



# Contents

1. English
2. Maths
3. Science
4. Art
5. Design & Technology
6. French
7. Humanities
8. PE
9. Performing Arts

# How to use this booklet

This is a booklet designed to support you in your school studies. It is important you understand how to use it.

Your teachers have collected together all of the interesting facts, key words, techniques, and memory aides they think you need to know in their subject. There is a lot of helpful information in these pages that you can use to help you understand and enjoy your subjects.

You can use this booklet in the following ways:

- **To help you revise.** This might be for a test, or it might be in your own time. It is important to remind yourself of what you have learned, particularly if it was a tricky topic, so that you can build on what you know. You remember more if you revise regularly (e.g. during the holidays).
- **To learn new information.** You may come across words or ideas in this booklet that you haven't covered in your lessons. Don't worry – this is an excellent opportunity to stretch yourself and learn new things. You can always ask your teacher in your lessons to explain a word or concept if you aren't sure – or impress them with something you have remembered.
- **To help you with homework.** You can look up key words or strategies to help you with homework tasks. It is recommended that you keep this booklet at home: you will keep it safe, and you can also ask someone to help test you. If you only complete homework at school, it is best to keep it in your locker.

Your teachers want you to learn as much as possible, so it might seem at first that there is a lot of information here. Do not worry: it is designed to help you, and learning from it is not an impossible task. You could start by:

- Looking at each section when you do that subject for homework.
- Highlighting in different colours words you do and don't know.
- Choose 5-10 words or terms each weekend to memorise, in a subject you know you need some support in.
- Use the Look-Cover-Write-Check system to ensure you know things really well – and keep testing yourself!



Look



Cover



Write



Check



You need to be able to answer the question 'What is...?', or 'Can you define...?'

1.	<p>...a noun</p> <p>...an adjective</p> <p>...a verb</p>	<p><b>A person, place or thing.</b>  <b>Proper noun:</b> A person, place or thing with a name that requires a capital letter                  e.g. Chris, East Anglia, Nimbus 3000.  <b>Abstract noun:</b> An idea or emotion                  e.g. anger, inspiration, a plan.  <b>Concrete noun:</b> A noun with a physical aspect e.g. chair, boy, rain.</p> <p><b>A describing word.</b>                  e.g. blue, sunny, free.</p> <p><b>A 'doing' word.</b>                  e.g. to go, to play, to like.</p>			
2.	...an adverb	<p><b>A word that describes a verb.</b>                  e.g. quickly, carefully, practically.</p>			
3.	...a pronoun	<p><b>A word that can replace a noun.</b>                  e.g. I, you, he, she, it, they, them, we</p>			
4.	...a co-ordinating conjunction	<p><b>A connective placed between clauses that are equally important:</b>                  For, And, But, Or, Yet, So (FANBOYS).</p>			
5.	...a subordinating conjunction	<p><b>A connective that links clauses to suggest time, reason or condition:</b>                  As, Because, Although, Though, Even Though, Whereas, If</p>			
6.	...a preposition	<p><b>...of time:</b> A word that indicates <i>when</i> something happens                  e.g. 'During lesson one, the fire alarm rang.'  <b>...of place:</b> A word that indicates <i>where</i> something happens                  e.g. 'A fire broke out <u>in</u> Room 51.'</p>			
7.	...the comparative	<p><b>An adjective that shows comparison.</b>                  e.g. better, stronger, worse.</p>			
8.	...the superlative	<p><b>An adjective that shows the highest degree of a quality.</b>                  e.g. best, strongest, worst.</p>			
9	...the subject	<p><b>The person, place or thing that is carrying out an action or being something.</b> e.g. 'The <u>boy</u> shouted loudly.'</p>			
10	...the object	<p><b>The person, place or thing that is having an action done to it.</b>                  e.g. 'The boy shouted loudly into <u>the megaphone</u>.'</p>			
11	...a definite article	the	13	...the singular form	A noun that is just one thing. e.g. girl, memory
12	...an indefinite article	a	14	...the plural form	A noun that is more than one thing. e.g. girls, memories



**Sentence and clause types**

15	...a simple sentence	<b>A simple sentence is made up of one main clause.</b> e.g. The cat sat on the mat.
	...a compound sentence	<b>A complex sentence is made up of two main clauses, joined by a conjunction.</b> e.g. The cat sat on the mat <b>and</b> he purred quietly.
	...a complex sentence	<b>A complex sentence is made up of a main clause and at least one subordinate clause.</b> e.g. The cat sat on the mat, <i>eyeing the mouse in the corner</i> , and purred quietly.
16	...a main clause	<b>A main clause is a complete sentence that makes sense by itself.</b> e.g. The shop closed at six o'clock.
	...a subordinate clause	<b>A subordinate clause is an incomplete sentence that depends on a main clause to make sense.</b> e.g. ... <i>having been open all day</i> . / ... <i>after which everybody went home.</i> /

**Tense**

You need to be able to define, recognise and use:

17	<b>The present tense</b>	The tense that describes what is happening now.	I am
18	<b>The past tense</b>	The tense that describes what happened in the past.	I was
19	<b>The future tense</b>	The tense that describes what will happen in the future.	I will be
20	<b>The conditional tense</b>	The tense that describes what might happen.	I would be / could be

**Perspective**

You need to be able to recognise the pronouns that describe these points of view:

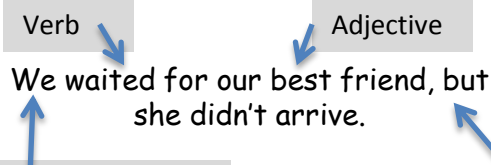
21.	<b>1<sup>st</sup> person</b>	I	<b>1<sup>st</sup> person (plural)</b>	we
22.	<b>2<sup>nd</sup> person</b>	you	<b>2<sup>nd</sup> person (plural)</b>	you
23.	<b>3<sup>rd</sup> person</b>	he/ she /it	<b>3<sup>rd</sup> person (plural)</b>	they

**Homophones**

You need to know the different spellings of these similar-sounding words:

24.	<b>There</b>	Indicating place.
25.	<b>Their</b>	Indicating possession or belonging.
26.	<b>They're</b>	Contraction of 'they are'.
27.	<b>Your</b>	Indicating possession or belonging.
28.	<b>You're</b>	Contraction of 'you are'.
29.	<b>Its</b>	Indicating possession or belonging.
30.	<b>It's</b>	Contraction of 'it is'.
31.	<b>To</b>	A preposition.
32.	<b>Too</b>	Indicating addition or excess (e.g. too much).
33.	<b>Two</b>	A number.

How to **parse** a sentence (label its grammatical features):



The pronoun 'we' means it's the 1<sup>st</sup> personal plural

Co-ordinating conjunction



Punctuation

You need to be able to define, recognise and use:

34.	<b>Capital letter</b>	ATA	Used after a full stop to begin a sentence. Used to indicate a proper noun (name, place, organisation).
35.	<b>Full stop</b>	.	Used to mark the end of a sentence.
36.	<b>Exclamation mark</b>	!	Used at the end of an exclamatory sentence to show strong emotion. e.g. The rollercoaster was terrifying!
37.	<b>Question mark</b>	?	Used at the end of a question. e.g. Can't you see my point?
38.	<b>Interrobang</b>	?!	Informally used to show disbelief. e.g. What?!
39.	<b>Semi-colon</b>	;	Used to join two related main clauses. e.g. Their shoes were muddy; their feet were painful.
40.	<b>Colon</b>	:	Used before lists, or to introduce an idea. e.g. Picture this: you're walking down the road...
41.	<b>Dash</b>	-	Used to separate information from a main clause, or instead of brackets. e.g. They had to sit at the back - and they weren't happy.
42.	<b>Comma</b>	,	Used to separate subordinate clauses from main clauses. Used to separate items in a list.
43.	<b>Brackets</b>	( )	Used to show an afterthought. e.g. Ben would always choose an action film (except when he had to babysit his sister).
44.	<b>Apostrophe</b>	'	A possessive apostrophe is used to show ownership. e.g. Joe's. A contraction apostrophe is used to merge two words into one e.g. they're, it's, don't, here's, you'll. The apostrophe replaces the missing letter.
45.	<b>Ellipsis</b>	...	Used to show a long pause or omitted (left out) words. e.g. I couldn't believe it...

Spelling: The 30 most commonly misspelled words in English

46.	accommodation	56.	disappointed	66.	persuade
47.	beautiful	57.	embarrass	67.	queue
48.	because	58.	extremely	68.	queueing
49.	beginning	59.	friend	69.	quiet
50.	believe	60.	immediately	70.	quiet
51.	business	61.	minute	71.	receive
52.	ceiling	62.	necessary	72.	separate
53.	decided	63.	neighbour	73.	sincerely
54.	definitely	64.	nervous	74.	surprised
55.	disappear	65.	opportunity	75.	until



**Imagery (all fiction)**

*Hint: These are examples of how an author uses language in writing.*

Simile	When a writer compares one thing to another using the words 'like' or 'as'. E.g. The snow was like a blanket.
Metaphor	When a writer compares one thing to another by saying it <u>is</u> something else. E.g. Love is a rollercoaster.
Personification	When a writer presents an object as having human emotions or feelings. E.g. The chair looked lonely.
Pathetic fallacy	When the writer describes the weather as if it reflects the character's thoughts or feelings. E.g. Rainy weather when a character feels sad.

**Poetic devices (poetry)**

Alliteration	When a writer repeats the same sound at the start of several words. E.g. The wild winds whisk to the west.
Couplet	When the end of two lines rhyme together. 'For sweetest things turn sourest by their deeds; Lilies that fester smell far worse than weeds.' (Shakespeare's Sonnet 94)
Enjambment	When the writer doesn't use punctuation at the end of a line in poetry. (When the writer does use punctuation, it is called end-stopped.)
Onomatopoeia	When the writer uses a word that sounds like an action that is being described. E.g. The car <u>crashed</u> through the window.
Rhyme	When the writer repeats the sound of words at the start or ends of lines.
Rhythm	When the writer uses syllables and the number of syllables in a word and line to create patterns.
Sibilance	When the writer uses sounds such as sh and s, to create a hissing sound. E.g. Slow splashing shoots of water.

**Dramatic devices (plays)**

Dramatic irony	When the audience knows something that a character on stage doesn't. e.g. The audience knows there is a killer in the house, but the character doesn't!
Soliloquy	When a character, in a play, talks to the audience on stage. e.g. Romeo talks to himself about his feelings for Juliet.
Stage directions	Extra information in italics that help the director and actors know what to do. e.g. <i>Exit, pursued by a bear.</i>

**Narrative devices (novels, autobiographies)**

*Hint: These are examples of how an author uses structure in writing.*

Narrator	The person telling the story. A 1 <sup>st</sup> person narrator makes the story personal, as the narrator shares things with the reader. A 3 <sup>rd</sup> person narrator keeps the story more distanced and neutral.
Plot	The storyline
Flashback	When a character remembers something that happened in the past
Chronological order	When the story is arranged in the order in which it happened
Setting	Where the story is set
Climax	A moment of great tension or excitement in the story
Protagonist	A main character
Antagonist	A villain or 'bad' character
Dialogue	What the characters say. They usually use speech marks. Dialogue is important as it tells us about a character e.g. their thoughts..
Description	Visual details of the scene. It allows a reader to build an image of it in their mind.





Analysing writing using PEA

Follow this structure when analysing fiction and non-fiction:			How to improve your answer:
<b>P</b>	Point	Your answer to the question	<ul style="list-style-type: none"> <li>• Turn the question around.</li> <li>• Choose words that are <b>clear</b> and easy to understand.</li> </ul>
<b>E</b>	Evidence	A quote A summary of something that happens in the text.	<ul style="list-style-type: none"> <li>• Quotes must be <b>short</b> (1-10 words) and <b>relevant</b> to the question.</li> <li>• Use <b>quote marks</b>.</li> <li>• Pick out a <b>one-word quote</b> and explain why this is a key word.</li> <li>• Use <b>more than one quote</b> to support your point.</li> </ul>
<b>A</b>	Analysis	Your ideas and interpretation	<ul style="list-style-type: none"> <li>• Explain your 'point' in further <b>detail</b>, using different words.</li> <li>• Explain what you can <b>infer</b> from the quote.</li> <li>• Explain what the <b>writer</b> is trying to do.</li> <li>• Explain how the <b>reader</b> might feel.</li> <li>• Explain the effect of a <b>language technique</b>.</li> </ul>

What A Good One Looks Like

Beginners' PEA:	
<p>The writer <b>shows</b> that Fred is happy to see his dog.</p> <p>He uses the phrase 'light as a feather' to describe his mood.</p> <p>I can <b>infer</b> from this that Fred is delighted to have him back from the vets, <b>because</b> when you're happy you feel like you're floating, which is how a feather falls.</p>	<p><b>Point</b> - clear statement of point, using the adjective 'happy' and the analysis verb 'shows'.</p> <p><b>Evidence</b> - short, relevant quote is embedded in the sentence.</p> <p><b>Analysis</b> - it explains the inference with a similar adjective ('delighted'), and it develops the explanation using the connective 'because'.</p>

Advanced PEA:	
<p>The writer intends to make the reader feel <b>sympathy</b> for the homeless.</p> <p>The adjectives '<b>beaten</b>' and '<b>broken</b>' describe people who have been living on the streets for a long time.</p> <p>The <b>alliteration</b> of these words <b>emphasises</b> the difficult conditions faced by homeless people. It is also an example of <b>emotive language</b>, and might make the reader <b>feel guilty</b>. As this is a charity leaflet, the writer <b>aims</b> to <b>highlight</b> these conditions and <b>persuade</b> the reader to become a volunteer. The language is <b>powerful</b> and <b>thought-provoking</b>, and as these words are <b>at the beginning</b> of the paragraph it draws the reader's attention to them.</p>	<p><b>Point</b> - explains the writer's intentions, describing a precise emotion.</p> <p><b>Evidence</b> - uses one-word quotes, and more than one example.</p> <p><b>Analysis</b> -                      Uses <u>analysis verbs</u> such as 'emphasises', 'highlights', 'persuades' and 'aims';                      Explains <u>the reader's response</u> and <u>the writer's intentions</u>;                      Uses <u>precise adjectives</u> to describe the mood;                      Refers to <u>language techniques</u> (alliteration and emotive language) and a <u>structural feature</u> (at the beginning of the paragraph).</p>





Adjectives for analysis		Explaining the effect on the reader	
<p>How would you describe the writing? <i>The extract/quote is...</i></p>	<p>You need to be able to explain the effect a piece of writing has on a reader. Use this for analysis ('A' in PEA).</p>		
	<p>How does it make you feel? <i>The writer's intention is to make the reader...</i></p>	<p>Explain the reader's response <i>The reader might...</i></p>	
frightening / alarming / creepy / intimidating / unsettling / gripping	<b>scared</b>	Feel nervous Feel the tension Prepare themselves for the unexpected Be horrified or frightened	
amusing / lighthearted	<b>laugh</b>	Be amused Be entertained Laugh / smile	
satisfying / uplifting / cheerful	<b>happy</b>	Feel positive or optimistic	
moving / emotional / touching	<b>sympathise/empathise</b> with someone	Understand how the writer is feeling Be affected by the writer's sadness	
shocking / outrageous	<b>angry</b>	Clearly or strongly agree or disagree Be offended Want to take action Be left open-mouthed	
powerful / thought-provoking	<b>inspired</b> or <b>persuaded</b>	Be convinced Think differently afterwards Be captivated / absorbed	
remarkable / impressive / dramatic	<b>interested</b>	Be struck by... Be left with the impression that...	

**Tone**

You need to be able to identify a writer's tone. This is the attitude of the writer towards a subject. It is created through deliberate word choices and putting these words in a certain order.

	E.g.	The effect
Formal	<i>There was a delay in the start of the project.</i>	The writer will be taken more seriously. It is appropriate for formal communication.
Informal (Colloquial)	<i>Well, I suppose you're right.</i>	The writer achieves a more personal connection with the reader.
Humorous/light hearted	<i>Of course I disagreed with him - he's my brother!</i>	The writer entertains the reader.



**Understanding non-fiction**

When you read a new piece of writing for the first time, you should consider:

<b>G</b>	Genre	What type of writing is this?	<ul style="list-style-type: none"> <li>Newspaper article, magazine article, recipe, a leaflet, an instruction manual, a poster advertisement, a travel guide.</li> </ul>
<b>A</b>	Audience	What type of person would read this?	<ul style="list-style-type: none"> <li>Are they young, old or middle-aged?</li> <li>Are they male or female?</li> <li>What are their interests?</li> <li>How wealthy are they?</li> <li>What are their life aims?</li> </ul>
<b>P</b>	Purpose	Why did the author write this?	<ul style="list-style-type: none"> <li>What is their opinion on the subject?</li> <li>How do they hope the reader will react?</li> </ul>



**Connectives**

You should use these connectives to link together ideas in analysis (PEA) or in persuasive writing.

In addition,	However,	Therefore,	Finally,	Similarly,
In particular,	whereas	Indeed,	Ultimately,	Furthermore,

**Verbs for analysis**

Use these verbs to explain a writer's purpose. You can use them in the P or A part of a PEA paragraph.

This <b>shows</b> that	This <b>suggests</b> that	This <b>emphasises</b> the idea that
This <b>implies</b> that	This <b>creates</b> a feeling that This <b>creates</b> a sense of	This <b>conveys</b> the idea that
The writer is <b>arguing</b> for/against	The writer is aiming to <b>convince</b> the reader that	The writer is <b>explaining</b> that

**Evaluation**

Evaluation means understanding why a piece of writing is effective. It is different to analysis, which means interpreting meaning in language and structure. Use T.I.E.S. to generate ideas.

