



BOURNEMOUTH SCHOOL

# Year 9

## Knowledge Organiser 6

### Summer Term

Name: \_\_\_\_\_ Master 9

Registration Form: - \_\_\_\_\_

✓ Hard Work

✓ Discipline

✓ Smart Appearance

✓ Respect

## Bournemouth School

### Knowledge Organiser: Year 9 Summer Term 6

*'Knowledge is power' by Francis Bacon*

A knowledge organiser provides you with all the most important knowledge you need for each unit of study this half term. Your aim is to transfer all of this information into your long-term memory so you can use it in your lessons and further expand your understanding of this work.

How to use your knowledge organiser (KO):

1. Ensure you have your KO and Homework Learning journal with you at all times in school and when you need to do your homework at home.
2. In lessons when you have covered information that appears on your KO, your teacher will ask you to put a tick next to that section. This means that is now added to what you must learn for homework.
3. Initially, follow your homework timetable to decide what to revise each evening.
4. There are 4 strategies that you can use to revise. They are progressively more challenging so always start with the first in the list.

#### **a. Look Cover Write Check**

- i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
- ii. LOOK carefully at the subject and section of your KO you want to revise and try to remember as much as you can. Remember this should be a ticked section.
- iii. Now COVER this information so you can't read it.
- iv. WRITE out what you can remember word for word in your Homework Learning Journal.
- v. CHECK what you have written by comparing it to your KO. Tick each correct word in green pen and correct any errors you have made.
- vi. Repeat this process until you are confident you can remember everything you need.

**AIM: You should be able to repeat the information by rote**

#### **b. Self or peer quizzing**

- i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
- ii. Write out a list of questions you could ask either yourself or a friend about this section of the KO. Write these in your Homework Learning Journal.
- iii. If you are working on your own, cover the KO and write a full answer to each question.
- iv. If you are working with a partner swap books and copy down their questions and have a go at answering them.
- v. Now uncover the KO and with a green pen correct your work.

**AIM: You should be able to repeat the information by rote but with a good understanding**

#### **c. Playing with words and sentences**

- i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
- ii. You now want to check how well you have learnt the information in your KO.
- iii. Definitions – look at words that are used in this section. Can you write a definition in your own words?
- iv. Rephrasing – can you rewrite the sentences or explanations in your own words?

**c. Playing with words and sentences**

- i. Identify the subject and section of your KO that you want to revise. This should be one of the ticked sections.
- ii. You now want to check how well you have learnt the information in your KO.
- iii. Definitions – look at words that are used in this section. Can you write a definition in your own words?
- iv. Rephrasing – can you rewrite the sentences or explanations in your own words?
- v. Summary – can you summarise the main points of this section of the KO?
- vi. Synonyms – can you write synonyms for key words and ideas?
- vii. New Sentences – can you write a sentence that includes the key vocabulary or definitions that you have learnt?

**AIM**

**You should be able to use the information in your KO in a flexible and confident way in your writing.**

**d. Think it, Link it**

- i. This is a technique to use towards the end of the half term when you are revising all of the KO.
- ii. Think of the links or connections between different sections of your KO.
- iii. Write these out in your own words in your Homework Learning Journal.
- iv. Think about the links between a particular section of your KO and what you have learnt in your lessons. Can you expand on this section by linking it to your wider knowledge?
- v. Write this out in your Homework Learning Journal.

**AIM**

**You should be able to link your homework and your lessons to show a confident understanding of the work covered.**

**Homework Learning Journal**

1. Always write the subject and the date when you start your homework.
2. Always write the strategy that you are going to use for your homework.
3. Use a blue or black pen to complete your homework or a pencil if you need to draw.
4. Always use a ruler to underline titles and dates.
5. Use a green pen to complete corrections of your work.
6. **You are expected to complete half a side of your Homework Learning Journal each evening as a minimum.**

**Success Club**

You can attend Success Club every Monday to Thursday in room 53 until 4:30pm. This is a quiet room where you can complete your homework rather than doing it at home. There are also Sixth form helpers and staff who will be there to help you if you need it. You can also choose to work in the Library on a Monday, Tuesday and Thursday until 4:30 and a Friday until 4.

## DO NOW tasks:

At the start of every lesson you should expect a Do Now task. This is a low stakes retrieval quiz on what you have learnt so far. If you have completed your homework this should be easy. The aim is to get 100% in each of these. If you miss this target occasionally, don't worry. If it happens regularly your teacher will have a chat and offer you support.

## Maths:

Your teacher will set you tasks to complete on Dr Frost Maths. This will be set every week on a Monday and will be collected in and checked on a Friday. If this has not been completed you will be issued a Detention on a Wednesday Lunchtime.

# How long should I spend on my homework?

Key Stage 4					
Week 1					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
5 mins	MFL	MFL	Physical Activity	MFL	MFL
10	Maths	English		Maths	English
10	Biology	RS		Chemistry	Physics
10	Option C	Option D		Option A	Option B
55	Reading / Revision	Reading / Revision		Reading / Revision	Reading / Revision
Week 2					
Time	Monday	Tuesday	Wednesday	Thursday	Friday
5 mins	MFL	MFL	Physical Activity	MFL	MFL
10	Maths	English		Maths	English
10	Biology	RS		Chemistry	Physics
10	Option C	Option D		Option A	Option B
55	Reading / Revision	Reading / Revision		Reading / Revision	Reading / Revision

- You should spend about 35 minutes revising your KO each day.
- You should spend 55 minutes either reading or revising each day.
- This timetable is a guide. If you want to spend longer revising one subject that you find more difficult and less time on one you find easy, that is your choice.
- We would like you to spend one evening involved in a physical activity. This might be a sports club, a run, a game of football with friends or just a nice walk with the dog. Ask your PE teacher if you need guidance with this. It doesn't have to be on a Wednesday.



**What is Annotation?**  
 Annotation means **writing about artwork** to explain:

- What you can see
- How it was made
- What it means
- What works well (and what could improve)

- ✔ **ART ANNOTATION CHECKLIST**  
**When annotating an artist's work, have you:**
- Described what you can see?
  - Mentioned colours, shapes, or textures?
  - Explained how the artist made it?
  - Suggested a meaning or idea?
  - Said if it is successful (and why)?

**How to Annotate an Artist's Work**  
**Describe → Analyse → Interpret → Evaluate**  
**Sentence starters:**

- This artwork shows...
- The artist has used...
- The colours/textures/patterns are...
- This creates a feeling of...
- I think the message is...
- This is effective because...

**Artist Annotation**  
 Describe (What can you see?):  
 Analyse (How has it been made?):  
 Interpret (What does it mean?):  
 Evaluate (Is it successful? Why?):

**Reflection Prompts**  
 Reflection = thinking about learning, not just the outcome.

What did I learn?

What challenged me?

What will I do next time?

- I found this challenging because...
- I improved at...
- I learned how to...
- Next time I will...

**Artist Annotation Example:** This artwork shows a portrait of a person with exaggerated features. The artist has used bold, curved lines and vibrant colours to create a strong visual impact. The contrasting warm and cool colours make the face stand out from the background. The rough texture and expressive mark-making suggest energy and emotion. I think the artist is trying to show personality rather than realism. Overall, the artwork is effective because the use of colour and line creates a dynamic and eye-catching composition.

**My Work Annotation Example:**  
 I chose to create a portrait inspired by this style because I wanted to experiment with bold colours. I used oil pastels and focused on blending and layering to build up texture. I think my use of colour is successful because it is vibrant and eye-catching. However, my proportions are slightly uneven, which affects the overall balance. Next time, I would improve this by sketching more carefully before adding colour.

**How to Annotate Your Own Work**  
 You should discuss process and decisions.  
**Key things to include:**

- What you were trying to achieve
- What materials/techniques you used
- What went well
- What you would improve

**Sentence starters:**

- I chose to... because...
- I experimented with...
- I was inspired by...
- I think this part is successful because...
- Next time I would improve... by...

- When annotating your own work, have you:**
- Explained your idea or intention?
  - Named the materials or techniques used?
  - Explained what went well?
  - Identified something to improve?

**How to Evaluate Your Work**  
 Evaluation is more thoughtful and reflective.  
**Encourage honesty + explanation:**  
**Questions to answer:**

- What worked best?
- What didn't go as planned?
- Did you meet your intention?
- How could it be improved?

**Sentence starters:**

- Overall, I think my work is successful because...
- One strength of my work is...
- One area for improvement is...
- If I did this again, I would...

- When evaluating, have you:**
- Given a clear opinion?
  - Explained your strengths?
  - Suggested improvements?
  - Said what you would do differently next time?

**Evaluating & Reflecting**

- Successful Weakness Experiment
- Improvement Refine
- Strength Develop

**Word banks**

**Formal Elements**

- Line (bold, thin, curved, straight)
- Shape (geometric, organic)
- Colour (warm, cool, vibrant, muted)
- Tone (light, dark, contrast)
- Texture (rough, smooth)
- Pattern
- Form
- Composition

**Describing & Analysing**

- Effective
- Detailed
- Balanced
- Contrasting
- Dynamic
- Subtle
- Bold

**Techniques & Processes**

- Blending
- Shading
- Layering
- Sketching
- Painting
- Printing
- Mark-making

## B4b Respiration

Types of respiration		✓
Term	Definition	
Respiration	A chemical process in all cells that releases energy from glucose	
Aerobic respiration	Respiration that uses oxygen to release large amounts of energy from glucose, occurs in the mitochondria.	
Anaerobic respiration	Respiration that does not use oxygen and releases less energy from glucose, occurs in the cytoplasm in muscle cells	
Oxygen debt	The amount of extra oxygen the body needs after exercise to react with accumulated lactic acid and remove it from the cells.	

Respiration equations		✓
Aerobic respiration	Glucose + oxygen → carbon dioxide + water $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$	
Anaerobic respiration (muscles – animals)	Glucose → lactic acid	
Anaerobic respiration (plants + yeast)	Glucose → carbon dioxide + ethanol	

Effect of exercise		✓
Effect	Reason	
Increased heart rate	To deliver more oxygen and glucose to the cells and to remove waste carbon dioxide	
Increased breathing rate and breath volume	To obtain more oxygen from the air and to remove more waste carbon dioxide	

An increased heart rate provides the body with more **OGRE**

more **O**xxygen  
more **G**lucose  
more **R**espiration  
more **E**nergy released



Metabolism is the sum of all the reactions in a cell or body, including:		✓
1	Conversion of glucose to starch, glycogen and cellulose	
2	Formation of lipids from fatty acids and glycerol.	
3	The use of glucose and nitrate ions to form amino acids which are turned into proteins	
4	Respiration	
5	Breakdown of excess proteins to form urea for excretion.	

Methods of motivation		<input checked="" type="checkbox"/>
Financial	Non-Financial	
Salary	Fringe benefits	
Wage	Management style	
Commission	Training	
Profit sharing	Greater responsibility	

The importance of motivation in the workforce		<input checked="" type="checkbox"/>
Staff retention	Good customer service	
High productivity	Higher levels of sales	
Improved recruitment and selection		

Definitions		<input checked="" type="checkbox"/>
Motivation	The will to complete a task	
Fringe benefits	Extra benefits that an employee may receive beyond their pay, for example a company car.	
Salary	An annual payment to employees usually paid monthly.	
Wage	Payment to employees calculated by how many hours they work.	
commission	Payment made to an employee based on a sale or goal	
Profit sharing	Where a percentage of the companies profit is divided between employees	
Authoritarian	A management style where managers make decisions alone, without consulting staff	
Democratic	A management style where managers allow the workforce some influence over decision making	
Paternalistic	A management style where managers make decisions but only after consultation with staff	
Laissez-faire	Managers allow workers to perform tasks as they see appropriate.	

