ORMISTON SWB ACADEMY

Knowledge Organiser

Autumn Term 2024 – Year 8

Name: _____

Form: _____

Please remember to bring this into school everyday

Regular retrieval throughout a scheme of learning (daily, weekly and monthly) has been proven to reduce the rate of forgetting, supporting you to **retain more in long term memory**- making assessments/ exams way easier! The challenge for you as a student is to **make sure you use your knowledge organiser for each subject properly** to help you to know more and remember more over time. **We've created this walk through to support you** in using your knowledge organiser- for more support speak to your subject teachers

Using your Knowledge Organiser

You will use your knowledge organisers during lessons to engage and support with securing essential knowledge.
We expect you to use your knowledge organisers at home to support with independent study. Below you will find a step-by-step guide of 4 different revision strategies you can use at home. QR codes can be found at the back of this booklet which will link you to videos of these strategies in action.

Strategy 1- Look, cover, write, check – A really simple but effective way to use your knowledge organiser. Focus on a specific area of your knowledge organiser

1	2	3	4	5
Look	**Cover**	**Write**	**Check**	**Repeat**
Start with a **small section of knowledge** that you want to remember e.g *Henry VIII's wives in History.* Read through this section of the knowledge organiser (a couple of times if it helps)	Now **cover up this section** of your knowledge organiser with a post it note or scrap paper.	**Self quiz- what can you remember** and rewrite? Make sure you do this without looking back at your knowledge organiser.	**Remove the post it and check for accuracy**- did you get the key terminology? Was it spelt correctly? Was the order correct? If you drew a diagram, how much of this did you get correct? Most importantly- what did you miss out? Make your corrections in green pen.	After a short break away from your knowledge organiser repeat the look, cover, write, check **until you can recall all of the facts correctly without prompts.** This process can be used for any new knowledge that you want to acquire. It is good idea to do this on a regular basis, once a week.

Strategy 2-Self-Quizzing – You might try this after a few weeks of using your knowledge organiser. Get someone (or yourself) to set you 10 questions using your knowledge orgainser. These could be spellings, key words, equations etc to see how much you can remember! Record your score and see if you can beat your personal best each half term

1	2	3	4	5
Select topic	**Prepare the quiz**	**Answer it**	**Self check**	**Repeat**
Decide **which area you want to be quizzed** on (this might build up over time)	**Create 9 questions on that topic** or, ask somebody else to prepare 10 random questions for you.	**Set a time limit** (depending on the number of questions) and answer the questions without looking at your KO.	Now look at your KO to **self-check**- make a note of your score. Celebrate your successes and make a note of anything you missed or got incorrect.	**Return to this section** in 2/3 weeks- see if you can improve your score! Re-do those questions that you missed or got incorrect.

Contents Page

Year 8 – English – Sherlock Holmes – Plot and Key Quotations

A Scandal in Bohemia

Plot Overview

- The King of Bohemia plans to marry a Norwegian princess. However, he previously had a relationship with a woman called Irene Adler. Adler is threatening to ruin his engagement with a picture she has of herself and the king together.
- Holmes tricks Adler into revealing where she keeps the photograph, but she outsmarts Holmes and escapes with it. Adler decides not to use the picture against the king. She leaves a picture of herself in its place, which Holmes keeps as a reminder of her.

Holmes: "I have no data yet. It is a capital mistake to theorise before one has data."

Holmes about Irene Adler: "…the woman…"

Watson about Holmes: "He was, I take it, the most perfect reasoning and observing machine that the world had seen."

The Red Headed League

Plot Overview

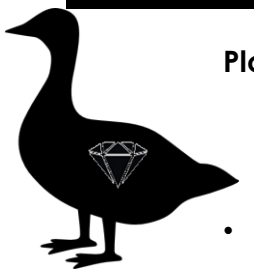
- Jabez Wilson gets a job with the mysterious 'Red- Headed League' because of his 'flame' coloured hair.
- One day, he is mysteriously told that he is no longer needed by the league so visits Holmes to ask him to investigate.
- Holmes discovers that his story reveals a plot to steal from a bank vault which is successfully stopped.

"…dreamy eyes were as unlike those of Holmes the sleuth-hound."

"…waving his long, thin fingers in time to the music."

"…lust of the chase…"

The Blue Carbuncle



Plot Overview

- A policeman named Peterson is left with a man's hat and Christmas goose.
- He takes the goose home to eat and discovers a blue carbuncle (a rare, and very valuable jewel) inside the goose!
- Holmes recognises the jewel as the one that was stolen from The Countess of Morcar. one that was stolen and Watson set off to discover how the blue carbuncle was stolen and how it ended up in a goose.

Watson to Holmes: "You have an answer to everything."

Watson: "My dear Holmes."

Year 8 – English – Sherlock Holmes – Context and Characters

Main Characters

Sherlock Holmes
A fictional consulting detective created by Arthur Conan Doyle. He is known for his intelligence, introspection and dual nature. He is described as an 'observing machine' because of his ability to work out who people are with seemingly very little evidence.

London Police
The *London Police force was established in 1928,* before then people would investigate crimes themselves, or pay someone else.

Doctor Watson
Holmes' former flatmate, a doctor and his closest companion. The stories are told from his point of view, working as Holmes' assistant.

A Scandal in Bohemia

Irene Adler
A famous American opera singer who had a relationship with the future King of Bohemia. To Holmes, she is '*the woman' who outsmarted him*.

King of Bohemia
Bohemia *was an area of central Europe*. The King is engaged to a Scandinavian princess but five years previously was madly in love with Irene Adler. Because of his status, he was unable to marry her at the time, which he regrets. The King still respects Adler.

The Red Headed League

Jabez Wilson
A London pawnbroker who has distinctively red hair. He takes the job working for The Red-Headed League but *was tricked by his assistant Vincent Spaulding*.

Vincent Spaulding/John Clay
Jabez Wilson's assistant. This is actually a *disguise for John Clay* who is a notorious thief.

The Blue Carbuncle

James Ryder
Head attendant of the *hotel* where the Blue Carbuncle goes missing.

Catherine Cusack
James Ryders's *accomplice and also the countess' maid,* she helps to steal the jewel.

John Horner
The man who *is framed for the crime*. He is racked with guilt and confesses when Holmes questions him.

Thesis Statement	Topic Sentence	Embed Quotations	Analysis of Method
Initially [text] is about _____, but it could also be about_____ . Although [the text] appears to be about _____, it is also referring to _____. Because [first idea], [second idea.] Despite [character + adjective], they can also be seen as [character + adjective.]	Each idea in the thesis will become the main point of a topic sentence. Topic sentence…. - Answers the question. - Is accurate. - Focuses on one thing.	The writer refers to _____ as '_____' and '_____'. When the text states, '_____' it reminds the reader of _____. [Character] says, "_____ ... _____," conveying _____. [Writer] repeats, "_____," because _____.	This [method] conveys a sense of _____. The writer uses [method] to depict/portray/suggest _____. Furthermore, the word '_____' evokes a sense of _____.

Keyword		Definition
A	Enlighten	To provide someone with information and understanding. People come to Holmes so that they can be **enlightened** on a crime.
B	Deduction	The process of reaching a decision by looking at the facts that are known. Holmes is able to use his skills of **deduction** to solve crimes.
C	Scandal	A scandal is something that shocks people because they think it is morally (H) wrong. The King of Bohemia fears that **scandal** of his relationship with Irene Adler being exposed.
D	Periodical/ serial	Books, magazines or other entertainment that are released on a regular basis. The Strand Magazine was a **periodical** that published the Sherlock Holmes stores.
E	Introspective	When you examine your own thoughts, ideas, and feelings. Sherlock Holmes can be **introspective**. This makes him a better detective.
F	Dual Nature	Holmes has a **dual nature**: his quiet introspective side, and his manic detecting side.
G	Fallible	Someone who is fallible makes mistakes. Someone **infallible** is always right. Holmes seems infallible but Irene Adler proves that he is, in fact, fallible.
H	Morals	**Morals** are standards of behaviour or principles of what is right and wrong.

Year 8 – Maths – Unit NP7 – Fractions

My mathematical journey

What do I need to remember from before?

- Addition and subtraction (NP2)
- Multiplication and division (NP3)
- Exponents and roots (NP4)
- Order of operations (NP5)
- Directed numbers (NP6)

What will I learn about in this unit?

- Representing fractions with pictures and numerals
- Calculating with fractions
- Finding fractions and wholes

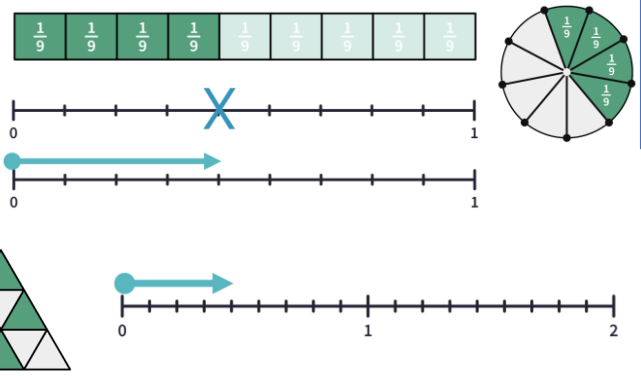
Where does this lead?

- Percentages, decimals and fractions (NP8)
- Proportional reasoning (NP10)
- Ratio (NP11)
- Linear equations (A4)
- Algebraic fractions (A17)

Representations of Fractions

We can represent the same fraction in different ways.

$\frac{4}{9}$



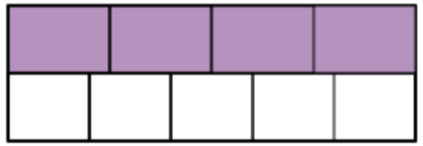
What is a Fraction?

numerator → 4 ← We have 4 out of the 9 equal parts

fraction bar (vinculum) → $\frac{4}{9}$ ← Each whole one is split into 9 equal parts

denominator → 9

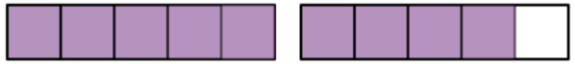
The diagram below does not represent $\frac{4}{9}$ because the parts are not all equal.



Improper Fractions & Mixed Numbers

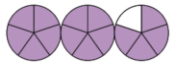
Improper Fractions

Each whole one is split into 5 equal parts. → $\frac{9}{5}$ ← We have 9 of those equal parts.



Example:

Convert $2\frac{4}{5}$ into an improper fraction.



We have 2 full whole ones. Each whole one is split into 5 equal parts.

$$2\frac{4}{5} = \frac{5}{5} + \frac{5}{5} + \frac{4}{5} = \frac{14}{5}$$

Mixed Numbers

We have 1 full whole one. → $1\frac{4}{5}$ ← We have another 4 of those equal parts.

Each whole one is split into 5 equal parts.

Example:

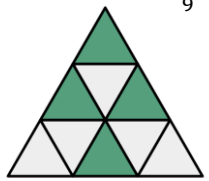
Convert $\frac{19}{5}$ into a mixed number.

Every $\frac{5}{5}$ is a whole one. We need to see how many groups of $\frac{5}{5}$ there are, and how many are left.

$$\frac{19}{5} = \frac{5}{5} + \frac{5}{5} + \frac{5}{5} + \frac{4}{5} = 3\frac{4}{5}$$

Complement of a Fraction

Shaded = $\frac{4}{9}$



Unshaded = $\frac{5}{9}$

The **complement** is the fraction needed to sum to 1.

Example:

Which symbol goes in the box < = >?

$$\frac{19}{3} \square 7\frac{1}{3}$$

Numbers need to be in the same type to compare.

$$\frac{19}{3} = 6\frac{1}{3}$$

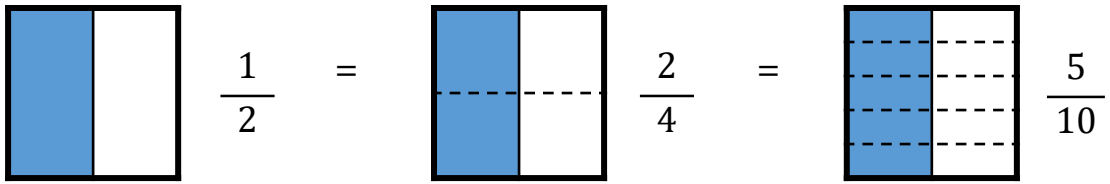
$$6\frac{1}{3} < 7\frac{1}{3}$$

Keyword/Skill	Definition/Tips
Equal parts	Fractions can only be described using equal parts of whole shapes.
Numerator	How many equal parts of a whole. The top number in a fraction.
Denominator	How many equal parts the whole is split into. The bottom number in a fraction.
Improper Fraction	A fraction where the **numerator** is bigger than the **denominator**.
Mixed Number	A number made from an integer and a fraction.
Equivalent Fractions	Two or more fractions that are equal in value.
Simplify	To cancel down a fraction to its lowest terms by dividing by all common factors.
Common Denominator	When two or more fractions have the same denominator.
Ascending Order	Order the numbers from the least value up to the greatest value.
Descending Order	Order the numbers from the greatest value to the least value.

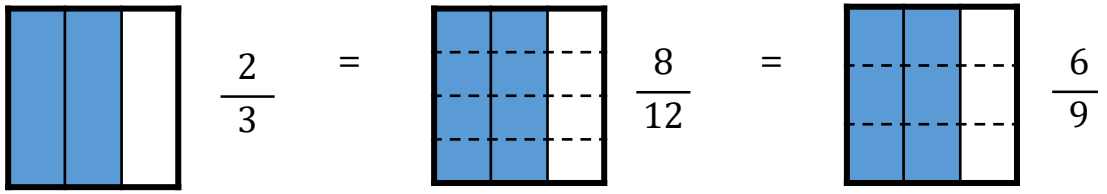
Year 8 – Maths – Unit NP7 – Fractions

Equivalent Fractions

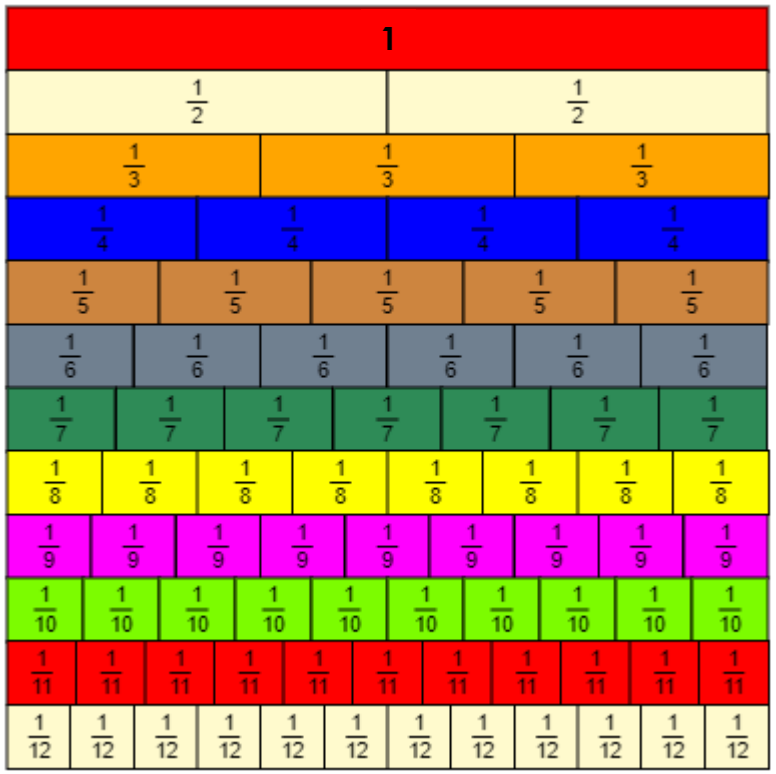
We can see that these fractions are **equivalent**.



$\frac{1}{2} = \frac{2}{4} = \frac{5}{10}$



$\frac{2}{3} = \frac{8}{12} = \frac{6}{9}$



A fraction wall is a useful way of finding fractions that are **equivalent**.

We can see that

$$\frac{1}{4} = \frac{2}{8} = \frac{3}{12}$$

because they are the same size on the fraction wall.

Can you spot any patterns in the numbers that also shows why they are equivalent?

Sneaky One

It is also helpful to recognise fractions equal to 1.

$\frac{4}{5} < 1$

$\frac{5}{5} = 1$

$\frac{6}{5} > 1$

'Sneaky One'

A fraction is equal to 1 if the numerator and denominator have the same value.

More examples: $\frac{10}{10}$ $\frac{3}{3}$ $\frac{120}{120}$

Using this can help us find equivalent fractions.

$\frac{1}{2} \times \frac{5}{5} = \frac{5}{10}$

$\frac{1}{2} = \frac{5}{10}$

Here are more examples of fractions equivalent to $\frac{1}{2}$

$\frac{1}{2} \times \frac{4}{4} = \frac{4}{8}$

$\frac{1}{2} \times \frac{2}{2} = \frac{2}{4}$

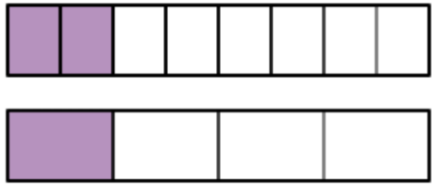
$\frac{1}{2} \times \frac{3}{3} = \frac{3}{6}$

Simplifying Fractions

We can also divide by a 'sneaky one' without changing the value of the fraction. We call this simplifying.

$\frac{2}{8} \div \frac{2}{2} = \frac{1}{4}$

$\frac{2}{8} = \frac{1}{4}$



$\frac{1}{4}$ is the simplest form of $\frac{2}{8}$

You can always simplify in steps, but to simplify fully your 'sneaky one' needs to be the highest common factor of the numerator and denominator.

Example:

$$\frac{12}{18} \div \frac{2}{2} = \frac{6}{9} \div \frac{3}{3} = \frac{2}{3}$$

Using the HCF, we can do this in one step

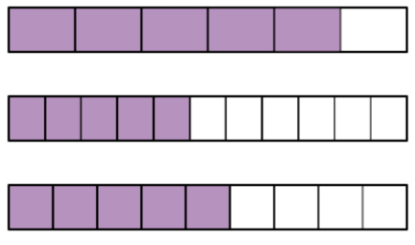
$$\frac{12}{18} \div \frac{6}{6} = \frac{2}{3}$$

Year 8 – Maths – Unit NP7 – Fractions

Ordering Fractions

To compare fractions there is a few things that can happen.
If the numerators are the same, we can compare the denominators.

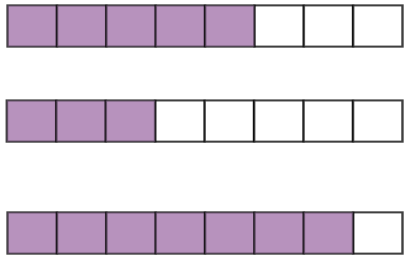
$\frac{5}{6}$
$\frac{5}{11}$
$\frac{5}{9}$



$$\frac{5}{11} < \frac{5}{9} < \frac{5}{6}$$

We can compare the numerators, if the denominators are the same.