**T - Themes**

What are the 'big' ideas?  
*E.g. Friendship, failure.*

**I - Ideas**

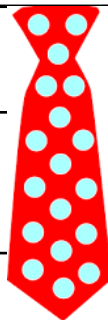
What are the 'small' ideas?  
*E.g. A stereotype of boys is that they like to drive cars.*

**E - Events**

*E.g. We know the car chase ends in disaster.*

**S - Setting**

*E.g. A suburban town, late at night.*



**Sentence starters:**

- The writer successfully uses the    [theme/idea/event/setting]    of    to show the reader
- For example, this is shown when he/ she writes
- It is effective because
- It engages the reader because it makes us think/ feel



Language techniques: non-fiction

You need to be able to **identify** these language techniques in non-fiction texts, such as articles, leaflets and letters.

You also need to be able to **use them yourself** when you are writing to persuade, inform or advise.

Figurative language	E.g.	Why is it effective?
simile	Life is like a game. You need to win it.	Figurative language allows the reader to visualise the argument more easily.
metaphor	Our future is a weight around our necks.	
personification	The guilt will eat you up!	
Rhetorical devices	E.g.	Why is it effective?
A - Alliteration	Health, happiness and hope for all.	It catches the reader's eye and the listener's ear.
(A - Anecdotes)	One time, a friend of mine fell off his bike.	It makes the argument more <b>realistic</b> .
F - Facts	You have to be in education until you are 18.	It makes the argument more <b>convincing</b> .
O - Opinions	Personally, I believe in equal opportunities.	It makes the argument more <b>personal</b>
R - Rhetorical questions	Why should we believe what we're told?	It <b>appeals directly</b> to the reader or listener.
(R - Repetition)	It's a joke. It's a joke and a lie.	It catches the reader's eye and the listener's ear.
E - Exaggeration	The entire planet knows it's a bad idea.	It makes the argument seem more <b>emotive</b> , and therefore more important. It is clear the author is biased in favour of one opinion.
(E - Emotive language)	Just think of all the families out there working hard.	
S - Statistics	80% of students with poor attendance don't succeed in later life.	It makes the argument more <b>convincing</b> .
T - Triplet/Rule of three	It is embarrassing, it's rude, and it's waste of time.	It catches the reader's eye and the listener's ear.
Vocabulary	E.g.	Why is it effective?
Dynamic verbs	Scorned, pleaded, cheered.	Vocabulary choices enhance your tone and purpose.
Descriptive adjectives	Luminous, broken, fragile.	
Emotive adverbs	Clearly, ultimately, naturally.	
Advanced techniques	E.g.	Why is it effective?
Oxymoron	A broken community.	These convey complex ideas in a sophisticated way.
Juxtaposition	The best and yet the worst idea.	
Direct address	You need to wake up and listen!	The personal pronoun 'you' makes the reader feel it is addressed to them.
Hypothetical situation	If you were to... Put yourself in their shoes...	The reader can empathise more easily.
Superlatives	The brightest and best.	It exaggerates the argument.



Structural techniques: non-fiction

- 'Structure' refers to how writing is laid out; how ideas are developed; and other technical features.
- You need to be able to **identify** these structural techniques in non-fiction texts, such as articles and letters.
- You also need to be able to **use them yourself** when you are writing to persuade, inform or advise.

Structural technique	E.g.	Questions to ask yourself
<b>Beginning</b>	<i>Look around you. What do you see?</i>	How does it make the text interesting or appealing?
<b>Ending</b>	<i>It needs to stop. Now.</i>	How does it leave the reader with a strong impression?
<b>Punctuation</b>	<i>A one-of-a-kind opportunity (except when everybody is doing it).</i>	Is the punctuation varied, to create personality and a specific tone in the text?
<b>Paragraph length</b>	Long vs short	<ul style="list-style-type: none"> <li>• Long paragraphs absorb the reader in the detail.</li> <li>• Short paragraphs are more powerful. They also allow it to be read quickly, if it is meant to be entertaining and not demand too much attention.</li> </ul>
<b>Sentence length</b>	Long - several subordinate clauses Short - one or two words.	<ul style="list-style-type: none"> <li>• Long sentences create a build-up of emotion. They increase the pace of the writing.</li> <li>• Short sentences are punchy and dramatic.</li> </ul>
<b>Word order</b>	<i>Be not afraid (formal tone). Don't be afraid (informal tone).</i>	<ul style="list-style-type: none"> <li>• Why is a certain word at the beginning of a sentence? Is it more important?</li> <li>• Why is a certain word at the end of a sentence? Is the writer trying to focus attention on it by leaving it to the end, to create a bigger impact?</li> </ul>
<b>Speech/quotes</b>	<i>The experience was 'one of a kind', reported theatre-goers.</i>	Quotes from experts or witnesses make persuasive or informative writing more convincing.
<b>Perspective</b>	1 <sup>st</sup> person 2 <sup>nd</sup> person 3 <sup>rd</sup> person	<p>Why has the writer used a certain perspective?</p> <ul style="list-style-type: none"> <li>• First person is more personal.</li> <li>• Second person is more direct.</li> <li>• Third person is more neutral.</li> </ul>
<b>Tense</b>	Present, past, conditional	<p>Why has the writer used a certain tense?</p> <ul style="list-style-type: none"> <li>• Present tense is more immediate and dramatic, and involves the reader in the action.</li> <li>• Past tense can be more neutral. Things are being reported that aren't happening now.</li> <li>• The conditional tense is used to influence an opinion. It can be persuasive, by talking about what could or would happen.</li> </ul>



20 ways to vary your sentences

1	Colons to introduce an important idea	A strange hint of something filled his nostrils and made his stomach lurch: it was blood.
2	Adjectives at the start of the sentence	<u>Cold and hungry</u> , Martin waited for someone to take pity on him.
3	Adjective -ed opening	<u>Wracked with fear</u> , Tommy crept slowly towards the door. <u>Scared for her life</u> , Anna searched frantically for the key.
4	-ing clause before the main sentence	<u>Having no choice about it</u> , Chris decided to agree with her.
5	Sentences with a semi-colon in the middle to connect two main clauses.	Spider-Man was in trouble; he was surrounded by his enemies.
6	The three verb sentence	The monster <u>pushed</u> , <u>crashed</u> , <u>smashed</u> its way through.
7	Sentence, comma and list of verbs ending in -ing	The road unspooled on and on, <u>rising</u> , <u>falling</u> , <u>rising</u> , <u>turning</u> , <u>falling</u> .
8	Two -ings at the start sentence	<u>Raising</u> a hand to my brow, <u>shielding</u> my eyes from the rain once more, I saw no monster.
9	Comma sandwich: a sentence with a subordinate clause in the middle	The sun, <u>which had been absent for days</u> , shone steadily in the sky.
10	Two similes sentence	It's hard to describe how I felt - <u>like an object no longer of use</u> , <u>like a parcel packed up in string and brown paper</u> .
11	The as if and three verb sentence	<u>It was as if</u> the cold was <u>pulling</u> at Tansy, <u>breaking</u> her up, <u>trying</u> to take her away from them, back somewhere.
12	Start with a preposition (e.g. under, by, near, beneath, over)	<u>Under</u> the moon, the river snaked its way to the sea.
13	The less, less, less sentence	<u>The less</u> I tried, <u>the less</u> I cared, <u>the less</u> I got.
14	More, more sentence	Every day, Kitty felt smaller, <u>more ugly</u> , <u>more useless</u> .
15	Three adjective 'of' sentence	I felt <u>full</u> , <u>full of food</u> , <u>full of</u> bad television, <u>full of</u> incessant chat.
16	Not, nor, nor sentences	Nobody, <u>not</u> the postman, <u>nor</u> the housekeeper, <u>nor</u> Jim himself knew how the letter had got onto the doormat.
17	So so sentence	There was one item, <u>so small</u> , <u>so unrecognisable</u> , it didn't register.
18	The writer's aside sentence	The computer, <u>as you know</u> , is quite slow. I think, <u>to be honest</u> , it will never work.
19	Whoever/ Whenever/ Whichever	<u>Whoever</u> had been at the scene, <u>whenever</u> they had been there, it was clear something very sinister had taken place.
20	However after the first word sentence	People, <u>however</u> , were watching gobsmacked



# VOCABULARY

**positive** – greater than zero

**negative** – less than zero

**Integer** – whole number

**sum** – add the numbers together

**product** – multiply the numbers

**difference** – biggest take away the smallest

**estimate** – round the numbers first and give an approximate answer

**solve** – work out the value of the unknown

**correlation** – the relationship between 2

variables, can be **positive**, **negative** or **no**

**correlation**. Draw a line of best fit if correlation is positive/negative.

**expand** – multiply out brackets  $2(x+3)=2x+6$

**factorise** – put brackets back in  $x^2-3x = x(x-3)$

**tessellate** – fit shapes together with no gaps

**Variable** – a quantity that can change

**Unknown** – a specific quantity to be found

**Reciprocal** – turn the fraction upside down

**Congruent** – exactly the same

**Area** – space on the inside

**Perimeter** – distance around the outside

**Parallel** – lines that never meet

**Perpendicular** – at a right angle

**FACES** – Flat sides

**EDGES** – Where two faces meet (lines on the diagram)

**VERTICES** – Where three or more sides meet (corners)

# Basic Mathematical Symbols

## Elementary arithmetic symbols

=	Equals	
+	Addition or "plus"	$2 + 3 = 5$
-	Subtraction, "minus" or "less"	$3 - 2 = 1$
×	Multiplication	$2 \times 3 = 6$ $2 \cdot 3 = 6$
÷	Division	$6 \div 3 = 2$ $6 / 3 = 2$
or	$\frac{(\text{numerator})}{(\text{denominator})} \equiv \frac{(\text{dividend})}{(\text{divisor})} = (\text{quotient})$	$\frac{6}{3} = 2$ $\frac{6}{3} = 2$ $\frac{6}{3} = 2$ $\frac{6}{3} = 2$

## Relational symbols

$\equiv$	"Is equivalent to"	$x / y \equiv \frac{x}{y}$
$\approx$	or $\cong$ "Is approximately equal to"	$\frac{1}{3} \approx 0.33$ $\frac{1}{3} \cong 0.33$
$\propto$	"Is proportional to"	$a \times x \propto x$
$>$	"Is greater than"	$3 > 2$
$\geq$	"Is greater than or equal to"	$1 + x^2 \geq 1$
$<$	"Is less than"	$2 < 3$
$\leq$	"Is less than or equal to"	$1 \leq 1 + x^2$
$\gg$	"Is much greater than"	$100 \gg 1$
$\ll$	"Is much less than"	$1 \ll 100$



# NUMBER

## Types of number:

**odd** – ends in 1, 3, 5, 7, 9

**even** – ends in 0, 2, 4, 6, 8 (is divisible by 2)

**factor** – divides exactly into a number

eg 5 is a factor of 10

**multiple** – in the times table of a number

eg 20 is a multiple of 10

**square number** – can be written as a

number multiplied by itself eg 9 is a square number because it can be written as  $3 \times 3$ .

The first 7 square numbers are 1, 4, 9, 16, 25, 36, 49, ...

**prime number** - can only be divided by one and itself: 2, 3, 5, 7, 11, 13, 17... are prime

## Standard Form

A number is in **standard form** if it is written

**a  $\times 10^n$**  where  $1 \leq a < 10$  and **n is an integer**

When  $+/-/ \times / \div$  with standard form remember the button on your calculator

Take care – should the final answer be in standard form or ordinary form?

## Percentage means “fraction out of 100”

$50\% = 0.5 = \frac{1}{2}$  ..... divide by 2

$25\% = 0.25 = \frac{1}{4}$  ..... halve then halve again

$10\% = 0.1 = \frac{1}{10}$  ..... divide by 10

$1\% = 0.01 = \frac{1}{100}$  ..... divide by 100

## Harder Percentages:

### Remember that you have your calculator

To find any percentage **divide** the amount by **100** and **multiply** by the percentage required.

Eg to find 37% of £248

you do  $248 \div 100 \times 37$  and get £91.76

To calculate a **percentage increase** (or decrease), find the **percentage** and **add it on** (or take it away)

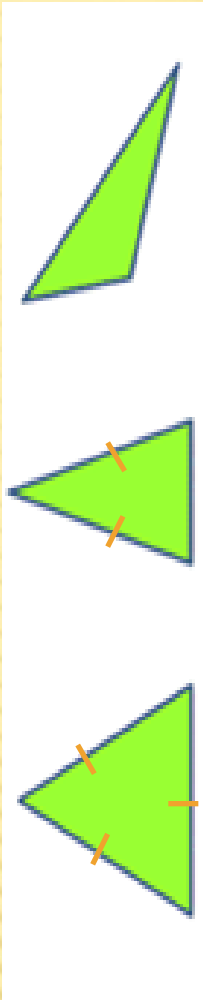
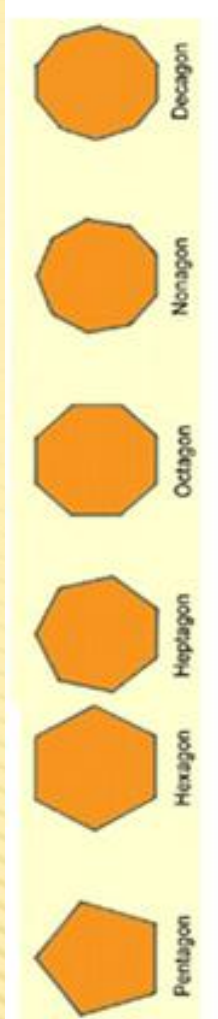
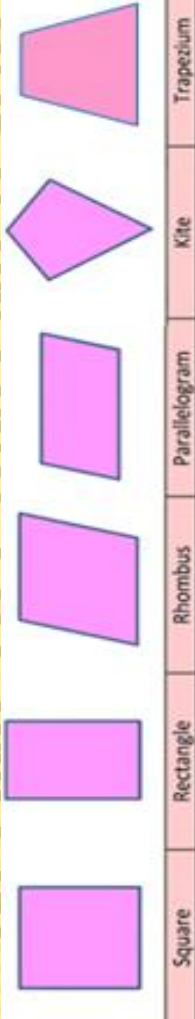
Eg to increase 120m by 15%

$15\%$  of 120m =  $120 \div 100 \times 15 = 18$ m

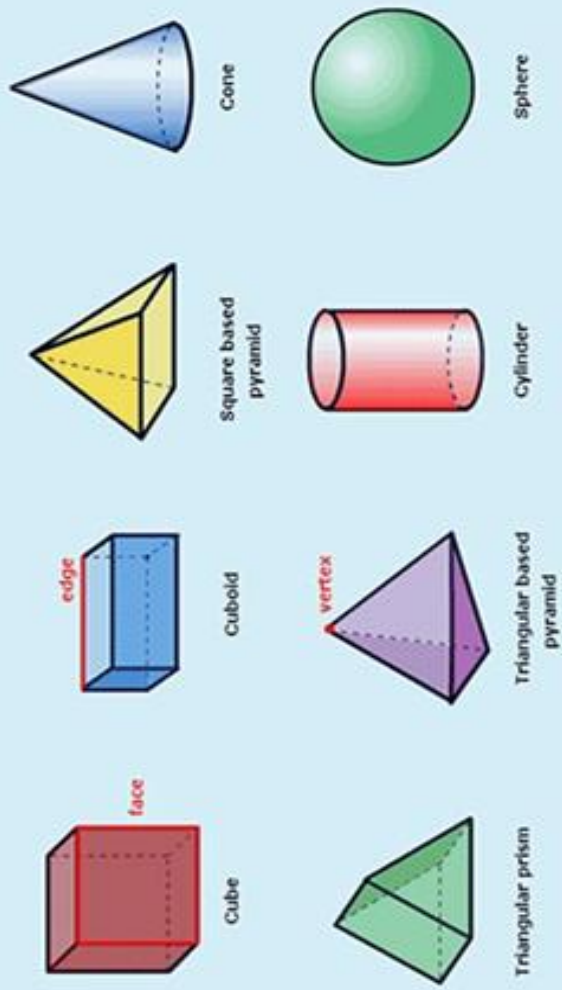
$120\text{m} + 18\text{m} = 138\text{m}$



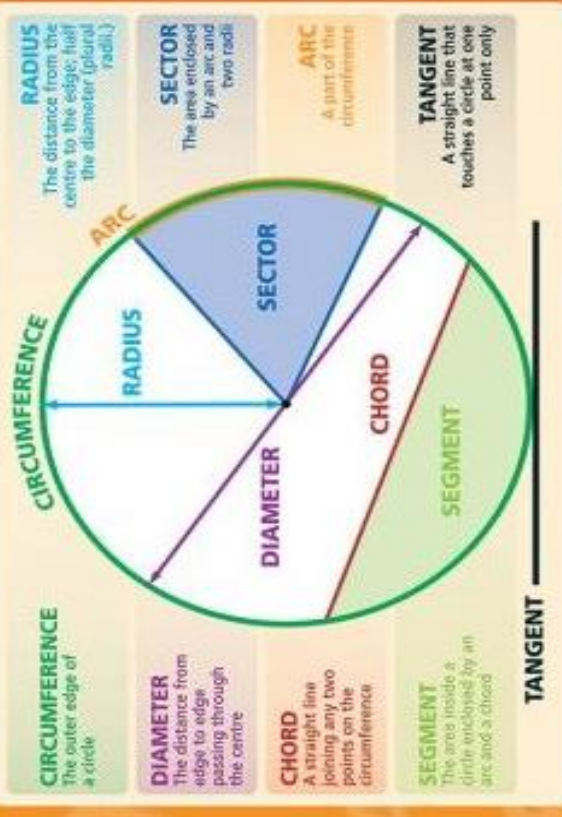
# GEOMETRY AND MEASUREMENT



Equilateral Triangle    Isosceles Triangle    Scalene Triangle



# CIRCLE PROPERTIES



There is a constant relationship between the circumference and diameter of any circle. This is denoted by the greek letter  $\pi$  (pi):

$$\pi = \frac{\text{CIRCUMFERENCE}}{\text{DIAMETER}} = 3.14$$

$\pi$  is an irrational number. Its decimal representation never ends or repeats: 3.141592653589...

