# Year 7
## Term 2B


Name _____

Form _____

St Cuthbert's Catholic High School

MORE THAN A SCHOOL

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Catholic High School
*Live life in all its fullness*

**"Ignorance is never better than knowledge." – *Enrico Fermi***

*(research 10 facts about Enrico Fermi)*

# Year 7 Knowledge Organiser: Term 2B

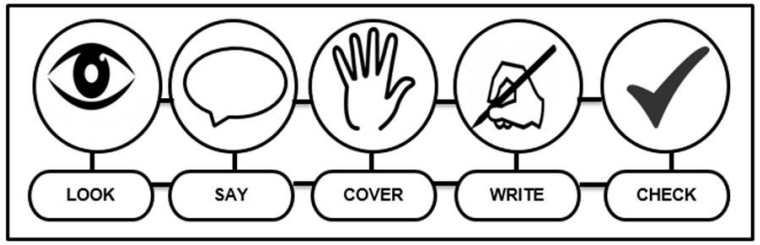
# Instructions for using your Knowledge Organiser

The timetable on the next page tells you which subjects you should be studying on which days (it doesn't matter if you have that subject on that day or not, you should follow the timetable).

You are to use your exercise book to show the work you have done. Each evening you should start a new page and put the date clearly at the top.

You need to bring your KO and exercise book with you EVERY DAY to school. Your KO and exercise book will be checked regularly in form time.

You will also be tested in your lessons on knowledge from the organisers.




You must use the revision strategy Look – Say – Cover – Write - Check to learn the knowledge. You can also use your KOs and book in a number of different ways but you **should not just copy** from the Knowledge Organiser into your book.

## Presentation

**You should take pride in how you present your work:**

- Each page should be clearly dated at the top right hand side with the **Subject** written in the middle.
- Half way down the page a line should divide it in two with **Next Subject** written above the dividing line.
- Each half of the page should be neatly filled with evidence of self-testing. There should be an appropriate amount of work.
- Failure to show pride in your presentation or wasting space on your page with large writing or starting a number of lines down will result in a **negative AtL.**

# Year 7 Knowledge Organiser Homework Timetable

**You are expected to study the subjects shown on your timetable each day. You need to spend 20 minutes on each subject and you will need to evidence your work in your exercise book.**

| WEEK A | Subject 1 | Subject 2 | Subject 3 |
|---|---|---|---|
| MONDAY | English | MFL | Geography |
| TUESDAY | Science | Maths | PD |
| WEDNESDAY | History | Music | Science |
| THURSDAY | RE | Maths | Food |
| FRIDAY | Computing | Technology | English |

| WEEK B | Subject 1 | Subject 2 | Subject 3 |
|---|---|---|---|
| MONDAY | English | Drama | Geography |
| TUESDAY | Science | Maths | RE |
| WEDNESDAY | History | PE | Science |
| THURSDAY | RE | Maths | MFL |
| FRIDAY | Computing | Art | English |

# Reading Log

*"The more that you read, the more things you will know. The more that you learn, the more places you'll go"*

***Dr Seuss***

Use this reading log to record the books you read and how long you have spent reading.

| Week | MON | TUE | WED | THURS | FRI | SAT | SUN | Book(s) read (title and author) | Time spent reading | Parent comment/signature |
|---|---|---|---|---|---|---|---|---|---|---|
| Week 1 | | | | | | | | | | |
| Week 2 | | | | | | | | | | |
| Week 3 | | | | | | | | | | |
| Week 4 | | | | | | | | | | |
| Week 5 | | | | | | | | | | |
| Week 6 | | | | | | | | | | |

# Year 7 English Term 2B: Science Fiction

Science Fiction narratives are stories that are written about advances in science and technology.

**Task 1. Overview**

- They are often futuristic (set in the future), sometimes on faraway worlds and focus on topics such as inventions, space and robots.
- -Distant space travel and time travel are often possible in science fiction stories.
- -Science fiction stories often use imagination to predict what life may be like in the future. They are designed to entertain the reader, but also to give warnings and ideas about the future, e.g. how we handle time travel/ artificial intelligence, etc.
- -Science fiction differs from fantasy because science fiction contains things that are possible – it is just that the inventions and discoveries have not happened yet.

**Content**

**Task 2: Setting**

-The setting is the place where the story takes place.
-The setting is futuristic. It is normally a place that is imagined. Sometimes a utopian (perfect) future is shown, but often it is a dystopian future (a place with suffering and injustice) to give a warning to people today.
- e.g. Earth in the future, Mars, space, a faraway planet, the Moon.
-Try to immerse your readers in your setting, through using a range of descriptive techniques (top right) to appeal to the reader's five senses.

**Task 2: Characters**

-Protagonists are the main characters who the story is about. They are often the hero of the story. Heroes have lots of good qualities, e.g. kindness, bravery, confidence. However, they sometimes also have a flaw, e.g. recklessness, lack of fear

-Villains have bad features, e.g. sneakiness, meanness. Something may have happened to have turned them bad. Sidekicks help the hero through the adventure and are very loyal. Guides are characters who give the hero information to help them.

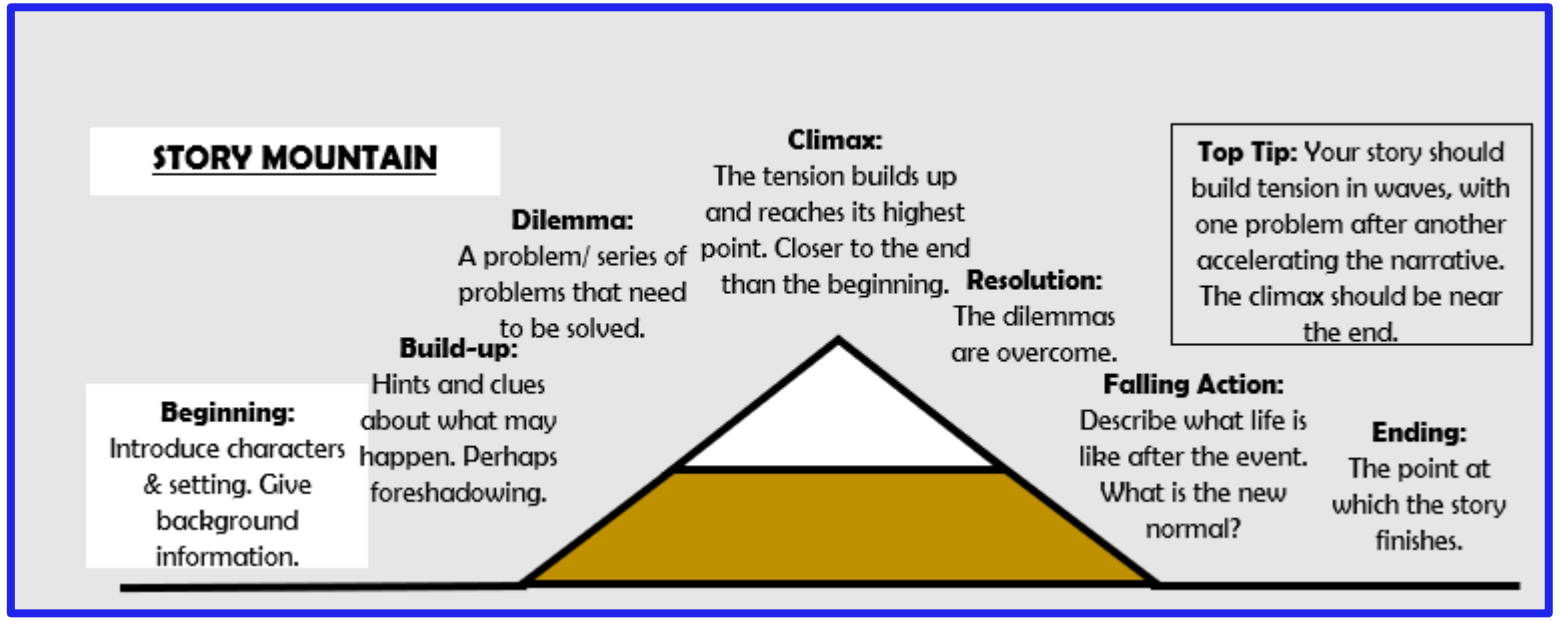
**Task 3: Quest**

There needs to be a reason for the science fiction to take place. This is called the quest or the mission. There needs to be a build-up as the quest becomes clear. The quest may be to save someone, or perhaps to find a special object. It may be forced by the actions of the villain, or it may be to eliminate/ improve the dystopian life. The quest means normally leads the hero on a journey away from home. On this journey, they face many different dangers before facing the villain or biggest danger. At the end of the quest, the characters often learn something about themselves, others, or the world. The story should utilise a clever mix between action, dialogue and description. Too much of any one of these features can make the story dull or repetitive.

