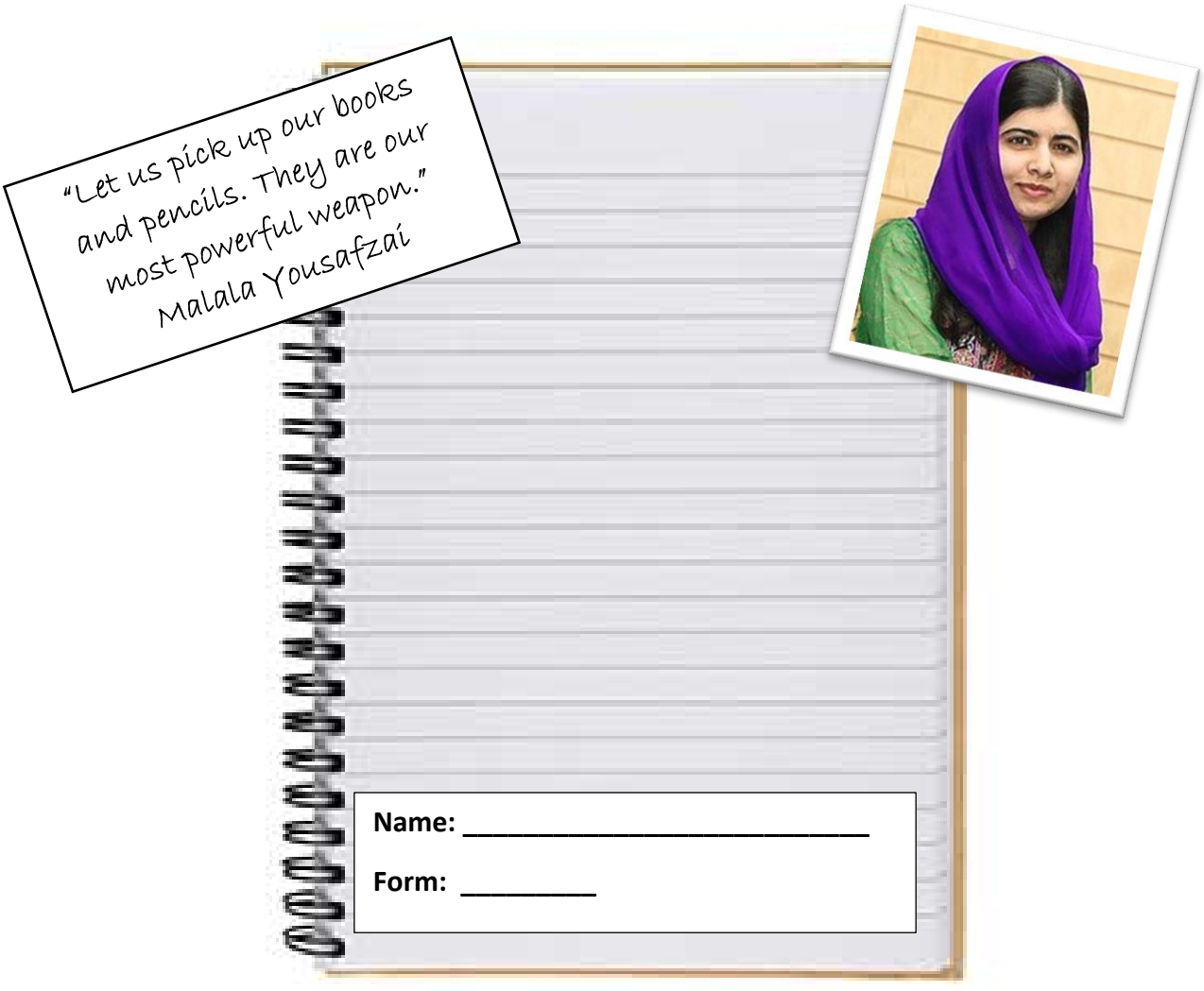
Knowledge Organisers

"I have come that they may have life and have it to the full"

John 10: 10

Year 8

You MUST bring this to every day for every lesson. It must be placed on your desk at the start of each lesson.



look say cover write check

Knowledge Organisers at St John Fisher Catholic School

Why do we have Knowledge Organisers?

Knowledge Organisers show you the key information for that particular topic of study. It is the 'key take-aways' of what knowledge you will need to know to be successful in this topic. It will give you an excellent understanding of the topic you are studying and the expectations.

How do I use it?

Your teachers will use your knowledge organisers with you, explained in the section below, but you can also use it to support your understanding of the topic and develop further knowledge. You will have a test at the end of each unit of study and an end of year exam which will cover all that you have learnt therefore it is important that this new knowledge is embedded so that you can recall it later.

Use the Look, Say, Cover, Write, Check system to learn the information on your organisers. Complete any support/challenge tasks outlined. Research tells us that this method of practising is a good way to remember the knowledge. Over time, you will build up this knowledge and be able to recall it.

Use the Knowledge Organiser when completing class and homework especially with key vocabulary.

You will be given additional pages each term as you start new topics in your subjects.

How will my teachers use it?

Your teachers may set homework to learn parts of the Knowledge Organiser or set tasks from what is on there. You will be expected to complete between 30 minutes – 45 minutes of homework for each subject according to the homework timetable.

Your teachers will use the Knowledge Organiser in the lesson to support the new knowledge being taught so you must always keep this booklet with you and put on your desk at the start of each lesson.

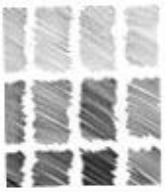
You may be given low stake quizzes in your lessons which will test your recall of the current knowledge but also previous knowledge as the year progresses.

What do I do if I lose it?

All Knowledge Organisers are on the school website. However, you can purchase a copy at student services if you lose this.


look
say
cover
write
check

Knowledge Organiser. Year 8 Project 1: Still Life

LINE	TONE	PATTERN	TEXTURE	FORM	COLOUR
					

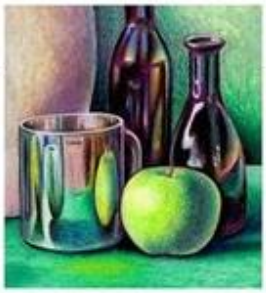
What is Still Life in Art? Still Life is the observation and depiction of objects. You will learn how to draw basic shapes and apply tone and mark-making to make your artwork look 3-dimensional. We will practise with lots of materials and look at some still life artists.

What will you learn? (overview of knowledge)

Students will learn several drawing techniques, using the topic of still life as a means to practise and develop their drawing skills. They will also analyse the work of still life artists, with an emphasis on the Cubist movement. This project is designed to build upon their prior learning encompassing the 4 assessment objectives and the formal elements.

What skills will you learn/develop?

- ❑ Drawing skills – shape, tone and detail
- ❑ Depicting objects and form using drawing skills and paper
- ❑ Critical analysis of art and artists
- ❑ Use of paint, oil pastels and felt pen
- ❑ Constructing their own final piece using drawing techniques and knowledge of colour theory and tone.



Support/Challenge:

https://www.tate.org.uk/art/art-terms/s/still-life
https://www.ducksters.com/history/art/cubism.php

Below are some key words we will be using in the classroom:

COLOUR	TONE	LINE	FORM
DRAWING	TEXTURE	SYMMETRY	ELLIPSES
HARMONIOUS	COMPLEMENTARY	PRIMARY	DARK
COMPOSITION	3-DIMENSIONAL	CUBISM	PAINT
PENCIL	OBSERVE	OBJECTS	ANALYSE

Year 8 Social Media

Summary

Social media are useful and fun. They contain lots of information. Social media allow users to find and interact with people with similar interests.

But social media have also been used by online strangers to gain information to impersonate others, to groom younger users and by people as a tool to cyberbully. Social media can contain inappropriate content or be a medium for people to send inappropriate content.

Staying safe on social media

Here are few tips to keep you and your friends & family safe online:

1. Set your profiles to private
2. Think before you post
3. Be cautious and selective when accepting new requests
4. Don't give out personal information.
5. Keep a healthy balance
6. Be respectful
7. Block, delete and report anything suspicious
8. Use strong passwords

Social Media statistics

- More than half of the world now uses social media (58.4%)
- The average daily time spent using social media is 2h 27m
- The average person has 8 social accounts
- India is the Country With the Most Facebook Users
- WhatsApp is the most popular social media messaging app in the world
- Every 6.4 seconds a new account has been created

Websites

Useful website to use:

- https://www.nspcc.org.uk
- https://www.thinkuknow.co.uk/
- https://www.childline.org.uk

Keywords

Cyberbullying	Bullying and harassment using technology. This includes, stalking, grooming or any form of abuse online
Digital footprint	Refers to the trail of data you leave when using the internet. It includes websites you visit, emails you send, and information you submit online
Trolling	An anti-social online behaviour, occurs when someone makes unsolicited comments online that are often controversial and for the purpose of getting a reaction.
Profile	Description of individuals' social characteristics that identify them on social media sites
Post	Content shared on social media through a user's profile
Emoji	A small icon used to represent an emotion, symbol or object.
Hashtags	written with a # symbol—is used to index keywords or topics on social media
Bias	Prejudice toward or against something or someone
Blog	Online journal where an individual, group, or corporation presents a record of activities, thoughts, or beliefs

Year 8 Spreadsheet

Summary

Spreadsheets are used to store information and data. Once you have your information in a spreadsheet you can run powerful calculations and make charts.
A spreadsheet can be used as a modelling tool. The model is controlled by a set of rules introduced by formulae. These rules can be changed easily to vary the model and, for example, provide information about running costs and profit margins.

Common Functions

IF	Return one value if a condition is true and another value if its false	=IF(A2>B2,"Over Budget", "OK") Will check value of A2 with B2, if its more than it will return "Over Budget" otherwise it will return "OK"
COUNT	Counts the number of cells that contain numbers	=COUNT(A2:A7) Counts the number of cells that contain numbers in cells A2 through A7.
COUNTIF	Counts the number of cells within a range that meet the given criteria	=COUNTIF(A2:A5,"apples") Counts the number of cells with apples in cells A2 through A5. The result is 2
Len	Returns the number of characters in a text string	=LEN(B1) Will return the number of characters in B1
SUMIF	Adds the cells in a range that meet multiple criteria	=SUMIF(A2:A5,">160000") Sum of the property values over 160,000.

Websites

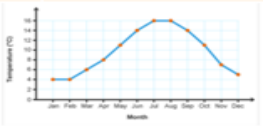
Learn spreadsheets using these websites:
- www.udemy.com/course/useful-excel-for-beginners/
- www.w3schools.com/EXCEL/index.php

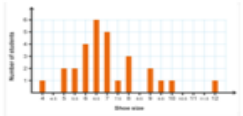
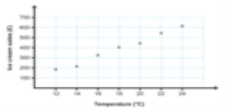
Keywords

Axis labels	A label for a graph's horizontal or vertical axis that explains what the value relates to.
Computer model	Predicts and investigates how real-life devices or processes might behave in different situations.
Conditional formatting	Allows you to set the rules for the appearance of cells that meet a condition, such as being filled red if it contains a negative number. The spreadsheet will then respond and automatically apply the changes.
Data validation	Allows you to set the rules for what is valid and create an error message if a user attempts to enter incorrect data.
Goal Seek	a function within excel that uses a back-solving approach to reach a desired output
IF statement	Checks whether a condition has been met and returns a value, similar to true/false, e.g. IF a score is greater than 50 display 'pass'

Graphs

Line Graph	To show a change over time.
Pie Chart	To show the individual parts that make up a whole
Bar Chart	To compare things that aren't directly related.
Scatter Graph	To look for a pattern or link between two sets of data.



TERM 1

Year 8 Drama

Autumn Term

Silent Movies and Sam's Story

Foley Sound
Foley sound effects are custom sounds made in post-production. Every sound made in movies, TV shows, and even some video games — from zipping jackets to setting down coffee mugs — was likely created exactly for that specific moment in post-production. These tailor-made sounds are called Foley sound effects.

