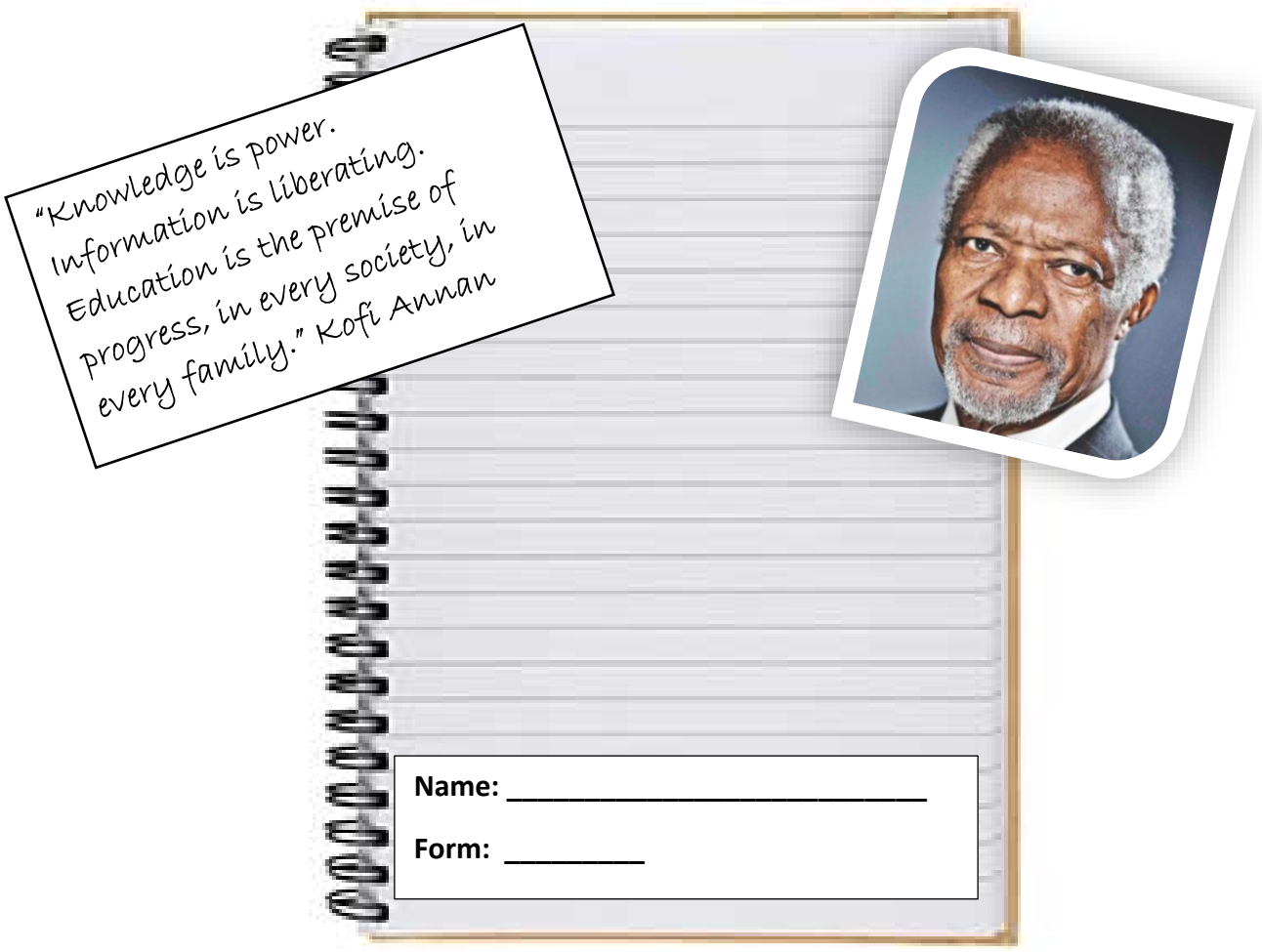
Knowledge Organisers

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

John 10: 10

Year 7 Term 1

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



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.

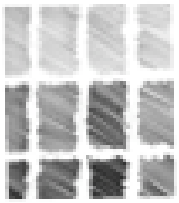
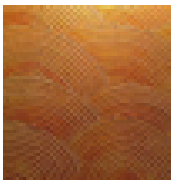
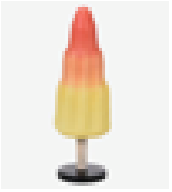
Your teachers will use the Knowledge Organiser in the lesson to support the new knowledge being taught so you must always keep this booklet with you and put on your desk at the start of each lesson.

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.

Knowledge Organiser. Year 7 Art: Formal Elements/Nature

LINE	TONE	PATTERN	TEXTURE	FORM	COLOUR
					

The Formal Elements in Art are very important. They are a set of words we will explore each lesson. Each word is linked to a set of skills we will practise together. Later in the term we will be learning more about Art, through the theme of Animals and Nature.

What will you learn? (overview of knowledge)

Students will learn about each formal element in Art – Line, Tone, Pattern, Texture, Form and Colour. Formal elements have two key uses – to help analyse art and to help create art. Students will learn how to apply this knowledge in their artwork and in their critical analysis.

What skills will you learn/develop?

- ☐ Drawing skills – shape, tone and detail
- ☐ Mixing and applying paint
- ☐ Mark-making skills
- ☐ Depicting Form using Tonal values
- ☐ Using media to create 3D forms
- ☐ Some critical analysis of art work and artists

Support/Challenge:

https://hardleyart.wordpress.com/the-formal-elements-in-art/

http://www.artyfactory.com/art_appreciation/visual-elements/visual-elements.html

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

COLOUR	TONE	LINE	FORM
PATTERN	TEXTURE	MIX	LIGHT
HARMONIOUS	COMPLEMENTARY	PRIMARY	DARK
REPEAT	3-DIMENSIONAL	SECONDARY	PAINT
PENCIL	BLENDING	MARK-MAKING	ANALYSE

Year 7 How Computers Work

Summary of the Unit

E-safety refers to staying safe online, this includes the use of the internet, social media sites and gaming.

Computers require input hardware, processing hardware and output hardware. The hardware that defines a computer is the CPU and memory. Without these a computer could not function. The CPU and memory work together to run programs.

Input devices

An input device is any piece of computer hardware used to provide data to a computer system. Examples include:

- Keyboard
- Mouse
- Scanner
- Microphone

Storage devices

A storage device is a piece of computer equipment which can be used to store data. Examples include:

- Hard disk drive
- USB stick
- Memory Card

Output devices

An output device is any piece of computer hardware used to communicate the results of data that has been processed. Examples include:

- Monitor
- Printer
- Speaker
- Plotter

Websites

Learn parts of computer using these websites:

- www.bbc.co.uk/bitesize/guides/zxb72hv/revision/1
- www.teach-ict.com/gcse_new/computer%20systems/hardware_software/miniweb/index.htm

Keywords

Hardware	The physical parts of a computer system, eg a graphics card, hard disk drive or CD drive.
CPU	Central Processing Unit - the brains of the computer that processes program instructions. Also called a microprocessor.
RAM	Random access memory, stores currently running instructions, Volatile.
ROM	Read only memory, stores boot-up, non-volatile
Embedded systems	An embedded system is a small computer that forms part of a larger system, device or machine.
LAN	Local area network, computers connected to each other. Restricted to a small geographical area
WAN	Wide area network, WAN is over a large geographical area

Top tips for staying safe online

1	Don't talk to strangers
2	Don't give out personal information
3	Make sure all social media accounts are set to private.
4	Don't meet anyone online.

Year 7 Spreadsheets

Summary

Spreadsheets are used to store information and data. Once we have our information in a spreadsheet we can run powerful calculations, make graphs and charts and analyse patterns.
Microsoft Excel is a software program that allows users to organise, format and calculate data with formulas.

Common formulas and functions

+	Add	=A1+B2
-	Subtract	=B1-B4
/	Divide	=B4/C2
*	Multiple	=B6*B2
=SUM	Adds a range of cells together	=SUM(A1:A10)
=AVERGAE	Finds an average for a range of cells	=AVERAGE(B1:b6)
=MIN	Returns the smallest value in a range	=MIN(B1:B7)
=MAX	Returns the highest value in a range	=MAX(B1:B7)

Uses of Spreadsheets

Uses of spreadsheets:
- Budget tracker
- Stock tracking of a business
- Money use in a business

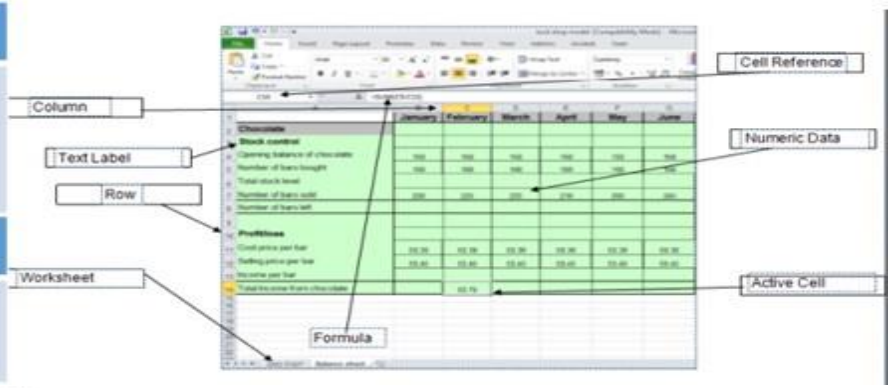
Jobs that use spreadsheets:
- Administrative Assistants
- Financial Analysts
- Retail Store Managers
- Accountants

Websites

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

Keywords

Ascending	arranged in a series that begins with the least or smallest and ends with the greatest or larges
Autofill	a software function that automatically enters data in spreadsheets
Cell Reference	The name given to a cell to uniquely identify it. E.g. E4
Formula	Simple calculations that normally start with =
Autosum	A feature that writes a SUM for you
Chart	Graphical representation of data.
Cell	Each little box in the grid is called a cell.
Column	The grid is made up of columns that are labelled with letters.
Labels	are pieces of text that we add to the spreadsheet to give us information about the numbers.
Row	The grid is made up of row that are labelled with numbers
Descending	arranged in a series that begins with the greatest or largest and ends with the least or smallest



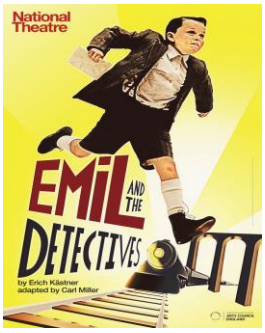
TERM 1

Year 7 Drama

TABLEAU
A scene where actors freeze in poses that create a picture of one important moment in the play.

RULES FOR EFFECTIVE TABLEAU

- Keep still!
- Choose an interesting image to present
- Use body language and facial expression to show how your character is feeling
- Use levels to make your image look interesting
- Face the audience
- Use eye contact to establish character relationships



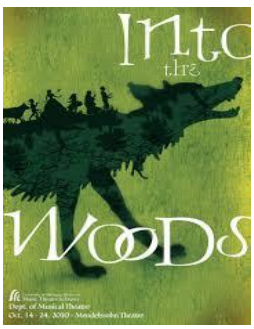
Working with a script:

You will have an opportunity to work on a script as part of a performance project. You will learn to develop characterisation, vocal and non-vocal skills.