Types of training undertaken by businesses				<input checked="" type="checkbox"/>
Type	Definition	Advantage	Disadvantage	
On the job	Training given in the workplace where they are shown and can practice the skill. Such as work shadowing	Cost effective Precise to the business requirements	Provided by colleagues so there is a risk of passing on bad working practices	
Off the job	Training provided away from the place of work.	Learn skills that are not currently held at their workplace	Expensive Risk the newly trained employee will leave	
Induction	Introduction of a new employee to the workplace and will include health and safety and company procedures.	<ol style="list-style-type: none"> <li>1. New employees will feel confident and achieve early high productivity.</li> <li>2. New employees will feel valued</li> <li>3. Effective in their new job role</li> </ol>	N/A	

The importance of training the workforce	<input checked="" type="checkbox"/>
Increased productivity	
Ability to deal with changes in technology	
Increased motivation	
Staff retention	
Production of high-quality goods	
Good customer services	

Examples businesses and appropriate training methods		<input checked="" type="checkbox"/>
Practical skills required such as using technology such as a till.	On the job	
When the skill isn't related to a specific task such as management skills	Off the job	
Any new employee	Induction training	
Qualifications required such as accountancy	Off the job	
Poor financial position	On the job	
Low skill level of existing employees	Off the job	

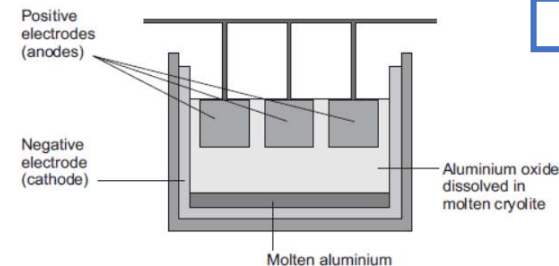
## Chapter 4b – Chemical Changes

Keyword	Learn	Tick
Displacement Reaction	A more reactive element displaces a less reactive element from a compound containing the less reactive element.	
Native metal	Unreactive metal found in the Earth's crust as the uncombined element.	
Ore	Rock containing enough of a metal to make it economically worthwhile to extract.	
Oxidation	Gain of oxygen / loss of electrons e.g. $\text{Mg} \rightarrow \text{Mg}^{2+} + 2\text{e}^-$	
Reduction	Loss of oxygen / gain of electrons e.g. $\text{Cu}^{2+} + 2\text{e}^- \rightarrow \text{Cu}$	
Electrolysis	The process of splitting up ionic compounds using electricity.	

### Extraction of Aluminium

Carbon electrode needs replacing as it reacts with the oxygen produced to form  $\text{CO}_2$ .

Aluminium oxide is mixed with molten cryolite to reduce the melting point.



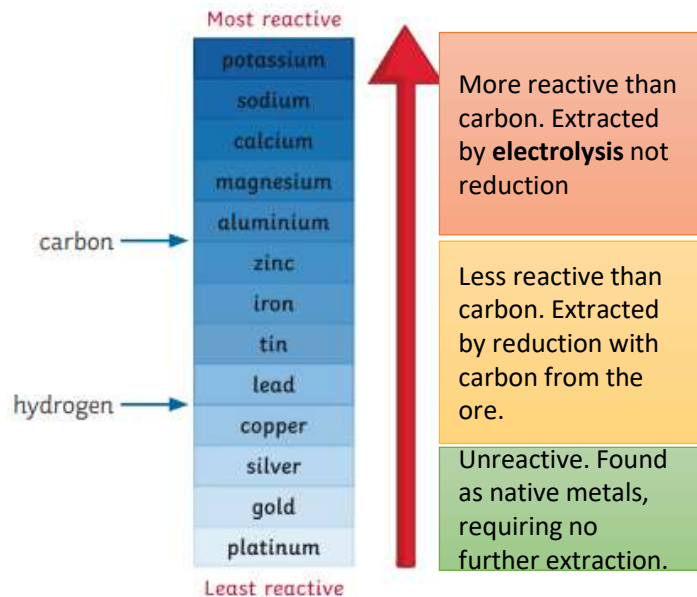
### General Reactions of Metals

Metal + oxygen  $\rightarrow$  metal oxide

Metal + water  $\rightarrow$  metal hydroxide + hydrogen

Metal + acid  $\rightarrow$  salt + hydrogen

### The Reactivity Series



### Electrolysis

Ionic substances only conduct electricity when molten or in aqueous solution, as the ions are free to move and carry charge.

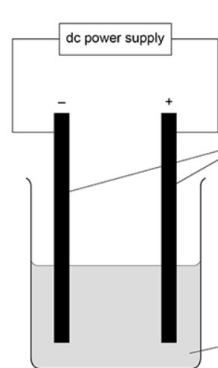
Positively charged ions are attracted to the negative electrode.

Negatively charged ions are attracted to the positive electrode.

This is because **opposite charges attract**.

When **positive** ions reach the negative electrode, they **gain** electrons: **reduction**.

When **negative** ions reach the positive electrode, they **lose** electrons: **oxidation**.



**Molten ionic compounds** e.g.  $\text{PbBr}_2$  IONS PRESENT =  $\text{Pb}^{2+}$   $\text{Br}^-$   
 REDUCTION at negative electrode - metal is discharged e.g.  $\text{Pb}^{2+} + 2\text{e}^- \rightarrow \text{Pb}$   
 OXIDATION at positive electrode - halogen gas is discharged e.g.  $2\text{Br}^- \rightarrow \text{Br}_2 + 2\text{e}^-$

**Aqueous ionic compounds** e.g.  $\text{NaCl}$  IONS PRESENT =  $\text{Na}^+$   $\text{Cl}^-$   $\text{H}^+$   $\text{OH}^-$   
 REDUCTION at negative electrode - metal or hydrogen gas is discharged - whichever is least reactive element e.g.  $2\text{H}^+ + 2\text{e}^- \rightarrow \text{H}_2$   
 OXIDATION at positive electrode - halogen gas is discharged or oxygen gas if no halogen present e.g.  $2\text{Cl}^- \rightarrow \text{Cl}_2 + 2\text{e}^-$

## 2.3 Producing Robust Programs


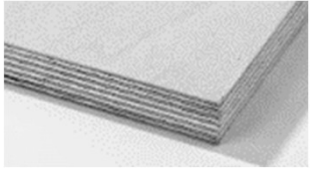
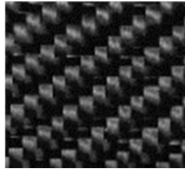



Keyword	Definition	✓
<b>Robust program</b>	A program that functions correctly under less than ideal conditions.	
<b>Defensive design</b>	Thinking about problems that could occur and preventing them before they happen.	
<b>Authentication</b>	Establishing a user's identity and ensuring only authorised users can gain access to a system.	
<b>Validation</b>	The process of checking data when it is entered to see if it conforms to a rule.	
<b>Type check</b>	Input is the correct data type.	
<b>Range check</b>	Input is inside the correct range.	
<b>Presence check</b>	To stop users leaving certain information empty.	
<b>Length check</b>	Input is of the correct length.	
<b>Format check</b>	Input is in the correct format.	

Keyword	Definition	✓
<b>Verification</b>	Checking that data has been entered correctly.	
<b>Sanitisation</b>	Checks and modifies any input.	
<b>Maintainable program</b>	A program the original programmer has deliberately made straightforward to understand and modify.	
<b>Testing</b>	Ensuring the program functions as expected.	
<b>Iterative testing</b>	Testing performed while the program is being developed.	
<b>Final testing</b>	Testing after the program is finished.	

### Practise Python programming at home:

- Code online using: <https://vscodeedu.com>
- Online tutorial 1: <https://www.w3schools.com/python>
- Online tutorial 2: <https://time2code.today/python-course>

Type	Description	Uses/ applications	Advantages	Tick
Shape memory alloys (SMAs)	Can be deformed but returns to its' original shape when heat or electricity is applied.	<ul style="list-style-type: none"> <li>• Glass frames</li> <li>• Orthodontic wires</li> </ul>	<ul style="list-style-type: none"> <li>• Lengthens the life of the product</li> <li>• Reduced overall size, less complexity</li> </ul>	
Nanomaterials	Made of tiny components less than 100 nanometres (a millionth of a mm).	<ul style="list-style-type: none"> <li>• Car bumpers</li> <li>• Motorcycle helmets</li> </ul>	<ul style="list-style-type: none"> <li>• Larger relative surface area can improve their strength, elasticity, conductivity properties</li> </ul>	
Photochromic glass	Darkens when exposed to light and reverses in the dark.	<ul style="list-style-type: none"> <li>• Sunglasses</li> <li>• Cockpit windows</li> </ul>	<ul style="list-style-type: none"> <li>• Adapts easily to changing conditions</li> <li>• Can undergo 1000s of cycles without performance change</li> </ul>	
Reactive glass	It changes from transparent to opaque when voltage is passed through.	<ul style="list-style-type: none"> <li>• Windows</li> <li>• Offices</li> </ul>	<ul style="list-style-type: none"> <li>• Retains heat so reduces energy bills</li> <li>• Instant privacy without permanent blocking of light</li> </ul>	
Conductive inks	Used in a pen – contains pigments which allow a small current to pass through.	<ul style="list-style-type: none"> <li>• Improvising or repairing circuit boards</li> <li>• Drawing circuits on different materials</li> </ul>	<ul style="list-style-type: none"> <li>• Easy/quick to use</li> <li>• Low waste</li> </ul>	
Temperature-responsive polymers	Changes colour when heat is applied to it.	<ul style="list-style-type: none"> <li>• Baby products i.e. spoons, bath thermometers</li> <li>• Biomedical applications</li> </ul>	<ul style="list-style-type: none"> <li>• Safety – won't burn babies</li> <li>• Can deliver drugs to patients in a controlled way</li> </ul>	
Piezoelectric materials	Generates a small electric charge when compressed.	<ul style="list-style-type: none"> <li>• Sensors: burglar alarms, seatbelt sensors, keypads, keyless car entry</li> </ul>	<ul style="list-style-type: none"> <li>• Low maintenance</li> <li>• Compact size</li> </ul>	

Tick	Type	Uses	Properties
	Concrete	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Park benches</li> <li>• Fence posts</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent compressive strength</li> <li>• Good heat and sound insulator</li> </ul> 
	Plywood	<ul style="list-style-type: none"> <li>• Flooring</li> <li>• Furniture</li> </ul>	<ul style="list-style-type: none"> <li>• High impact resistance</li> <li>• Available in large sheets</li> </ul> 
	Carbon fibre (CFRP)	<ul style="list-style-type: none"> <li>• Sports equipment</li> <li>• F1 cars</li> </ul>	<ul style="list-style-type: none"> <li>• Stronger than GRP</li> <li>• Lightweight</li> </ul> 
	Glass Reinforced Plastic (GRP)	<ul style="list-style-type: none"> <li>• Boat hulls</li> <li>• Play park slides</li> </ul>	<ul style="list-style-type: none"> <li>• Good chemical resistance</li> <li>• Very good strength to weight ratio</li> </ul> 
	Reinforced polymers	<ul style="list-style-type: none"> <li>• Engineering components</li> </ul>	<ul style="list-style-type: none"> <li>• Strong</li> <li>• Hard</li> </ul> 
	Robotic materials	<ul style="list-style-type: none"> <li>• Prosthetic limbs</li> <li>• Plane wings</li> </ul>	<ul style="list-style-type: none"> <li>• Can react to surroundings</li> <li>• Can change colour/shape to match surroundings</li> </ul> 

Contextual points	Link to argument – what is Shakespeare trying to say?	✓
Divine right	The idea that monarchs were appointed by God and their authority was absolute. Macbeth's usurpation of the throne and the ensuing chaos reflect concerns about the consequences of challenging royal authority.	
Great Chain of Being	A hierarchical order that encompassed all creation. Macbeth's actions disrupt the natural order, leading to chaos and disorder in the world around him.	
Religion	At the end of the play, Macbeth claims life is "a tale told by an idiot...signifying nothing". Shakespeare presents Macbeth as rejecting divine order, which a Jacobean audience would view as deeply sinful and dangerous.	
Patriarchal society	Gender roles are subverted as women take control and challenge male authority; in Jacobean society, such behaviour was often linked to witchcraft.	
Witchcraft	King James I had a strong interest in witchcraft. Macbeth believes the witches' prophecies and brings about his own downfall as a result.	
The Gunpowder Plot	King James I would have approved of the play as it punishes regicide, something he was the target of himself.	