Sam's Story
You will explore the story of Sam, a teenage boy who decides to steal a game station from his friend over the Christmas period. Assessment is through devising and performing in groups to show how the story of Sam develops.

Silent Movies
Silent Movies were black and white films that didn't have any sound. They were popular in the 1920s and people would go to the cinema to view them. There would usually be a live pianist accompanying the film on screen.

Charlie Chaplin
Charlie Chaplin was the most famous Silent Movie actor. He starred in various movies over the years. We will be looking at examples of his work.

Useful Silent Movie skills to look out for:

- Emotional Snap-slide-a dramatic change in emotion in relation to an event
- Comedy Chase-a chase, usually between a villain and a police officer.
- Domino Effect-when the characters fall over like dominos; this usually takes place at the end of a comedy chase.
- Placards-dialogue written on signs that can't be communicated through mime.

Useful Dramatic Terminology:
Improvisation-making a scene up on the spot with little to no prior preparation.
Mime-scenes that have no dialogue in
Flashback-when a story transitions to a scene that has occurred in the past.
Tableaux-a series of images that are frozen onstage.
Split-stage-This is where you utilise the stage for two different locations. These two scenes take place at the same time on different sides of the stage.
Emotional Snap-slide-a dramatic change in emotion.
Domino Effect-when the characters fall over like dominos.
Placards
Comedy Chase-a chase that is exaggerated in physicality
Body Language-using your body to communicate how your character is feeling.
Facial Expression-using your face to communicate how your character is feeling.

Theatrical techniques we will be exploring:

- Angel vs Devil
- Improvisation
- Mime
- Narration
- Use of music in a performance
- Flashback
- Split-stage

Year 8 DESIGN AND TECHNOLOGY TERMS 1-3 (Rotation)

Length of Unit: 12

Key learning in D&T

Prior learning

- Experience of evaluating the success of a product if a student has made something for another person.
- Understanding that some features of a product are desirable, and others are essential

Designing

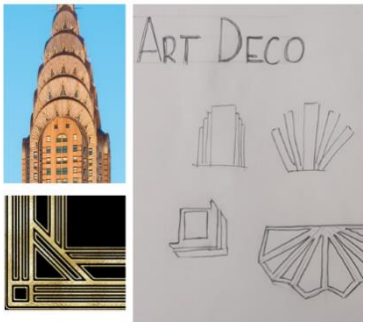
- Critically consider why a product looks and works the way it does.
  Has the function of the product been the focus over the form, or is this the other way round?
- Generate, develop, model and communicate their ideas through drawings and mock-ups with card and paper once the design specification has been formed.

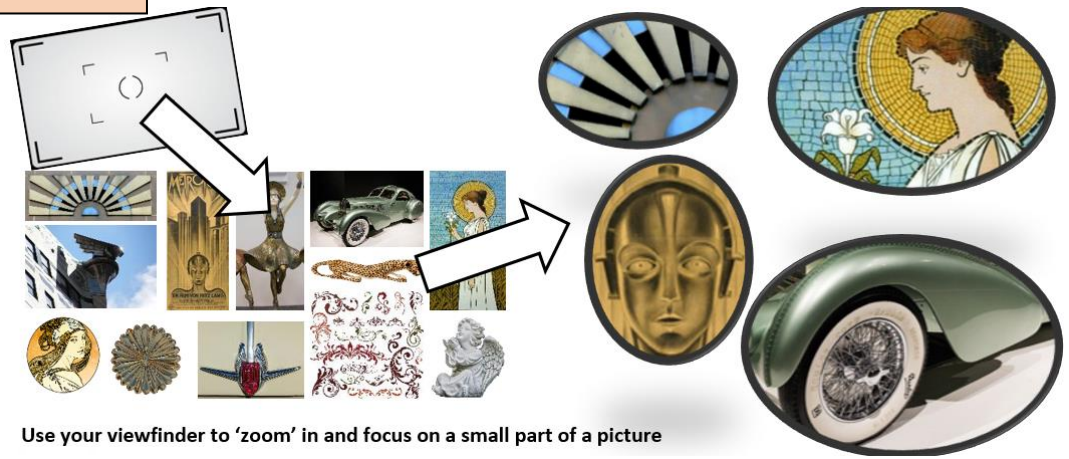
What are you going to learn this term?

- Health and safety in the workshop.
- How to complete a mood board.
- Working with 2D Design to create a mould.
- Working with a variety of tools safely
- To make creative decisions, evaluate and refine your design as needed

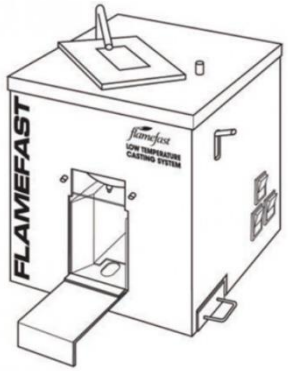
What could students design/make, and who may use them?

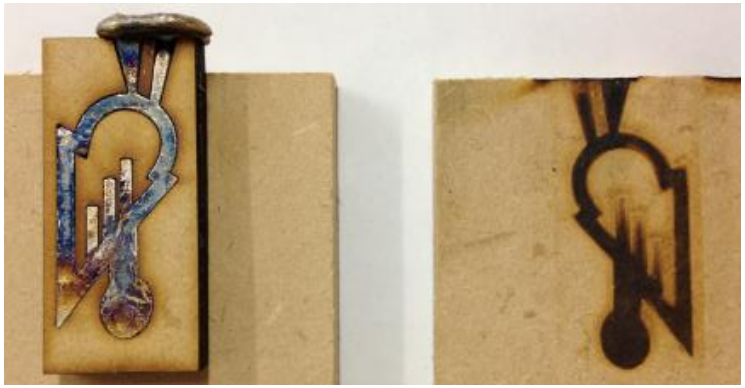
The unit of work focuses on casting a solid form using a mould and, in this example, pewter. The example uses jewellery as the context, but other materials can be cast and objects other than jewellery can be designed.





Use your viewfinder to 'zoom' in and focus on a small part of a picture





Key vocabulary

Inspiration, mood board, mould, former, pewter, casting, design brief, specification, design movement, view finder, laser cutter, hack saw.

Year 8 Term 1 Romeo and Juliet

Dramatic Devices in Romeo and Juliet		Features of a Tragedy in Romeo and Juliet
Dramatic Irony	Mercutio and Benvolio think Romeo is still pining over Rosaline, but the audience knows he has moved on to Juliet. A2 S1	**Tragic Hero -** A main character cursed by fate and possessed of a tragic flaw (Romeo, and to an extent Juliet). 
Soliloquy	Juliet's opening speech in A3 S2 in which she pours her heart out over her love for Romeo.	**Hamartia** - The fatal character flaw of the tragic hero (his passion and impulsiveness).
Aside	Juliet secretly hopes for the 'villain' Romeo: *Villain and he be many miles asunder God pardon him!* A3 S5.	**Catharsis** - The release of the audience's emotions through empathy with the characters. 
Foreshadowing	Friar Laurence: *These violent delights have violent ends, And in their triumph die, like fire and powder.* A2 S6	**Internal Conflict** - The struggle the hero engages in with his/her fatal flaw.

Themes – A theme is an idea or message that runs throughout a text.

Love – In Romeo and Juliet, love is an extremely overpowering force that supersedes all other values, emotions, and loyalties. Through their love, Romeo and Juliet conspire to go against the forces of their entire social world. Romeo returns to visit Juliet at points, even though he is well aware of the threat of death. At times, love is presented as fickle (Mercutio's speeches, Romeo + Rosaline). 

Individual vs Society – Romeo and Juliet are forced to undermine the oppressive rules of society at the time. For example, rules of the patriarchal family force Juliet to be subservient to her parents, rules of religion mean that they must marry in haste, and rules of masculinity force Romeo into conflict with Tybalt.

Violence – Extreme violence takes place sporadically throughout the play. The feud between the two families is so bitter that the mere sight of each other can be the cause of a fight to the death. Unchecked violence is personified through the character of Tybalt. The violence culminates in Act 3 Scene 1, in which both Mercutio and Tybalt are murdered. 

Fate – In the first address to the audience, the Chorus states that Romeo and Juliet are 'star-cross'd' lovers, meaning that fate had intended for their paths to cross, and that fate controls their actions. A series of unfortunate accidents towards the end of the play thwart Friar Laurence's plan and eventually manifest in both Romeo and Juliet committing suicide, thus adding to the sense of fate.

Language key terms:

Figurative language:
The use of metaphors, similes and personification to establish mood, atmosphere or character.

Mood:
Influencing how the reader feels when reading the text.

Pathetic fallacy:
Using the weather and setting to help establish or suggest a mood.

Juxtaposition:
Creating a contrast between two characters, settings or images.

Evocative vocabulary:
Words which are chosen to have a specific emotional effect on the reader.

Personification:
The attribution of a human characteristic to something non human.

Onomatopoeia:
Using words which sound like the event they describe – 'smash' or 'clash'.

Sensory language:
Appealing to the five senses within description.

Sibilance:
Using repeated 's' sounds to either create a soothing or threatening tone

Assessment
Term 1:2 How is love/conflict presented in the extract and elsewhere in the play?

How to answer the question

- Read the question carefully and consider your viewpoint
- Look at the extract and identify 3 quotes which link to your viewpoint
- Link these ideas to elsewhere in the play adding a quotation if you can
- Pick out language and structure features in the quotes
- Consider why Shakespeare includes this in his play - contextual factors about the time and the impact he wants to have on the audience

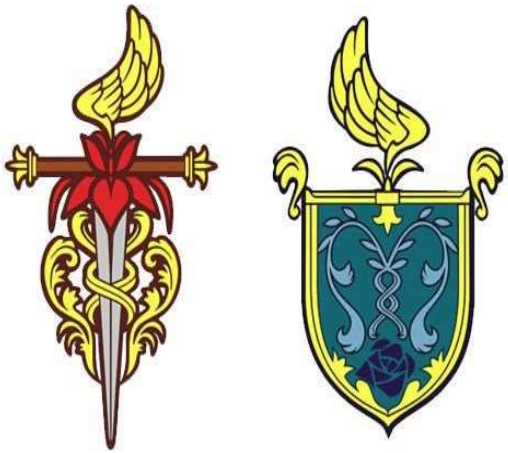
Year 8 Term 1 Romeo and Juliet

7 ingredients to a blog

1. Catchy headline like 'X ways to …'
2. Impeccable opening paragraph – blogs are short and snappy so the opening needs to have impact and make a promise which is delivered. Should be about 2-3 sentences which sums up the blog.
3. Make a Point – your blog should make your readers feel something whether that be happy, sad, anger etc…
4. A Proper Structure (use connectives):
   - Select the keyword phrase to target – this is the main topic of your blog post and should be 2-5 words.
   - Write an engaging headline (include the keyword phrase.)
   - Write 3-5 subheadings (include the keyword phrase when possible) so that your post is easy to read for readers. Online readers LOVE to skim.
   - Write the introductory paragraph. Remember, this is the promise of what's to come.
   - Write 2-3 paragraphs under each subheading. This makes your blog post easier to read on smaller devices and also makes it easy to digest.
   - Write the conclusion (1-3 sentences.) Remind your readers of the key points of the article and I also recommend that you add 3-5 links to articles that they should read next.
5. Make it unique – you should have a different point or viewpoint to what others have written before you.
6. Share your experience – blogs should be anecdotal
7. Add Relevant Resources – for example facts, statistics, expert opinions

Key Writing skills

Brackets/Parenthesis
Semi-Colon
Ellipses
Direct Speech
Connectives
Colon



Term 1.1 Write a travel blog about travelling to Verona during one of the families' clashes.

Year 8 FOOD AND NUTRITION, Diet and Health. TERMS 1-3 (Rotation)

Length of Unit:

12 Weeks

You will learn about

Hygiene and safety
Knife skills
Using the hob and the oven
Accurate measuring of ingredients
Healthy eating and nutrition.
The health issues related to dietary excess or deficiency.
Different activities in everyday living, supporting physical, social and mental wellbeing

A balanced diet

A balanced diet is based on the Eat well Guide. An unbalanced diet can lead to dietary related diseases.