MIME
The art of suggesting action, character or emotion without words, using only gesture, expression and movement

RULES FOR EFFECTIVE MIME

- No talking!
- Use body language and facial expression to show how your character is feeling
- Face the audience
- Use eye contact to establish character relationships
- Make sure that your actions are clear and understandable.
- Make sure that your mimed objects stay the same size and shape.
- Keep track of where all mimed objects are onstage



CREATIVE ADAPTATION
Using material from another artistic medium, such as a novel or a film and turning it into a piece of theatre.

DEVISING
The creation of an original piece of theatre, using a stimulus as inspiration. A stimulus could be a picture, poem, news article or a song.

DIALOGUE
The exchange of spoken words between two or more characters in a scene. This usually takes form as a conversation

Key Terminology:

Tableau-The theatrical technique in which actors freeze in poses that create a picture of one important moment in the play.
Mime-The art of suggesting action, character or emotion without words, using only gesture, expression and movement.
Dialogue-The exchange of spoken words between two or more characters in a scene.
Script-The written text of a play.
Devising-The creation of an original piece of theatre, using a stimulus as inspiration.
Adaptation-Using material from another artistic medium, such as a novel or a film, and turning it into a piece of theatre.
Facial Expression-Using your face to show emotions that your character is feeling.
Tone of voice-Using your voice to show how your character is feeling.
Body Language-Using your body and movement to communicate your character's emotions.

Year 7 TERM 1-3 (Rotation)

Length of Unit: 12 Weeks

What are you going learn this term?
• Health and safety within the workshop. • To select by name and use a variety of hand tools • Marking and measuring create an accurate design to allow you to add the finishes of your choice. • To make creative decisions, evaluate and refine as your design requires.

KEY WORDS	Health and Safety	Coping Saw	Measurement	User Centred
Design	Evaluate	Ergonomic	Finish	Template
Typography	Aesthetics	Sanding	Tenon saw	Grain

Hardwoods

Comes from **deciduous** trees

This is a broad-leaved tree which looses its leaves in the winter.

- Beech
- Oak
- Ash
- Teak

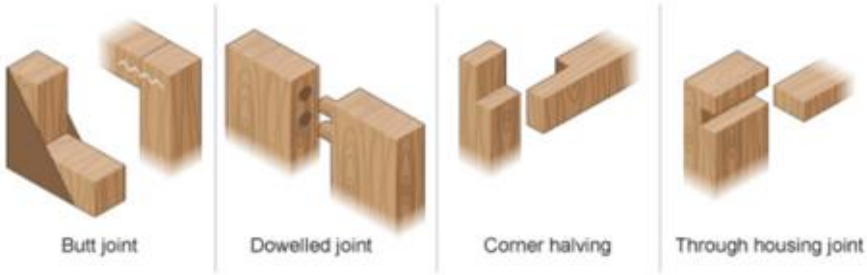
Softwoods

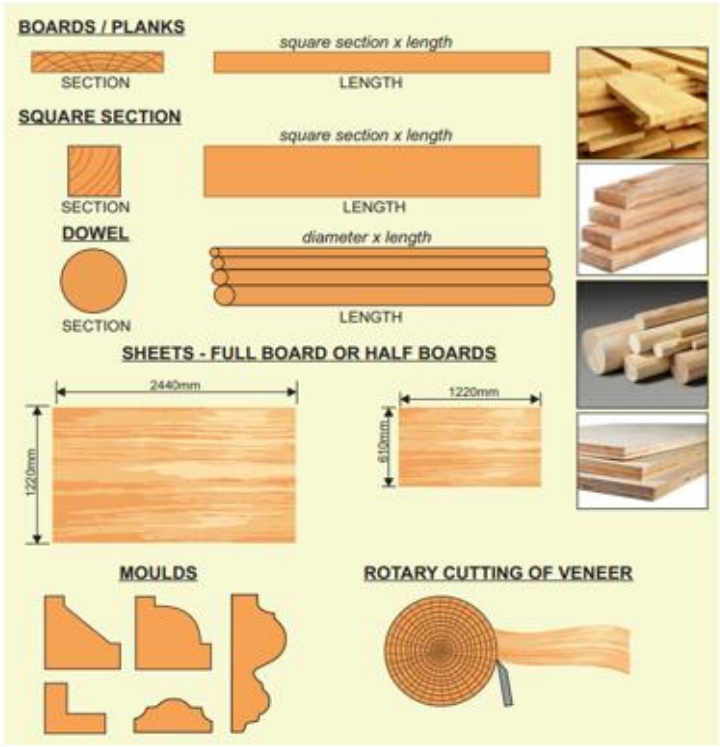
Comes from **coniferous** trees

This tree is an evergreen (green all year), needle-leaved, cone-bearing tree.

- Pine
- Spruce
- Cedar
- Fir

Simple frame joints





Year 7 English Term 1: Gothic Writing Knowledge Organiser

Key Writing Techniques

1	**Ambitious Adjectives**	Use a range of adjectives in your writing to help make your description strong and effective.
2	**Foreshadowing**	A literary device where the writer hints at events to come in the story or plot.
3	**Metaphor**	A figure of speech when you say something is something else. *E.g. Ronald is a walking dictionary.*
4	**Long and short sentences**	Use a mixture of long and short sentences in your writing. Short sentences are good for fast and action sequences. Long sentences are good for detailed descriptions and building suspense.
5	**Pathetic fallacy**	A technique when the writer gives human emotions to inanimate objects usually in nature. Often used for foreshadowing.
6	**Personification**	Giving human qualities to objects or ideas. E.g. *The car danced along the ice.*
7	**Prepositions**	Words to connect different nouns and phrases in a sentence – e.g. *during, until, before*
8	**Simile**	A figure of speech when you say something is <u>like</u> something else. *E.g. Her smile was as bright as the sun.*

Expand your vocabulary

Describing movement	Abruptly, Cautiously, Creepily, Eerily, Furtively, Ominously, Reverently, Suddenly, Surreptitiously, Suspiciously, Tentatively.
Describing sounds	Announce, Cackle, Creak, Cry, Gasp, Howl, Intone, Murmur, Shout, Shriek, Whisper
Describing a mystery	diabolical, enchantment, ghost, haunted, omens, ominous, portent, preternatural, prodigy, prophecy, secret, spectre, spirits, strangeness, talisman, vision
Describing fear, terror or sorrow	afflicted, affliction, agony, anguish, apprehensions, apprehensive, concern, despair, dismal, dismay, dread, dreaded, dreading, fearing, frantic, fright, frightened, grief, hopeless, horrid, horror, lamentable, melancholy, miserable, mournfully, panic, sadly, scared, shrieks, sorrow, sympathy, tears, terrible, terrified, terror, unhappy, wretched
Describing surprise	alarm, amazement, astonished, astonishment, shocking, staring, surprise, surprised, thunderstruck, wonder
Describing haste or speed	anxious, breathless, flight, frantic, hastened, hastily, impatience, impatient, impatiently, impetuosity, precipitately, running, sudden, suddenly
Describing anger	anger, angrily, enraged, furious, fury, incense, incensed, provoked, rage, raving, resentment, temper, wrath, wrathful, wrathfully
Describing largeness	enormous, gigantic, giant, large, tremendous, vast
Describing darkness	dark, darkness, dismal, shaded, black, night

Key Words

1	Antagonist	A central character who opposes, or is hostile to, something.
2	Antihero	A central character who lacks typical heroic attributes, such as courage.
3	Claustrophobic	Fear of enclosed or small spaces.
4	Climax	The most intense point
5	Dank	Unpleasantly damp and cold
6	Denouement	Resolution or ending to a story
7	Doppelgänger	An apparition or double of someone.
8	Exposition	Background information: setting the scene and introducing characters
9	Ghoulish	Resembling or characteristic of a ghoul (ghost)
10	Macabre	Gruesome, horrifying
11	Menacingly	With menace or threat – *the monster stared **menacingly** at me.*
12	Morose	Sad, sullen, ill-tempered
13	Mystery	Something difficult to explain
14	Obscurity	Difficult to understand or see. Something hidden.
15	Ominous	Giving the impression something bad is about to happen
16	Pathetic Fallacy	The environment reflects the atmosphere
17	Petrifying	So frightening that you cannot move
18	Spectre	A ghost
19	Supernatural	Something that isn't scientific/can't be explained
20	Suspense	A feeling of anxious uncertainty
21	Tempest	Storm
22	Trepidation	Feeling anxious or worried about something – e.g. *I had a feeling of **trepidation***

Year 7 Term 3 Knowledge Organiser

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

Typical Genre Features
- Death and darkness
- Supernatural
- Curses or prophecies
- Madness and intense emotion/ paranoia
- Mystery, terror and suspense

Typical Characters
- Mysterious characters with high social status
- Female or feminine characters that are threatened by powerful men
- Threatening women who are monsters
- Powerful, tyrannical male figures
- Villains, vampires, ghosts, werewolves and giants

Typical Settings
- Wild landscapes
- Medieval style castles, churches or abbeys
- Gloomy, decayed and ruined environments
- Remote, uninhabited places
- Volatile and threatening weather.

Gothic conventions
- The first Gothic novels appeared in the late 18th Century
- Gothic fiction was a branch of the larger Romantic movement that tried to create strong emotions in the reader
- Horace Walpole's *The Castle of Otranto* is usually regarded as the first 'Gothic' novel
- Gothic' can refer to the type of architecture that was prominent or popular in what is now Germany during the medieval period
- Writers use setting and speech to build suspense
- Common subject matter includes the supernatural, family curses, mystery, madness and death
- Pathetic fallacy is where the weather creates a mood

Gothic movement
- Gargoyles were used as rain spouts to help remove water from roofs, but were used for decorated purposes, too
- Most Gothic buildings were made out of stone blocks and because of this they are often very dark in colour

Gothic writers
- Mary Shelley wrote 'Frankenstein; when she was 18 years old
- Bram Stoker's 'Dracula' has had a huge influence on modern films
- Edgar Allan Poe was a writer of many gothic short stories.
- Charles Dickens was also a writer of 'Great Expectations'
- Susan Hill's 'The Woman In Black' adheres to the gothic conventions
- Emily Bronte creates fear in 'Wuthering Heights'

Your assessments:
How has Stoker created a gothic atmosphere in the extract from 'Dracula'?

Write a gothic short story with the title 'Abandoned'

Values
- Gothic writers are preoccupied with the supernatural, because they believe that not everything has a scientific explanation.
- They believed that nature is 'sublime': it has the power to simultaneously inspire awe and terror in people.
- They challenged society's expectations about propriety and emotion. To show wild emotion was seen as impolite, but not to the Gothic writers, who often depicted passion and rage.
- They explored the role of the female characters: often in gothic texts, there are powerful female roles, which contrasted contemporary society.
- They were very interested in the psychological exploration of characters, particularly in relation to the theme of madness.

