this could be seen by your friends, employers, or by the colleges and universities you apply to **THINK BEFORE YOU POST**



Basic: Viruses are a type of malware (**MAL**icious + soft**WARE**) They are programs that can **attack** computers and phones. A **virus** is a program that causes harm to your computer and can steal information. A virus does 3 things

1. Attaches itself to another file / program
2. Copies itself
3. Spreads to other computers

Spyware is also a type of **MALWARE**.

Basic: Symbol	Name	Meaning
	Start / End	Represents the start or end of a flowchart
	Connector	Connects the shapes and shows how data moves
	Decision	Shows where a decision or choice takes place
	Process	A command or calculation
	Input / Output	Collects data from the user or outputs on the screen
	Subroutine	Links to another Flowchart that carries out a specific task



Basic: Hacker: A Hacker is someone who gets access to your computer, phone or online account without permission. Despite what you see on films this is most often done via **Social Engineering**. This means being sneaky like looking over your shoulder when you put in your password, tricking you into sending your login details by email or just guessing your password if its weak.

Advanced: Flowcharts

Algorithm: A set of steps / instructions, logically set out that if followed tell you how to complete a task, calculation or write a computer program

Analytical thinking: A kind of problem solving where by a person works out how to solve a problem or task using a computer program or algorithm

Decomposition: This is part of **Analytical thinking**. This is when a larger problem or task is broken into a series of smaller steps

Abstraction: This is part of **Analytical thinking**. This is when during the process of creating an algorithm or computer program, unimportant details are taken out and ignored. This helps to create a more efficient program / algorithm

Actuator: A motorised device that makes something move – like a door opening or closing

Sensor: A device that detects something outside of a computer system and creates a signal in the computer system – like a motion detector

Knowledge Organiser: Computational Thinking

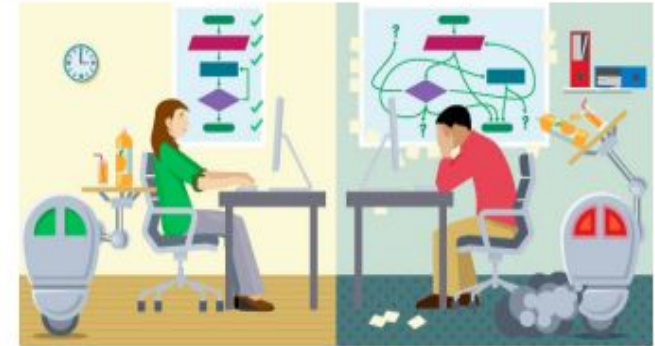
What is Computational Thinking

Computational thinking allows us to take a complex problem, understand what the problem is and develop possible solutions. We can then present these solutions in a way that a computer, a human, or both, can understand.

The Four Cornerstones of Computational Thinking are: Decomposition, Pattern Recognition, Abstraction and Algorithms

Decomposition

Decomposition is one of the four cornerstones of Computer Science. It involves breaking down a complex problem or system into smaller parts that are more manageable and easier to understand. The smaller parts can then be examined and solved, or designed individually, as they are simpler to work with.



Pattern Recognition

When we decompose a complex problem we often find patterns among the smaller problems we create. The patterns are similarities or characteristics that some of the problems share.

Pattern recognition is one of the four cornerstones of Computer Science. It involves finding the similarities or patterns among small, decomposed problems that can help us solve more complex problems more efficiently.

Abstraction

Once we have recognised patterns in our problems, we use abstraction to gather the general characteristics and to filter out of the details we do not need in order to solve our problem.

Abstraction is the process of filtering out – ignoring - the characteristics of patterns that we don't need in order to concentrate on those that we do. It is also the filtering out of specific details. From this we create a representation (idea) of what we are trying to solve.

Key Vocabulary

Abstraction	The process of separating and filtering out ideas and specific details that are not needed in order to concentrate on those that are needed.
Algorithm	A sequence of logical instructions for carrying out a task. In computing, algorithms are needed to design computer programs.
Decomposition	The breaking down of a system into smaller parts that are easier to understand, program and maintain.
Pattern Recognition	Finding similarities and patterns in order to solve complex problems more efficiently.
Program	Sequences of instructions for a computer.
Programming	The process of writing computer software.

Knowledge Organiser: Designing an Algorithm

Designed an Algorithm

Before designing an algorithm it is important to first understand what the problem is. Algorithms can be designed using pseudocode or a flowchart, and the standard notations of each should be known.

An algorithm is a plan, a logical step-by-step process for solving a problem. Algorithms are normally written as a flowchart or in pseudocode.

The key to any problem-solving task is to guide your thought process. The most useful thing to do is keep asking 'What if we did it this way?' Exploring different ways of solving a problem can help to find the best way to solve it.

Understanding the problem

Before an algorithm can be designed, it is important to check that the problem is completely understood. There are a number of basic things to know in order to really understand the problem:

What are the **inputs** into the problem?

What will be the **outputs** of the problem?

In what order do **instructions** need to be carried out?

What decisions need to be made in the problem?







Are any areas of the problem repeated?

Pseudocode

Most programs are developed using programming languages. These languages have specific syntax that must be used so that the program will run properly. Pseudocode is not a programming language, it is a simple way of describing a set of instructions that does not have to use specific syntax.

Flowcharts

A flowchart is a diagram that represents a set of instructions. Flowcharts normally use standard symbols to represent the different types of instructions. These symbols are used to construct the flowchart and show the step-by-step solution to the problem.

Name	Symbol	Usage
Start or Stop		The beginning and end points in the sequence.
Process		An instruction or a command.
Decision		A decision, either yes or no.
Input or Output		An input is data received by a computer. An output is a signal or data sent from a computer.
Connector		A jump from one point in the sequence to another.
Direction of flow		Connects the symbols. The arrow shows the direction of flow of instructions.

Key Vocabulary

Algorithm	A sequence of logical instructions for carrying out a task. In computing, algorithms are needed to design computer programs.
Condition	In computing, this is a statement or sum that is either true or false. A computation depends on whether a condition equates to true or false.
Flowchart	A diagram that shows a process, made up of boxes representing steps, decision, inputs and outputs.
Input	Data which is inserted into a system for processing and/or storage.
Instruction	A single action that can be performed by a computer processor.
Iteration	In computer programming, this is a single pass through a set of instructions.
Loop	A method used in programming to repeat a set of instructions.
Notation	A system of written symbols or graphics used to represent something in order to aid communication and understanding.
Output	Data which is sent out of a system.
Program	Sequences of instructions for a computer.
Programming language	A language used by a programmer to write a piece of software.
Pseudocode	Also written as pseudo-code. A method of writing up a set of instructions for a computer program using plain English. This is a good way of planning a program before coding.
Selection	A decision within a computer program when the program decides to move on based on the results of an event.
Syntax	Rules governing how to write statements in a programming language.

Knowledge Organiser: Algorithms—Sequencing

Sequencing

When designing algorithms, it is important to make sure that all the steps are presented in the correct order. This is known as sequencing, and can be displayed in pseudocode or flowcharts.

Sequencing is the specific order in which instructions are performed in an algorithm. Each step is an instruction to be performed. Sequencing is the order in which the steps are carried out.

It is crucial that the steps in an algorithm are performed in the right order - otherwise the algorithm will not work

Key Vocabulary

Algorithm	A sequence of logical instructions for carrying out a task. In computing, algorithms are needed to design computer programs.
Flowchart	A diagram that shows a process, made up of boxes representing steps, decision, inputs and outputs.
Programming	The process of writing computer software.
Programming language	A language used by a programmer to write a piece of software.
Pseudocode	Also written as pseudo-code. A method of writing up a set of instructions for a computer program using plain English. This is a good way of planning a program before coding.
Sequence	In computer programming, this is a set of instructions that follow on from one another.

Why is Sequencing Important?

Complex algorithms may have hundreds, if not thousands, of steps. It is critical to make sure all steps in the algorithm are in the correct sequence before programming begins. Once programmed, trying to find an instruction in the wrong sequence can be extremely difficult.

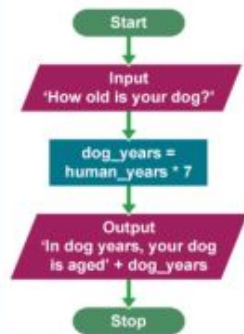
Representing Sequencing — Pseudocode

Writing in pseudocode is rather like writing in a **programming language**. Each step of the algorithm is written on a line of its own, in sequence. In pseudocode, an algorithm would look like this:

```
OUTPUT 'How old is your dog?'
INPUT user inputs their dog's age in human years
STORE the user's input in the human_years variable
dog_years = human_years * 7
OUTPUT 'In dog years, your dog is aged' + dog_years
```

Representing Sequencing — Flowcharts

Representing sequencing in a flowchart



A Flowchart Algorithm will look like this:



Beginner's Python Cheat Sheet

Variables and Strings

Variables are used to store values. A string is a series of characters, surrounded by single or double quotes.

Hello world

```
print("Hello world!")
```

Hello world with a variable

```
msg = "Hello world!"
print(msg)
```

Concatenation (combining strings)

```
first_name = 'albert'
last_name = 'einstein'
full_name = first_name + ' ' + last_name
print(full_name)
```

Lists

A list stores a series of items in a particular order. You access items using an index, or within a loop.

Make a list

```
bikes = ['trek', 'redline', 'giant']
```

Get the first item in a list

```
first_bike = bikes[0]
```

Get the last item in a list

```
last_bike = bikes[-1]
```

Looping through a list

```
for bike in bikes:
    print(bike)
```

Adding items to a list

```
bikes = []
bikes.append('trek')
bikes.append('redline')
bikes.append('giant')
```

Making numerical lists

```
squares = []
for x in range(1, 11):
    squares.append(x**2)
```

Lists (cont.)

List comprehensions

```
squares = [x**2 for x in range(1, 11)]
```

Slicing a list

```
finishers = ['sam', 'bob', 'ada', 'bea']
first_two = finishers[:2]
```

Copying a list

```
copy_of_bikes = bikes[:]
```

Tuples

Tuples are similar to lists, but the items in a tuple can't be modified.

Making a tuple

```
dimensions = (1920, 1080)
```

If statements

If statements are used to test for particular conditions and respond appropriately.

Conditional tests

equals	x == 42
not equal	x != 42
greater than	x > 42
or equal to	x >= 42
less than	x < 42
or equal to	x <= 42

Conditional test with lists

```
'trek' in bikes
'surly' not in bikes
```

Assigning boolean values

```
game_active = True
can_edit = False
```

A simple if test

```
if age >= 18:
    print("You can vote!")
```

If-elif-else statements

```
if age < 4:
    ticket_price = 0
elif age < 18:
    ticket_price = 10
else:
    ticket_price = 15
```

Dictionaries

Dictionaries store connections between pieces of information. Each item in a dictionary is a key-value pair.

A simple dictionary

```
alien = {'color': 'green', 'points': 5}
```

Accessing a value

```
print("The alien's color is " + alien['color'])
```

Adding a new key-value pair

```
alien['x_position'] = 0
```

Looping through all key-value pairs

```
fav_numbers = {'eric': 17, 'ever': 4}
for name, number in fav_numbers.items():
    print(name + ' loves ' + str(number))
```

Looping through all keys

```
fav_numbers = {'eric': 17, 'ever': 4}
for name in fav_numbers.keys():
    print(name + ' loves a number')
```

Looping through all the values

```
fav_numbers = {'eric': 17, 'ever': 4}
for number in fav_numbers.values():
    print(str(number) + ' is a favorite')
```

User input

Your programs can prompt the user for input. All input is stored as a string.