$\frac{5}{8}$
$\frac{3}{8}$
$\frac{7}{8}$



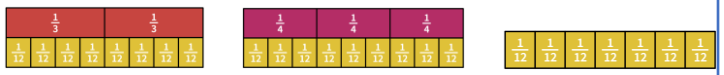
$$\frac{3}{8} < \frac{5}{8} < \frac{7}{8}$$

We can use equivalent fractions to help us compare sizes. This is the method you will have to use the most.

$$\frac{2}{3} \quad \frac{3}{4} \quad \frac{7}{12}$$

We can write $\frac{2}{3}$ and $\frac{3}{4}$ as twelfths (as 12 is the lowest common multiple of 3, 4 and 12. You can use any common multiple though).

$$\frac{2}{3} \times \frac{4}{4} = \frac{8}{12} \qquad \frac{3}{4} \times \frac{3}{3} = \frac{9}{12} \qquad \frac{7}{12}$$

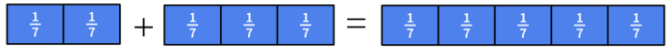


Now we can see that $\frac{7}{12} < \frac{2}{3} < \frac{3}{4}$

Adding & Subtracting Fractions

We can add fractions of the same type together by adding the numerators.

$$\frac{2}{7} + \frac{3}{7} = \frac{5}{7}$$



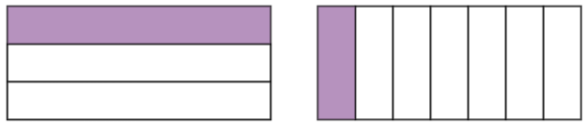
We can subtract fractions of the same type by subtracting the numerators.

$$\frac{3}{7} - \frac{1}{7} = \frac{2}{7}$$

If the denominators are different, we need to find a common denominator before adding or subtracting.

Example:

$\frac{1}{3}$ + $\frac{1}{7}$



21 is the lowest common denominator here, as 21 is the lowest common multiple.

$\frac{7}{21}$ + $\frac{3}{21}$ = $\frac{10}{21}$

$$\frac{1}{3} + \frac{1}{7} = \frac{10}{21}$$

This method is the exact same for subtracting fractions (except you subtract the numerators, once you have a common denominator.

Example:

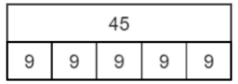
Year 8 – Maths – Unit NP7 – Fractions

Fraction of an Amount

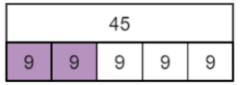
Let's find $\frac{2}{5}$ of 45

This means split 45 into five equal parts then find two of those parts

$\frac{1}{5}$ of 45 is 9



$\frac{2}{5}$ of 45 are 18



$\frac{2}{5}$ of 45 is found by $45 \div 5 \times 2 = 18$

split into five equal parts

find two of those parts

We can also find fractions of amounts when the fraction is greater than 1.

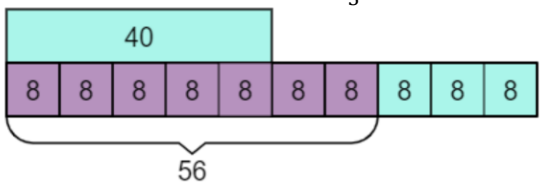
Example:

Calculate $\frac{7}{5}$ of 40

One whole is worth 40

$\frac{1}{5}$ of 40 is 8

$\frac{7}{5}$ of 40 = 56

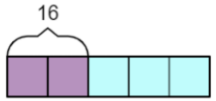


$\frac{7}{5}$ of 40 are 56

We can also find the whole amount of a number, given a fraction of it.

Example:

If $\frac{2}{5}$ of a number is 16, what is $\frac{1}{5}$ of the number?



If we know $\frac{2}{5}$ of the mount is 16, we can find one amount by dividing by 2.

$\frac{1}{5}$ of the amount will be $16 \div 2 = 8$

We now know 1 part of the 5 parts is 18.

Therefore, 5 parts (the whole amount) will be $5 \times 8 = 40$

40 is the whole amount!

Example:

If $\frac{3}{4}$ of an amount is £36, what is the full amount.

Divide by 3 to get one part: $36 \div 3 = 12$

Multiply by 4 to get the whole amount $12 \times 4 = 48$

The whole amount is £48.

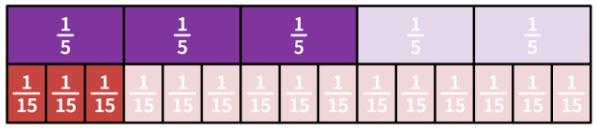
Multiplying a Fraction by an Integer

If we look at $\frac{1}{5} \times 3$. We can think of multiplication as 'lots of', so we have 3 lots of $\frac{1}{5}$.

$$3 \times \frac{1}{5} = \frac{3}{5}$$

We can see by this model here that we only need to multiply the numerator by the integer.

The model below shows why we don't multiply the denominator as well.



If we multiply the denominator as well, the value doesn't change.

Example:

$$\frac{1}{7} \times 3$$

$$3 \; lots \; of \; \frac{1}{7}$$

$$\frac{1}{7} \times 3 = \frac{3}{7}$$

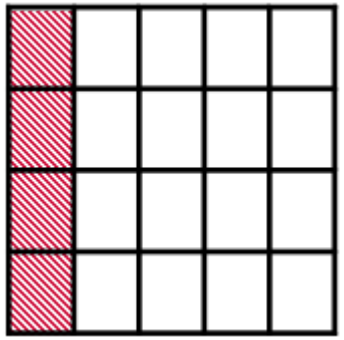
Year 8 – Maths – Unit NP7 – Fractions

Multiplying Fractions

When multiplying fractions, we can use a model to represent what happens.

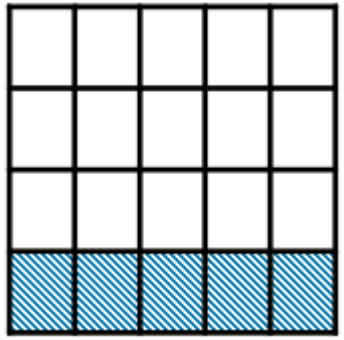
Example: We want to model $\frac{1}{4} \times \frac{1}{5}$

The red rectangle is $\frac{1}{5}$.



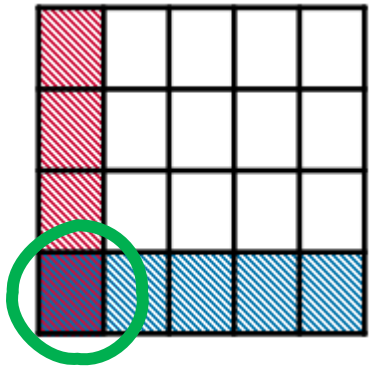
$\times$

The blue rectangle is $\frac{1}{4}$.



$=$

We can then combine the two diagrams



The crossover section is the answer.

It represents $\frac{1}{4}$ of $\frac{1}{5}$ **or** $\frac{1}{5}$ of $\frac{1}{4}$

Therefore, $\frac{1}{4} \times \frac{1}{5} = \frac{1}{20}$

This shows that when we multiply fractions, we multiply the numerators together and multiply the denominators together.

Example:

$$\frac{2}{7} \times \frac{3}{4}$$

$$\frac{2 \times 3}{7 \times 4} = \frac{6}{28}$$

Always check if you can simplify your answer.

$$\frac{6}{28} \div \frac{2}{2} = \frac{6 \div 2}{28 \div 2} = \frac{3}{14}$$

$$\frac{2}{7} \times \frac{3}{4} = \frac{3}{14}$$

Multiplying Mixed Numbers

Before we multiply with mixed numbers. We need to convert the mixed numbers into improper fractions.

Example:

$2\frac{2}{5} \times 3\frac{1}{4}$ We need to convert both numbers into improper fractions. $2\frac{2}{5} = \frac{12}{5}$ and $3\frac{1}{4} = \frac{13}{4}$

Once they are improper fractions we can use the same method.

$$\frac{12}{5} \times \frac{13}{4} = \frac{12 \times 13}{5 \times 4} = \frac{156}{20}$$

As usual, always check if your answer can simplify. You can do this in steps if you need to.

$$\frac{156}{20} \div \frac{2}{2} = \frac{78}{10} \div \frac{2}{2} = \frac{39}{5}$$

It will usually ask you to convert your answer back into a mixed number.

How many $\frac{5}{5}$ can we get out of $\frac{39}{5}$: 7 with 4 left over.

$$\frac{39}{5} = 7\frac{4}{5}$$

Year 8 – Maths – Unit NP7 – Fractions

Reciprocal

The reciprocal of a number is the multiplicative inverse: the number you multiply it by to make 1.
A number and its reciprocal have a product of 1.

$$\frac{1}{2} \times 2 = \frac{2}{2} = 1$$

2 is the reciprocal of $\frac{1}{2}$

$\frac{1}{2}$ is the reciprocal of 2.

Another example: $\frac{3}{5}$ is the reciprocal of $\frac{5}{3}$

Dividing a Fraction by an Integer

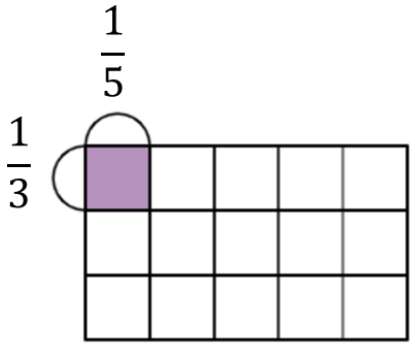
$$\frac{1}{5} \div 3$$

We can take $\frac{1}{5}$ and split it into 3 equal parts.

We can see that the answers is $\frac{1}{15}$

This is the same as $\frac{1}{5} \times \frac{1}{3}$

Dividing by 3 is the same as multiplying by $\frac{1}{3}$

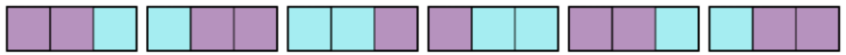


Dividing by a number or a fraction, is the same as multiplying by the reciprocal

Dividing an Integer by a Fraction

$$6 \div \frac{2}{3}$$

We can see how many $\frac{2}{3}$ go into 6.
We can show this by splitting it into thirds and then alternating the colours.



There are 9 groups of $\frac{2}{3}$, so $6 \div \frac{2}{3} = 9$

You can always multiply by the reciprocal for this too.

$$6 \div \frac{2}{3}$$

Reciprocal of $\frac{2}{3}$ is $\frac{3}{2}$

$$6 \times \frac{3}{2} = \frac{18}{2} = 9$$

Dividing Fractions

$$\frac{8}{9} \div \frac{2}{3}$$

We always come back to **dividing by a fraction is the same as multiplying by the reciprocal.**

$$\frac{8}{9} \times \frac{3}{2} = \frac{24}{18}$$

$$\frac{24 \div 6}{18 \div 6} = \frac{4}{3} = 1\frac{1}{3}$$

Same with multiplying mixed numbers, convert them into improper fractions before dividing.
Example:

$$2\frac{1}{3} \div 1\frac{1}{2}$$

$2\frac{1}{2} = \frac{7}{3}$ and $1\frac{1}{2} = \frac{3}{2}$

$$\frac{7}{3} \div \frac{3}{2} = \frac{7}{3} \times \frac{2}{3} = \frac{14}{9}$$

$$\frac{14}{9} = 1\frac{5}{9}$$

Year 8 Maths – Unit NP8 – Fractions, Decimals, & Percentages

Per cent means 'per 100'. If 70 per cent of the population own a pet, this means that 70 out of every hundred people own a pet. The symbol % means 'per cent'.

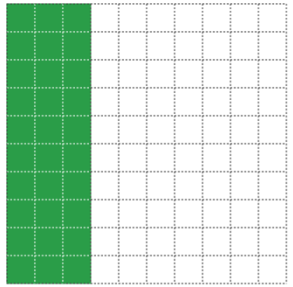
What are percentages?

- 1 per cent is **one hundredth**, or 0.01 as a decimal. Per cent is represented by the **%** symbol.
- A simple way to think of a percentage as a decimal is to imagine pennies in the pound. Just as 1p can be written £0.01, 1% can be written 0.01. So 2% is 0.02 or 2p, 25% is 0.25 or 25p and so on.

£1 equals 100 × 1p coins

Percentage

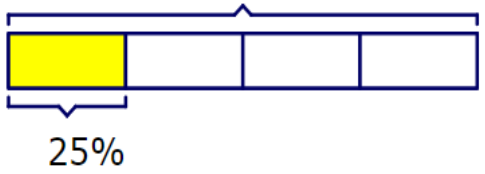
In this diagram, **30** out of **100** squares have been shaded. So, **30%** has been shaded.



Finding a percentage of a quantity

It's often useful to be able to find a percentage of a quantity.

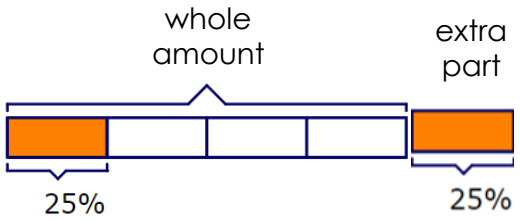
For example, you might be told that **25%** of children prefer strawberry ice cream.



If the whole amount of children is 60, then 25% of that amount is 60 ÷ 4 = 15.
So 15 children prefer strawberry ice cream.

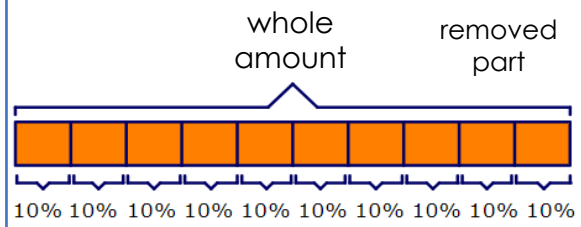
Percentage Increase

A bar of chocolate has a special offer of **25%** extra for the same price.

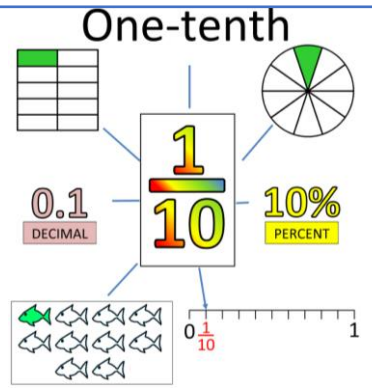


If the whole amount of chocolate is 40g, then 25% of that amount is 40 ÷ 4 = 10.
So 10g extra is added on and the special offer bar has 50g of chocolate.

Percentage Decrease



If the whole amount is 90, then 10% of that amount is 90 ÷ 10 = 9. 90 – 9 = 81
So 10% less would mean 81 is left.



Keyword/Skill	Definition/Tips
Decimal	"Decimal number" is a number that uses a decimal point followed by digits that show a value smaller than one.
Percentage	Parts per 100. The symbol is %. Example: 25% means 25 per 100.
Inverse	Opposite in effect. The reverse of. The inverse of adding 9 is subtracting 9.
Fractions	The top number (the numerator) says how many parts we have. The bottom number (the denominator) says how many equal parts the whole is divided into.
Mixed	A whole number and a fraction combined into one "mixed" number.
Increase	Make something bigger in size.
Decrease	Make something smaller in size.
Improper	A fraction where the numerator (the top number) is greater than the denominator (the bottom number).
Recurring	A decimal number with a digit (or group of digits) that repeats forever.
Integer	A number with no fractional part (no decimals). A whole number.
Terminating	A decimal number that has digits that end. Example: 0.25 (it has two decimal digits)
VAT	**Value-added tax** (**VAT**) is a tax added onto the cost of goods by the government.
Multiplier	The number that you are multiplying by.
Profit	Income minus all expenses.
Loss	A loss occurs when an item is sold for less than it cost.
Tenths	One part in ten equal parts. Example: one tenth of 50 is 5
Hundredths	One part in a hundred equal parts. Example: 1 cent is a hundredth of 1 dollar
Thousandths	One part in a thousand equal parts: Example: 1 meter is a thousandth of 1 kilometre.

Other Topics/Units this could appear in:

Working Towards:
Unit 4 – Fractions and Percentages

Crossover:
Unit 10 – Percentage of an Amount
Unit 11 – Interest and Growth/Depreciation
Unit 13 – Reverse Percentages
Unit 39 – Pie Charts
Unit 40 - Probability

Working Above
Unit 12 – Sampling, Cumulative Frequency, Box Plots & Histograms

Year 8 Maths – Unit NP8 – Fractions, Decimals, & Percentages

FDP & PERCENTAGES OF AMOUNTS

Converting between FDP

Here is a table of conversions that you should memorise:

Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{1}{10}$	0.1	10%
$\frac{1}{100}$	0.01	1%
$\frac{1}{3}$	$0.\dot{3}$ = 0.333…	$33.\dot{3}\%$

Make an equivalent fraction with the denominator as 100. The numerator will be the percentage

E.g. Convert $\frac{9}{20}$ into a percentage

$\frac{9}{20} = \frac{45}{100} = 45\%$

Divide the percentage by 100 and remove the % sign.

E.g. Convert 46% into a decimal

46 ÷ 100 = 0.46

Percent means per 100, so make your percentage out of 100

E.g. 30% = $\frac{30}{100} = \frac{3}{10}$

Multiply the decimal by 100.

E.g. Convert 0.87 into a percentage.

0.87 x 100 = 87

0.87 = 87%

Keyword/Skill	Definition/Tips
Percentage	A number expressed as a fraction of 100. Percent literally means 'out of 100' Written using the '%' sign.
Increase	An amount has gone up in value by a given **percentage**
Decrease	An amount has gone down in value by a given **percentage**
Convert	A change in the form of a measurement or different unit, without the change in size or amount. E.g. Convert a **percentage** into a **fraction**
Equivalent	Equal in value, amount etc.
Sale	If there is a sale, the price will **decrease** in value by the stated **percentage**
FDP	Just shorthand for fractions, decimals and percentages

Finding Percentages of Amounts (Non-Calc)

- To find a percentage of an amount I can use these four main rules:

- **To find 50% I divide by 2**
- **To find 25% I divide by 4**
- **To find 10% I divide by 10**
- **To find 1% I divide by 100**

- Use these percentages to find any other percentage of an amount.

- Ex 1: Find 10% of 250
  250 ÷10 = 25
  10% of 250 = 25

- Ex 2 : Find 12% of 300
  10% = 300 ÷10 = 30
  1% = 300 ÷ 100 = 3
  1% = 300 ÷ 100 = 3
  Add them all together 30 + 3 + 3 = 36
  12% of 300 = 36

- There may be more than one way to get your percentage. Whatever way works for you will be fine!

- Ex 3: Find 29% of 800m
  10% of 800m = 800m ÷10 = 80m
  I need 3 lots of that for 30 % so
  80m x 3 = 240m
  1% of 800m = 800m ÷ 100 = 8m
  30% - 1% = 29% so 240m – 8m = 232m
  29% of 800m = 232m

Ordering FDP

- When you are asked to order FDP, it is best to convert them to the same measurement e.g. convert them all into fractions etc..

- Ex 1: Put the following in descending order: 60%, $\frac{1}{2}$, 0.3, 0.45, 53%, $\frac{3}{4}$
  It is up to you to decide which you think the easiest conversion will be.
  60% and 53% are already percentages.