The circumference of a circle can be calculated using the diameter or the radius:

**CIRCUMFERENCE =  $\pi \times \text{DIAMETER}$  ( $C = \pi d$ )**  
OR  
**CIRCUMFERENCE =  $2 \times \pi \times \text{RADIUS}$  ( $C = 2\pi r$ )**

The diameter of a circle can be calculated using the circumference.

**DIAMETER =  $\frac{\text{CIRCUMFERENCE}}{\pi}$  ( $d = \frac{C}{\pi}$ )**

The area of a circle can be calculated by using the radius:

$$\text{AREA} = \pi \times \text{RADIUS} \times \text{RADIUS} \quad (\text{A} = \pi r^2)$$

# GEOMETRY AND MEASUREMENT

## Angle Rules

Supplementary:  $180^\circ$

straight lines

parallel lines

opposite

alternate

corresponding

Equal

polygons

interior angle

exterior angle

angle sum:  $(n-2) \times 180^\circ$

quadrilaterals

round a point:  $360^\circ$

triangles

add up to  $360^\circ$

## AREA

Always use the perpendicular height

**rectangle**  
Area = base x height

**triangle** is half the area of a rectangle  
Area =  $\frac{\text{base} \times \text{height}}{2}$

**parallelogram**  
Area = base x height

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

**circle**  
Area =  $\pi r^2$

## Polygons

**Angle Sum**  
 $(n-2) \times 180^\circ$   
number of triangles

**interior angle**  
angle sum / number of sides  
OR  
 $180^\circ - \text{exterior angle}$

**exterior angle**  
 $360^\circ$  / number of sides  
OR  
 $180^\circ - \text{interior angle}$

3 triangle  
4 quadrilateral  
5 pentagon  
6 hexagon  
7 - heptagon  
8 octagon  
9 - nonagon  
10 - decagon

## Circle Theorems

Angles at the circumference are equal.

They must come from the same arc.

The angle at the centre is twice the angle at the circumference.

From any point you can only draw two tangents... and they'll be equal.

Alternate Segment Theorem.

The angle in a semi-circle is  $90^\circ$ .  
Look out for a diameter.

Cyclic Quadrilateral  
Opposite angles add up to  $180^\circ$ .

The angle between a tangent and a radius is  $90^\circ$ .  
Look out for radii.



# Algebra

In algebra, letters (variables) can be used to represent unknown numerical values. For example, in the equation  $3x + y = 16$ ,  $x$  and  $y$  are variables.

A **term** is a collection of numbers and letters. Terms are separated by mathematical symbols.

$$3x + 4xy = 18 + y$$

An **expression** includes terms and operational (mathematical) symbols but not the equals symbol.

$$2x + 5y - 2$$

An **equation** is made up of two expressions that are equal.

$$4x + 5y = 23$$

A monomial is another name for a term.  
A binomial is made up of two monomials and a trinomial is made up of three monomials connected by + or - signs.

A polynomial is made up of more than three terms (monomials) linked by + and - signs.  
A linear equation is a statement of equality between two expressions of the first degree.

The value of a variable in an equation is called its root.

**Simplifying Algebraic Expressions:** To simplify algebraic expressions, like terms can be collected together. Like terms contain the same variable raised to the same power.

## Addition and Subtraction

$a + a + a$	$3a + 5a = 8a$	$4b - b$	$6b - b = 5b$
can be shortened to	$4a + a = 5a$	can be shortened to	$5b - 3b = 2b$
$3a$		$3b$	

## Multiplication

When multiplying (like or unlike) terms, the multiplication symbol is removed.

$a \times b$	can be shortened to $ab$	$y \times y \times X \times y \times X \times y$	$y^4$ can be shortened to $y^4$
$3 \times a$	can be shortened to $3a$	This is an index (power). It shows how many times $y$ is multiplied by itself.	

Remember  $4y$  is not the same as  $y^4$ .

$$4y = y + y + y + y \quad y^4 = y \times y \times y \times y$$

## Division

When dividing like terms, the variable can be removed from the answer.

$a \div b$	is written as $\frac{a}{b}$	$\frac{15b}{3b}$ can be shortened to 5	$\frac{12b}{3b}$ can be shortened to 4
------------	-----------------------------	--	--

Expression	Like?	Why?	Simplified
$3b + 2b$	Yes	Same variable	$5b$
$x - y$	No	Different variables	
$x + x^4$	No	Variables raised to different powers	
$2ab + 2ba$	Yes	Same variable (associative property)	$4ab$
$3x + 7y + 4x - 3y$	Yes	Same variables	$7x + 4y$

## Formulae

- $(a + b)^2 = a^2 + b^2 + 2ab$
- $(a - b)^2 = a^2 + b^2 - 2ab$
- $a^2 - b^2 = (a + b)(a - b)$
- $(a + b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$
- $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$
- $(a - b)^3 = a^3 - b^3 - 3ab(a - b)$
- $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$
- $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$
- $a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$
- If  $a + b + c = 0$ , then  $a^3 + b^3 + c^3 = 3abc$

# ALGEBRA

In Algebra, letters (variables) can be used to represent unknown numerical values. For example, in the equation  $3x+y=16$ , 'x' and 'y' are variables

$$3x+4xy=18+y$$

A **term** is a collection of numbers and letters. Terms are separated by mathematical symbols.

$$2x+5y-2$$

An **expression** includes terms and operational (mathematical) symbols but not the equal symbol

A **monomial** is another name for a term

A **binomial** is made up of two monomials and a trinomial is made up of three monomials connected by + or – signs.

A **polynomial** is made up of more than three terms (monomials) linked by + or – sign. A **linear equation** is a statement of equality between two expressions of the first degree.

The value of the variable in an equation is called its root.  
**Formulae**

1.  $(a+b)^2=a^2+b^2+2ab$
2.  $(a-b)^2=a^2+b^2-2ab$
3.  $(a+b+c)^2=a^2+b^2+c^2+2ab+2bc+2ac$
4.  $(a+b)^3=a^3+b^3+3ab(a+b)$
5.  $(a-b)^3=a^3+b^3-3ab(a+b)$



# Simplifying Algebraic Expressions:

To simplify algebraic expressions, like terms can be collected together.  
Like terms contain the same variable raised to the same power.

## Addition and Subtraction

$$a+a+a \quad 5a+3a=8a$$

can be shortened to

$$3a$$

$$4b - b$$

can be shortened

$$\text{to } 3b$$

$$6b-b=5b$$

$$5b-3b=2b$$

## Multiplication

When multiplying (like or unlike) terms, the multiplication symbol is removed  
a x b can be shortened ab

3 x a can be shortened 3a

y x y x y x y can be shortened to  $y^4$

this is the **index** (power). It shows  
how many times y is multiplied by itself

Remember :  $4y$  is not the same as  $y^4$

$$4y = y+y+y+y$$

## Division

$$a \div b$$

Is written

As  $\frac{a}{b}$

$$\frac{15b}{3b} \quad \text{can be}$$

shortened to

$$5$$

$$\frac{12b}{3b} \quad \text{can be}$$

shortened to

$$4$$

# Algebra

In algebra, letters (variables) can be used to represent unknown numerical values. For example, in the equation  $3x + y = 16$ ,  $x$  and  $y$  are variables.

## Solving Quadratics:

first rearrange into  $ax^2 + bx + c = 0$  then...

- **Factorise** put into 2 brackets and one of the brackets must = 0
- **Complete the Square**  $(x + a)^2 - b = 0$
- **Use the Formula**

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

## Transformations of $y = f(x)$

$y = f(x) + a$  is a translation of  $\begin{pmatrix} 0 \\ a \end{pmatrix}$

$y = f(x - a)$  is a translation of  $\begin{pmatrix} a \\ 0 \end{pmatrix}$

$y = af(x)$  is a stretch sf  $a$  in the  $y$ -direction

$y = f(ax)$  is a stretch sf  $1/a$  in the  $x$ -direction

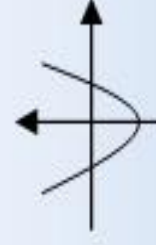
$y = -f(x)$  is a reflection in the  $x$ -axis

$y = f(-x)$  is a reflection in the  $y$ -axis

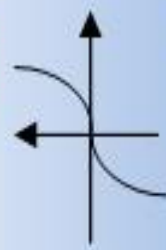
## Types of Graph



**Linear** ( $y = mx + c$ )



**Quadratic** (contains  $x^2$ )



or

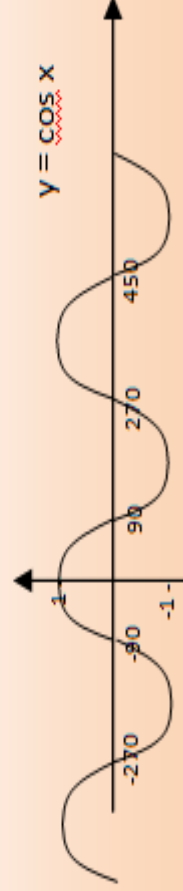
**Cubic** (contains  $x^3$ )



**Reciprocal** (Look for  $1/x$ ) **Circle** ( $x^2 + y^2 = r^2$ )



## Trigonometric Graphs





# ALGEBRA NOTATION & FUNCTIONS

## Parentheses and functions

A function is something that relates or "maps"

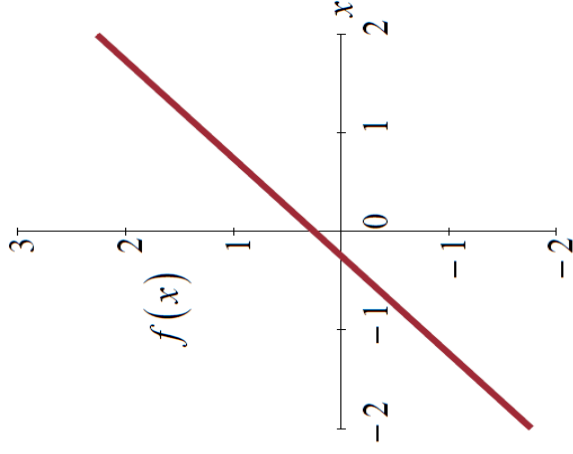
One set of values

Such as an "input" variable or "argument"  $x$

To another set of values which we could think of as an "output"

For example, the function

$$f(x) = x + \frac{1}{4}$$



## Parentheses and functions

Conventionally, we say

"f of x" when we read  $f(x)$

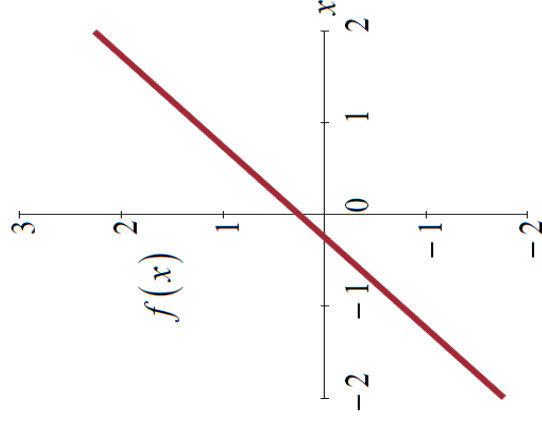
Here obviously

$f(x)$  is not "f times x"

Most commonly

Only parentheses are used around the argument  $x$

not square [ ] or curly { } brackets



# ALGEBRA NOTATION & FUNCTIONS

## Parentheses and functions

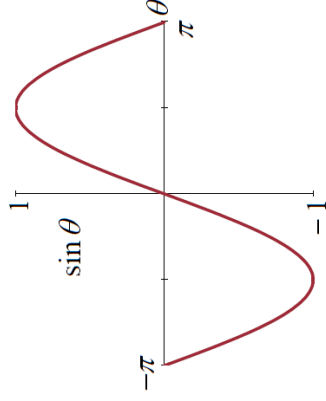
For a few very commonly used functions

Such as the **trigonometric functions**

The parentheses are optionally omitted when the argument is simple  $\sin \theta$  instead of  $\sin(\theta)$

Note, incidentally,

$$\sin(-\theta) = -\sin(\theta)$$



## Parentheses and functions

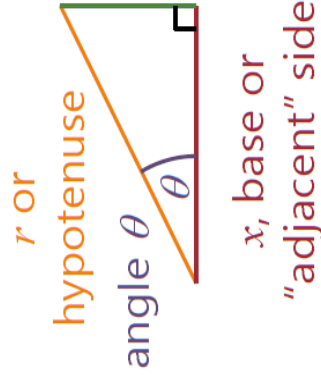
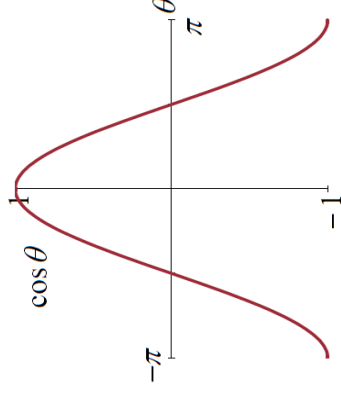
For a few very commonly used functions

Such as the **trigonometric functions**

The parentheses are optionally omitted when the argument is simple  $\cos \theta$  instead of  $\cos(\theta)$

Note, incidentally

$$\cos(-\theta) = \cos(\theta)$$



## Sine, cosine, and tangent

Defined using a right-angled triangle

$$\sin \theta = \frac{y}{r} \quad \cos \theta = \frac{x}{r} \quad \tan \theta = \frac{y}{x} \quad \tan \theta = \frac{\sin \theta}{\cos \theta}$$

Natural units for angles in mathematics are radians

- $2\pi$  radians in a circle
- 1 radian  $\sim 57.3$  degrees

# STATISTICS

## Types of data

Discrete – hair colour, favourite band, type of car, etc

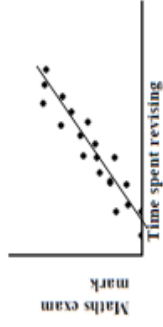
Continuous – time, weight, temperature, length, etc

## Types of data

Primary – Data you collect yourself, eg survey

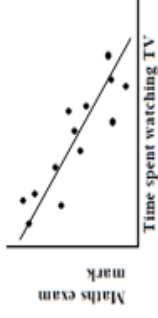
Secondary – Data you get from somewhere else, eg internet

## Scatter Graphs and Correlation



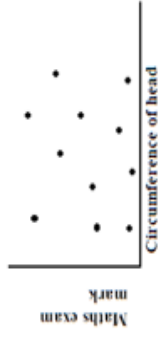
### Positive Correlation:

*The more time revising the higher the maths mark*



### Negative Correlation:

*The more time watching TV the lower the maths mark*

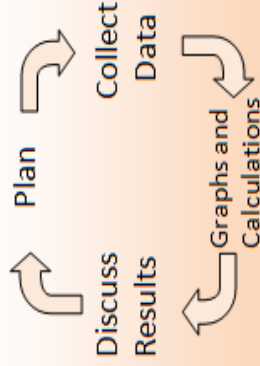


### No Correlation:

*The size of your head does not affect your maths mark*

**Use a line of best fit to make predictions**

## Data Handling Cycle



## Probability:

$$\text{Relative Frequency of event} = \frac{\text{Number of times event occurs}}{\text{Total number of trials}}$$

Relative frequency provides **good estimate for probability**, particularly as number of trials increases

**Expected** number of given event = probability of that outcome x number of trials

**Tree diagrams:** multiply along the branches and **add between** the branches

If events A and B are **independent** then  $P(A \text{ and } B) = P(A) \times P(B)$

If A and B are **mutually exclusive** then  $P(A \text{ or } B) = P(A) + P(B)$

Watch out for successive events... does the number of items decrease by 1?

Eg picking 2 sweets from 10, you will only have 9 sweets left for the second choice.