Themes	Key quotations (1)	✓
Ambition	- "I am in blood Stepped in so far that, should I wade no more, Returning were as tedious as go o'er." (Act 3, Scene 4)	
Good and evil	"If good, why do I yield to that suggestion whose horrid image doth unfix my hair and make my seated heart knock at my ribs, against the use of nature?" (Macbeth)	
Loyalty/ betrayal	- "There's no art To find the mind's construction in the face. He was a gentleman on whom I built an absolute trust." (Act 1, Scene 4)	
Kingship	"Bleed, bleed, poor country! Great tyranny!" (Macduff) "Those he commands move only in command, nothing in love: now does he feel his title hang loose about him, like a giant's robe upon a dwarfish thief." (Angus)	
Violence & Tyranny	- "Blood will have blood." (Act 3, Scene 4)	
Fate vs Freewill	- "For mine own good, All causes shall give way. I am in blood Stepp'd in so far that, should I wade no more, Returning were as tedious as go o'er." (Act 3, Scene 4)	
Supernatural	- "By the pricking of my thumbs, Something wicked this way comes." (Act 4, Scene 1)	

Tragedy in the play		✓
Structure – Macbeth rises to power but this leads to increasing chaos and suffering in Scotland. As Macbeth's status grows, the violence escalates until his eventual downfall.		
Fatal flaw - ambition and greed		
External pressures– the witches, Lady Macbeth, and prophecy influence Macbeth's actions."		

Key term	Meaning	✓
Hamartia	Fatal flaw	
Peripeteia	A sudden turn of events/ unexpected reversal	
Catharsis	Relief of emotional tension	
Regicide	The action of killing a king	
Pathos	An experience that evokes pity, sympathy or compassion	
Dramatic irony	The audience knows something the characters do not	
Soliloquy	A character speaking their thoughts aloud	

Basic essay plan		✓
Thesis – introduce your argument		
Point 1 – Develop your argument with a focus on the extract, using evidence		
Point 2 – Link to examples in the rest of the play		
Point 3 – Link and develop argument with context		
Conclusion – sum up your findings		

Key Term	Meaning	✓	Themes	Key quotations (2)	✓	Contextual point	Link to argument – what is Shakespeare trying to say?	✓
Tragic hero	A protagonist with a fatal flaw that eventually leads to their downfall. Macbeth is a tragic hero whose ambition and thirst for power ultimately result in his demise.		Power & Corruption	- "Fair is foul, and foul is fair." (Act 1, Scene 1) - "Stars, hide your fires; Let not light see my black and deep desires." (Act 1, Scene 4)		Machiavellian Politics	The character of Macbeth embodies Machiavellian principles of manipulation, deceit, and ruthlessness in pursuit of power. Shakespeare's depiction of political intrigue and ambition reflects Renaissance notions of power and governance.	
Aside	A brief remark made by a character to the audience or another character on stage, not intended to be heard by all the characters. Asides provide insight into a character's true thoughts or motivations.			- "Unsex me here, And fill me from the crown to the toe topful Of direst cruelty!" (Act 1, Scene 5)				Social Hierarchies
Foreshadowing	The use of hints or clues to suggest future events in a narrative. For instance, the witches' prophecies and Macbeth's reaction to them foreshadow the tragic events that unfold later in the play.		Appearance vs Reality	- "Look like th' innocent flower, But be the serpent under't." (Act 1, Scene 5) - "False face must hide what the false heart doth know." (Act 1, Scene 7)		Catholic-Protestant Conflict	England was embroiled in religious tensions between Catholics and Protestants during Shakespeare's era. The play's themes of guilt, redemption, and divine justice may reflect broader religious concerns of the time.	
Ambiguity	The quality of being open to more than one interpretation. Shakespeare often employs ambiguity in Macbeth, leaving certain events or character motivations open to debate.		Violence & Disorder	- "What bloody man is that? He can report, As seemeth by his plight, of the revolt The newest state." (Act 1, Scene 2) - "It will have blood; they say blood will have blood." (Act 3, Scene 4)		Renaissance Humanism	Renaissance humanist ideas, such as the belief in human agency and the importance of individual conscience, are reflected in Macbeth's moral struggle and eventual downfall. The play explores themes of free will, fate, and the consequences of one's actions.	
Motif	A recurring symbol, image, or theme in a literary work that contributes to its overall meaning. Motifs in Macbeth include blood, darkness, and the supernatural.		Masculinity	- "I dare do all that may become a man; Who dares do more is none." (Act 1, Scene 7)		Gender roles	Shakespeare's portrayal of Lady Macbeth as a strong, ambitious woman challenges traditional gender roles of the period. Her desire for power and influence defies societal expectations, highlighting tensions surrounding gender and power.	
Hubris	Excessive pride or arrogance that leads to a character's downfall. Macbeth's hubris is evident in his ambition and belief in his invincibility, despite the warnings and prophecies against him.		Madness	- "Out, out, brief candle! Life's but a walking shadow, a poor player That struts and frets his hour upon the stage And then is heard no more." (Act 5, Scene 5)		Political instability	The political climate in England was marked by intrigue, betrayal, and power struggles. Macbeth's ruthless quest for power and the manipulation of political alliances resonate with the uncertainties of the time.	
Supernatural	Beyond the laws of nature; involving forces or beings beyond the realm of scientific understanding. The witches and their prophecies, as well as other supernatural elements, play a significant role in Macbeth.		Guilt & Conscience	- "Will all great Neptune's ocean wash this blood Clean from my hand? No, this my hand will rather The multitudinous seas in incarnadine, Making the green one red." (Act 2, Scene 2)				

**Protein**

Proteins perform different functions in food products.

- aerate foods, e.g. whisking egg whites;
- thicken sauces, e.g. egg custard;
- bind ingredients together, e.g. fishcakes;
- form structures, e.g. gluten formation in bread;
- gel, e.g. lime jelly.

Denaturation	The chemical bonds in the protein breaks and the protein molecule unfolds and changes shape.
Coagulation	A change in the structure of protein, when proteins set, brought about by heats or acid. This change is irreversible

**Gluten formation**

Two proteins, gliadin and glutenin, found in wheat flour, form gluten when mixed with water. Gluten is strong, elastic and forms a 3D network in dough. In the production of bread, kneading helps untangle the gluten strands and align them. Gluten helps give structure to the bread and keeps in the gases that expand during cooking.

**Colloidal systems**

Colloidal systems give structure, texture and mouthfeel to many different products.

System	Disperse phase	Continuous phase	Food
Sol	Solid	Liquid	Unset jelly
Gel	Liquid	Solid	Jelly
Emulsion	Liquid	Liquid	Mayonnaise
Solid emulsion	Liquid	Solid	Butter
Foam	Gas	Liquid	Whipped cream
Solid foam	Gas	Solid	Meringue

**Carbohydrates**

- help to cause the colour change of bread, toast and bakery products (dextrinisation);
- contribute to the chewiness, colour and sweet flavour of caramel;
- thicken products such as sauces and custards (gelatinisation).

Gelatinisation	The swelling of starch granules when they are cooked with a liquid to the point where they burst and release starch molecules.
Dextrinisation	The breaking up of starch molecules into smaller groups of glucose molecules when they are exposed to dry heat.
Caramelisation	The breaking up of sucrose molecules when they are exposed to dry heat.

**Fats**

- add 'shortness' or 'flakiness' to foods, e.g. shortbread, pastry;
- provide a range of textures and cooking mediums;
- glaze foods, e.g. butter on carrots;
- aerate mixtures, e.g. a creamed cake mix;
- add a range of flavours.

Plasticity	The ability of a fat to soften over a range of temperatures and be shaped and spread with light pressure.
Shortening	The ability of fats to shorten the length of gluten molecules in pastry.
Aeration	The ability of fats to trap lots of air bubbles when beaten together with sugar.
Emulsification	The process of using an emulsifier (such as egg yolk) to stabilise an insoluble mixture.

**Fruit and Vegetables**

Oxidation	When substances combine with oxygen.
Enzymic browning	The discolouration of a fruit or vegetable due to the reaction of enzymes with plant cell substances and oxygen.

Picture description phrases	
sur la photo	<i>On the photo</i>
je peux voir	<i>I can see</i>
on peut voir	<i>We/you can see</i>
à gauche	<i>On the left</i>
à droite	<i>On the right</i>
au centre	<i>In the centre</i>
à l'arrière plan	<i>In the background</i>
au premier/gros plan	<i>In the foreground</i>
la photo a été prise	<i>The photo was taken</i>
la photo montre	<i>the photo shows</i>
j'imagine que	<i>I imagine that</i>
je trouve que	<i>I find that</i>
il y a	<i>There is/there are</i>
un homme	<i>A man</i>
une femme	<i>A woman</i>
un garçon	<i>A boy</i>
une fille	<i>A girl</i>
un enfant	<i>A child</i>

La famille - Family	
décris les personnes	<i>describe the people</i>
il/elle est	<i>he/she is</i>
mes parents sont	<i>my parents are</i>
grand (e) (s)/petit (e) (s)	<i>tall/short</i>
de taille moyenne	<i>average height</i>
il/elle a le visage long	<i>he/she has a long face</i>
ils/elles ont les cheveux	<i>they have...hair</i>
blancs/blonds	<i>white/blonde</i>
bruns/châtains	<i>brown/chesnut</i>
gris/noir/roux	<i>grey/black/red</i>
longs/courts	<i>long/short</i>
un joli sourire	<i>a pretty smile</i>
il/elle porte des lunettes (de soleil)	<i>he/she wears (sun) glasses</i>
un chapeau	<i>a hat</i>

L'amitié est la clé du bonheur- friendship is the key to happiness	
tu t'entends bien avec tes amis?	<i>do you get on well with your friends?</i>
pourquoi/pourquoi pas?	<i>why/why not?</i>
la plupart du temps	<i>most of the time</i>
je (ne) m'entends (pas) (assez/très) bien avec mes amis	<i>I (don't) get on (quite/very) well with my friends</i>
il/elle est	<i>he/she is</i>
ils/elles sont	<i>they are</i>
tout le temps/toujours	<i>always/all the time</i>
actif(s)/active(s)	<i>active</i>
fidèle (s)	<i>loyal</i>
fier(s)/fière (s) de moi	<i>proud of me</i>
independent (e) (s)	<i>independent</i>
patient (e) (s)	<i>patient</i>
sympa	<i>nice</i>
travailleur (s)/travailleuse (s)	<i>hard-working</i>
on s'ennuie/on s'amuse (bien) (ensemble)	<i>we are bored/we get on well (together)</i>
on s'excuse rarement/ de temps en temps	<i>we apologise rarely/from time to time</i>
d'habitude	<i>usually</i>

La place des idoles – The place of idols	
je le/la suis	<i>I follow him/her</i>
il/elle est connu (e) pour...	<i>he/she is known for</i>
c'est une personne qui...	<i>it's a person who</i>
il/elle lutte pour/contre...	<i>he/she fights for/against</i>
un bon modèle est quelq'un qui...	<i>a good role model is someone who</i>
aide les gens	<i>helps people</i>
se comporte bien	<i>behaves well</i>
inspire les autres	<i>inspires others</i>
il/elle a gagné sa popularité	<i>he/she won his/her popularity</i>
grâce à...sa créativité/son courage/sa personnalité	<i>thanks to his/her creativity/courage/personality</i>

l'amitié -friendship	
c'est quoi, l'amitié pour toi?	<i>what is friendship for you?</i>
pour moi/à mon avis..	<i>for me/in my opinion</i>
il est important d'avoir..	<i>it's important to have</i>
un ami proche	<i>a close friend</i>
un groupe d'amis sympa	<i>a group of nice friends</i>
beaucoup d'amis amusants	<i>lots of fun friends</i>
un bon ami est quelq'un qui..	<i>a good friend is someone who..</i>
apprécie les mêmes choses que moi	<i>appreciates the same things as me</i>
partage quelques intérêts avec moi	<i>shares some interests with me</i>
n'aime pas les mêmes activités que moi	<i>doesn't like the same activities as me</i>
J'ai besoin	<i>I need</i>
d'amis dans le monde réel	<i>friends in the real world</i>
de groupes d'amis séparés	<i>separate groups of friends</i>
de beaucoup d'amis en ligne	<i>lots of friends online</i>
quand je suis triste,	<i>when I'm sad</i>
mon meilleur ami	<i>my best friend</i>
écoute mes problèmes	<i>listens to my problems</i>
offre de l'aide	<i>offers help</i>
me fait rire	<i>makes me laugh</i>
c'est agaçant quand mes amis	<i>it's annoying when my friends</i>
ne sont pas là pour moi	<i>are not there for me</i>
sont en colère	<i>are angry</i>
sont trop sérieux	<i>are too serious</i>

Adjectives must agree with the person or noun they are describing. Most adjectives work like this:

masculine	feminine	masc plural	fem plural
-	add <b>-e</b>	add <b>-s</b>	add <b>-es</b>
patient	patient <b>e</b>	patient <b>s</b>	patient <b>es</b>

Some adjectives follow different patterns:  
*stupide/stupide*                      *actif/active*  
*travaille**ur**/travaille**use***        *gentil/gentille*

Others are irregular:

*vieux/vieille*                            *beau/belle*

Some adjectives, such as **sympa**, never change.