Keywords
- Dilapidated – of a building or object, in a state of disrepair or ruin.
- Sinister – giving the impression that something harmful or evil is or will happen.
- Grotesque – repulsively ugly or distorted.
- Afflicted – of a problem or illness, cause pain or suffering.

Year 7 FOOD AND NUTRITION, Healthy Eating. TERM1-3 (Rotation)

Length of Unit:

12 Weeks

8 tips for healthier eating

These eight practical tips cover the basics of healthy eating, and can help you make healthier choices.

1. Base your meals on starchy carbohydrates.
2. Eat lots of fruit and veg.
3. Eat more fish – including a portion of oily fish.
4. Cut down on saturated fat and sugar.
5. Eat less salt (max. 6g a day for adults).
6. Get active and be a healthy weight.
7. Don't get thirsty.
8. Don't skip breakfast.

You will learn about

Hygiene and safety
Knife skills
Using the hob and the oven
Accurate measuring of ingredients
Healthy eating and nutrition.

To find out more, go to:
https://bit.ly/2QzUMfe

The Eatwell Guide

- Comprises 5 main food groups.
- Is suitable for most people over 2 years of age.
- Shows the proportions in which different groups of foods are needed in order to have a well-balanced and healthy diet.
- Shows proportions representative of food eaten over a day or more.

Key terms

The Eatwell Guide: A healthy eating model showing the types and proportions of foods needed in the diet.
Hydration: The process of replacing water in the body.
Dietary fibre: A type of carbohydrate found in plant foods.
Composite/combination food: Food made with ingredients from more than one food group.

Meals and snacks can be sorted into The Eatwell Guide food groups.

Composite/combination food - Lasagne

Pasta (lasagne sheets): **Potatoes, bread, rice, pasta or other starchy carbohydrates**
Onions, garlic and chopped tomatoes: **Fruit and vegetables**
Lean minced meat (or meat substitute): **Beans, pulses, fish, eggs, meat and other protein**
Cheese sauce made with milk and cheese**: Dairy and alternatives**
Olive/vegetable oil used to cook onions and mince**: Oil and spreads**

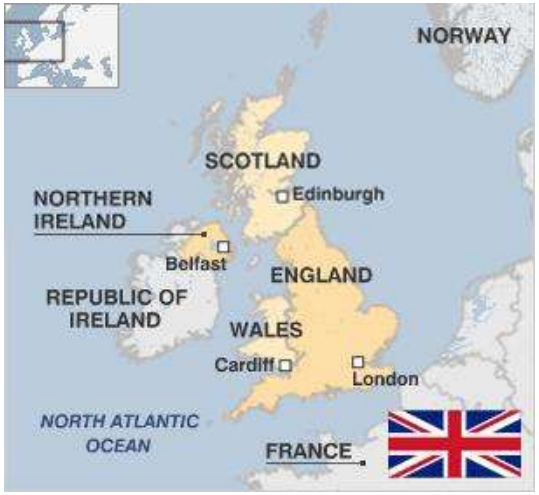
Task

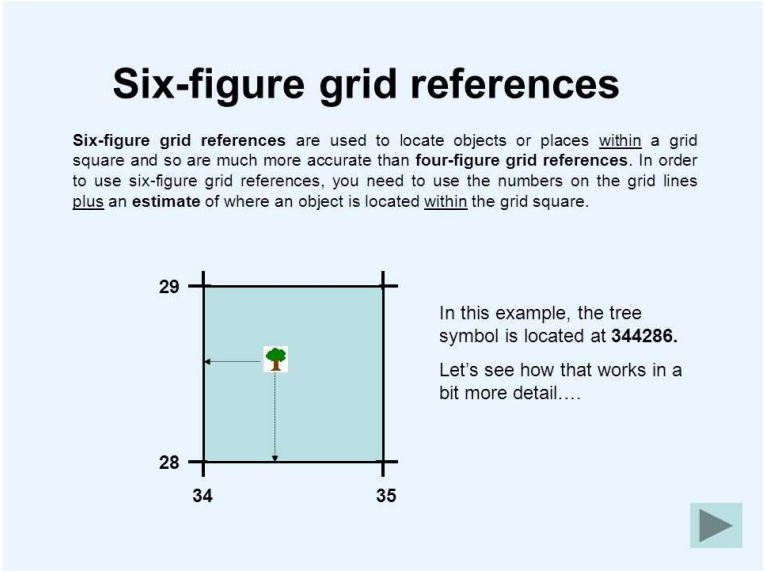
Plan a menu for a day that applies the principles of The Eatwell Guide and the 8 tips for healthier eating. Make one of the dishes, complete a sensory evaluation and calculate the energy and nutrients provided using nutritional analysis.

Geography - Year 7 Term 1 –Basic Geography and Map Skills

Key Terms

Human Geography	The study of how humans affect, or are affected by, the earth.
Physical Geography	The study of the natural features of the earth.
Ocean	A very large expanse of sea.
Continent	Any one of seven large land masses of the Earth.
Country	A nation with its own government, occupying a particular area.
Compass	An instrument showing the direction of north using a magnet.
Grid reference	A map reference indicating a location in terms of a series of vertical and horizontal grid lines identified by numbers or letters.
Contour lines	A series of lines on maps which connect areas of the same height.
Ordnance Survey (OS)	A national mapping agency in the United Kingdom which covers the island of Great Britain.
Plan	A detailed map of an area.
Scale	The link between a distance on a map and the distance on the ground.



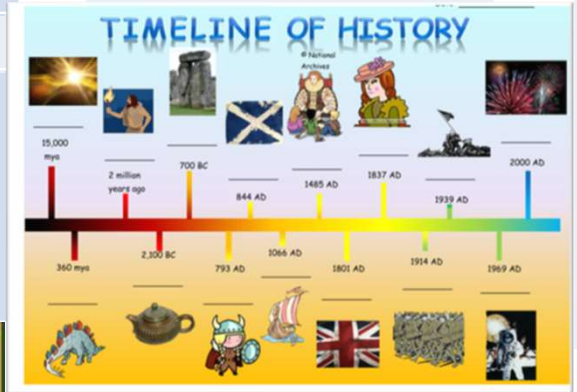


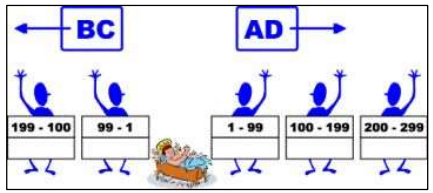
Year 7 history knowledge organiser term 1: introduction and skills

Keywords and definitions	
Anachronism	A mistake in placing something in time order
Anno Domini	Is Latin for 'in the year of the Lord' – it means the number of years since the birth of Jesus Christ
BC	Stands for 'Before Christ' – it means the number of years before the time of Jesus Christ
Century	A period of 100 years
Change and continuity	Progress is change for the better Continuity is when things stay the same Regress is change for the worse

Key Concepts
Chronology
Using evidence
Causation
Interpretations
Significance
Change and continuity

Keywords and definitions	
Chronology	The study of exactly when things happened
Interpretation	The meaning of a source/piece of work and why it is different to others
Pre-history	Refers to a time before writing existed
Sources	Primary source- a document or object that was created during the time period of study Secondary sources- an account or interpretation of events. It was not written during the time period





YEAR 7 — PLACE VALUE AND PROPORTION

Ordering integers and decimals

@whisto_maths

What do I need to be able to do?

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

- Understand place value and the number system including decimals
- Understand and use place value for decimals, integers and measures of any size
- Order number and use a number line for positive and negative integers, fractions and decimals;
- use the symbols $=, \neq, <, >$
- Work with terminating decimals and their corresponding fractions
- Round numbers to an appropriate accuracy
- Describe, interpret and compare data distributions using the median and range

Keywords

Approximate: To estimate a number, amount or total often using rounding of numbers to make them easier to calculate with
Integer: a whole number that is positive or negative
Interval: between two points or values
Median: A measure of central tendency (middle, average) found by putting all the data values in order and finding the middle value of the list
Negative: Any number less than zero, written with a minus sign
Place holder: We use 0 as a place holder to show that there are none of a particular place in a number
Place value: The value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right
Range: The difference between the largest and smallest numbers in a set
Significant figure: A digit that gives meaning to a number. The most significant digit (figure) in an integer is the number on the left. The most significant digit in a decimal fraction is the first non-zero number after the decimal point

Integer Place Value

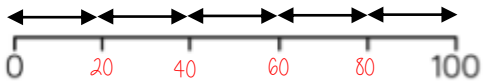
Billions			Millions			Thousands			Ones		
H	T	O	H	T	O	H	T	O	H	T	O
		3	1	4	8	0	3	3	0	2	9

Placeholder

Three billion, one hundred and forty eight million, thirty three thousand and twenty nine

1 billion 1, 000, 000, 000
1 million 1 000, 000

Intervals on a number line



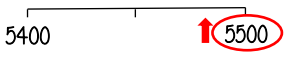
Divide the difference by the number of intervals (gaps).
E.g. 100 ÷ 5 = 20

Rounding to the nearest power of ten

If the number is halfway between we "round up"

5495 to the nearest 1000

5475 to the nearest 100



5475 to the nearest 10

Compare integers using $<, >, =, \neq$

$<$ less than
$>$ greater than
$=$ equal to
$\neq$ not equal to

Two and a half million ○ 2 500 000
300 000 000 ○ Three billion
Six thousand and eighty ○ 68 000

Range

Spread of the values

Difference between the biggest and smallest

3 9 8 12

Range: Biggest value – Smallest value
12 – 3 = 9

Range = 9

Median

The middle value

Example 1

4 3 9 8 12

Median: put the in order 3 4 8 9 12
find the middle number 3 4 (8) 9 12

Example 2

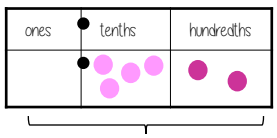
150 154 148
137 160 158

Median: put the in order
137 148 (150 154) 158 160
There are 2 middle numbers
Find the midpoint
152

Decimals

We say "nought point five two"

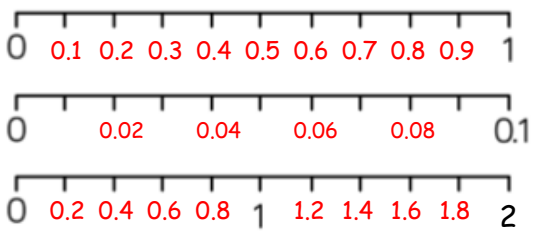
Five tenths and two hundredths



0 ones, 5 tenth and 2 hundredths
0 + 0.1 + 0.1 + 0.1 + 0.1 + 0.1 + 0.01 + 0.01
= 0 + 0.5 + 0.02
= 0.52

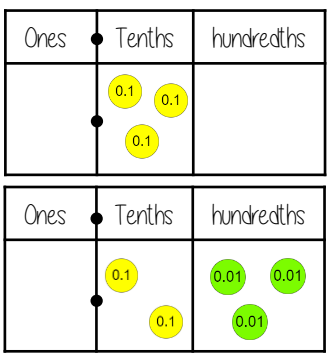
Decimal intervals on a number line

One whole split into 10 parts makes tenths = 0.1
One tenth split into 10 parts makes hundredths = 0.01



Comparing decimals

Which the largest of 0.3 and 0.23?