Activity recommendations

Pre-schoolers (3 to 4 years): 180 minutes (3 hours) spread throughout the day, including at least 60 minutes of moderate-to-vigorous intensity physical activity
Children and young people (5-18 years): at least 60 minutes of physical activity every day and engage in a variety of types and intensities of physical activity across the week.
Adults (19-64 years): at least 150 minutes each week (moderate intensity), or have 75 minutes of vigorous activity a week and do muscle strengthening activities on two days or more each week.

Key terms

Deficiency diseases: Adverse bodily conditions caused by a lack of a nutrient.
Iron deficiency anaemia: A condition caused by insufficient iron in the body. Common symptoms include tiredness and lethargy.
Kwashiorkor: A severe type of protein-energy malnutrition.
Malnutrition: When the diet does not contain the right amount of nutrients.
Marasmus: A severe type of energy malnutrition in all forms, including protein.
Moderate activity: Will raise your heart rate, and make you breathe faster and feel warmer.
Obesity: Extreme overweight. Obese adults have a BMI of 30 or above.
Sedentary behaviour: Requires little energy expenditure and includes sitting or lying down to watch television, use the computer, read, work or study, and sitting when travelling to school or work.
Vigorous activity: Makes you breathe hard and fast.

To find out more, go to:
https://bit.ly/32BF4FJ

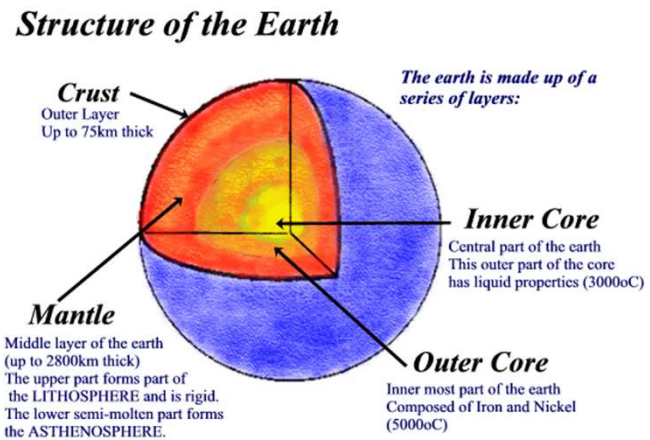
https://www.bbc.co.uk/bitesize/topics/zjr8mp3/articles/zhkbn9q

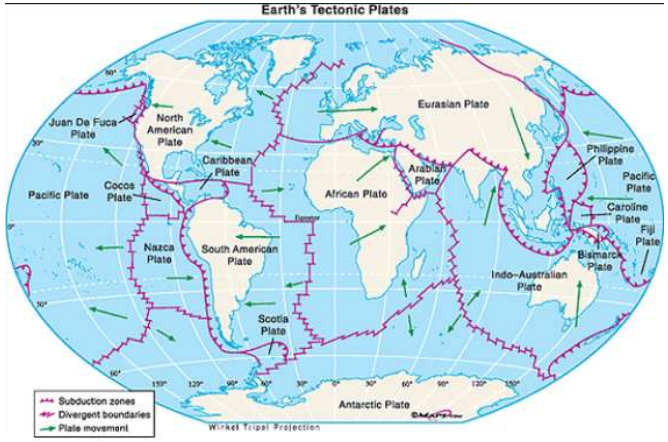
The Eatwell Guide - NHS (www.nhs.uk)

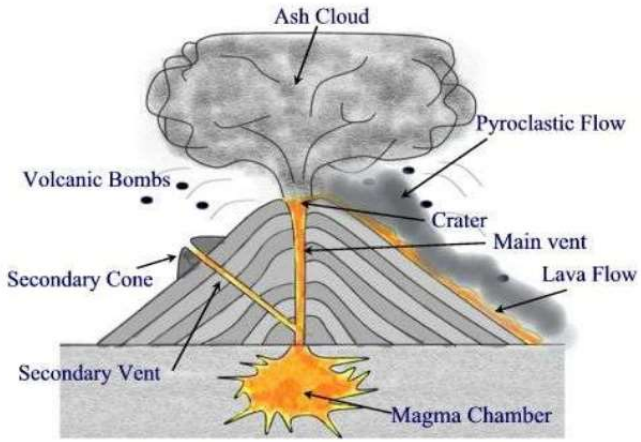
Geography - Year 8 Term 1 – Volcanoes and Earthquakes

Key Terms

Active	A term used to describe a volcano that has erupted recently.
Dormant	A term used to describe a volcano that has erupted in the last 2000 years but not recently.
Extinct	A term used to describe a volcano that has not erupted in the last 2000 years and is not expected to erupt again.
Hazard	A natural danger to people, their property and way of life.
Epicentre	The point on the Earth's surface immediately above the centre of an earthquake.
Focus	The origin point of an earthquake. This is usually some distance below the Earth's surface.
Magma	Molten rock beneath the Earth's surface.
Geothermal Energy	The use of the heat of the Earth in volcanic regions to convert water into steam and turn turbines to generate clean electricity.
Richter Scale	A scale used to measure the strength of an earthquake.
Plate Margin	The boundary between two sections of the Earth's crust, they can be destructive, constructive or conservative.
Plates	Separate and large sections of the Earth's crust on which the continents and oceans are located.
Tsunami	A very large wave created by an earthquake under the ocean bed.







Main Features of a Volcano

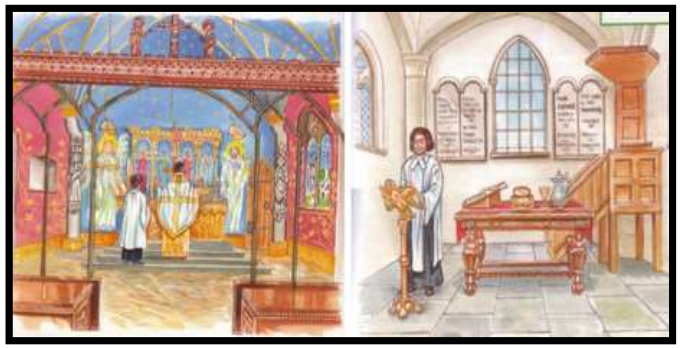
Richter Magnitude	Earthquake effects
0-2	Not felt by people
2-3	Felt little by people
3-4	Ceiling lights swing
4-5	Walls crack
5-6	Furniture moves
6-7	Some buildings collapse
7-8	Many buildings destroyed
8-Up	Total destruction of buildings, bridges and roads

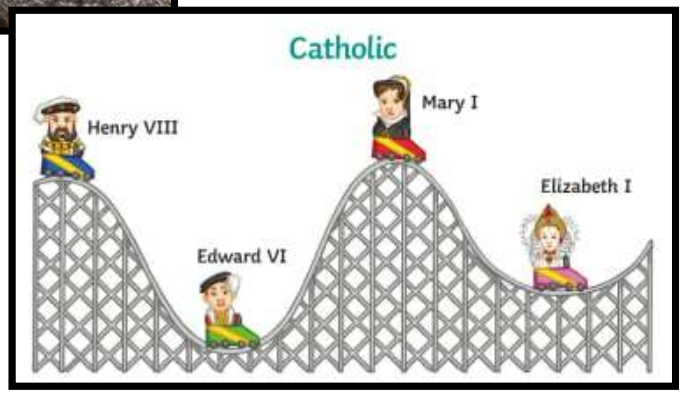
Year 8 history knowledge organiser half term 1:the Tudors and religion

Keywords and definitions	
Roman Catholic	A branch of the Christian religion headed by the Pope in Rome. Before the Reformation all Christians in western Europe were Roman Catholics.
Protestant	A branch of the Christian religion, founded during the Reformation.
Reformation	A Christian movement to reform the Roman Catholic Church that led to the founding of the Protestant religion
Monarch	The king or queen

The Tudors are one of the most famous families ever to rule England. They were in power from 1485 when Henry Tudor was crowned King Henry VII, until the time Queen Elizabeth I died, without an heir, in 1603

Keywords and definitions	
Puritan	Christians who wanted to "purify," or simplify, the Church of England
Coronation	The ceremony during which a king or queen is crowned
Court	The place where the monarch is living, also the group of people serving him or her





YEAR 8 - PROPORTIONAL REASONING...

Ratio and Scale

@whisto_maths

What do I need to be able to do?

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

- Simplify any given ratio
- Share an amount in a given ratio
- Solve ratio problems given a part

Solutions should be modelled, explained and solved.

Keywords

Ratio: a statement of how two numbers compare
Equal Parts:: all parts in the same proportion, or a whole shared equally
Proportion: a statement that links two ratios
Order: to place a number in a determined sequence
Part: a section of a whole
Equivalent: of equal value
Factors: integers that multiply together to get the original value
Scale: the comparison of something drawn to its actual size.

Representing a ratio

"For every 5 boys there are 3 girls"

5:3

This is the "whole" – boys and girls together

This represents the 5 boys | This represents the 3 girls

Double Number Line

This represents the 5 boys

This is the "whole" – boys and girls together

This represents the 3 girls

Order is Important

"For every dog there are 2 cats"

Dogs: Cats

1:2

The ratio has to be written in the same order as the information is given.

e.g. 2:1 would represent 2 dogs for every 1 cat ✗

Simplifying a ratio

Cancel down the ratio to its lowest form

"For every 6 days of rain there are 4 days of sun"

6:4

÷ by 2

3:2

rain | sun

Find the biggest common factor that goes into all parts of the ratio

For **6** and **4** the biggest factor (number that multiples into them is **2**)

"For every 3 days of rain there are 2 days of sun" – when this happens twice the ratio becomes 6:4

Ratio 1:n (or n:1)

This is asking you to cancel down until the part indicated represents 1

Show the ratio 4:20 in the ratio of 1:n

The question states that **this part has to be** 1 unit. Therefore **Divide by 4**

4 : 20

1 : 5

This side has to be divided by 4 too – to keep in **proportion**

H the n part does not have to be an integer for this type of question

Units are important:

When using a ratio – all parts should be in the same units

Useful Conversions

mm ⇄ cm ⇄ m ⇄ km (×10, ×100, ×1000 / ÷10, ÷100, ÷1000)

g ⇄ kg (×1000 / ÷1000)

ml ⇄ L (×1000 / ÷1000)

Sharing a whole into a given ratio

James and Lucy share £350 in the ratio 3:4. Work out how much each person earns

Model the Question

James: Lucy

3 : 4

James | Lucy | £350

Find the value of one part

Whole: £350
7 parts to share between
(3 James, 4 Lucy)

£350 ÷ 7 = £50

□ = one part = £50

Put back into the question

James: Lucy

3 : 4 (×50)

£150 : £200

James = 3 x £50 = £150

Lucy = 4 x £50 = £200

Finding a value given 1:n (or n:1)

Inside a box are blue and red pens in the ratio 5:1. If there are 10 red pens how many blue pens are there?

Model the Question

Blue : Red

5 : 1

□ = one part = 10 pens

Blue pens | Red pens

One unit = 10 pens

Put back into the question

Blue : Red

5 : 1 (×10)

50 : 10

Blue pens = 5 x 10 = 50 pens

Red pens = 1 x 10 = 10 pens

There are 50 Blue Pens

Ratio as a fraction

Trees: Flowers

3 : 7

Trees | Flowers

Ratio

There are **3** parts for trees

Fraction of trees

Number of parts of in group / Total number of parts = 3/10

Fraction

Tree parts **3** + Flower parts **7** = **10**

Pi

Circumference | Diameter

The ratio of a circles circumference to its diameter

YEAR 9 – REASONING WITH ALGEBRA...

Straight Line Graphs

@whisto_maths

What do I need to be able to do?