Prompting for a value

```
name = input("What's your name? ")
print("Hello, " + name + "!")
```

Prompting for numerical input

```
age = input("How old are you? ")
age = int(age)
```

```
pi = input("What's the value of pi? ")
pi = float(pi)
```

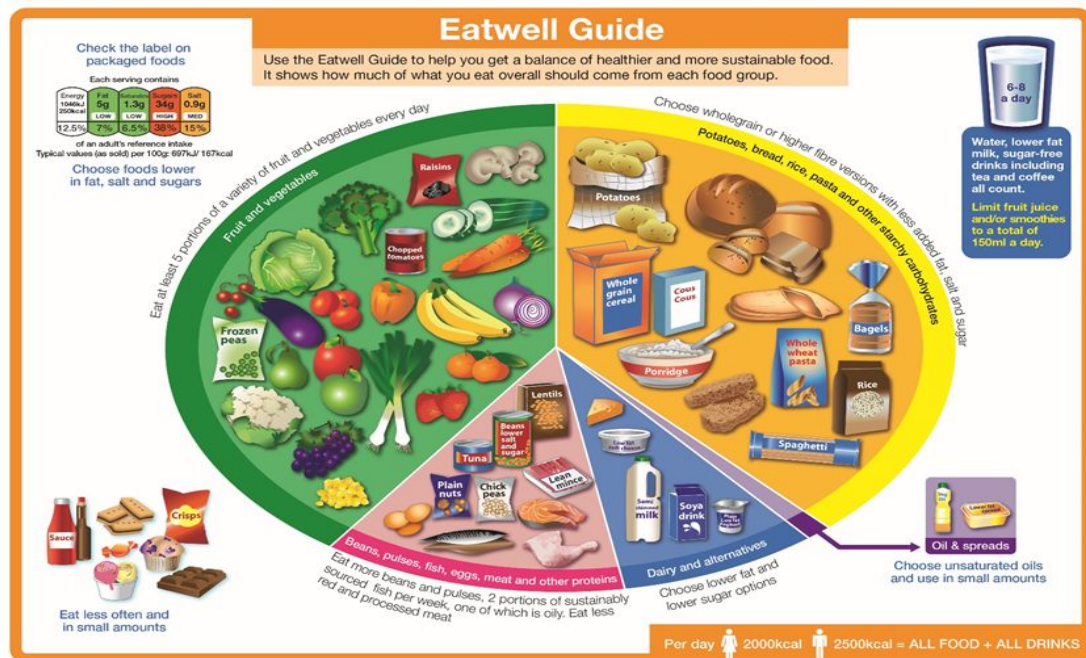
Python Crash Course

Covers Python 3 and Python 2

nostarchpress.com/pythoncrashcourse



Cooking & Nutrition

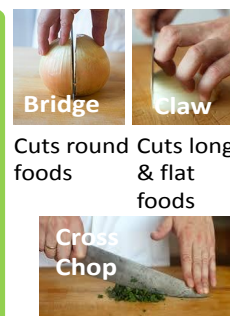


Preparing Food

The way you prepare or cook food affects the sensory experience of eating it.



Cutting Techniques



Bridge
Cuts round foods

Claw
Cuts long & flat foods

Cross Chop
Finely cuts food

Dietary Requirements: Lifestyle choice

- Vegetarian:** Does not eat any meat
- Vegan:** Does not eat any product from an animal
- Pescatarian:** Does not eat meat but does eat Fish
- Muslim:** Does not eat pork, drink alcohol and meat must be Halal
- Jewish:** Does not eat pork, dairy and meat cannot be mixed, meat must be Kosher.
- Hindu:** Does not eat beef as Cows are sacred

Sensory Analysis

Eating is a sensory experience, affecting all of our senses. Sensory analysis is carried out to improve the experience.



Sight:
Stringy, firm, dry, heavy, flaky, crumbly, flat, crisp, lumpy, fizzy, fluffy, smooth, hard, mushy, dull, cuboid, sticky, fragile...



Sound:
Crunch, plop, slurp, sizzle, crack, rustle, snap, crackle, pop



Smell: Fresh
Aromatic, spicy, floral, bland, tainted, bitter, perfumed, citrus, savoury, rotten, sweet,, strong, mild, fragrant, musty, weak, scented



Taste: Sweet, cool, bitter, zesty, warm, hot, sour, sharp, rich, bland, rotten, tart, strong, citrus, mild, umami, tangy, salty, savoury, spicy



Texture:
Brittle, rubbery, stodgy, bubbly, gritty, sandy, mushy, tender, soft, firm, flaky, crisp, fluffy, crumbly, lumpy, smooth, hard, sticky, grainy

Nutrients	Use in the body	Sources
Carbohydrates	To provide energy	Cereal, bread, pasta, rice & potatoes
Protein	For growth and repair of muscles	Fish, meat, eggs, beans, pulses and dairy products
Fat	To store energy in the body, insulate heat, protects bones & organs from knocks	Butter, oil, nuts, cheese and other dairy foods
Vitamins & Minerals	Needed in small amounts to maintain a healthy body	M= Dairy foods, Meat, Fruit & Veg. V = Fruit & Veg
Fibre	To help digestion	Vegetables, bran
Water	Needed for cells and body fluids	Fruit juice, milk, water



Food Science: Function of Ingredients - YEAST



Bread is made using flour, warm water, yeast, sugar and a pinch of salt. The different ingredients have different functions:
Flour = Structure
Salt = provides flavour and helps to set the structure
Warm water = activates yeast and combines ingredients
Sugar = Feeds the yeast
Yeast = raising agent that creates CO₂

Once the ingredients have been mixed a dough is formed. This needs to be **kneaded** so it becomes stretchy and elastic. This makes the bread light and airy in texture and a little chewy on the outside. It also helps to mix all the ingredients together.



Leaving the dough to **proof** is also important as this is the time the yeast needs to ferment, in which it releases CO₂

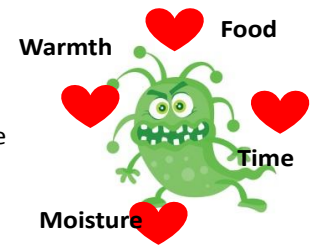
Food & The Wider World: Alternative Proteins

We need food to survive, however the type of food we eat, how it is packaged, where it has travelled from has a huge **impact on the environment**.
 Eating **meat** has a particularly high impact on the environment as the animal requires food, water to live, space to roam and time to grow.
 Farmers will need to drive tractors to deliver food this also releases **pollution** into the atmosphere.
 Once the animal has been slaughtered the meat will need to be kept in the **fridge** so not spoil. This means that energy is needed to power the fridges.



Meat is one of the best sources of protein, which our body needs to grow and repair muscles and cells. However many people are choosing to eat bugs such as crickets, mealworms as they are very high in protein however require far less food, water, space and time to grow.
 Other non animal proteins include chickpeas, nuts, lentils, kidney beans. These are good source of protein but not as high as protein found in animals.

Bacteria is harmful **micro-organism** that can ruin the taste but also make food **dangerous** to eat. To multiply (and become dangerous) bacteria needs enough food and moisture, the right temperature and enough time. To stop the multiplying of bacteria, you must limit these conditions.



You can use the **4 CS** to do this:
Cross Contamination: preventing raw foods (meat) from contacting ready to eat food.
Cooking: Kills the bacteria
Chilling: Keeps it dormant (not active)
Cleaning: Kills bacteria, but also prevents food and moisture from being available.

Food Spoilage (Food Safety)



The Tempest KO

The Tempest – Plot Summary

The play begins with a **tempest** (storm) destroying a ship. On board are **Alonso**, King of Naples; his brother, **Sebastian**; his son, **Ferdinand**; **Antonio**, the Duke of Milan; and other lords and servants. On the island nearby lives **Prospero**; his daughter, **Miranda**; a spirit who serves Prospero, **Ariel**; and, **Caliban**, who is half man, half creature.

In the next scene Prospero explains to Miranda, **‘Thy father was the Duke of Milan, and a prince of power’** until his brother Antonio **‘thy false uncle’** betrayed him and that’s how he came to be on the island. Prospero asked Ariel to create the tempest to bring all those who betrayed him to the island.

Throughout the play, Prospero plays tricks on the crew using magic. He also witnesses Antonio plot to kill the king and make Sebastian king instead. Antonio says, **‘My strong imagination sees a crown dropping upon thy head’**.

Elsewhere on the island, Miranda falls in love with Ferdinand, telling him **‘I have no ambition to see a goodlier man’** – he’s all she could ever want.

At the end, Prospero lures everyone together and confronts those who betrayed him. Alonso apologises to Prospero. Prospero forgives Alonso and Antonio and lets everyone go home on their now restored ship. Alonso is pleased to see his son who he thought had died in the storm. Ferdinand proposes to Miranda and she talks of leaving the island for **“a brave new world”**; Ariel is freed; Caliban is no longer a slave to Prospero. In the last lines of the play Prospero prepares to return to Milan asks to be freed by the audience’s applause.

Themes: Being Trapped

The Tempest includes multiple characters who are trapped or have power taken away from them. Ariel was trapped in a tree when Prospero arrived but then has to be Prospero’s servant as a thank you for Prospero releasing him. At the end of the play, Ariel is released back into the wind. Caliban is from the island but enslaved by Prospero when he arrives. All the people on the ship are trapped and manipulated by Prospero despite it only being two of them who wronged him. Prospero himself is forced to be on the island after fleeing Milan and, at the end, his last lines to the audience are ‘let your indulgences set me free’.

Context – Shakespeare and Theatre

The Tempest was one of the last plays written by **William Shakespeare**.

Shakespeare’s plays were performed in **The Globe Theatre** in London. In The Globe, most of the audience were stood, and were referred to as the **groundlings**. These were the cheap tickets (equivalent to £1 now), meaning theatre was accessible for everyone.

The expensive seats were around the stage in a set-up called **Thrust Staging** – meaning the audience were on three sides. If audiences didn’t like the performance they would throw rotten fruit and shout at the actors to let them know. You wouldn’t get away with this today!

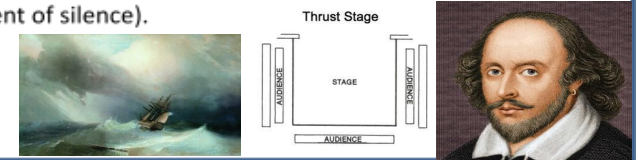
In this topic, you will learn about the following drama techniques:

Soundscape – Layering together sounds and words to create atmosphere and setting.

Spontaneous improvisation – Creating drama on the spot.

Voice – Tone (feeling), volume (shout, whisper), pace (speed), emphasis (making some words stand out), pause (a moment of silence).

Frozen pictures and transitions.



Context – Jacobean England

During this time, much of the world was being colonised by European countries. People in England were fascinated by stories of the ‘cannibals of the Caribbean’ and distant tropical islands. Some people feel Shakespeare is exploring the **morality of colonialism** through the plot and characters of ‘The Tempest’.

Colonialization – An area under the control of settlers separate from the home territory of those settlers.

Morality – right or wrong

Themes: Magic

Prospero is said to be very like William Shakespeare. Shakespeare was getting old, had a difficult relationship with his daughter and got a lot of power from his books – just like how Prospero gets his magic. The Tempest itself could be seen as a metaphor for Shakespeare losing control in his life.

Self Quiz – LOOK, COVER, WRITE, CHECK & CORRECT

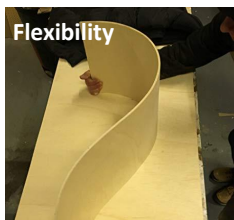
Plot, characters, themes, context and drama techniques.

Material Properties describes what the product can do.



Hardness

Ability to resist cutting and indentations to its surface



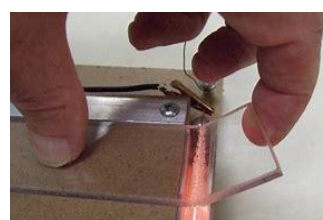
Flexibility

Ability to bend without breaking and then spring back to its original shape.



Toughness

Ability to withstand shock

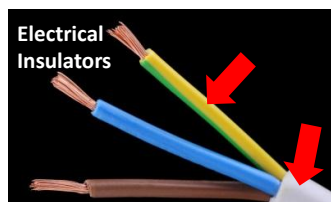


Ability to be hammered, rolled or pressed into shape without breaking. Heat is used to help the material become more malleable



Electrical Conductor

Ability to pass/transfer electrical currents



Electrical Insulators

Ability to hold passing electrical currents, without conducting them.



Heat Insulating
Ability to hold heat in



Heat Conducting
Ability to transfer heat



Water Resistant

Ability to withstand water or moisture – also known as Water Repellent.



Absorbent

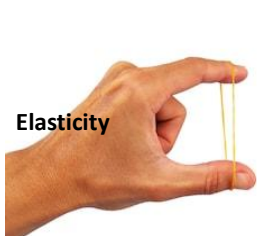
Ability to absorb/soak up water or moisture (opposite to water resistant)



Ductile
Ability to be stretched into a length without breaking

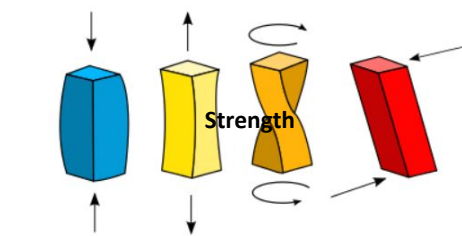


Durable
Ability to last a long time



Elasticity

Ability to be stretched and return to its original size



Strength

Ability to withstand being squashed (compression), pulled (tension), twisted (torsional) and Sheared (two pushing or pulling forces acting close together but not directly opposite).

Choose a product and explain the use of materials based on its properties and characteristics



Brittle
Ability to break easily

Material Characteristics describes the aesthetics of a material – the textures, appearance, shape and size.



Texture describes how something feels.
Appearance describes how something looks.

'The fabric is soft and fluffy in texture and a deep red in colour'

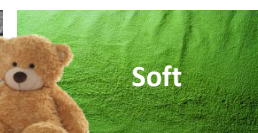
Important: Sometimes a texture descriptor can also describe the appearance. The pictures below have been labelled T= Texture and A=Appearance.