  0.3 x 100 = 30 = 30%

- 0.45 x 100 = 45 = 45%

  $\frac{1}{2}$ = 50% (This is one you should know)

  $\frac{3}{4}$ 4 x 25 = 100 so 3 x 25 = 75 so $\frac{75}{100}$ = 75%

- Now I can order them in descending order:
  Answer = $\frac{3}{4}$, 60%, 53%, $\frac{1}{2}$, 0.45, 0.3

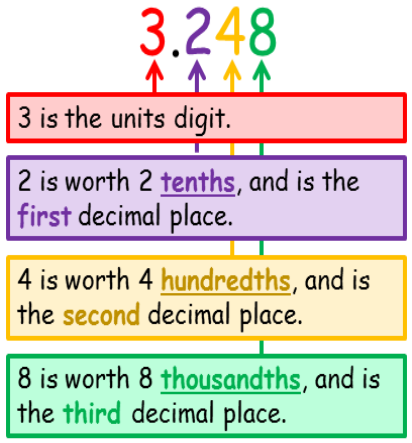
Other Topics/Units this could come up in:

- More Complex Percentages of Amounts
- Interest & Growth
- Depreciation & Decay
- Reverse Percentages
- Fraction Calculations
- Recurring Fractions
- Surds including Rationalising

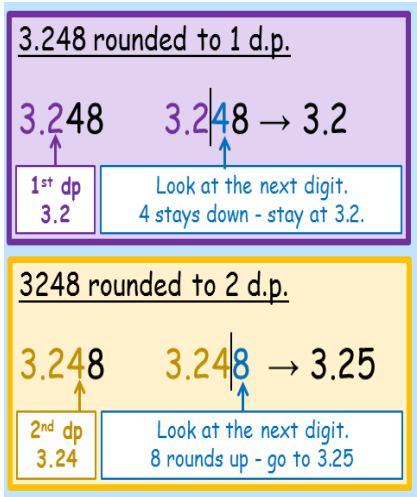
Year 8 – Maths – Unit NP9 – Estimation & Use of Calculator

Rounding – Decimal Places

- You need to be able to round a number to a given number of **decimal places.**



You will sometimes see "decimal place" shortened to "d.p."



Error Intervals

You need to be able to use inequality notation to specify error intervals.

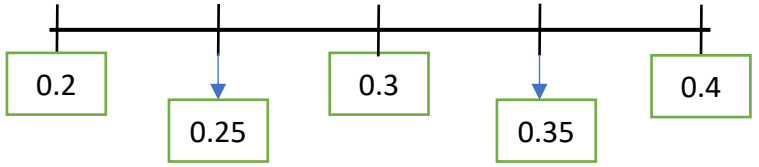
Example:

0.3 has been rounded to 1 decimal place. Write the error interval.

0.2 is the decimal place below 0.3 and 0.4 is the decimal place above 0.4.

My lower bound is halfway between 0.2 & 0.3

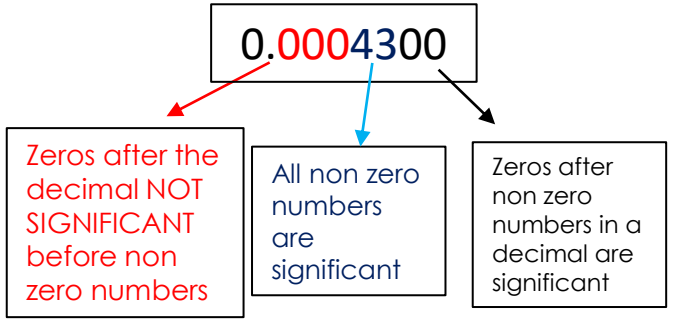
My upper bound is halfway between 0.3 & 0.4



Therefore, my error interval = $0.25 \leq x < 0.35$

Rounding- Significant Figures

- You need to be able to round a number to a given number of **significant figures.**



Example 1

Round 524 to **one** significant figure.

Check 1st significant digit value = 500

Round to the nearest 100 = 500

Example 2

Round 0.006832 to **two** significant figures.

Check 2nd significant digit value = 8/10,000 (8 ten thousandths)

Round to the nearest 10,000th = 0.0068

Exams!

- Rounding to decimal places and significant figures can appear as 1 mark questions.
- You may be asked to round an answer at the end of a 3, 4, 5 mark question.
- A 'bog standard' error interval question (as shown) will be worth 2 marks.

Keyword/Skill	Definition/tip
Integer	A whole number - can be positive or negative or zero.
Number	Describes a quantity or value. Can be a word or figure or symbol.
Digit	A symbol used to show a number.
Decimal	A number system based on the number 10
Decimal place	The position of a digit to the right of a decimal point.
Significant Figure	Numbers beginning with the left non zero digit OR beginning with the first non zero digit after the decimal point if there are zero digits.
Rounding	Change a number to a more convenient but less accurate value.
Inequality	'Not equal to' Inequality symbols ≠ not equal to, ≥ greater than or equal to, ≤ less than or equal to, > greater than, < less than, = equal to.
Error interval	A range of values that could be taken before rounding/truncating.

Other topics/Units this could appear in:

Upper and lower bounds

Area & Volume

Sampling

Year 8 – Maths – Unit NP9 – Estimation & Use of Calculator

Estimation

You need to be able to estimate answers to calculations by rounding to 1 significant figure or an appropriate level of rounding.

Example 1

Estimate the value of 2.9 x 403

Round both to 1 sig fig

2.9 rounds to 3
403 rounds to 400

3 x 400 =1200

Example 2

Bob buys 72 packets of crisps at 19p each.
Estimate the total cost.

Round both to 1 sig fig

72 = 70
19 = 20p
70 x 20 = 1400p = £14.00

Example 3

You will need to be able to say whether an answer is an overestimate or an underestimate.

a) Paul organised an event for charity.
Each ticket cost £19.95.
Paul sold 395 tickets.
Paul paid costs of £6000.
Work out an estimate for how much money Paul gave to charity. (3)

Round to 1 sig fig

£19.95 = £20
395 = 400
20 x 400 = £8000
Take away costs = 8000 – 6000 =2000
= £2000

b) Is your answer to part (a) an overestimate or an underestimate? Give a reason.

My answer is an overestimate because I have rounded both £19.95 and 395 up, therefore £8000 is more than the actual amount and £2000 is more than the actual amount given to charity.

Keyword/Skill	Definition/tip
Decimal place	The position of a digit to the right of a decimal point.
Significant Figure	Numbers beginning with the left non zero digit OR beginning with the first non zero digit after the decimal point if there are zero digits.
Rounding	Change a number to a more convenient but less accurate value.
Estimation/ estimate	To make an approximate or rough calculation based on rounding.

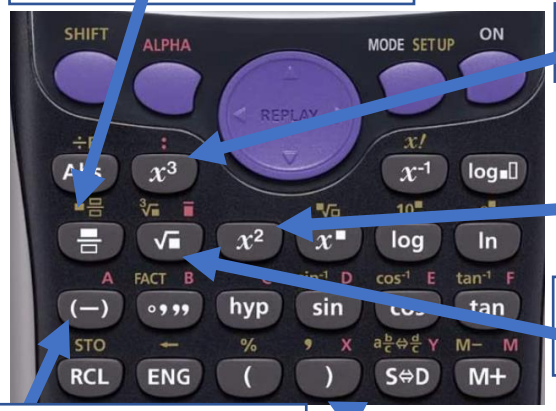
Other topics/Units this could appear in:
Upper and lower bounds
Area & Volume
Sampling

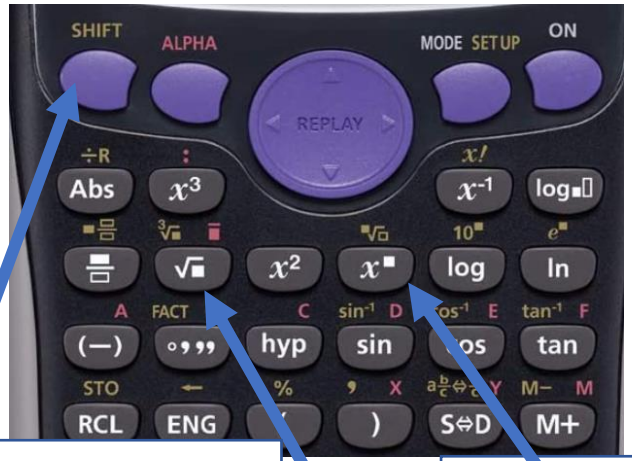
Exams!
- Estimation questions can appear on calculator papers but often will be found **on non-calculator** paper
- You will gain no marks if you work out the exact answer
- You must include the rounded values in your working
- You will gain a mark for correctly rounding in a 3 mark question

Year 8 – Maths – Unit NP9 – Estimation & Use of Calculator

1. Calculators

- You will need to make sure that you are familiar with the keys on the calculator





2. Calculations

- Use the buttons to correctly enter the calculations.

Example 1

Work out the reciprocal of 1.25

Reciprocal means $\frac{1}{n}$ so enter $\frac{1}{1.25} = 0.8$

So the final answer is: 0.8

Example 2

Use your calculator to work out: $\frac{\sqrt{7056}}{0.35 \times 12.8}$

Use the cursor to move down

Write down all of the figures of your display

So the final answer is: 18.75

Example 3

Work out the value of: $\frac{\sqrt{30}}{2.5^2} = 0.876356092$

Give your answer to 3 decimal places

So the final answer is: 0.876

3. Percentage of an Amount (with a calculator)

Here we can use **percentage multipliers**.

First of all you need to find the decimal equivalent of the percentage you need.

50%	=	0.5
75%	=	0.75
30%	=	0.3
2%	=	0.02

You need to use these decimals as percentage multipliers.

Example

Find 48% of £250

48% = 0.48 (this is the percentage multiplier)

250 x 0.48 = 120

So, 48% of £250 is £120

Keyword/Skill	Definition/Tips
Powers	The power (or exponent) of a number says how many times to use the number in a multiplication. exponent (or index, or power), base. Example: $8^2 = 8 \times 8 = 64$
Square Root	A square root of a number is a value that, when multiplied by itself, gives the number.
Root	*The root of a number x is another number, which when multiplied by itself a given number of times, equals x.* **For example, the third root (also called the cube root) of 64 is 4, because if you multiply three fours together you get 64:**
Brackets	Symbols used in pairs to group things together
Square	The result of multiplying an integer by itself
Cube	The result of using a whole number in a multiplication three times.
Order of operations (BIDMAS)	The **order** you should do calculations in. **'Brackets, Indices, Division, Multiplication, Addition and Subtraction'.**
Reciprocal	The reciprocal of a number is: 1 divided by the number. 8 → 1/8 (Number → Its Reciprocal)

Other Topics/Units this could appear in:

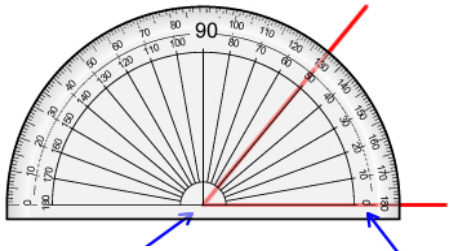
- All units on calculator papers
- Circles
- A 'level Units

Year 8 – Maths – Unit GM1 – Drawing, Measuring & Constructing

Measuring an angle

- Accurate
- **Use** a protractor
- Use **pencil** and a ruler

Line up the bottom of the protractor with bottom line of the angle.



Make sure the vertex (corner) of the angle is lined up with the center of the protractor.

Start at zero and read up.

Estimating an Angle

- Is an educated guess!
- **Do not use** a protractor
- Consider the **angle properties**, is it acute (therefore smaller than 90°) or obtuse (bigger than 90° but smaller than 180°).

My mathematical journey

What do I need to remember from before?

Lines and angles (KS2)

Measuring (KS2)

What will I learn about in this unit?

Labelling lines and angles

Drawing and measuring lines and angles

Using compasses and a protractor

Constructions and loci

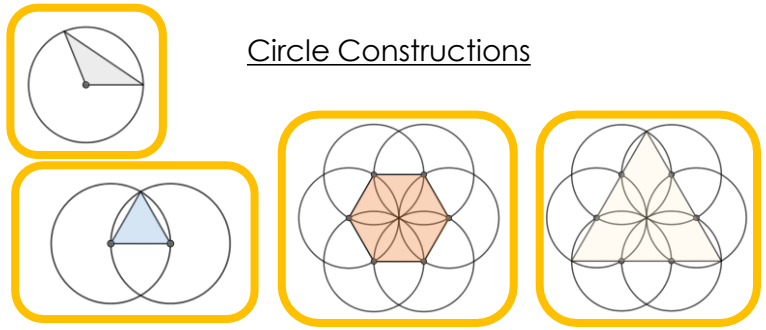
Where does this lead?

Polygons and angles (GM2)

Congruence and similarity (GM4)

Advanced drawing, measuring and constructing (GM7)

Circle Constructions



By drawing circles, you can **construct** various **polygons**.

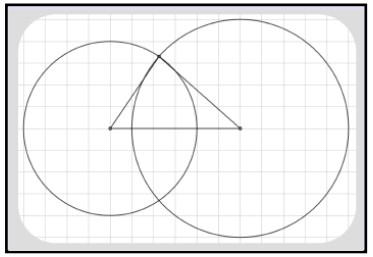
Acute	Right	Obtuse
$0° < \theta < 90°$	$90° = \theta$	$90° < \theta < 180°$

Straight	Reflex	Full turn
$180° = \theta$	$180° < \theta < 360°$	$360° = \theta$

Constructing Triangles – given 3 side lengths

Using **ruler** and **compasses**, you can **construct** any triangle, given its three side lengths.

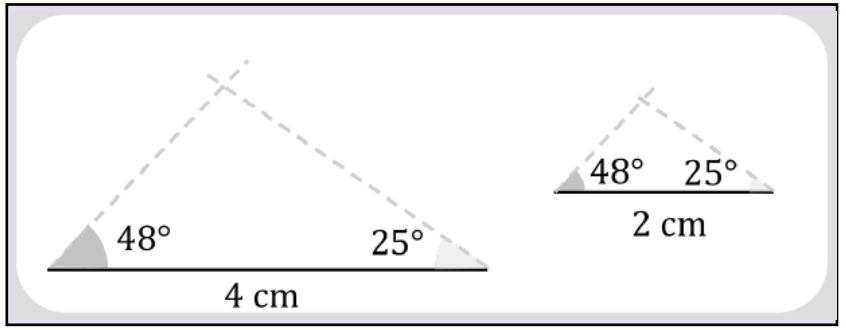
This triangle has side lengths 6cm, 5cm and 4 cm.
The 6cm line was drawn with a ruler. Then circles with radii 5cm and 4cm were constructed at either end of the 6cm line.
The intersection points show where the other vertex should be.



Using **ruler** and **protractor**, you can **construct** any triangle, given two of its angles.

These triangles both have interior angles of 48° and 25° but the side lengths are different.
Draw the side in between the two angles first; sometimes this is given to you in the question. Then measure the angles from each end of the line – make sure the protractor is lined up correctly! Extend your construction lines until they intersect (but don't rub them out – the examiner will want to see them).
The intersection points show where the other vertex should be.

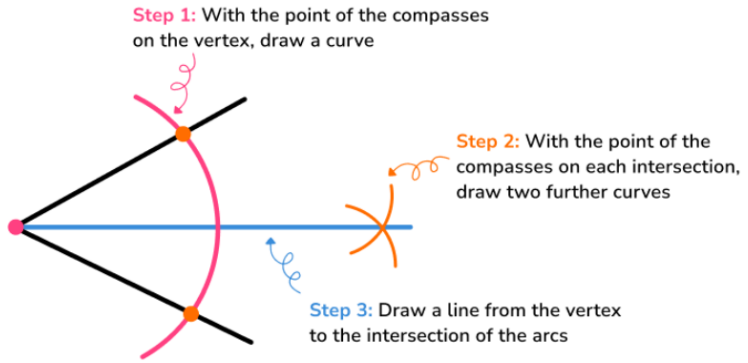
Constructing Triangles – given 2 angles



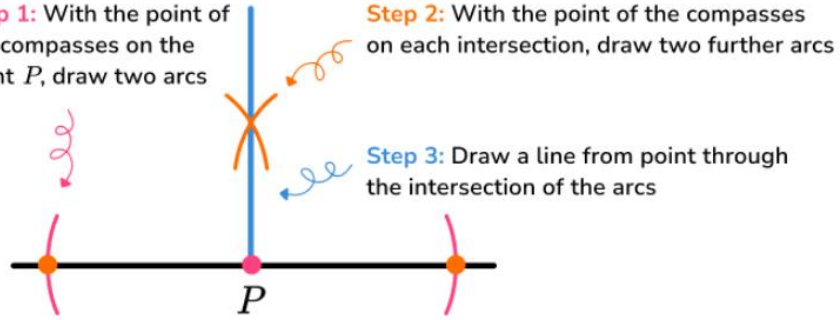
Year 8 – Maths – Unit GM1 – Drawing, Measuring & Constructing

Constructions

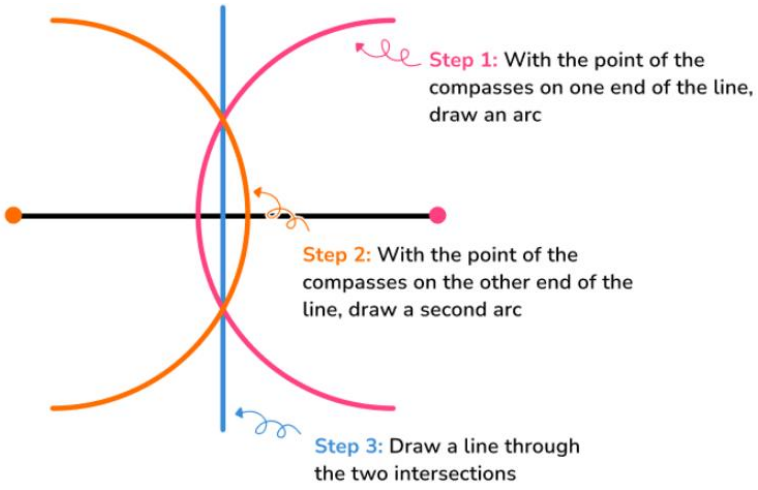
Angle bisector



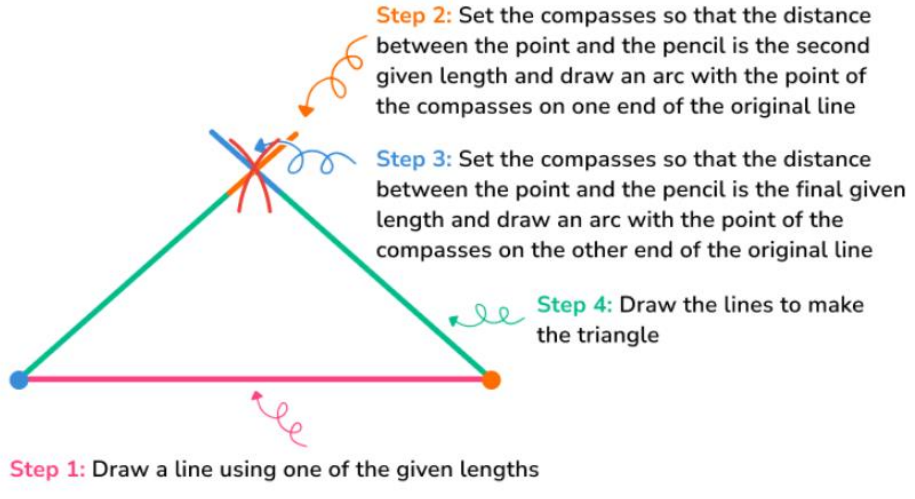
Perpendicular from a point on a line



Perpendicular bisector

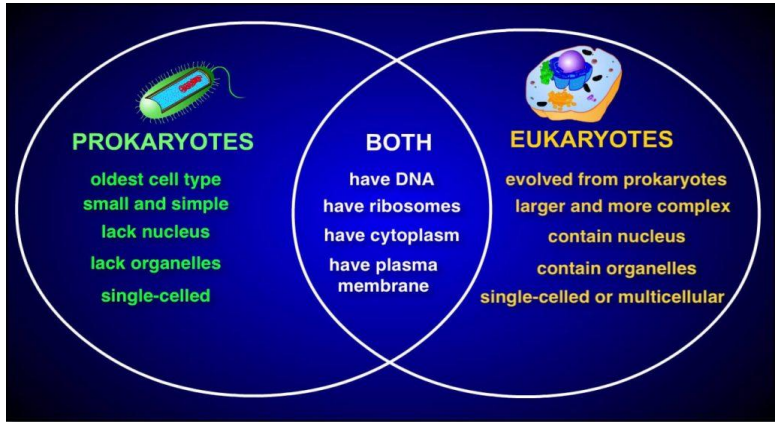


Triangle given all three sides

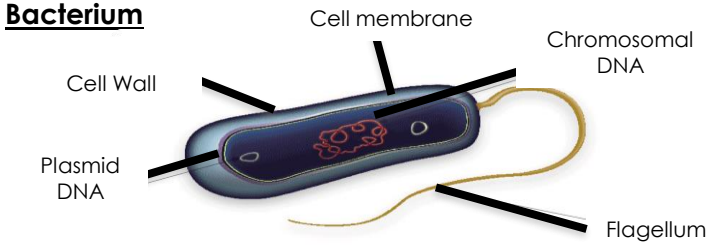


Keyword/Skill	Definition/Tips
Mensuration	The act or process of measuring
Pair of Compasses	A mathematical instrument that is used to draw circles and **arcs**
Point	A point has no length or width (it exists in no dimensions, or 0D)
Line	A line has infinite length ad no width (it exists in one dimension, or 1D) We use arrows to show its infinity in both directions.
Ray	A ray is a section of a line with a starting point that continues infinitely in one direction. We use an arrow to show its infinity in one direction.
Line segment	A line segment is a section of a line with a starting point and an end point
Construct	We construct when we only use compasses and a straight edge (ruler)
Bisector	Bisect means to cut in half, in to two equal pieces.
Perpendicular	Lines that meet at a right angle.
Equidistant	Equal distance from two points or lines.
Locus (plural – loci)	The path of all points that fit a condition

Year 8 – Science – B2a. Health and Disease

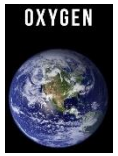


Bacterium



Structure	Function
Flagellum	Helps the bacteria move
Cell Wall	Strengthens the cell
Chromosomal DNA	Carries most of the genetic information
Cell membrane	Controls the movement of substances in and out of the cell
Plasmid DNA	Carries spare genetic information. Used for genetic modification

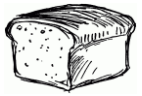
What conditions do microbes need to grow?



