Contents

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Year 7 Term 1 Knowledge Organiser

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English – Unit 1 - Introduction to Greek Mythology





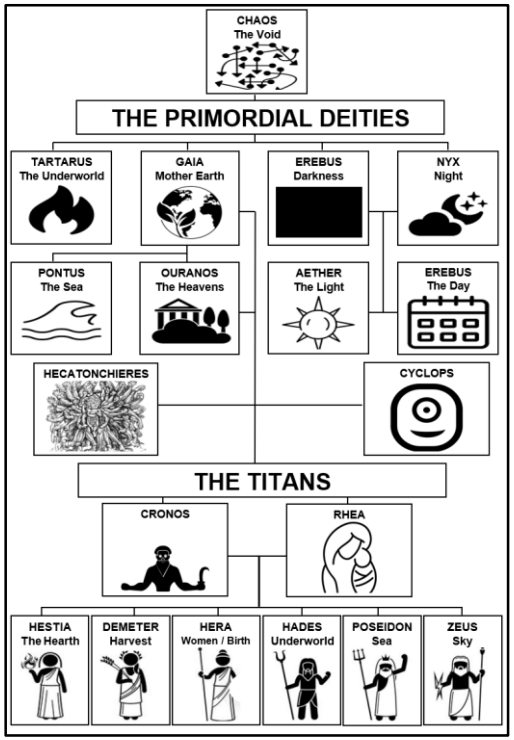
What is a Myth?

Every human culture has developed its own mythology to explain its origins and make sense of the phenomena that we see in the natural world. The word "mythology" comes from the Greek muthos, meaning "story," and logia, "knowledge." Myths serve two purposes. The first is to tell of the creation of the world or predict its end; to explain how animals were made and the land formed; they bridge the world of humans and the world of the spirits or gods; they try to impose order on a terrifying chaos, and to confront the mysteries of death. Crucially, myths are also the foundation of religions: they define cultures and their values. The second function of myth is to justify an existing social system and account for traditional rites and customs. In ancient Greece, stories about gods and goddesses and heroes and monsters were an important part of everyday life. They explained everything from religious rituals to the weather, and they gave meaning to the world people saw around them.

Greek Mythology

the earliest Greek myths were part of an oral tradition that began in the Bronze Age, and their plots and themes unfolded gradually in the written literature of the archaic and classical periods. Around 700 BC, the poet Hesiod's Theogony (the name of a poem) offered the first written cosmogony, or origin story, of Greek mythology. The Theogony tells the story of the universe's journey from nothingness (Chaos, a primeval void) to being, and details an elaborate family tree of elements, gods and goddesses who evolved from Chaos and descended from Gaia (Earth), Ouranos (Sky), Pontus (Sea) and Tartarus (the Underworld). Later Greek writers and artists used and elaborated upon these sources in their own work. Over centuries and millenia, these stories have been developed and built upon to form the basis of countless literature that we are familiar with today. Thinkers from Ancient Greece also laid the foundations for many areas of study outside of literature. They continue to have a profound influence on how we live today in western society and laid the foundations for many areas of study including astrology, mathematics, biology, engineering, medicine or linguistics.

Myth	Concept	Summary
(1) Cronos	Fate	Devours his children to avoid a prophecy; that he is destined to be overcome by his own sons, just as he had overthrown his father. Eventually defeated by Zeus and his other children during the Titanomachy.
(2) Oedipus	Fate Tragedy	Unwittingly fulfils a prophecy, where he kills his father and marries his mother. The truth becomes known and terrible consequences happen.
(3) Prometheus	Punishment and Retribution	Prometheus steals fire from the gods and gifts it to humans. Zeus punishes him by having him spend eternity chained to a rock, where an eagle eats his daily-replenished liver. Symbolises unfair punishment for defying order.
(4) Pandora	Punishment and Retribution	Meaning "the gift of all", was the first woman, created in magnificent beauty by Zeus and sent to Prometheus as punishment for stealing fire. Carries a box (Pandora's box) and ordered not to open, but does, unleashing a variety of misfortunes on the human race. Symbolises irresistible temptation.
(5) King Midas	Punishment	Granted a wish that everything his touches turns to gold and, as a result, lives a terribly conflicted existence. Suggests wealth and unhappiness.
(6) Sisyphus	Punishment	Tricks the gods and defeats death temporarily. As a result he is forced to continuously push a boulder up a steep hill for eternity. Represents an endless, difficult and pointless task.
(7) Perseus and Medusa	Heroes	Perseus kills the gorgon Medusa and saves Andromeda. Symbolises courage and heroism
(8) Hercules	Heroes	Fulfils twelve gruelling labours, showing courage, strength and honour. Achieves kleos and takes a place amongst the gods on Mount Olympus when he dies. Refers to a task that will be difficult and require physical and mental strength to achieve.
(9) Odysseys	Heroes	Odysseus undergoes a 10-year struggle to return home after the Trojan War, battling mystical creatures and facing the wrath of the gods along the way



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(10) Fate: some unseen force that causes things to happen

(11) Agency of Power: Outcomes are governed by a power above, or natural order of the universe, and is therefore outside of our control

(12) Free Will: The ability to decide what to do independently of any outside influence

(13) Greek Tragedy: a genre of story in which a hero is brought down by his/her own human flaws

Characters in Greek Tragedies:

(14) Well respected, of noble birth / origin and/or have larger than life qualities.

(15) Lives in prosperous circumstances with the potential for greatness.

(16) Experiences misfortune and a devastating fall from grace.

(17) Tragic Hero: a person of misfortune that comes to him through error of judgment, evoking feelings of pity and fear among the audience.

Aristotle's 5 characteristics of a tragic hero:

(18) Hamartia A tragic flaw, error or mistake that causes a hero's downfall.

(19) Hubris Excessive pride for the natural order of things.

(20) Peripeteia A reversal of fate

(21) Anagnorisis *A discovery that the reversal was brought about by the hero's own actions*

(22) Catharsis *Feelings of pity and fear felt by the audience.*

(23) Punishment: punish, correct, take vengeance for, or cause pain for some offense

(24) Retribution: heavy punishment is the only way to gain justice.

(25) Restoration: Making amends to victims and communities achieves justice.

(26) Greek Heroes: broadly the main character in a literary work who possess certain positive personality traits

(27) War or dangerous adventure is the hero's normal occupation

(28) is surrounded by noble peers, and is generous to his followers and ruthless to his enemies

(29) Has prowess in battle, is resourceful and skilfull in many crafts.

(30) Kleos: *what people say of one's actions, over which one has oneself no control*

(31) Arete: *excellence or greatness of any kind*

(32) **Dolos**: *trickery or cunning deceit*

Word	Definition
Phenomena	a rare or important fact or event
Deity	the rank or essential nature of a god
Fate	a power beyond human control that is believed to determine what happens
Despot	a ruler having absolute power and authority and especially one who rules cruelly
Dominion	when you are in charge of something or rule it, you have **dominion** over it
Prophecy	something foretold : a prediction about the future
Nemesis	a person that inflicts payback or revenge
Deposed	to remove from a high office or position of power
Heroic	of or relating to **heroism** or heroes **heroic** tales : courageous
Retribution	a giving out or receiving of reward or punishment, especially in the afterlife
Primordial	belonging to the earliest time. Something that has been there from the start.
Wrested	to pull away by twisting or wringing
Patriarch	a man who heads a family, group, or government
Oracle	a person (as a priestess in ancient Greece) through whom a god is believed to speak.
Superstitious	a belief or practice resulting from ignorance, fear of the unknown, or trust in magic or chance
Ambiguous	**Ambiguity means** that what a thing is, is not clear.
Origin	basic source or cause of something
Hamartia	A tragic flaw, error or mistake that causes the downfall of a hero
Hubris	Excessive pride and disrespect for the natural order of things.
Peripeteia	The reversal of fate that the hero experiences
Anagnorisis	A discovery or recognition that the reversal was brought about by the hero's own actions.
Catharsis	Feelings of pity and fear felt by the audience, for the inevitable downfall of the protagonist.

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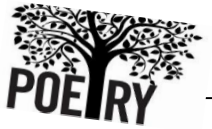
English – Unit 2 - Introduction to Narrative Poetry



What is poetry?

Poetry is a type of literature, or artistic writing, which attempts to stir a reader's imagination or emotions .A **narrative** is a story; a narrative poem is a poem that tells a story. It still can contain devices like alliteration, similes and metaphors, but its first job is to tell the reader (or listener) a story. Narrative poems tend to be fairly long in length and were often designed to be read aloud.

The Structure of poetry

Poets use patterns of rhythm to create various effects. Some syllables, or parts of words, in a line naturally receive more emphasis (stress) than others. For example, if you say "hedges and ditches" aloud, the hedg and ditch sounds are stressed more than the other sounds. The stressing of certain syllables creates a particular rhythm. A poem's rhythm is called its meter. Poets also use patterns of sound. Some poems rhyme using two or more words that end with the same sound, such as hat and bat. A poem may repeat sounds in many other ways. For example, in "high as a kite," the long "i" sound is repeated. In "a stroke of luck," the "k" sound is repeated.

Poetic Techniques

Alliteration is another way a poem repeats sounds. A group of words that start with the same sound, such as "a dark and dangerous day," uses alliteration. Another poetic sound device is onomatopoeia. Onomatopoeia is the use of a word or words that sound like what they are meant to represent. Buzz, hiss, and cuckoo are examples of onomatopoeia.

Figures of Speech

A figure of speech is a way to express the meaning of something without saying it directly. Figures of speech are used frequently in poetry. In fact, metaphors are considered to be the basic language of poetry. A metaphor can be used to compare something unfamiliar or difficult to understand with something that is familiar to the reader. A simile is also a figure of speech. It is a more direct way to compare two things. Similes use the words like or as to show how one thing is similar to another. "*She is as wise as an owl*" or "*he eats like a bird*" are both examples of similes.

The Library of Alexandria:

The kings of Egypt created a giant library, the Library of Alexandria, where they stored all of the great works of Greek poets, historians, philosophers, scientists, and other writers. This library was so big that it probably contained over a half a million papyrus scrolls! It was a symbol of the growing scholarship of the Late Greek period, because it was an area where thinkers and writers could perform literary, historical, and scientific studies. We will never know exactly what texts or how many pieces of literature were actually in the library of Alexandria, because in 48 BC, the library was burned down in a siege by the Greek emperor. More than 40,000 works of Greek philosophy, literature, history, and science were sadly burnt and lost to history for all time.

The development of the Greek alphabet and the many wonderful works of Greek writers helped to create the literary tradition that people still enjoy. Many Greek poems and histories are still read in schools and for enjoyment today.

The Origins of Poetry

It may surprise you to know that poetry has actually been around for thousands of years! The Greeks were famous for their epic poems. Read the information below to find out more.

Greek Literature

The Greek alphabet (alpha-beta are the first two letters of the Greek alphabet) was firstly used by the government for the proclamation of laws, so that ordinary people could understand them. Writing was later used to record public decisions and records, and then finally as more and more citizens became literate (able to read), Greek literature was developed.

Epic Literature: Epic poems are long poems, which don't rhyme, and describe a serious topic, which is usually important to a culture. Homeric Epics described the great deeds of the warriors of Greece, who led the war against Troy, a rival state.

Even though historians cannot decide whether an actual poet named Homer ever really lived, these stories were the inspiration for much of Greek literature. The most famous epic poem attributed to Homer is The Iliad. The Iliad tells the story of Achilles, who was Greece's best warrior, who fought in the battle against Troy. After falling in love with a woman from Troy, Achilles withdraws from battle so he can be with his love. He gives his friend Patroclus his armour, who wears it in battle, but is killed by a Trojan named Hector. Achilles then avenges his friend Patroclus by killing Hector, but then he himself is killed when he is struck with an arrow in his heel, his weak spot.

Another famous epic poem is The Odyssey. The Odyssey tells the story of Odysseus, who tries to return home after winning the Trojan War. His journey home is by no means an easy one, and only after many trials and tribulations he finally makes his way home, only find that his house is overrun by hundreds of suitors, who are trying to marry his wife Penelope.

Sappho was the first woman poet from Greece. Much of what she wrote was short love poems. Only bits and pieces remain of most her poetry, but in those pieces she writes many beautiful verses about the pain and longing of being in love.

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English – Unit 2 - Introduction to Narrative Poetry

The Iliad – Death of Patroclus

- The most famous epic poem attributed to Homer is **The Iliad.** It was written in Greek.
- The Iliad tells the story of Achilles, who was Greece's best warrior, who fought in the battle against Troy.
- Patroclus is Achilles best friend, who is killed by Hector
- Achilles is upset and seeks vengeance for his death.

Beowulf – fight with Grendel

- The poem tells the story of Beowulf, a heroic warrior, and later king, of the Geats. No one is sure how old the poem actually is, but it is at least 1,000 years old! It was written in Old English.
- Beowulf fights a monster called Grendel and kills him by ripping off his arm. The poem was designed to be read aloud as most people couldn't read in Anglo-Saxon times.

The Canterbury Tales – The Miller's Tale ending

- The Canterbury Tales is a book of stories written by Geoffrey Chaucer. It was written in the 14th century. It was one of the first books to be written in the English language.
- The Miller's Tale is a comedic story about a woman who is cheating on her foolish husband.

The Lady of Shallot

- Written by Alfred Lord Tennyson in 1832 but is meant to sound much older. Set in the mythical Camelot (where King Arthur supposedly lived).
- The Lady of Shallot has been cursed so that if she ever leaves her tower or looks outside of the window, she will die. She spends all day weaving a tapestry of the life she sees reflected in her mirror, until one day she leaves. She never makes it to Camelot, dying just as she arrives in a boat.

The Highway Man

- Written by Alfred Noyes published in 1906, tells the story of a highwayman who falls in love with Bess, a landlord's daughter. The story ends tragically, but both are reunited again on winter nights in the afterlife.
- The poem is famous for itself rhythmic meter, which sounds like a galloping horse

The Raven

- Written by Edgar Allen Poe; the raven is symbolic of sorrow. The poem is circular as it constantly repeats 'nevermore'.

The Rime of the Ancient Mariner – Part I and II

- An epically long poem which tells the story of an old sailor, who committed the terrible crime of killing an albatross (a sacred bird) and now has to wander the earth telling people his story.

Word	Definition
Vengeance	An action against someone to punish them for having hurt you.
Heroic	Behaving like a **hero**; admirably brave or determined.
Fury	Wild or violent anger.
Boasted	Talked with excessive pride and self-satisfaction about one's achievements or possessions.
Sacred	Religious; above other things.
Weary	Showing extreme tiredness.
Mystique	The quality of mystery; an air of secrecy that makes something seem powerful.
Constricted	Narrowed, inhibited, restricted.
Abomination	a thing that causes disgust or loathing.
Purity	Freedom from contamination; clean.
Alliteration	Alliteration is a poetic device that uses the same letter sound at the start of adjacent or closely connected words in a sentence. Alliteration is a type of repetition
Allusion	a statement that refers to something without mentioning it directly
Assonance	**Assonance** is **defined** as the act of repeating a vowel sound in a phrase or sentence, often in poetry.
Connotation	**Connotation** refers to a **meaning** that is suggested by a word rather than the word's literal meaning.
Enjambment	When a phrase, a clause, or a sentence in a line of poetry doesn't finish at the line break but spills over into the next line
Imagery	**Imagery** is when a writer appeals to a reader's senses by using descriptive and figurative language. This can include the sense of taste, touch, smell, sight, and sound
Metaphor	A **metaphor** is a word or phrase used to describe something as if it was something else.
Meter	**Meter** is a unit of rhythm in **poetry**, the pattern of the beats
Rhyme	close similarity in the final sounds of two or more words or lines of writing
Simile	a figure of speech comparing two unlike things using like or as "Their cheeks are like roses" is a **simile**
Stanza	A **stanza** is a group of lines of poetry arranged according to a fixed plan, like a verse in a song or a paragraph in writing.
Structure	the manner in which something is built, arranged, or organized

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Mathematics

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Sequences

What do I need to be able to do?