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

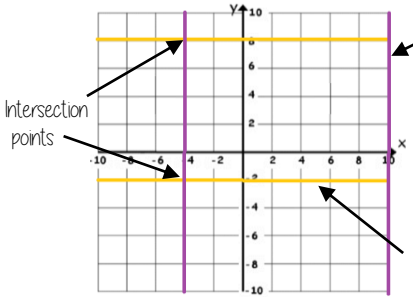
- Compare gradients
- Compare intercepts
- Understand and use y= mx + c
- Find the equation of a line from a graph
- Interpret gradient and intercepts of real-life graphs

Keywords

Gradient: the steepness of a line
Intercept: where two lines cross. The y-intercept: where the line meets the y-axis.
Parallel: two lines that never meet with the same gradient.
Co-ordinate: a set of values that show an exact position on a graph.
Linear: linear graphs (straight line) – linear common difference by addition/ subtraction
Asymptote: a straight line that a graph will never meet.
Reciprocal: a pair of numbers that multiply together to give 1.
Perpendicular: two lines that meet at a right angle.

Lines parallel to the axes

R



All the points on this line have a x coordinate of 10

'a' can be ANY positive or negative value including 0

Lines parallel to the **y axis** take the form **x = a** and are **vertical**

Lines parallel to the **x axis** take the form **y = a** and are **horizontal**

All the points on this line have a y coordinate of -2

e.g (3, -2) (7, -2) (-2, -2) all lay on this line because the y coordinate is -2

Plotting y = mx + c graphs

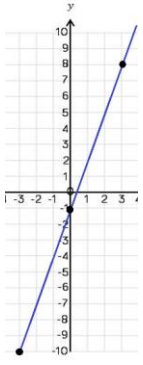
R

$y = 3x - 1$ → 3 x the x coordinate then – 1

x	-3	0	3
y	-10	-1	8

Draw a table to display this information

This represents a coordinate pair (-3, -10)



You only need two points to form a straight line

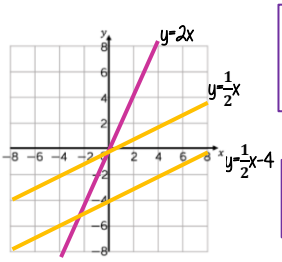
Plotting more points helps you decide if your calculations are correct (if they do make a straight line)

Remember to join the points to make a line

Compare Gradients

$y = mx + c$

The **coefficient** of x (the number in front of x) tells us the gradient of the line



The **greater** the gradient – the **steeper** the line

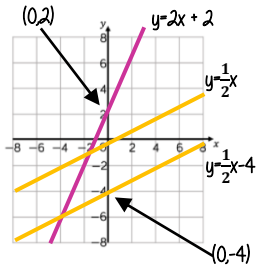
Parallel lines have the **same** gradient

Positive gradients

Negative gradients

Compare Intercepts

$y = mx + c$ ← The value of **c** is the point at which the line crosses the y-axis. **Y intercept**



The coordinate of a y intercept will always be (0,c)

Lines with the **same** y-intercept cross in the **same** place

y = mx + c

The **coefficient** of x (the number in front of x) tells us the gradient of the line

$y = mx + c$ ← The value of **c** is the point at which the line crosses the y-axis. **Y intercept**

y and x are **coordinates**

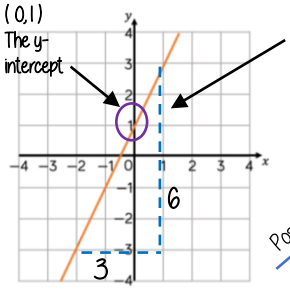
The equation of a line can be rearranged. E.g.

y = c + mx

c = y – mx

Identify which coefficient you are identifying or comparing

Find the equation from a graph



$y = 2x + 1$

The direction of the line indicates a positive gradient

Positive gradients

Negative gradients

Real life graphs

A plumber charges a £25 callout fee, and then £12.50 for every hour. Complete the table of values to show the cost of hiring the plumber.

Time (h)	0	1	2	3	8
Cost (£)	£25				£125

The y-intercept shows the minimum charge. The gradient represents the price per mile

In real life graphs like this values will always be positive because they measure distances or objects which cannot be negative.

Direct Proportion graphs To represent direct proportion the graph must start at the origin

When you have 0 pens this has 0 cost. The gradient shows the price per pen.

A box of pens costs £2.30
Complete the table of values to show the cost of buying boxes of pens.

Boxes	0	1	2	3	8
Cost (£)		£2.30			

YEAR 9 – CONSTRUCTING IN 2D/3D...

3D Shapes

@whisto_maths

What do I need to be able to do?

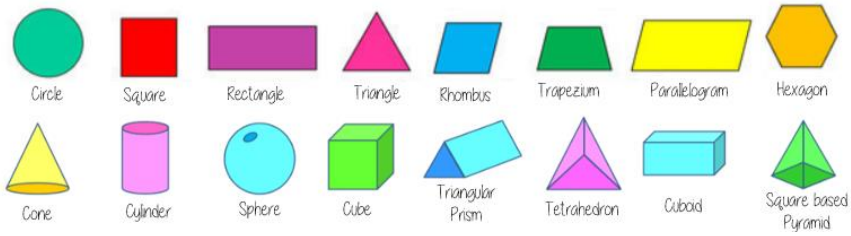
By the end of this unit you should be able to:

- Name 2D & 3D shapes
- Recognise Prisms
- Sketch and recognise nets
- Draw plans and elevations
- Find areas of 2D shapes
- Find Surface area for cubes, cuboids, triangular prisms and cylinders
- Find the volume of 3D shapes

Keywords

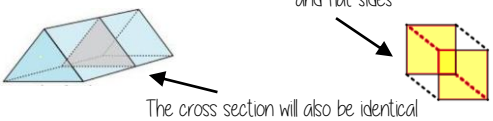
2D: two dimensions to the shape e.g. length and width
3D: three dimensions to the shape e.g. length, width and height
Vertex: a point where two or more line segments meet
Edge a line on the boundary joining two vertex
Face: a flat surface on a solid object
Cross-section: a view inside a solid shape made by cutting through it
Plan: a drawing of something when drawn from above (sometimes birds eye view)
Perspective: a way to give illustration of a 3D shape when drawn on a flat surface.

Name 2D & 3D shapes



Recognise prisms

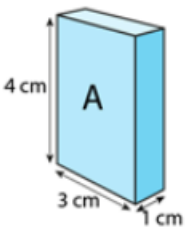
A solid object with two identical ends and flat sides

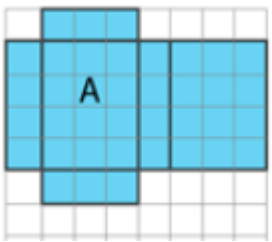


The cross section will also be identical to the end faces.

A cylinder although with very similar properties does not have flat faces so is not categorised as a prism

Nets of cuboids

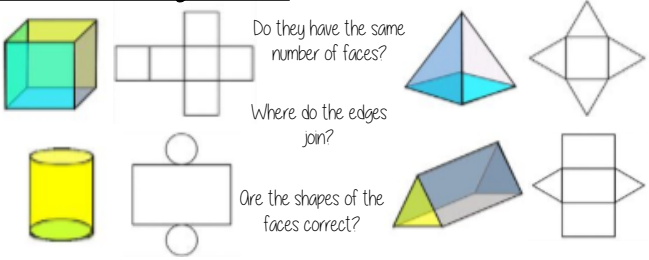




1cm grids help to draw accurately

Visualise the folding of the net
Will it make the cuboid with all sides touching

Sketch and recognise nets

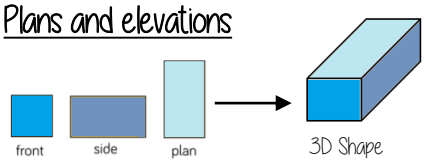


Do they have the same number of faces?

Where do the edges join?

Are the shapes of the faces correct?

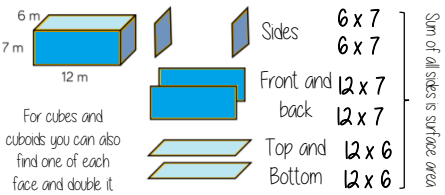
Plans and elevations



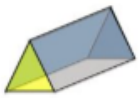
The direction you are considering the shape from determines the front and side views

Surface area

Sketching nets first helps you visualise all the sides that will form the overall surface area



For cubes and cuboids you can also find one of each face and double it



For other shapes - not all the sides are the same, so calculate the individually

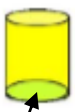
Volumes

Volume is the 3D space it takes up – also known as capacity if using liquids to fill the space

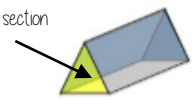
Counting cubes
Some 3D shape volumes can be calculated by counting the number of cubes that fit inside the shape.

Cubes/ Cuboids = base x width x height

Remember multiplication is commutative



Cross section



Cross section

Prisms and cylinders = area cross section x height

Height can also be described as depth

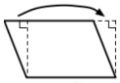
Area of 2D shapes

R

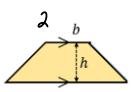
Rectangle
Base x Height

Triangle
½ x Base x Perpendicular height

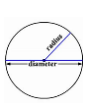
Parallelogram/ Rhombus
Base x Perpendicular height



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



Area of a circle
π x radius^2



Surface area - cylinders

The area of the circle
π x radius^2

The width of this face is the same as the circumference
π x diameter x height

$2 \times \pi \times \text{radius}^2 + \pi \times \text{diameter} \times \text{height}$

Areas – square units
Volumes – cube units

Areas and volumes can be left in terms of pi π

YEAR 7 – REASONING WITH NUMBER

@whisto_maths

Prime numbers and Proof

What do I need to be able to do?

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

- Find and use multiples
- Identify factors of numbers and expressions
- Recognise and identify prime numbers
- Recognise square and triangular numbers
- Find common factors including HCF
- Find common multiples including LCM

Keywords

Multiples: found by multiplying any number by positive integers
Factor: integers that multiply together to get another number.
Prime: an integer with only 2 factors.
Conjecture: a statement that might be true (based on reasoning) but is not proven.
Counterexample: a special type of example that disproves a statement.
Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)
HCF: highest common factor (biggest factor two or more numbers share)
LCM: lowest common multiple (the first time the times table of two or more numbers match)

Multiples

The "times table" of a given number

All the numbers in this lists below are multiples of 3.

3, 6, 9, 12, 15…

This list continues and doesn't end

$3x$, $6x$, $9x$ …

x could take any value and as the variable is a multiple of 3 the answer will also be a multiple of 3

Non example of a multiple

4.5 is not a multiple of 3 because it is 3 x 1.5

Not an integer

Factors

Arrays can help represent factors

5 x 2 or 2 x 5

Factors of 10
1, 2, 5, 10

10 x 1 or 1 x 10

The number itself is always a factor

Factors and expressions

x x x x x x

$6x \times 1$ OR $6 \times x$

Factors of $6x$
6, x, 1, $6x$, $2x$, 3, $3x$, 2

x x / x x — $2x \times 3$

x x x / x x x — $3x \times 2$

Prime numbers

- Integer
- Only has 2 factors
- and itself

2

The first prime number
The only even prime number

Learn or how-to quick recall…

2, 3, 5, 7, 11, 13, 17, 19, 23, 29…

Square and triangular numbers

Square numbers

odd even odd

Representations are useful to understand a square number n^2

1, 4, 9, 16, 25, 36, 49, 64 …

Triangular numbers

Representations are useful – an extra counter is added to each new row

Add two consecutive triangular numbers and get a square number

1, 3, 6, 10, 15, 21, 28, 36, 45…

Common factors and HCF

1 is a common factor of all numbers

Common factors are factors two or more numbers share

HCF – Highest common factor

HCF of 18 and 30

18: 1, 2, 3, 6, 9, 18

30: 1, 2, 3, 5, 6, 10, 15, 30

Common factors (factors of both numbers)
1, 2, 3, 6

HCF = 6

6 is the biggest factor they share

Common multiples and LCM

Common multiples are multiples two or more numbers share

LCM – Lowest common multiple

LCM of 9 and 12

9: 9, 18, 27, 36, 45, 54

12: 12, 24, 36, 48, 60

LCM = 36

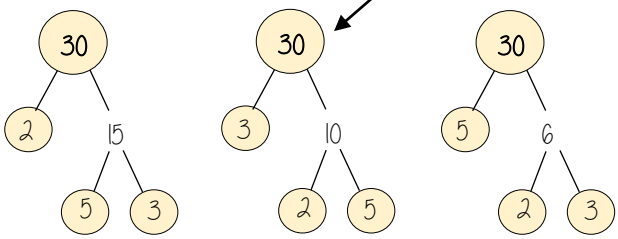
The first time their multiples match

Comparing fractions

$\frac{3}{5}$ and $\frac{7}{10}$ ← Compare fractions using a LCM denominator → $\frac{6}{10}$ and $\frac{7}{10}$

Product of prime factors

Multiplication part-whole models



All three prime factor trees represent the same decomposition

Multiplication is commutative

30 = 2 x 3 x 5 ← Multiplication of prime factors

Using prime factors for predictions

e.g. 60: 30 x 2, 2 x 3 x 5 **x 2**

150: 30 x 5, 2 x 3 x 5 **x 5**

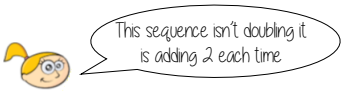
Conjectures and counterexamples

Conjecture

1, 2, 4, …
The numbers in the sequence are doubling each time.