A **direct object pronoun** replaces a noun that is the object in a sentence. It comes directly before the verb.

masculine ('he'/'it')	<b>le</b>	Je suis Yannis. → Je <b>le</b> suis. I follow Yannis. → I follow <b>him</b> .
feminine ('she'/'it')	<b>la</b>	Je suis Léna. → Je <b>la</b> suis. I follow Léna. → I follow <b>her</b> .
plural ('them')	<b>les</b>	Je suis Aïssa et Magaajyia. → Je <b>les</b> suis. I follow Aïssa and Magaajyia. → I follow <b>them</b> .

In front of a verb that begins with a vowel, **le** and **la** change to **l'**.

Famille, amour, gâteau – Family, love, cake	
normalement, qu'est-ce que tu fais pour fêter ton anniversaire?	<i>what do you normally do to celebrate your birthday?</i>
l'année dernière, comment est-ce que tu as fêté ton anniversaire?	<i>last year, how did you celebrate your birthday?</i>
l'année prochaine, qu'est-ce que tu vas faire?	<i>next year, what are you going to do?</i>
on fête/a fêté/va fêter (fêter)	<i>we celebrate/celebrated/are going to celebrate (to celebrate)</i>
la naissance de	<i>the birth of</i>
l'anniversaire de (mon frère)	<i>my (brother's) birthday</i>
avec toute la famille	<i>with the whole family</i>
on va/est allés/va aller..	<i>we go/went/are going to go</i>
chez mon voisin/lui/nous/eux	<i>to my neighbour's/his/our/their house</i>
on mange/a mangé/va manger	<i>we eat/ate/are going to eat</i>
un grand repas	<i>a big meal</i>
un gâteau	<i>a cake</i>
je reçois/j'ai reçu/je vais recevoir	<i>I receive/received/am going to receive</i>
des cartes	<i>cards</i>
beaucoup de cadeaux	<i>lots of presents</i>
j'ai invité mes amis	<i>I have invited my friends</i>
j'ai préparé des plats	<i>I have prepared the food</i>
j'ai loué un restaurant	<i>hired a restaurant</i>
la semaine prochaine/samedi prochain, je vais...	<i>next week/next Saturday I'm going to</i>
porter des vêtements spéciaux	<i>wear special clothes</i>
prendre des photos	<i>take photos</i>



### 3.5 The Megacity of Mumbai is growing rapidly.

Mumbai grew substantially between 1888 and 2015. Today, Mumbai is experiencing **hyper-urbanisation** – about 1000 new migrants arrive every day. Mumbai has grown for two reasons:

- Natural increase** – The birth rate (20.1 per 1000) in Mumbai is higher than the death rate (6.0 per 1000). There is therefore a large natural increase in Mumbai of 14.1 per 1,000.
- Rural-urban migration** – The boom in Mumbai's population growth from the 1970s onwards was fuelled by rural-urban migration from the region around Mumbai
- Investment** has grown, increasing the amount of jobs rapidly. Investment has been greatest in...
  - Services (e.g. banking, finance, IT and call centres)
  - Manufacturing (textiles, food processing and engineering).
  - Construction (housing, factories and offices).
  - Entertainment and leisure (Bollywood, hotels and restaurants).

- Population growth has created new **suburbs**, such as **Navi Mumbai**, caused by the migration of the middle classes from the city.
- Informal settlements** continue to sprawl as new migrants arrive. Here population density is very high but they are close to where people can work and accommodation is very cheap. Often, informal settlements can be right next to expensive accommodation.
- Rapid growth is putting pressure on land therefore **prices are rising**. Some industries are moving out as a result.

### 3.6 Rapid population growth creates opportunities and challenges for people living in Mumbai.

- Urban growth has improved healthcare access, with major hospitals expanding.
- Free, compulsory education has raised literacy rates to 89.7%, even in informal settlements.
- World-class universities provide advanced education opportunities.
- Informal settlements are gaining access to water, but sanitation remains a challenge.
- Projects are improving sanitation, with more community toilet blocks built.
- Initiatives are expanding safe electricity connections to informal settlements.
- Mumbai's financial status drives economic growth, creating jobs in various sectors.

Challenges facing Mumbai include:

- not enough income from **tax** to improve infrastructure as a result of a large informal economy within informal settlements.
- a weak **local government**
- housing shortages** and informal settlement development as a result of rapid population growth
  - Chawls are a popular form of housing in Mumbai. These are overcrowded blocks of one small room.
  - Dharavi is Mumbai's and India's biggest informal settlement, with a population of approximately 1.2 million people crowded into one square mile.
- water pollution** from untreated industrial waste and sewage
- air pollution** and traffic **congestion**
- 90% travel by **rail** rather than by car, which has put a huge strain on the railway system as every day around 8 million people travel on suburban lines.

### 3.7 Quality of life in Mumbai can be improved by different strategies for achieving sustainability.

In 1987, the UN defined sustainability as *'development that meets the needs of the present without compromising the ability of future generations to meet their own needs.'*

**Top-down development** – **'Vision Mumbai'** is a plan to improve the city and quality of life by providing **cheap housing, restoring 'green' spaces, building toilets, and improving the rail system.**

Advantages:

- new flats** have replaced 45,000 informal settlements with piped water and sewage
- 300 extra public **toilets**
- In 2020, 350 new trains were added to Mumbai's rail network.

Disadvantages:

- apartment blocks have **split up communities**
- rents costs are **unaffordable**
- small workshops (recycling industry) have had to **move**
- water quality is worsening because of **sewage discharge**

**Bottom-up development** – LSS health charity was set up to control **leprosy** in Dharavi. It delivers education about health and carries out health-related and community work.

Advantages:

- 28 000** people have been treated in the last 30 years
- educates communities** about the importance of boiling water and waste disposal.
- Screened 2300 patients at its mobile health clinic for symptoms of Covid-19.

Disadvantage:

- can't reach everyone and relies on **charity funding**.

Half-term 6

Meine Welt, deine Welt

Familienmitglieder – family members	
<b>In meiner Familie gibt es ... (+acc)</b>	<i>In my family, there is/are ...</i>
<b>Das ist ... / Das sind ...</b>	<i>This is/are ...</i>
<b>die Geschwister</b>	<i>siblings</i>
<b>der Bruder (die Brüder)</b>	<i>brother(s)</i>
<b>die Schwester(n)</b>	<i>sister(s)</i>
<b>der Stief(bruder)</b>	<i>step(brother)</i>
<b>die Halb(schwester)</b>	<i>half(sister)</i>
<b>der Zwilling</b>	<i>twin</i>
<b>die Eltern</b>	<i>parents</i>
<b>der Vater (die Väter)</b>	<i>father(s)</i>
<b>die Mutter (die Mütter)</b>	<i>mother(s)</i>
<b>die Großeltern</b>	<i>grandparents</i>
<b>die Großmutter</b>	<i>grandmother</i>
<b>der Großvater</b>	<i>grandfather</i>
<b>die Verwandten</b>	<i>relatives</i>
<b>die Tante/der Onkel</b>	<i>aunt/uncle</i>
<b>der Sohn/die Tochter</b>	<i>son/daughter</i>
<b>die Frau</b>	<i>woman, wife</i>
<b>der Mann</b>	<i>man, husband</i>

Beschreibungen - descriptions	
<b>Er/Sie hat/ Sie haben</b>	<i>He/She has/ They have</i>
<b>lange/kurze Haare</b>	<i>long/short hair</i>
<b>braune/blonde/rote schwarze/weiße Haare</b>	<i>brown/blond/red/black/white hair</i>
<b>blaue/grüne/graue Augen</b>	<i>blue/green/grey eyes</i>
<b>Er/Sie ist/Sie sind</b>	<i>He/She is/They are</i>
<b>klein/groß</b>	<i>small/tall</i>
<b>ab und zu</b>	<i>now and then</i>
<b>manchmal/oft</b>	<i>sometimes/often</i>
<b>immer/nie</b>	<i>always/never</i>
<b>sehr/total/ganz</b>	<i>very/totally/fully</i>
<b>ziemlich/nicht</b>	<i>quite/not</i>
<b>lustig/glücklich</b>	<i>funny/happy</i>
<b>nett/freundlich</b>	<i>nice/friendly</i>
<b>böse/traurig/süß</b>	<i>grumpy/sad/sweet</i>
<b>locker/modern</b>	<i>casual/modern</i>
<b>typisch</b>	<i>typical</i>
<b>anders/ unterschiedlich</b>	<i>different/diverse</i>
<b>zusammen</b>	<i>together</i>

Beziehungen – relationships	
<b>Ich habe eine gute Beziehung zu ... (+dat)</b>	<i>I have a good relationship with</i>
<b>Ich verstehe mich (gut) mit (+dat)</b>	<i>I get on (well) with</i>
<b>ihm/ihr/ihnen (dative case)</b>	<i>him/her/them</i>
<b>ein bisschen</b>	<i>a little</i>
<b>so/wirklich/zu</b>	<i>so/really/too</i>
<b>laut/gestresst</b>	<i>loud/stressed</i>
<b>ernst/streng</b>	<i>serious/strict</i>
<b>fleißig/faul</b>	<i>hardworking/lazy</i>
<b>aktiv/sportlich</b>	<i>active/sporty</i>
<b>unabhängig/ehrlich</b>	<i>independent/honest</i>
<b>komisch</b>	<i>funny/strange</i>
<b>der Freund/die Freundin</b>	<i>friend</i>
<b>das Kind (die Kinder)</b>	<i>child(ren)</i>
<b>das Mädchen/ der Junge</b>	<i>girl/boy</i>
<b>die Leute/die Jugendlichen</b>	<i>people/young people</i>

VOCAB German Year 9

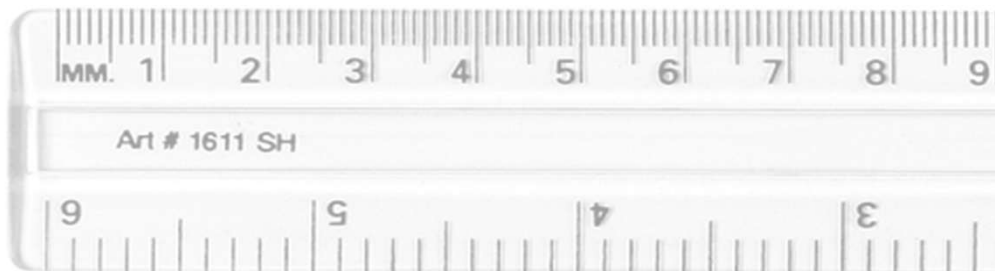
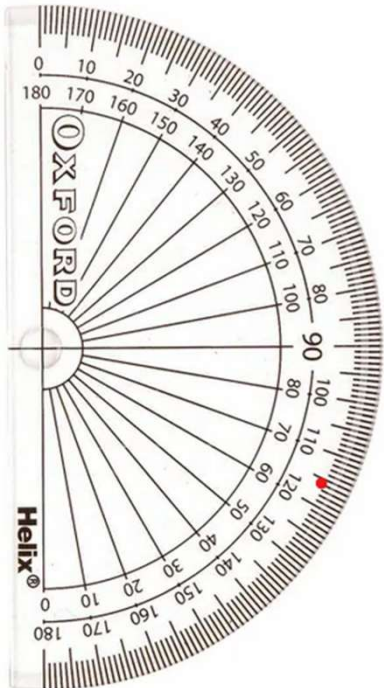
Familienmitglieder – family members	
<b>Mein (Bruder), der ... heißt</b>	<i>My (brother) who is called</i>
<b>Mein (Bruder), der immer böse ist</b>	<i>My (brother) who is always grumpy</i>
<b>Meine (Schwester), die ... heißt</b>	<i>My (sister) who is called</i>
<b>Mein (Kaninchen), das ... heißt</b>	<i>My (rabbit) who is called</i>
<b>Meine (Fische), die ... heißen</b>	<i>My (fishes) who are called</i>
<b>Meine (Eltern) die nie geheiratet haben</b>	<i>My parents, who have never married</i>
<b>Er/Sie trägt (k)eine Brille</b>	<i>He/she (doesn't) wear glasses.</i>