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

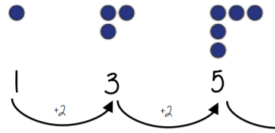
- Describe and continue both linear and non-linear sequences
- Explain term to term rules for linear sequence
- Find missing terms in a linear sequence

Keywords

Sequence: items or numbers put in a pre-decided order
Term: a single number or variable
Position: the place something is located
Rule: instructions that relate two variables
Linear: the difference between terms increases or decreases by the same value each time
Non-linear: the difference between terms increases or decreases in different amounts
Difference: the gap between two terms
Arithmetic: a sequence where the difference between the terms is constant
Geometric: a sequence where each term is found by multiplying the previous one by a fixed non zero number

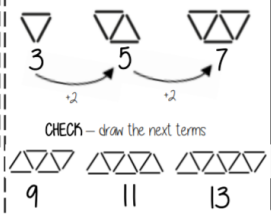
Describe and continue a sequence diagrammatically

Count the number of circles or lines in each image



What will the next number be? Can you draw this?

Predict and check terms

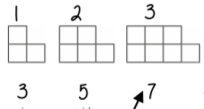


Predictions:
Look at your pattern and consider how it will increase.

e.g How many lines in pattern 6?
Prediction - 13
If it is increasing by 2 each time - in 3 more patterns there will be 6 more lines

Sequence in a table and graphically

Position: the place in the sequence



"The **term** in **position** 3 has 7 squares"

3 5 7

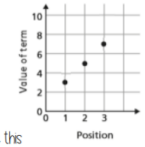
Term: the number or variable
(the number of squares in each image)

In a table

Position	1	2	3
Term	3	5	7

+2 +2

Graphically



Because the terms increase by the same addition each time this is **linear** – as seen in the graph

Linear and Non Linear Sequences

Linear Sequences – increase by addition or subtraction and the same amount each time
Non-linear Sequences – do not increase by a constant amount – quadratic, geometric and Fibonacci

- Do not plot as straight lines when modelled graphically
- The differences between terms can be found by addition, subtraction, multiplication or division

Fibonacci Sequence – look out for this type of sequence

0 1 1 2 3 5 8 ...

Each term is the sum of the previous two terms

Continue Linear Sequences

7, 11, 15, 19...

How do I know this is a linear sequence?
It increases by adding 4 to each term
How many terms do I need to make this conclusion?
At least 4 terms – two terms only shows one difference not if this difference is constant. (a common difference)
How do I continue the sequence?
You continue to repeat the same difference through the next positions in the sequence.

Continue non-linear Sequences

1, 2, 4, 8, 16 ...

How do I know this is a non-linear sequence?
It increases by multiplying the previous term by 2 – this is a geometric sequence because the constant is multiply by 2
How many terms do I need to make this conclusion?
At least 4 terms – two terms only shows one difference not if this difference is constant. (a common difference)
How do I continue the sequence?
You continue to repeat the same difference through the next positions in the sequence.

Explain term-to-term rule

How you get from term to term

Try to explain this in full sentences not just with mathematical notation
Use key maths language – doubles, halves, multiply by two, add four to the previous term etc

To explain a whole sequence you need to include a term to begin at...

The next term is found by tripling the previous term. The sequence begins at 4.

4, 12, 36, 108...
x3 x3 x3
First term

Algebraic notation

What do I need to be able to do?

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

- Describe and continue both linear and non-linear sequences
- Explain term to term rules for linear sequence
- Find missing terms in a linear sequence

Keywords

Sequence: items or numbers put in a pre-decided order
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Difference: the gap between two terms
Arithmetic: a sequence where the difference between the terms is constant
Geometric: a sequence where each term is found by multiplying the previous one by a fixed non zero number

Single function machines

INPUT → [ ] → OUTPUT
The number that goes IN — The number that comes out

This box gives the calculation instruction

To find the input from the output
Use the **INVERSE** operation

Using letters to represent numbers

5 + 5 + 5	y + y + y + y	20 - h
3 x 5	y x 4	20 / h
5 x 3	4 x y	
	4y	

Addition and multiplication can be done in any order
Commutative calculations

4 lots of 'y'

20 shared into 'h' number of groups

Single function machines (algebra)

INPUT → [x 10] → OUTPUT
a → 10a
3c → 30c

÷ 10

To find the input from the output
Use the **INVERSE** operation

Find functions from expressions

INPUT 7x → [?] → OUTPUT 14x

Find the relationship between the input and the output

Sometimes there can be a number of possible functions e.g **+7x** or **x 2** could both be solutions to the above function machine

Substitution into expressions

4y ← 4 lots of 'y'

If y = 7 this means the expression is asking for 4 'lots of' 7

4 x 7 **OR** 7 + 7 + 7 + 7 **OR** 7 x 4 = 28

e.g. y – 2
= 7 – 2 = 5

Two step function machines

INPUT → [ ] → [ ] → OUTPUT

Calculate the value at the end of each operation

For the input use the **INVERSE** operations

Two step function machines (algebra)

b → [x 5] → 5b → [+ 4] → 5b + 4
÷ 5 — - 4

IMPORTANT
Calculate the value at the end of each operation

c → [+ 4] → c+4 → [x 5] → 5(c + 4)
= 5c + 20
- 4 — ÷ 5

NOTE:
The whole first output is multiplied by 5

Find functions from expressions

f → [x 5] → [+ 3]
f divided by 5 then add 3

NOTE: the difference in the two expressions

f → [- 3] → [+ 5]
f add 5 then divide by 3

Sometimes it helps to try to explain the expression in word – and consider what has happened to the input

Substitution into an expression

2(x + 3)

Put the expression into a function machine

INPUT → [+ 3] → [x 2] → OUTPUT

Add 3 to the input then times 2

If x = 10
10 + 3 = 13.... 13 x 2 = 26

Forming a sequence

2(x + 3)

INPUT	1	2	3
OUTPUT	8	10	12

The substitution is the 'input' value
The OUTPUT becomes the sequence

Representing functions graphically

Take the function and generate a sequence 2(x + 3)

INPUT → [+ 3] → [x 2] → OUTPUT

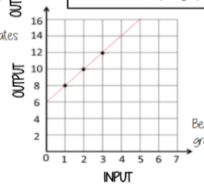
To represent graphically the input becomes x co-ordinates and the output becomes y co-ordinates

y=2(x + 3)

INPUT (x)	1	2	3
OUTPUT (y)	8	10	12

This becomes a co-ordinate pair (2, 10) to plot on a graph

Not all graphs will be linear only those with an integer value for x
Powers and fractions generate differently shaped graphs



NOTE:
Because this is a linear graph you can predict other values

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Mathematics

Year 7 Term 1 Knowledge Organiser

Equality and Equivalence

What do I need to be able to do?

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

- Form and solve linear equations
- Understand like and unlike terms
- Simplify algebraic expressions

Keywords

Equality: two expressions that have the same value
Equation: a mathematical statement that two things are equal
Equals: represented by '=' symbol – means the same
Solution: the set or value that satisfies the equation
Solve: to find the solution
Inverse: the operation that undoes what was done by the previous operation (The opposite operation)
Term: a single number or variable
Like: variables that are the same are 'like'
Coefficient: a multiplicative factor in front of a variable e.g. 5x (5 is the coefficient, x is the variable)
Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)

Equality

2 + 14 = 5 + 5 + 6

16 16

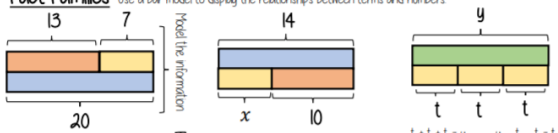
"is equal to"

The sum on the left has the same result as the sum on the right

Saying it out loud sometimes helps you to understand equality

Fact Families

Use a bar model to display the relationships between terms and numbers



Model the information

Fact Family

13 + 7 = 20
7 + 13 = 20
20 – 7 = 13
20 – 13 = 7

x + 10 = 14
10 + x = 14
14 – 10 = x
14 - x = 10

t + t + t = y
3 x t = y
3t = y
y – t – t = t
y - 3 = t
y - t = 3

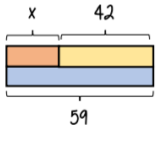
Solve one step equations (+/-)

There is more to this than just spotting the answer

x + 4.2 = 59

x + 4.2 = 59
4.2 + x = 59

59 – x = 4.2
59 – 4.2 = x



Don't forget you know how to use function machines

x → + 4.2 → 59

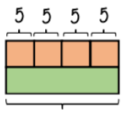
-4.2

Solve one step equations (x/÷)

f / 4 = 5

f - 4 = 5
f - 5 = 4

5 x 4 = f
4 x 5 = f



Don't forget you know how to use function machines

5 → x 4 → f

÷ 4

Like and unlike terms

Like terms are those whose variables are he same

♡ and 3♡ are **like** terms

the variable is the same

★ 3♡ are **unlike** terms

the variables are NOT the same

Examples and non-examples

Like terms	Un-like terms
y, 7y $2x^2$, x^2 ab, 10ba 5, -2	y, 7x $2x^2$, $2c^2$ ab, 10a 5, -2t

Note here ab and ba are commutative operations, so are still like terms

Equivalence

Check equivalence by substitution

e.g. m = 10

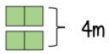
5m	2 x 2m	7m – 3m
5 x 10 = 50	2 x (2x 10) = 2 x 20 = 40	(7x 10) – (3x 10) = 70 – 30 = 40

Equivalent expressions

Repeat this with various values for m to check

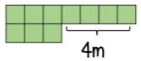
5m

2 x 2m



4m

7m – 3m



4m

Collecting like terms ≡ symbol

The ≡ symbol means equivalent to

It is used to identify equivalent expressions

Collecting like terms

Only **like terms** can be combined

4x +5b –2x +10b

4x +5b –2x +10b

2x + 15b

Common misconceptions

$2x + 3x^2 + 4x \equiv 6x + 3x^2$

Although they both have the x variable, x2 and x terms are un-like terms so can not be collected

Ordering integers and decimals

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 =, ≠, ≤, ≥
- 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

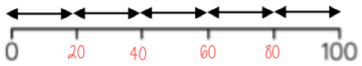
Billions			Millions			Thousands			Ones		
H	T	O	H	T	O	H	T	O	H	T	O
		3	1	4	8	0	3	3	0	2	9

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

5000 ↑ 6000

5475 to the nearest 100

5400 ↑ 5500

5475 to the nearest 10

5470 ↑ 5480

Compare integers using <, >, =, ≠

< less than
> greater than
= equal to
≠ 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

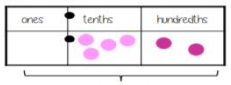
There are 2 middle numbers
Find the midpoint

152

Decimals

We say "nought point five two"

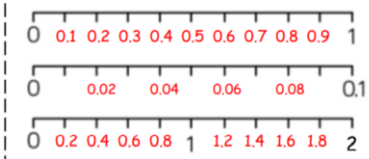
Five tenths and two hundredths



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

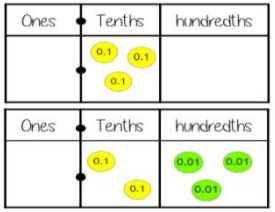
Decimal intervals on a number line

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

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Mathematics

Year 7 Term 1 Knowledge Organiser

FDP equivalence

What do I need to be able to do?

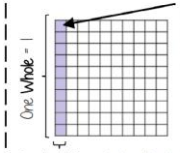
By the end of this unit you should be able to:

- Convert fluently between fractions, decimals & percentages

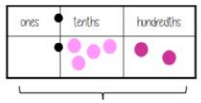
Keywords

Fraction: how many parts of a whole we have
Decimal: a number with a decimal point used to separate ones, tenths, hundredths etc
Percentage: a proportion of a whole represented as a number between 0 and 100
Place value: the numerical value that a digit has decided by its position in the number
Placeholder: a number that occupies a position to give value
Interval: a range between two numbers
Tenth: one whole split into 10 equal parts
Hundredth: one whole split into 100 equal parts
Sector: a part of a circle between two radius (often referred to as looking like a piece of pie)
Recurring: a decimal that repeats in a given pattern

Tenths and hundredths



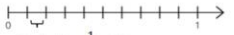
One **hundredth** (one whole split into 100 equal parts) = $\frac{1}{100}$ = 0.01



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

One **tenth** (one whole split into 10 equal parts) = $\frac{1}{10}$ = 0.1

On a number line



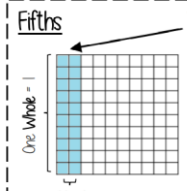
One whole – split into 10 equal parts

One tenth = $\frac{1}{10}$ = 0.1

One tenth – split into 10 equal parts

One hundredth = $\frac{1}{100}$ = 0.01

Fifths



Twenty hundredths

One **Whole** = 1

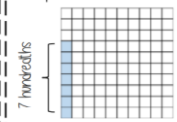
One tenth

Two tenths = one fifth

One **fifth** (one whole split into 5 equal parts) = $\frac{1}{5}$ = 0.2

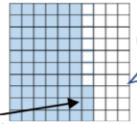
Percentages on a hundred grid

100% = a whole = 100 hundredths



7 hundredths
7 out of 100
7%

6 tenths

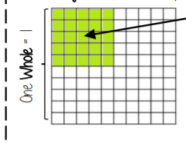


3 hundredths

6 tenths and 3 hundredths
63 hundredths
63%

Quarters

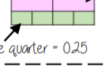
One **quarter** (one whole split into 4 equal parts) = $\frac{1}{4}$ = 0.25



Twenty five hundredths

One whole

One half = 0.5



One quarter = 0.25

Simple pie charts

A pie chart has 360° so all FDP calculations are out of 360

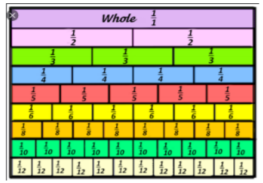
Split into 10 parts = 10% = 36°

Split into 2 parts = 50% = 180°

Split into 5 parts = 20% = 72°

Equivalent fractions

Represent equivalence with fraction walls



Fractions – on a diagram

The denominator is represented by EQUALLY sized parts – this is split into quarters

Fractions – on a number line

One whole split into 18 equal parts
18 is the **denominator**

This point is at the 6th part
6 is the **numerator**

$\frac{6}{18} \leftarrow \frac{3}{9} \leftarrow \frac{1}{3}$

Convert FDP

$\frac{70}{100}$ → This also means 70 ÷ 100 → 70 out of 100 squares → 70 "hundredths" = 7 "tenths" 0.7

→ 70 hundredths = 70%

Using a **calculator**

→ S⇔D Convert to a decimal

This will give you the answer in the simplest form

→ × 100 converts to a percentage

Be careful of recurring decimals
eg $\frac{1}{3}$ = 0.3333333
= $0.\dot{3}$
The dot above the 3

Solving problems with addition and subtraction

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

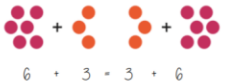
Commutative: changing the order of the operations does not change the result
Associative: when you add or multiply you can do so regardless of how the numbers are grouped
Inverse: the operation that undoes what was done by the previous operation (The opposite operation)
Placeholder: a number that occupies 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

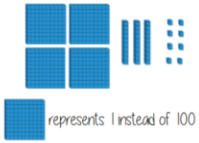
Remember the place value of each column. You may need to move 10 ones to the ones column to be able to subtract

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



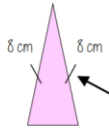
If represents 1 instead of 100

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

Revisit Fraction – Decimal equivalence
5.43 + 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 CALCULATIONS – use a number line