$0.3 > 0.23$

"There are more counters in the furthest column to the left"

0.30
0.23

Comparing the values both with the same number of decimal places is another way to compare the number of tenths and hundredths

Round to 1 significant figure

370 to 1 significant figure is 400
37 to 1 significant figure is 40
3.7 to 1 significant figure is 4
0.37 to 1 significant figure is 0.4
0.00000037 to 1 significant figure is 0.0000004

Round to the first non zero number

YEAR 7 — APPLICATION OF NUMBER

Solving problems with addition and subtraction

@whisto_maths

What do I need to be able to do?

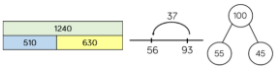
By the end of this unit you should be able to:

- Understand properties of addition/ subtraction
- Use mental strategies for addition/subtraction
- Use formal methods of addition/Subtraction for integers
- Use formal methods of addition/Subtraction for decimals
- Solve problems in context of perimeter
- Solve problems with finance, tables and timetables
- Solve problems with frequency trees
- Solve problems with bar charts and line charts

Keywords

Commutative: changing the order of the operations does not change the result
Associative: when you add or multiply you can do so regardless of how the numbers are grouped
Inverse: the operation that undoes what was done by the previous operation. (The opposite operation)
Placeholder: a number that occupies a position to give value
Perimeter: the distance/ length around a 2D object
Polygon: a 2D shape made with straight lines
Balance: in financial questions – the amount of money in a bank account
Credit: money that goes into a bank account
Debit: money that leaves a bank account

Addition/ Subtraction with integers



Modelling methods for addition/ subtraction
- Bar models
- Number lines
- Part/ Whole diagrams

Addition is commutative

6 + 3 = 3 + 6

The order of addition does not change the result

Subtraction the order has to stay the same

360 – 147 = 360 – 100 – 40 – 7

- Number lines help for addition and subtraction
- Working in 10's first aids mental addition/ subtraction
- Show your relationships by writing fact families

Formal written methods

	H	T	O
	1	8	7
+	5	4	2

	H	T	O
	4	2	7
–	2	4	9

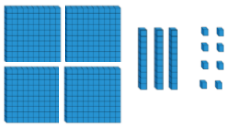
Remember the place value of each column. You may need to move 10 ones to the ones column to be able to subtract

Addition/ Subtraction with decimals

4	.	3	8	
7	.	9	0	+

0 can be used to fill empty places with value

The decimal place acts as the placeholder and aligns the other values



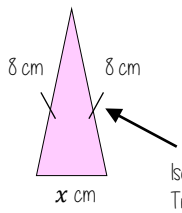
If  represents 1 instead of 100

$5.43 + \frac{8}{10}$

Revisit Fraction – Decimal equivalence
543 ÷ 0.8

Solve problems with perimeter

Perimeter is the length around the outside of a polygon



Isosceles Triangle notation

The triangle has a perimeter of 25cm
Find the length of x

8cm + 8cm + $x$cm = 25cm
16cm + $x$cm = 25cm
$x$cm = 9cm

Solve problems with finance

Profit= Income - Costs

Credit – Money coming into an account

Debit – Money leaving an account

Money uses a two decimal place system.
14.2 on a calculator represents £14.20

Check the units of currency – work in the same unit

Tables and timetables

Distance tables

	London		
211	Cardiff		
556	493	Glasgow	
518	392	177	Belfast

This shows the distance between Glasgow and London.
It is where their row and column intersects

Bus/ Train timetables

Harton	1005	1045	1130
Bridge	1024	1106	1147
Aville	1051	1133	1205
Ware	1117	1202	1233

Each column represents a journey, each row represents the time the 'bus' arrives at that location

TIME CALCUALTIONS – use a number line

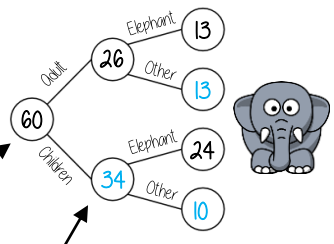
Two-way tables

	H	T
H	HH	HT
T	TH	TT

Where rows and columns intersect is the outcome of that action

Frequency trees

60 people visited the zoo one Saturday morning.
26 of them were adults. 13 of the adult's favourite animal was an elephant. 24 of the children's favourite animal was an elephant.

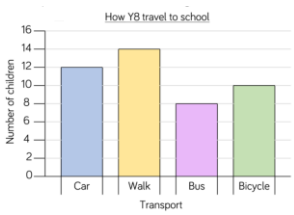


The overall total "60 people"

A frequency tree is made up from part-whole models.
One piece of information leads to another

Probabilities or statements can be taken from the completed trees
e.g. 34 children visited the zoo

Bar and line charts



Use addition/ subtraction methods to extract information from bar charts.

e.g. Difference between the number of students who walked and took the bus.
Walk frequency – bus frequency

When describing changes or making predictions:
- Extract information from your data source
- Make comparisons of difference or sum of values
- Put into the context of the scenario

YEAR 7 — APPLICATION OF NUMBER

Solving problems with multiplication and division

@whisto_maths

What do I need to be able to do?

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

- Understand and use factors
- Understand and use multiples
- Multiply/ Divide integers and decimals by powers of 10
- Use formal methods to multiply
- Use formal methods to divide
- Understand and use order of operations
- Solve area problems
- Solve problems using the mean

Keywords

Array: an arrangement of items to represent concepts in rows or columns
Multiples: found by multiplying any number by positive integers
Factor: integers that multiply together to get another number.
Milli: prefix meaning one thousandth
Centi: prefix meaning one hundredth.
Kilo: prefix meaning multiply by 1000
Quotient: the result of a division
Dividend: the number being divided
Divisor: the number we divide by.

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

Square numbers have an **ODD number** of factors

Factors of 4
1, 2, 4

Factors of 36
1, 2, 3, 4, 6, 9, 12, 18, 36

Be strategic - Lay factors out in pairs can help you not to miss any

Multiples

Bar models can represent by something is a multiple. E.g. 20 is a multiple of 4

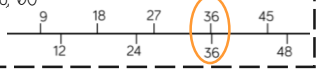
Lowest Common Multiples

LCM of 9 and 12

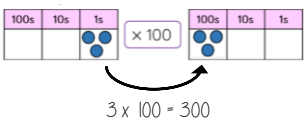
The first time their multiples match

LCM = 36

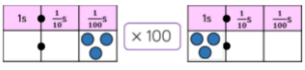
9	9, 18, 27, 36, 45, 54
12	12, 24, 36, 48, 60



Multiply/ Divide by powers of 10



3 x 100 = 300



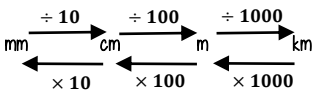
0.03 x 100 = 3

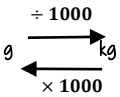
Repeated multiplication and division by powers of 10 is commutative

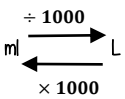
÷ 10 then ÷ 10 → ÷ 100

Metric conversions

Useful Conversions

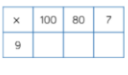




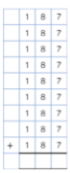


Multiplication methods

Long multiplication (column)



Grid method



Repeated addition

Less effective method especially for bigger multiplication

Estimations: Using estimations allows a 'check' if your answer is reasonable

Multiplication with decimals

Perform multiplications as integers
e.g. 0.2 x 0.3 → 2 x 3

Make **adjustments** to your answer to match the question: 0.2 x 10 = 2
0.3 x 10 = 3
Therefore 6 ÷ 100 = **0.6**

Division methods

3584 ÷ 7 = 512

Short division

$$7 \overline{)\, 3\,{}^{3}5\;8\;{}^{1}4} \quad = \quad 5\;1\;2$$

Complex division

÷ 24 = ÷ 6 ÷ 4

Break up the divisor using factors

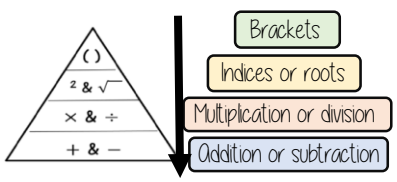
Division with decimals

The placeholder in division methods is essential — the decimal lines up on the dividend and the quotient

24 ÷ 0.02 → 24 ÷ 0.2 → 240 ÷ 2

All give the same solution as represent the same proportion
Multiply the values in proportion until the divisor becomes an integer

Order of operations



If you have multiple operations from the same tier work from left to right

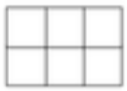
e.g. 10 − 3 + 5 → 10 − 3 → 7 + 5

6 x 4 + 8 x 2

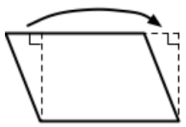
24 + 16 = 40

Area problems

Rectangle
Base x Perpendicular height

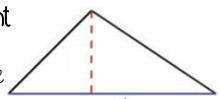


Parallelogram/ Rhombus
Base x Perpendicular height



Triangle
½ x Base x Perpendicular height

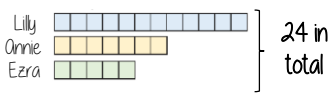
A triangle is half the size of the rectangle it would fit in



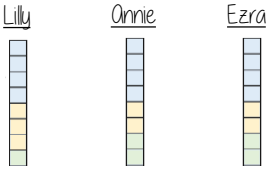
Mean problems

Mean — a measure of average
It gives an idea of the central value

Lilly, Annie and Ezra have the following cubes



Finding the mean amount is the average amount each person would have if shared out equally



The mean number of blocks would be 8 each

YEAR 7 — DIRECTED NUMBER

Operations with equations and directed numbers

@whisto_maths

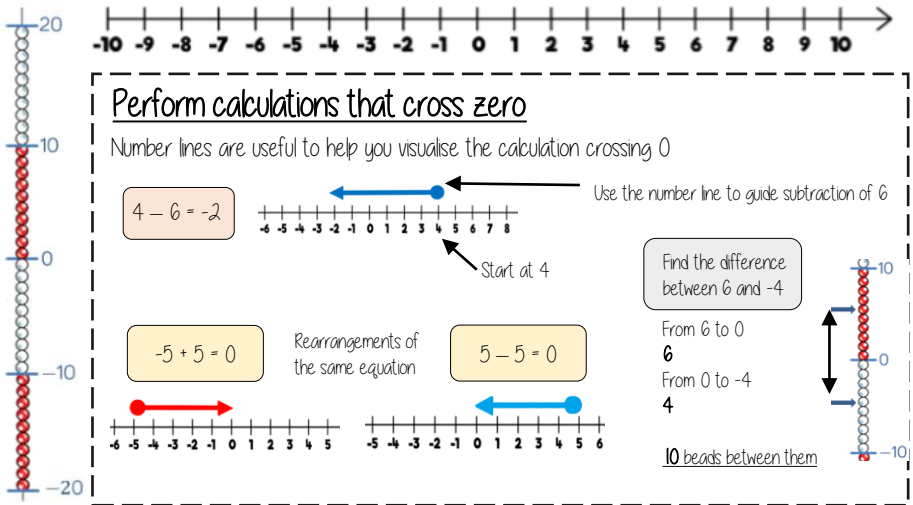
What do I need to be able to do?