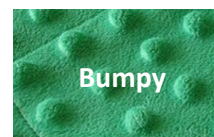
Fluffy



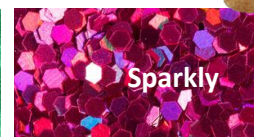
Rough



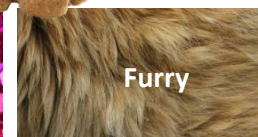
Soft



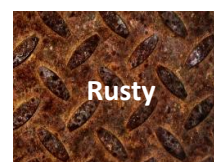
Bumpy



Sparkly



Furry



Rusty



Shiny



Stained



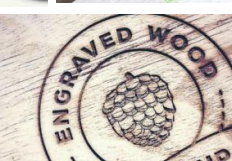
Wavy



Painted



Rubbery

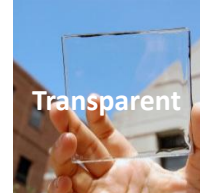


Engraved Wood

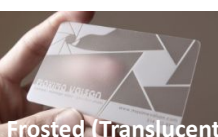


Smooth

Flaky



Transparent



Frosted (Translucent)




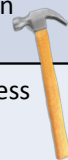





Opaque







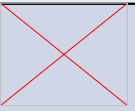


2

DT



Ferrous Metals			
	Composition	Properties/ Characteristics	Uses
Cast Iron 	Re-melted pig iron* with additions	Hard skin but brittle soft core. Heavy. Rigid under compression. Cannot be bent or forged . Corrode easily unless protected (enamelled)	Parts with complex shapes made via casting. Frying pans, machine parts, vices.
Mild Steel 	Iron and 0.15-0.30% Carbon	High tensile strength, ductile, tough, fairly malleable, poor resistance to corrosion.	Nails, screws, nuts, bolts, plate, sheets, car bodies
Medium Carbon Steel 	Iron and 0.30-0.70% Carbon	Stronger and harder than mild steel but less ductile, tough and malleable	Garden tools such as trowels, forks, and springs
High Carbon Steel 	Iron and 0.70-1.40% Carbon	Hardest of the carbon steels; less ductile, tough or malleable.	Hammers, chisels, screwdrivers, drills, files
Stainless Steel 	74% Steel (Iron & Carbon) 18% Chrome 8% Nickel	Resistant to corrosion (non toxic), hard, tough but difficult to work with. Shiny in appearance.	Sinks, Dishes, Cutlery
High Speed Steel 	Medium Carbon Steel + Tungsten, Chromium and Vanadium	Retains hardness at high temperatures; resistant to high level of frictional heat.	Drills, lathes, cutting tools.
High Tensile Steel 	Low Carbon Steel + Nickel and Chrome	Extremely hard and tough	Gears, shafts, engine parts, turbine blades.




*Pig Iron is the iron that comes from the furnace first. It has not been refined.
 Alloys = mixture of two or more pure metals to improve performance






Non Ferrous Metals			
Aluminium 	Pure Metal	Light, soft, ductile, malleable, good conductor of heat and electricity, corrosion resistant, polishes well. Easily welded .	Aircraft bodies, saucepans, cooking utensils, packaging, foil, cans, window frames
Copper 	Pure Metal	Malleable, ductile, tough, good conductor of heat/electricity, easily joined, corrosion resistant, easily soldered .	Electrical wire, hot water tanks, heating pipes, PCBs
Brass 	65% Copper 35% Zinc	Corrosion resistant, can conduct electricity/heat, easily joined, casts well, attractive golden colour	Castings, Ornamental decorations, boat fittings, musical instruments
Bronze 	90% Copper 10% Tin	Tough, hardwearing, corrosion resistant, aesthetically pleasing	Bearings, castings for statues, coins, valves (air, water, and steam)
Lead 	Pure Metal	Very soft, heavy, malleable, corrosion resistant, low melting point, easy to work with	Sold solders, roof coverings, protection against x-ray radiation
Tin 	Pure Metal	Soft, ductile and malleable, low melting point, corrosion resistant. Mostly used within alloys rather than on its own.	Soft solders
Tin Plate 	Steel sheet coated with Tin	Mild steel gives it strength, tin coating bends with the steel, it is non toxic	Tin cans
Pewter 	91% Tin 7.5% Antimony 1.5% Copper	Malleable, casts well, low melting point, corrosion resistant	Decorative features (jewellery), plates, cups
Zinc 	Pure Metal	Low melting point, extremely corrosion resistant, easily worked	Coating of steel bins, buckets, watering cans (galvanising)

DT



POLYMERS (PLASTICS)

Thermoplastics (Thermoforming Plastics)		
	Properties/Characteristics	Uses
LDPE Low Density Polythene	Available in a range of colours, tough, flexible, good electrical insulator and chemical resistance	Squeezy bottles (washing up liquids, detergents), bin liners, and carrier bags
HDPE High Density Polythene	Available in a range of colours, hard, stiff, good chemical resistance, can withstand high impact, food safe	Milk crates, bottles, pipes, buckets and bowls 
PVC Polyvinyl Chloride	Stiff, hard, tough, good chemical and weather resistant	Pipes, guttering, roofing sheets, window frames
Polystyrene	Available in a range of colours, stiff, hard, lightweight, safe with food, good water resistance	Disposable plates, cups, food containers 
Expanded Polystyrene	Lightweight, absorbs shock, good sound and heat insulator	Sound and heat insulation, protective packaging, crash hats 
PP Polypropylene	Hard and lightweight, good chemical resistance, can be sterilised, good impact resistance, easily shaped into complex forms, durable, available in variety of colours. Food safe.	Medical equipment, syringes, creates, string, rope, outdoor furniture and toys, food containers with built in dividers or hinges.
Acrylic	Stiff, hard (however does easily scratch), available in a variety of finishes (clear, frosted, opaque, mirrored, live edge), durable, weather resistant, tough in large/brittle in small surface area	Signs, Stands, Point of Sale Units., car rear light covers, baths Can also be referred to as Perspex
ABS Acrylonitrile butadiene styrene	Tough, high-impact strength, lightweight, scratch resistant, chemical resistant, very aesthetically pleasing	Kitchenware, safety helmets, car parts, telephones, food mixers, toys (LEGO)
HIPS High Impact Polystyrene	Tough, rigid, high impact strength, readily available in a wide variety of colours. Food safe.	Yoghurt pots, disposable cutlery & cups, bathroom cabinets, toilet seats

Thermoset Plastics		
	Properties/ Characteristics	Uses
Urea Formaldehyde	Stiff, hard, brittle, heat resistant, good electrical insulator, available in a range of colours	White electrical fittings (plug sockets) domestic appliance parts (kettles), wood glue (PVA) 
Melamine Formaldehyde	Stiff, hard, strong, range of colours and finishes, scratch and stain resistant, odourless, food safe	Tableware, decorative laminates for work surfaces, electrical insulator 
Phenol-Formaldehyde (Bakelite)	Stiff, hard, strong, brittle, heat resistant	Dark electrical fittings, saucepan and kettle handles 
Epoxy Resin	Good chemical and heat resistance, electrical insulator, durable.	Used largely as an adhesive (glue) to bond different materials together – wood, plastic and metal 
Polyester Resin	When laminated with glass fibre it becomes tough, hard and strong. It is brittle without reinforcement.	GRP (Glass Reinforced Plastic) boats, chair shells and car bodies 

Using your existing knowledge of Thermoplastics and Thermosets (see the first page 'Product Design') and the above tables to explain why particular polymers have been used for particular product uses. Eg:

- Why is expanded polystyrene suitable for protective packaging?
- Why would Urea Formaldehyde be used in the casing of a computer?
- Why is Polypropylene used to make outdoor children toys?

DT

Coraline

Context- write a sentence linking this to key moments from the plot

Neil Gaiman - as a child he discovered his love of books, reading, and stories. He lists Mary Shelley, who wrote 'Frankenstein' as one of his heroes.

The Uncanny is the psychological experience of something as strangely familiar, rather than just mysterious. It may describe incidents where a familiar thing or event is encountered in an unsettling or eerie context.

Neil Gaiman wrote Coraline for his two daughters and wanted to include a brave girl character as the protagonist.

Gothic Settings often include old, Victorian mansions. Neil Gaiman was inspired by the old house that he was living in at the time.

Gothic Characters are often associated with evil and the supernatural. Gothic stories will also often include human heroes who struggle against the evil characters.

Other Worlds Coraline alludes to other books outside of the Gothic genre that also feature portals to other worlds and lead female protagonists such as: Alice through the Looking Glass, The Chronicles of Narnia and The Wizard of Oz.

Plot- learn this and quiz yourself on what happens in each chapter

1	Coraline and her parents move to a new house and discovers a locked door when exploring the grounds.
2	The mice upstairs have a message for Coraline: do not go through the door. Miss Spinks and Miss Forcible read Coraline's tea leaves and tell her that she is in danger.
3	Coraline gets the key and unlocks the door. She walks through to another, identical house. She meets her Other Mother and Other Father who have black buttons for eyes.
4	Coraline meets a talking black cat. She then watches a show. Her Other parents tell her that she can stay forever.
5	Coraline discovers that her parents are missing. The black cat suggests she challenges the Other Mother to a game.
6	The Other Mother locks Coraline in a room.
7	The souls of the other children tell Coraline to run.
8	Coraline persuades Other Mother to play a game of hide and seek. She uses her stone to help her search the house.
9	In the basement, Coraline rips off Other Father's remaining black button eye and escapes through the trap door.
10	Coraline finds the children's souls trapped in three marbles.
11	Coraline knows that her real parents are in the snow globe. She tricks the Other Mother and returns to the real house.
12	Coraline is reunited with her real parents. That night, she dreams that she is at a picnic with the lost souls. Other Mother's hand is scuttling around looking for the key.
13	Coraline has her tea leaves read again and she is told that she is out of danger. Other Mother's hand falls for her plan.

Characters- use this section to link characters to key themes and context

Coraline	The protagonist of the story. Coraline is curious, intelligent and resourceful.
Mr Jones	Coraline's mother
Mrs Jones	Coraline's father.
Miss Spinks and Miss Forcible	Coraline's neighbours. Both women used to be famous actresses.
The Other Father	Coraline's other father is the version of her real father who exists in the other mother's realm.
The Other Mother	The evil, shape-shifting version of Coraline's mother.
The Cat	Acts as Coraline's guide and mentor.
Mr Bobo	An eccentric old man who lives upstairs from Coraline and her family.

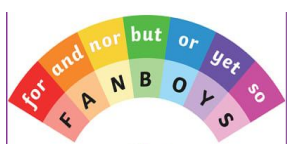

Coraline vocab: look, cover, write, check, correct.

Foreshadow: a warning of a future event
Mystery: difficult or impossible to understand
Suspense: feeling uncertain or anxious about something that is going to happen.
Fantasy: a literary genre with magical or otherworldly events
Uncanny: strange or mysterious. Something oddly familiar
Unsettle: cause to feel anxious; disturbing
Manipulate: to control or influence someone or something
Tension: mental/ emotional strain
Isolated: far away from other people or place; remote
Distorted: twisted out of shape

Themes- make links to these when you write about a quote

The Power of Choice (temptation, fate, free will)	Reality vs Imagination (curiosity, mundane, reality)
Other Worlds (distorted, illusions, fantasy)	Bravery and Fear (isolation, abandonment)
Evil and Manipulation (deception, secrecy, revenge)	Mystery and Suspense (secrecy, deception)










Descriptive techniques (DPRO 1) Write a sentence about <i>Coraline</i> using at least one of these descriptive techniques		Gothic vocab: look, cover, write, check, correct. Look up the other words and add definitions.	Sentences (DPRO 3,4): write an example of your own		Sentences (DPRO 3,4) Can you write an example of each?	
Technique:	Example:	Fiendish- monstrous and fiend-like	Technique:	Example:	Sentence Type	Example:
Personification - a metaphor attributing human feelings to an object.	<i>The <u>shadows danced</u> on the dilapidated walls.</i>	Dilapidated- in a state of disrepair or ruin	Subject- the person/ thing performing the main action.	<i>The <u>candlelight danced</u>.</i>	Simple Sentence: One clause. Subject + verb.	<i>Coraline ran. She was home. They were bored.</i>
Onomatopoeia - words that sound a little like they mean.	<i>The gravel <u>crunched</u> underfoot as I approached the ominous doorway.</i>	Grotesque - repulsively distorted or ugly	Verb- word expressing action/ doing/ state of being	<i>The candlelight <u>danced</u>. It <u>was</u> cold.</i>	Compound Sentence: two sentences joined by FANBOYS (for, and, nor, but, or, yet, so) or a semicolon	<i>Coraline dreamed of a few commercials and after that she dreamed of nothing at all. Coraline was scared yet she kept walking.</i>
Pathetic fallacy - using the weather to create or reflect a certain mood.	<i>Thunder roared in the dark skies.</i>	Placid - quiet and calm	Main clause - Part of a sentence containing one subject and one main verb (makes sense by itself).	<i><u>The pallid candles flickered</u>.</i>	Complex sentence: main clause (makes sense on its own) and subordinate clause (does not). Includes a comma. The subordinate clause can be moved.	<i>Although Coraline was scared, she kept walking. Coraline was scared, although she kept walking. She scanned the room, squinting through the hole in the stone. Squinting through the hole in the stone, she scanned the room.</i>
Metaphor - names a person, thing or action as something else.	<i>The rain came down in long knitting needles.</i>	Annihilate - to destroy	Subordinate clause - Part of a sentence which does not make sense by itself.	<i><u>Flickering ominously</u>, the candles shook from the blowing wind.</i>		
Simile - compares one thing with another, using 'as' or 'like'.	<i>Fog covered the ground like a blanket.</i>	Pallid - (adj) abnormally pale or lacking in colour	Coordinating Conjunctions - words that join two main clauses to create a compound sentence			
		Gaunt - thin and pale	Subordinating Conjunctions - start subordinate clauses which help create complex sentences.			
		Morose - gloomy or bad-tempered				
		Secluded - (adj) hidden or isolated place				
		Shrouded - (verb) wrapped, covered, or hidden. Shroud= burial garment.				
		Drizzle - light rain				
		Ominously - (adverb) happening in a threatening way				
		Furtively - (adverb) moving sneakily, or secretly				