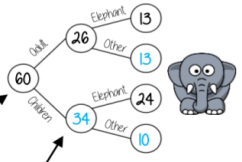
Two-way tables

	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

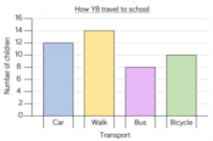


The overall total '60 people'

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
eg .34 children visited the zoo

Bar and line charts



Use addition/ subtraction methods to extract information from bar charts

eg 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

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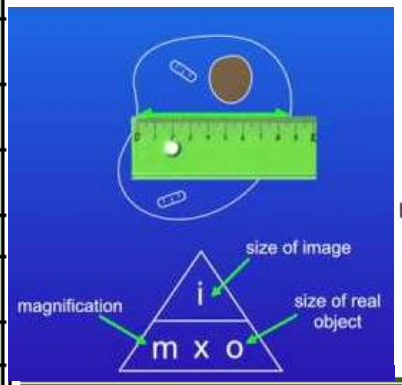
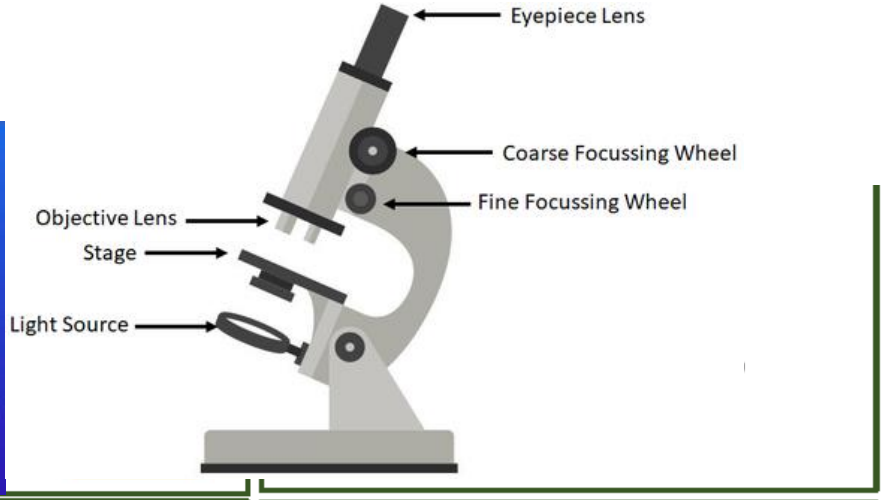
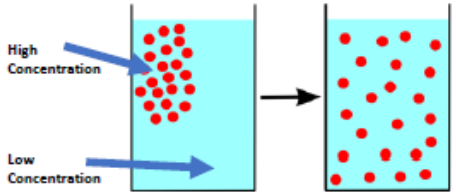
Science - Cells

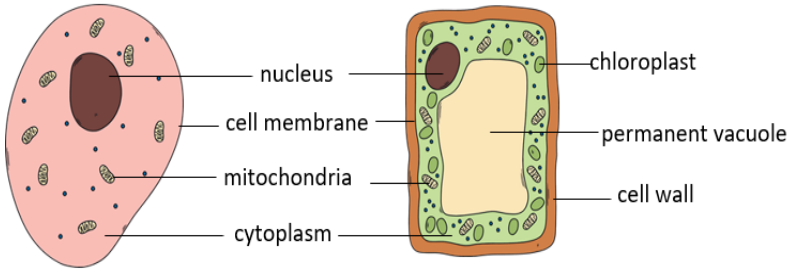
Keyword	Definition
Cell	Basic unit of life. Unicellular organisms only have one cell. Multicellular organisms have many cells.
Cell Membrane	Controls the movement of substances in and out of the cell.
Cytoplasm	Jelly-like substance where chemical reactions take place.
Nucleus	Carries genetic information and controls the cell.
Mitochondria	Where respirations takes place.
Cell Wall	Made of cellulose, provides support to the cell.
Vacuole	Contains cell sap.
Chloroplasts	Contains the green pigment chlorophyll, the site of photosynthesis.
Tissue	Something made from just one type of specialised cell.
Organ	Something made from different groups of specialised cells all working together.
Organ System	When a number of organs work together.
Synovial Joint	A freely moveable joint. Examples include the hip, shoulder, elbow and knee joints.

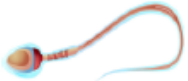
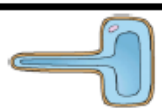
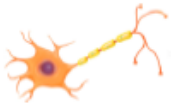




Diffusion: The movement of particles from an area of high concentration to an area of low concentration. Substances diffuse into and out of cells.





Red Blood Cell	Sperm Cell	Root Hair Cell	Palisade Cell	Nerve Cell	Egg Cell
					
Carries blood around the body. **Adaptations:** No nucleus, large surface area and biconcave shape.	Carries the male genes. **Adaptations:** Tail for swimming, mitochondria for energy, acrosome to break down the egg cell.	Take in water from the soil. **Adaptations:** Long & thin; large surface area for maximum water absorption. Thin cell walls.	Production of food for the plant. **Adaptations:** Tall and thin. Lots of chloroplasts to absorb sunlight for photosynthesis.	Carry signals around the body. **Adaptations:** Long axon. Myelin sheath.	Carries the female genes. **Adaptations:** Lots of mitochondria. Outer layer hardens once fertilised.

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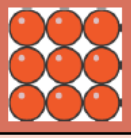
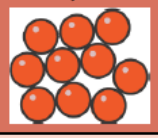
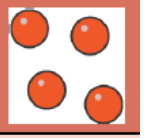
Science - Energy

Solid	Liquid	Gas
		
The particles vibrate in a fixed position.	The particles are close together and move around each other.	The particles are far apart and move quickly in all directions.
The particles cannot move from place to place.	The particles are arranged in a random position.	The particles are arranged in a random way.

Keyword	Definition
Particle	A term for a small piece of matter. For example atoms.
Matter	A substance which is made up by atoms or molecules.
Internal Energy	The total kinetic energy and potential energy of the particles in an object.
Specific Heat Capacity	The amount of energy needed to raise the temperature of 1kg of substance by 1°C.
Thermal Conductivity	A measure of how well a material conducts energy when it is heated.
Conduction	The transfer of heat through a material by transferring kinetic energy from one particle to another.
Convection	The transfer of thermal energy through a moving liquid or gas.
Infrared Radiation	Electromagnetic radiation emitted from a hot object.

Specific heat capacity

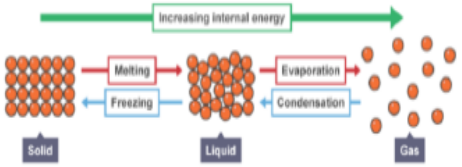
- This is the amount of energy needed to raise the temperature of 1kg of a material by 1°C

$$E = m \times c \times \theta$$

Energy (J)
Mass (kg)
Specific heat Capacity ($J\ °C^{-1}\ kg^{-1}$)
Change in temperature (°C)

Keyword	Definition
Energy Transfer	Changes from one form of energy to another form of energy.
Conservation of Energy	Energy cannot be created or destroyed It can be stored, dissipated or transferred from one form into another.
Internal Energy	Energy stored in all materials, including energy due to the motion of particles and the forces between them.
Kinetic Energy	Energy which an object possesses by being in motion.
Elastic Potential Energy	Energy stored in squashed, stretched or twisted materials.
Gravitational Potential Energy	The energy stored by an object lifted up against the force of gravity. Also known as GPE.
Thermal Energy Store	Energy store filled when an object is warmed up.
Work done	Work is done when a force makes an object move a distance, energy is transferred
Power	The rate of work done. Or The energy transferred per second.
Fossil Fuel	Natural, finite fuel formed from the remains of living organisms, e.g. oil, coal and natural gas.
Non-Renewable	A resource that cannot be replaced when it is used up, such as natural gas or cold.
Renewable	An energy resource that will not run out, e.g. solar energy and wind energy

Internal Energy:
The internal energy is the total amount of kinetic energy and potential energy of all the particles in the system.



The conservation of energy states energy cannot be **created** or **destroyed**, instead it is transferred usefully or dissipated

Type of energy	Description	Type of energy	Description
Kinetic 	The energy in moving objects	Thermal (Internal) 	The heat stored in an object
Chemical 	When a substance undergoes a chemical reaction	Gravitational potential 	When an object is raised to a height
Magnetic 	When 2 objects attract or repel	Electrostatic (electrical) 	Allows an electric current to flow
Elastic potential 	When an object is stretched or squashed	Nuclear 	Energy stored in an atom *(not needed till GCSE)*
Light 	*From a bright object (not stored)*	*Sound* 	*From a vibrating object (not stored)*

Calculating Kinetic Energy

$$E_K = \frac{1}{2}mv^2$$

E_K = Kinetic Energy
m = Mass
v = velocity

Calculating GPE

GPE = mass x gravitational field strength x height

- Mass is measured in **kilograms** (kg).
- Gravitational field strength is measured in **newtons per kilogram** (N/kg), usually taken as 10N/kg on Earth.
- Height is measured in **metres** (m).
- GPE is measured in **joules** (j).

Calculating Power

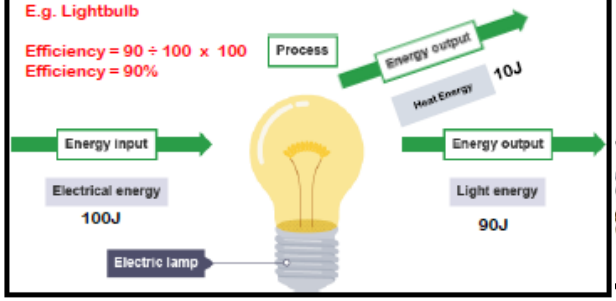
Word Equation	Power	=	Work Done / Time Taken		
Dimensions	P	=	W	/	t
Units	Watt	=	Joule	/	second

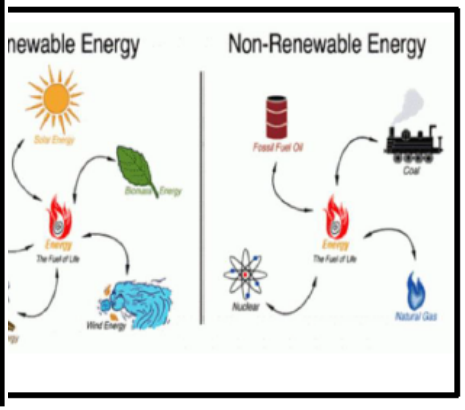
Calculating Efficiency.

$$\text{Efficiency} = \frac{\text{useful energy out}}{\text{total energy in}} \times 100$$

E.g. Lightbulb

Efficiency = 90 ÷ 100 x 100
Efficiency = 90%





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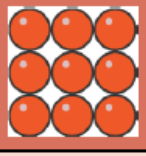
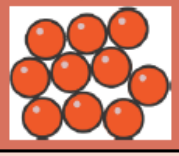
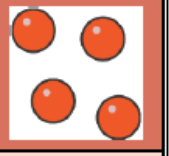
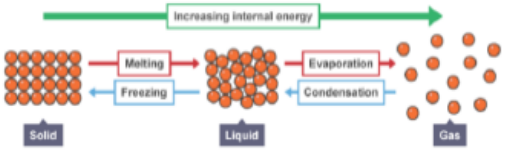
Science - Elements, Compounds and Mixtures

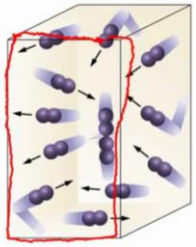
Solid	Liquid	Gas
		
The particles vibrate in a fixed position.	The particles are close together and move around each other.	The particles are far apart and move quickly in all directions.
The particles cannot move from place to place.	The particles are arranged in a random position.	The particles are arranged in a random way.
Particles have a fixed shape and cannot flow.	The particles flow and take the shape of the bottom of their container.	The particles flow and completely fill their container.
The particles cannot be compressed (squashed)	The particles cannot be compressed.	The particles can easily be compressed.

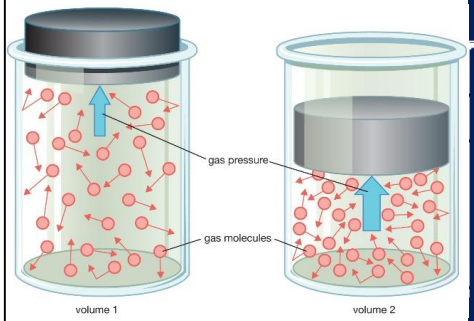
Internal Energy:
The internal energy is the total amount of kinetic energy and potential energy of all the particles in the system.



Gas pressure can increase is the volume decreases, and it becomes compressed. If a gas is heated, the particles move around more and there are bigger gaps between the particles. This would cause the gas to expand, but because it is trapped in a container, the pressure increases.

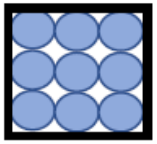
Gas Pressure is the **force** of the gas particles **colliding** with the **walls** of its container





Atom	The smallest piece of an element.
Element	A substance containing only one type of atom.
Compound	Two or more different elements which are chemically joined together.
Mixture	Two or more different elements or compounds which are not chemically joined together.
Chemical Reaction	A process in which one or more substances are changed into others, by their atoms being rearranged. Also known as irreversible reactions.
Physical Reaction	A process in which the physical properties are changed, but no new substances are made. Also known as reversible reactions.

Atoms, Elements, Compounds & Mixtures



This models an element. There is only one type of atom.

This models a compound. There are two different elements chemically combined together.

This models a mixture. There are two or more different elements which are not chemically combined.

Naming Compounds
Metal + Non-Metal (which contain two elements)
1. The metal always goes first.
2. The ending of the non-metal changes to 'ide'.

E.g.
Copper + Oxygen → Copper Oxide
Lithium + Fluorine → Lithium Fluoride

To name compounds which have a metal, non-metal and oxygen (three or more elements)
1. The metal always goes first.
2. The ending of the non-metal changes to 'ate'.

E.g.
Copper, Sulfur, Oxygen
Copper Sulfate

Diffusion is the name of the process where particles move from an area where there are lots of particles (**high concentration**) to an area where there are not many particles (**low concentration**). Eventually, the particles will be evenly spread out in the fluid.

Year 7 French Term 1: C'est moi! (It's me!)