- **Oxygen**
- **Right temperature**
- **Moisture**

Multicellular	Unicellular
Small surface area: volume ratio	Large surface area: volume ratio
Slow rate of diffusion	Fast rate of diffusion
Complex structure	Simple structure
Relies on transport systems for nutrients	Relies on diffusion for nutrients
e.g. Animals	e.g. Bacteria

Aerobic (with O_2) respiration of Yeast:
Glucose + Oxygen → Carbon Dioxide + Water



Anaerobic (without O_2) respiration of Yeast: FERMENTATION
Glucose → Carbon Dioxide + Ethanol

Why are decomposers important?

- They remove dead organisms and animal waste.
- They recycle nutrients/carbon, making them available for other organisms.

Ways to reduce decomposition:

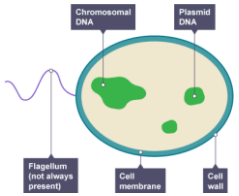
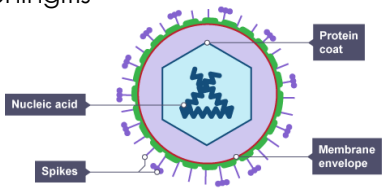
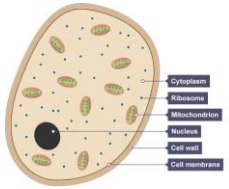
Drying- Takes away the moisture so bacteria cannot grow

Pasturisation- Heating up the food so The bacteria are killed

Freezing- Takes away the warmth so bacteria are slower to respire.

Keyword	Definition
Unicellular	An organism that is small and contains one cell only.
Multicellular	Made from more than one type of cell grouped together.
Surface area	To area on an objects surface that is exposed to the environment.
Volume	The amount of space that a substance or object has enclosed.
Diffusion	The movement of a substance from a place of high concentration to a place of low concentration.
Concentration	The amount of particles in a given volume.
Decomposition	The process of rotting.
Decay	Where microbes (such as bacteria and fungi) feed on dead or waste material from plants and animals.
Aerobic	Requiring oxygen.
Anaerobic	Not requiring oxygen.
Respiration	A reaction our bodies conducts to release energy to keep us alive.
Fermentation	The process where yeast respires anaerobically and glucose is converted into alcohol.
Ethanol	An alcohol produced by the process of Fermentation.
Micro-organism	A very small organism that cannot be seen by the naked human eye.
Nucleus	An organelle that contains DNA of a cell.
Cell membrane	Part of a cell that controls what comes in and out of a cell.
Specialised	When a cell develops adaptations to make it more efficient at doing its role.
Prokaryote	An organism without a true nucleus.
Eukaryote	An organism that contains a true nucleus.
Decay	Where microbes feed on dead or waste materials from plants or animals.
Ecosystem	Includes all living things interacting with each other.
Temperature	How much heat energy is in something

Year 8 – Science – B2a. Health and Disease

Bacteria	Viruses	Fungi
Size: 1/1000 mm Structure: Bacteria are single-celled organisms. Their genetic material is not contained within a nucleus. Some cause disease, but many are useful. Reproduction: Bacteria reproduce very quickly. Two can very quickly become four, then eight and so on. Diseases they can cause: Tuberculosis, Tetanus, Sore throats, Food poisoning and Bacterial Meningitis 	Size: 1/1,000,000 mm Structure: A virus is a simple organism that does not display all the characteristics of a living thing. It is made up of a protein coating and some genetic material. Reproduction: Viruses can only grow and reproduce within other living things. Viruses change and adapt to their environment very quickly. Diseases they can cause: Flu, Mumps, Chickenpox, Smallpox, Viral Meningitis 	Size: Some fungi can actually be seen with the naked eye, others are slightly bigger than bacterial cells. Structure: Fungi have the most complex structures of all the microbes. They feed off other living things. Reproduction: Fungi can reproduce sexually or asexually (producing spores) Diseases they can cause: Athletes foot, Onychomycosis, Fungal sinusitis 

Type of disease	Example	Cause
infectious or communicable disease	polio, influenza, Ebola, malaria, cholera, chickenpox	microbe (e.g. bacterium, single-celled protoctist, virus) that gets into the body and changes how it works
deficiency disease	anaemia, kwashiorkor	lack of a nutrient that the body needs for healthy growth and development (the lack of different nutrients causes different diseases)
genetic or inherited disease	sickle cell disease, haemophilia	a fault in the DNA (genetic material) in a cell that changes how the cell works
lifestyle disease	lung cancer, heart disease	factors in the way we live increase the risk of getting these diseases, e.g. smoking tobacco, eating unhealthily, too little exercise
autoimmune disease	type 1 diabetes	when the body's immune system attacks and damages cells in the body

Method of Transmission	Explanation
Airborne droplets	A cough or a sneeze releases millions of microbes into the air
Food and water	Uncooked and contaminated food can contain microbes
Animals	Insects can carry harmful microbes from one human to another
Direct contact	This includes kissing, holding hands and sexual contact
Mother to child	Some diseases can pass to the unborn baby through the placenta, or through breastmilk

Keyword	Definition
Health	can be defined as 'complete physical, mental and social wellbeing and not only the absence of illness or infirmity'.
Disease	Can be grouped into two categories; communicable which can be transferred from one person to another and non communicable which cannot.
Fitness	Can be defined as 'the ability to meet the demands of the environment.
Smoking	Smoking is very harmful to health. Tobacco smoke contains many harmful substances.
Cells	The basic building blocks of life.
Pathogen	An organism that can cause disease.
Microbes	Microscopic organisms that can either be beneficial or cause harm. They include bacteria, viruses and fungi.
Defence	The action of defending from or resisting attack.
Transmission	The transfer of disease from one place to another.
Air	Microbes can travel through the air.
Animals	Some animals can transfer disease to each other or to humans.
Touch	Disease can easily be spread through touching surfaces, objects or other people
Contamination	Making something impure, in this case with pathogens.
Immune	To be resistant to a particular infection due to the presence of specific antibodies in the blood.
Immune system	The body's second line of defence to stop or minimise infection.

Year 8 – Science – B2a. Health and Disease

What is the Immune System?

Sometimes microbes can get through our first line of defence and can enter the blood.

Your blood contains white blood cells which form part of our Immune System

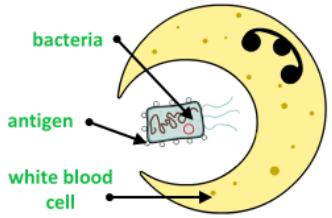
These also help the body defend itself against disease. They work in 2 ways:
1. Producing antibodies
2. Engulfing pathogens

What do White blood cells do?

If harmful microbes enter the body the immune system produces white blood cells to help defend it from microbes.

Some white blood cells can destroy microbes by engulfing them.

Some white blood cells are able to produce chemicals called antibodies. These pair with matching antigens on the surfaces of microbes and so help the white blood cells to engulf microbes.



What is a Heart Transplant?

A heart transplant is an operation to replace a damaged or failing heart with a healthy heart from a donor who's recently died.
It may be recommended when a person's life is at risk because their heart no longer works effectively.

How can Lifestyle contribute to disease?

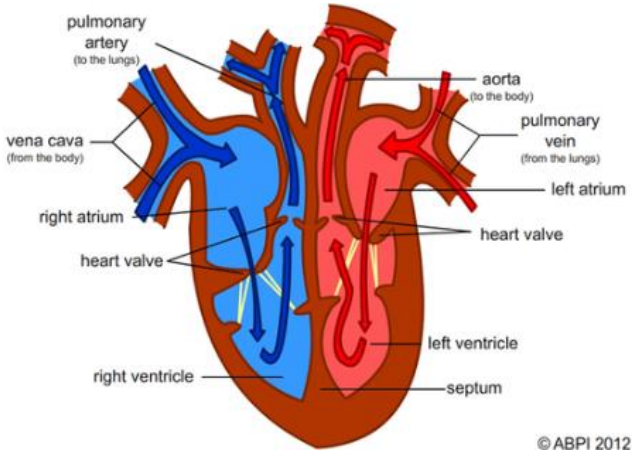
Carbon monoxide – A poisonous gas that reduces the amount of oxygen that red blood cells can carry around the body.
Nicotine – An addictive drug that affects the central nervous system. It increases the heart rate and narrows the blood vessels, causing high blood pressure.
Tar – A brown, sticky substance that consists of tiny particles and is formed when tobacco smoke condenses. Tar paralyzes tiny hairs in the airways called cilia, this stops them removing mucus easily.

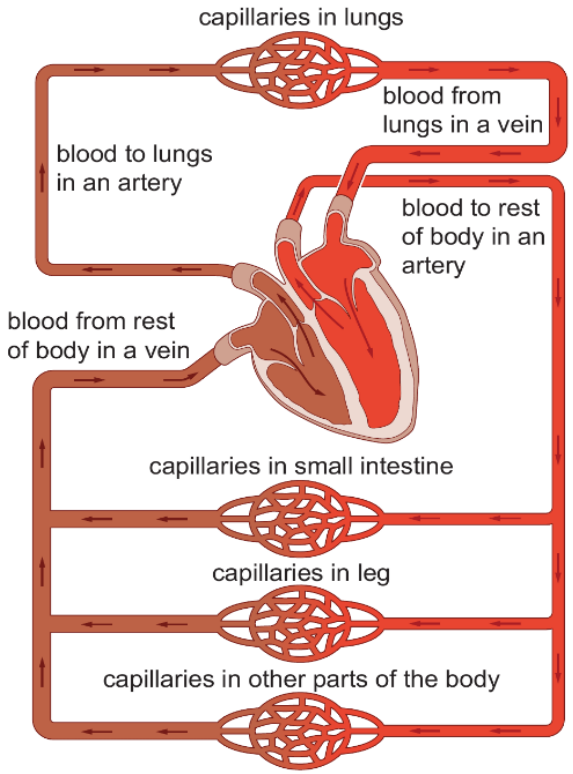
Alcohol is a chemical called ethanol, found in alcoholic drinks.
This legal drug can lower your inhibitions and affect your judgement.
Alcohol is seen by many people as a socially acceptable drug, however this doesn't mean that it can't be harmful.
It is an addictive drug that can have serious consequences.
Alcohol is a **depressant**, it works by slowing down the nervous system and relaxing the brain. Alcohol can reach the brain in just one minute. Too much alcohol can damage the brain cells and cause depression.
The liver breaks down alcohol to remove this toxic drug from the body. Too much alcohol can damage the liver leading to **cirrhosis** or **cancer**.

A drug is any substance that changes the way the body or mind works.
Paracetamol, alcohol, nicotine, cannabis and ecstasy are all examples of substances that can be called drugs.
Some drugs are beneficial, like asthma drugs, but others like alcohol and nicotine in cigarettes can cause harm.
Drugs can be categorized into over-the-counter drugs, prescription drugs, recreational drugs and illegal drugs.

Solvents such as aerosols, glues, paint and cleaning fluid can make people feel uninhibited, happy and dizzy if inhaled.
Inhaling solvents can cause vomiting and blackouts. People can also suffer fatal heart problems, even when solvents are taken for the first time.
Long term solvent abuse has been shown to damage the brain, liver and kidneys.

Year 8 – Science – B2b. Respiration





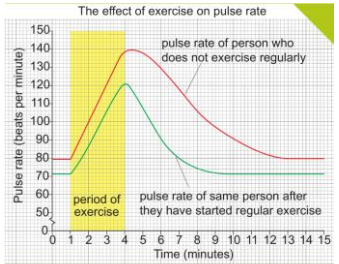
Vessel	Structure	Oxygenated/ deoxygenated blood	Special features
Arteries		Carry oxygenated blood	• Thick walls • Small lumen to maintain a high pressure
Veins		Carry deoxygenated blood	• Thin walls • Large lumen • Valves to prevent backflow of blood
Capillaries		Waste rich blood	• One cell thick

Word equation for aerobic respiration

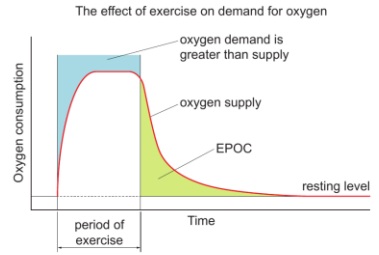
glucose + oxygen → carbon dioxide + water

Word equation for aerobic respiration

glucose → lactic acid

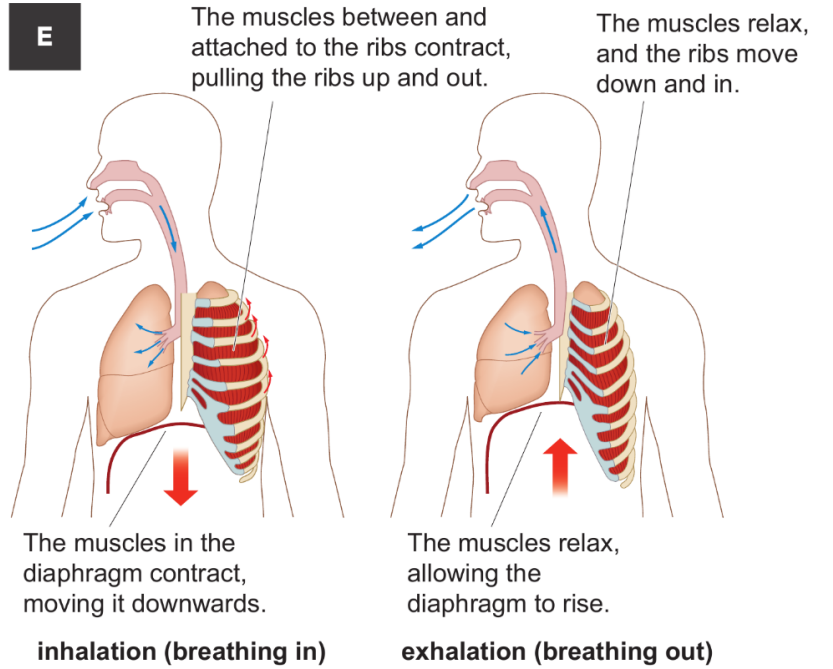


B | The fitter you are, the more quickly your pulse rate returns to its resting rate.



D | EPOC occurs if your body does not get enough oxygen during exercise.

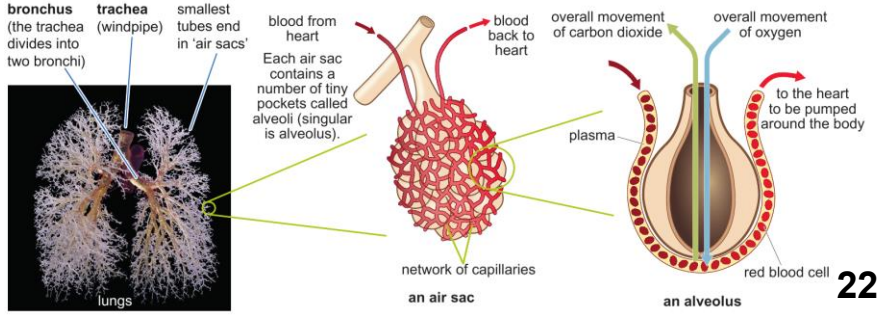
E



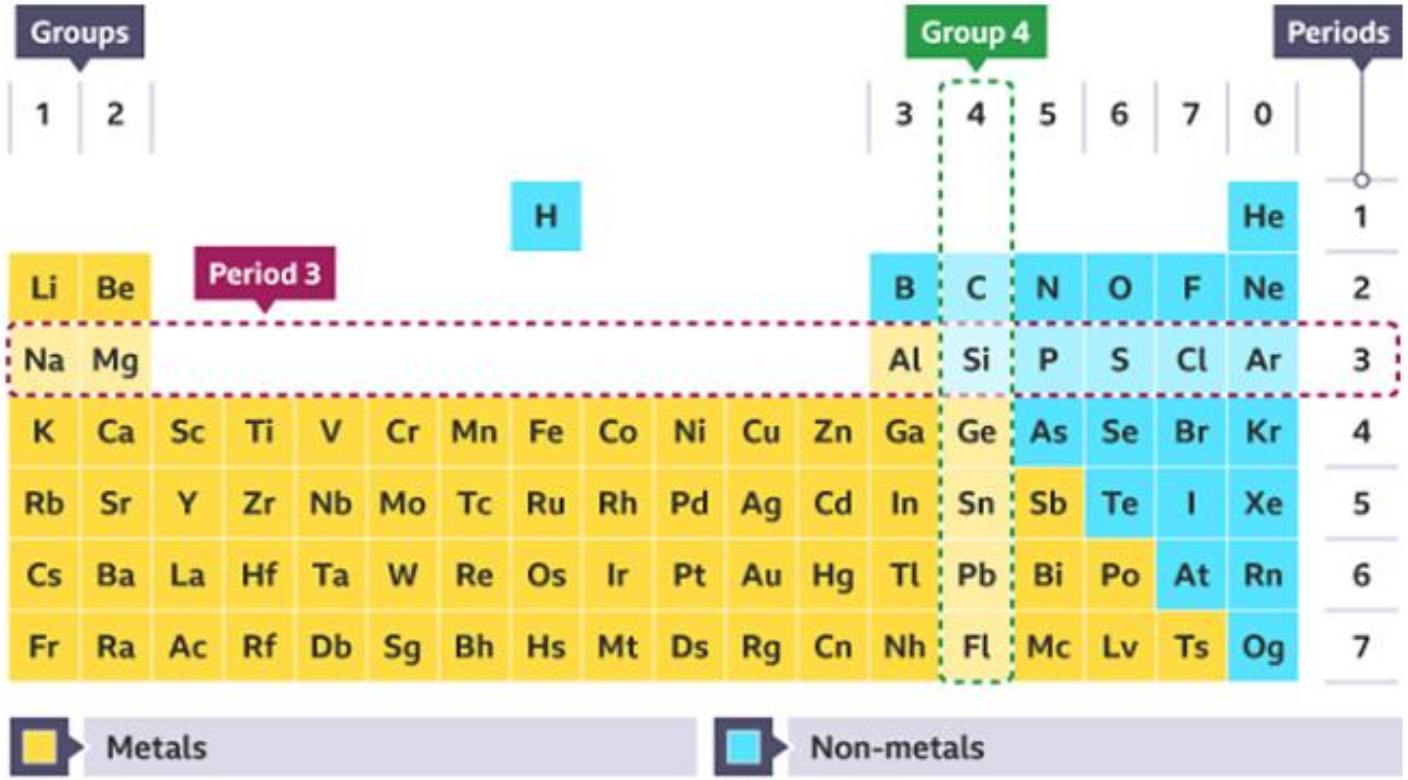
inhalation (breathing in) **exhalation (breathing out)**

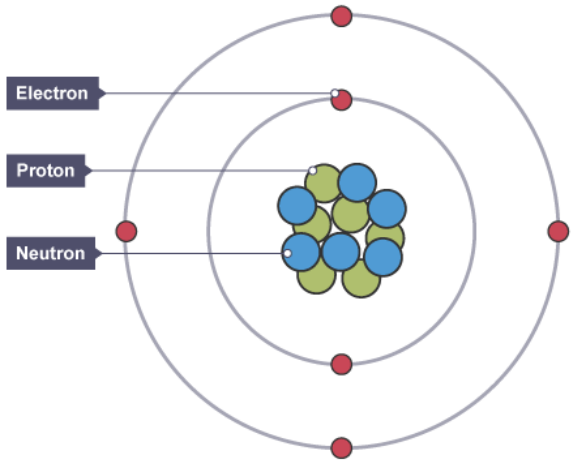
The lungs are adapted for gas exchange by having about 700 million little pockets called alveoli (pronounced '*al-**vee**-O-lee*'). This gives the lungs a large **surface area**. The larger the surface area, the faster diffusion occurs.