# Year 7 English Term 2B: Science Fiction

## Task 4: Structure– How do I set my writing out?

Your adventure story should be organised into clear paragraphs that discuss a main subject. A new paragraph should be started when there is a change of time, place or subject. Paragraphs should be consistently shown by either an indent or leaving a line. Use connectives and other cohesive devices to link paragraphs.




## Task 5: Vocabulary box

astronaut atmosphere future intelligence universe forcefield advance transport hover transmit destroy orbit harm mysteriously flawlessly instantly anxiously heroically hostile grotesque unfamiliar mystical advanced modern unknown faraway strange mystical unfamiliar

**Important Vocabulary**

Science Fiction | Direct Speech | Characterisation | Utopia/ Dystopia | Tension | Climax | Foreshadowing | Flashback | Moral | Message

# Year 7 Maths – Term 2B

## Problem Solving at St Cuthbert's

**K** Key Information - Highlight or pick out the important things that you will need

**L** List the Maths - What Maths topics will you need? Can you write down any rules?

**A** Attach Numbers - Assign numbers to help / Relate the problem to one you can already do eg.. 3 x 4 = 12

**P** Picture - Annotate the diagram given with any information / Draw a picture to help you visualise

**S** Sensible - Does your answer make sense?

**Don't forget**

Always show your working out

Never round half way through a question

## Key Words

Take care with your spellings of these key words

**Equivalent**

**Numerator**

**Denominator**

Parts of a Fraction

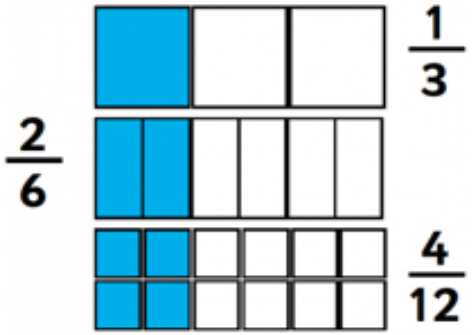
$\frac{3}{5}$ ← numerator

$\frac{3}{5}$ ← denominator

## Equivalent Fractions

Equivalent Fractions can be found by using a Fraction wall like this:


Looking at the diagrams below, the shaded part is always the same size, but it is given using three different, but **Equivalent Fractions**




## Adding and Subtracting Fractions

We can only add and subtract fractions when the denominators are the same

$\frac{3}{5} + \frac{1}{5} = \frac{3+1}{5} = \frac{4}{5}$

We can show this calculation in a diagram:

**But what would we do if the denominators aren't the same?**

- We use equivalent fractions to re-write the fractions we want to add or subtract
- Need to pick a sensible number for the denominator, that will work for the fractions in the question
- We do the operation on the fractions with matching denominators

For example:

$\frac{3}{4} + \frac{1}{8}$

We need to change $\frac{3}{4}$ into an equivalent fraction with a denominator of 8.

$\frac{3}{4} = \frac{6}{8}$ (×2)

Now we have:

$\frac{6}{8} + \frac{1}{8} = \frac{7}{8}$

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# Year 7 Maths – Term 2B

## Key Words

Take care with your spellings of these key words

**Acute**

**Obtuse**

**Reflex**

**Parallel**

**Perpendicular**

### Angle Notation


To write the marked angle, we could put:

$A\hat{B}C$

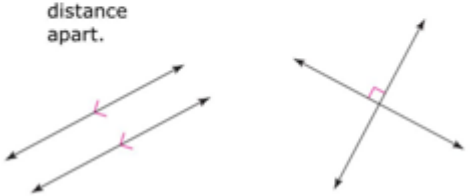
or

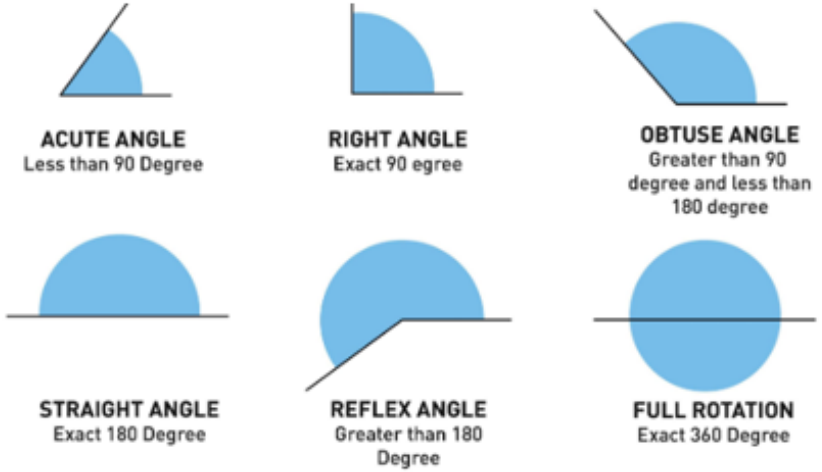
**< ABC**

## Parallel and Perpendicular Lines

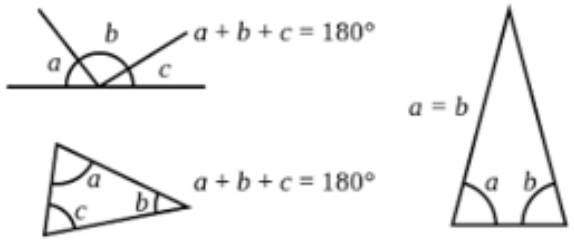
**Parallel lines** are lines in the same plane that never intersect. They are always the same distance apart.

**Perpendicular lines** are lines that meet at a right angle, that is, at an angle that measures 90°.






## Angle Facts




- Angles on a straight line will add up to 180°
- Angles in a Triangle will add up to 180°
- In an Isosceles Triangle, two of the angles will be the same size

# Year 7 Science – Term 2B

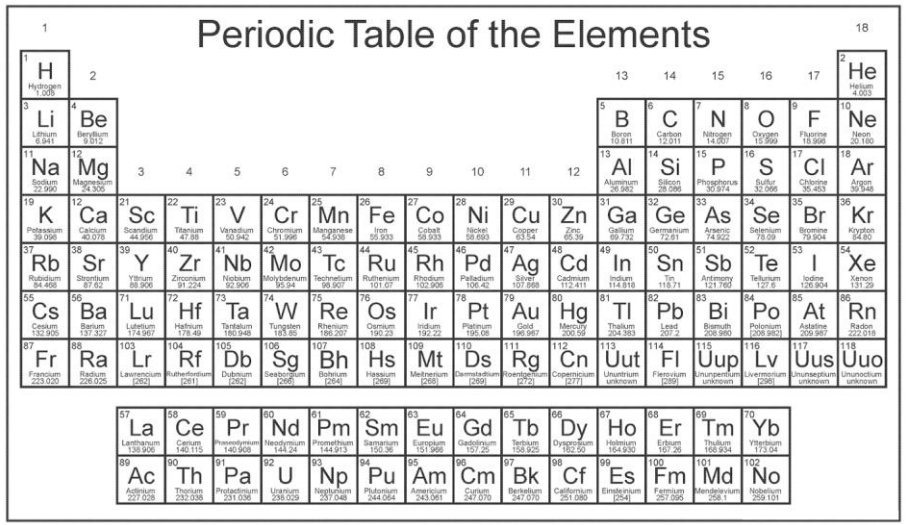
# Particle Theory

## The Periodic Table

A list of all the known elements, arranged into groups (columns going down) and periods (rows going across).

Metals are to the left and non-metals to the right.

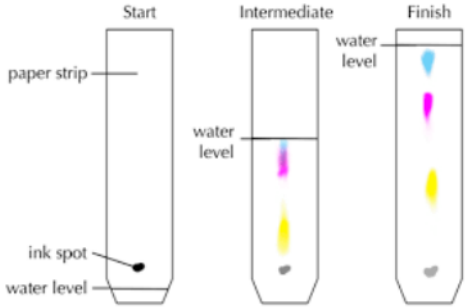
Elements in each group have similar properties.