French		Literal ('dodgy') English
Comment t'appelles-tu ?	**A**	**What's your name?**
Bonjour. Je m'appelle **Nicolas.**	1	Hello. I call myself **Nicolas.**
Ça s'écrit **N-I-C-O-L-A-S.**	2	It writes itself **N-I-C-O-L-A-S.**
Ça va bien ? Moi, **ça va très bien, merci.**	3	It goes well? Me, **it goes very well, thanks.**
Quel âge as-tu ? Moi, j'ai **onze** ans.	4	Which age are you? Me, I have **eleven** years.
C'est quand ton anniversaire ? C'est quelle date ?	5	It's when your birthday? It's which date?
Mon anniversaire c'est le **premier août.**	6	My birthday it's the **first August.**
Qu'est-ce que tu aimes ?	**B**	**What do you like?**
Ce que j'aime le plus c'est **la musique**	7	What I like the most it is **the music**
parce que c'est vraiment **génial**.	8	because it is really **great.**
Cependant je n'aime pas **le sport**	9	however I do not like **the sport**
car à mon avis c'est assez **ennuyeux**.	10	because in my opinion it is quite **boring.**
Tu aimes **les animaux ?**	11	Do you like **the animals?**
J'adore **les chiens** et **les chats** mais	12	I love **the dogs** and **the cats** but
ce que j'aime le moins ce sont **les araignées !**	13	what I like the least they are **the spiders!**
Je déteste ça ! C'est **nul !**	14	I hate that! It's **rubbish!**
Qu'est-ce que tu as dans ton sac ?	**C**	**What do you have in your bag?**
Dans mon sac j'ai **ma trousse** et **mon portable**.	15	In my bag I have **my pencil case** and **my phone**.
Aussi j'ai **mes devoirs** parce que c'est **important,**	16	Also I have **my homeworks** because it is **important,**
mais je n'ai pas de **calculatrice** ou de **crayons**	17	but I don't have of **calculator** or of **pencils**
parce que je n'aime pas **les maths** ou **le dessin**.	18	because I don't like **the maths** or **the art**.
Décris-toi.	**D**	**Describe yourself.**
Je suis toujours **gentil** et je suis assez **curieux/euse,**	19	I am **always kind** and I am **quite curious,**
mais mes amis disent que je ne suis pas **branchée**.	20	but my friends say that I am not **trendy**.
J'ai les cheveux **blonds** et **frisés** et les yeux **bleus**.	21	I have the hairs **blond** and **curly** and the eyes **blue**.
Être **intelligent**, c'est important pour moi.	22	To be **intelligent**, it's important for me.
Bien que je sois **paresseux/euse**, je suis **intelligente**.	23	Although I am **lazy**, I am **intelligent**.
Décris ta famille.	**E**	**Describe your family.**
Dans ma famille il y a **mon père, ma mère, et ma sœur**.	24	In my family there is **my father, my mother and my sister**.
Je n'ai pas de **frère**.	25	I don't have of **brother**.
Ma sœur s'appelle **Léa** et elle est	26	My sister is called **Léa** and she is
grande et **mince** avec les cheveux **roux**.	27	**tall** and **thin** with the hairs **red**.
Elle est très **drôle** et assez **sympa**	28	She is very **funny** and quite **nice**
mais quelquefois elle est un peu **agaçante**.	29	but sometimes she is a bit **annoying**.
Mes parents sont **généreux** mais ils sont trop **stricts**.	31	My parents are **generous** but they are too **strict**.

Sentence builder 1: Ça va? How are you?

Comment ça va? (How's it going?)			
VERB	CONNECTIVE + VERB	MASCULINE ADJECTIVE	FEMININE ADJECTIVE
Ça va très bien (it's going very well) **Ça va assez bien** (it's going quite well) **Ça va comme ci comme ça** (it's going alright) **Ça va pas mal** (it's not going badly) **Ça va mal** (it's going badly) **Ça ne va pas** (It's not going well)	**parce que je suis** (because I am) **car je suis** (because I am) **bien que je sois** (although I am)	**content** (happy) **fatigué** (tired) **tranquille** (calm) **énervé** (annoyed) **triste** (sad)	**contente** (happy) **fatiguée** (tired) **tranquille** (calm) **énervée** (annoyed) **triste** (sad)
	CONNECTIVE + VERB	NOUN	
	parce que j'ai (because I have)	**faim** (hunger) **soif** (thirst) **froid** (cold) **chaud** (warm)	

Sentence builder 2: Likes and dislikes

Qu'est-ce que tu aimes? Qu'est ce que tu n'aimes pas? (What do you like? What don't you like?)					
VERB	MASCULINE NOUN	CONNECTIVE	VERB	INTENSIFIER	ADJECTIVE
J'aime (I like) **J'adore** (I love) **Je n'aime pas** (I don't like) **Je déteste** (I hate) **Ce que j'aime le plus c'est/ce sont** (What I like the most it is/they are) **Ce que j'aime le moins c'est/ce sont** (What I like the least it is/they are) **Tu aimes** (you like) **il/elle aime** (he/she likes)	**le chocolat** (the chocolate) **le cinéma** (the cinema) **le foot** (the football) **le sport** (the sport) **le français** (the French) FEMININE NOUN **la danse** (the dancing) **la poésie** (the poetry) **la musique** (the music) **la télé** (the TV) **l'histoire** (the history) PLURAL NOUN **les animaux** (the animals) **les araignées** (the spiders) **les livres** (the books) **les chats** (the cats) **les chiens** (the dogs) **les jeux-vidéos** (the video games) **les sciences** (the science)	**parce que** (because) **car** (because)	**c'est** (it is) **ce n'est pas** (it is not)	**très** (very) **vraiment** (really) **assez** (quite) **un peu** (a bit)	**amusant** (fun) **cool** **ennuyeux** (boring) **génial** (great) **important** **intéressant** (interesting) **nul** (rubbish)

There are 3 words in French that mean '**the**':

le (masculine), **la** (feminine) & **les** (plural)

You always need these when giving opinions.

Sentence builder 3: Describing yourself & others – physical descriptions

VERB 'AVOIR'	PLURAL NOUN	PLURAL ADJECTIVE	&	VERB 'ÊTRE'	INTENSIFIER	MASCULINE ADJECTIVE	FEMININE ADJECTIVE
J'ai (I have) **Tu as** (you have) **Il a** (he has) **Elle a** (she has)	**les yeux** (the eyes)	**bleus** (blue) **marron** (brown) **verts** (green) **noirs** (black)	**et**	**je suis** (I am) **tu es** (you are) **il est** (he is) **elle est** (she is)	**très** (very) **vraiment** (really) **assez** (quite) **un peu** (a bit)	**grand** (tall) **petit** (short) **de taille moyenne** (average height) **gros** (fat) **mince** (thin) **beau** (beautiful) **moche** (ugly)	**grande** (tall) **petite** **de taille moyenne** (average height) **grosse** (fat) **mince** (thin) **belle** (beautiful) **moche** (ugly)
	les cheveux (the hairs)	**blonds** (blond) **roux** (red) **bruns** (brown) **noirs** (black) **frisés** (curly) **raides** (straight) **longs** (long) **courts** (short) **mi-longs** (medium long)					

Sentence builder 4: Describing yourself & others – personality descriptions

VERB PHRASE WITH 'ÊTRE'	INTENSIFIER	MASCULINE ADJECTIVE	FEMININE ADJECTIVE
je suis (I am) **je ne suis pas** (I am not) **tu es** (you are) **il est** (he is) **elle est** (she is) **je dirais que je suis** (I would say that I am) **mes amis disent que je suis** (my friends say that I am) **je pense que je suis** (I think that I am)	**très** (very) **trop** (too) **vraiment** (really) **assez** (quite) **un peu** (a bit)	**agaçant** (annoying) **branché** (trendy) **charmant** (charming) **curieux** (curious) **drôle** (funny) **généreux** (generous) **gentil** (kind) **intelligent** **modeste** (modest) **parasseux** (lazy) **poli** (polite) **sympa** (nice)	**agaçante** (annoying) **branchée** (trendy) **charmante** (charming) **curieuse** (curious) **drôle** (funny) **généreuse** (generous) **gentille** (kind) **intelligente** **modeste** (modest) **parasseuse** (lazy) **polie** (polite) **sympa** (nice)
il faut que je dise que je suis (I must say that I am) **je voudrais être plus** (I would like to be more) **je voudrais être moins** (I would like to be less)			

Extend your sentences with connectives!
mais = but / **et** = and / **aussi** = also / **cependant** = however

A: Key vocabulary

1. Numbers & dates

janvier
février
mars
avril
mai
juin
juillet
août
septembre
octobre
novembre
décembre

1 un	11 onze	21 vingt-et-un
2 deux	12 douze	22 vingt-deux
3 trois	13 treize	30 trente
4 quatre	14 quatorze	40 quarante
5 cinq	15 quinze	50 cinquante
6 six	16 seize	60 soixante
7 sept	17 dix-sept	70 soixante-dix
8 huit	18 dix-huit	80 quatre-vingts
9 neuf	19 dix-neuf	90 quatre-vingt-dix
10 dix	20 vingt	100 cent

lundi	mardi	mercredi	jeudi	vendredi	samedi	dimanche

2. Subjects (les matières)

le dessin	art
le français	French
le théâtre	drama
l'anglais	English
la biologie	biology
la chimie	chemistry
la géographie	geography
la musique	music
la physique	physics
la technologie	design technology
l'histoire	history
l'EPS	PE
l'informatique	ICT
les maths	maths
les sciences	science

B : Grammar

infinitive

subject pronouns

REGULAR -ER VERB ENDINGS : e.g. 'JOUER' (to dance)	
je (I)	**joue**
tu (you – singular)	**joues**
il/elle/on (he/she/we)	**joue**
nous (we)	**jouons**
vous (you – plural)	**jouez**
ils/elles (they – masc/fem)	**jouent**

How to form a regular -ER verb
1) Find the infinitive
2) Remove the 'ER'
3) Add the correct ending for the subject pronoun you're using

KEY IRREGULAR VERBS	
AVOIR (to have)	**ÊTRE (to be)**
j'ai (I have)	**je suis** (I am)
tu as (you have)	**tu es** (you are)
il a (he has)	**il est** (he is)
elle a (she has)	**elle est** (she is)
on a (we have)	**on est** (we are)
nous avons (we have)	**nous sommes** (we are)
vous avez (you have – plural)	**vous êtes** (you are – plural)
ils ont (they have – masculine)	**ils sont** (they are – masculine)
elles ont (they have – feminine)	**elles sont** (they are – feminine)

These important verbs do not follow the pattern - you need to practise and learn these by heart!

	MASC.	FEM.	PLURAL.
MY=	**mon**	**ma**	**mes**
YOUR=	**ton**	**ta**	**tes**
e.g.	***mon père*** (my father) ***ton frère*** (your brother) ***mon oncle*** (my uncle)	***ma mère*** (my mother) ***ta sœur*** (your sister) ***ma tante*** (my aunt)	***mes parents*** (my parents) ***tes cousins*** (your cousins) ***mes grands-parents*** (my grandparents)

There are three ways to say 'my' or 'your' in French, depending on whether what you are talking about is masculine, feminine or plural.

rouge	orange	jaune	vert	bleu	violet	rose	marron	gris	noir	blanc

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Unit title: **Introduction to Geography**

Map of the world showing the 7 continents and 5 oceans:

Continent	Examples of countries
North America	United States of America (U.S.A), Canada, Mexico and Honduras.
South America	Brazil, Chile, Argentina and Peru.
Europe	U.K, Poland, Germany and France.
Africa	South Africa, Egypt and Ghana.
Asia	China, India and Japan.
Australasia/Oceania	Australia, Fiji and New Zealand.
Antarctica	No part of Antarctica officially belongs to any country.

Keyword(s)	Definition	Example(s)
Geography	The study of the earth's landscapes, people, places and environments. It is, quite simply, about the world in which we live.	
Physical Geography	The study of the natural world, its features and events.	 Deserts
Human Geography	The study of where and how people live.	 Cities
Environmental Geography	The study of how people interact with and influence the natural world.	 Windfarms
Continent	One of main landmasses of the planet, made up of many different countries. Except Antarctica (No part of this continent belongs to any country).	The seven continents are North America, South America, Europe, Asia, Africa, Australasia (also known as Oceania) and Antarctica.
Ocean	An enormous expanse of sea. There are five oceans in the world.	The five oceans are the Arctic Ocean, Pacific Ocean, Atlantic Ocean, Indian Ocean and Southern Ocean.
Atlas	A book containing maps of the world.	

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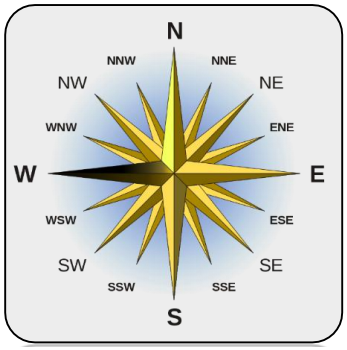
Unit title: **Introduction to Geography**

Map of the United Kingdom: The United Kingdom (U.K.) is a country made up of four nations which are England, Scotland, Wales and Northern Ireland. Each has it's own capital city, which are marked by red dots on this map. They are:

Nation	Capital City
England	London
Scotland	Edinburgh
Wales	Cardiff
Northern Ireland	Belfast

Keyword(s)	Definition
Compass	A compass is an instrument used for navigation (finding your way) and orientation (knowing the way you are facing) that shows direction.
Compass rose and compass points	A compass rose is a diagram that shows the different directions of a compass. Basic compass points are north, east, south and west.
Compass degrees	A compass usually shows both the direction e.g. north, and the degrees that are also sometimes used to describe the direction of travel e.g. north is zero degrees.
Capital city	The capital city, often called the capital, is the main city from where the government of a country functions. All important offices like parliament or the highest court of justice are based in the capital.



Compass rose showing directions. To help you remember the cardinal (main) points, which are North (N), East (E), South (S) and West (W), think of: '**N**aughty **E**lephants **S**quirt **W**ater'.

Compass rose showing directions and degrees. North is zero degrees. East is ninety degrees. South is one hundred and eighty degrees and West is two hundred and seventy degrees.

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Unit title: **Introduction to Geography**

What is the best site for a settlement?

Positive factors and explanation	Negative factors and explanation
Near to a river: Giving access to fresh water for drinking, fishing and sanitation e.g. washing and toilets.	**On marshland:** Extremely difficult to build or plant crops.
Near to the sea: Giving access to food resources from the sea e.g. fish, crabs. Makes it easier to trade with other places (using boats).	**On very steep land:** Extremely difficult to build or plant crops.
Near to woodland: Access to natural food sources e.g. fruit and berries. Wood for fuel (fires) and to build houses.	**Very close to a river, on a flood plain:** Very high chance of flooding.
On flat land: Easier to build and plant crops on.	**Near to natural hazards e.g. volcanoes:** An extremely dangerous place to live – risk of volcanic eruption.
On top of a hill: Low risk of flooding and easier to defend.	**Far away from other settlements:** Making it difficult to trade goods and access other resources.
Close to other settlements: Making it easier to trade goods and access other resources.	**Far away from natural resources:** Difficult to access the things that you need to survive or make money.
Close to natural resources: Opportunity to make money e.g. gold/diamond mines. Easy access to the things you need e.g. animals for food, cotton for clothes.	

Keyword(s)	Definition
Settlement	A place where people live permanently.
Site	The location of a settlement.
Hamlet	A small cluster of houses with no services e.g. shops and schools.
Village	A settlement with at least a few hundred to a few thousand people living there. Will have some services e.g. primary school and shops.
Town	A settlement with tens of thousands of people, with many services e.g. hospitals, town hall and shops.
City	A settlement with hundreds of thousands or millions of people with many services and usually with a Cathedral.
Positive factors	In the context of settlements, this refers to reasons why a place would be a good site to live on.
Negative factors	In the context of settlements, this refers to reasons why a place would not be a good site to live on.
Natural resources	Resources that exist in the natural world without any action from humans e.g. water, animals, wood.
Marshland	Low lying wetlands with grassy vegetation. Also known as swamps or bogs.
Flood plain	The relatively flat area forming the valley floor on either side of a river channel, which is sometimes flooded.
Ford	A shallow place in a stream or river which can be easily crossed.
Fortified	A place with defensive works to protect against attack e.g. wood/brick walls.
Brook	A small stream.
Trade	The buying and selling of goods between different towns, cities, or countries.