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

- Perform calculations that cross zero
- Add/ Subtract directed numbers
- Multiply/ Divide directed numbers
- Evaluate algebraic expressions
- Solve two-step equations
- Use order of operations with directed number

Keywords

Subtract: taking away one number from another.
Negative: a value less than zero.
Commutative: changing the order of the operations does not change the result
Product: multiply terms
Inverse: the opposite function
Square root: a square root of a number is a number when multiplied by itself gives the value (symbol $\sqrt{}$)
Square: a term multiplied by itself.
Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)



Perform calculations that cross zero

Number lines are useful to help you visualise the calculation crossing 0

4 – 6 = -2

Use the number line to guide subtraction of 6

Start at 4

Find the difference between 6 and -4

From 6 to 0
6
From 0 to -4
4

10 beads between them

-5 + 5 = 0

Rearrangements of the same equation

5 – 5 = 0

Add directed numbers

= −1
= 1
Representations

2 + - 4 = -2

Zero pair
(-1 + 1 = 0)

Two " – 1 " left
= -2

8 + -3 = 5

Partitioning

8 + -3 = 5

5 + 3 + - 3 = 5

Partition the value to create a zero pair calculation

Generalisation
+ – = –

Subtract directed numbers

= −1
= 1
Representations

=

Representation for calculation

2

"Subtract" – means take away or remove

2 - - 1 = 3

Take away one

Start with the representation of 2

= 3

2 - - 3 = 5

= 5

Generalisation
– – = +

Multiply/ Divide directed numbers

-3 -3

Two representations of the same calculation

2 x -3 = -6

Negative, Negative calculation

-2 x -3

This is the negative of 2 x -3

The act of making counters into their negative is turning them over

-2 x -3 = 6

Divisions are the inverse operations

Evaluate algebraic expressions

a = 5

b = -4

$a^2 = 5^2$
$a^2 = 25$

$b^2 = (-4)^2$
$b^2 = 16$

With negative numbers the brackets are important so that it performs -4 x -4.

Brackets around negative substitutions helps remove calculation errors

2a – b = 2 x 5 – (-4) = 10 + 4 = 14

3b – 2a = 3(-4) – 2(5) = -12 – 10 = -22

Two-step equations

Bar Model

10

x x x x 2

10

4x + 2 = 10

10 – 4x = 2

Representing the same question (use fact families)

Function machine

x → x4 → +2 → 10

Inverse operations to find x

x x x x

8

x

2

Use order or operations

( )
² & √
× & ÷
+ & –

Brackets
Indices or roots
Multiplication or division
Addition or subtraction

Brackets around negative substitutions helps remove calculation errors

Remember square roots have a positive and negative value

×	-3	-2	-1	0	1	2	3
-3	9	6	3	0	-3	-6	-9
-2	6	4	2	0	-2	-4	-6
-1	3	2	1	0	-1	-2	-3
0	0	0	0	0	0	0	0
1	-3	-2	-1	0	1	2	3
2	-6	-4	-2	0	2	4	6
3	-9	-6	-3	0	3	6	9

YEAR 7 — LINES AND ANGLES

@whisto_maths

Geometric reasoning

What do I need to be able to do?

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

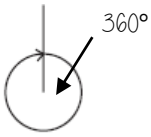
- Understand/use the sum of angles at a point
- Understand/use the sum of angles on a straight line
- Understand/use equality of vertically opposite angles
- Know and apply the sum of angles in a triangle
- Know and apply the sum of angles in a quadrilateral

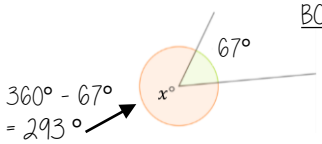
Keywords

Vertically Opposite: angles formed when two or more straight lines cross at a point
Interior Angles: angles inside the shape
Sum: total, add all the interior angles together
Convex Quadrilateral: a four-sided polygon where every interior angle is less than 180°
Concave Quadrilateral: a four-sided polygon where one interior angle exceeds 180°
Polygon: a 2D shape made with straight lines
Scalene triangle: a triangle with all different sides and angles
Isosceles triangle: a triangle with two angles the same size and two angles the same size
Right-angled triangle: a triangle with a right angle

Sum of angles at a point

The sum of angles around a point is 360°



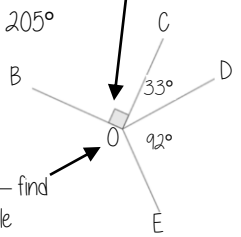


360° - 67°
= 293 °

Find angle BOE

90° + 33° + 92° = 205°
360° - 205°
BOE = **155°**

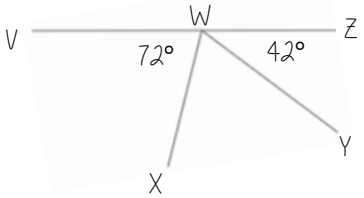
Angle notation — 90°



Angle notation — find this missing angle

Sum of angles on a straight line

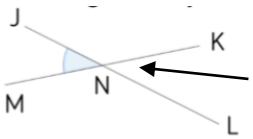
Adjacent angles that share a common point on a line add up to 180°



Find angle XWY

72° + 42° = 114°
180° - 114° = **66°**

Vertically opposite angles

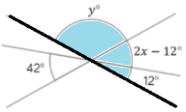


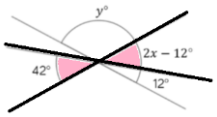
Angle JNM is vertically opposite to angle KNL

JNM = KNL

Vertically opposite angles are the same

Other angle rules still apply.
Look for straight line sums and angles around a point.

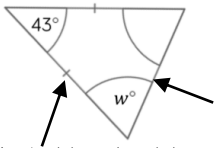




Form equations with information from diagrams:
$2x - 12 = 42$
$2x = 54$
$x = 27°$

Sum of angles in triangles

Sum of interior angles in a triangle = 180°



The two base angles will be the same size

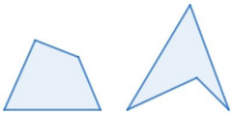
Look at triangle notation. This indicates an isosceles triangle
∴ 180 - 43 = 137
137 ÷ 2 = 68.5°

A triangle can only have ONE right angle

Have a go!
Tearing the corners from triangles forms a straight line which is therefore 180°

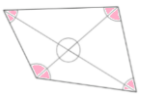
Sum of angles in quadrilaterals

Sum of interior angles in a quadrilateral = 360°

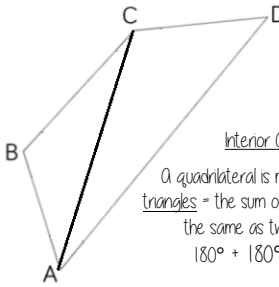


Convex Quadrilateral

Concave Quadrilateral



Interior angles are those that make up the perimeter (outline) of the shape

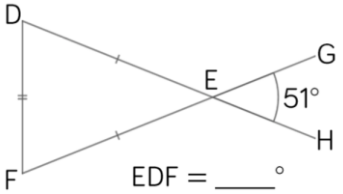


Interior Angles

A quadrilateral is made up of two triangles - the sum of interior angles is the same as two triangles:
180° + 180° = 360°

Angle Problems

Split up the problem into chunks and explain your reasoning at each point using angle notation



Keep working out clear and notes together

1. Angle DEF = 51° because it is a vertically opposite angle DEF = GEH
2. Triangle DEF is isosceles (triangle notation) ∴ EDF = EFD and the sum of interior angles is 180°
   180° - 51° = 129° 129° ÷ 2 = 64.5°
3. Angle EDF = 64.5°

YEAR 8 - DEVELOPING GEOMETRY...

@whisto_maths

Angles in parallel lines and polygons

What do I need to be able to do?

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

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

Keywords

Parallel: Straight lines that never meet
Angle: The figure formed by two straight lines meeting (measured in degrees)
Transversal: A line that cuts across two or more other (normally parallel) lines
Isosceles: Two equal size lines and equal size angles (in a triangle or trapezium)
Polygon: A 2D shape made with straight lines
Sum: Addition (total of all the interior angles added together)
Regular polygon: All the sides have equal length, all the interior angles have equal size.

Basic angle rules and notation (R)

Acute Angles
0° < angle < 90°

Right Angles
90°

Obtuse
90° < angle < 180°

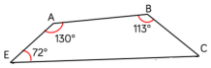
Right angle notation

Reflex
180° < angle < 360°

Straight Line
180°

Vertically opposite angles
Equal
Angles around a point
360°

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



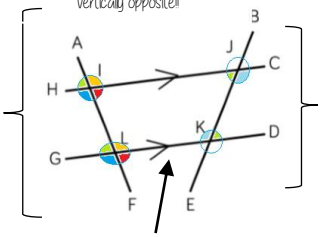
Angle Notation: three letters **ABC**
This is the angle at B = 113°
Line Notation: two letters **EC**
The line that joins E to C

Parallel lines

Still remember to look for angles on straight lines, around a point and vertically opposite!

Lines OF and BE are **transversals** (lines that bisect the parallel lines)

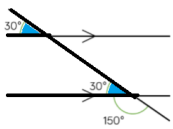
Corresponding angles often identified by their **"F shape"** in position



Alternate angles often identified by their **"Z shape"** in position

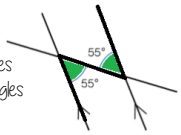
This notation identifies parallel lines

Alternate/ Corresponding angles

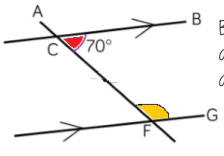


Because alternate angles are equal the highlighted angles are the same size

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



Co-interior angles



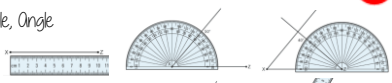
Because co-interior angles have a sum of 180° the highlighted angle is 110°

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

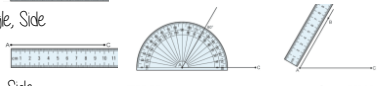
Triangles & Quadrilaterals

Link to steps (R)

Side, Angle, Angle



Side, Angle, Side



Side, Side, Side

Properties of Quadrilaterals

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

Rectangle
All angles 90°
Opposite sides are parallel

Rhombus
All sides equal size
Opposite angles are equal

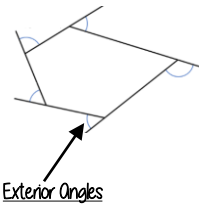
Parallelogram
Opposite sides are parallel
Opposite angles are equal
Co-interior angles

Trapezium
One pair of parallel lines

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

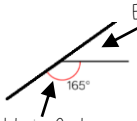
Sum of exterior angles

Exterior angles all add up to 360°



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

Using exterior angles



Exterior Angle

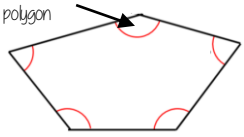
Interior Angle

Interior angle + Exterior angle = straight line = 180°
Exterior angle = 180 − 165 = 15°

Number of sides = 360° ÷ exterior angle
Number of sides = 360 ÷ 15 = 24 sides

Sum of interior angles

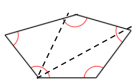
Interior Angles
The angles enclosed by the polygon



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

(number of sides − 2) x 180

Sum of the interior angles = (5 − 2) x 180

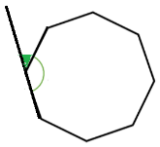


This shape can be made from three triangles
Each triangle has 180°

Sum of the interior angles = 3 x 180
= 540°

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

Missing angles in regular polygons



Exterior angle = 360 ÷ 8 = 45°

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

Exterior angles in regular polygons = 360° ÷ number of sides

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

YEAR 8 - REASONING WITH DATA...