Zeitangaben – Time phrases	
<b>normalerweise</b>	<i>usually</i>
<b>am Wochenende</b>	<i>on the weekend</i>
<b>nächstes Wochenende</b>	<i>next weekend</i>
<b>letztes Wochenende</b>	<i>last weekend</i>
<b>jede/diese Woche</b>	<i>every/this week</i>
<b>nächste/letzte Woche</b>	<i>next/last week</i>
<b>jeden/diesen Monat</b>	<i>every/this month</i>
<b>nächstes/letztes Jahr</b>	<i>next/last year</i>
<b>am Tag</b>	<i>on/during the day</i>
<b>neulich/vor kurzem</b>	<i>recently</i>
<b>morgen/gestern</b>	<i>tomorrow/ yesterday</i>
<b>danach</b>	<i>afterwards</i>

Partyzeit! – Party time	
<b>der Anfang</b>	<i>start, beginning</i>
<b>der Kuchen</b>	<i>cake</i>
<b>die Ferien</b>	<i>holidays</i>
<b>der Spaß</b>	<i>fun</i>
<b>Normalerweise feiere ich</b>	<i>Normally, I celebrate</i>
<b>Letztes Jahr haben wir ... gefeiert</b>	<i>Last year, we celebrated</i>
<b>Nächstes Jahr werde ich ... feiern</b>	<i>Next year, I will celebrate</i>
<b>Ich finde/Meiner Meinung nach</b>	<i>I find/in my opinion</i>
<b>das gefällt mir (nicht) gut</b>	<i>I (don't) like it</i>
<b>es macht mir (keinen) Spaß</b>	<i>It's (not) fun for me</i>
<b>es gibt (zu) viele/eine Menge Leute</b>	<i>There are (too) many/a lot of people</i>



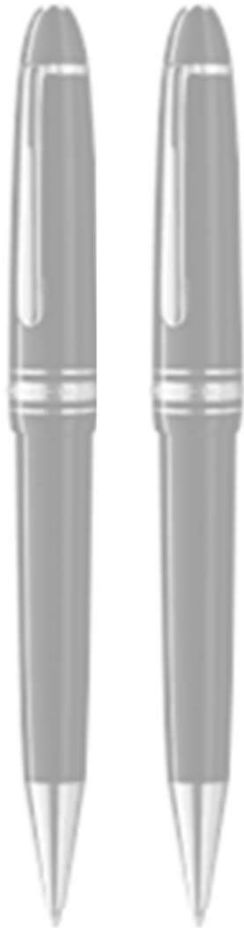
# Equipment



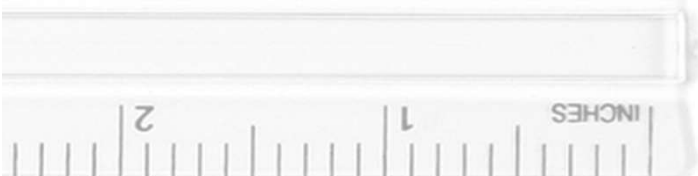
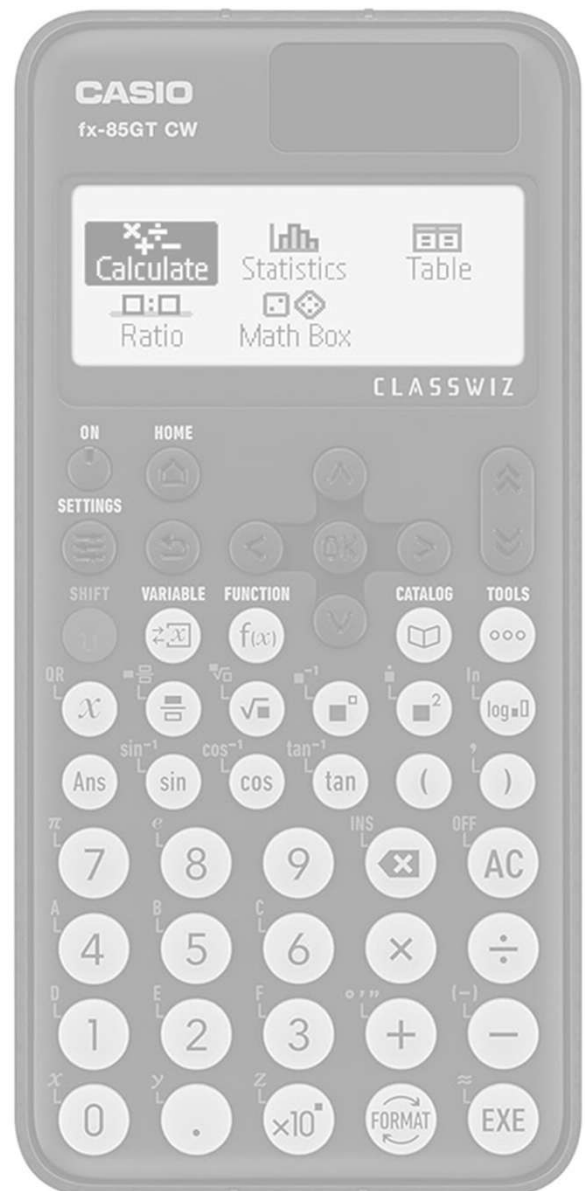
# Check



- ID card
- Green and purple pens
- Whiteboard pens
- Black/blue pens
- Glue stick
- Pencil
- Ruler
- Calculator
- Whiteboard rubber



Whiteboard  
Rubber





Half-term 6

Meine Welt, deine Welt

VOCAB German Year 9

Was wirst du am Wochenende machen? What will you do at the weekend?	
Ich werde/Er wird ...	I will/He will ...
Rad fahren	cycle
ins Freibad gehen	go to the outdoor pool
soziale Netzwerke surfen	browse social networks
Hausaufgaben machen	do homework
in die Kirche gehen	go to church
Zeit mit Familie/Freunden verbringen	spend time with family/friends
grillen	have a BBQ
Musik hören	listen to music
einen Film gucken	watch a film
fernsehen	watch tv
bestimmt	surely
wahrscheinlich	probably
vielleicht	maybe
<p>The future tense is formed by using the correct part of “werden” with an infinitive at the end. NB The future tense translates to I will play or I am going to play</p>	
<p>To talk about actions in the past use the perfect tense. You need a form of haben or sein (for movement verbs) plus a past participle (ge+verb stem+t)</p>	
<p>Ich habe/er, sie, es hat/ wir haben: gelacht/getanzt/ gehabt/gefeiert/ kennengelernt/ Ich habe Spaß gehabt.</p> <p>some past participles are irregular</p> <p>gegessen/getrunken/ gesehen/gesungen/ besucht/organisiert/ stattgefunden</p>	<p>I/he, she, it/ we (have) laughed/danced/ had/celebrated/ got to know I had fun.</p> <p>ate/drank/ saw/ sang/ visited/organised/ took place</p>
Ich bin/er, sie ist/wir sind	I/he, she/we travelled/went
gefahren/gegangen	

Nützliche Verben – useful verbs	
sich interessieren für	to be interested in
essen/trinken	to eat/to drink
feiern/singen	to celebrate/to sing
tanzen/lachen	to dance/to laugh
organisieren/planen	to organise/to plan
stattfinden	to take place
akzeptieren/respektieren	to accept/to respect
erleben	to experience
sich verstehen mit + dative	to get on with

Picture description	
Im Bild/Im Foto	On the photo
Ich/Man kann ... sehen	I can see/You can see
Im Bild gibt es	In the picture there is
Auf der linken/rechten Seite	On the left/on the right
Im Hintergrund (V2)	In the background
Im Vordergrund (V2)	In the foreground
Sie spielen, essen, tragen	They are playing, eating, wearing
Use present tense to say what people are doing “NO IS-ING” “AM-ING” OR “ARE-ING”	

Three key verbs are often used in the imperfect to DESCRIBE things in the past	
Ich/es war	I/it was
Ich/es hatte	I/it had
Es gab	There was
<p>Es war spitze/klasse! - It was amazing. Ich war fix und fertig! – I was exhausted. Sie hatte nicht alle Tassen im Schrank. – She was crazy.</p>	
Some opinion phrases are also often used in the imperfect	
Ich fand es ...	I found it
Es gefiel mir	I liked it
Ich mochte/ich hasste	I liked/I hated

Wir haben gefeiert – We celebrated	
Hast du neulich ein Fest besucht?	Have you recently visited a festival?
Wann hat es stattgefunden?	When did it take place?
Mit wem bist du gegangen?	Who did you go with?
Was hast du gemacht?	What did you do?
Was hast du gesehen?	What did you see?
Wie war es?	How was it?
eine Party/eine Feier/ ein Fest	a party/a celebration/ a festival
zu Hause/in der Stadt	at home/in town
mit Freunden/mit meiner Familie	with friends/with my family
mit dem Bus/mit dem Zug/ zu Fuß	by bus/by train/on foot
ins Kino/nach Berlin	to the cinema/to Berlin
an Neujahr/an Silvester	on New Year’s Day/on New Year’s Eve
zum Geburtstag/ zu Weihnachten	on my birthday/ on Christmas

Ein gutes Vorbild – A good role model.	
Er/sie ist ein gutes Vorbild, weil .....	He/she is a good role model because
der Unterschied	the difference
der Rassismus/Sexismus	racism/sexism
der Politiker	politician
die Homophobie/ die Transphobie	homophobia/ transphobia
die Diskriminierung/ das Mobbing	discrimination/bullying
die Minderheit	minority
die Ausbildung	training/education
die Arbeitslosigkeit	unemployment
die Gesellschaft	society
das Gesicht	face
kämpfen/unterstützen	to fight/support
nicht binär	non-binary
rassistisch/ausländisch	racist/foreign
schwul/lesbisch	gay/lesbian
sich wohlfühlen	to be comfortable

Keyword	The Big Issue	Tick
<b>Protest</b>	A protest is a public expression of objection, disapproval or dissent towards an idea or action, typically a political one	
<b>Dichotomy</b>	is a contrast between two things. When there are two ideas, especially two opposed ideas - like <b>war and peace, or love and hate</b> -you have a dichotomy.	
<b>Boycott</b>	the act of voluntarily abstaining from using, buying, or dealing with a person, organization, or country as a form of protest, usually for moral, social, or political reasons	
<b>Placard</b>	a portable sign, poster, or notice designed for public display, often carried during demonstrations or affixed to vehicles/buildings to convey information, warnings, or slogans	

Keyword	Printing	Tick
<b>Printing</b>	a method for transferring text or images from a master template (plate, screen, or block) onto a surface (paper, fabric, metal) by applying ink, usually under pressure	
<b>Lino cut</b>	a popular relief printmaking technique where designs are carved into linoleum sheets using sharp gouges, then inked with a roller (brayer) and pressed onto paper or fabric	

Keyword	Colour theory - read, cover, write, review	Tick
<b>Monochrome</b>	Monochrome is used to describe design or photographs in one colour or different shades of the single colour. An image created in black and white or in varying tones of only one colour.	
<b>Analogous/ Harmonious</b>	Colours are called analogous colours when they are very similar to each other, especially when they are next to each other on a colour wheel. For example, red, red-orange, and orange are analogous colours.	
<b>Complementary</b>	Colours that are opposite each other on the colour wheel are considered to be complementary colours (example: red and green, example Christmas).	
<b>Gradient</b>	A gradient is a gradual change of colours (such as green turning gradually into blue) or a colour fading into transparency. There are two common types of gradients: radial and linear.	
<b>Opacity</b>	Opacity enables us to make an element of a design transparent. The lower the opacity, the more transparent an element is. For example, 100% opacity means an object is solid.	