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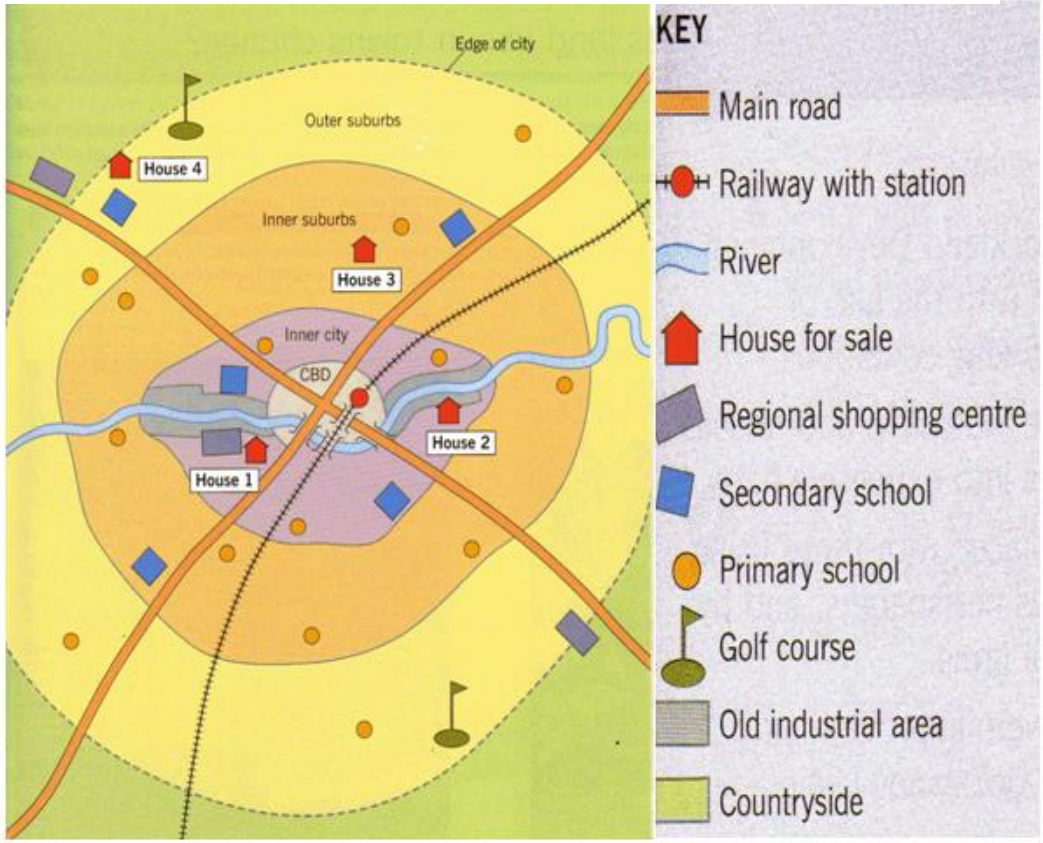
Unit title: **Introduction to Geography**

An urban model of a typical city in the United Kingdom (U.K)



A Greenfield site.

A Brownfield site.

Keyword(s)	Definition
To see	What we can actually see in a source of information e.g. in a photo or on a map.
To infer	To form an opinion or guess that something is true because of the information that you have.
Population	In Geography, this almost always relates to the number of people living in a particular area.
Demographic	A specific group of people in society, usually defined by age or level of income.
Quality of Life	The standard of comfort, health and happiness experienced by people in a particular place.
CBD	The Central Business District (CBD), is also often known as the City Centre. Where lots of shops and businesses are located.
Suburb	A residential area outside the city, providing housing and services including primary and secondary schools.
Greenfield Site	A site that has not been built on before e.g. open fields or forests.
Brownfield site	A site that has been built on before e.g. used to be a factory that has now been demolished (knocked down).

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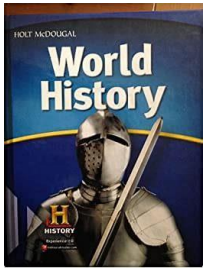
History - Skills

Centuries
To work out the century that a date is in – cover up the last two numbers and add on 1. E.g. 1566 would be in the 16th century.

Causes

Short term causes	Long term causes	Trigger cause
A factor which happened a short time again	A factor which continued over a long period of time	A factor which was the final cause

Consequences – something which happens as a result of an event e.g. getting detention because homework is not completed



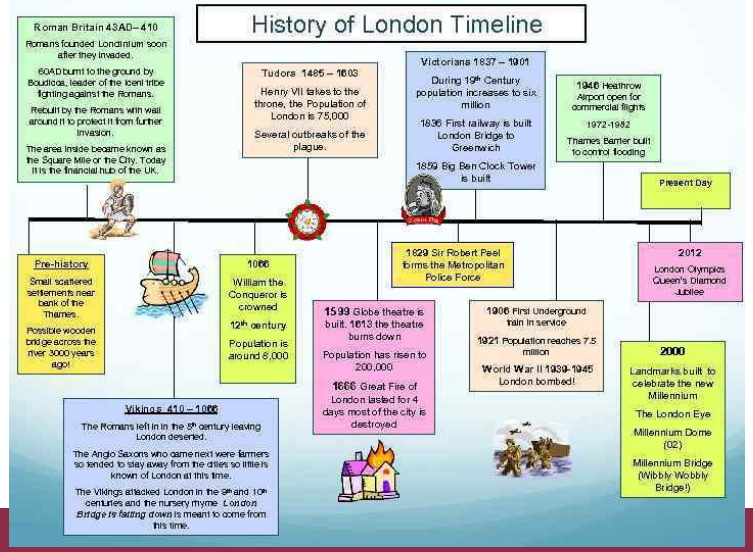
A **primary source** comes from the time you are studying e.g. a coin from Edward III's reign.

A **secondary source** comes from later than the time e.g. a textbook about world history which was written later.

Bias – when someone has an unfair or one sided opinion e.g. a football fan might be think that their team was treated unfairly if they lose a match.

Key Terms	Definitions
Year	365 days
Decade	10 years
Century	100 years
Millennium	1000 years
Anno Domini	The time after Jesus was born
BC	Before Christ
Chronology	Putting events in the order that they took place
Anachronism	An object which belongs in another time period

Timelines Checklist
Dates spaced out evenly
Events in chronological order
Dates added for each event
Drawn using a pencil and ruler
Title added
Capital letters used for all names (e.g. battles & people)



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History - Migration

Migration
People have always migrated to and from Britain. People move for many different reasons.

Groups which have migrated to Britain
Romans (from 43 AD -400) - brought piped water, sewers and paved roads
Vikings – (800s-900s) – brought new language & practical items like cooking pots
Normans (1066 onwards) – brought motte & bailey castles & feudal system
Irish (from 1700s onwards) – many worked as navies building Britain's canals and railways, others joined the British army.
Jews (1066 onwards) – huge impact on Britain including starting Marks & Spencer's
Caribbean migration (from 1939 onwards) – worked in many different areas such as healthcare, transport & building
European migration – 11% on NHS workers in London come from the EU, other areas with high EU employment include farming & building

Areas in the world where British people have migrated to
Australia – discovered in 1770. Britain sent convicts (criminals) there as a punishment.
North America – colonised from the late 1500's. Colonists grew crops such as tobacco & cotton & sent them back to Britain.
Ireland – colonised from the 1600s. The British introduced Protestantism.
India – explores began bringing back exotic goods such as tea, silk & spices. By the late 1800s Britain was ruling & Queen Victoria became Empress of India.
Africa - large areas were taken over in the 1800s. The British made a lot of money from the gold, jewels & other resources the continent had.

Key Terms	Definitions
Migration	The movement of people from one place to another
Migrants	The people who move
Political migration	When you move because you might disagree with whoever is ruling your country or there is a war
Economic migration	Moving to find work or for a certain job
Social migration	Moving somewhere for a better quality of life or to be closer to family or friends
Environmental migration	Moving because of a natural disaster such as flooding or a famine
Colonies	An area which is controlled by another country
Colonist	Person who moves to a colony

What were the positive impacts of migration from Britain?
- Improved healthcare & education
- Improved legal systems
- Built roads & railways

What were the negative impacts of migration from Britain?
- Local customs & beliefs were often ignored
- If local people rebelled the rebellions were often violently put down
- Introducing Protestantism to Ireland has caused centuries of religious problems
- Colonists often stole the native people's land
- New diseases were introduced which the native people had no immunity to

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History - 1066

In 1066 Edward the Confessor died. There were 3 claimants to the throne of England

Harold Hardrada, King of Norway	Harold Godwinson, Earl of Wessex	William, Duke of Normandy
• Already had experience of ruling • Good fighter • Had some support in England • **BUT** not English • Would have to rule 2 countries at the same time	• English, so knew England well • Edward the Confessor promised him the throne • Good fighter • **BUT** had promised to support William's claim	• Already had experience of ruling • Good fighter • Edward the Confessor promised him the throne • **BUT** not English • Would have to rule 2 countries at the same time

The Battle of Hastings

King Harold was at the top of Senlac Hill. William's men were unable to break through the English shield wall. But when the Normans thought William had been killed, they ran back down the hill, when the English chased them, they were killed. William realised this could be used as trick and tried it again. As the English line thinned out, King Harold was hit in the eye by an arrow.

The Battle of Stamford Bridge

Harold Godwinson became king but Harold Hardrada invaded in the north near York. King Harold marched to Stamford Bridge in 5 days & defeated Hardrada. Shortly after he heard William had invaded in the south.

Consequences of the Battle of Stamford Bridge

- King Harold's men had to march 250 miles back south in a short period of time
- Harold had lost some fighters

Why did Harold lose?

Preparation: Much of the English army were farmers not trained soldiers.
Leadership: Harold's men were tightly packed together and found it hard to move in battle.
Bad luck: Some of Harold Godwinson's best soldiers were killed at the Battle of Stamford Bridge before he fought William at Hastings.

Why did William win?

Preparation: William had a large force of knights (men on horseback) who were well equipped and trained
Leadership: William encouraged his men to use the trick of pretending to run away to make the English come down from their hill. Then the Normans surrounded them and killed them.
Luck: The wind changed at the right time and William was able to land in England un-challenged.

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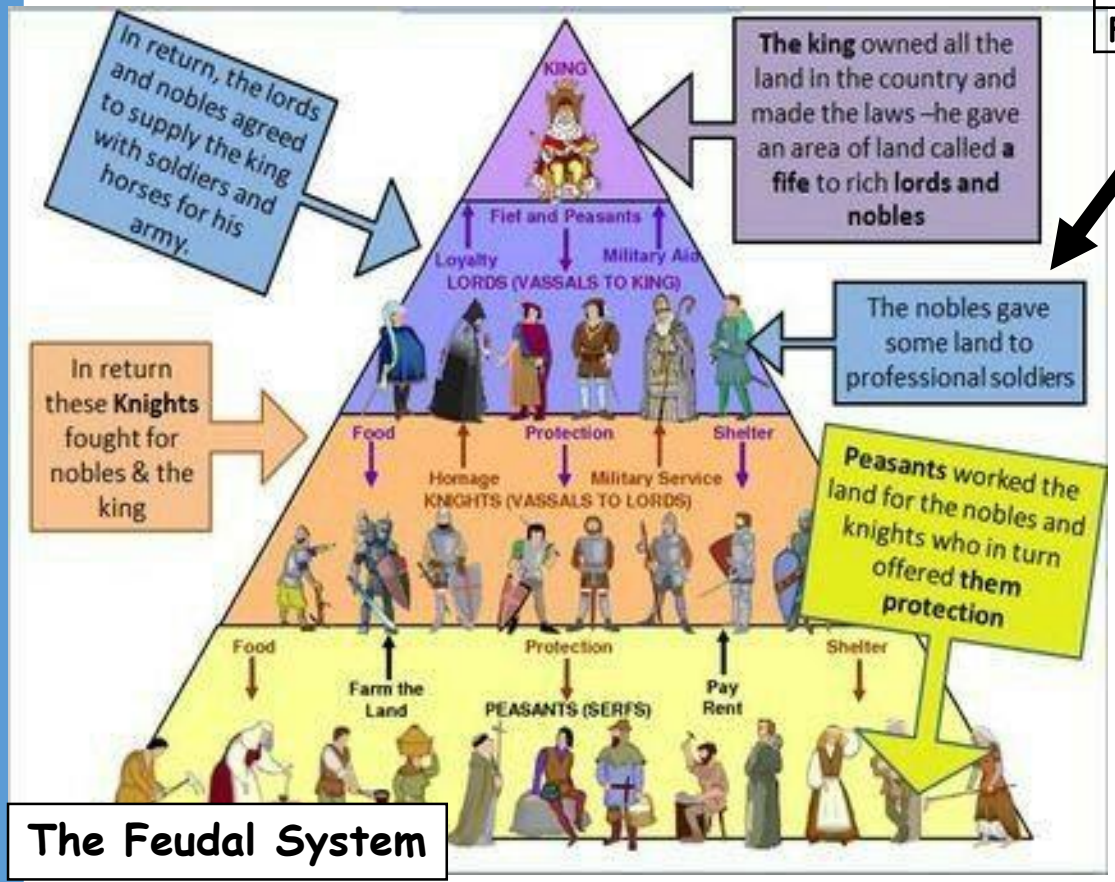
History - Controlling England After 1066

The Harrying of the North
In 1069, two English earls, **Edwin & Morcar** rebelled against William. They were supported by a band of Vikings. They quickly captured York. William marched north, recaptured York and destroyed all the crops, houses and animals he could. A writer at the time suggested about 100,000 people died from famine. The aim was to prevent anyone else rebelling against him by scaring them.

Key Terms	Definitions
Peasant	A poor farmer. Most people in England were peasants.
Knight	A professional soldier
Baron	A rich landowner. They helped William to run the country and gave him advice.
Feudal System	A way of controlling the country by giving people land in exchange for loyalty, food or other services such as fighting.
Domesday Book	A survey of who owned land in 1086
Famine	An extreme shortage of food



The Feudal System

Why did William introduce the Feudal System?
- It helped keep people loyal to him
- He could reward the people who helped him & punish those who didn't by taking their land off them
- It gave him an army

BUT it was very unfair on the peasants as they had to work hard to keep their land

The Domesday Book (1086)
- William needed to pay for an army, so he needed to know how much to tax everyone.
- Royal commissioners were sent to every village in (most of) England.
- The same questions were asked in every village e.g. who owned the land, what was there e.g. any mills, castles & how many animals?
- It took about a year to complete
- It is knowns as the Domesday Book as people compared it to when they died and God would know everything about them

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Religious Education - The History of Christianity

Key Terms

Community: A group of like-minded individuals who share common beliefs and/or values

Values: Something which somebody believes is important to them

Mission: An aim in life

Goal: Something which somebody would like to achieve

Monotheistic: Where a religious person believes in only one God

Trinity: The Christian belief that God is made of three parts – God the Father, the Son (Jesus) and the Holy Spirit

Denomination: A branch of the Christian Church, e.g. the Roman Catholic Church

Resurrection: The Christian belief that Jesus came back to life after he died

Missionaries: People whose role is to share Christian beliefs to others

Saul/Paul: A Jewish man who hated Christians but was converted to Christianity after he lost and then regained his eyesight. Became the 'world's best missionary'

Persecution: Treating somebody badly because of their beliefs or characteristics. Christians were persecuted in Rome

Catacombs: Network of underground burial caves in Rome where the Christians secretly met

ICHTHUS: The 'fish' symbol used by early Christians in Rome to show where they were secretly meeting

Nero: Roman emperor when Rome burned-down. He wrongly allowed people to think the Christians were responsible because they were disliked and an easy target

Constantine: The first Roman emperor to convert to Christianity. He gave rights to Christians

Edict of Milan: The list of rights which Constantine gave to Christians

Eastern Orthodox: A new denomination formed by people who believed the Bishop of Rome should not automatically be the leader of Christians

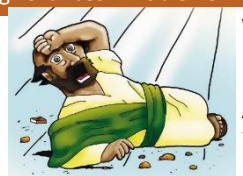
Pope: The leader of the Roman Catholic Church. Also known as the Bishop of Rome. The first was Jesus' disciple Peter who was told to lead Christians by Jesus before he died. As he was the first Bishop of Rome, all Bishops of Rome after him also become leader of the church. Pope Francis is the present Pope. Benedict was the Pope before him, he unusually retired as most Popes stay in role until death

Ring of the Fisherman: The ring worn by the Pope. Previously, kissing the Ring of the Fisherman was seen as a way to show respect to the Pope. Francis does hates this tradition!

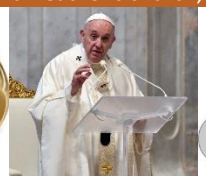
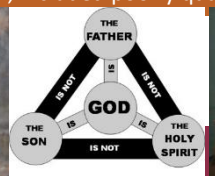
Martin Luther: German professor, priest and monk who became upset by the inequalities and problems in the Catholic church in the 1500's.