A pattern that is noticed for many cases

Counterexamples



Only **one** counterexample is needed to disprove a conjecture

YEAR 8 - REASONING WITH DATA...

The data handling cycle

@whisto_maths

What do I need to be able to do?

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

- Set up a statistical enquiry
- Design and criticise questionnaires
- Draw and interpret multiple bar charts
- Draw and interpret line graphs
- Represent and interpret grouped quantitative data
- Find and interpret the range
- Compare distributions

Keywords

Hypothesis: an idea or question you want to test
Sampling: the group of things you want to use to check your hypothesis
Primary Data: data you collect yourself
Secondary Data: data you source from elsewhere e.g. the internet/ newspapers/ local statistics
Discrete Data: numerical data that can only take set values
Continuous Data: numerical data that has an infinite number of values (often seen with height, distance, time)
Spread: the distance/ how spread out/ variation of data
Average: a measure of central tendency – or the typical value of all the data together
Proportion: numerical relationship that compares two things

Set up a statistical enquiry

Write a suitable hypothesis → Design a data collection sheet → Pros/ Cons of sampling → Pros/ Cons primary or secondary data → Discrete or continuous data?

Features of a data collection sheet

Grouped or ungrouped categories

Data Title	Tally	Frequency
	𝍸	

Total number of that group observed

Design and criticise a questionnaire

The Question - be clear with the question - don't be too leading/ judgemental

e.g. How much pocket money do you get a week?

Responses – do you want closed or open responses? – do any options overlap? – Have you an option for all responses?

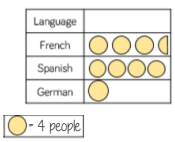
Zero option → ☐ £0 ☐ £0.01 - £2 ☐ £2.01 - £4 ☐ more than £4 ← More option

NOTE: For responses about continuous data include inequalities $< x \leq$

Pictograms, bar and line charts (R)

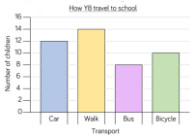
Represents quantitative data

Pictogram



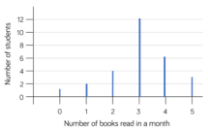
- Need to remember a key
- Visually able to identify mode

Bar Chart



- Gaps between the bars
- Clearly labelled axes
- Scale for the axes
- Title for the bar chart
- Discrete Data

Line Chart



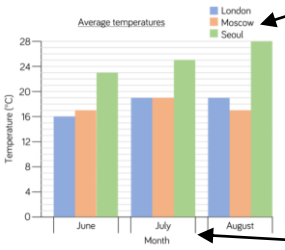
- Gaps between the lines
- Clearly labelled axes
- Scale for the axes
- Discrete Data

Multiple Bar chart

Compares multiple groups of data

- Clearly labelled axes
- Scale for axes
- Comparable data bars drawn next to each other

Key/ Colour code for separate groups of information



Gap between different categories of data

Draw and interpret Pie Charts (R)

Remember a circle has 360°

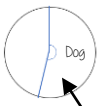
Type of pet	Dog	Cat	Hamster
Frequency	32	25	3

There were 60 people asked in this survey (Total frequency)

$\frac{32}{60}$ "32 out of 60 people had a dog"

This fraction of the 360 degrees represents dogs

$\frac{32}{60} \times 360 = 192°$



Use a protractor to draw This is 192°

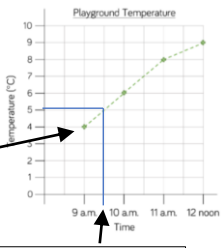
Multiple method
Os 60 goes into 360 – 6 times
Each frequency can be multiplied by 6 to find the degrees (proportion of 360)

Represents quantitative, discrete data

Draw and interpret line graphs

- Commonly used to show changing over time
- The points are the recorded information and the lines join the points

Line graphs do not need to start from 0



More than one piece of data can be plotted on the same graph to compare data

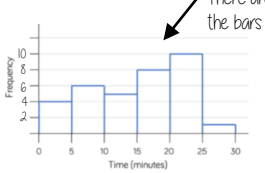
It is possible to make estimates from the line e.g. temperature at 9.30am is 5°C

Grouped quantitative data

Time (minutes)	Frequency
$0 \leq t < 5$	4
$5 \leq t < 10$	6
$10 \leq t < 15$	5
$15 \leq t < 20$	8
$20 \leq t < 25$	10
$25 \leq t < 30$	1

"More than or equal to 25 and less than 30 minutes"

This is a frequency diagram There are no gaps between the bars



The use of inequalities shows that this will be a frequency diagram

Grouping the data is useful if there is a large spread of data to begin with

Find and interpret the range

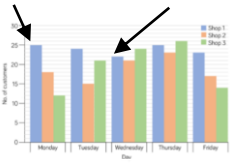
The range is a measure of **spread**

Difference between the biggest and smallest values

Shop 1 highest value – Shop 1 lowest value

A smaller range means there is less variation in the results – it is more consistent data

A range of 0 means all the data is the same value



Shop 1 has the smallest range – this indicates it has a more consistent flow of customers each week

Range of customers = 25 – 22 = 3 (Shop 1)

SAMBA

Samba is a musical genre and dance style with its roots in Africa via the West African slave trade and African religious traditions. Samba is an expression of Brazilian cultural expression and is a symbol of carnival. Samba schools formed and compete bringing people together.

A. Key Words and Terms in Samba Music

CALL AND RESPONSE – one person plays or sings a musical phrase, then another person/group responds with a different phrase or copies the first one.
CYCLIC RHYTHM – a rhythm that is repeated over and over again.
IMPROVISATION – making up music as you go along, without preparation.
OSTINATO – a repeated pattern. Can be rhythmic or melodic; usually short.
PERCUSSION – Instruments that are mostly hit, scraped or shaken to produce sound. Samba uses many percussion instruments which together are called a **BATERIA**.
POLYRHYTHM – the use of several rhythms performed simultaneously, often overlapping each other to create a thick texture.
PULSE – a regular beat that is felt throughout music
RHYTHM – a series of notes of different lengths that create a pattern. Usually fits with a regular beat or pulse.
SYNCOPATION – accenting or emphasising the weaker beats of the bar (often a half beat (quaver) followed by a full beat (crotchet)) giving the rhythm an **OFFBEAT** feel.
SAMBISTA – the leader of a Samba band or ensemble, often signalling cues to the rest of the band of when to change sections within the music with an **APITO** (Samba whistle)

B. Form and Structure of Samba

Samba music often starts with an **INTRODUCTION** often featuring **CALL AND RESPONSE RHYTHMS** between the Samba Leader and ensemble. The main Ostinato rhythm of Samba is called the **GROOVE** when all the instruments of the Samba Band play their respective rhythms over and over again **(CYCLIC RHYTHMS)** forming the main body of the piece. The **GROOVE** is broken up by **BREAKS** - 4 or 8 beat rhythms providing contrast and **MID SECTIONS** – one or two instruments change the rhythm of their ostinato and the others stay the same or stop. Sometimes **BREAKS** and **MID SECTIONS** feature a **SOLOIST** who "shows off" their rhythms. The **SAMBISTA** must signal to the group when to change to a different section which is normally done with an **APITO** (Samba Whistle – loud!). A piece of Samba can end (this section is called the **CODA**) with either a **CALL AND RESPONSE** pattern or a pre-rehearsed ending phrase of rhythm. The **FORM AND STRUCTURE** of a piece of Samba may look like the following:

Intro	Groove	Break	Groove	Mid-Section	Groove	Mid-Section	Groove	Break	Groove	Coda

C. Texture of Samba Music

Texture varies in Samba music, often **MONOPHONIC** where a single rhythm is heard as in **CALL AND RESPONSE** sections, sometimes **POLYPHONIC** where sections of the Samba band play different rhythms **(OSTINATOS)** creating **CROSS-RHYTHMS** (when two rhythmic patterns that "conflict" with each other occur simultaneously) creating a thick texture of interweaving and interlocking rhythms – a **POLYRHYHM** or a **POLYRHYTHMIC TEXTURE**.

D. Dynamics of Samba Music

The dynamics of Samba music are normally **VERY LOUD** – it is music designed to be performed outdoors at carnivals and is played by large numbers of instrumentalists and to accompany dancers and processions with large audiences watching and listening. Sometimes, a **CRESCENDO** is used at the end of a piece of Samba music for dramatic effect.

E. Tempo of Samba Music

Samba music is generally **FAST** at around 104 bpm and keeps a constant tempo to assist the dancers or processional nature of the music. Sometimes the **SAMBISTA** (Samba leader) uses **(TEMPO) RUBATO** – tiny fluctuations in tempo for expressive effect.

F. Instruments, Timbres and Sonorities of Samba

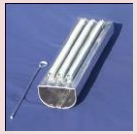
SURDO

REPINIQUE

TAMBORIM

CHOCOLO

RECO-RECO



APITO

AGOGO BELLS

CAIXA DE GUERRO

Year 8 Netball

Head

I can identify strengths and weaknesses in my own and my peer performances and suggest ways to improve it

I can create set plays from a back line pass and successfully implement it in a game

I can identify what position I should play on court based on my strengths

I will be able to identify basic rule infringements and with support umpire small sided games

Heart ()

I have successfully worked hard in my lessons working with people who I don't usually work with

I have led a part of a warm up at the start of the lesson which my team has taken part in

I have successfully set up a drill with my team which we have used within the lesson

I have taken part in various roles within a game situation to benefit my team

Hands

I can apply a range of passes to a game situation taking into account time and space

I can demonstrate different ways of intercepting the ball

I can demonstrate footwork most of the time during a game

I can demonstrate a number of ways to get free from an opponent during a game situation

Netball Positions: (and who they mark)

Goal Shooter- allowed in the shooting third only (GK)
Goal attack- allowed in the shooting and centre third (GD)
Wing attack- allowed in the centre and shooting third but not the circle(WD)
Centre- allowed everywhere except the 2 circles (C)
Wing defence - allowed in the centre and defending third but not the circle (WA)
Goal defence- allowed in the defending third and the centre third (GA)
Goal keeper- allowed in the defending third only. (GS)

Netball Key skills

Footwork: When you receive the ball from another player you will land with your feet using '1,2' the first foot is your landing foot the second foot is your pivoting foot.

Pivoting: You may move around on a pivot by keeping foot number 1 on the floor, but not lifting it up, your foot number 2 can help you by moving around in a circle.

Rules of The Game

Contact: You can't touch or push any player during the game as it is a non-contact sport, this will result in a penalty pass or if they contact you whilst you are in the shooting circle, you will get a penalty shot.