The alveoli have walls that are only one cell thick. The blood **capillaries** surrounding them also have thin walls. These thin walls mean that diffusion happens more quickly.



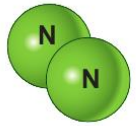
Year 8 – Science – C2a. The Periodic Table





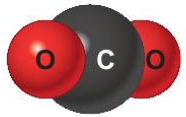
hydrogen oxide (water)

H_2O



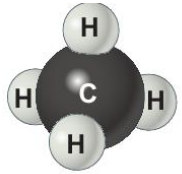
nitrogen

N_2



carbon dioxide

CO_2

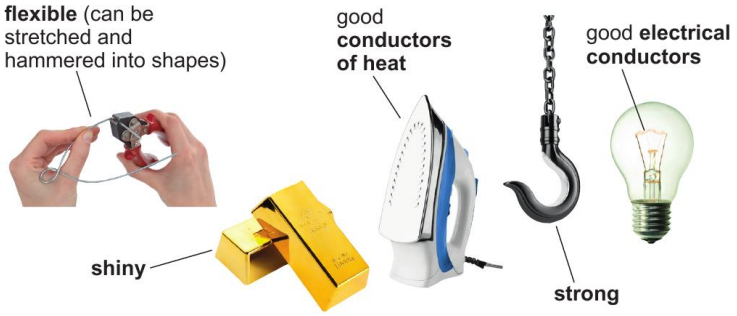


carbon hydride (methane)

CH_4

Keyword	Definition
Element	An element is a substance that cannot be broken down into any other substance. Every element is made up of its own type of atom.
Period	A horizontal row on the periodic table.
Group	A vertical column on the periodic table.
Mendeleev	A Russian scientist called Dmitri Mendeleev produced one of the first practical periodic tables in the 19th century.
Atomic mass	The mass of a single atom of a chemical element. It is calculated as the number of protons and neutrons.
Lustrous	A material that is shiny.
Sonorous	A material that capable of producing a deep or ringing sound.
Ductile	A material that may be stretched into a wire.
Malleable	A material that can bend without breaking.
Reactivity	The tendency of a substance to undergo a chemical reaction.
Halogens	Group 7 in the periodic table.
Atoms	The smallest part of an element that can exist
Metal	A substance found on the left-hand side of the periodic table.
Non-metal	A substance found on the right-hand side of the periodic table.
Alloy	A mixture of elements, including at least one metal.
Pure	A pure element or compound contains only one substance, with no other substances mixed in.
Impure	Impure materials may be mixtures of elements, mixtures of compounds, or mixtures of elements and compounds that are not chemically combined.
Displacement	A more reactive metal will displace a less reactive metal from its compounds.
Density	The density of an object or substance is its mass divided by its volume: Density = Mass ÷ Volume.
Halogens	Group 7 in the periodic table
Alkali metals	Group 1 in the periodic table.

Year 8 – Science – C2a. The Periodic Table



A | the properties of metals

The common properties of most metals are:

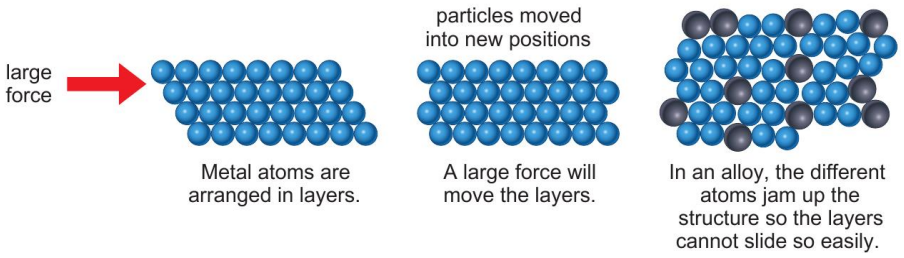
- solids with high melting points
- strong and **flexible**
- **malleable**
- shiny (when polished)
- good **conductors** of heat
- good conductors of electricity.

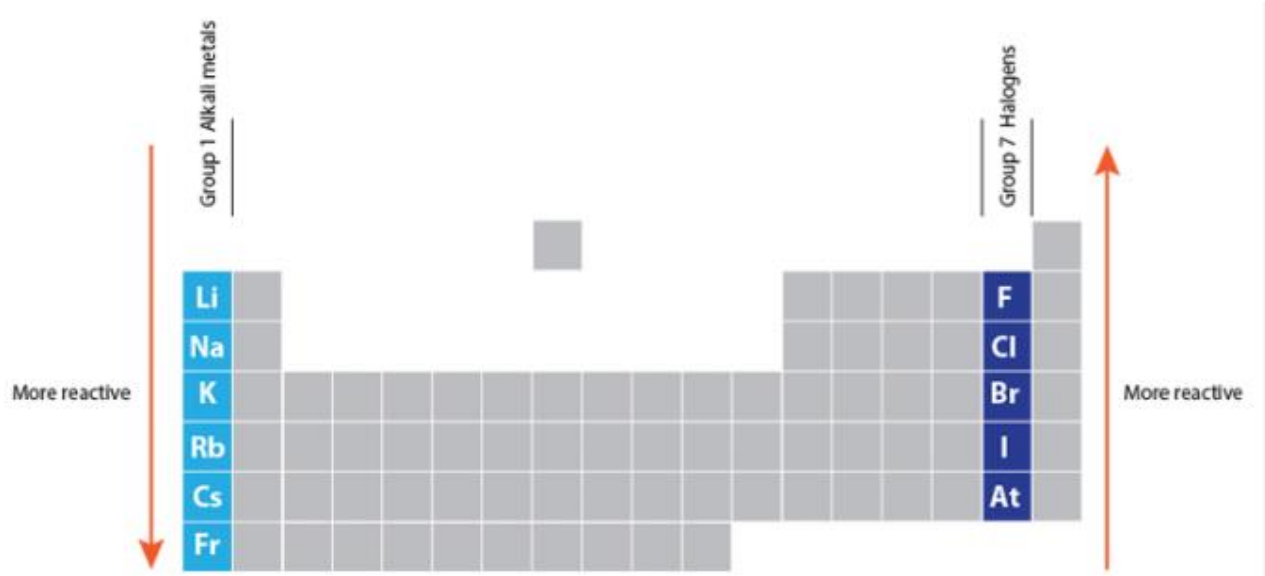
Some metals have properties that others do not have. Most elements are unaffected by magnets but iron, nickel and cobalt can be made to attract each other. They are **magnetic**.

Non-metals have properties that are very different from metals. Most non-metals are:

- substances with low melting points
- **brittle** (when solid)
- not shiny
- poor conductors of heat
- poor conductors of electricity.

Alloy	Main metal	Added elements	Improved properties	Example of use
solder	lead	tin	lower melting point than lead	B 
duralumin	aluminium	copper and magnesium	lighter and stronger than aluminium	C 
stainless steel	iron	carbon, chromium, nickel, etc.	stronger and more resistant to corrosion than iron	D 





Halogen displacement

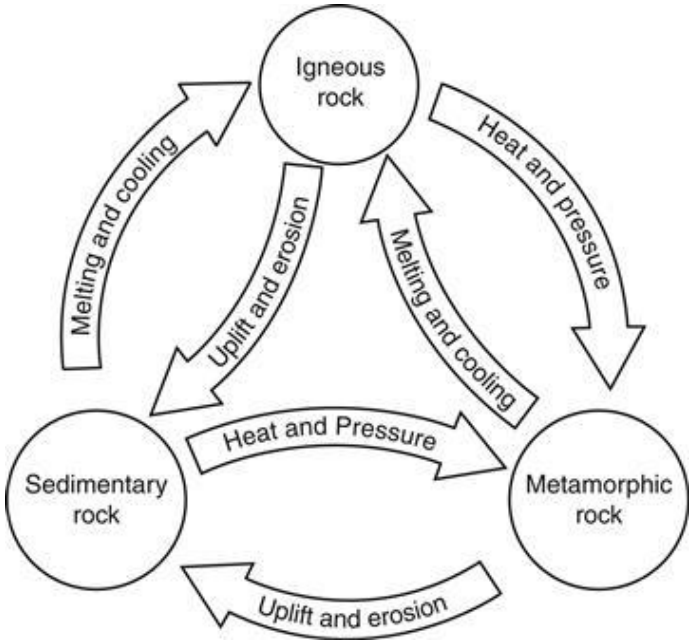
A more reactive halogen can displace a less reactive halogen from solution of its salts.

chlorine + sodium bromide → sodium chloride + bromine

Iodine + potassium bromide → no reaction

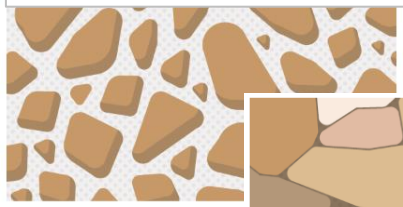
Year 8 – Science – C2b. Earth Science

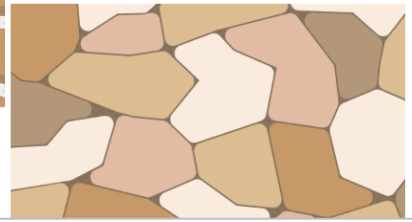
Keyword	Definition
Volcano	A volcano is an opening in the Earth's crust. It allows hot magma, ash and gases to escape from below the surface.
Magma	Molten rock that is inside the volcano
Lava	Molten rock that has exited the volcano and is on the surface
Granite	An intrusive igneous rock that is formed from magma
Basalt	A dark grey/black coloured extrusive igneous rock formed from lava
Pumice	A light weight, grey coloured igneous rock that has small holes throughout
Slate	A metamorphic rock formed from shale
Marble	A metamorphic rock formed from limestone
Sandstone	A sedimentary rock made from compacted sand
Properties	Traits that can be measured (e.g. appearance and size)
Sediment	Broken pieces of old rock
Igneous	Igneous rocks are formed from molten rock (magma/lava) and are often found around volcanos
Sedimentary	Sedimentary rocks are formed from the broken remains of other rocks that become joined together
Metamorphic	Metamorphic rocks are formed from other rocks (sedimentary or igneous) that are changed due to high heat/pressure
Rock Cycle	A continuous cycle of recycling rocks over millions of years due of processes such as weathering, erosion and large earth movements.
Fossils	The preserved remains or traces of a dead organism.
Crystals	Molecules or particles of a substance fit together in the repeating pattern.
Layers	A sheet/quantity of a material that covers a surface
Erosion	The movement of broken pieces of rocks away from the site of weathering
Sand	Very small pieces of old rocks that have been weathered and eroded
Extrusive	Igneous rock that is formed by lava, outside the volcano, has small crystals because it has cooled quickly
Intrusive	Igneous rock that is formed by magma, inside the volcano, has large crystals because it has cooled slowly.
Weathering	The mechanical breakdown of rocks on the Earth's surface by the action of weather, temperature or biological activity
Porous	A rock that has small gaps between the grains/particles that allow water/air to pass through them
Recycle	The process of turning used waste and materials into new products.



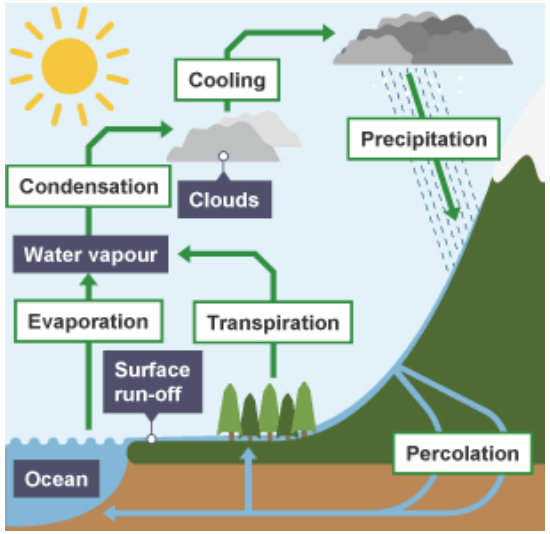
	Extrusive igneous rock	Intrusive igneous rock
Where magma cooled	On the surface of the Earth	Underground
How fast magma cooled	Quickly	Slowly
Size of crystals	Small	Large
Example	Basalt	Granite

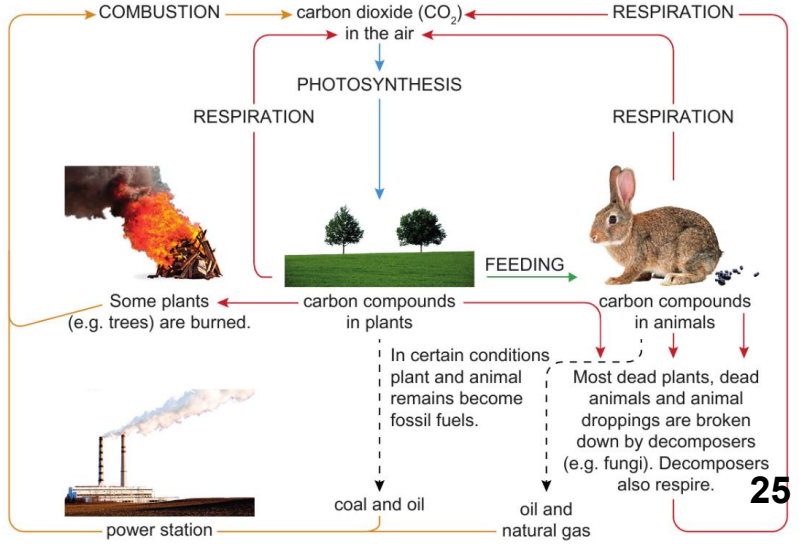
Rounded grains (rock is porous and crumbly)





Interlocking grains – crystals (rock is hard)



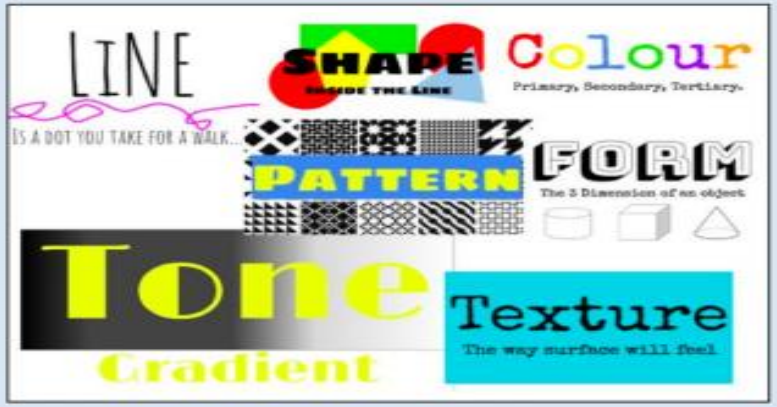


Year 8 Art – Mad Hatters Tea Party Project.

- KNOWLEDGE ORGANISER -

Mad hatters TEA PARTY PROJECT

A. Recap- the formal elements



B. Top tips

- Keep it light until it's right – don't press down hard when drawing.
- What formal elements can you see in the illustrations that you are being shown?
- Try all the media and be prepared to learn new skills and develop others that you have used many times before.
- Follow the success criteria to succeed at each task and gain high grades.
- Where you can explore mixed media using a range of materials, explore what happens when you layer them together, draw over them or even add some texture.

C. Composition

The term composition means 'putting together,' and can apply to any work of art or photography, that is arranged or put together using conscious thought.

When composing a piece of work ask yourself these questions:

- Is my page full?
- Have I spaced out the elements of my piece evenly?
- Does my page include all the success criteria shared by Miss?

D. Mixed media

What is mixed media?

Mixed media is a piece of art work that uses multiple art techniques or materials.

The examples below give you some idea what can be done when mixing media together

E. Typography

What is typography?

Typography is multiple different font types.

For example its like how you would change the style of writing on the computer when producing research work except this in art you are drawing/writing them creatively yourself.

Year 8 Computing – Algorithms

Binary Search

Make sure the list is in order.

- Take the middle number
- Compare it to the number you are looking for
- IF it is the number you are looking for
  - Celebrate and stop
- ELSEIF it is larger than the one you are looking for
  - Take the numbers to the left of the middle number
  - Make them into a new list
- ELSEIF it is smaller than the one you are looking for
  - Take the number to the right of the middle number
  - Make them into a new list
- REPEAT from 1 with the new list UNTIL you have checked and it is not in the list

Linear Search

Use the steps below to help you perform the binary search.