Protestantism: A denomination of Christianity which differs from the Roman Catholic church

The list of 95 grievances: Problems which Martin Luther identified with the Roman Catholic church, included poorly qualified priests and money being taken to offer an 'express route' to heaven

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Religious Education - The History of Christianity

Key Questions

What is Christianity?

- A monotheistic religion
- Founded from Judaism (Jesus was born a Jew)
- Based on the teachings of Jesus Christ

How did Christianity begin?

- Jesus taught his beliefs to disciples – his closest followers
- Jesus was executed
- The disciples continued to spread the word as missionaries –Paul was given the job of leading the followers after Jesus' death

What was the early church like?

- Life was hard for Christians – they were not liked
- Christians were persecuted
- Saul, a Jew, treated Christians badly but he converted to Christianity and called himself Paul after he was blinded by a bright light and then gained his eyesight back

What was life like for early Christians?

- Many early Christians lived in Rome
- They worshipped underground in the Catacombs – burial chambers
- They practices secretly by using symbols such as ICHTHUS
- Nero blamed them for burning-down Rome in 64AD. People believed him, the persecution got worse!

How did things change for early Christians?

- A new emperor, Constantine, was preparing for battle in 312AD
- Constantine's mother was a secret Christian, he prayed as a Christian before the battle and won
- He felt his prayers had been answered!
- He issued the *Edict of Milan* – a list of instructions which gave Christians improved rights

What was the Great Schism

- In 1054, many Christians became annoyed that the religion was being ruled from Rome
- Peter (who Jesus chose to lead the church after his death) became the first Bishop of Rome and it was decided that every Bishop of Rome after him would lead the Christians
- The Eastern Orthodox church was set up to cover the Eastern Mediterranean area and did not see the Bishop of Rome as its leader

Who is the Pope?

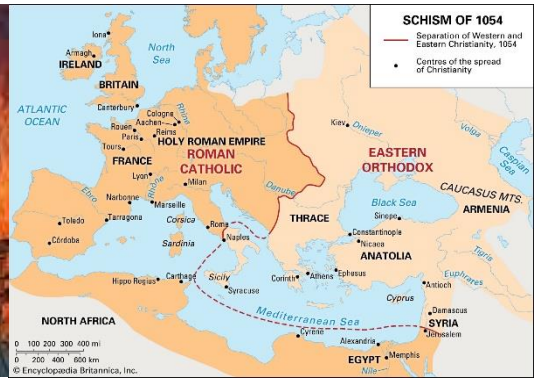
- Also known as the Bishop of Rome
- Leader of the Roman Catholic denomination – the most popular type of Christianity
- Present Pope is Pope Francis

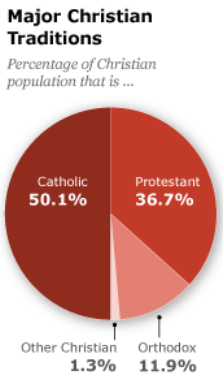
Who can become the Pope?

- Has to be a Catholic priest who has become a Bishop and is then elected by the 'College of Cardinals' in a meeting called the 'Papal Conclave'
- They vote on their preference for the new pope
- When they've voted, they release black smoke from a chimney in the Sistine Chapel to show no decision, white to show they've chosen the next Pope
- As priests can only be men, a woman can't be the Pope

What is the Reformation?

- Martin Luther, a German who studied religion, became angry in the 1500s that the Catholic church was outdated and corrupt
- He published a list of 95 issues.
- The Pope would not engage with his ideas
- A new church (Protestant denomination) was formed to make things better. Now the second most followed denomination





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Religious Education - Christianity in the Modern World

Key Terms

Promote: Techniques used to persuade somebody to buy or join something

Influence: The techniques used to persuade another person

Leader: A person in charge who convinces, persuades, or motivates others to follow them and their vision

Disciple: The followers of Jesus. They were all men in the Bible. Paul lead the disciples after Jesus' death in their mission to spread Christianity. There were 12.

Mary: The mother of Jesus. One of many women who were featured in the Bible but who had different roles to the disciples

Sanctity of Life: The Christian belief that human life is the ultimate precious gift and only God can give it and take it away

Imago Dei: The Christian belief that humans are created in the image of God – i.e. they are made to resemble him

Slavery: The practice of being forced to work without proper pay and rights. Many wealthy Christians have historically benefitted from slavery

Natural Evil: When bad things happen but they can be blamed on the physical features of the earth – such as an earthquake or a tornado

Moral Evil: When bad things happen as a result of a person's deliberate actions – such as a murder or a hate crime

Theist: Somebody who believes in the existence of God

Persecution: Treating somebody badly because of their beliefs or characteristics

Martyr: Somebody who dies for something that they believe in

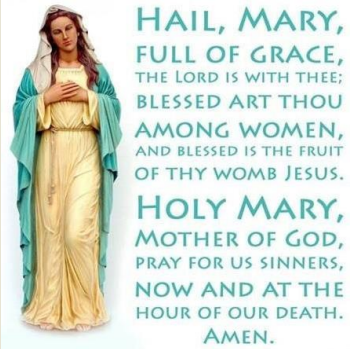
Adoration: A type of Christian prayer which expresses how great somebody feels God is

Repentance: A type of Christian prayer which requests God's forgiveness for sins that have been committed

Intercessions: A type of Christian prayer which asks God to meet the needs of another person

Petitions: A type of Christian prayer which asks God for help with our own needs

Worship: A form of religious practice which shows respect and admiration for a higher being (God)



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Religious Education - Christianity in the Modern World

Key Questions

Should religions promote/advertise themselves?

- Christianity was originally spread by missionaries – people who spread the word of the religion to others
- All adverts in the UK must be legal, decent, honest and truthful
- As the existence of God is hard to prove, it's difficult to legally promote a religion
- We have freedom of speech though, so should be able to share our beliefs and let others choose

Can Christians justify having no/few women leaders?

- Some denominations now welcome women as leaders
- Church of England has allowed women to be priests/vicars since 1995
- Libby Lane was the first Church of England Bishop and is currently the Bishop of Derby
- Other denominations think women can do important work, but can't be priests – e.g. Catholics who strongly believe in the importance of Mary but that her role was different to the disciples

Why is slavery wrong to Christians?

- Many wealthy Christians have historically benefitted financially from slavery
- Overwhelming belief now that slavery is wrong and equality should exist: "There is neither Jew nor Gentile, neither slave nor free, nor is there male or female. You are all one in the eyes of Jesus Christ" (Galatians 3:28)
- "Only do unto others as you would have them do to you" (Luke 6:31)

Why does the concept of evil cause Christians problems?

- Christians question whether, if God exists, why does evil happen?
- Sanctity of Life – some would argue that evil is part of God's plan for us all, makes people and their beliefs stronger
- Others use the existence of evil as a way to prove God does not exist
- Christians believe that God gave people *free will* to do the right thing but some people choose not to

How and why are Christians still persecuted?

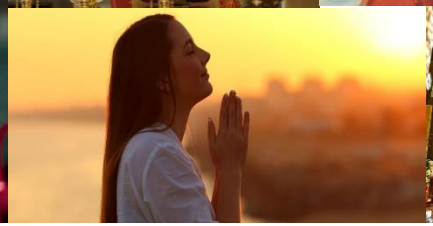
- Research has shown that Christians are the most persecuted religion
- Some Christians face persecution as their beliefs are different to others where they live
- Many Christians have to follow their religion in secret
- Christians in some countries are arrested by the police because of their beliefs and might be attacked

What is prayer like for Christians?

- Prayer takes many forms. It can be a private experience where an individual prays quietly to God or could be more public – for example in a church service. Prayers can be categorised:
- Adoration – expresses how great God is
- Petition – asks God for physical or spiritual goods
- Intercession – asks for help for other people
- Thanksgiving – express thanks to God for Good things

How do Christians worship?

- In worship, Christians offer thanks to God through songs, dance, reading scripture, prayers and ceremonies etc.
- A key Roman Catholic form of worship is Mass, which includes Holy Communion where the body and blood of Christ is consumed (a bread wafer and red wine)
- Some Christians worship privately, others more publicly
- Liturgical worship follows a set structure
- Non-liturgical worship (also known as spontaneous worship or charismatic worship) evolves naturally and follows no set structure
- Informal worship can happen anywhere with few rules
- Private worship takes place alone or in small groups, often in houses or other private locations



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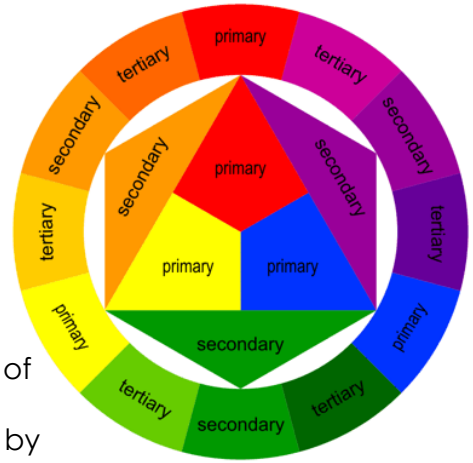
Y7 Art

Colour Theory

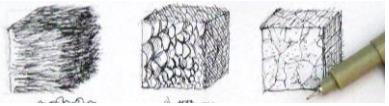
Primary colours are the three main colours, they can't be made, but are used to mix all of the other colours
Secondary colours are made by mixing two primary colours
Tertiary colours are made by mixing a primary and a secondary colour
Harmonious colours are next to each other on the colour wheel
Complementary colours are opposite each other on the colour wheel
Tint – when you add white to a colour to make it lighter

Shade – when you add black to a colour to make it darker



Making things look 3D: To stop drawings looking flat use a range of tone and marks. Pressing harder and lighter and layering with your pencil creates different tones and adds depth.

The Formal elements of Art

Tone	How light or dark something is 
Line	A mark which can be long, short, wiggly straight etc… 
Colour	What you see when light reflects off something. Red, blue and yellow are primary colours
Texture	How something looks or feels e.g. smooth or rough 
Pattern	A symbol or shape that is repeated 
Shape	A 2D area which is enclosed by a line e.g. a triangle 
Form	Something which has 3 dimensions e.g. a cube, sphere or a sculpture 

Mark Making: To make drawings look more realistic try to use different marks on the surface. You can do this by changing the direction, pressure or length of your marks. Mark making can be used in conjunction with shading or separately.

Technique Keywords

Media/Medium	The materials and tools used by an artist to create a piece of art
Technique	The way an artist uses tolls and materials to create a piece of art
Composition	Where you place objects on the page
Highlight	The bright or reflective area on an object or piece of art, this area is closest to the light source
Shadow/Shade	The darker areas within a piece of art or object
Proportion	The size relationship between different parts e.g. height compared to width

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Collage is pasting paper cut-outs onto various surfaces, it can also include other media such as painting and drawing.

We are looking at **Natural Forms** in this project. A Natural form is an object that has not been altered or manipulated, but is in its' original form found in nature.

Grades of pencil

Pencils come in different grades, the softer the pencil, the darker the tone.

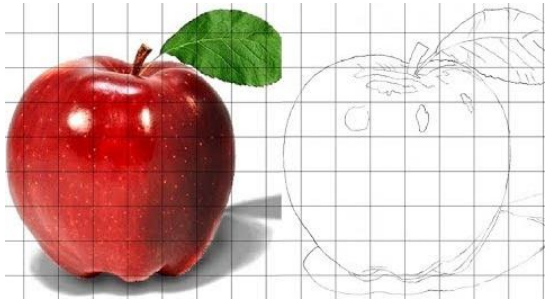
H=Hard B=Black

In art the most useful pencils for shading are 2B and 4B. If your pencil has no grade, it is most likely HB(hard black) in the middle of the scale.

Contrast is when you place opposite elements together e.g. light vs. dark colours, rough vs. smooth textures, large vs. small shapes. This makes art look interesting and exciting.

Directional shading is shading that follows the contours of an object. Using this method makes your work appear more realistic. Look at the hand, see how the shading changes direction and curves with the shape of the hand.

Contour Line is a **line** that defines an edge of an object. **Contour Line** Drawing is when only lines (instead of shading) are used to show the shape of the object.



The **Grid method** allows you to draw an image piece by piece. It helps to keep things in proportion.

Things to help:

Books

- **How to Draw Almost Everything: An Illustrated Sourcebook** – Chika Miyata
- **Keys to Drawing** – Bert Dodson
- **Drawing for the Absolute Beginner: A Clear & Easy Guide to Successful Drawing (Art for the Absolute Beginner** – Mark and Mary Willenbrink

YouTube Tutorials

- **Drawing & Painting – The Virtual Instructor**
- **Proko**
- **Emmy Kalia**

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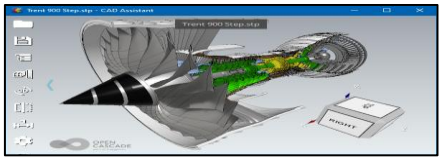
Design and Technology – Graphics Project-Design Packaging.

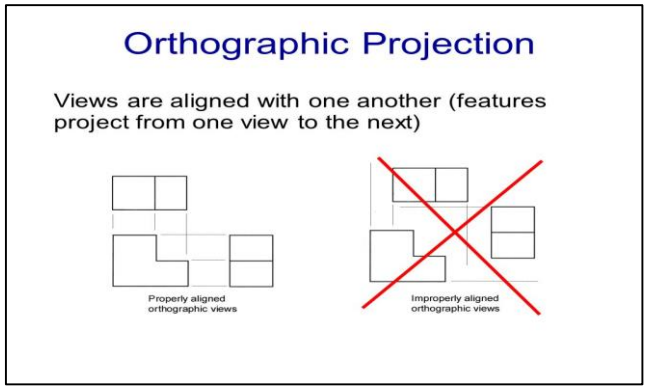


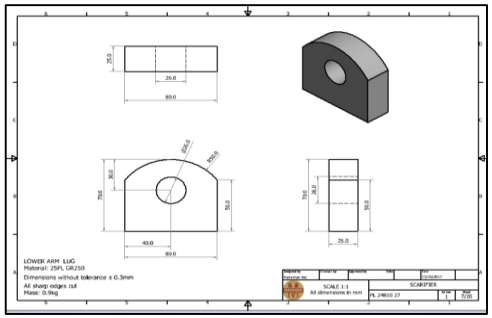
2D Design – CAD, CAM and CNC

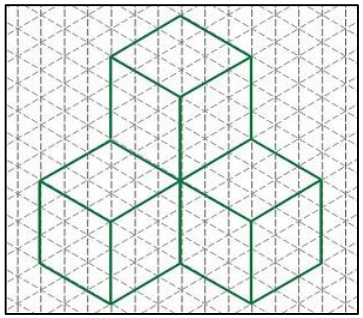
CAD (computer-aided design) software is used by architects, engineers, drafters, artists, and others to create precision drawings or technical illustrations. **CAD software** can be used to create two-dimensional (2-D) drawings or three-dimensional (3-D) models

CAM Computer-aided **design** (CAD) involves creating computer drawings. Computer-aided manufacturing (**CAM**) uses geometrical **design** data to control automated machinery. **CAM** systems are associated with computer numerical control (CNC) or direct numerical control (DNC) systems.

CNC means Computer Numerical Control. This **means** a computer converts the **design** produced by Computer Aided **Design** software (CAD), into numbers. The numbers can be considered to be the coordinates of a graph and they control the movement of the cutter.

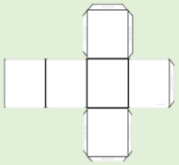






Nets- A pattern that you can cut and fold to make a model of a solid shape

Net of a cube!