## Sampling

**Random sample** – every person/thing is **equally likely** to be selected eg picking names from a hat

**Stratified sample** – random sample but in **same proportions** as population ... multiply sample size by appropriate fraction of original total

To improve results **increase the sample size**

## Averages:

**mode/modal** – the most common value or values

**median** – the middle value when they are in order

**mean** – add up all the values and divide by the number of terms

## Measure of spread:

**range** – highest value take away the lowest value  
The smaller the range the less varied the results

CHAPTER	KEYWORD	DEFINITION
1.1	Nutrient	Essential substance that your body needs to survive, provided by food
1.1	Protein	nutrient used for growth and repair
1.2	Food test	Chemical test to detect the presence of particular nutrients in a food
1.2	Hypothesis	An idea that is a way of explaining scientists' observations
1.3	Obese	Extremely overweight
1.4	Gullet	Tube that food travels down into the stomach
1.4	Villi	Tiny projections in the small intestine wall that increase the area for absorption
1.5	Carbohydrase	Enzyme that breaks down carbohydrates into sugar molecules
1.5	Bile	Substance that breaks fat into small droplets
1.6	Medicinal drug	Drug that has a medical benefit to your health
1.7	Unit of alcohol	10 ml of pure alcohol
1.8	Passive smoking	Breathing in other people's smoke
2.1	Producer	Organism that makes its own food using photosynthesis
2.2	Stomata	Holes found on the bottom of the leaf that allow gases to diffuse in and out of the leaf
2.3	Potassium	A mineral needed by plants for healthy leaves and flowers
2.3	Fertiliser	Chemical containing minerals, normally applied to soil
2.4	Chemosynthesis	Reaction performed by bacteria, using energy transferred from chemical reactions to produce glucose
2.5	Haemoglobin	The substance in blood that carries oxygen around the body
2.5	Plasma	The liquid part of blood which carries carbon dioxide (to the lungs where it is exhaled)
2.6	Oxygen debt	Extra oxygen required after anaerobic respiration to break down lactic acid
2.7	Predator	An animal that eats other animals



2.7	Prey	An animal that is eaten by another animal
2.8	Population	The number of plants or animals of the same type that live in the same area
2.9	Ecosystem	The name given to the interaction between plants, animals and their habitat in a particular location
2.9	Niche	A particular place or role that an organism has in an ecosystem
3.1	Adaptation	Characteristic that helps an organism to survive in its environment
3.1	Competition	Competing with other organisms for resources
3.2	Interdependence	The way in which living organisms depend on each other to survive, grow, and reproduce
3.3	Species	Organisms that have lots of characteristics in common, and can mate to produce fertile offspring
3.3	Variation	Differences in characteristics within a species
3.4	Continuous variation	Characteristic that can take any value within a range of values
3.4	Discontinuous variation	Characteristic that can only be a certain value
3.5	Chromosome	Long strand of DNA, which contains many genes
3.5	Gene	Section of DNA that contains the information for a characteristic
3.6	Natural selection	Process by which the organisms with the characteristics that are most suited to the environment survive and reproduce, passing on their genes
3.7	Biodiversity	It is the range of organisms living in an area
1.1	Metalloid	Elements near the stepped line of the Periodic Table
1.1	Non-metal	Elements on the right of the stepped line of the Periodic Table. They are poor conductors of energy and electricity
1.2	Group	A vertical column of the Periodic Table. The elements in a group have similar properties
1.2	Period	A horizontal row of the Periodic Table. There are trends in the properties of the elements across a period

1.3	Reactive	A substance is reactive if it reacts vigorously with substances such as dilute acids and water
1.4	Halogen	Another name for the Group 7 elements
1.5	Noble Gases	Another name for the Group 0 elements
1.5	Unreactive	Elements that take part in few chemical reactions are unreactive
2.1	Mixture	A mixture is made up of substances that are not chemically joined together
2.2	Solution	A mixture of a liquid with a solid or a gas. All parts of the mixture are the same
2.3	Saturated solution	A solution in which no more solute can dissolve
2.4	Filtrate	The liquid or solution that collects in the container after the mixture has passed through the filter paper
2.4	Residue	The solid that collects in the filter paper
2.5	Distillation	A technique that uses evaporation and condensation to obtain a solvent from a solution
2.6	Chromatography	A technique to separate mixtures of liquids that are soluble in the same solvent
2.6	Chromatogram	An image obtained from chromatography
3.1	Metal	Elements on the left of the stepped line of the Periodic Table. Most elements are metals. They are good conductors of energy and electricity
3.2	State symbol	A state symbol gives the state of a substance in a chemical equation; (s) means solid, (l) means liquid, (g) means gas and (aq) means dissolved in water
3.3	Reactivity series	A list of metals in order of how vigorously they react
3.4	Thermite reaction	Reaction of aluminium with iron oxide to make aluminium oxide and iron
3.4	Displacement reaction	In a displacement reaction, a more reactive metal displaces - or pushes out - a less reactive metal from its compound
3.5	Ore	A rock that you can extract a metal from
3.6	Ceramic	A compound such as a metal silicate or oxide that is hard, strong, and has a high melting point

3.7	Polymer	A substance made up of very long molecules
3.8	Composite	A mixture of materials with properties that are a combination of those of the materials in it
3.8	Carbon fibre	A material made of thin tubes of carbon
4.1	Troposphere	The part of the atmosphere nearest the Earth
4.2	Erosion	The breaking of a rock into sediments, and their movement away from the original rock
4.2	Metamorphic	Rock formed by the action of heating and/or pressure on the sedimentary or igneous rock
4.3	Magma	Liquid rock that is below the Earth's surface
4.3	Durable	A property of a material meaning that it is difficult to damage
4.4	Rock cycle	The rock cycle explains how rocks change and are recycled into new rocks over millions of years
4.4	Uplift	Uplift happens when huge forces from inside the Earth push rocks upwards
4.5	Carbon store	A place where carbon and its compounds may remain for a long time. Carbon stores include the atmosphere, oceans, sedimentary rocks, fossil fuels, the soil, and living organisms
4.5	Combustion	A burning reaction, in which a substance reacts quickly with oxygen, and gives out light and heats the surroundings
4.6	Climate change	A long-term change in weather patterns
4.6	Greenhouse gas	A gas that contributes to climate change, such as carbon dioxide
4.7	Recycling	Collecting and processing materials that have been used, to make new objects
1.1	Repel	Be pushed away from each other, for example like electrical charges repel
1.1	Electric field	A region where a charged material or particle experiences a force
1.2	Switch	A component that controls the current by making or breaking the circuit
1.2	Ammeter	A device for measuring electric current in a circuit



1.3	Battery	Two or more electrical cells (that is chemical store of energy) joined together
1.3	Volts	Unit of measurement for potential difference (symbol V)
1.4	Series	A circuit in which components are joined in a single loop
1.4	Parallel	A circuit in which there are two or more paths or branches for the current
1.5	Insulator	A material that does not conduct electricity or transfer energy well; it is the opposite of conductor
1.6	Magnetic field lines	Imaginary lines that show the direction of the force on magnetic material
1.6	Attract	Be pulled together, for example opposite poles of a magnet attract
1.7	Electromagnet	A temporary magnet produced using an electric current
1.7	Magnetise	Make into a magnet
1.8	Motor	A component or machine that spins when a current flows through it
1.8	Relay	Electrical device that uses current flowing through it in one circuit to switch on and off a current in a second circuit
2.1	Joule	The unit of measurement for energy (symbol J)
2.2	Law of conservation of energy	Energy cannot be created or destroyed, only transferred
2.2	Dissipated	Energy that has become spread out or 'wasted' by heating the environment
2.3	Equilibrium	Objects are at thermal equilibrium when they are at the same temperature (no more transfer of energy between the thermal stores)
2.3	Thermometer	Instrument used to measure temperature
2.4	Conduction	A way in which energy is transferred through solids, and to a much lesser extent in liquids and gases
2.4	Convection current	The movement of heated liquids or gasses
2.5	Thermal imaging camera	A camera that absorbs infrared and produces a (false-colour) image

2.6	Fossil fuel	Coal, oil, and gas made from the remains of trees and sea creatures over millions of years
2.6	Renewable	Energy resources whose supply will not run out
2.7	Kilowatt hours	The unit of measurement for energy used by electricity companies (symbol kWh)
2.7	Power rating	The number in watts or kilowatts that tells you the rate at which an appliance transfers energy
2.8	Work	A way of transferring energy that does not involve heating
2.8	Simple machine	Lever or gear that reduces the force required to do something, but increases the distance
3.1	Meters per second	A unit of measurement for speed (symbol m/s)
3.1	Relative motion	The difference between the speeds of two moving objects, or of a moving and a stationary object
3.2	Distance-time graph	A graph that shows how far an object moves each second
3.2	Acceleration	The amount by which speed increases in one second
3.3	Atmospheric pressure	Pressure caused by the collisions of air molecules that produce a force on an area
3.3	Density	The mass of a material in a certain volume
3.4	Liquid pressure	The pressure produced by collisions of particles in a liquid
3.4	Incompressible	Cannot be compressed / squashed (e.g. water)
3.5	Pressure	A force exerted on a certain area
3.5	Newton per metre squared (Pascal)	A unit of measurement for pressure (symbol $\text{N/m}^2 = \text{Pa}$ )
3.6	Moment	A measure of the ability of a force to rotate an object about a pivot
3.6	Centre of mass	The point in an object where the mass of an object seems to act

CHAPTER	QUESTION	FACT
1.1	What do I need to survive?	Nutrients are essential substances that your body needs to survive. They are carbohydrates, lipids, proteins, vitamins, mineral, water and

		fibre
1.2	How can I found out what I am eating?	Food tests are used to find out which nutrients a food contains
1.3	How can I be healthy?	To remain healthy you must eat a balanced diet. This means eating food containing the right nutrients in the correct amounts
1.3	Why is it unhealthy to be underweight?	Underweight people often lack energy. They may also suffer from a vitamin or mineral deficiency, which can cause problems like a poor immune system
1.4	What happens after eating food?	During digestion large molecules like lipids and proteins are broken down into small molecules. They can pass into the blood where they are used by the body
1.5	What can help digestion?	Enzymes are proteins that can break large molecules into small molecules. They are biological catalyst - they speed up digestion without being used up
1.6	What are drugs?	Drugs are substances that alter the chemical reactions that take place inside your body
1.6	What happens when a person becomes dependent on a drug?	If a person becomes dependent on a drug, they have an addiction. An addicted person can suffer withdrawal symptoms if they stop taking the drug
1.7	What's alcohol made of?	Alcoholic drinks contain the drug ethanol; this is a depressant which slows down the nervous system
1.7	What happens to a person addicted to alcohol?	Drinking large amounts of alcohol over a long time can cause stomach ulcers, heart disease and brain and liver damage
1.8	Why smoking is dangerous?	Smoking tobacco causes breathing problems, cancer, heart attacks and strokes
1.8	What's inside tobacco?	Tobacco contains nicotine; this is a stimulant which speeds up the nervous system
2.1	What is Photosynthesis?	It is a chemical reaction that transform carbon dioxide and water into glucose and oxygen
2.1	Where does Photosynthesis take place?	Photosynthesis takes place in chloroplasts; these contain chlorophyll, which traps the light needed for photosynthesis
2.2	What does the inside of a leaf look like?	The top surface of the leaf is waxy and almost impermeable; the bottom is dry and full of stomata. Between these layer there is a palisade layer and a spongy layer
2.2	How can plants breathe in and out?	Guard cells open the stomata during the day and close them at night

2.3	Why do plants need minerals?	Plants need minerals for healthy growth; e.g. phosphates are needed for healthy roots
2.4	Where do chemosynthetic bacteria live?	They live in places without light. Sulphur bacteria are found at the bottom of the sea, near volcanic vents; nitrogen bacteria live in the soil and roots of some plants
2.4	What are the analogies and differences between photosynthesis and chemosynthesis?	The two processes share the production of glucose and a required energy input to start the reaction. Photosynthesis needs carbon dioxide, water and light to start the reaction, while in chemosynthesis water and carbon dioxide are not always required and the energy source is chemical
2.5	What is aerobic respiration?	It is a chemical reaction that takes place inside mitochondria. It transforms glucose and oxygen into carbon dioxide, water and energy
2.6	What is anaerobic respiration?	It is a chemical reaction that requires no oxygen. It converts glucose into lactic acid and energy
2.6	What is fermentation?	It is a type of anaerobic reaction performed by microorganisms (e.g. bread- and beer-making). It transforms glucose into ethanol, carbon dioxide and energy
2.7	How can the transfer of energy between organisms be represented?	It can be shown as food chains; a set of linked food chains represents a food web
2.8	What does bioaccumulation stand for?	It is a harmful level of toxic chemicals built up in organisms belonging to a food chain
2.8	What is interdependence?	Interdependence is the way organisms depend on each other to survive, grow and reproduce
2.9	Can organisms co-exist within the same habitat (area)?	Organisms can co-exist within the same habitat as long as each of them have a different niche
3.1	How do organisms behave in their habitats?	Animals compete for food, water, mates and space; plants compete for light, water, space and minerals
3.2	How can organisms survive in a changing environment?	Organisms tend to adapt in the new environment: adaptations are characteristics that help organisms to survive and reproduce
3.2	How can the relationship between predator and prey be described?	Predator and prey species are interdependent: a change in the population of one animal directly affects the population of the other
3.3	What are the causes for variation in species?	Variations can be inherited from the parents, or can be caused by the surrounding (environmental variations)
3.4	How can I plot continuous and discontinuous variation?	Bar charts should be used to plot discontinuous variation, while continuous variation should be plot on histograms (plus adding the line of normal distribution)

3.5	Where are the inherited characteristic from the parents located?	The information needed to make an organism can be found in the DNA
3.6	How can organisms develop over time?	All living organisms evolved from a common ancestor through the process of natural selection
3.6	How can evolution be proved?	Fossils provide evidence for evolution
3.7	What happens if a species does not adapt to its environment?	Species that do not adapt reduce its population (endangered) and eventually become extinct
3.7	How can extinction be prevented?	Extinction may be prevented by gene banks, which stores genetic samples from organisms
1.1	How can an element be described?	An element can be described through its physical properties (that can be observed and measured) or its chemical properties (how the element behaves in a chemical reaction)
1.2	Are there any patterns in the Periodic Table?	The arrangement of elements in the Periodic Table can help to explain and predict patterns in physical and chemical properties
1.3	What are the characteristics of the Group 1 elements?	Group 1 elements have low melting and boiling points and low densities; they are reactive
1.3	How do the Group 1 elements react?	Group 1 elements react vigorously with water to make hydroxides and hydrogen. The reactions get more vigorous from top to bottom of the group
1.4	What are the characteristics of the Group 7 elements?	Going down Group 7, melting and boiling points increase; the colour of the elements get darker; they are reactive
1.4	How much reactive is an element?	A more reactive element displaces a less reactive element from its compound
1.5	What are the characteristics of the Group 0 elements?	Group 0 elements have very low melting and boiling points; they are colourless gases at room temperature; they are unreactive
2.1	What are the properties of a mixture? Can they be changed?	In a mixture, the substances keep their own properties; the amount of the substances that make up the mixture can be changed
2.1	How can I recognize a pure substance from an impure one?	A pure substance has a sharp melting point while an impure substance does not
2.2	What is a solution made of?	In a solution, the substance that dissolves is called the solute; the liquid in which the solute dissolves is called the solvent
2.2	What happens when a substance dissolve?	When a substance dissolve, solvent particles surround the solute particles

2.3	What controls the solubility of a substance?	The solubility of a substance varies with temperature
2.3	Can all the substances form a solution?	No. Solutes that cannot dissolve in a certain solvent are called insoluble (in that solvent)
2.4	What does filtration separate?	Filtration separates a liquid from an insoluble solid; it also separates a solution from a solid that is mixed with it, but not dissolved
2.5	How can a solute be separated from its solution?	A solute can be separated from its solution by evaporation
2.5	Where was distillation first developed?	The earliest distillation apparatus (alembic) were developed in Persia almost 2000 years ago
2.6	Can chromatography always performed?	Chromatography can be performed only if all the substances are soluble in the same solvent
3.1	How is the reaction of K, Na and Li with dilute acid?	These Group 1 (K, Na and Li) metals explode; products are metal salts and hydrogen
3.1	How is the reaction of Cu, Ag and Au with dilute acid?	These metals (Cu, Ag and Au) do not react at all
3.2	How is the reaction of Pb and Cu on heating in air?	These metals (Pb & Cu) do not burn but form oxide layer on surface
3.2	How is the reaction of Ag and Au on heating in air?	These metals (Ag & Au) do not react at all
3.3	How is the reaction of K, Na, Li and Ca with water?	These Group 1 (K, Na and Li) and Ca (Group 2) metals react vigorously; products are hydroxide solution and hydrogen
3.3	How is the reaction of Mg, Zn, Fe and Pb with water?	These metals (Mg, Zn, Fe and Pb) react with steam; products are hydrogen and metal oxide
3.4	What kind of reaction is thermite reaction?	It is a redox reaction that generates heat (exothermic)
3.5	Which metals are extracted using Carbon?	Zinc and metals below it in the reactivity series are extracted by heating their oxides with carbon
3.5	What ore is the most commonly mined to get Aluminium?	Bauxite ore is the most commonly mined Aluminium ore
3.6	What are the properties of ceramics?	Ceramics are hard / stiff / strong when forces press on them, but they are brittle and break easily when stretched; they are electrical insulators. Ceramics have very high melting points and do not react with water, acids or alkalis
3.6	Why are ceramics useful?	Ceramics are used as building materials (bricks), as insulators (electrical power-line insulators), in the engineering industry (jet-