Footwork: If the player moves the landing foot or takes 3 steps with the ball, the other team gets a free pass.

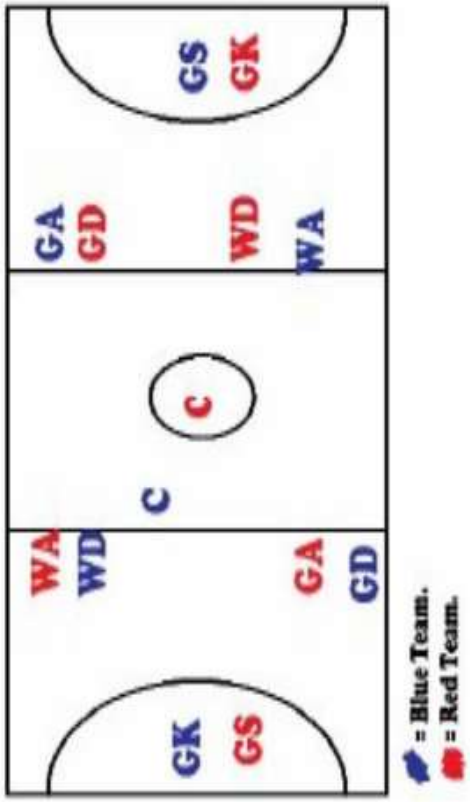
Obstruction: You must be 1 metre away from the player you are marking before your arms go up and over the ball. If your defender is obstructing you before you shoot, you get a penalty shot.

3 seconds: You can only hold the ball for 3 seconds before you pass or shoot.

Centre pass: To start a game and after a goal is scored you go back to the centre pass and players must receive in the centre third.

Repossession: If a player drops the ball or bounces the ball and picks it back up again the other team gets a free pass.

Offside: If you go into a third that you are not allowed in or if any other player than GS GA GK GD go into the shooting circle the other team gets a free pass.



Year 8 Badminton

Head

I can demonstrate knowledge of the rules and tactics.

I can analyse my own and others performance' giving strengths and areas for improvement.

I am independently exploring and experimenting with different ways of improving

I can plan, organise and lead a practice which demonstrates competent knowledge in Badminton

Heart (Commitment)

To come to lesson with correct equipment and PE kit

To be prepared to try my best in every lesson this term

To be committed to taking on board verbal feedback from both students and teacher

To be committed to upholding the values of sport in lessons and platy with sportsmanship

Hands

I can maintain a rally using forehand and backhand strokes

I often vary the angle and distance of my shots

I can successfully perform smash and drop shots at the correct time

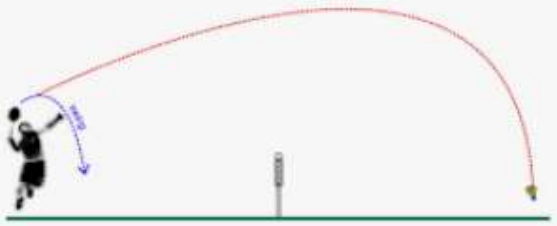
I can perform high and low serves and have started to select shots which put my opponent under pressure.

Key vocabulary

- Shuttlecock
- Racket
- Sweet-spot
- In / out
- Court
- V Grip
- Ready position
- Service line
- Service box
- Forehand
- Backhand
- Drop shot
- Smash
- Overarm clear
- Underarm clear

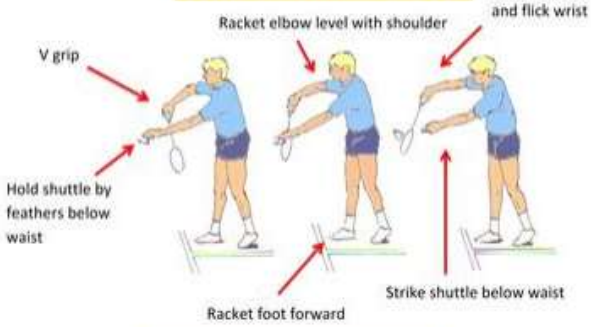
Smash

Clear



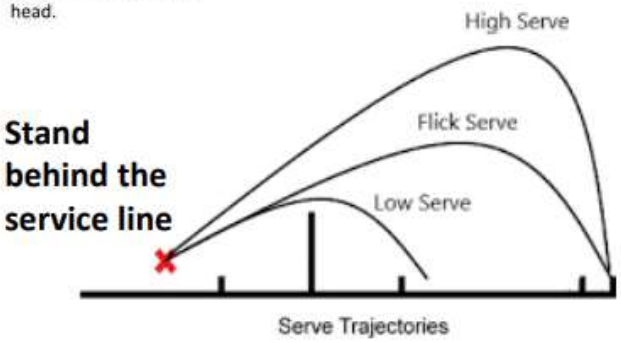
Service is the most important shot in badminton.

Backhand serve



Forehand serve

Disguise to serve high: At point of contact flick wrist and strike the shuttle over opponents head.



Head

To develop an understanding about attacking principles related to handball

To understand how to pass the ball around opponents while under pressure in a game situation

To develop knowledge & understanding of basic strategies to outwit defenders

To refine tactics based on opponents weaknesses.

Heart (Team work)

I have successfully worked hard in my lessons working with people who I don't usually work with

I have led a part of a warm up at the start of the lesson which my team has taken part in

I have successfully set up a drill with my team which we have used within the lesson

I have taken part in various roles within a game situation to benefit my team

Hands

Show a variety of passes with good speed and timing.

Can receive a variety of passes with 1 hand consistently.

Is able to Dribble well with control in a game situation

Able to shoot while being marked closely, attempt a variety of shots.

Keywords

- Dribble
- Shoulder pass
- Chest pass
- Bounce Pass
- Jump shot
- Defence
- Attack
- Penalty throw
- Team work
- Communication
- Coordination
- Speed
- Agility
- Power

Year 8 Handball

Jump shot

Blocking

Handball Rules

- 7 players per team with 1 nominated goalkeeper
- Substitutes may enter the game at any time through own substitution area as long as the player they are replacing has left the court.
- It is illegal to keep the ball in a team's possession without making a recognisable attempt to attack and to try to score. In other words, a team cannot slow down (free-throw awarded to the other team).
- No player except the GK is allowed in the goal area (unless both feet are off the floor)

A player is allowed

- To run 3 steps with the ball
- To hold the ball for 3 seconds
- Perform unlimited dribble with 3 steps before and after dribbling (NO DOUBLE DRIBBLE)

A player is not allowed:

- ✓ To endanger an opponent with the ball.
- ✓ To pull, hit or punch the ball out of the hands of an opponent.
- ✓ To go inside the goal area – penalty throw awarded
- ✓ To dive on the floor for a rolling or stationary ball.

Skills, Techniques and Tactics

Chest pass: This is a short and powerful pass, you have your hands in a W shape and push to extend your arms, you also step forward to give more power.

Shoulder pass: This is a long and powerful shot, you start with the ball in your strong hand next to your shoulder, you extend your arm and follow through with your body.

Bounce pass: This is a pass which is low to the ground, you use the same position as a chest pass but aim in ¾ of the way between you and the person you are bouncing to.

Overhead pass: This is a double handed throw, similar to a football throw in. This is for long distances and to get the ball over someone if they are trying to block.

Dribbling: Players may dribble the ball as in basketball but are allowed three steps before and after the dribble. You need to keep the ball close to your body to help

Shooting

Head

To understand the importance of width in order to attack

To demonstrate an understanding of the basic rules

To be able to make decisions about how best to advance on opposition.

To understand the rules regarding the pass and catching the ball (i.e. backwards pass and knock-on)

Heart (Team work)

I have successfully worked hard in my lessons working with people who I don't usually work with

I have led a part of a warm up at the start of the lesson which my team has taken part in

I have successfully set up a drill with my team which we have used within the lesson

I have taken part in various roles within a game situation to benefit my team

Hands

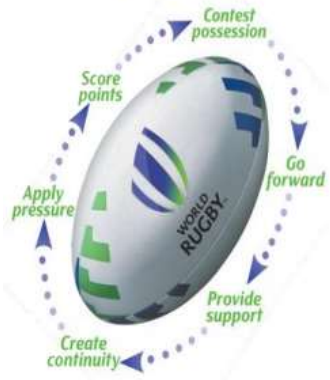
To be able to perform fundamental rugby handling skills

To maintain ball possession & outwit opponents

To replicate basic passing & receiving skills

To perform and accurately replicate the correct techniques for front and side tackles

The Principles of Play



Rugby is an invasion and evasion game.

Once possession has been gained, the objective is to move the ball forward (by carrying or kicking) into opposition territory and ultimately score points.

It is important for everyone to understand the fundamental principles of play and how they relate to the skills required to play the Game.

Recap passing and handling skills	Passing the ball from one team mate to another, and how the team mate catches or receives the ball when it reaches them. **Demonstrating more confidence and performing at speed with less errors.**
4 vs 2 Overload	4 Attacking players working against 2 defenders in an overload situation, the attackers draw in the defender for a tackle.
Tackling	This is how the defender tackles the ball carrier to win possession back. **Showing greater consistency and adapt the tackle to be successful.**
Ruck	A method of recycling the ball after play has broken down, the ball has been taken to the ground due to the tackle.
Maul	A method of recycling the ball after play has broken down, the ball has been held up as the tackle hasn't gone to ground
Attacking/outwitting an opponent	The tactics used to gain an advantage over the opposition. **Applying new tactics and adapt to try to score against the opposition or gain an advantage.**

Scoring System:

- Try - touching the ball down in the in goal area. **5 points**
- Conversion - taken after a try **2 points**
- Penalty kick **3 points.**
- Drop Goal **3 Points**
- **Most points at the end wins**

Tactics:

- Draw players to create spaces for others.
- Run direct and look for gaps in the defence.
- Straight defensive line.
- Uses different running lines and moves to create scoring opportunities.

KEY QUESTIONS

How do you set up an effective ruck situation?
How do you set up an effective maul situation?
Where should you position yourself in a game to be of benefit to the team?
How can you attack well as a team to beat the opposition?
How can you set up as a team to defend the try line effectively?

Year 8 Fitness

Head

I can name different methods of training.

I can apply methods of training to different sports.

I understand the different benefits that the different methods of training can have.

Able to compare own and others work and can state the differences. Use this information to attempt to improve own performance.

Heart (Resilience)

I have worked individually and as part of a group this term.

I have showed good resilience in a range of athletic activities, including both track and field events.

I have shown good resilience when working individually and as a part of a team across a range of field and track events this term.

I have pushed my body and challenged myself to improve across a range of athletic events.

Hands

Push body to challenge physical capacity in lessons

Show a good replication of skills across most fitness disciplines

Apply basic principles of warm up and cool down, using exercises appropriate for the event

Show a good level of fitness across different methods of training.