## Chromatography

A spot of mixture is placed at the bottom of the chromatography paper which is then placed into a solvent, e.g. water.

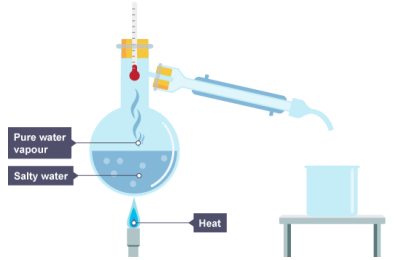
The solvent moves up the paper carrying the components of the mixture. As these move at different rates they separate out.



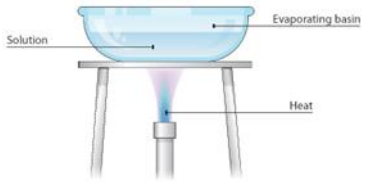

## Distillation

Separating liquid mixtures where each part has different boiling points (crude oil), or separating liquids from dissolved solids (water from sea water).

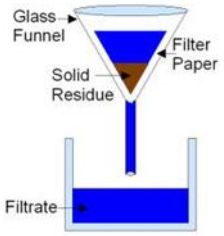
The mixture is heated until the water evaporates. Water vapour rises, then cools and condenses into a separate container.




## Evaporation




## Filtration




Salt water can be heated to evaporate the water, leaving pure salt.
Insoluble solids can be filtered out of a solution.

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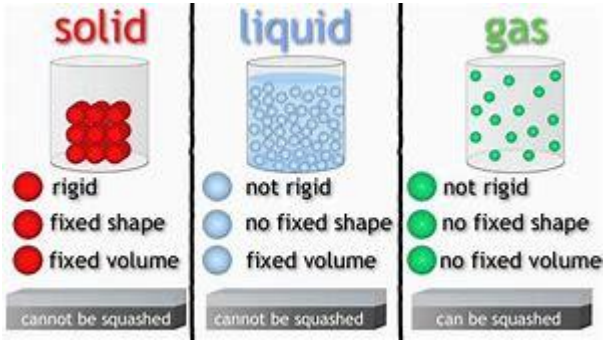
| Key Word | Definition |
|---|---|
| Element | Made of one type of atom. This can be a single atom or a molecule, e.g. oxygen. |
| Compound | Two or more different atoms chemically joined together to form a molecule, e.g. carbon dioxide. |
| Mixture | Two or more atoms or molecules, not chemically joined, e.g. air, seawater. |
| Physical change | Reversible changes in which no new products are formed, e.g. state changes. |
| Chemical change | Non-reversible changes where new products are formed, e.g. combustion. |
| Pure | A material made up of only one type of particle (element or compound). |
| Impure | A material made of more than one type of particle (mixtures). |
| Evaporation | A change of state from liquid to gas. |
| Distillation | A process for separating liquid solutions. The solvent is heated and the evaporated gas collected and cooled so it condenses. |
| Filtration | A mixture is poured through a mesh, separating insoluble solids from the solution. |
| Chromatography | Used to separate mixtures of coloured compounds. |
| Solute | The substance that dissolves into the solvent. |
| Solvent | For example water, it dissolves the solute. |
| Solution | The solute dissolved into the solvent. |
| Solubility | How easy it is for a substance to dissolve. |
| Saturated solution | A solution in which no more solute can dissolve. |

# Year 7 Science – Term 2B

## Particle Theory

All matter is made up of particles, which are found in three states of matter. Each state has a different arrangement of particles which move in different ways.




In solids, particles are arranged in a regular pattern and are held together by strong bonds. They vibrate in a fixed position.

In liquids, particles are arranged randomly but are still touching each other. Particles can slide past each other and move around.

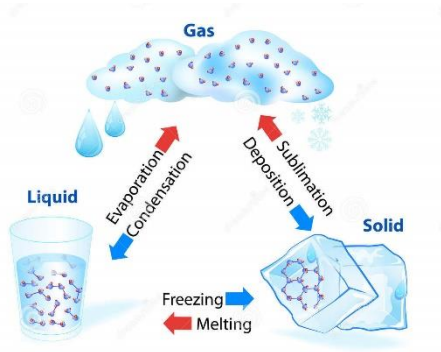
In gases, particles are far apart and are arranged randomly. Particles carry a lot of energy and they move in different directions at high speed.

## Changes of State

When particles gain or lose energy the substance changes state.

Gaining energy causes particles to move faster and further apart, overcoming the forces between the particles.

Losing energy causes particles to move slower and closer together.




## Diffusion

The movement of particles from a high concentration to a low concentration, in liquids and gases. For example oxygen diffuses from our blood into our cells.

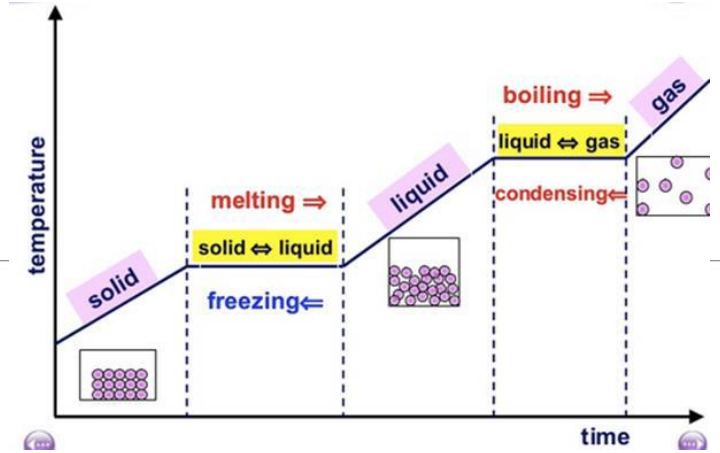
## Energy Transfer Graph

The graph shows how the temperature of a substance changes as heat is applied.

When the line is sloped the temperature of the substance is increasing.

When the line is flat the temperature stays the same even though heat energy is being applied. This is because the energy is being used to make the particles change state.

During the change of state the temperature will stay the same until the state change is complete, e.g. all liquid has turned into gas.

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# Year 7 Religious Education – Term 2B: Desert to Garden

We know that sometimes it is hard to explain things; the answer or explanation is complicated, or even impossible to understand. We know that it is difficult to talk about what we mean by 'God', and it is difficult to understand the Trinity – they are mysteries. This term we are going to investigate the '**Paschal Mystery**; this is the mystery of how Jesus' death and resurrection was able to bring salvation to the world

Section 1;

Through the Church Catholics can receive sacraments, which give them the spiritual strength they need to live a good and selfless life, like Jesus did.

At the heart of catholic life is the most important sacrament – the Eucharist.

There are different names for this sacrament and each name tells us something about its importance; we will investigate some of these different names.

The Eucharist is a re-enaction of the Last Supper which was itself a Passover meal – we will explore the importance of both of these events for Catholics today.

Section 2;

Catholics believe that through the Eucharist we can experience the real presence of Jesus, and share in Jesus' sacrifice on the cross.

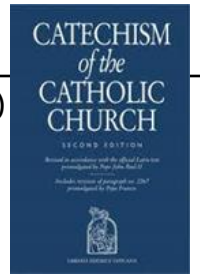
We will find out about Blessed Carlo Acutis (one of our year saints) and how Eucharist impacted his life.

The Catholic Church teaches that the Eucharist is the greatest gift of all, allowing people to have a close connection with God, and also with each other. United by this sacrament Catholics believe they will be saved from death and will have eternal life with God.

The dismissal at the end of mass is an instruction to carry Jesus out into the world, and live in the way Jesus taught.

Go!

## Sources of Wisdom and Authority (SOWAA)

(1) 

Eucharist is 'the source and summit of the Christian life'

(2) The Paschal mystery of Christ's cross and resurrection stands at the centre of the good news that the apostles and the Church following them, are to proclaim to the world'

(3) 'The seven sacraments touch all of the stages and all of the important moments of Christian life'

(4) 'There takes place a change of the whole substance of the bread……and of the wine…..'