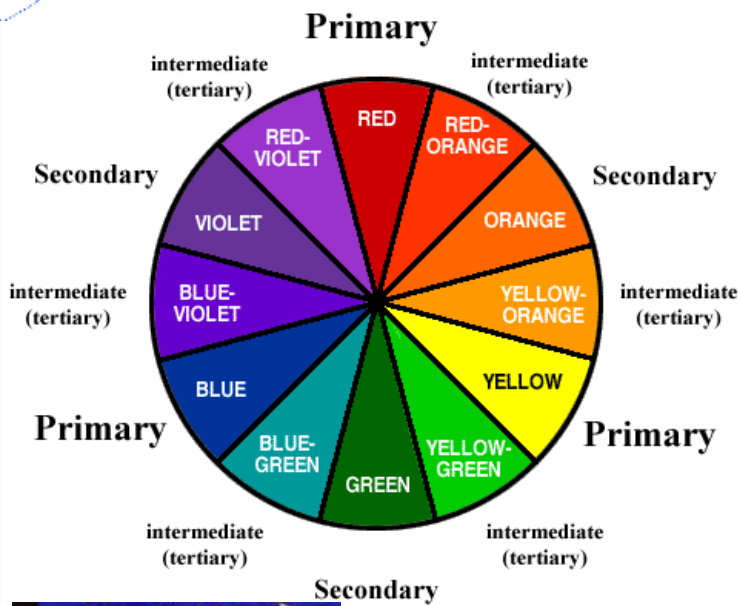


		engine turbine blades) or in the kitchen (plates, mugs, ovens)
3.7	How many polymers are there in the World?	There are hundreds of polymers, each one with unique properties. Polymers can be natural (made by plants and animals, like wool and rubber) or synthetic (do not occur naturally)
3.7	What are the uses of Polythene?	Poly(ethene) can be arranged in low density sheets in order to create carrier bags, or in a high density structure that is used for artificial joints
3.8	What makes reinforced concrete so strong?	Reinforced concrete is a composite material that cannot be damaged by forces due to squashing (concrete's property) or stretching (steel bars' property)
4.1	What is the structure of the Earth?	The Earth consists of the Crust (continental or oceanic), Mante and Core (liquid in the outer, solid in the inner)
4.1	What is the atmosphere made of?	The atmosphere is a mixture of gases; they are mainly nitrogen and oxygen, with smaller amount of argon and carbon dioxide
4.2	How are sedimentary rocks made?	Sedimentary rocks form as a result of weathering, erosion, transport, deposition and compaction and cementation
4.3	How are igneous rocks made?	Igneous rocks form when liquid rocks freezes; if the process takes long, they consist of crystals and they are non-porous, hard and durable
4.4	Why can we found oceanic rocks in mountain belts?	We found oceanic rocks in mountain belts because often the creation of a mountain chain implies the disappearance of an ocean. This is another way to recycle rocks
4.5	What is the carbon cycle?	The carbon cycle summarises how carbon and its compounds enter and leave these stores; it clearly shows where the stores of carbon can be found
4.6	What is one of the causes of climate change?	One of the causes of climate change is extra carbon dioxide in the atmosphere; its concentration is increasing because of deforestation and burning fossil fuels
4.7	Where do resources come from?	The materials that make everything we use come originally from the Earth's crust, atmosphere or oceans. These resources will not last forever
4.7	How is aluminium recycled?	Once differentiated and cleaned from decoration, aluminium shreds are melted in a furnace. The liquid cools and freezes into ingots; these are heated to 600°C to soften them. The ingots are then cut again into sheets
1.1	What happens in a thundercloud?	Electrons, released by the air moving around, "jump" from one charged region to the other one. This jumping is a current that can be seen (lighting) and heard (thunder) as it heats up the air next to it



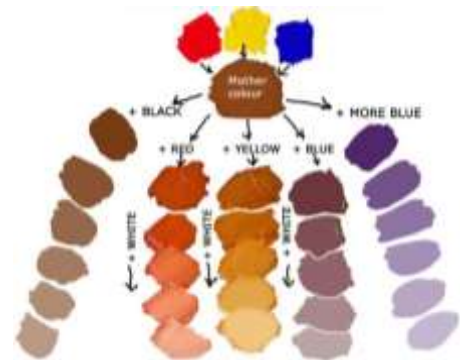
1.2	Where do the charges come from?	The cell produces no charges at all, they are already in the wires; in a metal the charged particles that move are electrons
1.3	What pushes the charges?	The cell pushes the charges. The potential difference of the cell/battery indicates the size of the push and how much energy can be transferred by the charges
1.4	What happens to the current in a circuit?	In series circuits, the current is the same everywhere. In parallel the current in each loop adds up to make the total current
1.5	How can resistance be visualized?	Resistance can be visualized as a barrage across a river that control the level of water flowing through it
1.5	How is resistance calculated?	Resistance can be measured dividing the potential different across a component by the current going through it. A component with high resistance has a small current across it
1.6	Does the Earth have a magnetic field?	Yes, the Earth has a magnetic field, even if there is no bar magnet inside it. A magnet material (e.g. compass) lines up in a direction pointing the north and south magnetic poles
1.7	How can I make an electromagnet stronger?	I can increase the strength of an electromagnet by adding more loops to the coil or increasing the flowing current or using a magnetic material in the core of the coil
1.8	What are some uses of electromagnets?	Electromagnets can be used to reduce the friction on high velocity rails (maglev trains), to turn on medical devices (X-ray machines), to start cars (electromagnetic switch), to move large pieces of iron /steel (lifting magnets) or to sort irony materials from other non-magnetic metals
2.1	What is common between a lump of coal and two chocolate bars?	They are both chemical stores of energy; they provide the same amount of energy, that is about 3000 kJ
2.1	How much energy do I need per day?	The amount of energy I need per day depends on the activity I do: swimming is more demanding than standing or walking; in addition I spend energy for breathing, moving, talking, sleeping, relaxing, thinking...
2.2	Why do things happen?	Energy tells us what changes are possible, but it does not explain why things happen. Forces, not energy, explain why things move
2.3	What happens when things are heated up?	Increasing temperature changes the movement of particles. In solids, the particles vibrate more, in liquids and gases they vibrate more and move faster
2.4	Is energy always transferred (by particles) in the same way?	No, the transfer of energy depends on the states of matter: solids transfer energy by conduction, liquids and gases transfer energy by conduction

2.5	Does energy need a medium in order to be transferred?	No, energy can be transferred by radiation (as a wave). Visible light and infrared radiations (heat) are an example
2.5	When does an object cool down?	If the thermal energy transferred to an object is less than the energy transferred from it, the object will cool down
2.6	Where do many renewable resources come from?	Many renewable resources come from the nuclear store of energy of the Sun. Wind turbines uses the movement of air from warm regions to cool regions; photovoltaic cells generate a potential difference from light; plants for biomass uses the Sun light to grow
2.7	How can I reduce my energy bills?	In order to reduce my energy bills I could use fewer appliances or reduce the hours these appliances run; I could also use appliances that require less power to produce the same output
2.8	Why the cog at the back of your bicycle is smaller than the front one?	The cog at the back is a force multiplier: the bicycle goes faster because the back cog takes less time to spin rather than the front one; the energy output is the same
3.1	The World record on the 100 m race is 9.58 s. Did Usain Bolt run at the speed of 10.4 m/s for the entire race?	No, he did not. 10.4 m/s is the average speed because it is the result of the total distance divided by the total time; Bolt's instantaneous speed is different at every particular moment
3.2	What does a distance-time graph tell us?	A distance-time graph can tell us if an object is stationary (horizontal line) or if its speed is constant (straight line). In addition it can tell how fast an object is moving: the steeper the slope, the faster the object
3.3	What are the factors that regulate gas pressure?	The pressure exerted by a gas can be influenced by the volume that hold the gas (the same amount of gas in a smaller volume has a higher pressure) and the temperature of the gas (at higher temperatures the gas particles vibrate and collide more, thus the pressure is increased)
3.4	Why are dams thicker at the bottom?	The wall of a dam curves outwards at the bottom because the pressure at a particular depth in a liquid depends on the weight of the water above it
3.5	Why are cars with thin wheels more manoeuvrable when it snows?	Cars with thin wheels exert a bigger pressure on the road, thus they reduce the friction and there are less chances of skidding
3.6	Why is it more difficult to open a door when you push near the hinges rather than near the handles?	Considering the same size of push, the turning force generated near the hinges is smaller because the distance of application from the pivot (hinges) is shorter



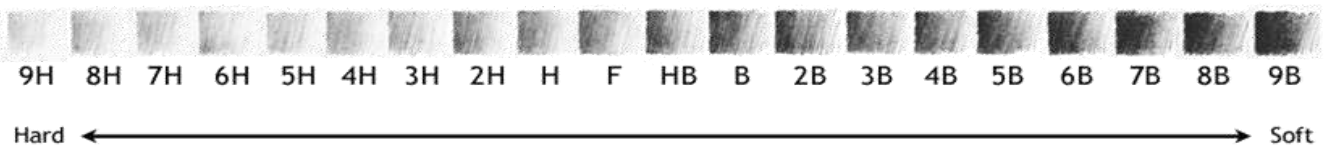
Key Facts about the Colour Wheel

- Complementary colours are opposite each other on the colour wheel, they have a strong contrast.
- Harmonious colours are sections of colours that are next to each other on the colour wheel, these can be blended together.
- If you mix the primary colours together with the addition of white, you can create skin tones:



Artwork by Henri Matisse

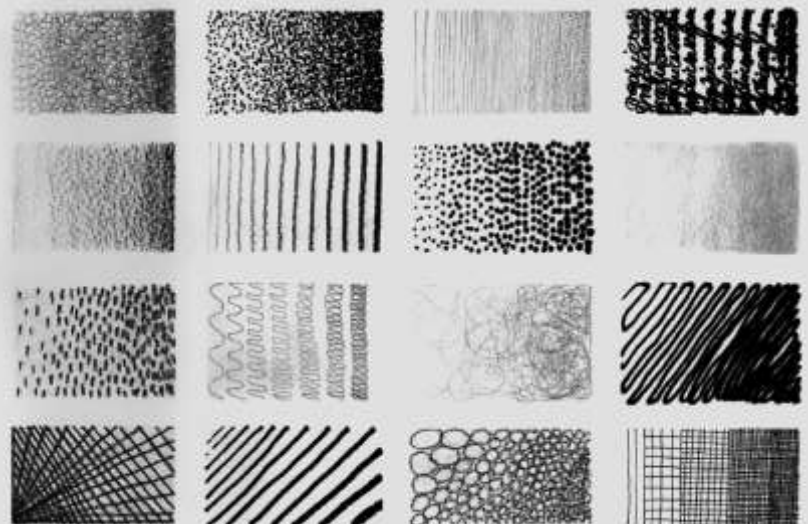
Pencil Grades



Examples of  
Mark-Making:



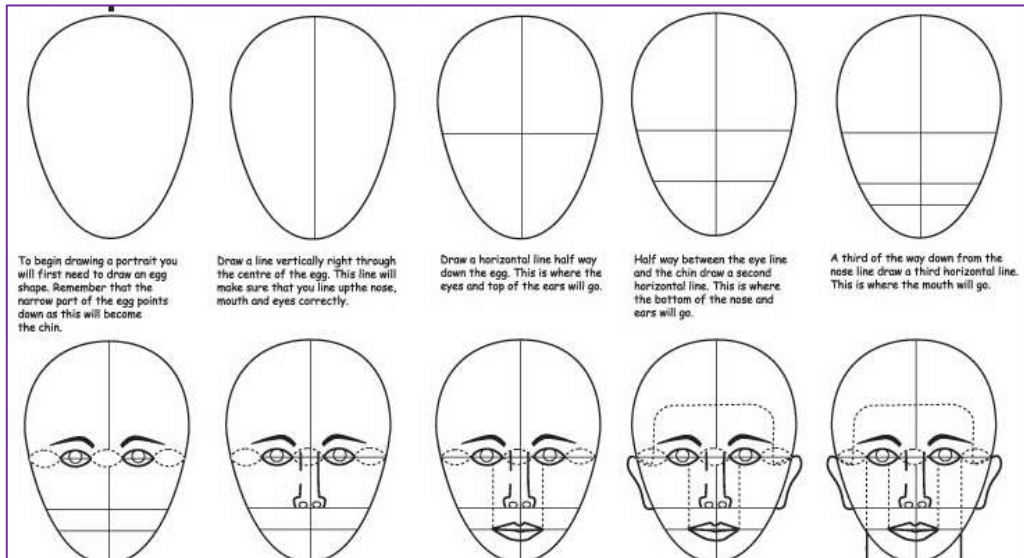
Pencil Sketch by David Hockney



*Line, Stippling, Cross-hatch, dashes, stripes, scribble, squares, dots, zigzags...*



Drawing the Proportions of the face:



Artwork by  
Frida Kahlo

Gallery Websites are always useful to start selecting artists for your projects:

- <https://www.nationalgallery.org.uk/>
- <http://www.tate.org.uk/visit/tate-modern>
- <http://www.npg.org.uk/>
- <http://manchesterartgallery.org/>
- <http://www.moma.org/>
- <http://www.tate.org.uk/visit/tate-britain>
- <http://www.britishmuseum.org/>



Art Vocabulary

The list of words below can be used to describe different elements of artwork.

Line and direction	Shape, form and composition	Colour and tone	Painting technique	Style and effect
Vertical	Silhouette	Bleached	Instinctive	Grandiose
Horizontal	Organic	Bold	Gestural	Evocative
Jagged	biomorphic	Brash	Painterly	Sublime
Broken	monumental	Clean	Impasto	Daring/bold
Straight	non-objective	Glowing	Fluid	Joyful
Continuous	Geometric	Harsh	Energetic	Emotive
hatching	Abstract	Warm	Dynamic	Intimate
Merged	Distorted	Cool	Rough	Improvised
Contours	Open	Complimentary	Smooth	Rousing
Crooked	Closed	Limited	Linear	Exhilarating
Fluid	Symmetrical	Dull	Strokes	Dominant
Expressive	Asymmetrical	Muted	Aggressive	Iconic
Thick	Flat	Harmonious	Brash	Luminescent
Thin	Block	Vibrant	Dripped	Unconventional
Congested	Exaggerated	Discordant	Soaked	Dynamic
Minimal	Plane	Chiaroscuro	Blended	Pure
	2D / 3D/Relief			Expression

**Chiaroscuro** in art is the use of strong contrasts between light and dark, usually bold contrasts affecting a whole composition



Basic Clay Equipment:



## Clay Vocabulary

The stages of clay:

1. Slip
2. Plastic
3. Leather-hard
4. Greenware or bone dry
5. Bisqueware
6. Glazeware

Other terms:

- Clay  
 Ceramic  
 Reclaiming  
 Wedging  
 Kiln  
 Firing  
 Score  
 Glaze  
 Underglaze

Key Tips for Using Clay:

- When joining two pieces of clay, always cross-hatch and apply slip to each piece.
- Never allow air bubbles in your clay, these will expand and crack your work when it goes in the kiln!



Artwork by Kate Malone

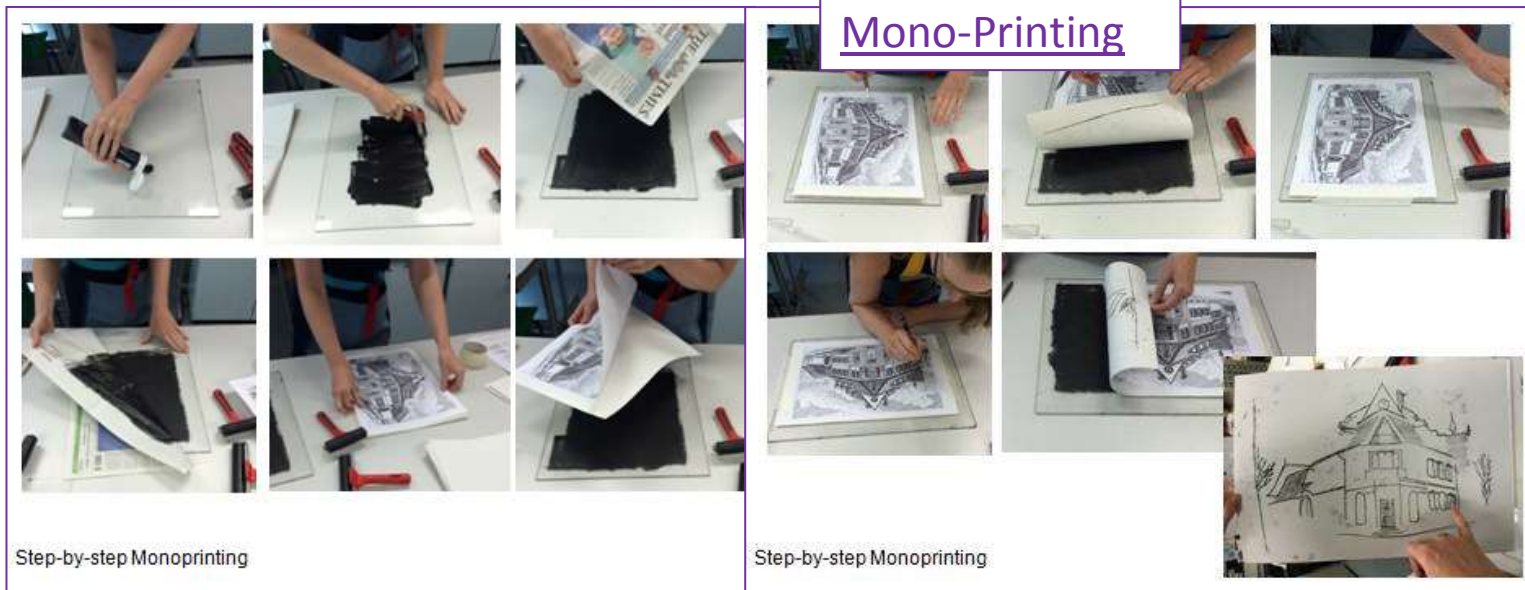
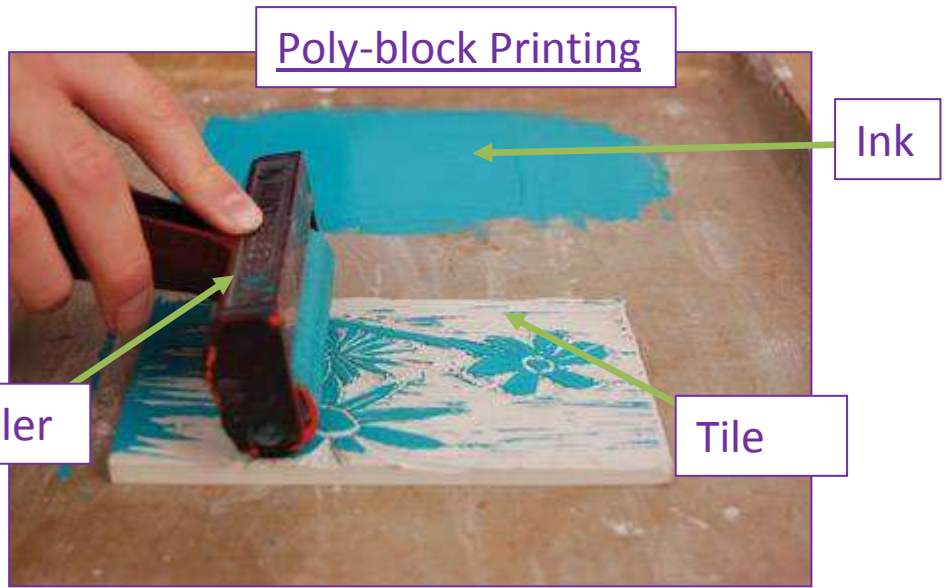
Printmaking