Using TiPToP for Paragraphs:	Drop	Flash	Using Drop, Zoom, Flash, Echo
Use TiPToP to remember how to use paragraphs accurately. Start a new paragraph when... Ti: You move to a new period of time P: You move to a different place/ location To: You move from one topic to another P: You bring a new person into your writing, or change from one person to another (this includes dialogue)	<i>In that moment... All around, I could feel... A sudden gust of putrid air blew, pushing... The rattling got louder and louder until...</i>	<i>It had only been a few hours ago when... Earlier that morning... The streets had been deserted when... Back at home..</i>	Plan a gothic story in four parts, using each section. Practise using different sentence starters from the examples to begin each paragraph or section of your story.
	Zoom	Echo	How to use your Knowledge Organiser
	<i>Immediately, the colours of the ___ caught my eye... The subtle shades of..</i>	<i>The ___ grew louder than ever before... Repeat a word / phrase / image from the opening of the piece</i>	Practise writing a gothic story, using different sentence types, descriptive devices, and new words.

Coraline: Fundamental Quotes

(The things you need to know!)

Quote	When	What to say?
<p>Coraline discovered the door a little while after they moved into the house.</p> 	<p>Chapter 1 pg 1: The opening line of the story.</p>	<ul style="list-style-type: none"> We are not told what is behind the door but it is clear that it will be an important part of the story. The key that Coraline uses to go through the door symbolises secrecy and when using it, the door acts as a portal to another world. The key and the door may also represent escape and adventure for Coraline.
<p>The next day it had stopped raining, but a thick white fog had lowered over the house.</p> 	<p>Chapter 2 pg 17: Coraline is bored and decides to go for a walk.</p>	<ul style="list-style-type: none"> The use of pathetic fallacy and the repeated description of the fog creates a sense of mystery throughout the novel. Fog is also used as a symbol in the story to represent the blurred lines between reality and imagination.
<p>Only her fingers were too long, and they never stopped moving, and her dark-red fingernails were curved and sharp.</p> 	<p>Chapter 3 pg 34: Coraline meets the other mother.</p>	<ul style="list-style-type: none"> The description of the other mother has an uncanny resemblance to Coraline's real mother. She is strangely familiar in an unsettling way. The 'dark-red' may foreshadow the danger that Coraline will soon find herself in. The verb 'curved' may symbolise the twisted reality that the other mother represents and the adjective 'sharp' her evil nature.
<p>"We have teeth and we have tails We have tails, we have eyes We were here before you fell You will be here when we rise."</p> 	<p>Chapter 3 pg 38: The rats sing a warning song to Coraline when she's in the other world.</p>	<ul style="list-style-type: none"> The rats add to the horror of the book and the mystery of their exact purpose is never revealed. The rats have an ominous tone. Their rhyme foreshadows the danger that Coraline will be in.
<p>On a china plate on the kitchen table were a spool of black cotton and a long silver needle and, beside them, two large black buttons.</p> 	<p>Chapter 4 pg 53: The other mother and father show Coraline the two black buttons and thread.</p>	<ul style="list-style-type: none"> The black buttons symbolise that the other mother sees Coraline as a doll or 'play-thing' that she wants to keep in the other world. The buttons also symbolise the other mother's desire to control Coraline and restrict her freedom.
<p>"Mirrors," she said, "are never to be trusted."</p> 	<p>Chapter 6 pg 90: The other mother appears behind Coraline however, the reflection was not in the mirror.</p>	<ul style="list-style-type: none"> The motif of mirrors in the novel here shows us that the other mother's world is just a false and distorted reflection of Coraline's real world.
<p>Outside, the world had become a formless, swirling mist with no shapes or shadows behind it, while the house itself seemed to have twisted and stretched.</p> 	<p>Chapter 9 pg 125: Coraline steps outside and once again encounters the other mother.</p>	<ul style="list-style-type: none"> Mystery and suspense is built as Coraline's reality continues to become increasingly distorted. The 'formless, swirling mist' creates a sense of fear and unease. The dramatic verbs 'twisted' and 'stretched' make it seem as though the house is shape-shifting and that Coraline is in a dream-like state.
<p>Her hair writhed and twined about her head, and her teeth were sharp as knives...</p> 	<p>Chapter 11 pg 155: A description of the other mother as she becomes angry that Coraline is winning parts of the game.</p>	<ul style="list-style-type: none"> The use of dramatic verbs 'writhed' and 'twined' makes the hair seem alive, dangerous and snake-like, signifying the other mother's evil nature. The simile 'sharp as knives' highlights the cruel intentions of the other mother and dehumanises her as an evil being.

Settlements

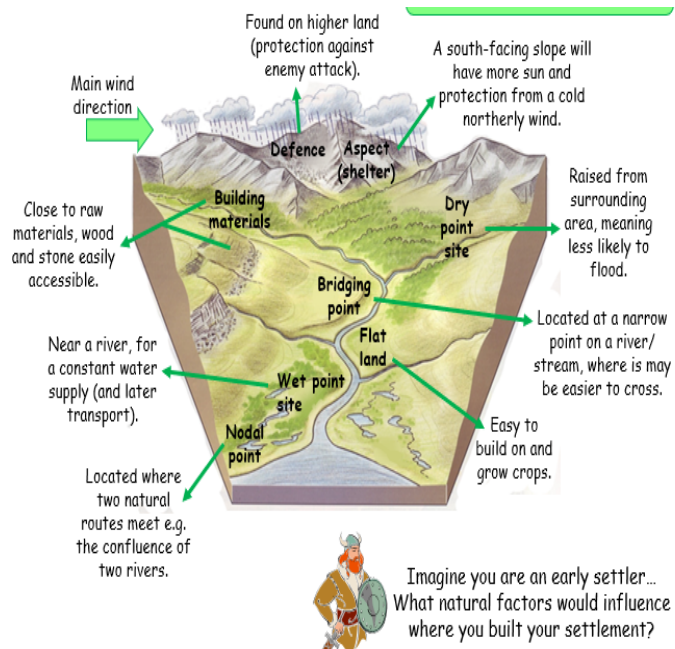
Site and settlement

Settlements are places where people live.

Site - this is a place where the settlement is located, e.g. on a hill or sheltered valley

Situation - this describes where the settlement is in relation to the other settlements and the features of the surrounding area, e.g. is the settlement surrounded by a forest or is it next to a large city.

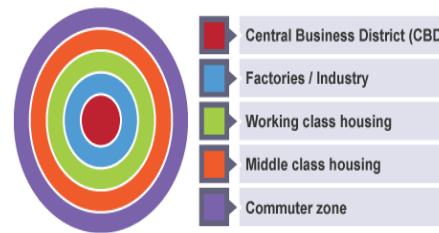
Early settlements



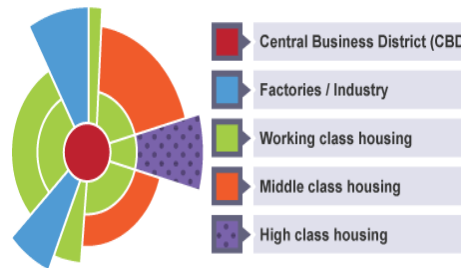
Land-use models

Models of land use to show how a 'typical city is laid out'.

Burgess model



- Highest land values are in the centre of a town or city as competition is highest here
- Leads to high-density buildings near CBD
- Lower density and sparse at the edge



Hoyt model: Similar circle model as Burgess but adds similar land uses concentrated in parts of the city. e.g. factories radiate out from CBD - probably due to a road or railway.

Regeneration in Stratford, East London

The closure of the London Docks and de-industrialization (closing of factories) in the period 1960-1980 left Stratford one of the most deprived communities in the country with high unemployment and poor health. The successful Olympic bid in 2012 included a plan to regenerate (improve) the area for local people.

Benefits of the Stratford regeneration.

Social - by 2030 more than 10,000 new homes will have been built

- 5 new neighbourhoods with green spaces will be built with around 1/3 affordable homes
- New school - Chobham Academy

Economic

- Stratford is now a well-connected area of London. It has bus, tube, overground and rail connections.
- New jobs in construction & tourism have created the multiplier effect.
- Estimated 20,000 jobs could have been created by 2030, adding £5 billion to the local economy.

Environmental

- The Olympic bid was partly successful on the basis of sustainability.
- The park is sustainable in a number of ways e.g. walking/cycling routes, water-efficient design of homes & green space.



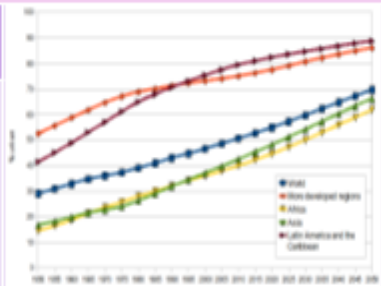
Urbanisation and Megacities

What is Urbanisation?

This is an increase in the amount of people living in urban areas such as towns or cities. In 2007, the UN announced that for the first time, more than 50 % of the world's population live in urban areas.

Where is Urbanisation happening?

Urbanisation is happening all over the world but in LICs and NEEs rates are much faster than HICs. This is mostly because of the rapid economic growth they are experiencing.



Types of Cities

Megacity

An urban area with over 10 million people living there.



More than two thirds of current megacities are located in either NEEs (Brazil) and LICs (Nigeria). The amount of megacities are predicted to increase from 28 to 41 by 2030.

Causes of Urbanisation

Rural - urban migration (1)

The movement of people from rural to urban areas.

Push

- Natural disasters
- War and Conflict
- Mechanisation
 - Drought
- Lack of employment



Pull

- More Jobs
- Better education & healthcare
- Increased quality of life.
- Following family members.

Natural Increase (2)

When the birth rate exceeds the death rate.

Increase in birth rate (BR)

- High percentage of population are child-bearing age which leads to high fertility rate.
- Lack of contraception or education about family planning.



Lower death rate (DR)

- Higher life expectancy due to better living conditions and diet.
- Improved medical facilities helps lower infant mortality rate.

Sustainable Urban Living

Sustainable urban living means being able to live in cities in ways that do not pollute the environment and using resources in ways that ensure future generations also can use them.



Water Conservation

This is about reducing the amount of water used.

- Collecting rainwater for gardens and flushing toilets.
- Installing water meters and toilets that flush less water.
- Educating people on using less water.



Creating Green Space

Creating green spaces in urban areas can improve places for people who want to live there.

- Provide natural cooler areas for people to relax in.
- Encourages people to exercise.
- Reduces the risk of flooding from surface runoff.



Energy Conservation

Using less fossil fuels can reduce the rate of climate change.

- Promoting renewable energy sources.
- Making homes more energy efficient.
- Encouraging people to use energy.



Waste Recycling

More recycling means fewer resources are used. Less waste reduces the amount that eventually goes to landfill.

- Collection of household waste.
- More local recycling facilities.
- Greater awareness of the benefits in recycling.

Key terms:

Urban area: is a human settlement with high population density and infrastructure of built environment.

Rural area: an open countryside area with a low population density e.g. village or hamlet

Urbanisation: Increase in proportion of people living in urban areas such as towns or cities

Mega city: A city with a population of 10 million or more

LIC: Lower income country. Poorer countries that have a low GDP and mainly primary jobs such as farming and mining. E.g. Malawi

NEE: Newly Emerging economies countries that have begun to experience high rates of economic development, usually with higher levels of industrialisation. They differ from LIC's as they no longer rely primarily on agriculture. e.g. India/Brazil

HIC: Higher income country. Developed countries with higher GDP and have lots of industry and service jobs. e.g. UK/USA

The Crusades

Summary: The Crusades were a series of battles between Christianity and Islam that lasted from 1096-1291. These series of battles affected politics, European culture and the way we live today.