Hazard- Something that has the potential to cause harm

Isometric Drawing- **Isometric projection** is a method for visually representing three-dimensional objects in two dimensions in technical and engineering **drawings**

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Design and Technology – Bee Box.

Design Idea
Concept
Research
Analysis

Product analysis involves investigating a **products** features, costs, availability, quality and other aspects. **Product analysis** is carried out by people who want to buy the product, by **product** managers attempting to understand competitors and by people who need inspiration to design and develop a new product. At school we use ACCESS FM to help us analyse a product. Below is an example of how it used.

Market Research- The action or activity of gathering information about consumers' needs and preferences.

Customer- What would you customer think of the product? Is it suitable for them? Does it fulfil their needs?

Aesthetics- Describe what the object looks like, you can discuss its colour, texture, features and more

Cost- Discuss the cost of the product, is it too expensive? too cheap? Would your client be happy with the price? Is it good value for money?

Size- What are the dimensions of your product? Is it just right? Too big? Too small?

Environment- What location will your product be suitable for? Is your product environmentally friendly?

Function- How does your product work? Are there any moving parts? What is it intended to do?

Shape- Describe the shape of your product, Is the shape suitable for your client? Could it be improved?

Materials- Describe the materials, What is the product made of? Are the materials suitable?

ACCESSFM- This is a useful tool used to analysis a product in detail

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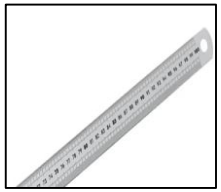
Design and Technology – Graphics Project-Design Packaging.

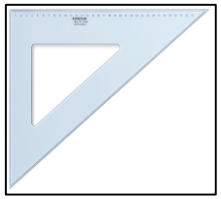
Orthographic projection is a means of representing three-dimensional objects in two dimensions. It is a form of parallel projection, in which all the projection lines are orthogonal to the projection plane, resulting in every plane of the scene appearing in affine transformation on the viewing surface.

Tools and Equipment

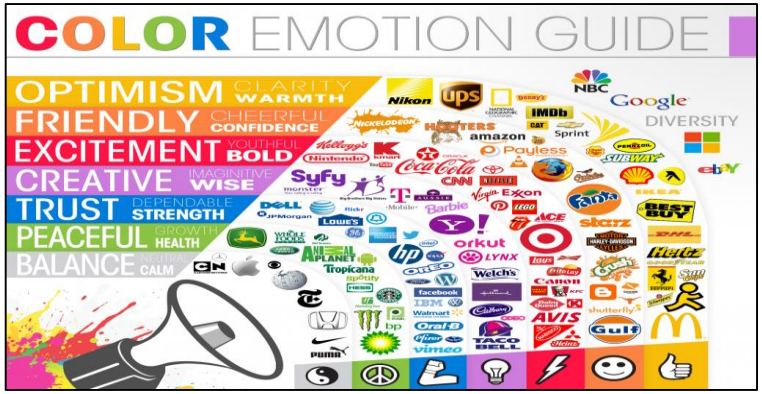
Steel Ruler- Used to draw very precise and accurate straight lines



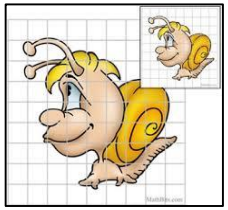
Set Square- Use for drawing 30 or 60 degree diagonal lines



Scaled Drawings- Why use scaled drawings ? A **drawing** that shows a real object with accurate sizes reduced or enlarged. We cant design a building as big as the Eifel tower so we have to draw it smaller. This is called a scaled drawing.

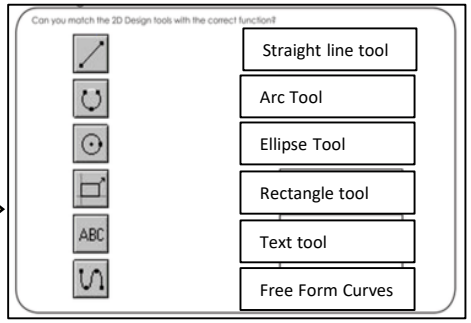


Graphic Design - The art or skill of combining text and pictures in advertisements, magazines, or books.

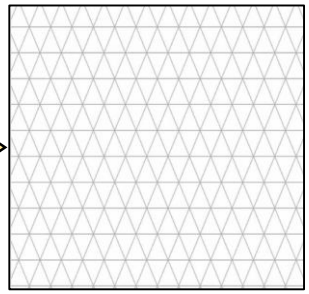


Graphical tools

2D Design Tools Explained! These are the most common tools you will use in 2D Design



Isometric drawing paper. Used to help you create drawings in 3D. Lines are 30 degrees



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Food and Nutrition – Food Preparation skills.

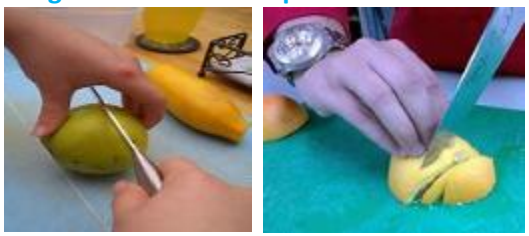
Equipment

1. Measuring jug	2. Frying pan	3. Peeler	4. Measuring spoons	5. Casserole dish
6. Digital scales	7. Spoon	8. Plate	9. Chopping board	10. Weighing scale

Keyword	Meaning
Bridge Claw	Safe methods for using a knife to prepare food. The name describes the hand grip.
Enzymic Browning	When you slice some fruits or vegetables, e.g. apples, bananas, potatoes, the oxygen in the air turns them brown.
Glazing	Brushing with egg or milk before baking to give a shine. E.g. scones, pastry.
Rubbing In Technique	Combining fat and flour together using your fingertips. E.g. crumbles, scones.
Vegetable Knife	A small sharp knife used for preparing fruits and vegetables.
Whisking	Using a fork, or whisk to add air to a mixture.

Skills & Processes

Bridge & Claw Knife Grips



Used in: Fruit salad, layered dessert, mini omelettes and most other recipes.

Weighing & Measuring

Used in:
Fruit crumble, scones, fruity flapjacks, mini omelettes and most other recipes.

Knife Skills – Peeling, chopping, dicing, slicing.

Used in: Fruit salad, layered dessert, mini omelettes and lots of other recipes.

Rubbing In Technique

Used in:
Fruit crumble, scones, shortcrust pastry.

Independent skills I need to learn in year 7

- **Use the bridge and claw** to cut food safely and accurately.
- **Use a range of other preparation techniques**, e.g. peeling, chopping, slicing, grating etc.
- **Weigh and measure** ingredients accurately.
- **Organise** all my ingredients and follow a recipe.
- **Use the cooker**, select and adapt cooking times. Be able to check if food is cooked properly.
- **Add garnishes** and decoration to my food.

Colour Coded Chopping Boards

Stops **bacteria** spreading & causing **food poisoning.**

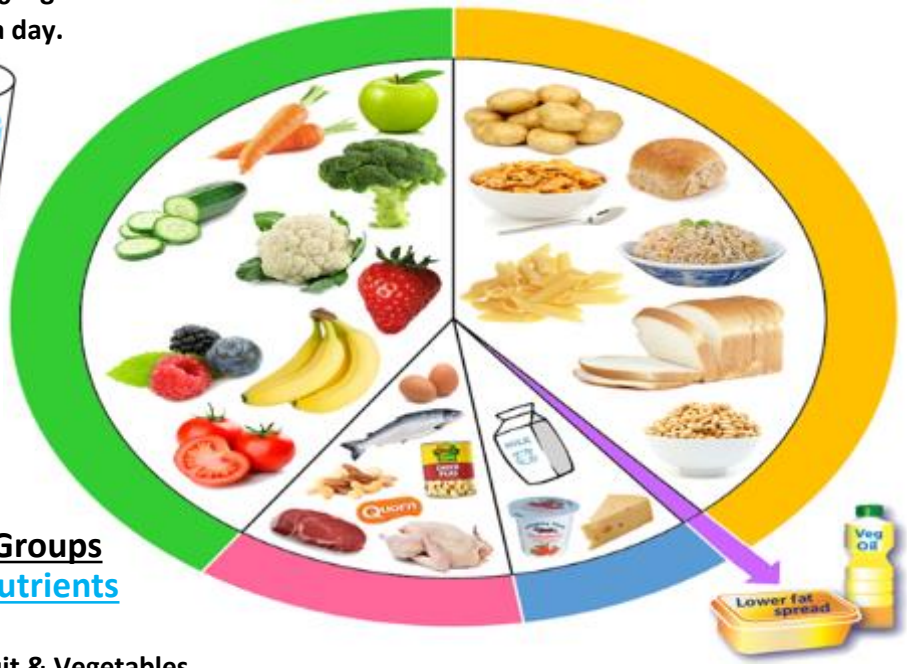
Food and Nutrition – Nutrition and Health

The Eatwell Guide

A healthy diet is a balanced diet.

The **Eatwell guide** shows what kind of foods you should eat, and in what proportions, to have a healthy and balanced diet. Your diet includes everything you eat and drink each day.

Stay hydrated. Aim for 6 – 8 glasses a day.



Food Groups and Nutrients

- **Fruit & Vegetables**
  Vitamins and Minerals
- **Potatoes, bread, pasta, cereals, rice.**
  (choose wholegrain versions to get more fibre)
  Starchy Carbohydrates
- **Oils & Spreads**
  Fat
- **Dairy & Alternatives**
  Calcium
- **Beans, pulses, eggs, meat, fish**
  Protein

Processed foods high in sugar, fat and salt

Eat less often and in small amounts

Keyword	Meaning
Bacteria	Grows on food. Can cause food poisoning.
Calcium	A mineral needed for strong teeth and bones.
Carbohydrate	Starchy versions give slow release energy.
Fat	Keeps us warm. Gives energy.
Fibre (NSP)	Helps our digestive system remove waste.
Minerals	A group of nutrients (calcium, iron, sodium etc).
Nutrient	A substance from food essential for life & growth.
Obesity	Having too much body fat/being overweight.
Protein	Needed for muscle growth strength and repair.
Salt	Added to food for taste. Too much is bad for us.
Saturated Fat	Raises cholesterol and can be harmful.
Sugar	Makes food sweet (a type of carbohydrate).
Vitamins	Help our immune system fight illness.
Water	Essential for life. Keeps us hydrated.

Different Needs of Different Age Groups

- **Children** need a balanced diet to grow properly.
- **Adults** should not eat more than they need as they have stopped growing and may be less active than when they were younger.
- **Elderly people** should eat less as they are less active so don't burn off the extra energy.

5 a Day – Fruits & Vegetables

Eat **at least 5 portions** of **a variety of fruit vegetables** every day. An adult portion is 80g but children need smaller portion sizes. 1 portion is roughly the amount you can fit in the palm of your hand.

Eat as many **different colours** as possible because they all contain different combinations of fibre, vitamins, minerals and other nutrients.

Find out more: www.nhs.uk/live-well/eat-well/why-5-a-day

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Year 7 Food and Nutrition Knowledge Organiser – Food Safety.

Basic Safety and Hygiene Rules

- Wash hands before handling food.
- Store food in the correct place.
- Use the correct colour chopping boards to avoid cross contamination.
- Cover cuts with a blue plaster.
- Tie back hair and wear a clean apron.

Help Prevent Food Poisoning

Signs of Bacteria Growing on Food


Mould


Sourness


Bad Smells

Food Storage

Different foods need to be stored in different places to slow down the growth of bacteria.


Fruit – Should be stored in a fruit bowl to ripen.

Fridge (dairy foods, meat, fish, salad) – A fridge temperature should be between 0 and 5°C

Ambient foods (bread, cereals, pasta etc) – should be stored in a cool, dry, dark place (cupboard or bread bin)

Freezer – A freezer should be -18°C or below.

What Conditions Do Bacteria Need To Grow?

Warmth, Moisture, Food, Time and **PH Balance.**

This is why storing food in the correct place is so important. If food is not stored correctly bacteria will grow and cause food poisoning.

Keyword	Meaning
Ambient Foods	Foods that can be safely stored at room temperature.
Bacteria	Grows on food. Can cause food poisoning.
Cross Contamination	When bacteria passes from one food to another or from people to food. Can lead to food poisoning.
Food Poisoning	Caused by eating food infected with bacteria. Symptoms include sickness, fever and diarrhoea.

Colour Coded Chopping Boards

Stops **bacteria** spreading & causing **food poisoning.**

Enzymic Browning

Foods such as **apples, pears and potatoes** will turn brown when peeled, because oxygen reacts with the enzymes in the food. They are still safe to eat but you can prevent this by using an acid like lemon juice or covering in water.

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Food and Nutrition – Nutrition and Food Choice

Macronutrients - We need these in large amounts.

Nutrient	Main Functions in Body	Foods
Carbohydrates	Starch (complex carbohydrate) – Gives slow release energy. Fibre – Helps digestive system. Sugar (simple carbohydrate) – Gives fast energy.	Potatoes, bread, pasta, cereals, rice. (choose wholegrain versions to get more fibre).
Protein	Growth, repair and of muscles and cells. Body chemicals (hormones & enzymes). Secondary source of energy.	Meat, fish, eggs, nuts, seeds, pulses, lentils.
Fat	Insulates our vital organs (heart, lungs etc) and keeps us warm. Gives concentrated energy.	Butter, lard, margarine, sunflower oil, olive oil etc.

Energy Balance

BMR (Basal Metabolic Rate) - This is the smallest amount of energy your body needs to stay alive, to breathe and so your heart can keep beating. It depends on age, gender and body size.

PAL (Physical Activity Level) – This is a measure of how active you are. A more active person will have a higher PAL.

BMR and PAL multiplied together will give you your daily energy requirement.

You have to **balance** your **energy** intake to keep to a healthy weight. If you eat more energy than you burn off you will gain weight and become **obese.** If you eat less energy than you use you will lose weight.

DRV's (Dietary Reference Values) – These are estimates of the amount of nutrients people should have in their diet. Traffic light labels are used on packaging to show this. Red warns where fats/saturate/sugars/salt are too high.

Each grilled burger (94g) contains

Energy	Fat	Saturates	Sugars	Salt
924kJ 220 kcal	13g	5.9g	0.8g	0.7g
11%	19%	30%	<1%	12%

of an adult's reference intake

Locally Sourced Foods – A way of reducing food miles is to buy locally sourced foods, these are also seasonal and can sometimes be organic too.

Local and Seasonal Foods

Seasonal Foods - Foods that are harvested and eaten in the season they are naturally ready to eat.

Reduce Your Carbon Footprint

Most **UK-grown fruit and vegetables** are not available all year round.