Continuous Training

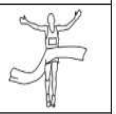
- Simple
- Cheap
- Intensity accuracy
- All age groups
- Essential

- Monotonous
- Time-consuming
- Weight-bearing
- Overuse injuries
- Can decrease speed

Circuit Training

- Versatile
- Can cater for large numbers
- Basic equipment
- Can target skill and fitnes

- Few records
- Loafing

Method of Training	Fitness improved	Description (Key words)	Sports people that would use this training.
Continuous training	Cardiovascular endurance Muscular endurance	20 minutes or more No rest Steady pace – constant rate	Marathon runners 
Fartlek training	Speed Cardiovascular endurance Muscular endurance	Changes in intensity (speed) Changes in terrain (ground/incline)	Games players 
Interval training (HIIT)	Speed Strength Cardiovascular endurance	Periods of high intensity exercise Periods of defined rest (stopping)	Sprinters 
Static Stretching (flexibility training)	Flexibility	Holding a stretch still Up to 30 seconds	Gymnasts 
Weight training (resistance training)	Strength Power Muscular endurance	Different weights e.g. body weight, machines, free weights, functional equipment. Strength – High weight (kg) 70-100% of 1RM. low repetitions (4-8) Muscular endurance – Low weight (kg) 55-70% of 1RM.High repetitions (12-15).	Weight lifters 
Plyometrics	Power	Jumping, skipping, hopping, bounding movements. Maximal muscle contraction (force) Eccentric contraction to concentric contraction.	Long jumper 
Circuit training	Muscular endurance Can be adapted to most fitness. Can be skills based.	8-12 stations. Stations can be fitness or skill related. Circuit can be repeated. Timed exercise and timed rest.	Games players 

PSHE- Knowledge organiser- Y8 Term 1

Themes	Topics	Key learning points
Health and well being	Mental health	• Health: a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. • Mental and physical health are closely linked: by promoting their physical health (through exercise, healthy food choices and quality sleep), a person is also promoting their mental health. • Mental health includes our emotional, psychological, and social well-being. It affects how we think, feel, and act. It also helps determine how we handle stress, relate to others, and make choices. • It is typical for emotional wellbeing to fluctuate throughout the day or over several days. Concerns arise for emotional wellbeing when someone's mood continues to drop over a long period of time. • Resilience: a skill that helps people to recover quickly from difficulties, change or misfortune; to adapt to and overcome risk and adversity; to persevere and 'bounce back'. • Unhealthy coping strategies: behaviours people use to deal with difficult emotions, which have long-term negative consequences. • Healthy coping strategies: behaviours people use to deal with difficult emotions, which have long-term positive consequences.

RSE	Created by God to love and loved by God	• We are created by God as one whole person, both body and soul. • Each of us are physically, mentally and emotionally unique. • Gender stereotypes: Preconceived ideas whereby females and males are arbitrarily assigned characteristics and roles determined and limited by their gender. • Gender identity: an individual's personal sense of having a particular gender. • Gender dysphoria: a sense of unease that a person may have because of a mismatch between their biological sex and their gender identity. • Transgenderism: relating to a person whose sense of personal identity and gender does not correspond with their birth sex. • Every single person is a child of God, worthy of love and respect. • Puberty: the process of physical changes through which a child's body matures into an adult body capable of sexual reproduction. • Puberty involves physical, emotional and sexual development. • Sexual feelings need to be managed through self-Control, mutual respect and patience. • Pregnancy: the term used to describe the period in which a fetus develops inside a woman's womb or uterus. Pregnancy usually lasts about 40 weeks. • Miscarriage: the spontaneous or unplanned expulsion of a fetus from the womb before it is able to survive independently. • Abortion: the deliberate termination of a human pregnancy, most often performed during the first 28 weeks of pregnancy.

Remember!

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- Taking part is important but we have the right to pass.
- We will not make assumptions and we will listen to others' point of view.
- We know that there are no stupid questions but we will use appropriate language.
- If we need further help or advice, you know you can talk to your teachers, form tutor and SSOs.

PSHE- Knowledge organiser- Y8 Term 2

Skills: Decision making

Living in the wider world	CEIAG	• The 12 Unifrog competencies are: independence, leaderships, teamwork, listening, creativity, literacy, numeracy, communication, presentation, aiming high, problem solving, staying positive • Contract: A written agreement between the employer and employee. Both must follow the law. • Qualification: A document proving that someone has passed exams or completed a course. • Benefits: Extra things given to you by an employer, aside from your salary. E.g. healthcare plan, money towards qualifications. • Job specification: A list of tasks that are part of the job. • Salary: The amount an employee gets paid per year. • Person specification: A list of skills/qualifications needed to get the job. They are often split into essential and desirable. • Graduate position: A job available to someone who has recently earned a degree. • Applicant: The person applying for the job. • Assessment day: A way for an employer to assess if you're right for the job. It may involve group and individual tasks, as well as an interview. • Cover letter: A letter sent to an employer with your CV, explaining why you want the job and why you are suited to it. • Reference: From a previous employer, confirming the applicant worked at one (or more) of their previous jobs. • Academic skills: What you do in a subject • Practical skills: How you do a subject • Motivating factors to choose a career are varied: salary, location, possibility of promotion, wanting to help others or not etc. • GCSE qualifications give students a broad, general knowledge across a range of subjects. • Post-GCSE, students can become increasingly specialised through level 3 qualifications (like A-levels or BTECs), then specialise again through higher level qualifications (like higher diplomas or degrees). • In SJF, all students have to study English, Maths, Science, RE and PSHE until they're 16. • If you are unsure of which career path to take, choose a selection of GCSEs that will provide as many skills as possible. • Apprenticeships: combine practical training in a job with study

PSHE- Knowledge organiser- Y8 Term 3

Living in the wider world	Citizenship: Crime	• Crime: an action that goes against the law. It could be against a person, property, the state or a religious offence. • Laws: MPs discuss bills for new laws which are then sent to the House of Commons where a vote is taken. A committee of MPs then propose amendments and the bill is sent to the House of Commons to be debated. There is then a final vote in the House of Commons. After this, the process is repeated in the House of Lords before finally being handed back for approval to the House of Commons. The person who gives the final approval and signs the bill to become an Act of Parliament is the Monarch • Civil laws: law that deals with disputes between individuals or groups. • Criminal laws: law which deals with individuals who break the law, • Perpetrator/ offender: someone who has committed a crime or nasty action. • Victim: someone who has been hurt by another person's actions or words • Retribution: to make the offender suffer and pay for what they have done. • Deterrence: to discourage the offender (and others) from committing further crimes. • Reform: Punishments aimed at changing the character of the criminal so that they keep the law in future. • Protection: Society must be protected from violent and persistent offenders. • The duties of the police: to protect people and property, maintain public order, prevent and detect crime and arrest criminals and bring them to court. • The ripple effect: one small change can have an enormous impact. • The Crown Court: deals with serious cases - like murder and robbery. • The Magistrates Court: deals with the less serious crimes - like drunk and disorderly, speeding and low value theft. • Youth court: a special type of magistrates court for young people aged 10-17. • Age of criminal responsibility in England is 10. • Green crime: a crime committed against the environment.

	Be internet citizen	• Disinformation: any information that has been deliberately created to deceive people or give them an inaccurate understanding of an issue. It is often presented as being fact-based but in reality is intentionally false. • Misinformation: accidental sharing of false information. While there is no intention to harm, the negative consequences can be just as powerful. • Deepfake: computer-generated videos of real people doing or saying things that never happened in reality. • Conspiracy Theories: invented explanations for events that are wrongly linked to groups or individuals. • Clickbait: where a publisher posts an intentionally exaggerated or misleading headline, social media post or image, prompting people to click through to their webpage. • Fact: a thing that is known or proved to be true. • Opinion: a view or judgement formed about something, not necessarily based on fact or knowledge. • Biased writing: when an author shows favouritism or prejudice towards a particular opinion, instead of being fair and balanced. • Filter bubbles: when users are suggested content based on previous internet habits and interactions. • Bias: inclination or prejudice for or against one person or group, in a way considered to be unfair. • Stereotyping: when we categorise or make assumptions about people based on basic characteristics. • Echo chambers: social spaces in which ideas, opinions and beliefs are reinforced by repetition within a closed group. • Free speech: the right to hold opinions, and to receive and share information and ideas freely, without fear of retaliation or censorship by the government. • Hate speech: attacks on a person or group based on their race, religion, sex, sexual orientation, gender identity, and/or physical and mental abilities.

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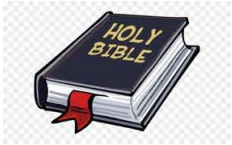
Year 8 RE TERM 1 KNOWLEDGE ORGANISER: CREATION

St John Fisher Catholic High School



Key words

Monotheism: Christians believe in ONE God. They would describe God as Trinity (God the Father, God the Son, God the Holy Spirit)
OMNIPOTENT: This means that God is seen as **ALL-POWERFUL**
OMNISCIENT: This means that God is all knowing
OMNIBENEVOLENT: This means that God is all-Loving
IMMANENT: This means that God is active in the world- in the form of Jesus
Theological Truths: Things we believe which rely on faith.
Scientific Truths: Facts that can be proven scientifically
Stewardship: Catholics believe that God has entrusted them to look after his creation
Creation Story: God's act of bringing the world into existence out of nothing (Creation ex Nihilo).

Image of God

God created human beings in his own image. This shows that humans are special. Genesis 1 &2 says that God created the world in 6 days, and on the 7th He rested. Some Christians take this LITERALLY and read this story as fact (fundamentalist). Others see the Genesis story as a symbolic story (Liberal).

Science tells us that our universe is approx. 14bn years old, and our planet is approx. 4bn years old. An explosion (The Big Bang) led to the creation of all space, time and matter. Humans have evolved over time, through a process of natural selection. This is called 'evolution'.

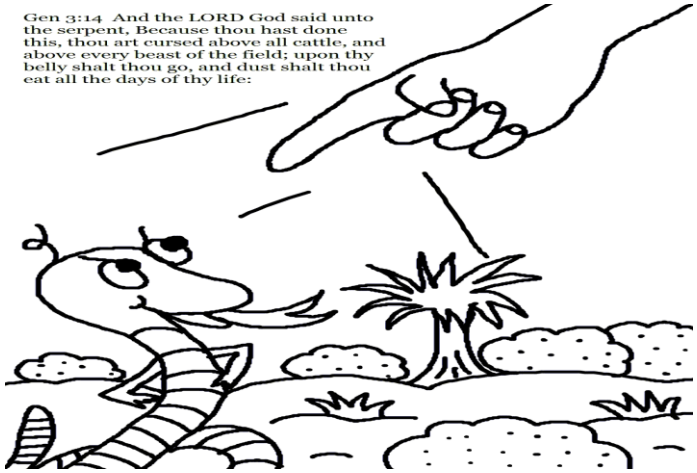
Faith VS Science

There are different ways of looking at the truth. They do not necessarily contradict each other. Some people argue that the universe evolved over billions of years or through the big bang while others say God created the world out of nothing.

The fall and Original sin

As members of the human race our human nature is wounded by the 'first sin' and our freedom is weakened. The Catholics believe that all humans are born with original sin as a result of the fall of Adam and Eve. This means that all humans are born with the urge to sin and disobey God. Church teaches that original sin can be removed and cleansed through baptism. This is why the majority of Catholics are baptised as infants.

The Theologian Thomas Aquinas believed that human nature is essentially good, and that all humans are oriented towards perfection and good acts. "Whatever man desires, he desires it under the aspect of good".



Creation and Stewardship

Human beings are part of the world. The way we act can either help nature or harm it. Human beings have the power to destroy or preserve God's creation. God calls us to be stwards of his creation.
We have received the special gift and challenge of sharing in God's creative activity. As co-creators, then, our acts should reflect God's own love for creation. So our care for creation can be a true expression of our praise and thanksgiving to God.

Image of God

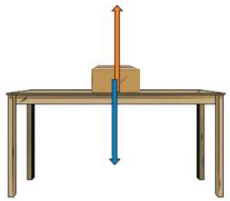
According to the book of Genesis, the last thing to be created was humankind. Human beings were created in God's Image (**Imago Dei**). So when we look at others and ourselves we should be able to see something of God.
The Church teaches that being in the image of God, the human individual possesses the dignity of a person, who is not just something, but someone (CCC357).

Science – Year 8 – Term 1 part 1 – Movement

You can't see forces but you can see their effects.

We add force arrows to a diagram to show which forces are acting. The arrows show the direction and the size of the force (the longer the arrow, the bigger the force).

The force arrows should touch the object in the diagram.



Contact Forces

Contact forces act between objects that are physically touching each other.

friction – The force between two surfaces that are sliding, or trying to slide, past each other.

air resistance – The force that acts in the opposite direction to an object's movement as it moves through the air.

reaction – The force that supports an object on a solid surface.

tension – The force transmitted through a rope, string or wire when pulled by forces acting on each end.

upthrust – The upward force exerted by a fluid on an object floating in it.