Key concepts	
1	The Crusades: These were each of a series of medieval wars between Christians and Muslims. In 1095 Pope Urban II made a speech telling European Christians to defend the Holy Land from Muslim invaders. This would start a series of battles in the Middle East that would last from 1096-1291.
2	Who were the Crusaders? - Between 50,000 and 100,000 Christians from all over Europe joined the long march to Jerusalem. The crusade was led by noblemen , but thousands of people who did not carry weapons (non-combatants) also joined. This included wives, children, servants and criminals . Many were deeply religious and hoped that by joining the First Crusade God would forgive them for their sins.
4	Religious Reasons: Religion was a very important part of life in the Middle Ages. This meant that people feared going to hell when they died and would do almost anything to go to heaven. Some people even left land, wives and their family members behind in order to join the Crusades and be saved. Religion led to Godfrey of Bouillon starting the Battle of Jerusalem - he believed God would allow him to win any war and attacked the city in 1099.
5	Economic Reasons: The Pope in 1215 gave Crusaders economic benefits . For example: - The property and family of Crusaders were protected while they were away . - Crusaders paid no taxes while they were on Crusade . Crusaders' debts need not be paid until they returned. - Some crusaders wanted to escape poverty in Europe. In the 1099 Siege of Jerusalem, these crusaders stole gold, silver and houses of treasure after they conquered Jerusalem.
6	Personal Reasons: There were personal reasons to go on crusade. Some people wanted to please their families or win wars . Some people, such as servants, joined because they were escaping a hard life in Europe.
7	Legacy of the Crusades: : The Crusaders learned more about warfare – better castle design and gunpowder. Muslim scholars taught European scholars many things about science and medicine. Europeans started to use the Arab number system (1, 2, 3, 4) instead of Roman numerals. Western Europeans learned about many things they had never seen before e.g. lemons, apricots, sugar, silk, cotton and spices used in cooking.







Key words		
1	Legacy	What is left behind by a person or an event
2	Council of Clermont	Where Pope Urban II in 1095 made a speech saying that anyone who joined the Crusades would go to heaven after they died.
3	Jerusalem	City in the Middle East important to Christians, Muslims and Jews
4	Arab Golden Age	A period of great change in culture, science and technology from the 8th-13th Century inspired by Arab Muslim culture.
5	Anatolia	Modern-day central Turkey
6	Byzantine Empire	The Christian Empire that ruled over much of the Middle East from 395–1453.
7	Seljuk Turks	Turkish Sunni Muslim armies from Central Asia
8	Pope Urban II	Head of the Catholic Church from 1088-1099
9	Emperor Alexios I	Leader of the Christian Byzantine Empire, that was attacked by Seljuk Turk forces in the late 11th Century
10	Economic	To do with money
11	Dynasty	A term for rulers who all come from the same family
12	Siege of Jerusalem	Christian Crusaders capture Jerusalem from Fatimid Egyptian Muslim forces, Crusaders would rule over Jerusalem for almost 100 years afterwards.

The Reformation

Summary: The Reformation started in Germany in 1517, when the Catholic Church split with the Protestant Church, led by Martin Luther. In England, the Reformation happened in 1533, when King Henry VIII left the Catholic Church and formed the Church of England. This led to a series of big changes over the next 100 years to England's religion, politics and way of life.

Key changes		Key developments	Key words	
1	Henry VII: - Made the monarch (king/queen) supreme head of the Church in England - Translated the Bible into English - Divorced Catherine of Aragon. - Started the Dissolution of the Monasteries in 1536	1517 - The reformation started by Martin Luther in Germany in 1517 1509 - Henry VIII becomes king of England. 1533 - Henry VIII leaves the Catholic Church - England becomes a Protestant country.	1	Break with Rome When Henry VIII made himself head of the Church and passed laws that separated England from the Catholic Church from 1532 - 1534.
2	Edward VI: -Allowed priests to marry -Created a prayer book in English - Saints were removed from churches - Stained glass windows were smashed.	1534 - Henry VIII becomes supreme head of the Church of England. 1547 –1553 Edward VI becomes king and makes England more Protestant	2	Protestant A person who follows Protestantism; they read the Bible in English, do not have highly decorated churches and do not believe in Purgatory.
3	Mary I: - Asked the Pope to take back control of the church, - Burned 300 Protestants - Stopped priests from being able to marry. - Foxe's Book of Martyrs was written about the Protestants she burned.	1549 - Edward VI creates a new prayer book 1553 - 1558 Mary I (Bloody Mary) becomes queen and makes England more Catholic.	4	Catholic A person who follows Catholicism ; they read the Bible in Latin, have highly decorated churches and believe in saints and in Purgatory..
4	Elizabeth I: - Act of Uniformity of 1559 re-introduced the Book of Common Prayer from Edward's reign, - Act of Supremacy - Made Elizabeth I (the monarch) the head of the church - 1571, the Thirty-Nine Articles outlined the Church of England's Protestant beliefs	1558-1603 -Elizabeth I becomes queen - makes England more Protestant.	5	Pope Head of the Catholic church
			6	significance When an event results in big changes. inspire others, remembered, reveals something about the time and is remarked upon by people who lived at the time of the event.
			7	Dissolution of the monasteries When Henry VIII destroyed the Catholic monasteries in England and took their land and possessions.
			8	Saints A holy person who went to heaven after their death. They were believed to have god-like powers so Catholics prayed to them.
			9	Purgatory A place between heaven and hell where souls lived after death before being judged by God.
			10	Act of Supremacy Passed in 1534, this made Henry VIII the supreme head of the Church of England

A: Angles	
Acute	Less than 90°
Right Angle	Exactly 90°
Obtuse	Greater than 90° and less than 180°
Reflex	Greater than 180°

B: Angle Facts	
	Angles on a straight line add up to 180°
	Angles around a point add to 360°
	Vertically opposite angles are equal
	Angles in a triangle add up to 180°
	Angles in a quadrilateral add up to 360°
	Base angles in an isosceles triangle are equal

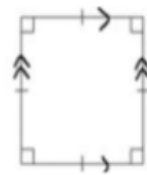
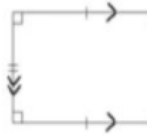
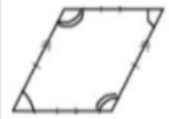

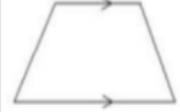
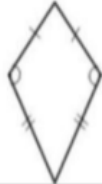
C: Multiplying Negatives	
Positive x positive =	Positive
Positive x negative =	Negative
Negative x positive =	Negative
Negative x negative =	Positive

D: Polygons	
3	Triangle
4	Quadrilateral
5	Pentagon
6	Hexagon
7	Heptagon
8	Octagon
9	Nonagon
10	Decagon

E: BIDMAS	
B	Brackets
I	Indices
D	Division
M	Multiplication
A	Addition
S	Subtraction

F: Algebra Definitions	
Variable	A quantity represented by a letter
Term	A single number, variable or numbers and variables multiplied together
Expression	A mathematical statement without an equals sign
Equation	A mathematical statement with an equals sign
Expand	Multiply out the bracket in the expression
Factorise	Rewrite an expression with brackets
Substitute	Replace a variable with a number

G: Index Laws	
$a^m \times a^n$	a^{m+n}
$a^m \div a^n$	a^{m-n}
$(a^m)^n$	a^{mn}
a^0	1
a^{-1}	$\frac{1}{a}$
a^{-n}	$\frac{1}{a^n}$
$\frac{1}{a^n}$	a^{-n}

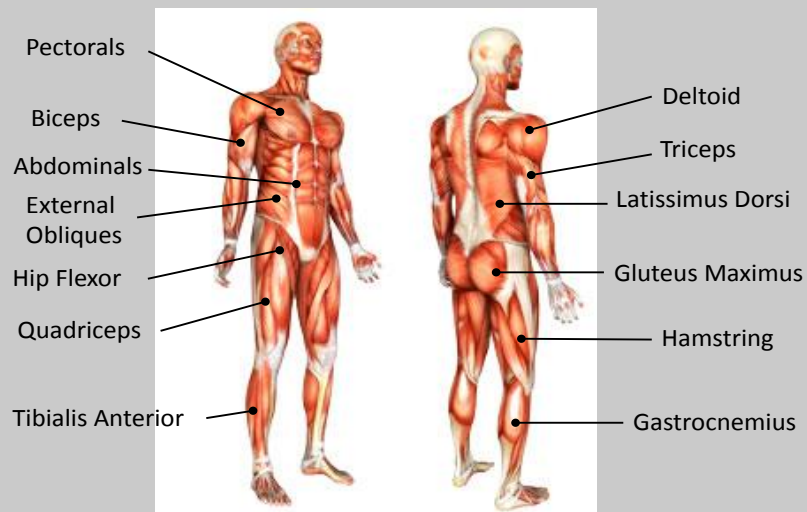
H: Quadrilaterals		
Square		<ul style="list-style-type: none"> all sides equal two pairs of parallel sides all angles equal (90°)
Rectangle		<ul style="list-style-type: none"> opposite sides equal two pairs of parallel sides all angles equal (90°)
Rhombus		<ul style="list-style-type: none"> all sides equal two pairs of parallel sides opposite angles equal
Parallelogram		<ul style="list-style-type: none"> opposite sides equal two pairs of parallel lines opposite angles equal
Trapezium		<ul style="list-style-type: none"> one pair of parallel sides
Kite		<ul style="list-style-type: none"> two pairs of adjacent sides equal no pairs of parallel sides one pair of opposite angles equal

Music of the 60s and Theme and Variations

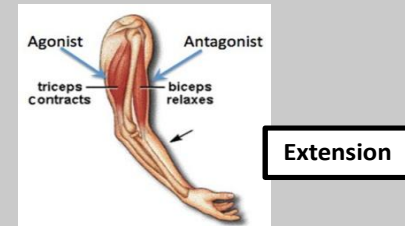
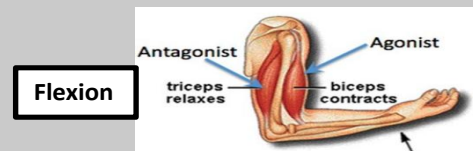
Element	Core knowledge [this will be in your assessment]	Music of the 60s Context
Melody	<ul style="list-style-type: none"> ● Riff - a short repeating melody ● Bassline - the lowest part of a song 	<p>Recommended Listening:</p> <ul style="list-style-type: none"> ● The Beatles - <i>Sgt. Pepper</i> ● The Supremes - <i>Where Did Our Love Go</i> ● Nina Simone - <i>Pastel Blues</i> ● Ben E King - <i>Stand By Me</i> ● Charles Mingus - <i>The Black Saint and The Sinner Lady</i>
Articulation	<ul style="list-style-type: none"> ● Accent - louder than the notes around it ● Sforzando - Suddenly loud for one note 	
Dynamics	<ul style="list-style-type: none"> ● Forte - Loud ● Piano - Soft 	
Texture	<ul style="list-style-type: none"> ● Thick - many layers of sound ● Thin - few layers of sound 	
Structure	<ul style="list-style-type: none"> ● Verse - repeated section with different lyrics ● Chorus - repeated section with the same lyrics 	Theme and Variations Context
Harmony	<ul style="list-style-type: none"> ● Chord - three or more notes together ● Chord sequence - a series of different chords ● Major/ Minor - happy/ sad chord 	<p>Recommended Listening</p> <ul style="list-style-type: none"> ● Classical <ul style="list-style-type: none"> ○ Pachelbel's <i>Canon in D</i> ○ Chopin's <i>Berceuse</i> for piano, Op. 57 ● Jazz <ul style="list-style-type: none"> ○ Cannonball Adderley - <i>Somethin' Else</i>
Instrumentation	<ul style="list-style-type: none"> ● Double Bass - lowest member of the string family ● Tuba - lowest member of the brass family ● Bass Clarinet- Larger clarinet with a lower pitch range 	
Rhythm	<ul style="list-style-type: none"> ● Backbeat - kick drum on beats 1 and 3, snare drum on 2 and 4 ● Crotchet, Quaver, Semiquaver 	
Tempo	<ul style="list-style-type: none"> ● Fast ● Slow 	
Time Signature	<ul style="list-style-type: none"> ● Simple - beats divided in 2s ● Compound - beats divided in 3s ● Duple- 2 beats a bar ● Triple - 3 beats a bar 	

Structure of the muscular system

Structure of the muscular system



Antagonistic pairs - Muscles are arranged in antagonistic pairs. As one muscle contracts (shortens) its partner relaxes (lengthens) *i.e. Biceps and Triceps.*



Agonist = the muscle that contracts to produce movement.
Antagonist = the muscle that relaxes to allow the movement to occur.

Examples in the body:

- Biceps & Triceps

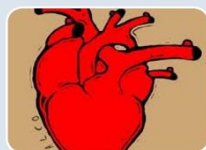
Types of muscle



Voluntary muscles enable movement throughout the body.



Involuntary muscles are essential in maintaining healthy body systems.



Cardiac muscle is vital in sport because it makes the heart pump. Fitness training will strengthen cardiac muscle making the heart more efficient at pumping blood around the body.