(5) 'this is my body which is given for you. Do this in remembrance of me'
**Luke's Gospel**

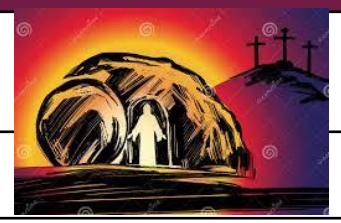
(6) 'Take the blood and put it on the doorposts…. It is the Lord's Passover. I will pass through the land of Egypt that night and I will strike all the firstborn…. When I see the blood (on the houses) I will Passover…..this day shall be for you a memorial day, and you shall keep it as a feast to the Lord' **Exodus 12**

(7) "The Eucharist is my highway to heaven."
**Blessed Carlo Acutis**

## Big Questions:

- What is the Paschal Mystery?
- What are the sacraments and why are they important to Christians?
- How can Jesus be present in the world today?
- How are we supposed to understand things that are a mystery?

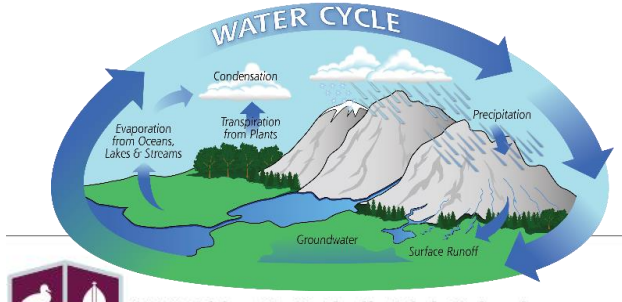
| Key words | Definition |
|---|---|
| Paschal Mystery | The belief that Jesus' death and resurrection brings salvation to every human being |
| Resurrection | After his death Jesus rose again to life – this is the resurrection |
| Salvation | Being saved from sin, so we can have eternal life with God |
| Sacrament | Visible Signs of Gods grace (his love for us, that he gives us even if we don't deserve it!) – through the sacraments we can begin to understand God's love for us |
| Passover | A Jewish festival that celebrates God saving the Jewish people from slavery in Egypt |
| Eucharist | The sacrament in which Catholics receive the body and blood of Christ, through bread and wine; literally means 'thanksgiving' |
| Holy Communion / Lord's Supper / Mass / Breaking of Bread | Different names for the Eucharist; each name teaches us something different about the Eucharist |
| Transubstantiation | Catholics believe that the bread and wine become the body and blood of Jesus when it is consecrated or blessed |
| Blessed sacrament | The body and blood of Christ, in the Eucharist |



| | | | |
|---|---|---|---|
| **Complete the learning homework for each week; work in your yellow book** | | **March 11th** | Section 2 |
| **Feb 26th** | Key words and definitions | **March 18th** | SOWAA 1 – 4 (all from Catechism) |
| **March 4th** | Section 1 | **March 25th** | SOWAA 5 - 7 |

# Year 7 Geography– Term 2B: Climate change and hazardous weather

**Air mass:** A large body of air that has similar temperature, pressure and moisture properties.
**Anticyclone:** High pressure system in which air descends to give calm conditions and clear skies. Associated with summer heatwaves and winter frosts and fogs.
**Atmosphere:** The envelope of air surrounding the Earth and bound to it by gravity.
**Climate:** Long-term weather averages (over a least a year)
**Climate Change**: Climate change refers to any significant change in the measures of climate lasting for an extended period of time. In other words, climate change includes major changes in temperature, precipitation, or wind patterns, among others, that occur over several decades or longer.
**Convection:** Convection is the circular motion that happens when warmer air or liquid — which has faster moving molecules, making it less dense — rises, while the cooler air or liquid drops down.
**Depression (cyclone, low, low-pressure area):** Area in the atmosphere in which the pressures are lower than those of the surrounding region at the same level. In its development a depression usually has the following phases. A wave (young) depression forms and moves along a front. Mature depressions have well-developed warm sectors and both cold and warm fronts. An occluded depression is that within which there has developed an occluded front.
**Evaporation:** The physical process by which a liquid or solid substance is transformed to a gas; the opposite of condensation.

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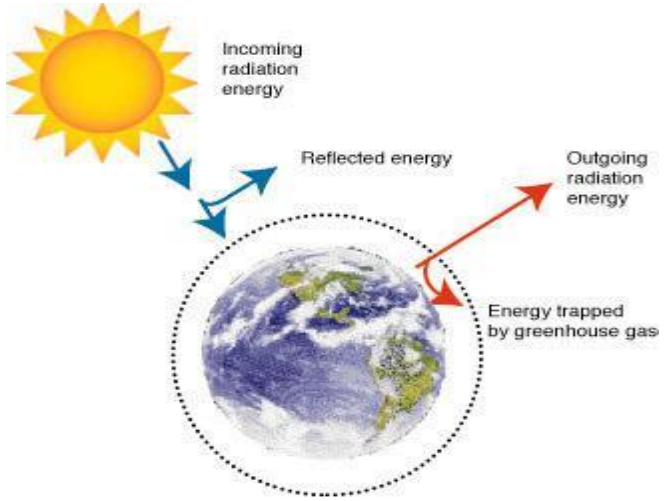
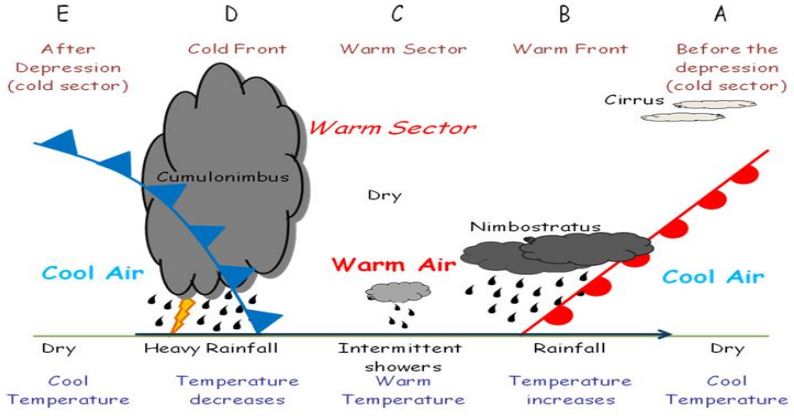
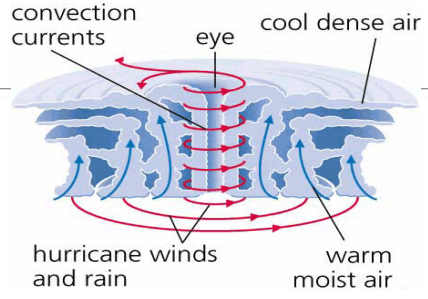



**Passage of a depression**




**Structure of a hurricane**




**Global Warming**: The recent and ongoing global average increase in temperature near the Earth's surface.
**Hurricane:** A hurricane is a powerful, rotating storm that forms over warm oceans near the equator in the Atlantic Ocean, the Caribbean Sea, or the eastern Pacific Ocean. Hurricanes have strong, counter clockwise winds (at least 74 miles per hour), a huge amount of rain, low air pressure, thunder and lightning.
**Hurricane eye:** Hurricane winds blow in a spiral around the calm, roughly circular center called the eye. In the eye, which is about 20 - 30 miles wide, it is relatively calm and there is little or no rain. The eye is the warmest part of the storm.
**Precipitation:** Any of all of the forms of water particles, whether liquid or solid, that fall from the atmosphere and reach the ground. The forms of precipitation are: rain, drizzle, snow, snow grains, snow pellets, diamond dust, hail, and ice pellets.
**Prevailing wind:** The most common wind direction for a particular location.
**Relief rainfall:** Formed when air is forced to rise over relief features such as hills or mountains. Cooling and condensation occurs as the air rises.
**Storm surge**: A storm surge is a rise in the ocean as the result of strong winds from a hurricane or other intense storm. A storm surge can cause dangerous flooding, especially when a storm surge coincides with a high tide. The height of the storm surge waters is the difference between the level of the ocean and the level that would have occurred normally. A storm surge is usually estimated by subtracting the regular high tide level from the observed storm tide - it can be 15 feet tall or more.
**Temperature:** A physical quantity characterizing the mean random motion of molecules in a physical body. In other words, it is a measure of the degree of hotness or coldness of a substance.
**Water vapour:** Water substance in vapour (gaseous) form; one of the most important of all constituents of the atmosphere.
**Weather:** The state of the atmosphere, mainly with respect to its effects upon life and human activities. As distinguished from climate, weather consists of the short-term (minutes to about 15 days) variations of the atmosphere state.
**Wind:** movement of air caused by changes in temperature and air pressure. Winds are always identified by the compass direction from which they blow.