1. Take the first number
2. Check if it is the number you are looking for
3. IF it is the number you are looking for
   a. Celebrate and stop
4. ELSE
   a. Move to the next number
   b. Repeat from step 2

Bubble Sort

1. Take the first number and the second number from the list
2. Compare them
3. IF number 1 > number 2 THEN
   - Swap then
4. ELSE
   - Do nothing
5. **Repeat**: Move along the list to the next pair
   - IF no more numbers: Goto 1
   - ELSE: Goto 2

Until: you have moved through the entire list and **not**

Insertion Sort

Number 1 in the list is 'sorted'

The rest of the numbers are an 'unsorted' list

Compare the first number in the 'unsorted' list to each number in the sorted list

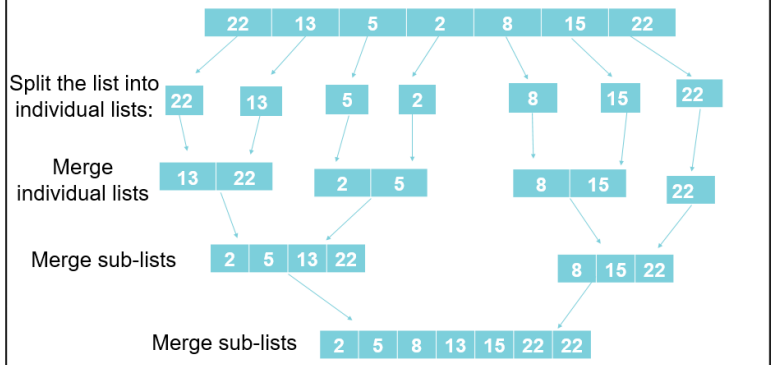
IF it is smaller, put it in than

ELSEIF it is larger, compare with the next

ELSEIF there are no more numbers in the 'sorted' list put it in the final position

REPEAT UNTIL all numbers in the 'unsorted' list are in the 'sorted' list

Merge Sort

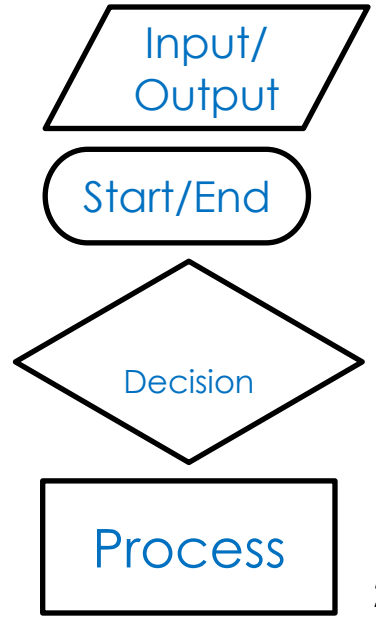


Careers

- Software development
- Programing
- Software Engineering

Computational Thinking:

- Decomposition
- Abstraction
- Pattern Recognition
- Algorithm



Year 8 Computing – Computational Thinking

What is Computational thinking?

The thought processes involved in formulating a problem and its solution(s), so that a computer, human or machine can effectively carry out

How do you think computationally?

To effectively solve problems you need to….

- Decompose
- Abstract
- Algorithmic thinking
- Create algorithms

KEY TERMS

Algorithm: Steps to provide a solution to a problem, usually represented in flowcharts or pseudocode

Decompose: Breaking down a large problem into smaller sub-problems

Abstraction: Representing 'real world' problems in a computer using variables and symbols and removing unnecessary elements from the problem

Pattern Recognition: Identifying similarities.

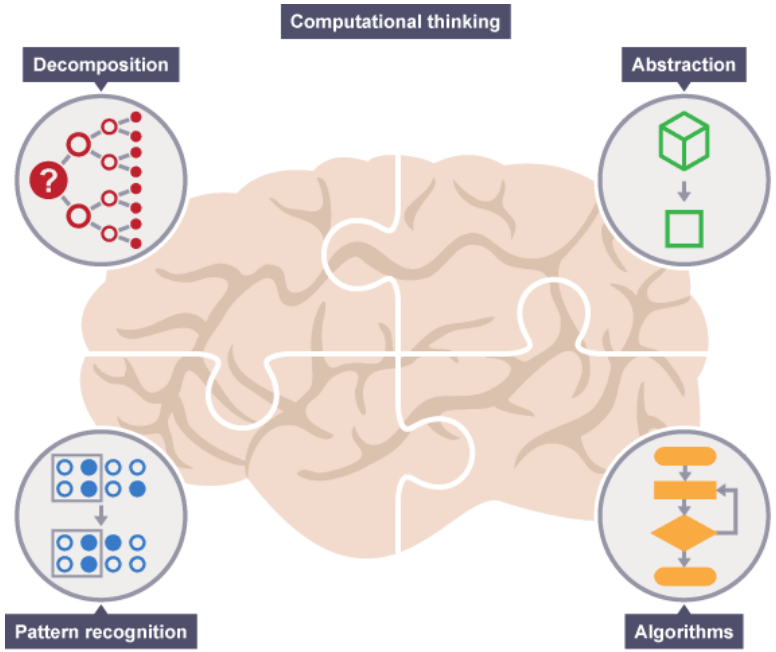
Sequence: Completing steps in the order which they must happen

Selection: Where a choice is made in a program depending on a condition or outcome

Iteration: Act of repeating or lopping specific sections of code

Careers

- Software development
- Programing



Flowcharts

Displays an algorithm in diagram form using symbols and arrows to show to flow of information

Pseudocode

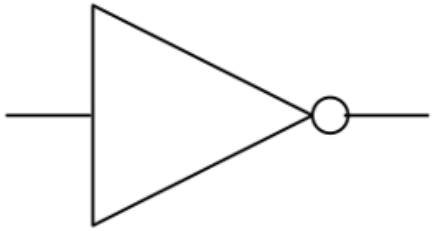
A structured use of English used to define the steps needed to solve a problem.

Year 8 Computing – Logic Gates

Logic Gate: A building block of a digital circuit. They perform logical functions in a circuit and use binary

Truth Tables: Display all possible outcomes for that gate

Careers
- Software development
- Programing
- Software Engineering



Not Gate

Opposite the input (0 becomes 1 and 1 becomes 0

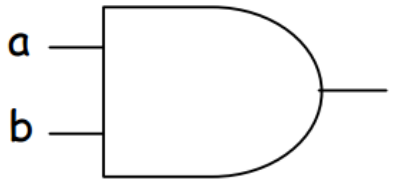
IN	OUT
0	1
1	0

OR Gate

Wait for either inputs to be 1 for output to be 1 or both to be 1

A OR B

A	B	Out
0	0	0
0	1	1
1	0	1
1	1	1



AND Gate

Both inputs to be 1 for output to be 1

A AND B

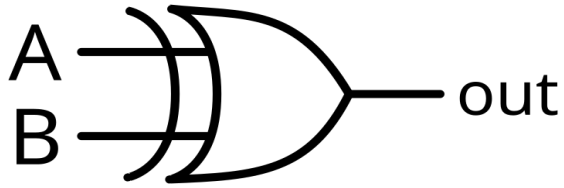
A	B	Out
0	0	0
0	1	0
1	0	0
1	1	1

Year 8 Computing – Logic Gates

Logic Gate: A building block of a digital circuit. They perform logical functions in a circuit and use binary

Truth Tables: Display all possible outcomes for that gate

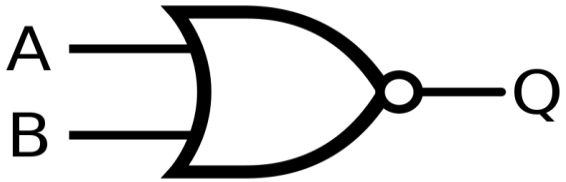
Careers
- Software development
- Programing
- Software Engineering



XOR Gate

One input on or the other only

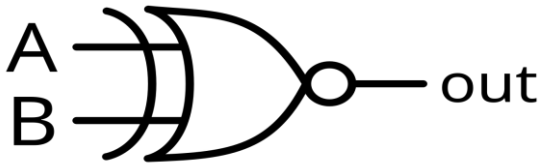
A	B	Out
0	0	0
0	1	1
1	0	1
1	1	0



NOR Gate

Opposite of an OR gate, O if any inputs are 1.

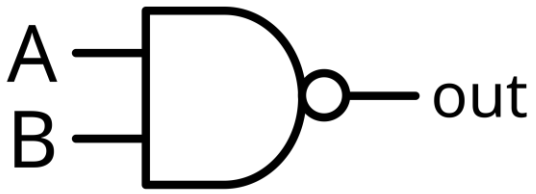
A	B	Out
0	0	1
0	1	0
1	0	0
1	1	0



XNOR Gate

Both inputs 1 or both inputs 0 to output 1

A	B	Out
0	0	1
0	1	0
1	0	0
1	1	1



NAND Gate

Opposite of AND gate any or both inputs 1 the output will be 0.

A	B	Out
0	0	1
0	1	1
1	0	1
1	1	0

Year 8 Computing – Logic Gates

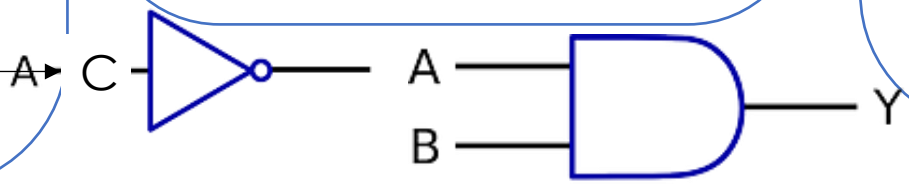
Logic CIRCUIT: A combination of different logic gates used to perform more complex tasks

Notation
The symbols used to describe logic gates

Λ And
V Or
¬ **Not**

EG. The notation below means – P = A and b and not c. When you draw the circuit the one in brackets goes first

Y = A Λ B (¬ C)



HINT: when completing the inputs in a truth table – don't forget to count up in binary, to make sure you have all possible inputs
A and B re inputs. There are 4 rows – starting from 0 make the binary numbers 0,1,2,3.

	A	B	Out
0	0	0	0
1	0	1	0
2	1	0	0
3	1	1	1

TRANSISTOR: A tiny switch that is activated by the electronic signals it receives. The digits 1 and 0 used in binary reflect the on and off states of this.

How many rows do you need in a truth Table?

$$Number\ of\ Rows = 2^{number\ of\ inputs}$$

So for 1 input = 1 x 2 = 2
For 2 inputs = 2 x 2 = 4
For 3 inputs = (2x2)x2 = 8
For 4 inputs = 2x2x2x2 = 16

Gate	Input	$2^{number\ of\ inputs}$
NOT	1	$2^1 = 2$
AND	2	$2^2 = 4$
OR	2	$2^2 = 4$

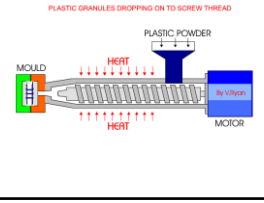
Year 8 What is Design Technology?

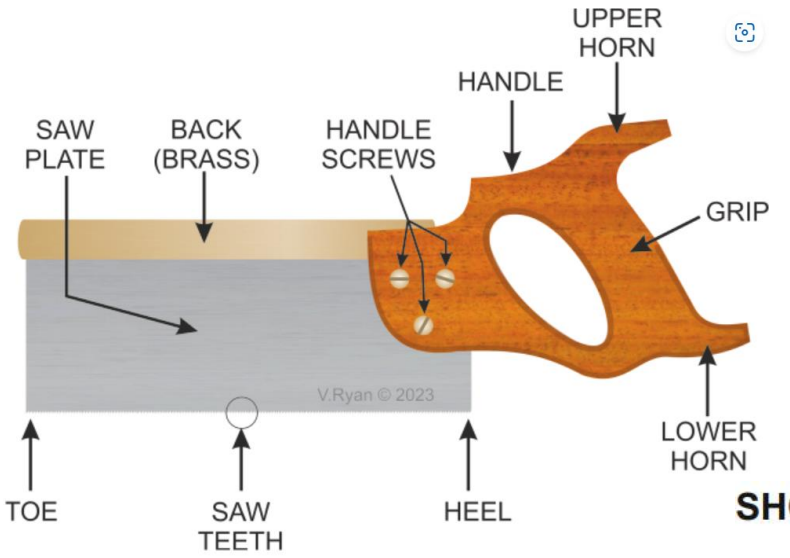
Design and technology gives young people the skills and abilities to engage positively with the designed and made world and to harness the benefits of technology.

Materials

Softwoods Easier to cut, faster growing, cheaper and but strong and durable woods	**Thermoplastics** Plastics that can be heated up and molded several times. Can be recycled back into a plastic	**Hardwoods** Longer lasting, more durable, slower growing, expensive woods
Pine wood A common wood used in construction	**High impact polystyrene** Cheap plastic used for most plastic products	**Oak wood** An expensive wood used for furniture
		

Manufacturing Processes

Wasting Wastage is the process of cutting away material with tools and equipment	**Shaping** This is where material is removed from the original structure to change the dimensions of the original.	**Forming** It involves applying a combination of forces, such as compression, tension and bending, to deform the metal material to the desired shape
Drilling A process of cutting away material to create a hole	**Sanding** Removing saw lines to improve the surface texture	**Forging** Injecting molten plastic into a mold under immense stress.
		



In our DT Workshop we use the following PPE:

- Apron
- Goggles
- Ear Defenders
- Heat Proof Gloves

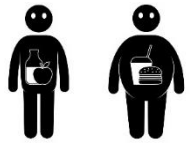
SHOULDER / REBATE / LAPPED JOINT

1 2

Year 8 – Food Technology

Why do we need to eat a **balanced diet**?

1. To achieve and maintain a healthy body weight.

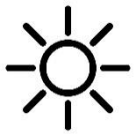


2. For growth and repair

3. To build a strong immune system, prevent disease and infection.

4. To provide energy.

5. To keep us warm.



How do we achieve a balanced diet?
Eight Healthy Tips:

1. Base your meals on starchy foods.

2. Eat lots of fruit and vegetables.

3. Eat more fish – including a portion of oily fish each week.

4. Cut down on saturated fat and sugar.

5. Eat less salt – no more than 4g a day for children.

6. Get active and try to be a healthy weight.

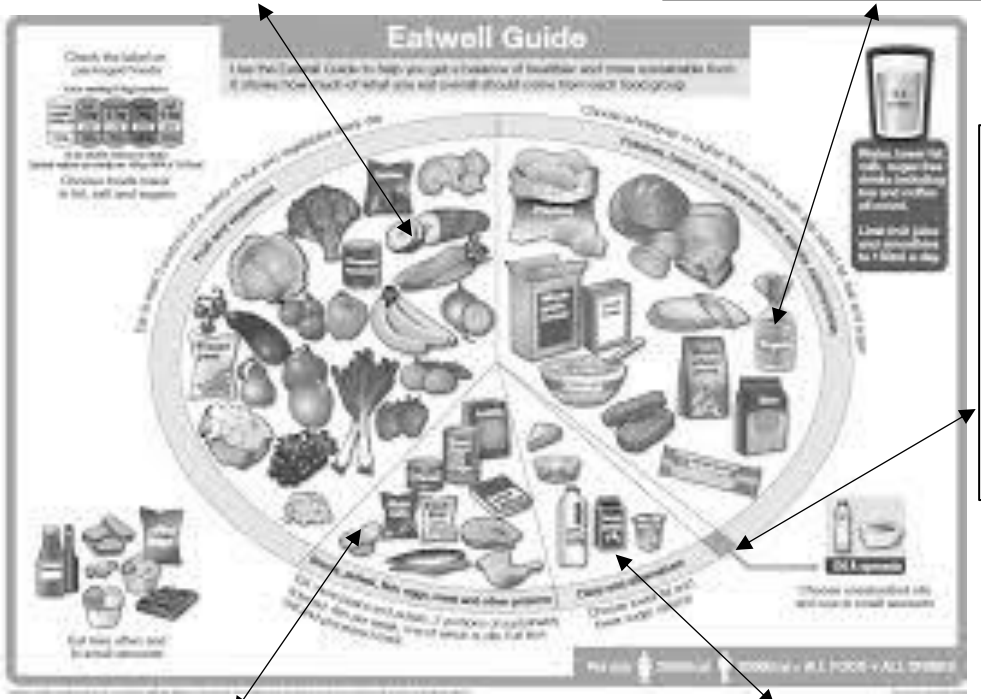
7. Drink plenty of water.

8. Do not skip breakfast.

Eatwell Guide: The Eatwell Guide outlines the recommendations for eating a healthy balanced diet. The guide shows the different types of foods and drinks you should consume – and in what proportions – every day or over a week. The Eatwell Guide shows how much of what you eat overall should come from each food group

Green Section:
Fruit and vegetables are a good source of vitamins, minerals and fibre, needed to build a strong immune system.

Yellow Section:
Starchy foods are a good source of energy. Choose wholegrains for increased fibre, needed to prevent constipation



Purple Section:
Fats, oils and spreads should be eaten sparingly. These do provide energy.

Pink Section:
Beans, pulses, eggs, meat and fish are a good source of protein needed for growth, repair.

Blue Section:
Dairy foods provide a good source of calcium and vitamin D needed for strong bones and teeth.

Year 8 – Food Technology

There are **seven** major classes of nutrients: carbohydrates, fats, dietary fibre, minerals, proteins, vitamins, and water. These nutrient classes can be categorised a either **macronutrients** (needed in relatively large amounts) or **micronutrients** (needed in smaller quantities).

Macronutrients:

Carbohydrates provides the body with **energy**. There are two main types, complex and simple. **Complex carbohydrates** give **long lasting energy**. These are found in foods such as bread, pasta and cereals. **Simple carbohydrates** make blood sugar levels go up very quickly. This provides a **short burst** of **energy.** These are found in 'sugary; foods such as cakes, jams and sweets.

Protein is needed for **growth** and to **repair** cells. Protein is made up of amino acids. Proteins that are high in essential amino acids are called **high biological value (HBV)** proteins. These are found in milk, cheese, fish, eggs, meat and soya beans. Proteins that are low in amino acids are called **low biological value (LBV)** proteins. These are found in nuts, cereals and pulses.

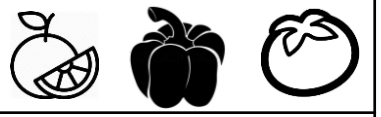
Fats are used by the body for **energy.** Fat also forms an insulating layer under your skin to keep us **warm** and **protect our organs,** such as our kidneys. There are two main types of fat, **saturated** and **unsaturated.** Foods such as meat, cheese and butter are high in saturated fats. Foods such as seeds, fish and vegetable oils are high in unsaturated fats. We should eat less saturated fats.

Fibre helps food to move through our bowels and prevent **constipation**. Foods such as vegetables, wholemeal bread and beans are high in fibre.

Water is needed for lots of reasons, keeping our body at the right **temperature**, **digesting** food, **lubricating** our bones and keeping us **hydrated**. Water is found in drinks, fruits and vegetables.

Keywords	Definition
Constipation	Difficulty empting the bowels
Cholesterol	A type of fat found in our blood
Obesity	Overweight
Diabetes	A disease that occurs when your blood glucose (blood sugars), is too high.

Micronutrients:

Vitamin	What we need it for	Examples of where we get it from
A	Good vision and immune system	
B Group	Releasing energy from carbohydrates	Meat 
C	Fighting diseases and helping the body to absorb iron	
D	Along with calcium, it helps our body make strong bones and teeth	
Minerals	**What we need it for**	**Examples of where we get it from**
Iron	To make red blood cells to carry oxygen around the body	Green leafy veg 
Calcium	Along with vitamin D, calcium helps make strong bones and teeth	

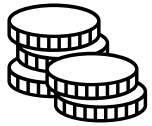
Consequences of a poor diet:

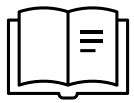
- Eating too many carbohydrates, fatty foods or sugary foods can lead to **obesity,** which can increase the risk of **type 2 diabetes** and **heart disease.**
- Eating too many salty foods can cause **high blood pressure.**
- Too much saturated fat can lead to **high cholesterol.**

Year 8 – Geography – Our Unequal World

Global development is a broad concept that surrounds the idea that societies and countries have different levels of economic and human development.