Muscle fibre types

Slow twitch muscle fibres (Type I)	Fast twitch muscle fibres (Type IIa)	Fast twitch muscle fibres (Type IIx/b)
<ol style="list-style-type: none"> 1. Smaller in size. 2. Work aerobically with high fatigue resistance. 3. Have a good oxygen supply = deep red in colour. 	<ol style="list-style-type: none"> 1. Larger in size 2. Work anaerobically & linked to high intensity activities. 3. Are paler in colour and have limited oxygen supply. 	<ol style="list-style-type: none"> 1. Large in size 2. Work anaerobically & linked to extreme high intensity activities. 3. Very high speed of contraction
Marathon runner	400/800m runner	100m Sprinter

The short term effects of exercise on the muscles:

1. Working muscles produce heat
2. Increased muscle fatigue due to lactate accumulation
3. Blood is redistributed to working muscles (Shunting)

Link of the muscular and skeletal system – both systems work together to produce movement. *i.e. a contracting muscle pulls on a bone which changes the angle at a joint.*

7.5 Living the religious life – Half term 1

Key Terms		Key Figures
Inspirational	When a person or moment provides a mental stimulus that leads others to follow suit and make positive steps of change	<u>Adam</u> : Considered the first man by both Christianity and Islam. He is considered the first prophet in Islam who was taught all things by God and was given the right to name all things. He would be joined by Eve and they would together commit the first sin by eating the forbidden fruit and bring sin into the world. KQ is the story literal or metaphorical? Can Adam still be considered inspiration despite his transgression?
pilgrimage	A journey of religious or spiritual significance	<u>Jesus</u> : The son of God according to Christianity Jesus is one of the few figures who appears across not only western religions but some of the traditional eastern religions too, for example Buddhists consider him an enlightened being. He is said to have died for our sins and both Islam and Christianity believe he will see in the day of judgement. KQ Was Jesus more than just a man? Why is he such a prominent figure across so many faiths?
Vows	Promises made to either to God or to a person in God's presence	<u>Muhammad</u> : Considered the last and "seal" of the prophets Muhammad was born into a time of trouble in Makkah, He escaped to Madinah to found a faith that was both new and ancient at the same time before returning to Makkah to liberate the city from oppression and fear. KQ Why was Muhammad the final prophet according to Islam? What was the significance of re-taking Makkah?
Missionaries	Christians who travel around the world spreading Christianity through the sharing of the gospels.	<u>Siddhartha Gautama</u> : A prince who renounced his claim to his father throne in order to seek the answer to the one question that eluded him "why do people suffer?" he himself suffered to discover truth by starving himself. Realising that he would find no truth in these means he began to meditate and refused to stop until he found truth. In doing so he discovered the 4 noble truths and the 8-fold path. KQ Why do humans suffer? Is suffering linked to desire? Is knowing the answer and solving the problem the same thing?
Nobel Peace prize	An award given every year to people by a committee in recognition of work done in pursuit of achieving peace	<u>Khadija</u> : Khadija was a wealthy woman from Makkah who married a young man who worked for her called Muhammad, When Muhammad told her he had seen an angel and had a message to deliver, she did not question him as many did but believed him completely thus making her one of the first followers of Islam as we know it today. After many years of faithful marriage Khadija died, and is still seen as the most faithful of Muslims and the true love of Muhammad's life. KQ: Why do you think she never questioned Muhammad's vision?
Prophet	A person who has received direct instruction from God	
Enlightenment	A state of clarity achieved through stillness	
Disillusionment	To be unsatisfied by the nature of one's surroundings and reality.	
Renunciation	To revoke claims to power, such as the refusal to serve as a king	
Ascetic	To live a life of hardship in order to gain a full understanding of suffering	
Nirvana	A heavenly state achieved through the abandonment of desire	
Useful Quotations		
""The pursuit of knowledge is a duty of every Muslim, man and woman" (Muhammad's words in the Hadith)		
"A new command I give you: Love one another. As I have loved you, so you must love one another. By this everyone will know that you are my disciples, if you love one another." (John 13:34-35)		
"If you think you are too small to make a difference, try sleeping with a mosquito" Dalai Lama		

RE

7.6 Living the religious life – Half term 1

Key Terms		Key concepts
recycling	The action or process of converting waste into reusable material.	<p>Climate change: The changes to the climate of the planet caused by the releasing of toxic gases, the removal of forests that produce oxygen and general human waste. This can lead to unpredictable weather patterns, the melting of the polar ice caps, rising sea levels and increased natural disasters. The world is on course to go up by an average of 4 degrees over the next 30 years with some scientists fearing that this could cause an extinction level event.</p> <p>Gaia Hypothesis: The concept that the world is alive in the same sense as any living organism, those that believe the Gaia hypothesis believe that the earth will eventually protect itself from destruction but that this could be at the cost of humanity. The idea is that the earth suffers, like a human would, and feels pain like a human would and will protect itself, like a human would.</p>
deforestation	The cutting down of large swathes of forest for the purposes of logging and grazing land.	
Eutrophication	Widespread water pollution.	<p>Stewardship: The Christian belief that the world is given to us by God and that we are only to act as stewards for the earth taking care of it temporarily for God before we pass it on to the next generation and they the generation after that. As stewards we have no right to destroy or disable the planet and must return it to God in the manner into which it was entrusted to us. This concept also exists in Islam but they use the term “Khalifah” rather than steward, this means “guardian”</p>
Environment	The world around us that provides a liveable habitat for species including land, air, water, climate	
pollution	The dirtying of water, land and air through human activity and waste.	<p>Global warming: A major factor behind climate change. This occurs when the build up of toxic gases like carbon monoxide and carbon dioxide form a layer around the earth that stops the suns rays from departing from the earths atmosphere thus continuing to heat the earth’s surface</p> <p>Dominion : Prior to the Christian concept of stewardship was the concept of Dominion. This was a misunderstood term that meant many saw the earth as their property to do what they want with and not God’s as stewardship states. Through this misunderstood concept of Dominion many Christians and other religious believers took the Earth for granted.</p>
Industrialised	When a place of natural qualities has been taken over by factories and other means of industry	
Fossil Fuel	Non-renewable energy sources that are finite such as oil, gas and coal	<p>Carbon offsetting: The act of offsetting any carbon emissions you produce by planting trees to make up for it. Bands like Coldplay and the Foo fighters have been practicing this for years, paying for hundreds of thousands of trees to be planted to offset the carbon footprint left by their touring such as air travel.</p>
Renewable energy	Fuels that we can continue to reproduce or will never run out of such as Wind, Water and Wood.	
Ozone layer	A layer of protective gas (o-zone) around the world that dilutes the suns rays reducing global warming, sea levels rising and skin cancer amongst humans	<h3>Useful Quotations</h3>
Animal rights	Animals having rights similar to those of humans such as the right to life and freedom from undue suffering	“Our Sin is exploiting the earth and not allowing her to give us what she has within her” Pope Francis
		“The lord God took the man and put him in the garden of Eden to work it and to keep it.” (Genesis 2:15)
		““The world is beautiful and verdant, and verily God, be He exalted, has made you His stewards in it, and He sees how you acquit yourselves.” Prophet Muhammad (PBUH) (Saheeh Muslim)

RE

Forces Knowledge Grid

	Question	Answer		Question	Answer
1	force	A push, pull or twist.	19	extension	The amount by which a spring or other stretchy material has stretched. It is worked out from the stretched length minus the original length.
2	air resistance	A force on objects moving through air.	20	force metre	Piece of equipment containing a spring, used to measure forces.
3	contact forces	A force where there needs to be contact between objects before the force can have an effect (e.g. friction).	21	Hooke's Law	The law that says that the extension of a spring is proportional to the force on it.
4	friction	A force between two objects that are touching. It usually acts to slow things down or prevent movement.	22	limit of proportionality	The extension of a spring is proportional to the force on it, up to a certain point called the limit of proportionality. If you apply more force the extension is no longer proportional to the force.
5	gram (g)	A unit for measuring mass.	23	plastic	A plastic material changes shape when there is a force on it, but does not return to its original shape when the force is removed.
6	gravity	The force of attraction between any two objects. The Earth is very big and so has strong gravity that pulls everything down towards it.	24	proportional	A relationship between two variables where one doubles if the other doubles. A graph of the two variables would be a straight line through the origin.
7	kilogram (kg)	A unit for measuring mass. There are 1000 g in 1 kg.	25	spring	A coil of wire that can be stretched or compressed.
8	magnetism	A force that attracts objects made of iron or other magnetic materials. Two magnets can also repel each other.	26	stretch	To pull something to make it longer.
9	mass	The amount of matter that something is made from. Mass is measured in grams (g) and kilograms (kg). Your mass does not change if you go into space or to another planet.	27	lubricant	A substance (usually a liquid) used to reduce friction.
10	newton (N)	The unit of force.	28	lubrication	Adding a lubricant to something.
11	non-contact force	A force that can affect something from a distance (e.g. gravity).	29	pascal (Pa)	A unit for pressure. 1 Pa = 1 N/m ² .
12	static electricity	A force that can attract or repel things. It is caused when certain materials rub together.	30	pressure	The amount of force pushing on a certain area. A way of saying how spread out a force is.
13	upthrust	A force that pushes things up in liquids and gases.	31	balanced forces	When two forces are the same strength but in opposite directions.
14	water resistance	A force on objects moving through water.	32	stationary	Not moving.
15	weight	The amount of force with which gravity pulls things. It is measured in newtons (N). Your weight would change if you went into space or to another planet.	33	unbalanced forces	When two forces working in opposite directions are not the same strength. Unbalanced forces change the motion of objects.
16	compress	To squash something, or make it smaller.			

Forces Knowledge Grid					
	Question	Answer		Question	Answer
1	Brownian motion	An erratic movement of small specks of matter caused by being hit by the moving particles that make up liquids or gases.	21	condense	When a gas turns into a liquid.
2	compress	To squeeze into a smaller volume.	22	evaporate	When a liquid turns into a gas.
3	contract	To get smaller.	23	freeze	When a liquid turns into a solid.
4	density	The amount of mass that one cubic centimetre of a substance has. Often measured in grams per cubic centimetre (g/cm ³).	24	freezing point	The temperature at which a liquid turns into a solid. It is the same temperature as the melting point of the substance.
5	diffusion	When particles spread and mix with each other without anything moving them.	25	melt	When a solid turns into a liquid.
6	evidence	Data used to support an idea or to show that it is wrong.	26	melting point	The temperature at which a solid turns into a liquid.
7	expand	To get bigger.	27	physical change	A change in which no new substances are formed (e.g. changes of state).
8	gas	One of the states of matter. It does not have a fixed shape or a fixed volume and is easy to squash.	28	sublime	When a solid turns into a gas, without becoming a liquid in between.
9	liquid	One of the states of matter. It has a fixed volume but not a fixed shape.	29	water vapour	Water as a gas. Also called steam.
10	mass	The amount of matter that something is made from. Mass is measured in grams (g) and kilograms (kg). Your mass does not change if you go into space or to another planet.	30	fluid	A gas or a liquid.
11	particle model	Another term for particle theory.	31	pressure	The amount of force pushing on a certain area. A way of saying how spread out a force is. Often measured in newtons per square metre (N/m ²) or pascals (Pa).
12	particle theory	A theory used to explain the different properties and observations of solids, liquids and gases.	32	upthrust	A force that pushes things up in liquids and gases.
13	solid	One of the states of matter. It has a fixed shape and fixed volume.	33	weight	The amount of force with which gravity pulls things. It is measured in newtons (N). Your weight would change if you went into space or to another planet.
14	state of matter	There are three different forms that a substance can be in: solid, liquid or gas. These are the three states of matter.	34	air resistance	A force that tries to slow objects down that are moving through air. It is caused by friction and by the objects pushing the air out of the way.
15	volume (matter)	The amount of room something takes up. Often measured in cubic centimetres (cm ³).	35	balanced force	When two forces on an object are the same strength but in opposite directions.
16	anomalous	Something that does not fit a pattern. When talking about water, this means that water does not behave in the same way as other liquids when it freezes.	36	drag	Another name for air resistance or water resistance.
17	boiling	When there is liquid turning into a gas in all parts of a liquid, creating bubbles of gas in the liquid.	37	friction	A force between two objects that are touching. It usually acts to slow things down or prevent movement.
18	boiling point	The temperature at which a liquid boils.	38	streamlined	Something that has a smooth shape to reduce the air resistance or water resistance.
19	change of state	When a substance changes from one state of matter (solid, liquid or gas) into another.	39	water resistance	A force on objects moving through water.
20	chemical change	A change which forms one or more new substances.			

Earth and Space Knowledge Grid		
	Question	Answer
1	Earth	The planet we live on.
2	Moon	The Moon (with a capital M) is the moon that orbits the Earth.
3	model	A way of showing or representing something that helps you to think about it or to find out about it.
4	orbit	The path that a planet takes around a star, or the path that a moon or satellite takes around a planet.
5	planet	A large object orbiting a star. The Earth is a planet.
6	Solar System	A star with planets and other objects orbiting around it.
7	star	A huge ball of gas that gives out energy – we see some of the energy as light.
8	Sun	The star that the Earth orbits.
9	elliptical	oval-shaped
10	moon	A natural satellite of a planet.
11	phases of the Moon	The different shapes the Moon seems to have at different times.
12	constellation	A pattern of stars. The stars in a constellation are not usually close together, they only appear to be close when seen from the Earth.
13	galaxy	Millions of stars grouped together.
14	light year	The distance that light travels in one year.
15	Milky Way	The galaxy that our Solar System is in.
16	Universe	All the galaxies and the space between them.