Measures of location

@whisto_maths

What do I need to be able to do?

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

- Understand and use mean, median and mode
- Choose the most appropriate average
- Identify outliers
- Compare distributions using averages and range

Keywords

Spread: the distance/ how spread out/ variation of data
Average: a measure of central tendency – or the typical value of all the data together
Total: all the data added together
Frequency: the number of times the data values occur
Represent: something that show's the value of another
Outlier: a value that stands apart from the data set
Consistent: a set of data that is similar and doesn't change very much

Mean, Median, Mode

The Mean

A measure of average to find the central tendency... a typical value that represents the data

24, 8, 4, 11, 8,

Find the sum of the data (add the values) 55

Divide the overall total by how many pieces of data you have 55 ÷ 5

Mean = 11

The Median

The value in the center (in the middle) of the data

24, 8, 4, 11, 8,

Put the data in order 4, 8, 8, 11, 24

Find the value in the middle 4, 8, 8, 11, 24

Median = 8

NOTE: If there is no single middle value find the mean of the two numbers left

The Mode (The modal value)

This is the number OR the item that occurs the most (it does not have to be numerical)

24, 8, 4, 11, 8,

This can still be easier if it the data is ordered first 4, 8, 8, 11, 24

Mode = 8

Choosing the appropriate average

The average should be a representative of the data set – so it should be compared to the set as a whole - to check if it is an appropriate average

Here are the weekly wages of a small firm

£240	£240	£240	£240	£240
£260	£260	£300	£350	£700

Which average best represents the weekly wage?

The Mean = £307
The Median = £250
The Mode = £240

Put the data back into context

Mean/Median – too high (most of this company earn £240)
Mode is the best average that represents this wage

It is likely that the salaries above £240 are more senior staff members – their salary doesn't represent the average weekly wage of the majority of employers

Identify outliers

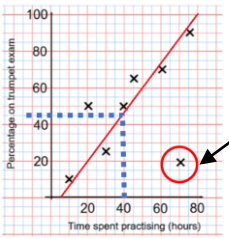
Outliers are values that stand well apart from the rest of the data

Outliers can have a big impact on range and mean
They have less impact on the median and the mode

Sometimes it is best to not use an outlier in calculations

Height in cm
152 150 142 158 182 151 153 149 156 160 151 144

Where an outlier is identified try to give it some context
This is likely to be a taller member of the group
Could the be an older student or a teacher?



Outliers can also be identified graphically e.g on scatter graphs

Comparing distributions

Comparisons should include a statement of average and central tendency, as well as a statement about spread and consistency

Here are the number of runs scored last month by Lucy and James in cricket matches

Lucy: 45, 32, 37, 41, 48, 35
James: 60, 90, 41, 23, 14, 23

Lucy
Mean: 396 (1dp), **Median:** 38 **Mode:** no mode, **Range:** 16

James
Mean: 418 (1dp), **Median:** 32, **Mode:** 23, **Range:** 76

James has two extreme values that have a big impact on the range

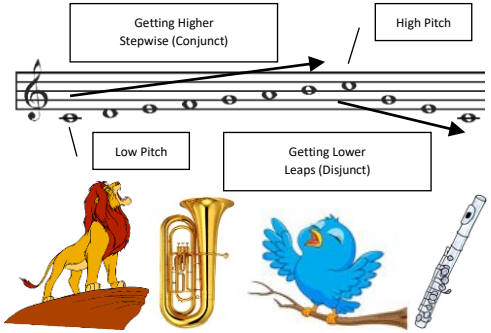
"James is less consistent that Lucy because his scores have a greater range
Lucy performed better on average because her scores have a similar mean and a higher median"

BUILDING BRICKS

Exploring the Elements of Music

A. Pitch

The **highness** or **lowness** of a sound.



B. Tempo

The **speed** of a sound or piece of music.

FAST: *Allegro, Vivace, Presto*
SLOW: *Andante, Adagio, Lento*
GETTING FASTER – *Accelerando (accel.)*
GETTING SLOWER – *Ritardando (rit.) or Rallentando (rall.)*

C. Dynamics

The **volume** of a sound or piece of music.

VERY LOUD: *Fortissimo (ff)*
LOUD: *Forte (f)*
QUITE LOUD: *Mezzo Forte (mf)*
QUITE SOFT: *Mezzo Piano (mp)*
SOFT: *Piano (p)*
VERY SOFT: *Pianissimo (pp)*

GETTING LOUDER: *Crescendo (cresc.)*
GETTING SOFTER: *Diminuendo (dim.)*

D. Duration

The **length** of a sound.

SHORT → **LONG**

E. Texture

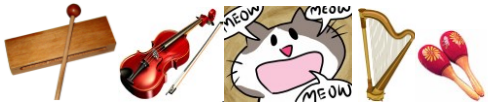
How much sound we hear.

THIN TEXTURE: *(sparse/solo)* – small amount of instruments or melodies.

THICK TEXTURE: *(dense/layered)* – lots of instruments or melodies.

F. Timbre or Sonority

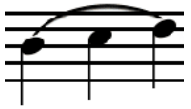
Describes the **unique sound or tone quality** of different instruments voices or sounds.



Velvety, Screechy, Throaty, Rattling, Mellow, Chirpy, Brassy, Sharp, Heavy, Buzzing, Crisp, Metallic, Wooden etc.

G. Articulation

How individual notes or sounds are **played/techniques**.

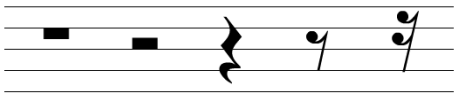


LEGATO – playing notes in a long, smooth way shown by a **SLUR**.

STACCATO – playing notes in a short, detached, spiky way shown by a **DOT**.

H. Silence

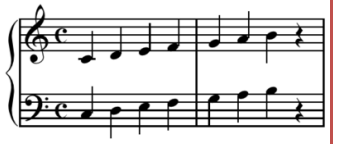
The opposite or absence of sound, **no sound**. In music these are **RESTS**.



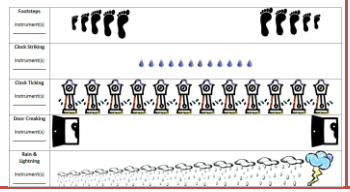
I. Notation

How music is **written** down.

STAFF NOTATION – music written on a **STAVE** (5 lines and spaces)



GRAPHIC NOTATION/SCORE – music written down using shapes and symbols to represent sounds.



J. How Music Works

Music can create an **atmosphere** or **ambience** *e.g., supermarkets and restaurants*.

Music can create an **image** *e.g., in response to art, a story, a poem, a character, a situation* – this is called **PROGRAMME MUSIC**.

Music can be **calming** *e.g., end of an evening in clubs and bars*.

Music can be used for **spiritual reasons** *e.g., worship, meditation, reflection, hymns and chants, yoga, and spiritual reflection*.

Music can be used for **commercial** purposes *e.g., advertising, TV themes*.

Head

I can identify strengths and weaknesses in my own performances

I can implement basic tactics to help my team win

I can create a variety of passes from the centre pass

I will be able to identify basic rule infringements

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

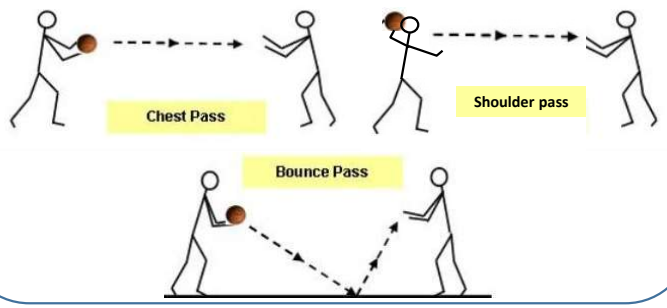
I can throw and catch using a variety of different passes over a short distance

I can move into a space to receive the ball consistently

I can demonstrate footwork with some success

I will be able to demonstrate a basic Australian high release shooting technique with some success

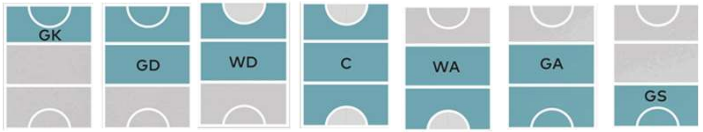
Types of passing



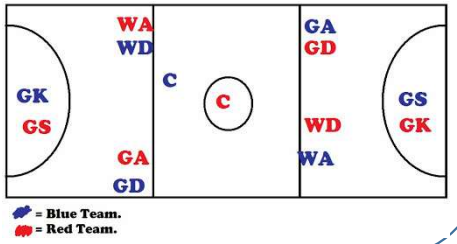
Year 7 Netball

Court Layout

7 Positions



GK- goal keeper
GD- goal defence
WD- wing defence
C- centre
WA- wing attack
GA- goal attack
GS- goal shooter



Key Words

Attacking team – team in position of the ball.
Centre circle – small circle in middle of centre third.
Centre Pass - the pass used to start and restart game after each goal, taken by canter player alternately.
Contact – Any action resulting in players touching or bumping each other.
Dodging – moving from side to side to confuse player and escape them.
Footwork – the landing foot cannot be reground while player is still in position of the ball.
Held Ball – one player having position of the ball of more than 3 seconds continuously.
Landing foot – the first foot to be grounded when catching the ball.
Marking – staying close to opposition player to prevent them catching the ball.
Pivot – landing foot staying on the ground but the player rotating round in it.

What is Netball?

- A sport for two teams of seven players.
- Games are played on a rectangular court divided into thirds, with a goal at each end.
- Score goals-One point per goal.
- Players are assigned "positions" .
- During play, a player with the ball can take no more than one step before passing it.
- You must pass the ball or shoot for goal within three seconds.
- Goals can only be scored by the assigned shooting players. In the D.
- Netball games are 60 minutes long, divided into 15-minute quarters, at the end of which the team with the most goals scored wins.

Head

I can name different tactics in rugby.

I understand at least 3 different rules of the game.