Examples of Development Indicators
Gross National Income (GNI) - shows how wealthy a country is and is measured in 'per capita' which means per person.
Life Expectancy – the average age you are expected to live to from birth.
Literacy Rate – the percentage of the population (over the age of 15) that can read and write.
Human Development Index (HDI) – a composite indicator that looks at GNI per capita, life expectancy at birth, average years of schooling and expected years of schooling.





Happiness in Bhutan

Bhutan is located in eastern Asia, bordering China and India.

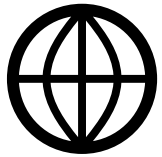
Gross National Happiness is considered to be more important than Gross Domestic Product in Bhutan.

The Gross National Happiness Index looks at the general wellbeing of Bhutan's population.

Bhutan ensure they are protecting the happiness of their population in various ways, for example 60% of the country must be forest.

Bhutan also restrict social media, television and tourism to protect their culture.

Globalisation



Globalisation is the process of interaction among people, companies, and governments worldwide.

Technological advancements (e.g. aeroplanes, Wi-Fi) are making it easier to connect with other parts of the planet.

Keyword	Definition
Developed	A high-income country that has good healthcare, lots of well paid jobs and good housing.
Developing	A low-income country that has poor healthcare, few jobs, poor quality housing and poverty.
Development	The improvement in the standard of living of people in a specific country.
Distribution	The spread of where something is.
Emerging	A new, growing economy, a country that is starting to get richer and improve housing and healthcare.
Export	A country selling something to another.
Fair trade	A global organisation that helps farmers get a fair price for the crops and goods they sell.
Globalisation	The process of interaction among people, companies, and governments worldwide.
Import	A country buying something from another.
Indicator	A thing that tells you the state or level of something.
Inequality	When something is not equal.
Malnutrition	Not eating enough of the right nutrients.
Over-nutrition	Eating too many of the wrong nutrients.
Sanitation	Having clean water, good sewerage and waste disposal to help prevent disease and protect people's health.
Sweat shop	A factory or workshop, especially in the clothing industry, where manual workers are employed at very low wages for long hours and under poor conditions.
Trade	The action of buying or selling goods and services.
Unequal	Not the same.

Year 8 – Geography – Our Unequal World

Trade

Inequalities in trade exist because of a lack of natural resources to develop or sell. There are low literacy rates leading to a lack of skills to develop resources.

Trade policy also influences inequality through market access and entry conditions.

Fair Trade

Trade is not always fair – the most money from a chocolate bar goes to the supermarkets and a very small amount goes to the cocoa bean farmers.

Life for a cocoa bean farmer is difficult – they don't earn enough money to pay for food, clothes, medicine or education.

Fairtrade is an organisation that helps farmers get a fair price for the crops and goods they sell – making sure that farmers in developing countries are not in poverty.

Sweat Shops

A sweat shop is a factory or workshop, especially in the clothing industry, where manual workers are employed at very low wages for long hours and under poor conditions.

Sweat shop are built in developing countries by global companies because labour will be cheaper here meaning the companies can make more money.

In 2013, a sweatshop in Bangladesh collapsed, owners were aware of cracks, but told workers not to worry. This led to 400 deaths and 2,500 injuries.

Sanitation

In 2020, 54% of the global population (4.2 billion people) used a safely managed sanitation service.

Over 1.7 billion people still do not have basic sanitation services, such as private toilets.

Lack of access to poor sanitation is a leading risk factor for infectious diseases, including cholera and diarrhoea. This makes development more difficult.

Food Inequality

Food inequality is where some people in the world have access to enough, nutritious food whereas others don't.

Around 815 million people in the world do not have enough food to lead a healthy life. In Africa, around 1 in 4 people are malnourished.

Causes of Food Inequality

One cause of food inequality is poverty.

Long periods of drought mean crops cannot grow and families cannot source enough food or make money. Droughts are happening mor frequently because of climate change.

Conflict often means people have to leave their homes, crops and cattle.

Food shortages increase the prices leaving some people unable to afford food.

Effects of Food Inequality

People are more likely to get diseases as they are not getting the right nutrients.

If people are ill, and unable to access healthcare, they may not be able to go to school or work, leading to further poverty.

However, this is only one end of the scale. In some countries, there is over-nutrition which also has negative effects on people's lives. People can eat too many calories and still not have the right nutrients to be healthy.

Healthcare

In developed countries healthcare systems are well-developed and funded by governments. People have access to good healthcare and medicine. This often leads to a high life expectancy.

In developing countries healthcare is often poor, particularly in rural areas, where people die from even common diseases, this leads to a low life expectancy.

For example, in Japan there are 2.57 doctors per 1,000 people whereas in India there are 1.34 doctors per 1,000 people. Healthcare in developing countries is often worse in rural areas leading to a much lower life expectancy. Poor healthcare results in high infant mortality rates and a lack of vaccines available.

Year 8 – Geography – Our Physical World

The Earth's Structure

The Earth's structure is split into four layers: the crust, the mantle, the outer core and the inner core.

The crust is the outside layer and it is the thinnest

The mantle is made up of molten rock called magma.

Plate Boundaries

The Earth's crust is like a jigsaw puzzle – it is broken up into pieces that are moved by the convection currents in the mantle.

These pieces are called tectonic plates.

Plate boundaries are where these tectonic plates meet.

Tectonic plate movement

Tectonic plates are carried by currents in the upper mantle.

Convection currents are where heated mantle rises to the earth's surface.

Slab pull is when the weight of the moving plate drags the rest behind it.

There are currently many scientific debates surrounding which process actually moves tectonic plates.

Volcanoes

A volcano is an opening in the Earth's crust. It allows hot magma, ash and gases to escape from below the surface.

An active volcano is one that has erupted recently and one that will erupt again. A dormant volcano is one that has not erupted for a long time but may still erupt in the future. An extinct volcano is one that will have erupted thousands of years ago and will probably never erupt again.

A volcano has different parts; the vent is the pipe which carries magma up the volcano, the cone is the shape of a volcano formed by lava and ash and a crater is a funnel shaped hollow at the top of a volcano.

Iceland Eyjafjallajökull 2010

April 2010 the volcano erupted underneath an ice sheet.

Areas were flooded because of the glacier meltwater. This meltwater also interacted with the magma causing rapid cooling which resulted in the magma exploding into tiny pieces of ash. This resulted in the ash plume which shot really 11km into the sky.

Agricultural land was damaged. 800 people were evacuated, nobody died.

Travel was severely disrupted as many flights were cancelled between 14 and 21 April 2010. Businesses lost trade. Air operators lost millions of pounds each day.

However, following the eruption the Icelandic government launched a campaign to promote tourism.

Nyiragongo, Democratic Republic of the Congo 2021

On 22nd May 2021 Nyiragongo in the Democratic Republic of Congo (a developing country) erupted killing 32 people and destroying 1,000 homes. It also erupted in 2002 which killed 250 people.

Developing countries often have more severe impacts of volcanic eruptions because they do not have plans in place to protect their populations. They also struggle to respond as well and as quickly. Developing countries often rely on aid.

Plate Boundary	What happens?
Constructive	This is where two plates move away from each other. Magma rises through the gap creating new land. Volcanoes are formed.
Conservative	This is where two plates slide past each other or are moving in the same direction at different speeds. There is often a build up of friction. Earthquakes happen at this plate boundary.
Destructive	This is where an oceanic plate and a continental plate move towards each other. The oceanic plate sinks below the continental plate as it is heavier causing some friction. Volcanoes, fold mountains, earthquakes and tsunamis happen at this plate boundary.
Collision	This is where two continental plates move together. They push against each other and the plates crumple. Fold mountains to form.

Year 8 – Geography – Our Physical World

Earthquakes

An earthquake is the shaking and vibration of the Earth's crust due to movement of the Earth's plates. They happen when tension is released from inside the crust. Plates do not always move smoothly, and they can sometimes get stuck. When they get stuck, pressure is built up. When this pressure is released, there is usually an earthquake.

The point inside the crust where the pressure is released is called the focus. The point on the surface directly above the focus, is called the epicentre.

Earthquake energy is released in seismic waves. These are felt more strongly closer to the epicentre. The most damage will occur closer to the epicentre.

Earthquakes are measured on the Richter scale, with each level being ten times stronger than the last.

Earthquakes have both p and s waves. P waves are faster and can travel through both solids and liquids. S waves are slower and can only travel through solids.

Nepal 2015

7.8 magnitude earthquake struck the capital city of Kathmandu on April 25, 2015.

About 9,000 people were killed, many thousands more were injured. The fact that buildings were weak caused more deaths.

Nepal is a developing country and lacked the wealth and infrastructure needed to be resilient and the impact was severe.

New Zealand 2011

6.3 magnitude earthquake in Christchurch struck on 22nd February 2011. 181 people were killed. 2,000 injured.

Over 50% of the city's buildings were damaged. Businesses were closed for a long time.

International aid was provided (around $6-7 million). Temporary housing was provided, around $898 was made in insurance claims.

Causes of Tsunamis

Most tsunamis are cased by earthquakes at destructive plate boundaries.

The energy released causes a wave to form. These waves can travel large distances.

When the waves reach shallower water, the waves slow down, increase in height and get closer together.

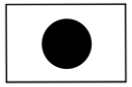
Indian Ocean 2004 Tsunami

Magnitude 9 earthquake caused the tsunami that affected 13 countries and killed approximately 230,000 people.

It was devastating because the epicenter was close to densely populated areas and there was no early warning system in place.

Japan 2011 Tsunami

Severe 9.0 magnitude on 11th March 2011 causing a tsunami.



The tsunami had wider issues as it flooded the Fukushima Nuclear Power Plant causing a system meltdown.

Keyword	Definition
Convection Current	This is where magma heated by the core rises and as it gets further away it cools down, causing the tectonic plates to move.
Developed country	Countries with relatively high levels of economic growth and security.
Developing country	Countries with a less developed industrial base and lower human development.
Disaster	An event that causes loss of life.
Economic	Something that relates to money.
Environmental	Something that relates to the land, air and sea.
Hazard	An event that has the potential to cause disruption and harm.
Lava	Molten rock on the Earth's surface.
Magma	Molten or semi-molten rock under the Earth's surface.
Plate boundary	Where two tectonic plates meet.
Primary	Effects that occur as a direct result of the ground shaking, e.g. buildings collapsing.
Secondary	Secondary effects occur as a result of primary effects, e.g. fires.
Seismic Waves	Waves of energy that travel through the Earths layers as a result of earthquakes.
Slab pull	Slab pull is when the weight of the moving plate drags the rest behind it.
Social	Something that relates to people.
Subduction	Where one plate moves under another and is forced to sink.
Tectonic	Relates to the structure of the Earth's crust and any processes that take place within it.
Tsunami	A large ocean wave usually caused by an underwater earthquake or volcano. It is different to a tidal wave.

Year 8 – History – The British Empire

- At its peak, the British Empire controlled nearly 25% of land on earth.
- Colonies were in North/South America, parts of Africa, India, South East Asia, and Oceania.
- Britain conquered many countries within Africa specifically and ruled over 30% of people living in the entire African continent. (Some were: Egypt, Sudan, Nigeria, Ghana, Uganda, South Africa, and many more).
- Many people from Africa were enslaved by Britain and other European empires.

Why did Britain want an Empire?

- Britain wanted more wealth, power and resources.
- It looked to other countries to gain these items from by using its military or sometimes through trade.
- Britain could gain the most benefits by taking control of other countries and diverting each colony's wealth back into the empire.
- Britain also wanted to bring their idea of 'civilization' to what they saw as 'uncivilised' countries.

Impact on global trade and the world economy

- The Empire connected the world in ways never before.
- Resources from one part of the world could be extracted and exported to another with ease
- Raw materials could be processed into goods in the home country, later to be sold for large profits.
- Britain was able to mechanise this process, kickstarting the Industrial Revolution.

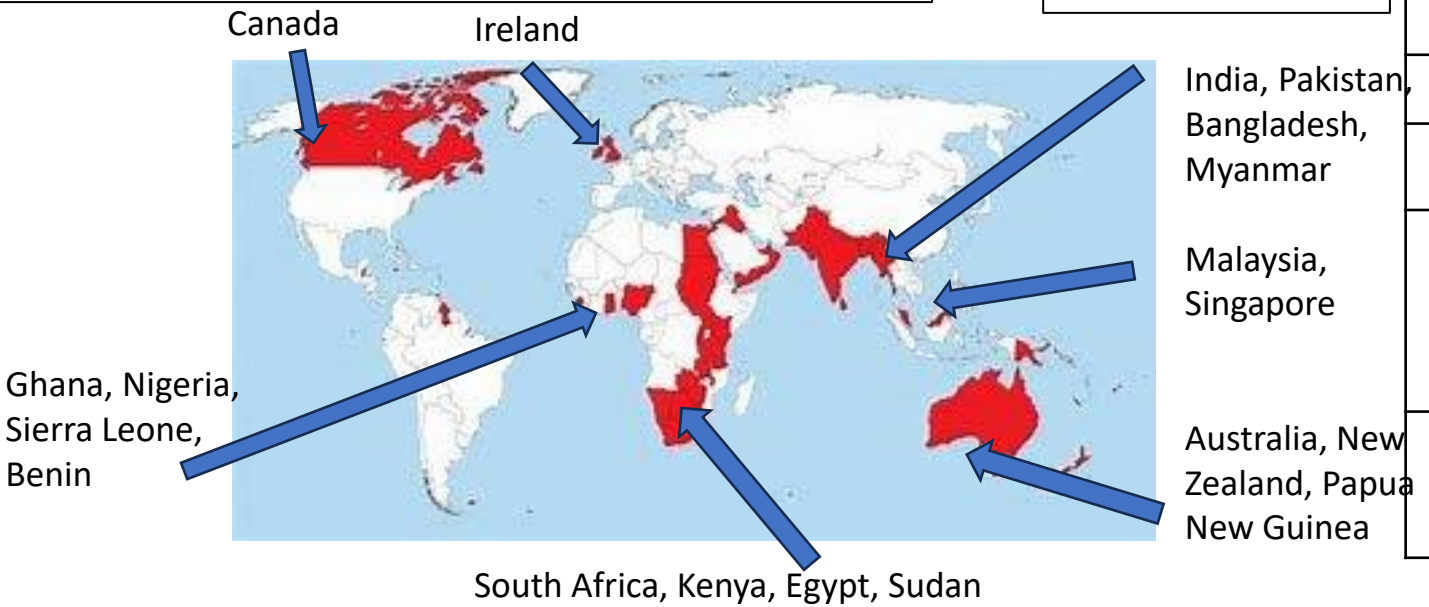
WHY WAS BRITAIN SO POWERFUL?

1. Strong Ships: Britain had really good ships, especially its powerful navy. This navy helped protect their trade routes and project power around the globe
2. Strong Soldiers: British soldiers had better training and weapons than the people they were fighting. This made it easier for them to take over new lands.

Decolonisation

- The British Empire couldn't last forever. Ater the Second World War most colonies in the Empire pushed for independence from Britain. They wanted self-rule and to be free from British domination.

- Australia (1901)
- New Zealand (1907)
- Ireland (1922)
- India & Pakistan(1947)
- Nigeria (1960)
- Kenya (1963)



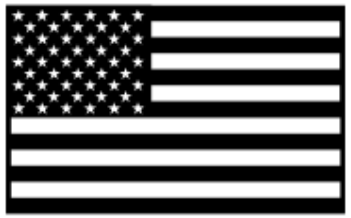
Key Words

Keyword	Definition
Scramble for Africa	The process of dividing Africa up between European powers
Administration	How a place, country or government is governed and by who
Colony	A country that has been taken over and is ruled by another country.
Empire	A group of countries all ruled over by one more powerful country.
Imperialism	The aim of increasing a country's power/ influence through military power and trade.
Decolonisation	The process of an empire leaving behind the colonies and the people as they become independent and run their own affairs.
Legacy	What is left behind after a thing or person no longer exists.
Indigenous	The local people native to an area. E.g. First Peoples of North America.
Colonialism	is when one country establishes itself in another country. When someone colonises a new country, they are called a coloniser. The original inhabitants of the land are called natives.
Liberation	'the action of setting someone free from imprisonment, slavery, or oppression; release'

Year 8 – History – The British Empire

1600	Britain's East India Company is established when Elizabeth I grants a charter to a 'Company of Merchants trading into the East Indies'

1627	A British colony is founded in Barbados and within fifteen years has 18,000 settlers



1776	The American Revolution kicks the British out of all North America, apart from Canada.

1843	The British take control of the entirety of South Africa

1920	The British gain control of Turkish and German colonies after WW1, reaching it's largest extent over the world.

1963	Kenya, Uganda and many other African countries declare independence from Britain

1997	Britain returns Hong Kong to China. Marking the end of the British Empire.

1583	Explorers claims Newfoundland the first colony of the Empire

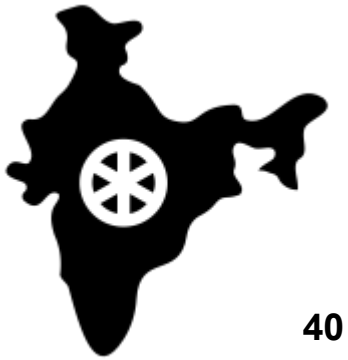
1607	Colonists establish the first lasting British settlement in the new world, at Jamestown

1655	Oliver Cromwell takes control of Jamaica and brings in the first enslaved Africans to work on the Sugar Plantations

1788	Britain lands in Botany Bay, marking the first settlement of colonists in Australia.

1885	At the Berlin Conference Europeans divide Africa between themselves

1947	The British Raj (India) gains independence from Britain, and is later divided into Pakistan and the Indian Republic



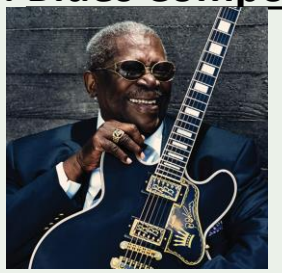
Blues Music

Year 8 Music Knowledge Organiser

a. Key Words

12-Bar Blues- A structure that uses 3 chords over a 12-bar cycle.
Walking Bass Line- The bass part 'walks' up the notes of the chord.
Improvisation- Making music up on the spot, often based on a chord progression or key signature.
Blues Scale- A scale of 6 notes that flattens the 3rd, 5th and 7th notes.
Syncopation- When something is played off beat, usually creating a disjointed feel.
Swing Rhythm- The first bit of the beat is longer as it steals time from the second bit to give the music a swinging feel.
Call and Response- A bit like a musical sentence. One instrument plays and another responds.
Dissonance- A clashing of notes to create tension.

b. Blues Composers



B. B. King

Muddy Waters

Bessie Smith

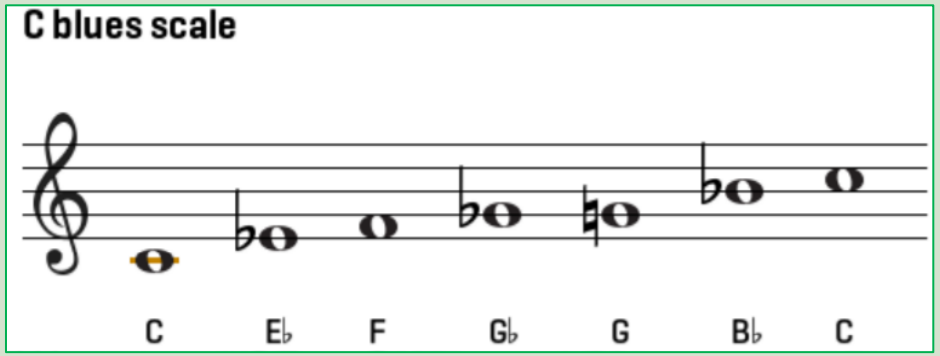
Nina Simone

c. History of Blues Music

Although the blues evolved in the southern states of the USA from the **late 19th century**, it has lots of musical influences from **Africa**. This is because African enslaved people brought their musical traditions with them when they were transported to work in the North American colonies (**The Slave Trade**). Early types of African American music included **spirituals** (religious songs using vocal harmony) and **work songs**.

d. The Blues Scale

Blues music uses a special scale. The Blues scale is built using a flattened 3rd, 5th and 7th note.