Non-Contact Forces

Non-contact forces act between objects without them physically touching each other.

gravitational force – The force acting on an object due to gravity.

magnetic force – The force exerted by a magnetic field on a magnetic material.

electrostatic force – The force that acts between two charged objects.

Weight is the total amount of force acting on an object due to gravity. Weight is measured in newtons (N).

The value of weight will change depending on the gravitational field strength acting on the object.

To calculate weight we use the equation:

weight = mass × gravitational field strength

The gravitational field strength on Earth is 10N/kg.

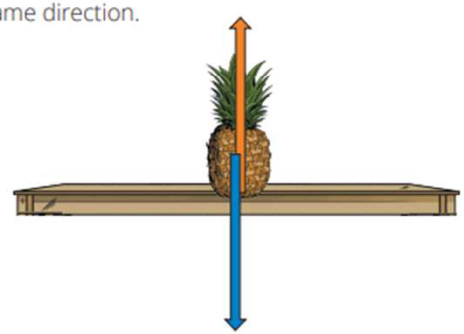
If the driving force is bigger than the resistive forces acting on an object, the object will speed up (**accelerate**).

When the driver presses the accelerator in a car, the driving force increases so the car speeds up.

If the resistive forces on an object are larger than the driving force, the object will slow down.

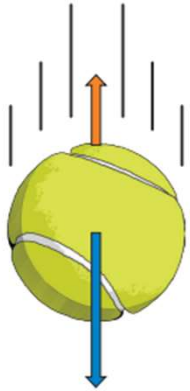
When the person releases their parachute, the force of air resistance is larger than their weight so they will slow down.

When the forces acting on an object are the same size but in opposite directions, we say that the forces are **balanced**. When this happens, the object is in a state of **equilibrium**. There will be no change to the motion of the object: a stationary object will remain stationary and a moving object will continue to move at a constant speed in the same direction.

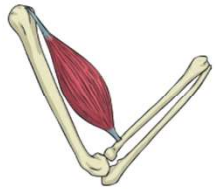


Unbalanced forces act in opposite directions but are not the same size. One force is greater than the other.

If forces are unbalanced there will be a change in the motion of the object. It may speed up, slow down or change direction.



Muscles are specialised tissues in the body that are responsible for movement. They are attached to bones via tendons and can contract and relax, allowing body parts to move. Muscles work in pairs, with one muscle contracting and another relaxing, to move in a particular direction.



Joints are the locations where bones come together, and they are responsible for allowing movement in the body. Joints can be divided into three categories: fibrous, cartilaginous, and synovial. Synovial joints are the most common type of joint in the body and are fully movable. Examples of synovial joints include the knee, elbow, and shoulder joints.

Tendons are strong, fibrous connective tissues that attach muscles to bones. They are responsible for transferring the force generated by muscles to the bone, allowing body parts to move.

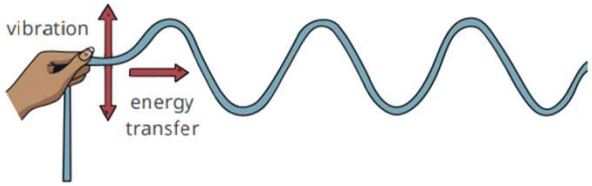
Ligaments are also strong, fibrous connective tissues, but they connect bones to other bones at joints. Ligaments provide stability to the joint and help to prevent too much movement or dislocation.

Muscles, joints, tendons, and ligaments play important roles in movement. Muscles generate force to move body parts, tendons transmit that force to bones and ligaments provide stability to the joints to prevent excessive movement or dislocation. Without these structures working together, movement in the body would not be possible.

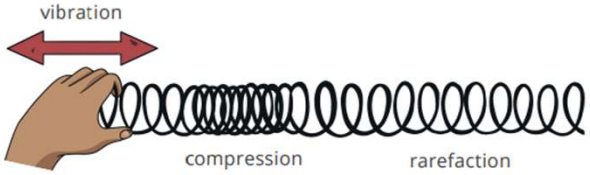
Science – Year 8 – Term 1 part 2 – Light and sound

Waves can be either **transverse** or **longitudinal**.

In a **transverse** wave, the vibrations of the particles are **perpendicular** (at right angles) to the direction of energy transfer. The wave has **peaks** (or crests) and **troughs**. Examples of transverse waves include **water waves** and **electromagnetic waves**.

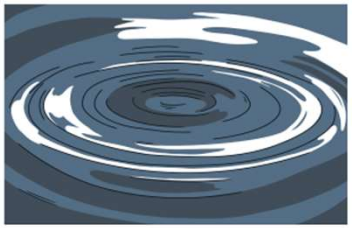


In a **longitudinal** wave, the vibrations of the particles are **parallel** to (in the same direction as) the direction of energy transfer. A longitudinal wave has areas of **compression** and **rarefaction. Sound waves** travelling through air are an example of this type of wave.

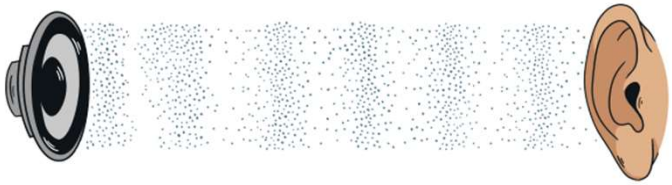


When a wave travels through a medium, energy is transferred by the particles but the matter itself does not move.

This can be shown by placing a cork in a tank of water and generating ripples across the surface. The cork will move up and down on the oscillations of the wave, but it will not travel across the tank.



Similarly, when sound waves move from a speaker towards the ear, the air particles next to the speaker do not move towards the ear; they vibrate around their original position.



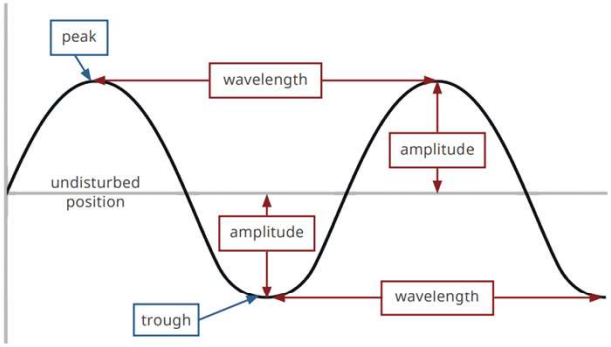
The **amplitude** of a wave is the distance from the undisturbed position to the peak or trough of the wave.

The **wavelength** is the distance from a point on one wave to the same point on the next wave, measured in **metres** (m).

The **frequency** of a wave is the number of waves that pass a given point every second, measured in **hertz** (Hz).

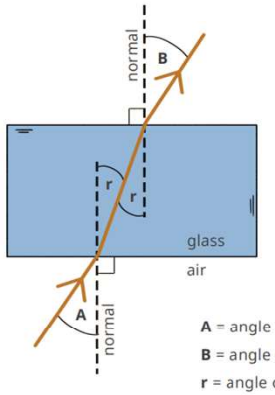
The **period** of a wave is the time taken for a full wave to pass a given point, measured in **seconds** (s).

$$\textbf{period} = \frac{1}{\textbf{frequency}} \text{ or } T = \frac{1}{f}$$



Wave speed is how quickly energy is transferred through a medium (or how quickly the wave travels), measured in **metres per second** (m/s).

wave speed = frequency × wavelength or $v = f\lambda$



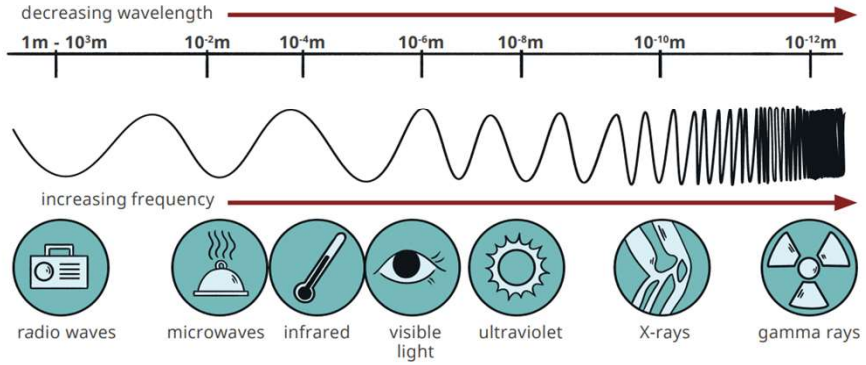
A = angle of incidence
B = angle of emergence
r = angle of refraction

When a wave enters the glass block at an angle to the normal, it bends towards the normal. The angle of refraction is smaller than the angle of incidence. The angle at which the wave leaves the glass block (angle of emergence) is equal to the angle at which it enters the glass block (angle of incidence).

If a wave enters a different medium at 90° (perpendicular) to the boundary, it will not change direction but instead carry on in a straight line.

radio waves	terrestrial television and radio communications
microwaves	satellite communication, satellite television, heating food
infrared	cooking, thermal imaging camera, electric heaters, short-range communications (remote controls)
visible light	vision, fibre optic communication
ultraviolet	energy efficient lamps, sun tanning detecting forged bank notes, sterilising water
X-rays	medical imaging, airport security
gamma rays	sterilising medical equipment, sterilising food, radiotherapy for cancer treatment

Electromagnetic waves are transverse waves. They transfer energy from a source to an absorber. All electromagnetic waves travel at the same speed through a vacuum or air. They are grouped by their wavelength and frequency to form a continuous spectrum.



Remember: **R**oman **M**en **I**nvented **V**ery **U**nusual **X**-ray **G**uns

Hazards and Risks of Electromagnetic Waves

Ultraviolet waves, X-rays and gamma rays have some risks associated with them.

How dangerous electromagnetic radiation is depends on the type of wave and the dosage.

Radiation dosage is measured in sieverts (Sv) or millisieverts (mSv).

Safe limits of exposure of each type of radiation are known and can be referred to when assessing the risk of using electromagnetic radiation.

Year 8 TEXTILES Knowledge Organiser

Intent/Aims of unit of study:

To understand how recycled materials can be used in textiles to create a decorative wallhanging. To apply a range of manipulated materials and techniques.

Length of Unit:

12 Weeks

What will they learn? (overview of knowledge)

Students will learn about plastic waste and the ways it is currently being recycled.

One way to recycle is to make decorative textiles pieces. Students will learn how to weave, manipulate materials, plan and create a finished decorative piece.

What skills will they learn/develop?

Textiles Language

Identification of parts of the loom, names of stitches and printing

Discussion of how to create a tapestry using a range of stitches and how to print

Planning designs incorporating pattern, colour, shape and texture.

Support/Challenge

Revision:

https://www.bbc.com/bitesize/subjects/zvkw2hv

Inspiration:

https://www.vam.ac.uk/

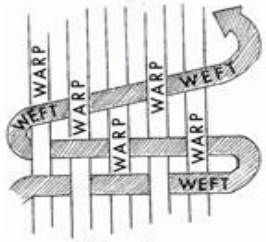
https://www.pinterest.co.uk/sewcial_circle/weaving-inspiration/

Needle

Weaving or Tapestry

Fabric Shears

Warped- up Loom



Weaving techniquee Plain/tabby

Key vocabulary with definitions/examples

Fibre - Textile fabrics are made from FIBRES. Fibres are very fine, hair-like structures that are spun or twisted into YARNS. These yarns are then WOVEN or KNITTED together to create fabrics.

The two main types of fibre are: 1) NATURAL - from plans and animals. 2) SYNTHETIC - (manufactured) from coal, oil or petrochemicals.

Weaving - One of the techniques used to create cloth or decorative wall hangings.

Loom – The frame that is used to hold and create a woven piece.

Warp – Threads that are wrapped vertically around the loom.

Weft – The main part of the woven piece, horizontal in direction, following pattern over, under, over, under etc.

Tabby weave – The most common, simplest weaving stitch used for strength.

Mirror Repeat Pattern - a motif which uses lines of symmetry to create a pattern.

Recycling – The action or process of turning waste into a reusable material or object.

Yarn - Spun thread used for knitting, crochet weaving or sewing.