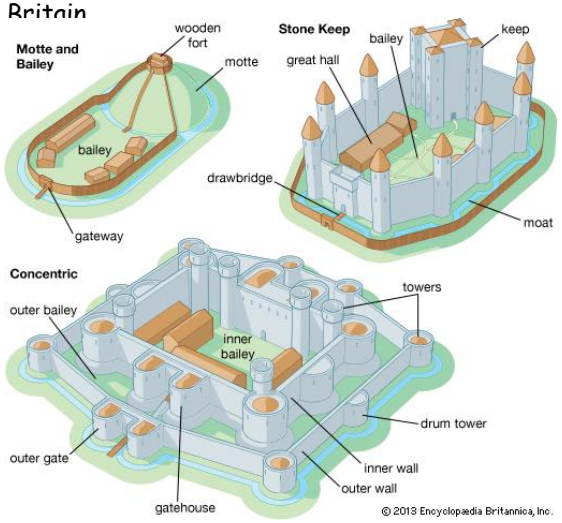
# Year 7 History– Term 2B William's England

## Castles

1

William also kept control by building castles throughout England.
Over time 3 types of castles developed throughout Britain

**Motte and Bailey** – The first castles built to help fight against rebellions. They were built quickly and made out of wood, meaning that they were not very strong, and could be easily destroyed.
The Bailey was on flat land, where majority of the people lived. The Motte was the higher land of the castle, where the fort was.
**Stone Keep** – This castle was now made out of stone and had towers as a form of defence. The main part of the castle was the Keep, a large square tower, used as the main defence.




## The Domesday Book

3

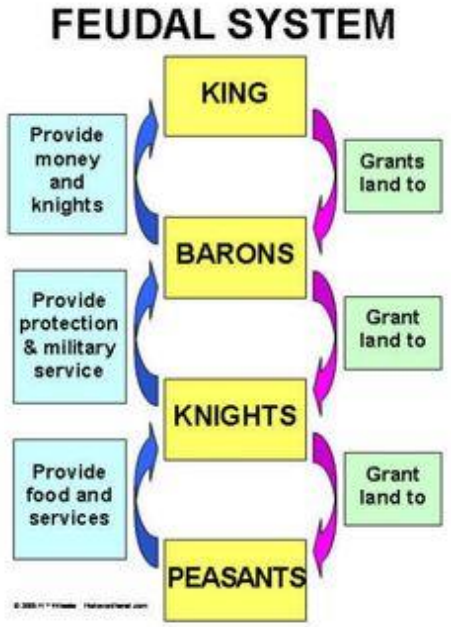
In 1086, William sent out surveyors to every part of England, with orders to list:
•how much land was there
•who had owned it in 1066, and who owned it now
•what was the place like, and who lived there
•how much it was worth in 1066 and how much now

William did this to allow him to effectively tax the land and earn money.
William also needed to have an idea of what could be seized from landowners who did not show him loyalty.

## The Feudal System

2

After taking the throne in 1066, William has a few problems: 1. He does not trust the English lords, who do not like him. 2. He has to force the English to accept him as King. Many of the English are rebelling and fighting against William. 3. He has to pay the French Knights who helped him to win the throne.
**Solution:** William crushes the rebellions and took the land away from the English lords and gave it to his supporters instead. William now has his supporters helping him to control the whole country. William also sets up the Feudal System. This forces the English to give William their taxes and promises of loyalty, in return for protection and land to farm. William is at the top of the system, as he holds all the land and money, which he gives to the Barons. They promise William their money, soldiers and loyalty. They give the land to the Knights in return for loyalty and military service. Finally the knights give the land to the peasants. The peasants farm the land and give food, money and services to the knights.




| Key word | Definition |
|---|---|
| Social class | Social Class refers to separations in society. These separations can be based on how much wealth, power or knowledge somebody has. People in the same social class typically share a similar level of wealth. |
| Invasion | The movement of an army into a region, usually in a hostile attack that's part of a war or conflict. |
| Monarchy | A monarchy is a form of government that has a single person known as a monarch at its head. Monarchs use such titles as king, queen, emperor, or empress |
| Taxation | Taxes are ways that the government can collect money from its citizens to pay for things that the people need, such as schools and roads. |
| Nobility | The group of people belonging to the highest social class in a country, often the most rich and powerful. |
| Knights | Someone born of the nobility and trained to fight, usually in heavy metal armour. |
| Rebellion | An effort by many people to change the government or leader of a country by the use of protest or violence. |
| Feudal system | The social structure of Medieval England. |
| Baron | Noble land owner that pledged their loyalty to the King. |
| Villein | Peasant at the bottom of the Feudal system. |

4

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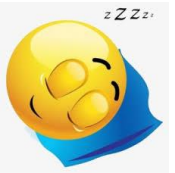
# Year 7 PD – Term 2B:

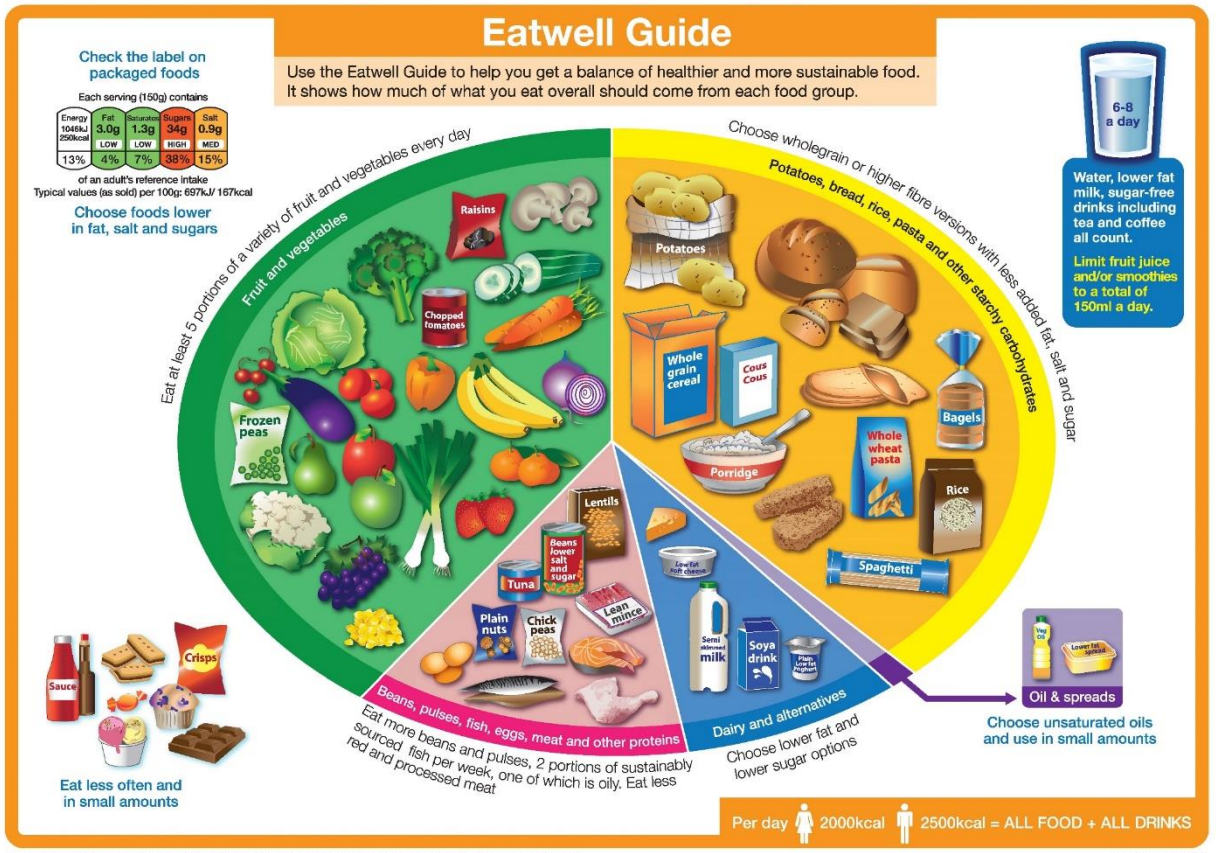
Healthy Lifestyles

**Physical Activity:**

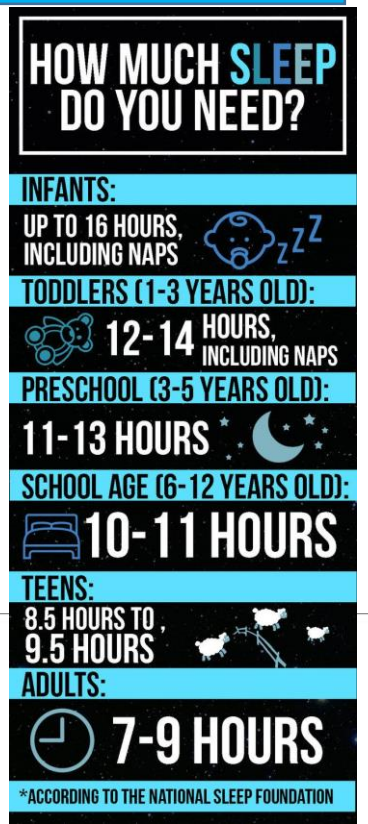
- You should aim to be physically active every day and reduce the amount of time you are sat down.
- You should aim to do 60 mins of moderate exercise per day like brisk walking or riding your bike; something that raises your heart rate and makes you feel warmer.




**Healthy diet:** Remember the proportions for each section and some types of food for each. Then think about how you could improve your diet.




**Sleep:** Work out what time you need to go to bed to get the correct amount of sleep. Find out why sleep is important.




**Emotional/Mental Health:**

We need to keep our minds healthy as well as our bodies. Here are some ways to ensure you are looking after your mind:

- **Be active** – get some vigorous physical activity every day
- **Connect** – with other people, not through social media but face to face. Have some conversations. Feel valued.
- **Give** – to others. This doesn't have to be an object, it could be time. For example visiting an elderly neighbour or playing with younger brothers and sisters.
- **Take notice** – of things around you like the wind on your face or the noises you can hear.
- **Keep learning** – seek out new experiences. It's good to be curious and challenge yourself.

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# Year 7 Art – Term 2B

## Artist Focus: Georgia O'Keefe



**Georgia O'Keeffe** (November 15, 1887 – March 6, 1986) was an American artist. She was best known for her colourful paintings of enlarged flowers, skulls and landscapes **O'Keeffe** has been recognized as the "Mother of American modernism".

**O'Keeffe** was fascinated by the bones and skulls she found in the desert landscapes near where she lived. She said:

*'To me they are as beautiful as anything I know…The bones seem to cut sharply to the centre of something that is keenly alive on the desert even though it is vast and empty and untouchable.'*

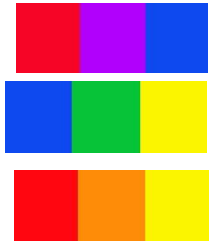
**Key Words and Specialist Vocabulary:**

**Natural Forms:** Objects found in nature, shells, leaves, seedpods, flowers for example.
**Still Life:** An arrangement of objects to draw or paint.
**Direct Observational Drawing:** Drawings made from looking carefully at something in front of you.

## Harmonious Colours

**Harmonious colour schemes** use colours that are next to each other on the colour wheel. They usually match well and create serene and comfortable designs.

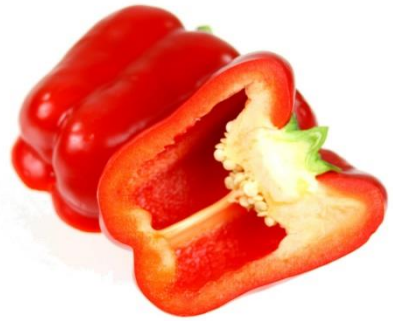
Harmonious colour schemes are often found in nature and are harmonious and pleasing to the eye. Think of beautiful sunsets, and the colours seen in fire for example.




## Practise your skills:

In this unit of work we will be drawing **natural forms** such as fruits and vegetables as well as shells and seed pods.

Try cutting an orange or a pepper in half and carefully drawing what you see.



# Year 7 Computing – Term 2B: Data Representation

## Converting between Bases

**1 Binary to Denary**

| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 1 | 1 | 0 | 1 | 1 |

128 + 0 + 0 + 16 + 8 + 0 + 2 + 1

= 155

Write the column values out above your binary number. Only add the column value where the binary number is one.

**2 Binary to Hexadecimal**

Hexadecimal 5F

Binary 0101 | 1111

128 64 32 16 8 4 2 1

01011111

Decimal 95

Each hex character is equal to a binary nibble, join the two nibbles together to make your binary number.

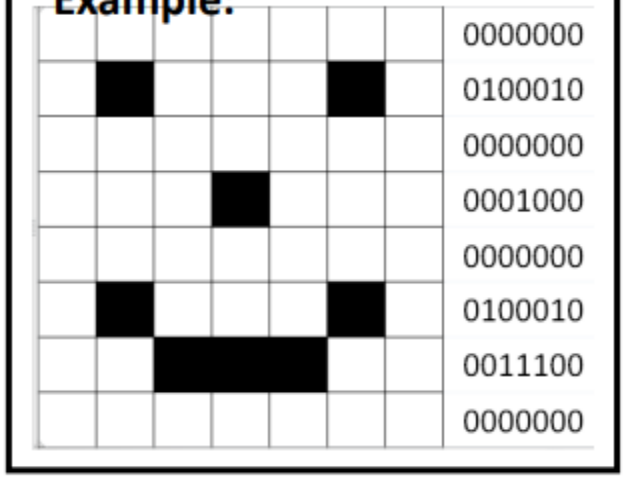
## Images

In a **bitmap**, the image is divided into a grid of tiny parts, these are called **pixels**

**Pixels** are the smallest element in an image

The number of bits used to represent the colour or greyscale value of a pixel is called the **colour depth**.

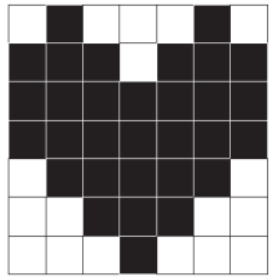
**Example:**




| Measurement Unit | |
|---|---|
| 4 Bits | 1 Nibble |
| 8 Bits | 2 Nibble |
| 1024 Byte | 1 KB (Kilobyte) |
| 1024 KB | 1 MB (Megabyte) |
| 1024 MB | 1 GB (Gigabyte) |
| 1024 GB | 1 TB (Terabyte) |
| 1024 TB | 1 PB (Petabyte) |

## Binary Bitmap Images

1



Each square is referred to as a pixel. Each pixel can either be on or off. If the pixel is blank usually you would say the value of this pixel is 0 and if the pixel is black then the value of this pixel is 1. Can you work out the binary combination for the image above?

## Adding Binary

1 Rules for adding binary:

0 + 0 = 0

0 + 1 = 1

1 + 1 = 10

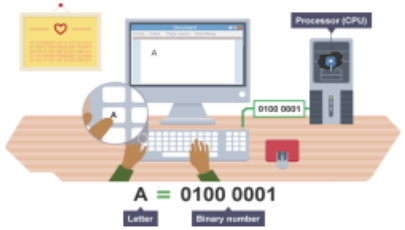
1 + 1 + 1 = 11

## Key Vocabulary

| | | |
|---|---|---|
| 1 | Storage Capacity | Bit – A single binary digit e.g. 0 or 1 |
| | | Nibble – Four binary digits e.g. 1011 |
| | | Byte – Eight binary digits e.g. 00110101 |
| 2 | Binary | This numbering system only uses two digits: 0 which means off and 1 which means on. |
| 3 | Denary | This numbering system uses ten digits: 0-9. |
| 4 | Hexadecimal | This numbering system uses sixteen characters: 0-9 and the A-F |
| 5 | Overflow | When adding binary numbers together if your answer results with more than 8 bits an overflow has occurred. e.g. 11101011 |

## Representing Text

When any key on a keyboard is pressed, it needs to be converted into a binary number so that it can be processed by the computer and the typed character can appear on the screen.