Blues Music

Year 8 Music Knowledge Organiser

e. 12-Bar Blues Chord Structure

1 C / / / C+E+G	1 C / / / C+E+G	1 C / / / C+E+G	1 C / / / C+E+G
4 F / / / F+A+C	4 F / / / F+A+C	1 C / / / C+E+G	1 C / / / C+E+G
5 G / / / G+B+D	4 F / / / F+A+C	1 C / / / C+E+G	1 C / / / C+E+G

f. Blues Instruments

Strings- A double bass or bass guitar is used to play the bass line. Guitar plays chords and melodies.
Woodwind- Saxophones and clarinets are sometimes used for the melody.
Brass- Trumpets and trombones are sometimes used for the melody.
Percussion- Drum kit strengthens the rhythm section.
Keyboards- Piano is used to play the chords and melody.

g. Key Features

- Four beats in a bar
- Built on the 12-bar blues form
- Use three four-bar phrases
- A three-line verse structure where the second line repeats the first, for example A A B.
- A short instrumental break (solo) after each line – a form of call and response.
- The lyrics are raw and full of emotion, dwelling on love and loneliness. They tell of injustice and hopelessness, and the longing for a better life. They were passed on from musician to musician through oral tradition. They often use slang and double meanings.

h. Questions

1. *What historical event led to the development of Blues music?*
2. *Name a female composer of Blues music.*
3. *What notes of the scale are flattened to make a Blues scale?*
4. *What are the three chords used in the 12-Bar Blues chord structure?*
5. *What are the lyrics like in Blues music?*
6. *What does the saxophone play in Blues music?*
7. *What does the piano play in Blues music?*
8. *How are the lyrics passed on from musician to musician in Blues music?*

Year 8 Term 1 – PRE – How do believers practise their faith? Prayer and Pilgrimage.

Key Words:

Communication: giving or exchanging information by speaking, writing, or using some other medium
Prayer: a request for help or expression of thanks addressed to God or another deity.
Worship: the feeling or expression of adoration for a deity.
Practise: perform an activity or exercise repeatedly or regularly.
Devotion: Showing loyalty/ respect to something or someone.
5 Pillars of Islam: 5 basic acts in Islam which are considered compulsory by believers, and are the foundation of Muslim life
Salat/ Salah: The ritual prayer of Muslims, performed five times daily in a set form
Shrine: a place regarded as holy because of its link with a god, the divine or a sacred person, marked by a building or other construction.
Puja: A worship ritual performed in the morning by Hindus.
Murtis: Images of gods/goddesses.
Mantras: Hindu prayers.
Pilgrimage: A journey to a sacred place for religious reasons
Hajj: The greater Muslim pilgrimage to Mecca, which takes place in the last month of the year and which all Muslims are expected to make at least once during their lifetime if they can afford to do so.
Mecca: Place of pilgrimage for Muslims, located in Saudi Arabia
Ihram: The state in which Muslims must be in before taking part in Hajj (purity)
Lourdes: a leading place of pilgrimage for Roman Catholics after a young girl, Bernadette Soubirous, had visions of the Virgin Mary in 1858
River Ganges: Place of worship for Hindus, located in India
Miracle: an extraordinary and welcome event that cannot be explained by natural or scientific laws.
Environmental issues: climate change, pollution, environmental degradation, and resource depletion.
Hindu Cremation: The most common practice is to cremate the body, collect the ashes, and on the fourth day, disperse the ashes in a sacred (special) body of water e.g. The Ganges.

What is the difference between a pilgrimage and a holiday?

Pilgrimage	Holiday
A pilgrimage is when people travel to a place of worship that is usually far away. They may have to go to a different city or country. A pilgrimage is done for spiritual or religious reasons.	A holiday is where families, friends or individuals will travel for a vacation to spend time together relaxing.

Religious beliefs about Prayer

Christianity

- Christians do not have a set way to pray.
- They may **pray formally**, e.g. in a Church with others, **or informally**, e.g. at home using their own words
- Jesus gave an example of how to pray: **The Lord's prayer**. This prayer includes praise to God, asking for forgiveness and asking for help.

Islam

- **Salat** refers to Muslim prayers, **performed five times each day**. It is the **second Pillar of Islam.**
- God ordered Muslims to pray at five set times of day:
- ***Dawn, before sunrise, Midday, after the sun passes its highest, The late part of the afternoon, Just after sunset, Between sunset and midnight.***
- All Muslims try to do this. Muslim children as young as seven are encouraged to pray.
- In Islamic countries, **the public call to prayer** from the mosques sets the rhythm of the day for the entire population
- Muslims will also perform a **series of movements** that go alongside the words of the prayer.
- Muslims must **wash before they pray which is known as Wudu**

Hinduism

- Hindu worship, or **puja**, involves images (murtis) and prayers (mantras)
- Central to Hindu worship is **the image, or icon**, which can be worshipped either at home or in the temple.
- Hindus will use a **Puja tray** which contains items such as a bell (to awaken the god/ goddess), incense and powder to make a paste.
- Worshippers **repeat the names of their favourite gods and goddesses**, and repeat mantras. Water, fruit, flowers and incense are offered.
- The majority of Hindu homes have a **shrine** where offerings are made and prayers are said.
- **A shrine can be anything: a room, a small altar or simply pictures or statues of the deity.**
- Family members often worship together and there may be a god traditionally worshipped by the family
- Different gods have different attributes**, for example Ganesha is the remover of obstacles.**

Examples of Pilgrimage

Christianity

- Lourdes is a pilgrimage site in **France**
- Every year, it's visited by millions of pilgrims, mainly **Roman Catholics**.
- They go to see the site of a famous vision experienced by a young girl called Bernadette Soubirous and to be healed by its supposedly **miraculous waters**.
- St Bernadette claimed to have seen the Virgin Mary (Jesus' mother) appear to her several times
- Christian pilgrims now visit and pray in **the Sanctuary of Our Lady of Lourdes and worship at the grotto** where the vision is said to have taken place.
- Pilgrims may visit to be **cleansed of their sins** and to be **cured of their illnesses**. It is believed that spring water from the grotto can heal people if they are sick. **Millions of visitors come to Lourdes each year** in the hope of being cured.
- By 2015, 69 cases of healings had been recognised as miracles by the Roman Catholic Church.

Islam

- For Muslims it is a **duty to go on pilgrimage to Mecca** (in **Saudi Arabia)** at **least once in their lifetime**, as long as they are physically able and can afford it.
- The pilgrimage is called **Hajj** and is the fifth Pillar of Islam.
- **Ihram relates to the state of purity and equality before God** (Allah) which Muslims enter before going on Hajj. To symbolise this state, male pilgrims wear **two lengths of white cloth** whilst on Hajj; female pilgrims wear ordinary clothes, but must keep their faces uncovered. **These clothes may be kept by the pilgrim and at their death used to wrap their body for burial.**
- Muslims perform many rituals during Hajj, for example:, running between the hills of Safa and Marwah 7 times an **walking around the Ka'bah**d taking water from the spring which is called Zamzam.
- During Hajj, Muslims also travel to Mina, to the plain of Arafat where they stand on or near the Mount of Mercy from noon until dusk, praising Allah.
- On the third day, they will throw small stones at 3 pillars called Jamarat, which represent the Devil.
- **At the end of the pilgrimage, Muslims celebrate the festival of Eid ul-Adha**

Hinduism

- **The River Ganges** is seen as a place of pilgrimage for Hindus
- It runs for more than 1500 miles across Asia and is considered to be **sacred and spiritually pure**, though it is also **one of the most polluted rivers on earth.**
- Some Hindus believe that it **flowed from heaven to purify humans**. Sometimes the river is represented in female form because many Hindus refer to it as 'mother Gangaa' or 'she'.
- Many Hindus believe water from anywhere on the River Ganges is purifying and holy.
- Many pilgrims also **take home small containers of water from there to give to friends and family** who are not able to attend.

Year 8 Spanish – Topic 1 – My social life

A. ¿Qué hiciste este verano? What did you do this summer?					
Este verano This summer **El fin de semana pasado** Last weekend **La semana pasada** Last week **Ayer** Yesterday **Anoche** Last night	**jugué al fútbol** I played football **jugué al baloncesto** I played basketball **jugué a los videojuegos** I played video games **hice natación** I did swimming **hice equitación** I did horse riding **hice ejercicio** I did exercise **fui al centro comercial** I went to the shopping centre **fui al cine** I went to the cinema **fui al gimnasio** I went to the gym **charlé con amigos** I chatted with friends **descansé** I relaxed **escuché música** I listened to music **leí** I read **monté en bici** I rode my bike **usé el móvil** I used my phone **vi la tele** I watched TV	**sin duda** without doubt **pienso que** I think that **creo que** I believe that	**fue** it was	**bastante** quite **completamente** completely **demasiado** too **tan** so **un poco** a bit	**divertido** fun **emocionante** exciting **guay** cool **increíble** incredible **maravilloso** marvellous **relajante** relaxing **aburrido** boring **decepcionante** disappointing **fatal** awful **horrible** horrible

Year 8 Spanish – Topic 1 – My social life

B. ¿Qué haces cuando hace buen tiempo? What do you do when the weather is good?

Cuando hace buen tiempo When the weather is good

Cuando hace mal tiempo When the weather is bad

Cuando hace sol When it is sunny

Cuando llueve When it rains

Normalmente Normally

Nunca Never

Siempre Always

juego al fútbol I play football
juego al baloncesto I play basketball
juego a los videojuegos I play video games

hago natación I do swimming
hago equitación I do horse riding
hago ejercicio I do exercise

voy al centro comercial I go to the shopping centre
voy al cine I go to the cinema
voy al gimnasio I go to the gym

charlo con amigos I chat with friends
descanso I relax
escucho música I listen to music
leo I read
monto en bici I ride my bike
uso el móvil I use my phone
veo la tele I watch TV

en mi opinión in my opinion

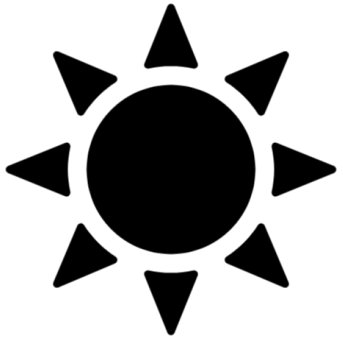
para mí for me

sin duda without doubt

es it is

divertido fun
emocionante exciting
guay cool
increíble incredible
maravilloso marvellous
relajante relaxing

aburrido boring
decepcionante disappointing
fatal awful
horrible horrible



Key verbs

jugamos we play
hacemos we do
vamos we go
charlamos we chat
descansamos we relax
escuchamos we listen
leemos we read
montamos we ride
usamos we use
vemos we watch

Year 8 Spanish – Topic 2 – Town and region

A. ¿Cómo es tu ciudad? What is your town like?

En mi ciudad
In my city

En mi región
In my region

En mi pueblo
In my village

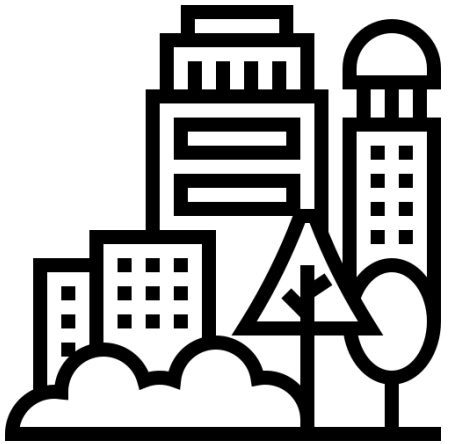
En mi barrio
In my neighbourhood

hay
there is/there are

un acuario an aquarium
un castillo a castle
un centro comercial a shopping centre
un cine a cinema
un estadio a stadium
un hospital a hospital
un mercado a market
un polideportivo a leisure centre
un supermercado a supermarket
un teatro a theatre
un templo a temple

una biblioteca a library
una bolera a bowling alley
una estación de trenes a train station
una iglesia a church
una mezquita a mosque
una piscina a swimming pool

galerías galleries
museos museums
parques parks
restaurantes restaurants
tiendas shops



Key verbs

en el pasado había
in the past there was/were

me gustaría que hubiera
I would like there to be

me gustaba donde vivía
I liked where I used to live

era it was

Me gusta donde vivo
I like where I live

No me gusta donde vivo
I don't like where I live

porque es
because it is

ya que es
because it is

pero es
but it is

bastante quite
demasiado too
muy very
tan so
un poco a bit

animado lively
bonito pretty
histórico historic
moderno modern
tranquilo peaceful

antiguo old
feo ugly
industrial industrial
peligroso dangerous
pobre poor

Year 8 Spanish – Topic 2 – Town and region

B. ¿Qué son tus planes? What are your plans?

Esta noche
This evening

Mañana
Tomorrow

Este fin de semana
This weekend

Esta semana
This week

La semana próxima
Next week

voy a
I am going

me gustaría
I would like

me apetece
I feel like

ir
to go

al castillo to the castle
al estadio to the stadium
al teatro to the theatre

a la biblioteca to the library
a la iglesia to the church
a la mezquita to the mosque
a la piscina to the swimming pool

jugar
to play

al fútbol football
al baloncesto basketball
a los videojuegos video games

hacer
to do

natación swimming
equitación horse riding
ejercicio exercise

beber y comer drink and eat
charlar con amigos to chat with friends
comprar ropa buy clothes
descansar to relax
montar en bici to ride my bike
ver una película to watch a film

en casa at home

en el estadio in the stadium

en el centro comercial
in the shopping centre

en el parque in the park

en el polideportivo
in the leisure centre

en el restaurante in the restaurant

será
it will be

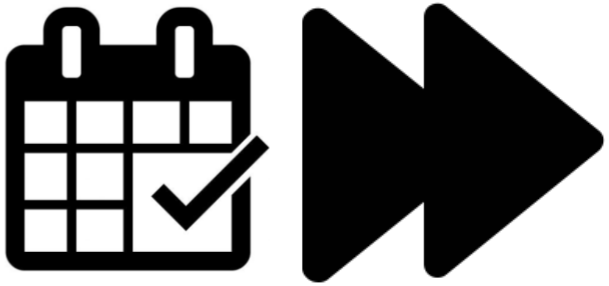
no será
it will not be

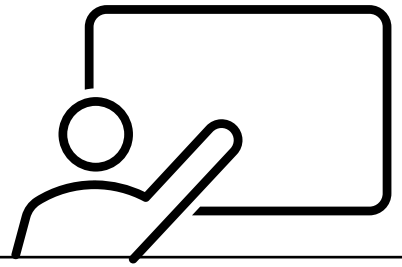
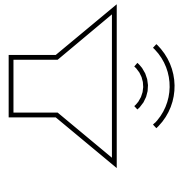
agradable pleasant
emocionante exciting
genial great
increíble incredible
maravilloso marvellous
relajante relaxing

aburrido boring
decepcionante disappointing
fatal awful
horrible horrible

Key verbs

vamos a
we are going to



LL 'Yuh' **Ll**amo	**Z** 'Th' **Z**umo	**Ge** 'Heh' **Ge**nial	**Ñ** 'Ny' Ma**ñ**ana
CE 'The' Ha**ce**r	**Que** 'Keh' Por**que**	**Gi** 'Hee' '**Gi**mnasio'	**V** 'B' **V**erde
CI 'Thi' **Ci**nco	**Qui** 'Kee' **Qui**en	**J** 'H' Me**j**or	**RR** 'rrrr' Ho**rr**ible
			**H** '-' **H**ola 

KS3 Spanish – Key vocabulary

Connectives

además in addition
también also
o or
pero but
y and
sino if not
porque/ya que because
sin embargo however

Opinions

me encanta I love
me gusta I like
prefiero I prefer
no me gusta I don't like
odio I hate

en mi opinión in my opinión
para mí for me
sin duda without doubt

considero que I consider that
creo que I believe that
diría que I would say that
pienso que I think that

Reasons

es it is

bastante quite
completamente completely
demasiado too
muy very
tan as
un poco a bit

agradable enjoyable
divertido fun
emocionante exciting
guay cool
maravilloso wonderful
genial great
increíble incredible
relajante relaxing

aburrido boring
decepcionante disappointing
horrible awful
fatal terrible

Present

A veces sometimes
Normalmente normally
Nunca never
Siempre always
Por la mañana in the morning
Por la tarde in the afternoon
Por la noche in the evening

después after
finalmente finally
luego then
primero firstly
segundo secondly

tengo I have
soy I am
hay there is/ there are
juego I play
hago I do
voy I go

bebo I drink
charlo I chat
como as/like
escucho I listen
leo I read
uso I use
visito I visit

tener to have
ser to be
jugar to play
hacer to do
ir to go
beber to drink

charlar to chat
comer to eat
escuchar to listen
leer to read
usar to use
visitar to visit

Past

Ayer Yesterday
Anoche Yesterday evening
El fin de semana pasado Last weekend
El año pasado Last year
En el pasado In the past
La semana pasada Last week
Recientemente Recently

era I was
tenía I had
había there used to be

fue it was

jugué I played
hice I did
fui I went
bebí I drank
charlé I chatted
comí I ate
escuché I listened
leí I read
usé I used
visité I visted

Future

Esta noche This evening

Mañana Tomorrow

La semana próxima Next week

Este fin de semana This weekend

El año próximo Next year

En el futuro In the future

voy a I am going
va a He/She/It is going
vamos a We are going

voy a comer I am going to eat
voy a escuchar I am going to listen
voy a estudiar I am going to study
voy a hacer I am going to do
voy a ir I am going to go
voy a jugar I am going to play
voy a salir I am going to go out
voy a ver I am going to watch/see

será it will be
sería it would be
me gustaría I would like
si pudiera if I could

Master Class Session 1: History

Self-Quizzing

Date:

Question Number	Question	Answer	Self checking (green pen). Check your answer and give yourself a tick or a cross. If you got it wrong, correct your answer.
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9			**50**

Master Class Session 2: Geography

Self-Quizzing

Date:

Question Number	Question	Answer	Self checking (green pen). Check your answer and give yourself a tick or a cross. If you got it wrong, correct your answer.
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9			

Master Class Session 3: Science

Look, Cover, Write, Check

Date:

Look - look at the sentence or word on your knowledge organiser. Read over it twice.	Cover (cover up the sentence or word by putting your hand over it or turning the page)	Write – write the sentence or word here. Spelling and word order both matter!	Self checking (green pen). Check your answer and give yourself a tick or a cross. If you got it wrong, correct your answer.

Master Class Session 4: Maths

Look, Cover, Write, Check

Date:

Look - look at the sentence or word on your knowledge organiser. Read over it twice.	Cover (cover up the sentence or word by putting your hand over it or turning the page)	Write – write the sentence or word here. Spelling and word order both matter!	Self checking (green pen). Check your answer and give yourself a tick or a cross. If you got it wrong, correct your answer.

Master Class Session 5: English

Look, Cover, Write, Check

Date:

Look - look at the sentence or word on your knowledge organiser. Read over it twice.	Cover (cover up the sentence or word by putting your hand over it or turning the page)	Write – write the sentence or word here. Spelling and word order both matter!	Self checking (green pen). Check your answer and give yourself a tick or a cross. If you got it wrong, correct your answer.