The coursework component of the AQA GCSE Art and Design Graphic Communication is worth 60% of the final mark. The final 40% is the exam in year 11. There are four assessment objectives (A0's)

The diagram illustrates the four assessment objectives (A01-A04) for AQA GCSE Art and Design Graphic Communication, each with associated tasks and skills:

- A01 EXPLORE:** DEVELOP, DEVELOP IDEAS, INVESTIGATE & RESEARCH OTHER ARTISTS WORK, ANALYSE, ANNOTATE
- A02 REVIEW:** REFINE, EXPERIMENT, EXPLORE DIFFERENT IDEAS AND MEDIA, A RANGE OF TECHNIQUES & PROCESSES, SELECT, IMPROVE
- A03 EVIDENCE:** RECORD, PRESENT IDEAS, PRIMARY OBSERVATION, DRAWING, PAINTING, PRINTING, WRITING, PHOTOGRAPHY, ANNOTATE, DIFFERENT MEDIA
- A04 OUTCOME:** PRESENT, FINAL IDEAS, DEVELOPED AS PLANNED, CLEARLY RESPONDS TO ARTISTS EXPLORED, CONNECTION, CONCLUSION

**Timeline of key events:**

**1949-61:** 4m East Germans fled West

**1949:** First 'A' Bomb made in USSR  
1949: NATO created

**1953:** USA & USSR had 'H' bombs

**1955:** Warsaw Pact established

**1957:** Soviets launched Sputnik  
1957: Creation of EEC

**1958:** Khrushchev's Berlin Ultimatum

**1959:** Cuban Revolution: Fidel Castro replaced US - backed General Batista

**Late 1959:** Khrushchev sending weapons to Cuba

**5<sup>th</sup> May 1960:** American U2 spy plane shot down over USSR airspace

**14<sup>th</sup> May 1960:** date for Paris summit meeting (that was cancelled by Khrushchev)

**Jan 1961:** up to 20,000 refugees going through East Berlin to the West

**April 1961:** Bay of Pigs failed invasion

**June 1961:** Vienna summit meeting

**July 1961:** both US and USSR announce an increase in defence spending

**13<sup>th</sup> August:** Khrushchev closed the border between East and West Berlin

**October 1961:** Stand-off at Checkpoint Charlie in Berlin

**14 – 28<sup>th</sup> October 1962:** 13 days of the Cuban Missile Crisis

**June 1963:** Kennedy visits Berlin

**1963:** Hot Line set up

**August 1963:** Limited Test Ban Treaty

**1968:** Outer Space Treaty and Nuclear non - Proliferation Treaty signed

Key terms/definitions		
Term	Definition	✓
<b>AVH</b>	Secret police that operated in Hungary; used to frighten government opponents & critics	✓
<b>Berlin Ultimatum</b>	Khrushchev's accusation that the Allies had broken the Potsdam Agreement of 1945	
<b>Blockade</b>	A naval quarantine around Cuba to prevent soviet ships delivering military materials	
<b>Boundary</b>	The dividing line in East Berlin marking where the barrier was created to encircle West Berlin from East Berlin and the GDR, where the Berlin Wall was then built.	
<b>Brain-drain</b>	The term to describe the large numbers of professional and skilled people leaving through East Berlin for a new life in the West	
<b>Brinkmanship</b>	A term used to describe pursuing a dangerous policy to the limits of safety; associated with the 13 days of the Cuban Missile Crisis	
<b>Checkpoint Charlie</b>	The best-known Berlin Wall crossing point between East Berlin and West Berlin. The scene of a famous stand-off between the superpowers.	
<b>CIA</b>	Central Intelligence Agency: used by USA to gather/analyse intelligence for national security	
<b>Cuban exiles</b>	Pro-American Cubans who fled to the USA after the Cuban Revolution; 'La Brigada 2506'	
<b>Cuban Revolution</b>	The overthrow of General Batista by Fidel Castro	
<b>De-Stalinisation</b>	The elimination of the influence of Stalin, led by Nikita Khrushchev after the death of Stalin	
<b>Defectors</b>	A person who abandons their country for another country with an opposing ideology	
<b>Defence spending</b>	The amount both the USA and the USSR were spending on military hardware	
<b>Detente</b>	A French term meaning a 'relaxation of tension' between the USA and the USSR	
<b>EEC</b>	The European Economic Community: aimed to foster economic integration & created in 1957	
<b>Espionage</b>	Spying on each other: a main feature of the Cold War, increasing rivalry and mistrust	
<b>H Bomb</b>	Hydrogen bomb; type of nuclear weapon of enormous destructive power	
<b>Hot Line</b>	A direct line of communication set up between Washington and Moscow	
<b>Jupiter missiles</b>	US nuclear warheads stationed in Italy and Turkey as a forward strike capability	
<b>NATO</b>	North Atlantic Treaty Organisation formed to provide 'collective security' against the USSR	
<b>Non-Proliferation Treaty</b>	Signed by major nuclear and non-nuclear powers pledging their cooperation to stop the spread of nuclear weapons and to stop developing them	
<b>Polaris Submarine</b>	Submarines armed with up to 16 Polaris A-3 nuclear missiles	
<b>Outer-Space Treaty</b>	A promise made by the superpowers and also Britain, to use outer space for peaceful purposes and not place nuclear weapons in orbit	
<b>Peaceful co-existence</b>	A belief originating from Khrushchev that despite ideological differences the superpowers could exist peacefully together	
<b>Potsdam 1945</b>	The last wartime conference led by Truman, Attlee and Stalin in July 1945	
<b>Sputnik</b>	A satellite that could orbit the earth in 90 mins; launched by USSR in 1957	
<b>Thermonuclear</b>	A military conflict deploying nuclear weapons, likely to lead to MAD	
<b>Warsaw Pact</b>	A military treaty including the USSR and the European satellite states	

Keyword	Definition
Plan	The view from above a solid
Front elevation	The view of the front of the solid.
Side elevation	The view of the side of the solid.
Transformation	Process that moves a shape to a different position or changes its size. Reflections, rotations, translations and enlargements are types of transformation
Image	The resulting shape after an object is transformed
Enlargement	A transformation where all the side lengths of a shape are multiplied by the same scale factor.
Resultant vector	The vector that moves the original shape to its final position after a series of translations or other transformations that do not change the shape or orientation.
Invariant point	An invariant point on a line or a shape is a point that does not vary (move) under a single or combined transformations
Bearing	An angle in degrees, clockwise from north and always written using three digits, e.g. 090 or 127
Construct	To draw accurately using a ruler and compasses
Perpendicular bisector	A line that cuts another line in half at right angles.
Equidistant	'at equal distance'.
Angle bisector	A line that cuts an angle exactly in half.
Locus	The set of all points that obey a certain rule. Often the locus is a continuous path

**To fully describe a single transformation**

- involving reflection, you must state it is a reflection and give the equation of the line of reflection
  - involving a rotation, you must state it is a rotation and give the angle, direction and centre of rotation (no direction is needed for a rotation of 180°)
  - involving an enlargement, you must state it is an enlargement and give the scale factor and the coordinates of the centre of enlargement.
  - Involving translation, you must state it is a translation and give the translation vector
- Only name one transformation when describing a single transformation.

- To find the centre of rotation, join corresponding vertices of the object and its image, and then construct perpendicular bisectors. Where they intersect will be the centre of rotation.

- To find the centre of enlargement, join corresponding points of the object and the image, extend and see where the lines cross.
- A negative scale factor takes the image to the opposite side of the centre of enlargement and also rotates the shape by 180°
- When a shape is enlarged the area increases by  $(scale\ factor)^2$

- In a translation, all the points on the shape move the same distance in the same direction.
- You can describe a translation by using a column vector.
- The top number gives the movement parallel to the x-axis.
- The bottom number gives the movement parallel to the y-axis.

- In reflections, rotations and translations, the object and the image are congruent, as the lengths of the sides and the angles do not change.
- In an enlargement, the object and the image are similar.

- The shortest path from a point to a line is perpendicular to the line
- A circle is the locus of a point that moves so that it is always a fixed distance from a fixed point.
- Points equidistant from two points lie on the perpendicular bisector of the line joining the two points.
- Points equidistant from two lines lie on the angle bisector.



**Background**

Stadium Rock - rock music intended for larger venues

Glam Rock— style of rock known for its over the top and glamorous dress sense

Anthem—song with a strong memorable melody with rousing and uplifting characteristics.

**Rhythm**

Compound metre—a metre in which the beat subdivides into three

Swing rhythm—often in jazz—rhythm where the first of a pair of quavers is played longer than the second.

**Texture**

Homophonic a texture comprising of a melody and an accompaniment

Vamp—a short repeated accompanying phrase

**Structure**

Intro—opening section of the song before the main parts

Verse—section in which the lyrics change but the music remains broadly the same each time it is heard

Chorus—section in which the lyrics and the music remains the same. Often catchy and memorable, with a lift in mood from the verse. Alternates with the verse

Solo—an extended often improvised melodic line played by an instrument. Usually in the middle of the song.

Outro—final ending section, like a coda in classical music

**Melody**

Word Painting—making the music sound like the meaning of the words

Syllabic—when lyrics are sung with one note per syllable

Tessitura—the range of the instrument/ voice in which the melody is set

**Instrumentation**

Distortion—an effect that increases the volume and sustain on an electric guitar, making the timbre more gritty or smoother, depending on settings

Effects—electronic devices used to enhance or alter the basic quality of the sound

EQ stands for equalization, a production technique that adjusts the volume of specific frequencies in a sound

Flanger—and effect with a swirling sound

Hi Hat—pair of cymbals mounted on a stand so that they can be struck together using a foot pedal

Kick drum or bass drum—biggest drum on a kit, played with a foot pedal

Mix—the relative volume of different tracks in a recording and their place in the stereo field.

Multitracking – separate recordings are made of each sound source and then mixed to give a final recording

Panning - giving sounds different levels in the left and right speakers to give the impression they are coming from different places.

Overdubbing—recording a part over previously recorded music

Pull Offs—when a note is sounded on the guitar by pulling the finger off the fret to alter the note.

Makes the pitch lower

Ride—type of cymbal which often has a counter-rhythm to the main beat

Snare - a drum with a series of loose metal wires in contact with the lower skin giving a distinctive buzz or rattle to the sound

Snare roll—a rapid succession of notes on the snare

Stereo Field—how the sounds are positioned in the left and right speakers

Vibrato—technique used to cause rapid variations in the pitch of a note.

**Harmony**

Added notes—notes that are added to the basic triad

Circle of 5ths – chords with their root a 5<sup>th</sup> apart



This QR code will take you to a Spotify playlist with audio examples of many of the concepts covered on this sheet and in lessons. You will find it helpful to listen to these as you learn.

## Characteristics of a successful entrepreneur

### 1. Curiosity

*The drive to continuously ask questions and challenge the status quo.*

### 2. Willingness to Experiment

### 3. Adaptability

*The ability to evaluate situations and remain flexible to ensure success, no matter what unexpected changes occur.*

### 4. Decisiveness

*To be successful, an entrepreneur has to make difficult decisions and stand by them.*

### 5. Self-Awareness

*An awareness of one's own strengths and weaknesses.*

### 6. Risk Tolerance

*Successful entrepreneurs are comfortable with some level of risk to reap the rewards of their efforts.*

### 7. Comfort with Failure

*Entrepreneurs must prepare themselves for, and be comfortable with, failure.*

### 8. Persistence

*Entrepreneurs see failure as an opportunity to learn and grow.*

### 9. Innovative Thinking

*Innovation often goes hand-in-hand with entrepreneurship.*

### 10. Long-Term Focus

*Entrepreneurship is a long-term endeavour, and entrepreneurs must focus on the process from beginning to end to ensure long-term success.*

## Relationship advice:

- **Be respectful** at all times
- **Communicate clearly**, share your thoughts and seek the thoughts of others without judgement
- **Safety**, keep each other safe
- **Consent**, it is the person seeking consent who is responsible for ensuring that these conditions are met. Ask, do not assume.

**Remember - the law is there to protect young people.** Naked images of under 18s are illegal, but you will not be in trouble with the police if someone has made you share an image of yourself. The law was created to protect young people, not get them into trouble. NOTE: You will be in trouble if you share naked images of others who are under 18; with or without their consent.