## Number conversions (Denary > Binary > Hex)

**Binary to denary (01001101)**

- Place the binary numbers under the **binary place values** starting from **right** to **left**
- **Add** together the headings **where there is a 1** underneath
- E.g. 64+8+4+1 =**77**

| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
|---|---|---|---|---|---|---|---|
| 0 | 1 | 0 | 0 | 1 | 1 | 0 | 1 |

**Denary to binary (56)**

- Work from the **left** and attempt to **subtract** the heading from your number
- If you can do it without getting a negative number then put a 1 under the heading and use the answer in the next column
- If you can't put a 0 under the heading and move to the next column

| 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
|---|---|---|---|---|---|---|---|
| 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 |

**Binary to hexadecimal (01001101)**

- Split the **Byte** in half, this time use the top place values to convert each half (**nibble**) into **denary**

| | |
|---|---|
| A | 10 |
| B | 11 |
| C | 12 |

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# Year 7 Design and Technology – Term 2B: Introduction to Design Technology

## Tech Health and Safety

- Wear an APRON at ALL times.
- ALWAYS follow instructions and rules.
- Do not take shortcuts.
- Ask for help if you need it.
- When using machinery ALWAYS wear EYE PROTECTION & MACHINE GUARDS.
- Do not TOUCH machines or equipment unless you have permission.
- NEVER run in the workshop.

Scan the QR codes to watch a video about health and safety..

| Key vocabulary | Definition |
|---|---|
| Tolerance | The difference between the maximum and minimum dimensions of error. |
| Marking Out | Measure in mm and mark using a pencil and steel ruler for accuracy. |
| Millimetres | Metric unit of length, Ten Millimetres make 1 cm. |
| CAD | Computer Aided Design. |
| CAM | Computer Aided Manufacture. |
| Hazard | Anything that can cause harm or danger. |
| Softwood | Wood that comes from Coniferous trees, quick growing, easy to work with. |
| Hardwood | Wood that comes from Deciduous trees, slow growing, difficult to work with. |
| Coniferous Tree | A tree that keeps it leaves all year round. |
| Deciduous Tree | A tree that sheds its leaves every Autumn. |

## Material

Scan the QR codes to watch a video about the differences between Hard and Soft Wood.

## The Tenon Saw

- Hold in your dominant hand. (What hand you write with)
- Rest your index finger on the grip
- Pull back a couple of times before the mark
- Bring your arm back and forth the full length of the blade.
- Keep the fingers on your other hand away from the saw blade.

Aesthetics: What does it look like?

Client: Who is it for?

Safety: How safe is it?

Size: How big is it?

Function: What is it used for?

Material: What is it made from?

## Measuring

Materials are measured in different ways depending if they are small or large quantities. Here are some of our most used measurements and their abbreviation.

Centimetres (cm) Millimetres (mm)

Angles are measured in Degrees, 90°

Most used measurements

Centimetre = 10mm

cm x 10 = mm

Right Angles = 90° 


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- **Toughness-** Toughness can be described as a material's ability to withstand impact from a dynamic force.
- **Hardness-** Hardness is the ability of a material to withstand scratching, cutting and abrasion.
- **Absorbency-** Absorbency is a material's ability to soak up and retain liquid.
- **Resistance to moisture** - Resistance to moisture is a material's ability to prevent liquid and moisture permeating its surface.

**Strength-** Strength is the ability of a material to withstand a constant force without breaking.

Design specification: is what your product must have in order to meet the clients needs

Design brief: outlines what you are going to make.

# Year 7 Drama – Term 2B: Practicing vocal and physical skills

| Key terminology | Definition |
|---|---|
| **Pace** | The speed at which an actor speaks |
| **Pitch** | How high or low an actors voice is |
| **Volume** | How loud or quiet an actors voice is |
| **Accent** | How an actor speaks based on where the character comes from |
| **Clarity** | How clear our words and phrases are |
| **Pause** | A temporary stop in action or speech |
| **Emphasis** | Stress given to a word or words when speaking to indicate particular importance. |
| **Facial expression** | How we communicate our emotions through use of our facial features |
| **Gesture** | A movement of part of the body, especially a hand or the head, to express an idea or meaning. |
| **Emotion** | A strong feeling deriving from one's circumstances, mood, or relationships with others. |
| **Still image** | When actors create a stage image using their bodies with no movement |
| **Slow motion** | Students reduce the speed at which a drama is enacted, to highlight a scene or bring a big moment into focus. It can also be used to create dramatic tension by slowing the action when building up to an important event. |
| **Mime** | A technique of suggesting action, character, or emotion without words, using only gesture, expression, and movement. |
| **Tension** | The development of suspense in drama, usually due to conflict. |

# Year 7 Food – Term 2B: Hygiene and the Eatwell Guide

## Food hygiene and safety

- Wash hands before preparing any food, after handling raw meat, after sneezing/coughing and going to the toilet.
- Wear a clean apron.
- Cover cuts with a blue plaster.
- Tie hair up.
- Remove jewellery and nail varnish before handling food.
- If you are ill, do not cook.
- Follow the 4Cs – cleaning, cooking, chilling and cross-contamination.

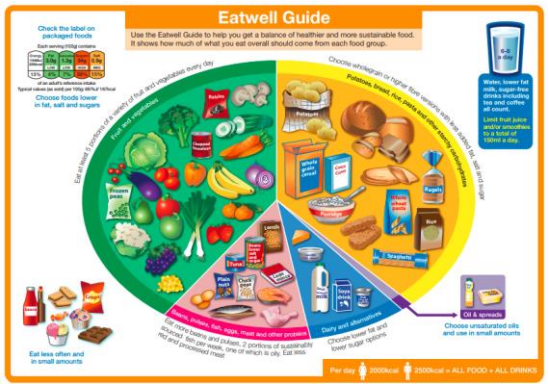
Scan the QR codes to watch a video about food safety and complete your homework quiz.

SCAN TO WATCH

SCAN FOR QUIZ

| Key vocabulary | Definition |
|---|---|
| Ambient | Room temperature – usually between 15°C and 25°C. |
| Chilled storage | A refrigerator where the temperature is |
| Danger zone | Range of temperatures (5°C to 63°C) in which bacteria multiply very quickly. |
| Enzymic browning | When enzymes in cut fruit/vegetables come into contact with oxygen in the air. This causes the fruit to turn brown. |
| Frozen storage | Food is preserved in a freezer |
| Hazard | Anything that can cause harm or danger. |
| High risk food | A food that, if not stored correctly, could grow harmful bacteria. |
| Macronutrients | The main nutrients found in food – carbohydrates, fat and protein |
| Micronutrients | Nutrients found in small quantities in food, such as vitamins and minerals |
| Rubbing in | Method where fat is rubbed into flour using your fingertips. |

## The Eatwell Guide




Scan the QR codes to watch a video about the Eatwell guide and complete your homework quiz.

SCAN TO WATCH

SCAN FOR QUIZ

## The hand blender

- Only turn on the blender when it is in the food – to prevent splashing.
- Do not use if damaged.
- Do not blend very thick foods for more than 3 minutes as the blender will overheat.
- Do not scrape mixture out of the blender when it is still plugged in.
- Turn off when finished and only wash the blade attachment.

## Weighing and measuring

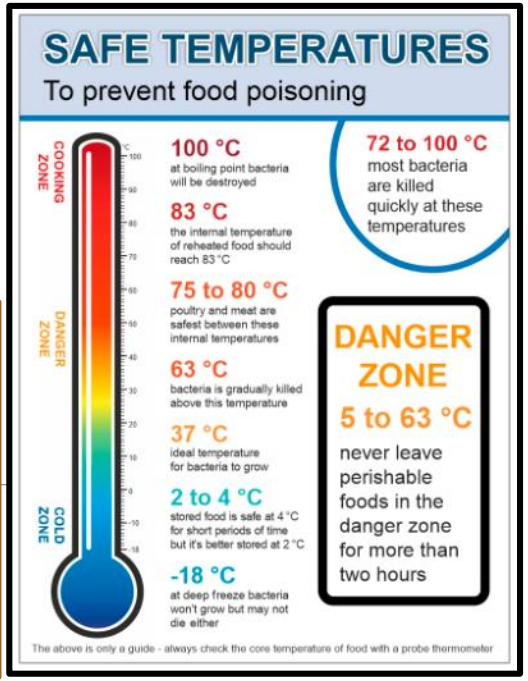
Ingredients are measured in many different ways depending on whether they are liquid or dry ingredients or in small or large quantities. Here are some of our most used measurements and their abbreviation. Grams (g) Kilogram (Kg) Millilitre (ml) Litre (l) Tablespoon (tbsp.) Teaspoon (tsp.)