Spring Summer Autumn Winter

http://eatseasonably.co.uk/what-to-eat-now/calendar/

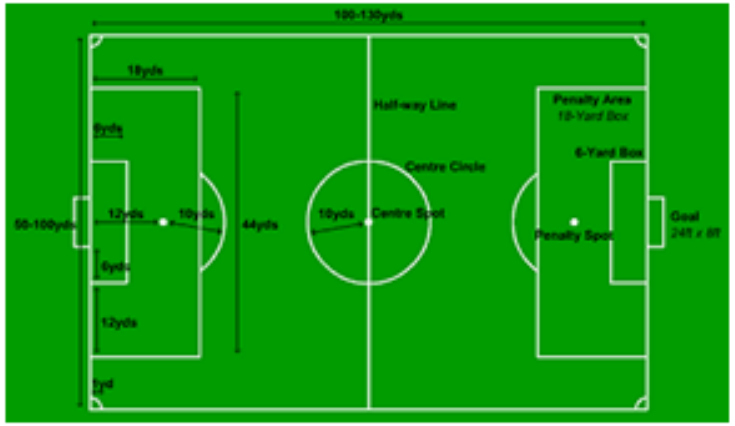
The importance of Fibre

Soluble fibre	Soluble fibre dissolves in the water in your digestive system.	•oats, barley and rye •fruit, such as bananas and apples •root vegetables, such as carrots and potatoes
Insoluble fibre	Insoluble fibre doesn't dissolve in water. It passes through your gut without being broken down and helps other foods move through your digestive system more easily.	•wholemeal bread •bran •cereals •nuts and seeds

Football

KS3

The Football Pitch



Key terminology

Passing - Sending the ball to another player
Receiving - Getting the ball from another player
Dribbling - Running with the ball in an attempt to beat an opponent
Jockeying - Is the defender's skill of keeping between the attacker and their intended target (usually the goal)
Tackling - To dispossess an opponent of the ball
Marking - A way to prevent your opponent from receiving or passing the ball, or taking a shot
Attacking - Making an attempt to score
Crossing - A cross is a medium to long range pass from a wide area of the field towards the opposition's goal
Shot - Attempting to score a goal
Offside - Moving into an area where you're not permitted
Interception - Preventing a pass between players

Lesson Overview

1. Passing and receiving
2. Dribbling and turns
3. Shooting
4. Heading
5. Attacking Principles
6. Defending Principles
7-10 Conditioned games

Player Positions

Goalkeeper - To prevent the opposing team from scoring.
Defenders - A defender is an outfield player whose primary role is to prevent the opposing team from scoring goals.
Midfielders - Midfielders are generally positioned on the field between their team's defenders and forwards.
Forwards - Forwards are the players on a football team who play nearest the opposing team's goal, and are therefore the most responsible for scoring goals.

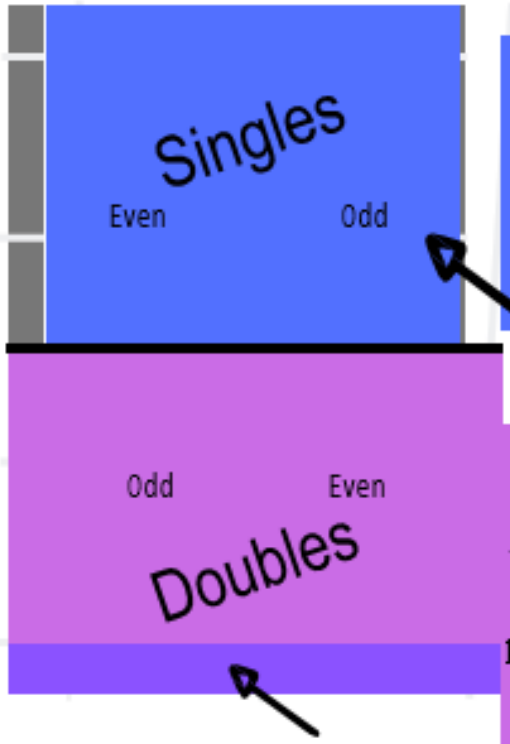
Rules of the Game

Starting the game - The game begins with the toss of a coin, and the winning captain decides which goal they wish to defend.
Method of scoring - A goal is scored when the ball has completely crossed the goal line, provided that no other infringements have taken place.
Fouls - A foul has been committed if a player trips, kicks, pushes, charges another player recklessly, striking of any king, makes a tackle but connects with the player before the ball, deliberately handles the ball, obstructs an opponent or prevents them from releasing the ball.
Free kicks - Used to restart play after a foul or infringement has taken place. They are usually taken from the place from which the offence was committed. Free kicks can be direct (where the free kick taker may score directly) or indirect (where the free kick taker and a second player must touch the ball before a goal can be scored.
Penalty kick - A penalty kick is awarded for a foul committed by a defending player in their own penalty area. The kick is taken from the penalty spot and all other players except for the goal keeper and penalty taker must be at least 12 yards from the spot.

Badminton

KS3

The Court Markings



Singles

- The player who wins the point serves.
- If the server is on an even number, they serve from the right. If they are on an odd number they serve from the left.

Service line - the serve must land on or past this line

Doubles

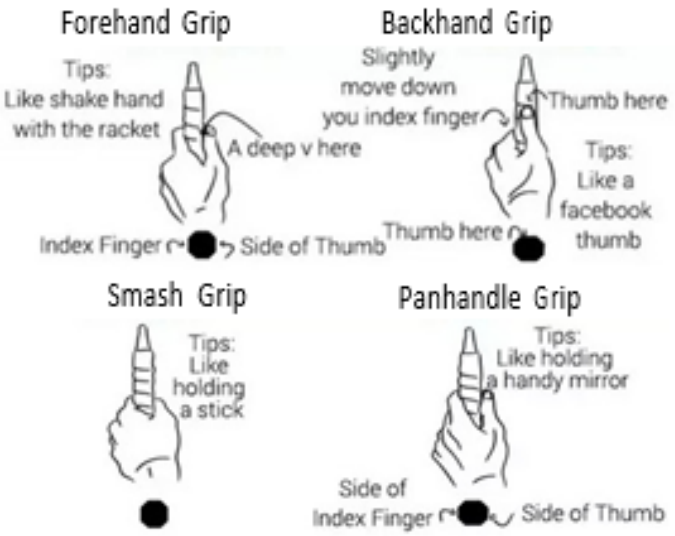
- The team that win the point serve.
- If the serving team are on an even number, it is the player who is in the right box who serves. That player keeps serving until that team lose a point. E.G if a team are on 2, the player on the right serves, if they win the next point, that player changes side and serves from the left box because 3 is odd.

The back tramlines are out on the serve in doubles but in for the rest of the point

A game of badminton is played to 21 points (This can sometimes be shortened to 15 or 11). If the game is tied at 20-20 the game must be won by two clear points. For example 22-20 or 25-23. If the game isn't won by 2 clear points it's the first player to reach 30.

If a player's body or racquet touches the net before the shuttle lands it is the other player's point.

The Grips



Lesson Overview

1. Forehand/Backhand serve
2. Midcourt hit
3. Forehand/Backhand net shot
4. Overhead dropshot
5. Overhead clear
6. Smash
7. Singles play
8. Doubles play

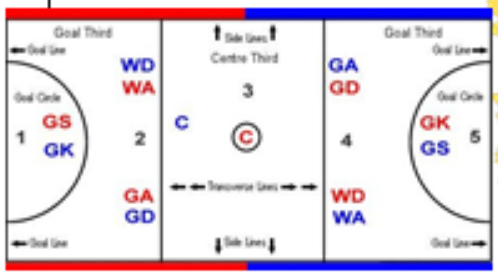
Key terminology

Forecourt - The front third of the court
Midcourt - The middle third of the court
Rearcourt - The back third of the court
Clear - A shot hit deep into the opponent's court
Dropshot - A shot that just drops over the net
Smash - A powerful overhead shot
Net shot - A shot hit from the forecourt that just drops over the net
Midcourt hit - A flat, attacking shot that goes from midcourt to midcourt.

Netball

KS3

The Netball Court



Lesson Overview

1. Footwork
2. Passing and receiving
3. Timing of pass
4. Attacking play
5. Shooting
6. Defensive play
7. Assessment

Footwork

A player can receive the ball...

1. With both feet grounded or jump to catch the ball and land with both feet at the same time. The player can then choose one foot to move (not both).
2. Landing on one foot then the other. The first foot is the landing foot and this foot cannot be moved, other than to pivot on the spot. The second foot can move.

If you break the footwork rule, a free pass will be awarded to the other team.

Key Vocabulary

Passing - sending the ball
Receiving - catching the ball
Footwork - how you land when in control of the ball
Dodging - a way to change direction quickly
Defending - preventing the other team from gaining possession of the ball and scoring
Attacking - making an attempt to score
Marking - a way to prevent your opponent from receiving or passing the ball or shooting
Shoot - attempt to score a goal
Offside - moving into an area where you're not permitted
Interception - preventing a pass between players
Throw in - a free pass taken off court
Centre Pass - taken to start or restart the game
Free Pass - awarded when there is an infringement of the rules by a player
Penalty Pass - as above, when two players are involved
Goal Third & Centre Third - areas of the court

Player Positions

Goal Shooter (GS) - To score goals and to work in and around the circle with the GA.
Goal Attack (GA) - To feed and work with the GS and to score goals.
Wing Attack (WA) - To support the circle players, giving them shooting opportunities.
Centre (C) - To take the centre pass and to link the defence and the attack.
Wing Defence (WA) - To look for interceptions and prevent the WA from feeding the circle.
Goal Defence (GD) - To win the ball and reduce the effectiveness of the GA.
Goal Keeper (GK) - To work with the GD and to prevent the GA/GS from scoring goals.

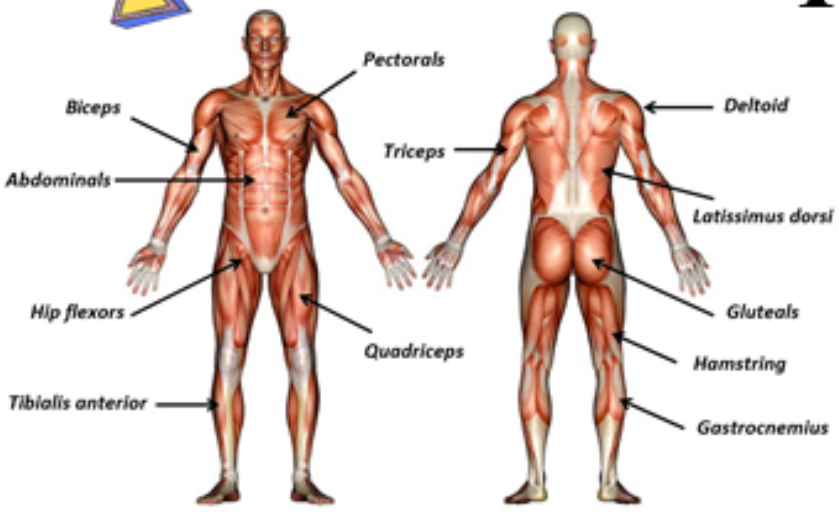
Rules of the Game

Held ball - A player is only allowed to hold the ball for 3 seconds. A free pass is awarded to the opposing team if the ball is held for longer than 3 seconds.
Obstruction - A player attempting to intercept the ball must be at least 3ft away from the player with the ball. The distance is measured from the landing foot of the player with the ball. If you are closer than 3ft, a penalty pass will be awarded.
Contact - This occurs when a players actions interfere with an opponent's play, this can be accidental or deliberate. This includes; physical contact, using any part of the body to limit an opponent's ability to move freely (pushing, tripping or holding), placing a hand on the ball held by an opponent, removing it from an opponent's possession or pushing the ball in to an opponent when holding it.
Over a third - The ball cannot be thrown over a complete third without being touched or caught by a player. A free pass shall be taken from where the ball crossed the second line (i.e where the ball shouldn't have been)
Replayed ball - A player can not; toss the ball in to the air and catch it again without it being touched by another player, catch a rebound from a shot on goal if it has not touched the post or another player, or pick it up again after losing control if it has not been touched by another player.
Offside - A player with or without the ball cannot move into an area of the court that is not designated for their position. This will result in a free pass to the other team.

KS3

Fitness

The Muscles



Types of Training

Circuit Training Involves completing a series of exercise, called stations, which are completed one after another, with a brief period of rest inbetween.

Fartlek Training
Fartlek is a Swedish word meaning 'speed play'. It involves periods of fast work with intermittent periods of slower work.

Interval Training
Involves alternating between periods of work and periods of rest.

Continuous Training
Involves working for a sustained period of time without rest.

Static Stretching
Involves holding a stretch for up to 30 seconds.

Weight Training
Weight training involves the use of weights or resistance to cause adaptations to the muscles.

Plyometric Training
Involves high-impact exercises that teach the muscles to perform their maximum contractions faster; to be more powerful. E.G jumping, hopping and bounding.

Components of Fitness

Agility - The ability to move and change direction quickly, at speed, whilst maintaining control.
Balance - The ability to keep the body stable by maintaining the centre of mass over the base of support. There are two types of balance:
Static: A balance is performed with little or no movement. E.G a handstand.
Dynamic: A balance is performed when movement takes place. E.G a cartwheel.
Cardiovascular endurance - The ability of the heart and lungs to supply oxygen to the working muscles.
Flexibility - The range of movement possible at a joint.
Muscular endurance - The ability of a muscle or muscle group to undergo repeated contractions, avoiding fatigue.
Power - Strength X Speed
Reaction time - The time taken to start responding to a stimulus.
Speed - Distance ÷ time.
Strength - The ability to overcome resistance
Coordination - The ability to use two or more different parts of the body together, smoothly and efficiently.

Repetitions
The number of times an individual activity is performed.

Sets
A group of repetitions.

Maximum heart rate = 220-age

Aerobic **Anaerobic**

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At My Best - Dealing with change, Transition and School Values

Aim: To feel supported in the transition from Primary to Secondary School, understanding where and how to access support if required. Have an understanding on the schools values and the importance of these on the journey to success.

Word	Definition
Change	Make or become different
Positive	Showing progress or improvement.
Negative	(of a person, attitude, or situation) not desirable or optimistic.
Transition	The process or a period of changing from one state or condition to another.
Strategies	A plan of action designed to achieve a long-term or overall aim
Relationships	The way in which two or more people or things are connected, or the state of being connected.
Expected	Regarded as likely; anticipated.
Unexpected	Not expected or regarded as likely to happen.
Emotions	A strong feeling deriving from one's circumstances, mood, or relationships with others.
Thinking	A person's ideas or opinions.
Feelings	The emotional side of someone's character; emotional responses or tendencies to respond.
Aspiration	A hope or ambition of achieving something.
Belief	Trust, faith, or confidence in (someone or something).
Learning	Knowledge acquired through study, experience, or being taught.
Achievement	A thing done successfully with effort, skill, or courage.
Ready	In a suitable state for an action or situation; fully prepared.
Respectful	Due regard for the feelings, wishes, or rights of others.
Responsible	Capable of being trusted.
Mission	A strongly felt aim, ambition, or calling.
Purpose	The reason for which something is done or created or for which something exists.
Values	Principles or standards of behaviour; one's judgement of what is important in life.
Rules	The normal or customary state of things.

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At My Best - Kindness, Friendships and Peer Pressure

Aim: To consider the importance of being kind and the impact friendships have on our decisions. Consider why we sometimes make bad decisions and how pressure from others can cause this to happen

Word	Definition
Kindness	The quality of being friendly, generous, and considerate.
Bullying	Seek to harm, intimidate, or coerce (someone perceived as vulnerable).
Cyber Bullying	The use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature.
Feelings	The emotional side of someone's character; emotional responses or tendencies to respond.
Emotions	A strong feeling deriving from one's circumstances, mood, or relationships with others.
Impact	A marked effect or influence.
Harmonious	Free from disagreement or dissent.
Community	A group of people living in the same place or having a particular characteristic in common.
Victim	A person harmed, injured, or killed as a result of a crime, accident, or other event or action.
Perpetrator	A person who carries out a harmful, illegal, or immoral act.
Bystander	A person who is present at an event or incident but does not take part.
Accessory	Someone who gives assistance to the perpetrator of a crime without taking part in it.
Culture	The attitudes and behaviour characteristic of a particular social group.
Friendship	The emotions or conduct of friends; the state of being friends.
Thoughts	An idea or opinion produced by thinking, or occurring suddenly in the mind.
Words	Something spoken or written; a remark or statement.
Deeds	Action or performance.
Mutual	(of a feeling or action) experienced or done by each of two or more parties towards the other or others.
Praise	The expression of approval or admiration for someone or something.
Characteristics	A feature or quality belonging typically to a person, place, or thing and serving to identify them.
Disagreement	Lack of consensus or approval.
Fear	An unpleasant emotion caused by the threat of danger, pain, or harm.
Peer Pressure	Influence from members of one's peer group.
FOMO	Anxiety that an exciting or interesting event may currently be happening elsewhere, often aroused by posts seen on social media.