## Useful websites:

<https://www.childline.org.uk/> 0800 1111




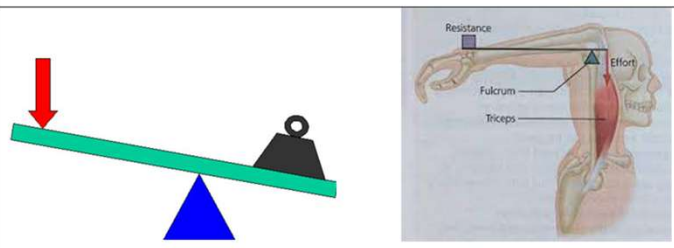
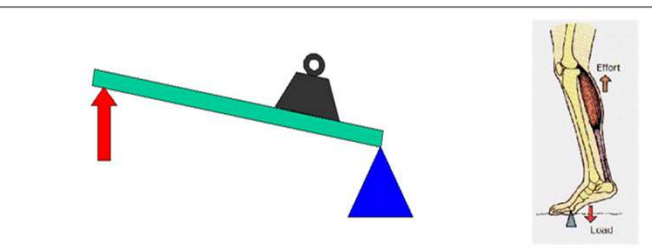
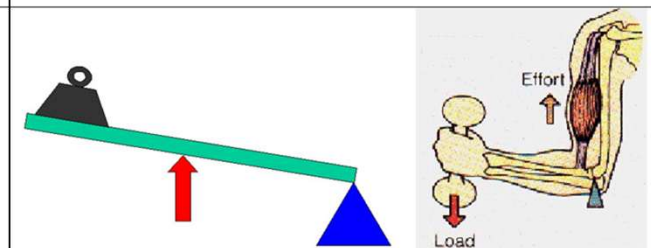
Brook: [www.brook.org.uk/help-advice](http://www.brook.org.uk/help-advice)

For advice on where to get help after a sexual assault,


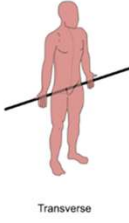
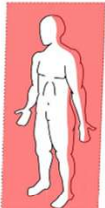
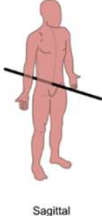
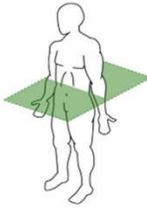

[www.nhs.uk/live-well/sexual-health/help-after-rape-and-sexual-assault](http://www.nhs.uk/live-well/sexual-health/help-after-rape-and-sexual-assault)

You can contact Victim Support if you feel you, or someone you know, may have been a victim of a sexual offence: [www.victimsupport.org.uk](http://www.victimsupport.org.uk)

**3.1.2.1 Lever systems, examples of their use in activity and the mechanical advantage they provide in movement KO 1 of 2**

<b>Classification of Levers</b>		
Movement in the body occurs through the application of levers – to cause movement at a joint (fulcrum) the muscle (effort) pulls on a bone (load). LCWC, SPA		
<p>Fulcrum: The joint where the lever arm pivots. It's shown as a triangle.</p> 	<p>Load: The resistance against the pull of the muscles on the lever arm e.g. your body weight and/or something being lifted. A square is used to represent the load.</p> 	<p>Effort: The force applied by the muscles to the lever arm. Shown by an arrow pointing in the direction of the force.</p> 
1,2,3 = FLE		We use this ditto to remember which is the middle component of the lever system!
<b>1<sup>st</sup> Class Lever System – The Fulcrum is the middle component. LCWC, SPA</b>	<b>2<sup>nd</sup> Class Lever System – The Load is the middle component. LCWC, SPA</b>	<b>3<sup>rd</sup> Class Lever System – The Effort is the middle component. LCWC, SPA</b>
1st class lever: The load and effort are at opposite ends of the lever. The fulcrum is in the middle. E.g. tricep extension during a football throw in.	2nd class lever: the fulcrum and effort are at opposite ends of the lever. The load is in the middle. E.g. standing on tiptoes for a free throw in basketball.	3rd class lever: the fulcrum and load are at opposite ends of the lever. The effort is in the middle. E.g. bicep curl, at the elbow joint.
		
<b>Mechanical Advantage of Levers</b>		
1 <sup>st</sup> class = neutral MA. Can be high or low.	2 <sup>nd</sup> class = high mechanical advantage. Short load arm allows a heavier load to be lifted.	3 <sup>rd</sup> class = low mechanical advantage. Short effort arm allows for faster movement and a large range of motion.

### 3.1.2.2 Planes and axes of movement KO 2 of 2

<b>Plane = a line drawn through the body to split it in to two parts. LCWC, TILI</b>		<b>Axis = an imaginary straight line around which the body rotates. LCWC, TILI</b>	
<p>1. Sagittal plane - through the centre and splits the body into left and right. Forwards or backwards movement.</p> <p><b>Sagittal = SOME</b></p>	 <p style="text-align: center; font-size: small;">Sagittal</p>	<p>1. Transverse axis- passes through the body from left to right at the hips. Movements in a sagittal plane (forwards and backwards) take place around a transverse axis.</p> <p><b>Transverse = TEACHERS</b></p>	 <p style="text-align: center; font-size: small;">Transverse</p>
<p>2. Frontal plane - separates the front and the back to create a front side and back side. Side to side movement.</p> <p><b>Frontal = FEAR</b></p>	 <p style="text-align: center; font-size: small;">Frontal</p>	<p>2. Sagittal axis - passes through the body from back to front, through the belly button. Movements in a frontal plane (side to side) take place around a sagittal axis.</p> <p><b>Sagittal = STUDENTS</b></p>	 <p style="text-align: center; font-size: small;">Sagittal</p>
<p>3. Transverse plane - cuts straight through the hips to divide the top of the body from the bottom. Rotational or turning movement.</p> <p><b>Transverse = TALKING</b></p>	 <p style="text-align: center; font-size: small;">Transverse</p>	<p>3. Longitudinal axis - passes vertically through the body from head to toe. Movements in a transverse plane (rotations) take place around a longitudinal axis.</p> <p><b>Longitudinal = LOUDLY</b></p>	 <p style="text-align: center; font-size: small;">Longitudinal</p>
<p>Planes and axis are always paired together – as shown above. We remember them using <b>SOME TEACHERS, FEAR STUDENTS, TALKING LOUDLY</b></p>			

Sporting Movements in each plane/axis			
Plane	Axis	Joint Movement	Sporting Example
Sagittal	Transverse	Flexion/Extension	Running/Jumping
Frontal	Sagittal	Abduction/Adduction	Star Jumps/Cartwheel
Transverse	Longitudinally	Rotation	Discus, Hammer Throw, pirouette

Keyword	Learn	✓
Scalar	A quantity with size (magnitude) only.	
Vector	A quantity with both size and direction. A vector quantity may be represented by an arrow. The length of the arrow represents the magnitude, and the direction of the arrow the direction of the vector quantity.	
Velocity	Speed in a given direction. Velocity is a vector.	
Displacement	Distance travelled in a given direction. Displacement is a vector.	
Force	A push or pull. Measured in newtons, N. Force is a vector.	
Contact force	Force exerted between two objects when they touch. E.g. friction, air resistance, tension and normal contact force.	
Non-contact force	Force exerted on objects when they are physically separated. E.g. gravity, electrostatic and magnetic forces.	
Centre of mass	The point at which the weight of the object can be taken to act. In diagrams, arrows representing the weight should start from this point.	
Resultant force	A single force that can replace multiple forces acting on an object.	
Free body diagram	Used to show the magnitude and direction of all the forces acting on the object.	
Work	When a force of 1 N pushes an object 1 m, in the direction of the applied force, then 1 J of work is done	
Elastic deformation	When an object is stretched, it returns to its original length after the forces are removed.	
Inelastic deformation	When an object is stretched, it does not return to its original length after the forces are removed.	
Extension	The difference between the stretched and unstretched lengths of a spring.	
Elastic potential energy	The energy stored in a stretched ( or compressed ) spring.	
Moment	The turning effect of a force. Measured in newton metres, Nm.	
Principle of moments	When a system is balanced the sum of the anti-clockwise moments equal the sum of the clockwise moments.	
Fluid	A liquid or a gas. It flows and can take the shape of the container.	

Quantity	Unit	Symbol
force	newton	N
mass	kilograms	kg
gravitational field strength	newtons per kilogram	N / kg
work	joule	J
extension	metre	m
spring constant	newtons per metre	N / m
elastic potential energy	joule	J
moment	newton metres	Nm
pressure	newtons per metre squared	$N/m^2$
density	kilograms per metre cubed	$kg/m^3$

**Pressure in fluids. Learn these two statements.**

The pressure in fluids causes a force normal (at right angles) to any surface.

A partially (or totally) submerged object experiences a greater pressure on the bottom surface than on the top surface. This creates a resultant force upwards. This force is called the upthrust.

**Equations**

Weight = mass x gravitational field strength  $W = m \times g$

Work done = force x distance in the direction of the force  $W = F \times s$

Force = spring constant x extension  $F = k \times e$

Elastic potential energy =  $\frac{1}{2} \times$  spring constant  $\times$  (extension)<sup>2</sup>  $E_e = \frac{1}{2} \times k \times e^2$

Moment = Force x perpendicular distance  $M = F \times d$

Pressure =  $\frac{\text{Force normal to the surface}}{\text{area of the surface}}$   $P = \frac{F}{A}$

Pressure = height x density of the liquid x gravitational field strength  $P = h \times \rho \times g$

# Topic 8 – Space Physics

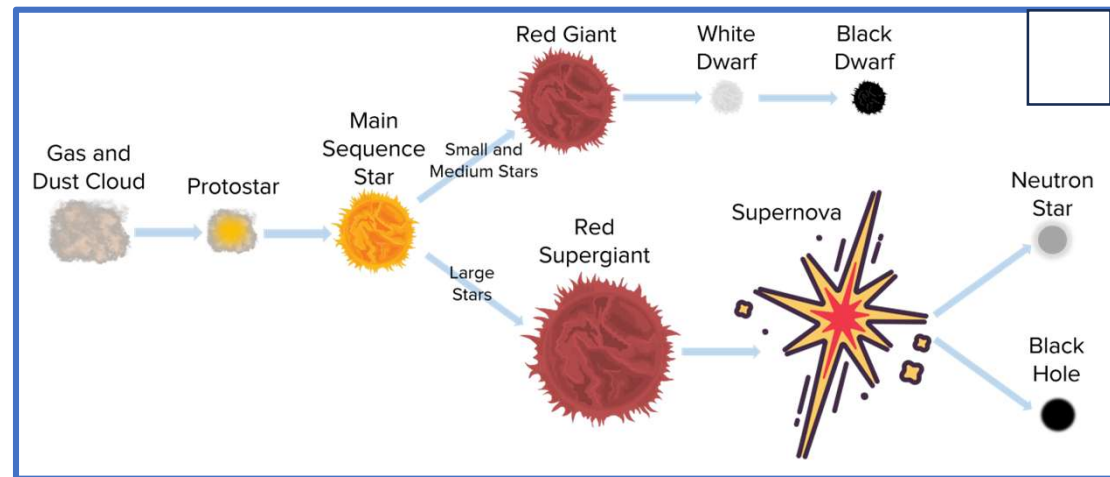
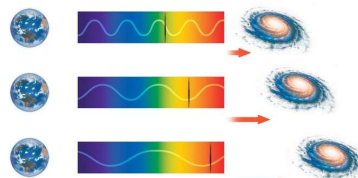
Keyword	Learn	✓
Planet	A large body which orbits a star ( like the Sun).	
Moon	A natural satellite which orbits a planet.	
Solar system	The sun, eight planets, the dwarf planets and moons. Many other stars have similar planetary systems.	
Galaxy	A large group of stars.	
Milky way	The galaxy we live in.	
Nuclear fusion	The joining of light nuclei to form a heavier nucleus. Some of the mass is converted into energy.	
Velocity	Speed in a given direction.	
Orbit	Path of an object in (near) circular motion around another object.	
Red-shift	Light is moved towards the red end of the spectrum as the wavelength increases.	
Big bang theory	Theory that suggests that the universe began from a very small region that was extremely hot and dense about 13.8 billion years ago.	

**Star life cycle terms – Learn the names in the correct order. Learn to draw the diagram.**

Nebula	Cloud of gas and dust
Protostar	Large ball of gas which contracts to form a star
Main sequence	Releases energy by fusing hydrogen to form helium Forces are balanced; gravitational collapse balanced by expansion due to fusion energy
Red giant	A very large star which fuses helium into heavier elements
White dwarf	Collapsed red giant. Fusion stops and the star slowly cools
Supernova	Gigantic explosion caused by runaway fusion reactions in a very large star. Elements heavier than iron are produced here
Neutron star	Very dense small star made out of neutrons
Black hole	The most concentrated state of matter, from which even light cannot escape

## Red-shift and the Big Bang theory

- Red shift is the observed increase in the wavelength of light due to the object moving away.
- The quicker the object moves away the greater the increase in wavelength.
- Galaxies further away are more red-shifted.
- This is evidence that the universe is expanding and supports the Big Bang theory.
- New evidence requires scientists to develop different theories.
- Since 1998, observations of supernovae suggest that distant galaxies are receding ever faster.
- New evidence has led to new theories about Dark Mass and Dark Energy.