Most used measurements
Kilogram = 1000g
Litre = 1000ml
Tablespoon = 15ml
Teaspoon = 5ml

## The 8 tips for healthy living

1 Base your meals on starchy foods.
2 Eat at least 5 portions of fruit/vegetables.
3 Eat two portions of fish per week, one oily.
4 Cut down on saturated fat and sugar.
5 Eat less salt – no more than 6g.
6 Get active to be a healthy weight.
7 Drink plenty of water – 1½ -1 litres.
8 Eat breakfast every day.

Example of enzymic browning

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# Year 7 Music – Term 2B: Band Skills

## The Ukulele

The ukulele is a member of the guitar family of instruments. It generally employs four nylon strings.

The ukulele originated in the 19th century as a Hawaiian adaptation of the Portuguese machete, a small guitar-like instrument, which was introduced to Hawaii by Portuguese immigrants, mainly from Madeira and the Azores. It gained great popularity elsewhere in the United States during the early 20th century and from there spread internationally.

## The Four Chord Song

One popular chord progression used in popular music is the 'four chord sequence', and it uses chords: I – V – vi – IV.

It is one of the most commonly used chord sequences.

Next time you are listening to some music, see if you can identify it in any songs you are listening to.

## The Guitar

The strings run between the headstock of the guitar, where they are affixed to tuning pegs that can be rotated to tighten and slacken them, and the bridge, where they're fixed to the guitar's body. On an acoustic guitar, the strings are fixed to the bridge with removable pegs, and on an electric guitar the strings are generally strung through an eyelet.

The neck of the guitar is the long wooden piece of wood, flat on one side (this is called the fretboard) and curved on the other. The fretboard is inlaid with metal frets that demarcate the different notes.

## Chords

A chord, in music, is any harmonic set of pitches consisting of multiple notes (also called "pitches") that are heard as if sounding simultaneously.

Chords and sequences of chords are frequently used in modern West African and Oceanic music, Western classical music, and Western popular music; yet, they are absent from the music of many other parts of the world.

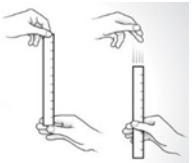
## The Piano

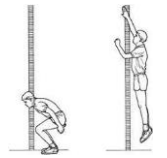
The piano is a stringed keyboard instrument in which the strings are struck by wooden hammers that are coated with a softer material (modern hammers are covered with dense wool felt; some early pianos used leather).

# Year 7 Physical Education – Term 2B

## Fitness Testing

| Test | Component measured | How to complete the test |
|---|---|---|
| Ruler drop test | Reaction time | A partner will hold the ruler in line with your hand, which is to be partly open. When your partner lets go, you must grip the ruler as quickly as possible, then measure your score in 'cm'. |
| Vertical Jump test | Power | To start, you raise your arm against the wall to record the first measurement. A step is taken into the wall, before performing an explosive jump upwards to record a second measurement. The distance between both measurements is your score. |
| One minute press-up test | Muscular Endurance | As many press-ups as possible to be completed in one minute. |
| One minute sit-up test | Muscular Endurance | As many sit-ups as possible to be completed in one minute. |





## Effects of Exercise on Body

| Short-term effects | Long-term effects |
|---|---|
| Increased breathing rate | Increased Cardiovascular endurance |
| Increased heart rate | Increased Muscular Strength |
| Increased muscle contractions | Increased muscle tone |
| Increased body temperature | Improved posture |
| Increased demand for oxygen | Denser bones |

## Components of Fitness

| Component of Fitness | Definition |
|---|---|
| **Cardiovascular Endurance** | The ability to exercise the WHOLE body for long periods of time without tiring. |
| **Muscular endurance** | The ability to exercise the a set of muscles for long periods of time without tiring. |
| **Flexibility** | The range of movement at a joint. |
| **Muscular Strength** | The ability to exert force. |
| **Power** | A combination of strength x speed. |
| **Reation time** | The onset of time between a stimulus and response. |
| **Agility** | The ability to move the body quickly and under control when changing direction. |
| **Speed** | The ability to move across a distance in the quickest possible time. |
| **Balance** | The ability to maintain equilibrium. |

# Year 7 Spanish – Term 2B: School Facilities


subjects


teachers


opinions


uniform


facilities


school rules

## School facilities

**En mi instituto hay…** – in my school there is
**mi insti tiene** – my school has
**Mi escuela primaria tenía** – my primary school had
**En mi escuela primaria había** – in my primary school there was…

**un salón de actos** – a hall
**un comedor** – a canteen
**un campo de fútbol** – a football pitch
**un patio** – a yard/playground
**un gimnasio** – a gym
**una piscina** – a pool
**una biblioteca** – a library
**una pista de tenis** – a tennis court
**unos laboratorios** – some science labs
**muchas aulas** – lots of classrooms
**menos/más exámenes** – more/less exams
**más oportunidades para hacer deporte** – more sports opportunities

**Mi insti es…** – my school is…

**mixto** – mixed
**masculino** – all boys
**privado** –private
**feminino** – all girls
**público** – state school

**Las clases comienzan a las _____** – classes start at _____ o'clock
**Las clases terminan a las _____** – classes end at_____ o'clock
**La hora de comer/el recreo dura _____ minutos** – lunch/break lasts ____ minutes
**El día escolar es muy largo** – the school day is really long

## School rules

**No se debe** – you mustn't
**Está prohibido** – it's not allowed
**No se permite** – you're not allowed

**dañar las instalaciones** – damage the facilities
**ser agresivo o grosero** – be aggressive or rude
**correr en los pasillos** – run in the corridors
**usar el móvil en clase** – use your phone in lessons
**llevar zapatillas de deporte** – wear trainers
**comer chicle** – chew gum
**llevar joyas/maquillaje** – wear jewellery/make up

**Se debe** – you must
**Hay que** – you have to
**Tienes que** – you have to
**Se permite** – you're allowed to

**ser punctual** – be on time
**respetar el turno de palabra** – wait your turn to speak
**respetar a los demás** – respect others
**trabajar duro** – work hard
**escuchar en clase** – listen in class
**hacer los deberes** – do your homework

**Las normas** – the rules

**son** are

**demasiado estrictas** – too strict
**necesarias** – necessary
**importantes** - important

**fomentan la buena disciplina** – promote good discipline
**limitan la individualidad** – limit individuality
**fastidian a los alumnos** – annoy the pupils

## Uniform

**Tengo/tenemos que llevar…** - I/we have to wear
**(No) llevo/llevamos** - I/we (don't) wear
**Es obligatorio llevar…** - it's compulsory to wear
**No me gusta llevar** - I don't like wearing

**un jersey** - a jumper
**un vestido** - a dress
**una camisa** - a shirt
**una corbata** - a tie
**una falda** - a skirt
**unos zapatos** - shoes
**unos calcetines** - socks
**unas medias** - tights

**blanco**- white
**negro** - black
**morado** - purple

**porque/ya que/ dado que** because

**mejora la disciplina** – improves discipline
**limita la individualidad** – limits individuality
**da un imagen positiva del insti** – gives a positive impression of the school
**ahorra tiempo por la mañana** – saves time in the morning

**Ojalá pudiera llevar…** - If only I could wear…

**unos vaqueros** – jeans
**una sudadera** – a hoody
**zapatillas de deporte** – trainers

## Teachers

**El/la profesor/a de (ciencias)** - My (science) teacher

**es** - is

**paciente** – patient
**impaciente** - impatient
**tolerante** - tolerant
**severo/estricto** – harsh/strict
**listo** – clever
**tonto** - silly/stupid
**trabajador(a)** - hardworking
**perezoso** – lazy
**simpático** – nice
**antipático** – mean/unpleasant

**enseña bien** – teaches well
**explica bien** – explains well
**tiene buen sentido del humor** – has a good sense of humor
**tiene expectativas altas** - has high expectations
**crea un buen ambiente de trabajo** – creates a good working atmosphere
**nunca se enfada** – never gets angry
**me hace pensar** – makes me think
**nos da consejos/estrategias** – gives us advice/strategies
**nos pone muchos deberes** – gives us a lot of homework

# Notes

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# St Cuthbert's Catholic High School

*Live life in all its fullness*