I can evaluate my own performance providing strengths and weaknesses.

I can describe the key points for the different techniques in rugby.

Heart (Commitment)

To come to lesson with correct equipment and PE kit

To be prepared to try my best in every lesson and overcome challenging situations

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 play with sportsmanship

Hands

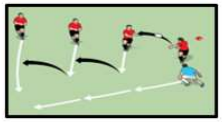
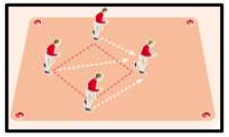
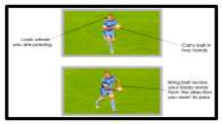
Be able to tackle and ruck to retain possession in contact situations..

Use passing and running skills to outwit an opponent and beat a defender to score a try.

I can catch and pass the ball backwards. I keep my line of attack (diagonal).

I can move with the ball at speed, I can keep in space to receive the ball.

Year 7 Rugby

Key Words	What does it look like?	Key Teaching Points
Width and Depth		• Keeping 5 meters away from team members • Keeping 5 meters behind person receiving ball from • Catch the ball at speed
Support Play		• In eye line to receive the ball • Left and right of player with ball
Catch and pass		• Ball in 2 hands • Ball in front • Looking where to pass
Taking a tag		• Keep eyes where the player is going • Step towards the player • (Break the glass)

Key Word	Definition
Ball Handling	○ 2 hands placed on the side of the ball
Passing	○ Look at who your passing to and hands finish where you wan the ball to go.
Agility	○ the ability to change direction without losing speed or balance and time
Co-Ordination	○ The ability of parts of the body to work together to move smoothly
Support Play	○ Providing options to the player with the ball
Width	○ Stretching the play as wide as I can pass
Depth	○ Holding back so I can accelerate when I catch the ball
Presentation – Chicken Scratch	○ Place ball between legs and step over the ball

Year 7 Handball

Head

To develop their understanding and knowledge of the basic rules of handball

To understand and develop the use of tactics and shot selection in different situations

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

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 the fundamental handball skills – Passing and catching.

To accurately replicate shooting technique

to adjust shot selection to enable the outwitting of opponents.

To be able to perform these in a small sided game to maintain ball possession

Tactics:

- Teams attack and defend together.
- Scoring percentages are high.
- Use width as much as possible.
- Shoot bottom corners away from keeper's hands
- Move the ball quickly and keep dribbling to a minimum

Rules:

1. 7 players per side
2. 30-minute halves
3. Can't shoot inside the D
4. 3 steps with the ball, but no more.
5. Goalie is allowed outside.
6. You can dribble like basketball, but only in a straight line!
7. You can't dribble with two hands (double dribble)
8. Outfield players can touch the ball with any part of the body above the knee
9. 3 seconds holding the ball

Skills & Techniques

Passing

Chest Pass: Most accurate pass. Hands form W shape behind ball. Step forward into pass, keep elbows close to body. Push through with ball.

Bounce Pass: Used when space is restricted. Standing with one foot forward. Push ball into floor

Overhead Pass: Used to get power with accuracy. Hands form W shape behind ball. Step forward and launch ball over your head.

Shoulder Pass: Used to cover bigger distances. Place throwing hand behind ball, move opposite foot in front of body. Full extend arm when passing, following through with pass.

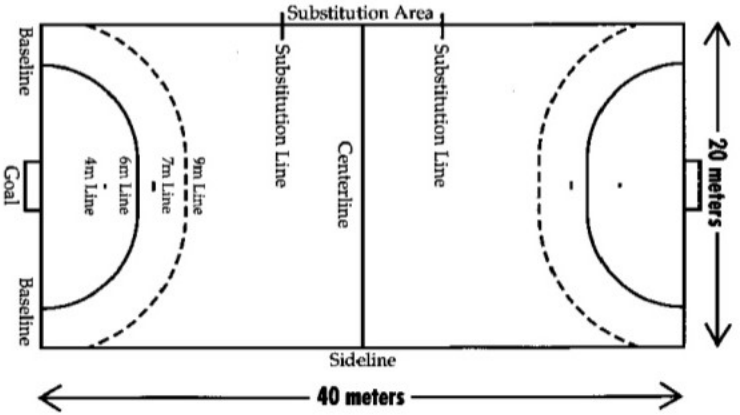
Dribbling: not used very often in handball. Only used if no defenders are in front of you. One handed, continual bounce.

Shooting: Shooting: One handed, ideally with a jump at the edge of the D to shoot from closer. Bottom corners ideally!

Defensive positioning: Zonal defence used to prevent attackers getting close to the D.

Goalkeeping: Goalies need to come off their line quickly, distribute the ball well and have good shot stopping ability.

Attacking movement: Teams attack as a full 6. Normally one ball carrier and the others fan out round the opposition's D. Try to spread them out as much as possible!



Head

Be able to think about the problem at hand and come up with solutions to problems.

Work well in groups and can communicate effectively.

Identify strengths and weaknesses of performance.

Be creative thinkers through solving a given problem

Heart (Communication)

I can communicate effectively with my peers to improve improvement

I can give verbal feedback to improve myself and peers

I can communicate positively and respectfully to my peers, even in adverse situations

I can communicate both verbally and non verbally within lessons

Hands

Work effectively in a small group often leading others.

Shows a very good ability to solve challenges and will often make decisions that others agree with and support.

Think of multiple ways of solving a problem, being co-operative, working together to solve the problem.

Communicate ideas clearly, consider different methods of solving different problems.

Overview	
-Team games are a group of activities in which players need to work together. -Unlike sports played by individuals (like singles tennis and golf) teams need the skills and efforts of a group of people in order to achieve success. -In team games, skills like cooperation and communication are important. -Team members often play in different positions which are suited to their skills and abilities. Leaders or captains often lead teams.	

Year 7 OAA

Thinking/ Strategic	
	-Success in team games is about thinking carefully about the different ways that the team can be successful, and making a clear plan. This is called a strategy. Your strategy needs to take into account many different things, for example the weather, your team's strengths and weaknesses, and also your opponents.

PSHE- Knowledge organiser- Y7 Term 1

Skills: Communication

Cooperation

Managing feelings

Applying knowledge to real life situation

Themes	Topics	Key learning points
Health and well being	Transition	• PSHE: Personal Social Health and Economic Education • Knowledge: to have information on a topic • Understanding: to be able to explain information on a topic • Skills: The ability to do something well • Change is a normal and natural part of life and it is OK to feel more worried or anxious about some changes. There are things you can do to make changes feel better: be kind to yourself and ask for advice
Living in the wider world	Citizenship: Community	• community: a group of people living in the same place or having a particular characteristic in common. • citizen: a legally recognized subject or national of a state or commonwealth, either native or naturalized. • rights: a moral or legal entitlement to have or do something. • responsibilities: something you are required to do as an upstanding member of a community. • bullying: the use of force, coercion, or threat, to abuse, aggressively dominate or intimidate.

Remember!

- We will be open and honest, but not discuss directly our own and others personal/ private life.
- Your teacher will not repeat what is said in the room except if she/he is concerned we are at risk.
- It is ok to disagree but we will not judge.
- 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.

KS3 Yr 7 Term1 knowledge organiser: Foundations of the Catholic Church

St John Fisher Catholic High School

1. Key words

Monotheism: Christians in ONE God who is able to do anything. 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
TRANSCEDENT This means that God is separate from time and space
INCARNATION This means "in flesh" – God coming to earth in the form of Jesus
The Creed: Statement of Christian beliefs.
Magisterium: The Pope and Bishops who are guided by the Holy Spirit. Their main role is guide the church and interpret the Bible and the teachings of the church.

6. Religious leaders-Priest, bishop, Pope and Jesus: The role that Jesus plays in Catholic Christianity. Why the pope and Bishops are important in the Catholic Church. How do they continue the work that Jesus started? What is magisterium?

7. BIBLE-Bible skills (how to use the Bible, Looking for Bible references-use of Gideon bible). The Bible is the Word of God. It is the Holy Book for Christians. The contents of the Bible are often referred to as Scripture-which means sacred writings. The Word Bible comes from Greek word for book. The Bible has OT and NT. The Gospel refers to the four books in the Bible that were written by people who were witnesses to some of the things that Jesus did.

8. Prayer: Catholics believe that prayer is an attempt to communicate with God usually through words. They also believe that God answers our prayers although some may question how prayers are answered where there is evidence of the presence of evil in the world such as earthquakes, Tsunami and terminal illnesses. There are different types of prayers.

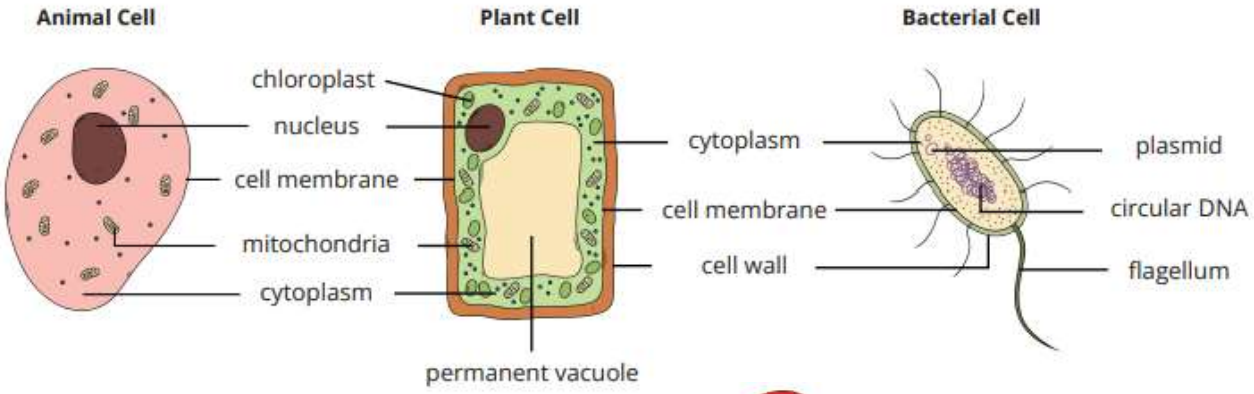
2. Christian nature of God: God's power is shown in creation story and the story of the 10 plagues. These accounts show that God is omnipotent.
Omnibenevolent: Christians believe that God is all-loving. "But you God are a compassionate and gracious God, slow to anger, abounding in love and faithfulness" Psalm 3:16. Catholics also believe that God sent his son Jesus on earth so that people could have eternal life. This is called incarnation.
Trinity: The belief that God is three in One. Catholics believe in the oneness of God. The Father is the creator. The son (Jesus) is the saviour. The Holy Spirit shows the presence of God in the World. Catholics believe that the Holy Spirit guides them to live their lives and offer comfort; courage; inspiration and guidance.