Plants and their reproduction Knowledge Grid

	Question	Answer		Question	Answer
1	biodiversity	The range of different species of organisms in an area.	21	inherited	A feature that an organism gets from a parent is inherited.
2	characteristic	A feature of an organism.	22	inherited variation	Differences between organisms passed onto offspring by their parents in reproduction.
3	classify	To sort things into groups.	23	runner	A stem that grows from certain plants (e.g. strawberry), from which new plants grow using asexual reproduction.
4	extinct	An organism that no longer exists is extinct.	24	sexual reproduction	Reproduction that needs two individuals to produce a new organism of the same type.
5	genus	A group of similar organisms. The genus name is the first word in the scientific name for a species (the second word is the 'species name').	25	tuber	The swollen part of an underground stem used as a storage organ and as a method of asexual reproduction in some plants (e.g. potato).
6	plant kingdom	A group of organisms that have cells with cell walls made of cellulose and that are able to photosynthesise.	26	variation	The differences between things.
7	species	A group of organisms that can reproduce with each other to produce offspring that will also be able to reproduce.	27	zygote	Another term for 'fertilised egg cell'.
8	accuracy	A measure of how close a value is to its real value.	28	anther	A male reproductive organ in plants that produces pollen grains.
9	accurate	A measurement that is close to the true value.	29	carpel	The set of female reproductive organs in plants (ovary, style and stigma).
10	estimate	An approximate answer, often calculated from a sample or using rounded values.	30	cross-pollination	When pollen is transferred from one plant to a different plant of the same species.
11	population	The number of a certain organism found in a certain area.	31	filament	A male reproductive organ in plants that supports the anther.
12	quadrat	A square frame, thrown randomly on the ground, which is used to sample plants in an area.	32	pollen grain	The container for the male gamete in plants.
13	random	When there is an equal chance for one event occurring as there is for any other events in the same set.	33	pollen tube	A tube that grows from a pollen grain down through the stigma and style and into the ovary.
14	random error	An error that can be different for every reading.	34	pollination	The transfer of pollen from an anther to a stigma.
15	sample	To take a small part of something to investigate. You use a sample to draw conclusions about what the larger whole is like.	35	self-pollination	When pollen is transferred from a flower on a plant to a stigma in the same flower or to another flower on the same plant.
16	asexual reproduction	Producing new organisms from one parent only.	36	sepal	A leaf-like structure that protects a flower bud.
17	fertilised egg cell	What is produced when two gametes fuse.	37	stamen	The set of male reproductive organs in plants (anther and filament).
18	fertile	Able to produce offspring.	38	cell division	The splitting of a cell to form two identical cells.
19	gamete	A cell used for sexual reproduction.	39	competition	There is competition between organisms that need the same things as each other. We say that they compete for those things.
20	hybrid	An organism produced when members of two different species reproduce with each other.	40	egestion	When faeces are pushed out of the anus.
41	embryo	The tiny new life that grows by cell division from a fertilised egg cell.	52	byproduct	A substance produced by a chemical reaction that is not the desired product of the reaction. For example, the desired product of photosynthesis is glucose, and oxygen is a byproduct.
42	faeces	Waste food material produced by the intestines.	53	chloroplast	A green disc containing chlorophyll. Found in plant cells. Where the plant makes food, using photosynthesis.
43	fertilisation	Fusing of a male gamete with a female gamete.	54	dormant	If something is dormant its life processes are very slow.
44	fertilised egg cell	What is produced when two gametes fuse.	55	enzyme	A substance that can speed up some processes in living things (e.g. breaking down food molecules).
45	fruit	Something used to carry the seeds of flowering plants. Fruit can be fleshy or dry.	56	germinate	When a seed starts to grow.
46	gamete	A cell used for sexual reproduction.	57	interdependent	Organisms that depend on one another are said to be interdependent.
47	germinate	When a seed starts to grow.	58	life cycle	The series of changes in an organism as it grows, matures and reproduces.
48	pollen tube	A tube that grows from a pollen grain down through the stigma and style and into the ovary.	59	mineral salt (biology)	A compound containing an important element that is needed in small quantities for health (e.g. calcium). Plants get their mineral salts from the soil, animals get them from food.
49	seed	A small part of a plant formed by sexual reproduction that can grow into a new plant.	60	photosynthesis	A process that plants use to make their own food. It needs light to work.
50	seed coat	The tough outer covering of a seed.	61	respiration	A process in which energy is released from substances so it can be used by an organism. All organisms respire.
51	seed dispersal	The spreading of seeds away from a parent plant.	62	starch	A type of insoluble carbohydrate found in plants.

Non-Communicable Diseases Knowledge Grid

	Question	Answer		Question	Answer
1	continuous variation	Data values that change gradually and can have any value are continuous. Examples include time and length. Continuous variation is any variation in organisms that has values that change gradually.	18	ecosystem	All the physical environmental factors and all the organisms that are found in a habitat.
2	discontinuous variation	Data values that can only have one of a set number of options are discontinuous. Examples include shoe sizes and days of the week. Discontinuation variation is any variation in organisms that only has values with a set number of options.	19	environment	The conditions in a habitat caused by physical environmental factors.
3	habitat	The place where an organism lives, for example woodland.	20	inherited variation	Differences between organisms passed onto offspring by their parents in reproduction.
4	hybrid	An organism produced when members of two different species reproduce with each other.	21	physical environmental factors	The non-living conditions in the environment of an organism, such as temperature and light.
5	species	A group of organisms that can reproduce with each other to produce offspring that will also be able to reproduce.	22	bulb (biology)	Plant organ that is usually underground. Some plants only have leaves at certain times of the year and remain as bulbs at other times.
6	variation	The differences between things.	23	daily changes	Changes in the physical environmental factors that happen during a day, for example it gets dark at night.
7	bar chart	A chart displaying data as bars with gaps between them. Bar charts are used when you want to compare things.	24	deciduous	Plants that lose their leaves in winter are deciduous.
8	dependent variable	The variable that is measured in an investigation. The values of the dependent variable depend on those of the independent variable.	25	environmental variation	Differences between organisms caused by environmental factors.
9	frequency diagram	Any chart or graph that shows a frequency (the number of things) on the y-axis.	26	evergreen	Plants that do not lose their leaves in winter are evergreen.
10	independent variable	The variable that you chose to change in an investigation.	27	hibernation	When animals hide away during the winter and become very inactive.
11	line of best fit	A line drawn on a scatter graph that goes through the middle of the points, so that about half the points are above the line and about half of them are below the line.	28	migration	When animals move to different areas depending on the season.
12	normal distribution	When many things have a middle value with fewer things having greater or lesser values. This sort of data forms a bell shape on charts and graphs.	29	nocturnal	Organisms that are active at night are nocturnal.
13	relationship	A link between two things, so that when one thing changes so does the other. Best seen by using a scatter graph.	30	seasonal changes	Changes in the physical environmental factors of an environment that happen during the course of a year, for example it gets colder in winter.
14	scatter graph	A graph in which data for two variables is plotted as points. This allows you to see whether there is a relationship between the two variables.	31	seed	A small part of a plant formed by sexual reproduction that can grow into a new plant.
15	variable	Anything that can change and be measured.	32	carnivore	An animal that only eats other animals.
16	adaptation	The features that plants and animals have to help them live in a particular place.	33	competition	Some organisms need the same things as each other. We say that they compete for those things.
17	community	All the organisms that live in a habitat.	34	consumer	An organism that has to eat other organisms to stay alive. Animals are consumers.
35	food chain	A way of showing what eats what in a habitat.	42	prey	An animal that is caught and eaten by another animal.
36	food web	Many food chains linked together.	43	producer	An organism that is able to make its own food. Plants are producers.
37	herbivore	An animal that only eats plants.	44	resource	Something needed by an organism. For example, plants need light as a resource; animals need food as a resource.
38	interdependence	Species that depend on one another are said to be interdependent.	45	top predator	The last animal in a food chain.
39	omnivore	An animal that eats both plants and other animals.	46	persistent	A chemical substance that does not get broken down in nature very quickly is persistent. It stays around for a long time.
40	population	The number of a certain organism found in a certain area.	47	pest	An organism that damages things that humans want to use.
41	predator	An animal that catches and eats other animals.	48	pesticide	A chemical substance that kills pests.

School			
1. ¿Qué estudias? (What do you study?) Quizlet list		2. ¿Cómo son tus profesores? (What are your teachers like?) Quizlet list	
<p>Siempre (Always)</p> <p>Todos los días (Every day)</p> <p>De vez en cuando (From time to time)</p> <p>A veces (Sometimes)</p>	<p>Estudio (I study)</p> <p>Mi mejor amigo estudia (my best friend studies)</p> <p>Mi asignatura favorita es My favourite subject is</p> <p>Me encanta estudiar (I love to study)</p> <p>No me gusta nada estudiar (I don't like to study ... at all)</p>	<p>el español (Spanish)</p> <p>el teatro (drama)</p> <p>la química (chemistry)</p> <p>el dibujo (art)</p> <p>la educación física (P.E)</p> <p>la física (physics)</p> <p>la geografía (geography)</p> <p>el inglés (English)</p> <p>el francés (French)</p> <p>la informática (computing)</p> <p>la música (music)</p>	<p>porque es divertido/a (because it is fun/funny)</p> <p>porque es fácil (because it is easy)</p> <p>porque es interesante (because it is interesting)</p> <p>porque es útil (because it is useful)</p> <p>porque es práctico/a (because it is practical)</p> <p>Dado que es aburrido/a (because it is boring)</p> <p>Dado que es difícil (because it is difficult)</p>
<p>PLURAL:</p> <p>Me encantan (I love)</p> <p>No me gustan (I don't like... at all)</p>	<p>las ciencias (science)</p> <p>las matemáticas (maths)</p> <p>los idiomas (languages)</p> <p>la historia y la tecnología (history and technology)</p>	<p>porque son fáciles (because they are easy)</p> <p>porque son divertidos/as (because they are fun/funny)</p> <p>Dado que son difíciles (because they are difficult)</p>	<p>Y mi hermano está de acuerdo (and my brother agrees)</p> <p>Pero mi hermana no está de acuerdo (but my sister doesn't agree)</p>
3. ¿Cómo son las instalaciones en tu insti? (How are facilities in your school?) Quizlet list			
<p>Hoy en día en mi insti hay (Before in my school there was)</p> <p>Ahora mi insti tiene (now my school has)</p> <p>PAST:</p> <p>Antes en mi insti había (Before in my school there was)</p> <p>mi escuela primaria tenía (my primary school had)</p>	<p>una biblioteca con muchos libros a library with many books</p> <p>muchas clases many classrooms</p> <p>laboratorios de ciencias science laboratories</p> <p>un salón de actos con muchas sillas a main hall with many chairs</p> <p>un comedor a canteen</p> <p>instalaciones deportivas sports facilities</p> <p>una piscina a swimming pool</p> <p>un gimnasio a gym</p> <p>un campo de fútbol football pitch</p> <p>una cancha de baloncesto a basketball court</p>	<p>Y pienso que somos afortunados and I think we are fortunate</p> <p>Y creo que es una gran oportunidad and I think it is a great opportunity</p> <p>Pero pienso que no es/son muy moderno/a/os/as and I think it is not/ they aren't very modern</p> <p>Y mi mejor amigo opina que es/son pequeño/a/os/as and my best friend thinks it is/ they are small</p> <p>CONDITIONAL:</p> <p>Pero deberíamos construir... (But we should build)</p> <p>Aunque me gustaría tener (although I would like to have)</p>	
		<p>Mi profesor de ciencias es (my Science teacher is)</p> <p>Mi profesor de historia es (my history teacher is)</p> <p>Mi profesor de teatro es (my drama teacher is)</p> <p>Mi profesor de español es (my Spanish teacher is)</p>	<p>divertido (funny)</p> <p>ambicioso (ambitious)</p> <p>interesante (interesting)</p> <p>práctico (practical)</p> <p>estricto (strict)</p> <p>tolerante (tolerant)</p> <p>Simpático (nice)</p> <p>guay (cool)</p> <p>Trabajador (hardworking)</p> <p>Perezoso (lazy)</p> <p>Impaciente (impatient)</p> <p>Paciente (patient)</p> <p>Honesto (honest)</p>
		<p>Mi profesora de ciencias es (my Science teacher is)</p> <p>Mi profesora de español es (my Spanish teacher is)</p>	<p>divertida (funny)</p> <p>ambiciosa (ambitious)</p> <p>interesante (interesting)</p> <p>práctica (practical)</p> <p>estricta (strict)</p> <p>divertida (funny)</p>
		<p>Y me llevo bien con él (and I get on well with him)</p> <p>Y no me llevo bien con él (and I don't get on well with him)</p> <p>Y me llevo mal con él (and I get on badly with him)</p>	<p>Y me llevo bien con ella (and I get on well with her)</p> <p>Y no me llevo bien con ella (and I don't get on well with her)</p> <p>Y me llevo mal con ella (and I get on badly with her)</p>