Print by Angie Lewin



Mono-print by Rachel Hames



Drawing is an important criterion for the GCSE Art and Design course; practice your skills by using the following types of drawings:

1. Line Drawing
2. Continuous Drawing
3. Blind Drawing
4. Tonal Drawing
5. Mark-Making Drawing

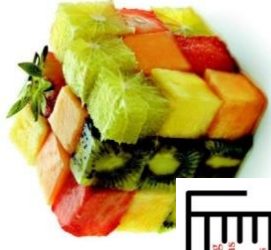




# Superfoods



## Knife Skills



Converting  
Tablespoons  
to  
Milliliters

- 1 TB = 15 ml
- 2 TB = 30 ml
- 3 TB = 45 ml
- 4 TB = 60 ml
- 5 TB = 75 ml
- 6 TB = 90 ml
- 7 TB = 105 ml
- 8 TB = 120 ml
- 9 TB = 135 ml
- 10 TB = 150 ml

Appearance	Aroma	Texture	Taste
What it looks like	What it smells like	What it feels like in your mouth	What the flavour is
Appealing Attractive Clear Cold Colourful Crumby Dry Fattening Firm Fresh Fruity Healthy Hot Moist Runny Smooth Tasty Tough	Burnt Fragrant Fruity Spicy Stale	Airy Brittle Chewy Creamy Crisp Crumbly Crunchy Dry Fatty Firm Fizzy Flaky Fruity Goopy Greasy Gritty Hard Lumpy Powdery Rubbery Slimy Smooth Soft	Acidic Bitter Blind Chewy Creamy Dry Fruity Herby Oily Sharp Sour Sour Sour Spicy Sweet Tangy Tasteless Tasty Undercooked Watery

## Understand Food Safety

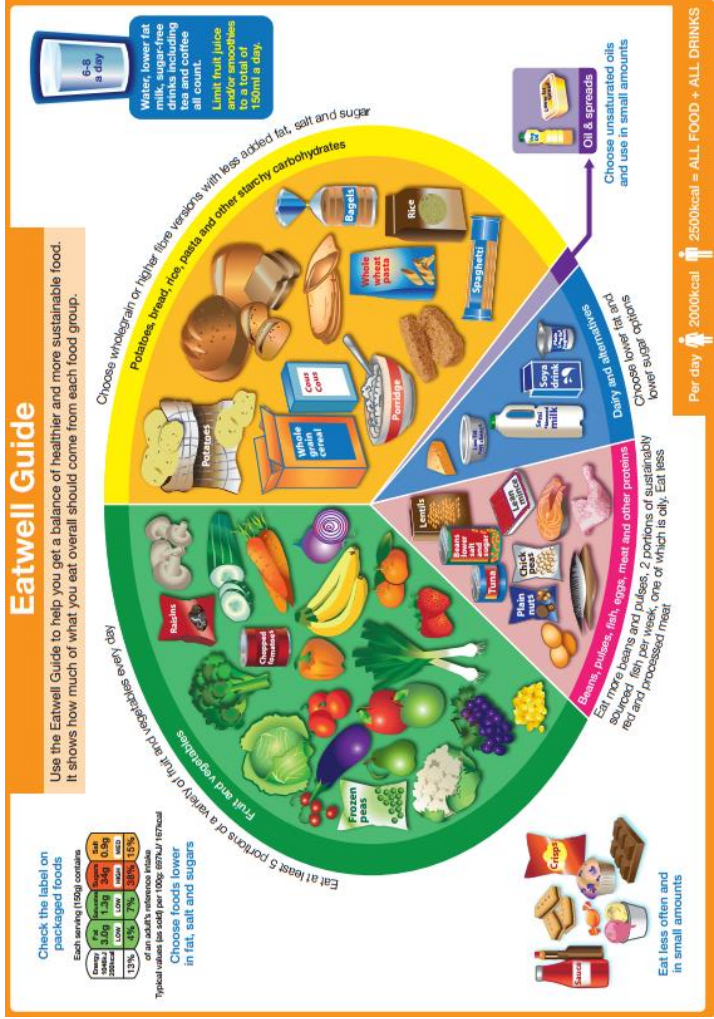


Bacillus Cereus

- ### Hygiene:
- ❖ Tie your hair back
  - ❖ Wash your hands
  - ❖ Wear an apron

## Careful with homophones:

- Flour not Flower**
- Sauce not source**
- Dough not doh!**
- Weight not way**
- Roll not role**
- Knead not need**



Check the label on packaged foods. Each serving (100g) contains:

Energy	Total fat	Saturated fat	Total carbohydrate	Sugars	Salt
1700	10%	4%	75%	10%	1.5%

Typical values for adults per 100g (rather than 100kcal). Choose foods lower in fat, salt and sugars.

## Safety in the Kitchen:

- Put bags & stools away
- Tie aprons at the back
- Ensure shoe laces are tied
- Clear up spillages immediately
- Carry a knife with the blade pointing downwards

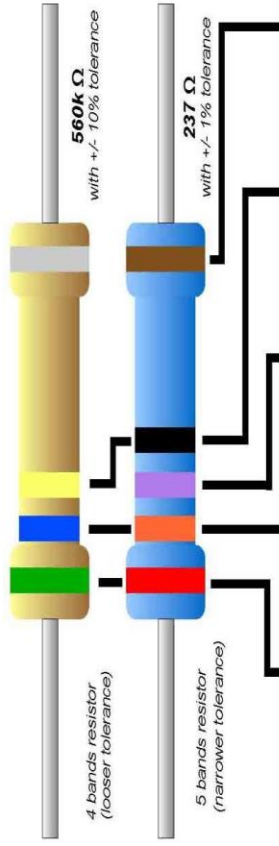


<b>A</b>	<b>Aesthetics</b> How something looks. What will it look like? What colour will it be? What shape will it be?	<b>C</b>	<b>Cost</b> How much will I sell my clock for? How much do they cost in the shops?	<b>E</b>	<b>Environment</b> How friendly is it to the environment? Where will it be kept?	<b>S</b>	<b>Size</b> How big is it? What are the dimensions? Is it easy to carry?	<b>F</b>	<b>Safety</b> Does the product have any safety risks? Will young children be able to use it? Could it cause any harm?	<b>M</b>	<b>Material</b> What is it made from? Why will it be made from this material? Is it sustainable?	<b>Function</b> What does it do? When will it be used? Entertainment? Learning tool? Decoration?
----------	---	----------	--	----------	--	----------	---	----------	--	----------	---	---

# Cube Project -

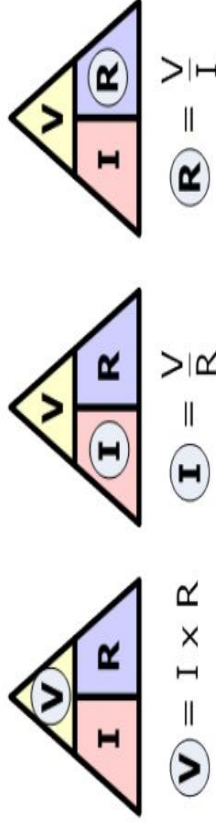
# Electronics

## Resistor Color Code



Color	1 <sup>st</sup> Band	2 <sup>nd</sup> Band	3 <sup>rd</sup> Band	Multiplier	Tolerance
Black	0	0	0	x 1 Ω	
Brown	1	1	1	x 10 Ω	+/- 1%
Red	2	2	2	x 100 Ω	+/- 2%
Orange	3	3	3	x 1K Ω	
Yellow	4	4	4	x 10K Ω	
Green	5	5	5	x 100K Ω	+/- 5%
Blue	6	6	6	x 1M Ω	+/- 25%
Violet	7	7	7	x 10M Ω	+/- .1%
Grey	8	8	8		+/- .05%
Gold	9	9	9	x .1 Ω	+/- 5%
Silver				x .01 Ω	+/- 10%

## Ohm's Law Triangle



Electronic circuit diagram components (symbols)					
Symbol	Component	Symbol	Component	Symbol	Component
	Joined conductors		Crossing conductors -no connection		Single-Pole-Single-Throw switch (SPST) (normally open)
	Fixed resistor		Diode		Single-Pole-Single-Throw switch (SPST) (normally closed)
	Potentiometer		Light-Emitting Diode (LED)		Single-Pole-Double-Throw switch (SPDT)
	Preset potentiometer		NPN transistor		Double-Pole-Double-Throw switch (DPDT)
	Thermistor		Amplifier		Push-To-Make switch (PTM)
	Light-dependent resistor		Fuse		Push-To-Break switch (PTB)
	Polarised capacitor		Resonator		Dry-reed switch
	Non polarised capacitor		2 pin Resonator		Opto switch
	Power supply		Primary or secondary cell		Relay (with double-throw contacts - contact symbol varies with type used)
	usually drawn with added detail e.g. +9V 0V		Battery (of cells)		

Note: Relay Symbol - The symbol consists of a relay coil and contacts. Contacts are usually drawn separate from the coil at convenient points on the circuit diagram and are always shown in the unoperated position.





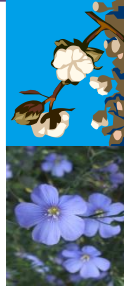
# Materials

## Natural materials

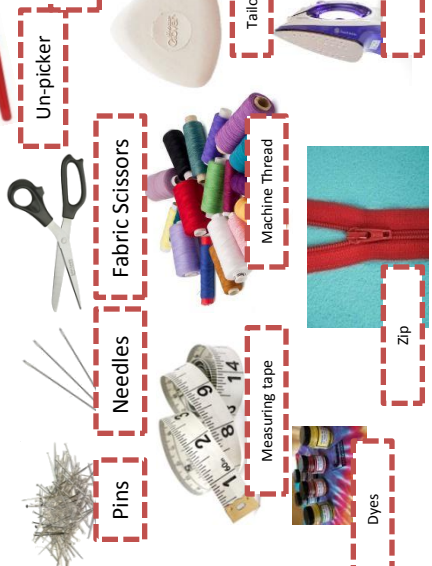
Animal → Plant

Silk  
Wool

Cotton  
Linen



## TOOLS & EQUIPMENT



# YEAR 8 TEXTILES TECHNOLOGY

## Smart & Modern Technical Textiles

Project  
Incorporating:

Natural and Synthetic materials  
Modern Technology and Smart  
Materials



KEY TERMS  
Research  
Analysis  
Manufacture  
Evaluation

2D v2  
DESIGN  
2D Design  
Photoshop

# LITERACY

- Point – Evidence – Explain
- Point – Evidence – Analyse

KEEP CALM AND  
provide your  
evidence  
explanation

# ACCESSFMM

Aesthetics  
How does it look?  
What does it look like?

Colourway/  
Style/  
Techniques

why?

Cost  
How much will it sell for?  
How much will it cost to make/manufacture it?

Transport costs/  
Energy Bills

why?

Customer/Client  
Who will buy my product?  
What are their interests?  
Where do they shop?  
How much money will they spend?

Is it in demand?

why?

Environment  
How friendly is the product?  
What are the toxic dyes that you use for your water system?  
How much energy will you use when you make the product?  
How will people care for the product?  
Where are the dyes?

why?

why?

Siz  
How big is it?  
What are the measurements?  
Is it easy to care for?  
Can you store it?  
Is it adjustable?

why?

why?

Safety  
Does the product have any sharp edges?  
Will young children be able to use it?  
Could it cause any harm?  
How will you ensure the safety of the product?  
When manufacturing the product

why?

why?

Function  
What are the uses?  
When will it be used?  
Entertainment/  
Education/  
Storage/  
Maintenance/  
Cleaning

why?

why?

Materials  
What is it made of?  
What are the properties of the material?  
Why will it be made from this material?  
Is it the best material?  
Can you recycle this material?  
Artificially? Naturally? How have you

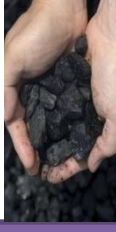
why?

why?

# Materials

## Synthetic materials

Coal → Oil



Polyester  
Acrylic

MEASURING - Measuring in millimeters is more accurate than measuring in centimeters. When measuring fabric, you will use a ruler or measuring tape. Always check where the zero is and start measuring from this point. There is an old saying that goes "measure twice, cut once". Double check your measurements before you cut into your material! Measure in inches for most fabrics but inches in measuring can also affect the size and function and quality of your product.



## The 6 R's

**Recycle** - Take an existing product that has become waste and re-process the material for use in a new product.

**Reuse** - Take an existing product that's become waste and use the material or parts for another purpose, without processing it.

**Reduce** - Minimise the amount of material and energy used during the whole of a products life cycle.

**Refuse** - Don't accept a product at all if you don't need it or if its environmentally or socially unsustainable.

**Rethink** - Our current lifestyles and the way we design and make.

**Repair** - When a product breaks down or doesn't function properly, fix it.

## Techniques and processes

Laser  
Thermochromic Dye  
Sublimation printing  
Machine Embroidery  
Tie Dye  
Laser cut

why?

why?

why?

why?

why?

why?

why?

why?

why?

why?

why?

why?

why?

why?

why?

why?

why?

why?

## Literacy in Engineering

Acid Etch  
PCB  
Wet & Dry paper  
Photo resist  
Catalyst

Goggles  
Rubber Gloves  
PPE  
Soldering  
Polarity

Fault finding  
Power AC/DC  
Programming  
Flowchart  
Micro controller (Picaxe)



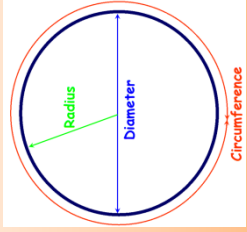
**YEAR 8  
ENGINEERING**

Key Project Words  
& **Accuracy**  
& **Safety**



Using PEE or PEA gives you the framework to explain concepts clearly – Use this for research H/W

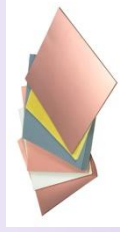
## Numeracy in Engineering



Units of measurement

1mm = 1cm  
100cm = 1m  
1000m = 1km

## EQUIPMENT



Copper PCB Laminates

Steel Rule



PCB Drill



Etch Tank



Fixed Resistor



LED



Drill Bit



# French

## Grammar section

### Nouns

Nouns refer to a person, place, thing or concept. They are listed in the dictionary together with their gender (**masculine** or **feminine**) – collège **MASC** (school) and maison **FEM** (house).

*Hint!* Whenever you learn a new noun, remember to learn the gender of this noun too:

**un frère** – a brother **une sœur** – a sister

**Remember: Make sure that your nouns, adjectives and verbs agree with each other!**  
(See the adjectives section below)

### Adjectives

Adjectives describe **nouns** and can refer to condition, colour, emotions etc. Remember to check your **agreement** – adjectives always agree with nouns in gender (masculine or feminine) and **number** (singular and plural) – for example: les chemises **vertes**.

### Qualifiers

Qualifiers explain or further describe adjectives or how an action (verb) occurs. They come **before the adjective** that they describe or **after the verb** that they describe. **Eg:**

**très** – very (with adjectives)

**beaucoup** – a lot (with verbs)

**un peu** – a bit

**assez** – quite

**trop** – too

**vraiment** – really

### Verbs

Verbs are doing words and can be found in the dictionary in their **infinitive** form (e.g. **habiter, vendre, finir**). In French, they can end in three ways - **-er, -re** and **-ir**.

*Hint!* If you are expressing an opinion, the verb which follows is an infinitive e.g. j'aime jouer au foot.