3.The Catholic church: church as a place of worship and membership in the Catholic Church.
4.The Local church: Local church and diocese (make a parish newsletter)
5.Belonging to a community-e.g. our school and community and the local parish
The Creed: Statement of Christian beliefs. Nicene creed-putting Faith into action.
Area 2: The Sacraments
9.Sacraments (9 lessons) are outward sign of invisible grace. Catholics believe that there are seven sacraments and are grouped into three groups (Initiation, Vocation and Healing). Baptism, Eucharist, Confirmation, Marriage, Holy Orders, Anointing the sick and confessions. Each sacrament will be studied separately during the term.

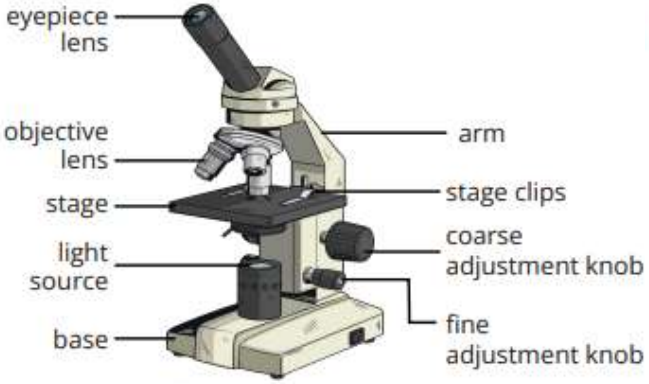
Area 3: Jesus
10. **The Paschal Mystery**-Catholics understand the paschal mystery as the passion, death, resurrection and ascension of Jesus Christ. Paschal mystery is the culmination of God's love to humanity when Jesus dies to save people from sins. Catholics believe humans cannot save themselves from sin, but can choose to accept salvation. The Eucharist is the most important expression of the paschal mystery in the church today.

Area 4: Festivals (4-6 lessons)
11. LENT, EASTER, ADVENT AND CHRISTMAS.
Easter is the most important Christian festival. It remembers the death and resurrection of Jesus. These events are seen as proof that Jesus was the son of God and that by believing in him, Christians will have eternal life in heaven.

Science – Year 7 – Term 1 part 1 – Building blocks of life



Sub-Cellular Structure	Function
nucleus	Controls the activities of the cell. It contains genetic material (DNA), which is packaged into structures called chromosomes.
circular DNA	The DNA of bacteria found free in the cytoplasm.
mitochondria	Contain the enzymes needed for aerobic respiration, which releases energy for the cell.
chloroplasts	Contain a pigment called chlorophyll, which absorbs light to provide energy for photosynthesis.
cell wall	Helps to strengthen the cell and provides support for the plant.
cell membrane	Controls the movement of substances into and out of the cell.
cytoplasm	A jelly-like substance that fills the cell, where most chemical reactions occur.
flagellum	A tail-like structure that allows bacteria to move around.
permanent vacuole	Filled with cell sap to keep the cell rigid to support the plant.
plasmids	Plasmids are small rings of DNA that code for specific features, such as antibiotic resistance.



Using a Light Microscope

- Plug in the microscope and turn on the light.
- Place the slide on the stage and hold it in place with the stage clips.
- Turn to the objective lens with the lowest magnification.
- Look down the eyepiece lens and use the adjustment knobs to focus the specimen.
- Increase the magnification by turning to a higher power objective lens, then use the fine adjustment knob to bring the cells back into focus.

A **cell** is the smallest unit of a living organism. It contains structures needed to carry out life processes.

A **tissue** is a group of cells of the same type.

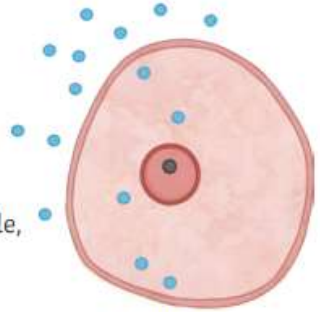
An **organ** is a group of different tissues working together to carry out a job.

An **organ system** is a group of different organs working together to perform a particular function.

Key Processes

Diffusion is the spreading out of particles from an area of higher concentration to an area of lower concentration.

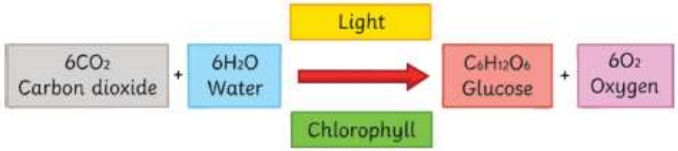
Cell membranes are semi-permeable, only small molecules can get through.



Cell Diffusion

Photosynthesis is a chemical reaction which takes place in plants. It converts **carbon dioxide** and **water** into **glucose** and **oxygen**. It uses **light** energy to power the chemical reaction, which is absorbed by the green pigment **chlorophyll**. This means that photosynthesis is an example of an **endothermic** reaction. The whole reaction takes place inside the **chloroplasts** which are small organelles found in plant cells.

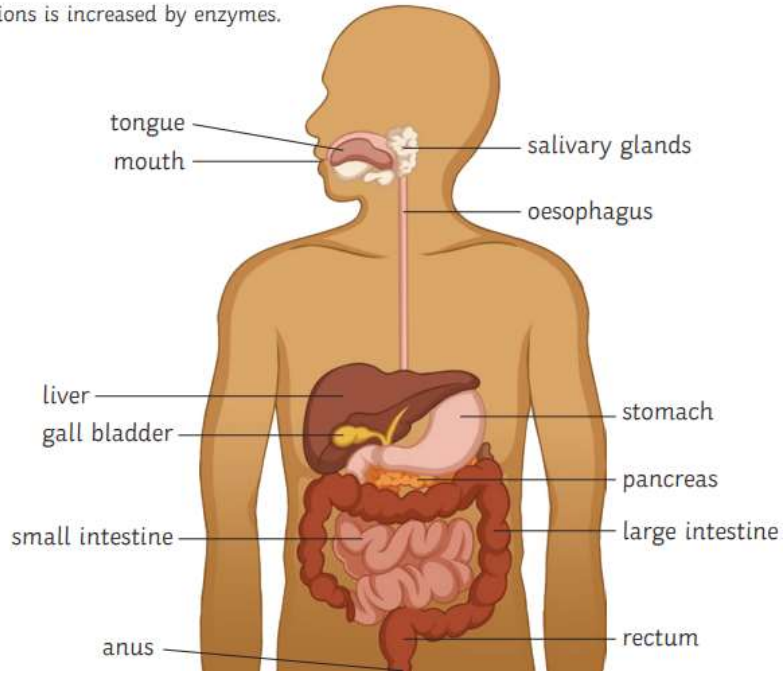
Plants acquire the carbon dioxide via diffusion through the **stomata** of their leaves. The water is absorbed from the soil through the **roots** and transported to the cells carrying out photosynthesis, via the **xylem**.



The glucose made in photosynthesis is used for respiration, stored as starch, fat or oils, used to produce cellulose or used to produce amino acids for protein synthesis.

Science – Year 7 – Term 1 part 2 – Life Processes

The purpose of the digestive system is to break down large molecules into smaller, soluble molecules, which are then absorbed into the bloodstream. The rate of these reactions is increased by enzymes.



When a person exercises, their body (specifically their **muscles**) need much more energy. To release more energy, the amount of respiration reactions occurring has to increase.

The **heart** pumps faster and the **breathing** rate and breath volume all increase to supply more **oxygen** to the muscles via the bloodstream.

If the muscles are not receiving enough oxygen to keep up the demand needed by the respiration reactions, then **anaerobic** respiration begins to occur. This incomplete oxidation of the glucose produces **lactic acid**, which can build up in the muscles and results in an **oxygen debt**.

After long periods of exercise, the muscles can become fatigued and stop contracting. You might experience a pain commonly called a **stitch**.

Enzymes

An enzyme is a biological **catalyst**; enzymes speed up chemical reactions without being changed or used up.

This happens because the enzyme lowers the **activation energy** required for the reaction to occur. Enzymes are made up of chains of amino acids folded into a globular shape.

Enzymes have an **active site** which the **substrate** (reactants) fits into. Enzymes are very specific and will only catalyse one specific reaction. If the reactants are not the complimentary shape, the enzyme will not work for that reaction.

Enzymes also work optimally at specific conditions of pH and temperature. In extremes of pH or temperature, the enzyme will **denature**. This means that the bonds holding together the 3D shape of the active site will break and the active shape will deform. The substrate will not be able to fit into the active site anymore and the enzyme cannot function.

Enzyme	Reactant	Product
amylase	starch	sugars (glucose)
protease	protein	amino acids
lipase	lipid	glycerol and fatty acids

The products of digestion are used to build new carbohydrates and proteins and some of the glucose is used for respiration.

Bile is produced in the **liver** and stored in the gall bladder. It is an **alkaline** substance which **neutralises** the hydrochloric acid in the stomach. It also works to **emulsify** fats into small droplets. The fat droplets have a higher **surface area** and so the rate of their digestion by lipase is increased.

Respiration is the chemical reaction which occurs inside the **mitochondria** of all living cells to release energy for living functions and processes, e.g. movement, warmth and building larger molecules for growth and repair. The reaction is **exothermic**, meaning that energy is released to the surroundings.

Respiration can be either **aerobic** (using oxygen) or **anaerobic** (without using oxygen).

glucose + oxygen → carbon dioxide + water + energy

$$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + ATP$$

In anaerobic respiration, the glucose is not completely oxidised. This means that there is less energy released than in aerobic respiration.

glucose → lactic acid + energy

$$C_6H_{12}O_6 \rightarrow 2C_3H_6O_3 + ATP$$

In plants and yeast, anaerobic respiration makes some different products. The reaction is also called fermentation and is used in bread-making and beer-brewing.

glucose → ethanol + carbon dioxide + energy

$$C_6H_{12}O_6 \rightarrow C_2H_5OH + CO_2 + ATP$$

Year 7 TEXTILES Knowledge Organiser

Intent/Aims of unit of study:

To understand pattern and African influences and apply Tie Dye, Batik, making a pom pom and machine sewing in the creation of a Wall Tapestry

Length of Unit:

12 Weeks

What will they learn? (overview of knowledge)

Being able to use equipment and materials within the textiles room safely is very important to enable students to get the most out of their lessons. The most important piece of equipment is the sewing machine, Batik pot and Djanting tool. Students will also learn about patterns and their influence: the African Ndebele artist Esther Mahlangu.

What skills will they learn/develop?

Textiles Language

Identification of parts of the sewing machine, batik and tie dye equipment

Discussion of how to create batik, tie dye, pom pom pieces

Planning designs incorporating pattern

Support/Challenge

Revision:

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

Inspiration:

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

https://www.ftmlondon.org/

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.

Tie Dye – produce patterns in a garment or piece of cloth by tying parts of it to shield it from the dye.

Batik – a method of producing coloured designs on textiles by first applying wax to the parts to be left undyed and then painting on dye.

Pattern – a repeated decorative design.

Block Repeat Pattern – a motif which has been repeated in a grid layout to create a pattern.

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

Sewing – The technique of using a needle and thread to either sew two pieces of fabric together or to add a decoration.

Sewing machine – a machine with a mechanically driven needle for sewing or stitching cloth.

Pom pom - A decorative item made out of wool.