PRESENT TENSE	PRESENT TENSE	PRESENT TENSE	FREQUENCY EXPRESSIONS
ESTUDIAR (TO STUDY)	TENER (TO HAVE)	SER (TO BE)	
Yo estudio– I study	Yo tengo – I have	Yo soy – I am	Hoy en día – Nowadays
Tú estudias– You(sg.) study	Tú tienes – You(sg.) have	Tú eres – You(sg.) are	De momento – At the moment
Él / Ella estudia- He/She studies	Él / Ella tiene – He / She has	Él / Ella es – He/She is	Normalmente – Normally
Nosotros(as) estudiamos– We study	Nosotros(as) tenemos – We have	Nosotros(as) somos – We are	Generalmente – Generally
Vosotros(as) estudiáis– You(pl.) study	Vosotros(as) tenéis – You(pl.) have	Vosotros(as) sois – You(pl.) are	Todos los días – Every day
Ellos / Ellas estudian– They study	Ellos / Ellas tienen – They have	Ellos / Ellas son – They are	Hoy – Today
PRETERITE TENSE	PRETERITE TENSE	PRETERITE TENSE	FREQUENCY EXPRESSIONS
ESTUDIAR (TO STUDY)	TENER (TO HAVE)	SER (TO BE)	
Yo estudié– I studied	Yo tuve – I had	Yo fui – I was	Ayer – Yesterday
Tú estudiaste– You(sg.) studied	Tú tuviste – You(sg.) had	Tú fuiste – You(sg.) were	Anoche – Last night
Él / Ella estudió– He/ She studied	Él / Ella tuvo – He/ She had	Él / Ella fue – He/ She was	La semana pasada – Last week
Nosotros(as) estudiamos– We studied	Nosotros(as) tuvimos – We had	Nosotros(as) fuimos – We were	El fin de semana pasado – Last weekend
Vosotros(as) estudiasteis– You(pl.) studied	Vosotros(as) tuvisteis – You(pl.) had	Vosotros(as) fuisteis – You(pl.) were	El mes pasado – Last month
Ellos / Ellas estudiaron– They studied	Ellos / Ellas tuvieron – They had	Ellos / Ellas fueron – They were	Hace tres semanas – Three weeks ago
			El año pasado – Last year
NEAR FUTURE TENSE	NEAR FUTURE TENSE	NEAR FUTURE TENSE	FREQUENCY EXPRESSIONS
ESTUDIAR (TO STUDY)	TENER (TO HAVE)	SER (TO BE)	
Yo voy a estudiar– I am going to study	Yo voy a tener– I am going to have	Yo voy a ser– I am going to be	La próxima semana – Next week
Tú vas a estudiar– You(sg.) are going to study	Tú vas a tener – You(sg.) are going to have	Tú vas a ser – You(sg.) are going to be	El fin de semana que viene – Next weekend
Él / Ella va a estudiar– He/She is going to study	Él / Ella va a tener – He/She is going to have	Él / Ella va a ser – He/She is going to be	En cuatro días – In four days
Nosotros(as) vamos a estudiar– We are going to study	Nosotros(as) vamos a tener– We are going to have	Nosotros(as) vamos a ser – We are going to be	El próximo año – Next year
Vosotros(as) vais a estudiar– You(pl.)are going to study	Vosotros(as) vais a tener– You(pl.)are going to have	Vosotros(as) vais a ser – You(pl.)are going to be	El próximo mes – Next month
Ellos / Ellas van a estudiar– They are going to study	Ellos / Ellas van a tener – They are going to have	Ellos / Ellas van a ser – They are going to be	

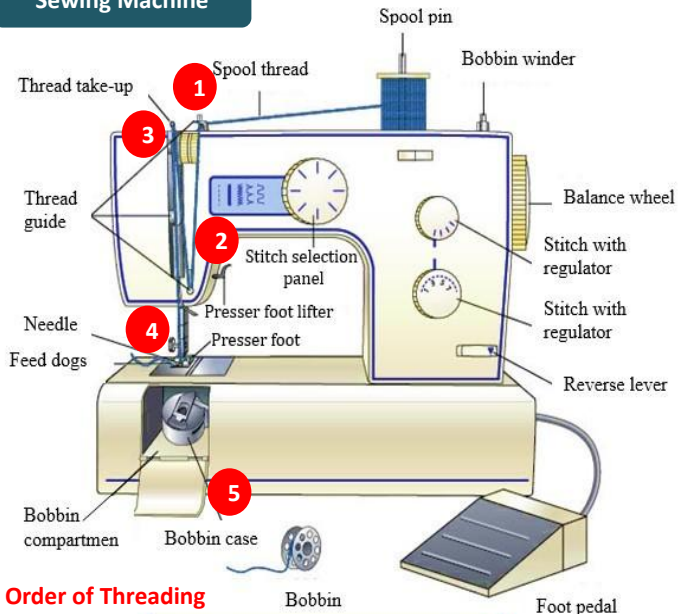
Year 7

Textiles

Equipment

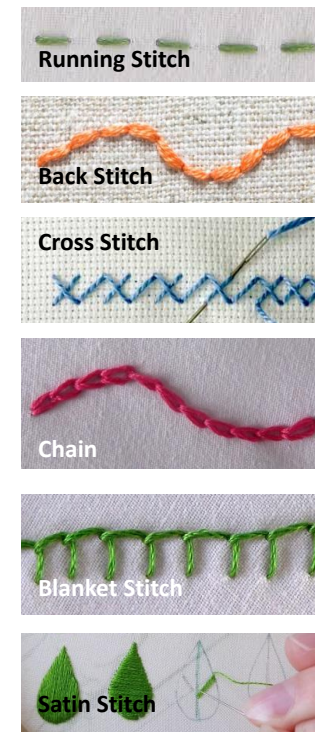


Sewing Machine



Order of Threading Sewing Machine Up

Embroidery Stitches



Embroidery is the craft of decorating fabric using a needle to apply **thread**. Embroidery stitches can also be used to hold applique in place.

Paper Patterns



A paper **pattern** acts as a template, showing you where to mark and then cut the fabric. Patterns can be designed to specific size and design.

Applique



1. Cut your pattern piece using paper & scissors
2. Use a pin to attach your pattern to the fabric.
3. Cut around your pattern and once complete, remove your pin
4. Use a pin to attach to your larger piece of fabric
5. Stitch around the edge to secure in place

Electronics in Textiles

	Symbol

Electronic textiles or e-textiles are fabrics that enable electronic components such as batteries, lights, sensors, and microcontrollers to be embedded in them.

Remember these symbols ←



TEXTILES

Classification of Fibres

A **fibre** is fine like hair in structure. Fibres that are **twisted** together are called **thread/yarn**. **Fabric** is **cloth** that is **made from fibres or yarn**. Depending on where they come from and how they are made, gives the fabric different characteristics and therefore suits different functions. Fibres are split into two categories:

Natural Fibres

Spinnable substances existing in **nature**

Animal

Silk
Wool



Plant

Cotton
Calico
Linen
Hessian



Manufactured Fibres

Spinnable substances manufactured by **man** using **chemical processes**.

They are classed as Synthetic Fibres

Nylon, Polyester, Acrylic, Lycra, Felt*



*Felt can be made using Synthetic fibres such as acrylic or Natural fibres such as animal fur

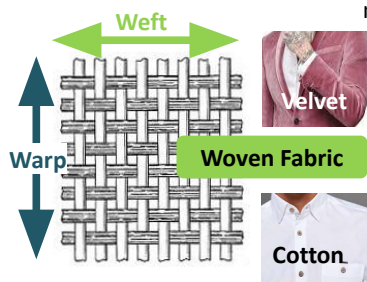
** Leather is not a fabric as it is not made up of fibres or yarns - it is a skin of an animal

Properties and characteristics of fibres and fabrics.

Fabrics and fibres have different characteristics (soft, smooth, fluffy, shiny) and properties - **what the fabric can do/how it can behave**. For instance **wool** is heat insulating and has some elasticity (property) but it is soft to feel (characteristics).

	Properties/Characteristics	Uses
Calico	Cheap, Easy to cut, dye, print on, paint, lightweight, breathable, durable, relatively hard wearing	Design prototypes, bags, curtain linings, bags, craft projects
Hessian	Rough, frays easily, breathable so resist condensation, durable, hard wearing, relatively cheap	Sacks - coffee and teas, garden bags
Lycra	Elasticity (stretchy), durable, breathable, smooth, lightweight, moisture wicking (absorbs moisture from body, keeping wearer cool/dry)	Sports wear, socks, surfing suits/swimming suits
Felt	Sound insulation, very easy to cut, available in wide range of colours, sizes and thickness, durable, heat insulating	Crafting projects, sound insulation

Construction of Fabric



Woven fabrics are made interlacing two sets of yarn, the warp and weft

Different coloured yarns can be woven together to create a pattern. Woven fabric is more structured and will hold its shape, that is why it is often used for shirts, blazers/suits and trousers.

Fabrics are made from yarns, which are held together by **weaving** or **knitting**. Fabrics can also be made from **bonded fibres**.

Knitted Fabric



Knitted fabrics are made by interlocking one or more yarns together using loops

As a result of the interlocking loops, knitted fabrics are more flexible and elastic, that is why they are often used for socks, jumpers and sports clothing that allows movement

Bonded Fabric



Bonded fabrics are webs of fibres which are held together by glue, stitches or heat

There are **two** types of Bonded Fabric - Felted and Non Woven Fabrics. Both are formed by through compressions but in felted fabrics no glue is used

Health & Safety

Iron:

- No talking whilst using iron
- No distracting others when using iron
- No touching base of iron either when on or off
- Do not use iron around water
- Unplug iron when not in use
- Stand iron on platform when not in use
- Do not walk around with the iron

Sewing Machine:

- No talking whilst using sewing machine
- No distracting others when using sewing machine
- Sew at a safe speed
- Turn off machine if a problem occurs
- Never try to mend machine
- Only use a sewing machine once you have passed the 'Driving Test'

Equipment:

- Do not stick pins or needles in skin
- Do not point or wave around scissors
- Do not point or wave around un-picker

General:

- Do not run in classroom
- Do not act dangerously
- Follow instructions given by teacher
- No shouting
- SLANT

TEXTILES

SPaG

Grammar: Write in sentences

A sentence is a group of words that make sense. Sentences start with a capital letter and end with a full stop, question mark or exclamation mark. All sentences contain **clauses**. You should try to use a range of sentences when writing. There are three main types of sentences.

Simple sentence: A sentence containing one main clause with a **subject** and a **verb**.

He **reads**.
Literacy **is** important.

Compound sentence: Two simple sentences joined with a **conjunction**. Both of these simple sentences would make sense on their own. Varying conjunctions makes your writing more interesting.

He **read** his book **because** it **was written** by his favourite author.
Literacy **is** important **so** students **had** an assembly about reading.

Complex sentence: A longer sentence containing a main clause and one or more **subordinate clause (s)** used to add more detail.

The main clause makes sense on its own. However, a subordinate clause would not make sense on its own, it needs the main clause to make sense. The subordinate clause is separated by a comma (s) and/or conjunction. The clause can go at the beginning, middle or end of the sentence.

He **read** his book **even though** it **was late**.
Even though it **was late**, he **read** his book.
He **read** his book, **even though** it **was late**, **because** it **was written** by his favourite author.

How can you develop your sentences?

1. Start sentences in different ways. For example, you can start sentences with adjectives, adverbs or verbs.

Adjective: **Funny** books are my favourite!
Adverb: **Regularly** reading helps me develop a reading habit.
Verb: **Looking** at the front cover is a good way to choose a reading book.

2. Use a range of **punctuation**.

3. Nominalisation

Nominalisation is the noun form of verbs; verbs become concepts rather than actions. Nominalisation is often used in academic writing. For example:
It is important to **read** because it helps you in lots of ways.
Becomes: **Reading** is beneficial in many ways.

Germany **invaded** Poland in 1939. This was the immediate cause of the Second World War breaking out.
Becomes: Germany's **invasion** of Poland in 1939 was the immediate cause of the outbreak of the Second World War.

Connectives and Conjunctions	
Cause And Effect	Because So Consequently Therefore Thus
Addition	And Also In addition Further (more)
Comparing	Whereas However Similarly Yet As with/ equally/ Likewise
Sequencing	Firstly Initially Then Subsequently Finally After
Emphasis	Importantly Significantly In particular Indeed
Subordinate	Who, despite, until, if, while, as, although, even though, that, which



Year 7 Knowledge Organiser

Haggerston School

Aspiration Creativity Character