To make a verb **negative** – just put '**ne**' in front of the conjugated verb followed by '**pas**'. You can also add on the following words after the verb instead of using '**pas**':

**personne** – nobody

**jamais** – never

**rien** – nothing

**ne...plus** = not anymore

### Opinions

Introducing your opinions:

**À mon avis / Pour ma part / Selon moi** – In my opinion...

**J'estime que** – I consider that...

**Je pense que / Je crois que / Il me semble que / Il paraît que** – I think / It seems that...

**Concernant / En ce qui concerne** – Regarding...





## Opinions you can express (followed by verb infinitives):

<b>J'adore</b>	– I love	<b>J'aime beaucoup</b>	– I really like
<b>J'aime</b>	– I like	<b>Je n'aime pas du tout</b>	– I really don't like
<b>Je déteste</b>	– I hate	<b>Je préfère</b>	– I prefer

*Hint!* To score a higher level, justify your opinions with **parce que + c'est + adjective**

## Connectives

Connectives (also known as conjunctions) can be divided into two main categories in French – words that we use to start new sentences and words that we use to join sentences:

### To start sentences:

<b>D'abord / Premièrement</b>	– Firstly
<b>Deuxièmement</b>	– Secondly
<b>Néanmoins</b>	– Nevertheless
<b>Pourtant / Cependant</b>	– However
<b>De plus / En addition</b>	– Moreover
<b>Donc</b>	– Therefore
<b>D'une part</b>	– On one hand
<b>Par contre</b>	– On the other hand
<b>Étant donné que</b>	– Given that
<b>Puisque</b>	– Then / Since
<b>Par conséquent</b>	– As a result

### To join sentences:

<b>et</b>	– and
<b>parce que / car</b>	– because
<b>aussi</b>	– also or as well
<b>ainsi</b>	– thus
<b>ou (→ ou bien)</b>	– or (→ rather)
<b>mais</b>	– but
<b>puis</b>	– then
<b>après</b>	– afterwards
<b>avant</b>	– before
<b>quand</b>	– when
<b>avec</b>	– with



## Time phrases

These can be used to express when or how often you do a particular activity:

### 1. Referring to the past:

<b>Hier</b>	– yesterday
<b>Hier soir</b>	– last night
<b>Le weekend dernier</b>	– last weekend
<b>La semaine dernière</b>	– last week
<b>Le mois dernier</b>	– last month
<b>L'année dernière</b>	– last year
<b>Il y a deux / trois jours / semaines / mois</b>	– Two / three days / weeks / months ago

### 2. Referring to the present:

<b>Tous les jours</b>	– every day
<b>Les weekends</b>	– at weekends
<b>Chaque ...</b>	– every ...
<b>Une fois / deux fois par</b>	– once / twice a ...

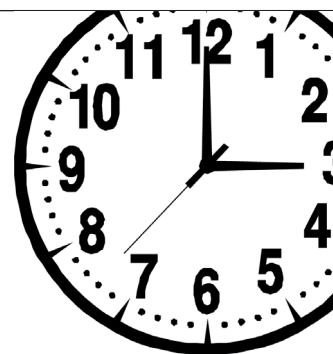
### 3. Referring to the future:

<b>Demain</b>	– tomorrow
<b>Après-demain</b>	– the day after tomorrow
<b>La semaine prochaine</b>	– next week
<b>Pendant les vacances</b>	– in the holidays
<b>L'année prochaine</b>	– next year

### 4. Referring to frequency:

<b>Toujours / tout le temps</b>	– always
<b>Normalement</b>	– normally
<b>Généralment</b>	– generally
<b>Régulièrement</b>	– regularly
<b>Souvent</b>	– often

*Hint!* You need to include your time phrases **next to the verb** you're using – before or after!



## The Near Future Tense

The near future tense is used to say something that you are going to do. You should use a future time phrase with this tense.

To form the future tense:

1. Take the present tense of the verb 'aller'
2. Add the infinitive

<i>I am going</i>	aller
<i>you (s) are going</i>	je vais
<i>he/she is going</i>	tu vas
<i>we are going</i>	il /elle va
<i>you (pl) are going</i>	nous allons
<i>they are going</i>	vous allez
	ils/elles vont

### Examples:

- 1) I am going to play football  
→ Je vais jouer au foot.
- 2) We are going to watch TV Nous  
→ allons regarder la télé.

## ***Glossary of Linguistic Terms Used in MFL Lessons***

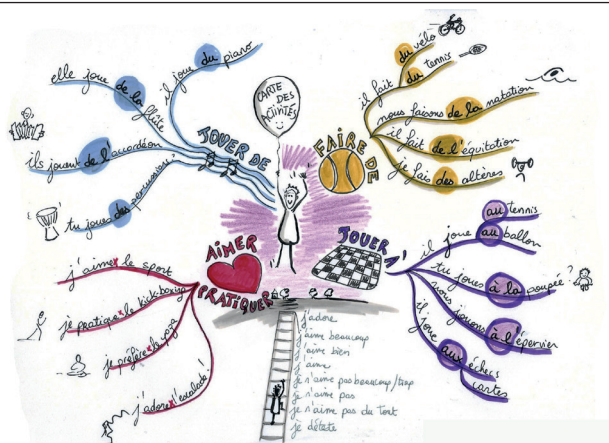
Word	Definition
accent	mark/sign on a letter to change the sound that it makes
adjective	a word that describes a noun
adverb	used to give additional information about verbs or adjectives (see <u>qualifier</u> ; <u>time phrase</u> )
agreement	when <u>nouns</u> , <u>adjectives</u> and verbs match each other in <u>number</u> and in <u>gender</u>
cognate	a word/part of word that looks, sounds and means the same (or similar) in two languages
conjugation (conjugate)	when a verb infinitive is written in its six different parts (see <u>subject</u> ; <u>verb</u> ; <u>infinitive</u> )
connective	words used to link sentences to each other
feminine	one option for <u>gender</u>
gender	either <u>masculine</u> or <u>feminine</u> (and also <u>neuter</u> in German)
infinitive	basic verb form meaning 'to do' an action, identified by its ending and found in a dictionary (see <u>verb</u> )
masculine	one option for <u>gender</u>
noun	a person, place or thing (including a concept)
number	the quantity of a noun present
plural	when there is more than one of a <u>noun</u> present
qualifier	adverbs used to give more information about adjectives e.g. 'very' (see <u>adverb</u> )
singular	when there is only one of a noun present
subject	person (referring to the six parts of the <u>verb conjugation</u> ) doing the action
tense	the time when a verb takes place – past, present or future
time phrase	an adverb which refers specifically to time
verb	an action or 'doing word' (see <u>infinitive</u> ; <u>conjugation</u> )

## High-frequency vocabulary

Les mots essentiels	High-frequency words
assez	quite
aussi	also
car	because
comme	as
et	and
mais	but
très	very
un peu	a bit
parce que	because
par exemple	for example
surtout	above all
à quelle heure?	at what time?
quand?	when?
combien?	how much/how many?
combien de temps?	how long?
comment?	how?
où?	where?
qui?	who?
avec qui?	who with?
Expressions de temps	Time sequencers
d'habitude	usually
de temps en temps	from time to time
en ce moment	at the moment
quelquefois	sometimes
souvent	often
tous les jours	every day
une ou deux fois par mois	once or twice a month
Conjonctions	Connectives
après (le dîner)	after (dinner)
avant (de me coucher)	before (I go to bed)
d'abord	first
ensuite	next
puis	then
un peu plus tard	a bit later

# High-frequency vocabulary

Les opinions	Opinions
à mon avis, c'est ...	in my opinion, it's ...
je pense que c'est ...	I think it's ...
je trouve ça ...	I find it ...
amusant	funny
assez bien	quite good
barbant	boring
chouette	excellent
effrayant	frightening
émouvant	moving
ennuyeux	boring
génial	great
intéressant	interesting
nul	rubbish
passionnant	exciting
pratique	practical
stupide	stupid
formidable	great
idiot	stupid
Les prépositions	Prepositions
dans/devant	in/in front of
derrière	behind
entre	between
sous	under(neath)
sur	on
à côté de	next to
à droite de/à gauche de	on the right of/on the left of
en face de	opposite

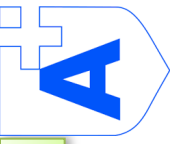




## Geography: Key Definitions

A

Biodiversity	The number and variety of living species found in a specific area
Carbon footprint	A measurement of all the greenhouse gases we individually produce, through burning fossil fuels for electricity, transport, etc., expressed as tonnes (or kg) of carbon-dioxide equivalent.
Commuters	People who travel from their home to their place of work, the distance being such that the journey most often involves some sort of transport
Developed countries	Countries at a late stage of development. They are generally quite rich, with a high proportion of people working in secondary and, especially, tertiary occupations. Also known as More Economically Developed Countries (MEDCs)
Economic recession	A time of decline in business and industry, usually marked by a decrease in wealth, an increase in unemployment, and closure of businesses.
Exploitation	Making full use of something (often implying that the use is unfair and has a negative impact
GDP per Capita	Gross Domestic Product per person, is the total wealth created within a country divided by its population
Geology	The science and study of the Earth's crust, rocks and its components
Globalisation	the process, led by transnational companies, whereby the world's countries are all becoming part of one vast global economy



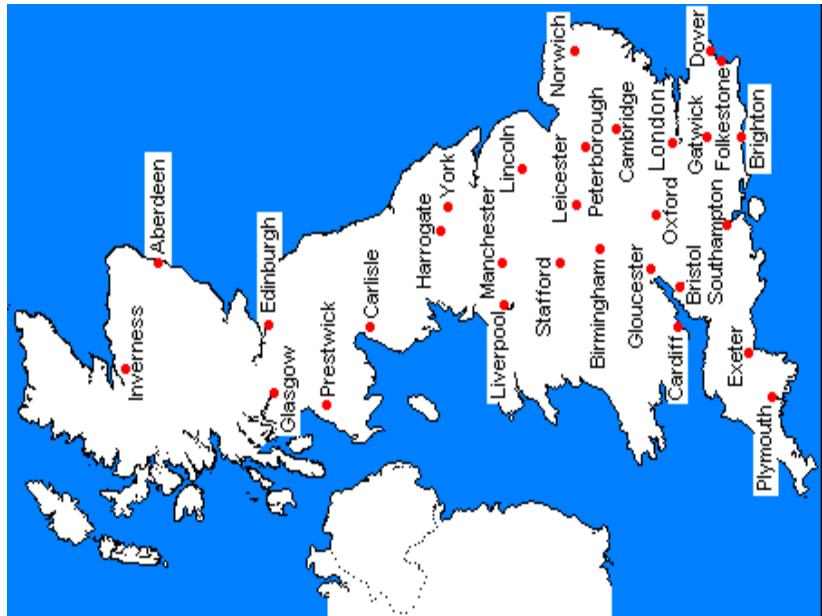
## Geography: Key Definitions

Key word	Definition
Groundwater	Water contained beneath the surface, as a reserve
Habitat	An animal or plant's natural home
Industrialisation	The process whereby industrial activity (particularly manufacturing) assumes a greater importance in the economy of a country or region
Natural resources	Those materials found in the natural world that are useful to man, and that we have the technology and willingness to use
Overpopulation	A situation where the population of an area cannot be fully supported by the available resources. The symptoms include a low (even declining) standard of living, overcrowding and high unemployment.
Plate margin	The boundary between two tectonic plates
Pull factor	Something that attracts people to a location
Push factor	Something that makes people wish to leave a location
Response	The way in which people react to a situation

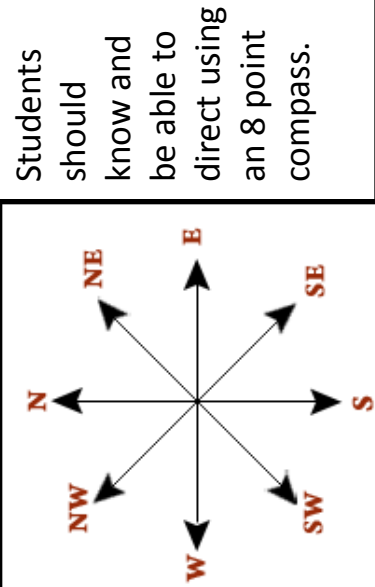
## Geography: Key Definitions

A

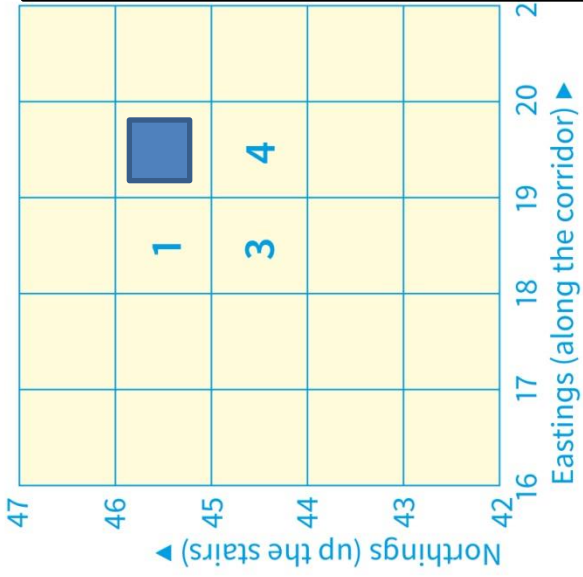
Key word	Definition
Services	Those things that are provided, bought and sold that are not tangible
Stakeholder	A person, group or organisation that has a direct or indirect interest in the outcomes of a particular development or decision. Stakeholders can either influence the outcomes or be affected by them.
Sustainable development	Development that meets the needs of the present without compromising the (limiting) the ability of future generations to meet their own needs.
Tectonic hazards	Threats posed by earthquakes, volcanoes and other events triggered by crustal processes
Transnational company/corporation (TNC)	A large company operating in several countries
Urbanisation	The development and growth of towns or cities
Water insecurity	When safe water availability is insufficient to ensure the population of an area enjoys good health, livelihood and earnings. The condition can be caused by water insufficiency or poor water quality.
World cities	The leading cities of the world, such as London, New York and Tokyo; major centres in the economic networks being produced by globalisation. They are major centres of finance, business and political influence, and are home to the headquarters of many TNCs



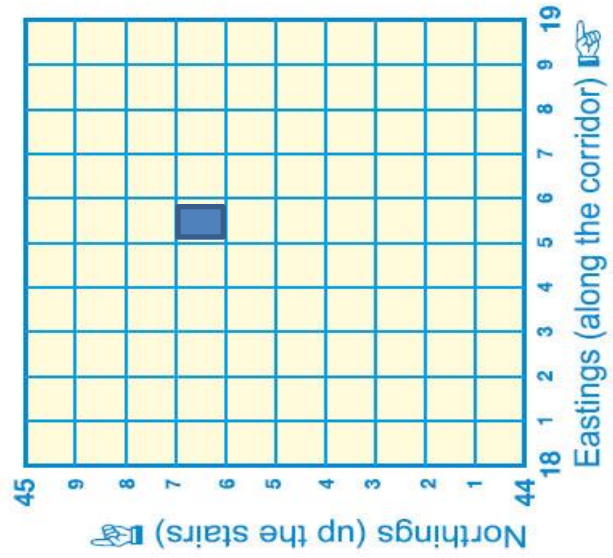
Learn where each of these cities are on a map of the UK and be able to pinpoint them.



Students should know and be able to direct using an 8 point compass.



**4 Figure Grid Reference:**  
To write out the coordinate you go along the corridor and then up the stairs (so along the horizontal axis and then up the vertical). You take the coordinate from the bottom left hand corner of the box.  
Math coordinate = (15,23)  
Geography grid reference = 1523- there are no , or . In a grid reference. Blue square=1944



**6 Figure Grid Reference:** Split the square into 10x10. Find your 4 figure grid reference and leave a gap after the each number, like so: 18\_ 44\_

Then go along the corridor and up the stairs again- to work out which digit would be added.

Example: 185 446



Upper Course

Middle Course

Lower Course



**Characteristics**

- \* Steep / V-shaped Valley
- \* Narrow / Shallow Channel
- \* High Bedload

**Features**

- \* 'V' Shaped Valleys
- \* Interlocking Spurs
- \* Waterfalls
- \* Gorges

**Characteristics**

- \* Open / gentle sloping valley with floodplain
- \* Wider / deeper Channel
- \* More suspended sediment

**Features**

- \* Meanders
- \* River Cliffs
- \* Slip off Slopes

**Characteristics**

- \* Open / gentle sloping valley with floodplain
- \* Flat & Wide Floodplain
- \* Wide, open valley
- \* Very wide and very deep channel

**Features**

- \* Ox-bow Lakes
- \* Flood Plains
- \* Levees

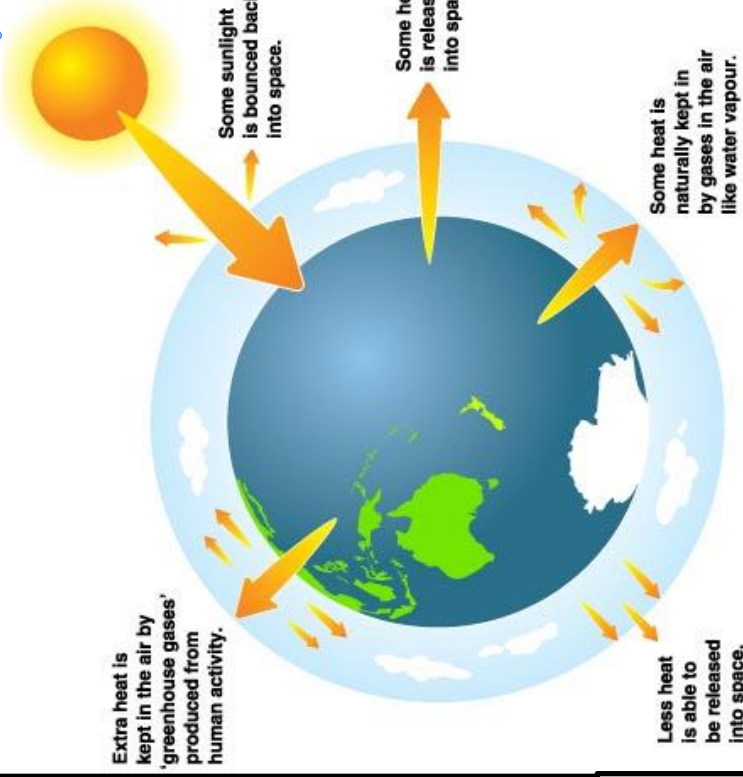
Extra heat is kept in the air by 'greenhouse gases' produced from human activity.

Some sunlight is bounced back into space.

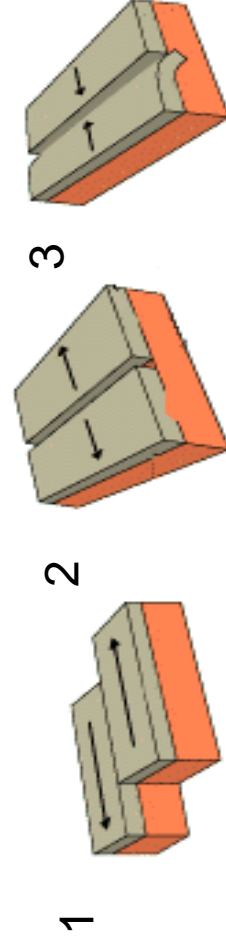
Some heat is released into space.

Some heat is naturally kept in by gases in the air like water vapour.

Less heat is able to be released into space.



The river profile is split into 3 section: upper, middle, lower. There are specific characteristics found at each part of the river, in addition to specific landforms.



1. At a **conservative** or **transform** boundary the plates slide past each other.
2. At a **constructive** or **divergent boundary** the plates move apart.
3. At a **destructive** or **convergent** boundary the plates move towards each other.

Electromagnetic radiation at most wavelengths from the Sun passes through the Earth's atmosphere.

The Earth absorbs electromagnetic radiation with short wavelengths and so warms up. Heat is radiated from the Earth as longer wavelength infrared radiation.

Some of this infrared radiation is absorbed by greenhouse gases in the atmosphere. The atmosphere warms up.

# The 3 long-term Causes of WW1

The Alliance System:

**The Triple Entente** = Great Britain, France and Russia.

**The Triple Alliance** = Germany, Austria-Hungary and Italy.

The Arms Race (or militarism):

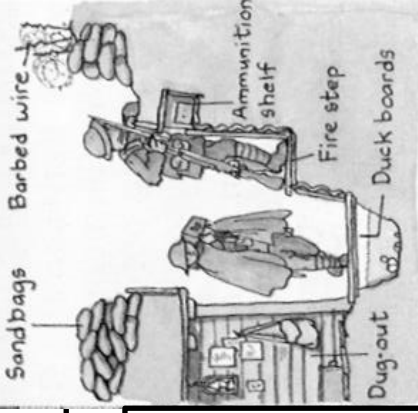
An arms race is when different countries compete to build the most weapons, either guns, battle ships, war planes or bombs. (mainly Britain and Germany).

Imperialism (Empire building):

An empire is when one country owns another country. Most likely taken by force and then ruled from afar. Each Empire wanted more!

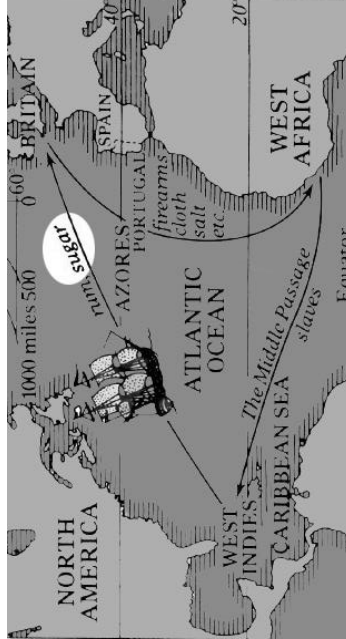
## Short-term cause

The assassination of Austria-Hungary's Archduke Franz Ferdinand. He was shot by a Serbian Nationalist in Sarajevo 28 June 1914. His name was Gavrilo Princip, he was a member of The Black Hand Gang.



## Trench Warfare

- Both sides dug trenches to protect themselves. At first these were just ditches, but it soon became clear that the soldiers would be in them for some time.
- Once in the trenches they would be able to keep each other pinned down with machine gun fire.



## The Slave Trade - At least 12 million

Africans were taken to the Americas as slaves between 1532 and 1832 and at least a third of them in British ships.

For the British slave traders it was a three-legged journey called the 'triangular trade': West African slaves were exchanged for trade goods such as brandy and guns.

Slaves were then taken via the 'Middle Passage' across the Atlantic for sale in the West Indies and North America.

Finally, a cargo of rum and sugar taken from the colonies, was taken back to England to sell.

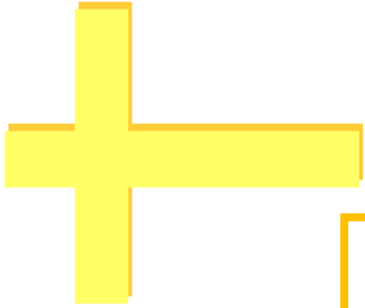
## British empire in 1914

**Population:** 400 million.

**Some of the colonies:** Canada, South Africa, India, Australia, New Zealand, Jamaica, Egypt, Nigeria, Pakistan, Afghanistan, Sinagopore, Hong Kong..

## Major World religions and symbols

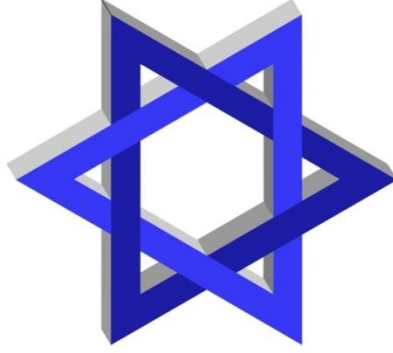
Christianity



Buddhism



Judaism



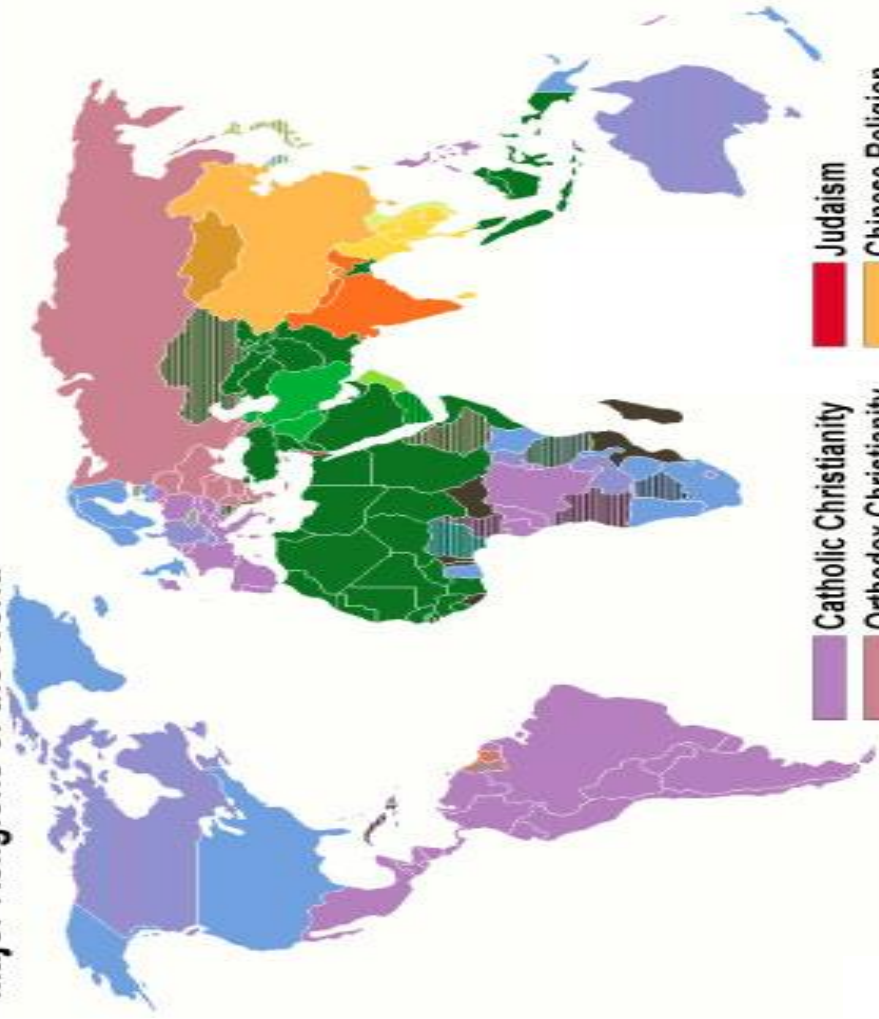
Islam

















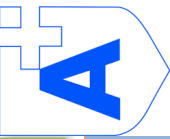
Hinduism



### Major Religions of the World



	Catholic Christianity		Judaism
	Orthodox Christianity		Chinese Religion
	Protestant Christianity		Theravada Buddhism
	Sunni Islam		Mahayana Buddhism
	Shiite Islam		Vajrayana Buddhism
	Islam (other groups)		Nature Religions
	Hinduism		Other Groups



# Religious Studies: Key Definitions

Christianity	the religion based on the person and teachings of Jesus Christ, or its beliefs and practices.
Islam	The name of the religion followed by Muslims; to surrender to the will of God; peace.
Buddhism	A widespread Asian religion or philosophy, founded by Siddhartha Gautama in NE India in the 5th century BC.
Hinduism	A major religious and cultural tradition of South Asia, which developed from Vedic religion. The God of Hinduism is Brahman.
Judaism	the monotheistic religion of the Jews,. The foundation of their beliefs derive from the Old Testament and in the teachings and commentaries of the rabbis as found chiefly in the Talmud.

	<a href="#">Christianity</a>	<a href="#">Islam</a>
Followers Called	Christians	Muslims
Name Means	followers of Christ (Greek <i>christos</i> , Messiah)	Arabic, "submission"
Date Founded	c. 30 CE	622 CE
Place Founded	Palestine	Arabian Peninsula
Original Languages	Aramaic and Greek	Arabic
Founders & Early Leaders	Jesus, Peter, Paul	Muhammad





COMPONENT OF FITNESS	DEFINITION
Muscular Endurance	When one or more muscles contract repeatedly when lifting or moving, for a certain length of time.
Body Composition	The amount of body fat compared to muscle in the body.
Muscular Strength	When the body has to exert a force against resistance.
Speed	How fast the body can move from A to B or perform an action until it's complete.
Flexibility	The amount/range of movement around a joint.
Reaction Time	The time it takes for the body to respond to a stimulus.
Coordination	When a sequence of movements are performed smoothly and accurately together.
Power	The rate at which work is performed often strength x speed = this
Balance	The ability to maintain your centre of gravity when standing still or moving.
Agility	Being able to change direction whilst keeping the body under control.
Anaerobic	When the body is working at a level that demands the need for more oxygen.

Fitness tests	Example
Strength	Hand Grip Dynamometer test
Speed	30 metre sprint test
Aerobic endurance	20 metre multi-stage fitness test
Flexibility	Sit and reach test
Agility	Illinois Agility Test
Balance	The Standing Stork test
Reaction time	Ruler test

### SMART goal setting

This is used widely in sport, work and leisure to help make people's goals easier to achieve.

**S - Specific** means knowing exactly what the goal is.

**M - Measurable** means that it will be easy to know when a goal has been achieved.

**A - Achievable.** Running an extra 100m in the Cooper's run test after six weeks' training may well be achievable, however, running a marathon after four weeks of running 2 miles probably will not.

**R - Realistic.** A goal may well be achievable in theory, but if it is to be achievable in practice it is necessary to have the time and resources to complete it.

**T - Time-bound.** Does the goal have an end point? If not, it is easy to put off achieving it indefinitely.

## Year 8 - Music

Music Through the Ages		Gamelan	
<b>Baroque music</b>	An early style of Western classical music, 1600-1750.	<b>Gamelan</b>	The traditional ensemble of Bali and Java, in Indonesia.
<b>Classical music</b>	A style of western classical music, 1750-1800.	<b>Metallophone</b>	A metal pitched percussion instrument, struck by a mallet/hammer.
<b>Romantic music</b>	An expressive and more sophisticated style of western classical music, 1780-1910.	<b>Kendhang</b>	Drums played by hand.
<b>Sharp</b>	Raising a note by a semitone (#)	<b>Slendro</b>	A pentatonic (five note) scale upon which melodies are based.
<b>Flat</b>	Lowering a note by a semitone (b)	<b>Pelog</b>	A heptatonic (seven note) scale upon which melodies are based.
<b>Major</b>	A happy sounding chord/key/scale.	<b>Ensemble</b>	A group of musicians performing together.
<b>Minor</b>	A sad sounding chord/key/scale.	<b>Polyphony</b>	Two or more different melodies played at the same time.
<b>Pedal note</b>	A repeated note heard in Western classical music.		
<b>Ternary form</b>	A structure used in Western classical music, using an ABA structure.		
<b>Timbre</b>	The quality or character of an instrument's sound.		
Film Music		Minimalism	
<b>Underscore</b>	A piece of music used under a scene in TV/film evoke emotion in the audience.	<b>Minimalism</b>	A style of 20 <sup>th</sup> Century music that uses repetition and gradual 'layering'.
<b>Mood music</b>	A piece of ambient music used to 'set the mood' in film/TV.	<b>Ostinato</b>	A repeated pattern/musical idea.
<b>Leitmotif</b>	A melody or musical idea associated with a specific character.	<b>Cell</b>	A bar of music, in a minimalist piece.
<b>Theme</b>	Music developed from a Leitmotif.	<b>Phase shifting</b>	When two instruments playing the same musical part go 'out of sync' and then join one another again. This technique creates rhythmic interest in minimalist music.
<b>'Mickey mousing'</b>	A technique used in cartoons whereby the music enhances every action featured in the scene and music punctuates 'key moments' in the scene.	<b>Polyphony</b>	Two or more different melodies played at the same time.
<b>Discord</b>	A clashing chord made up of two or more notes.	<b>Polyrhythm</b>	Two or more different rhythms played at the same time.
<b>Counter melody</b>	A second melody heard over an existing melody.		
<b>Repeat sign</b>			

## Year 8 - Drama

Drama skills, techniques and themes (T1-4)	
<b>Facial expression</b>	Using your face to communicate meaning to your audience (e.g. raising your eyebrows to show surprise).
<b>Body language</b>	Using your body to communicate meaning to your audience (e.g. Shrugging your shoulders to show that your character is unsure about something).
<b>Voice</b>	Using your voice to communicate meaning to your audience.
<b>Movement</b>	Using movement to communicate meaning to your audience (e.g. moving slowly, with confidence and with an upright posture to show clearly that your character is a confident King).
<b>Gesture</b>	Using gesture to ensure that your character is clearly defined and to ensure the audience knows what your character means (e.g. using a 'thumbs up' to show that your character agrees with another).
<b>Pitch</b>	Changing the pitch (high or low) of your voice to communicate meaning (e.g. using a high pitch to indicate that your character is scared or a low voice to show that your character is serious or sad).
<b>Pace</b>	Changing the speed with which you deliver your lines to communicate meaning to your audience (e.g. speaking in a rushed, fast pace to indicate that your character is panicked or worried).
<b>Projection</b>	Ensuring that your lines can be heard clearly by your audience.
<b>Tone</b>	Changing the tone to give add expression to the delivery of your script and to communicate meaning.
<b>Children's theatre</b>	Exaggerated and engaging theatre aimed at young people.
<b>Audience participation</b>	Involving the audience in a performance (questions, 'he's behind you!' etc).

<b>Direct address</b>	When a character speaks directly to the audience.
<b>Physical Theatre</b>	Using your body in an interesting and engaging way in drama; often to create objects or parts of the set.
<b>Immigration</b>	When someone decides to live in a different country from his/her usual country of residence (this could be for career prospects, education or other positive reasons).
<b>Asylum Seeking</b>	When someone seeks safety and support in a different country at a time of conflict/oppression/famine.
<b>Cold reading</b>	A technique whereby an actor glances at his/her script during a performance.
<b>Naturalism</b>	A style of drama that makes use of real life scenarios and incorporates naturalistic characters.
<b>Social class</b>	A division of a society based on social and economic status.
<b>Unemployment</b>	This refers to people who choose not to/are unable to work.
<b>Comedy</b>	A style of drama that is based on funny and light-hearted events and exaggerated characters.
<b>Tragedy</b>	A style of drama that is based on suffering or sad events.
<b>Shakespeare</b>	William Shakespeare was a 16/17 <sup>th</sup> Century English poet, playwright, and actor.
<b>Jacobean Era</b>	Jacobean era marks the beginning of the reign of King James I who ruled over a unified kingdom comprising of England and Scotland.
<b>Multi-rolling</b>	When an actor plays more than one character during a performance.
<b>Moral dilemma</b>	This is when a character is posed with a situation that goes against his/her moral beliefs.