## Equations

orbital distance =  $2 \times \pi \times$  orbital radius       $s = 2 \times \pi \times r$

average speed =  $\frac{\text{distance}}{\text{time}}$        $v = \frac{s}{t}$

**Key words: Islam**

- Tawhid:** Oneness in reference to God.
- Prophethood or Risalah;** Terms used for messengers of God. Begins with Adam and ends with the Prophet Muhammad.
- Halal:** Permitted within Islam for example eating permitted foods.
- Haram:** Forbidden actions or things. Eating forbidden foods.
- Jihad:** Means 'to strive'. Two forms of daily inner struggle and lesser physical struggle or just war.
- Mosque or Masjid:** 'Place of prostration'. It is a communal place of worship.
- Shari'ah:** Straight path. Muslims believe God has set out a clear path for how Muslims should live.
- Ummah:** Means community and refers to worldwide community of Muslims who share a religious identity.

**Muhammad:**

- Muhammad received the final revelation of Islam from God.
- Known as the last and greatest prophet.
- Religious from an early age and would go into the mountains to a cave to pray and meditate.
- In 610CE on Mount Hira received his first revelation from God through the angel Jibril.
- For more than 20 years received further revelations, which were combined to make the Qur'an.
- 3 years after the first revelation began preaching the words he received and continued to do it for the rest of his life.
- He challenged the people of Makkah to give up their sinful ways (cheating, drinking, gambling, and idol worshipping).
- Was persecuted by the leaders of Makkah and so fled from the city in 622CE. This is known as the Hijrah (departure) and marks the beginning of the Ummah (worldwide community).
- Before the departure Muhammad was taken on an amazing experience where Jibril took him to Jerusalem. Muhammad was carried on a horselike creature with wings. From Jerusalem he ascended to heaven and saw signs of Gods and spoke to prophets such a Isa.
- This is where he was told to pray 5 times a day. This journey is known as the Night Journey. 'Muhammad is not the father of any one of you men; he is God's Messenger and the seal of prophets: God knows everything'. Qur'an 33:40.

**Life after death:**

- For Muslims death isn't the end but the start of a new stage of life called Akhirah.
- After death you lie in the grave waiting for the day of Judgment this is called Barzakh.
- Angels are sent to question them about their life. If they are good and honest they will be rewarded if they are bad and untruthful, they will be punished. The Day of Judgement
- When God's purpose for the world has been fulfilled, He will destroy it.
- The world will be transformed into a new world. Everyone who has ever lived will be resurrected and judged by God.
- If people are given the book of deeds in their right hands they will go to heaven, if it is in their left they will go to hell.



**Angels:**

- Muslims believe angels bring the words of God to the prophets. They have no free will and are made from elements of light. Their roles are
  - Messengers
  - Guardians of people
  - Recording actions of humans
  - An angel of death
  - Purify hearts
  - Bring natural disasters 'Each person has angels before him and behind'. Qur'an 13:11
  - Jibril: ✓ Archangel ✓ Relayed the Qur'an to Muhammad ✓ Guided Muhammad through his entire life.
  - Mika'il: ✓ Archangel ✓ Angel of Mercy ✓ Responsible for sending rain, thunder and lightning.

- Heaven:** Described as the gardens of happiness It is a reward for faith and honorable deeds 'A reward for what they used to do'. Quran 56:24
- Hell:** Described as a place of fire and great torment. Punishment for those who reject God and do evil 'They will dwell amid scorching wind and scalding water in the shadow of black smoke, neither cool nor refreshing'. Quran 56:42-44.

**Los superlativos**

Use the superlative to talk about the biggest, the most popular, the best etc.

el / la / los / las + noun + más / menos + adjective

Sometimes the noun is omitted:

el [plato] más rico – the tastiest [dish]

Remember that your article (el / la / los / las) and your adjective have to agree with your noun

El / la / los / las más	The most	
El / la / los / las menos	The least	
conocido/a(s)	well-known	
lindo/a(s)	beautiful	
peligroso/a(s)	dangerous	
típico/a(s)	typical	
mayor(es)	biggest	
menor(es)	smallest	
mejor(es)	best	
peor(es)	worst	

**¿Qué tiempo hizo?**

Hizo buen tiempo	It was good weather	
Hizo mal tiempo	It was bad weather	
Hizo calor	It was hot	
Hizo frío	It was cold	
Hizo sol	It was sunny	
Hizo viento	It was windy	
Llovió	It rained	
Negó	It snowed	

**¿Qué fue lo peor de tu visita?**

Lo bueno fue cuando	The good thing was when	
Lo malo fue cuando	The bad thing was when	
comí algo malo y vomité	I ate something bad and I vomited	
me puse enfermo	I became ill	
tuvimos que (volver a casa)	we had to (return home)	
dejé	I left	
perdí	I lost	
rompí	I broke	
mi reloj	my watch	
mi maleta	my suitcase	

**¿Dónde te quedaste?**

El alojamiento	The accommodation	
Me alojé en	I stayed in	
Me quedé en	I stayed in	
Nos alojamos en	We stayed in	
Nos quedamos en	We stayed in	
un hotel	a hotel	
una casa	a house	
un apartamento	an apartment	
un camping	a campsite	
(no) tenía	it had / it didn't have	
(no) había	there was / wasn't	
un jardín	a garden	
una piscina	a swimming pool	
una cocina	a kitchen	
vistas al mar	sea views	

**¿Qué tal tus últimas vacaciones?**

Acabo de	I have just	
Acabamos de	We have just	
visitar	visited	
ir a	been to	

**¿Dónde te quedaste?**

Era	It was (description)	
agradable	pleasant	
decepcionante	disappointing	
gratuito	free	
Estaba	It was (location / temporary states)	
cerca de la playa	near the beach	
lejos del centro	far from the centre	
en el centro	in the centre	
sucio/a	dirty	
limpio/a	clean	

**¿Qué harás durante las vacaciones?**

Durante mis próximas vacaciones	During my next holiday	
iré a...	I will go to...	
iré a la playa	I will go to the beach	
nadaré en el mar	I will swim in the sea	
sacaré fotos	I will take photos	
montaré en bici	I will ride a bike	
compraré recuerdos	I will buy souvenirs	
pasaré tiempo con mi familia	I will spend time with my family	
descansaré en el hotel	I will relax at the hotel	
Será...	It will be...	



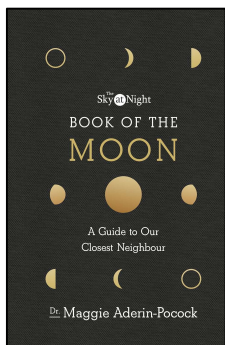
En el hotel	
Me gustaría una habitación doble	I would like a double room
Quisiera una habitación individual	I would like a single room
Es para tres noches	It is for three nights
¿Hay una piscina en el hotel?	Is there a swimming pool in the hotel?
¿Hay wifi gratis?	Is there free wifi?
¿A qué hora es el desayuno?	What time is breakfast?
Voy a visitar monumentos	I am going to visit monuments
Voy a ir a la playa	I am going to go to the beach

¿Qué sueles hacer?	
En verano	In summer
(no) suelo	I usually (don't)
(no) solemos	We usually (don't)
ver películas	to watch films
ir de vacaciones al extranjero	to go abroad on holiday
ir a la playa	to go to the beach
montar en bici	to ride a bike
jugar al fútbol	to play football
comer los platos típicos	to eat typical dishes
El verano pasado	Last summer
Hace ... años/meses/días	... years/months/days ago
fui / fuimos	I went / we went
de vacaciones a...	on holiday to...
a un parque temático	to a theme park
al mercado / a la playa	to the market / to the beach

Mi aventura por Latinoamérica	
Lo mejor fue cuando	The best thing was when
Lo peor fue cuando	The worst thing was when
aprendí mucho sobre	I learnt a lot about
compré regalos	I bought presents
conocí a	I met
decidí visitar	I decided to visit
fui a un parque temático	I went to a theme park
vi* un partido	I watched a match
una exposición	An exhibition
llegué*	I arrived
visité	I visited
hice turismo	I went sightseeing
probé un plato típico	I tried a typical dish

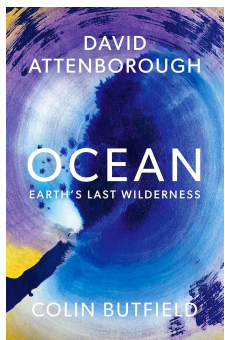
La ropa	
Lleva	He / she is wearing
Llevan	They are wearing
uniforme escolar	school uniform
ropa deportiva	sports clothes
un jersey	a jumper
unos pantalones	trousers
unos zapatos	shoes
camisa	shirt
camiseta	t-shirt
chaqueta	jacket
vaqueros	jeans

¿Cómo es?	
Es calvo	He is bald
El hombre a la izquierda	The man on the left
un hombre	a man
los hombres a la derecha	the men on the right
La mujer	The woman
una mujer	a woman
las mujeres	the women
negro	black
gris	grey
rubio	blonde
Es pelirrojo	He / she is a redhead
Tiene el pelo...largo	He / she has long hair
corto	short
liso	straight
rizado	curly
ondulado	wavy
Lleva gafas	He/She wears glasses
Tiene pecas	He/She has freckles
Es / son	He/She is / They are
Bajo(s)/a(s)	Short / tall
Alto(s)/a(s)	tall



**Book of the Moon: A guide to our closest neighbour**  
by Maggie Aderin-Pocock

The moon has fascinated humankind since the beginning of history. But far from being just a big rock out in space, the Moon has a phenomenal power over the earth, with its ability to create great waves, dictate the length of the day and summon the seasons. It is a key player in the story of our planet.



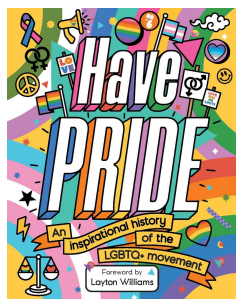
**Ocean: Earth's last wilderness** by David Attenborough

Experience a journey of wonder and discovery, populated by green turtles and blue whales; clownfish and bioluminescent jellyfish; the vampire squid and the 'head-less chicken monster' - a strange form of sea cucumber that lives at the very bottom of the ocean.



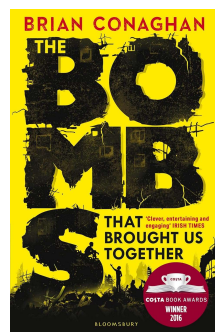
**A Quiet Kind of Thunder** by Sara Barnard

Sixteen-year-old Steffi has been selectively mute since she was five. No-one really knows why, least of all her. We meet her as she's starting sixth form, set on reaching university, the pressure to speak greater than it's ever been. Things change when Steffi meets Rhys, who is deaf. Steffi can sign and as their relationship grows, we realise that real communication takes many forms.



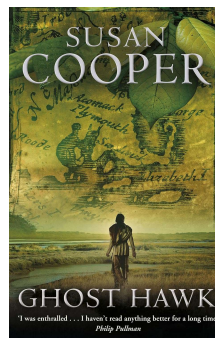
**Have Pride: An Inspirational History of the LGBTQ+ Movement** by Stella Caldwell

This inspirational history of the international LGBTQ+ movement, detailing the struggles and successes of LGBTQ+ movements around the world, looking at decriminalisation, the Stonewall riots and their legacy, global Pride movements, the HIV/AIDS crisis and equal marriage.



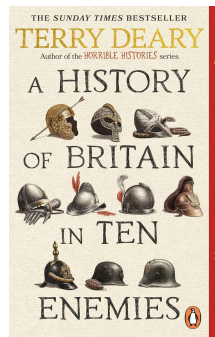
**The Bombs That Brought Us Together**  
by Brian Conaghan

Fourteen-year-old Charlie Law has lived in Little Town, on the border with Old Country, all his life. He knows the rules: no going out after dark; no drinking; no litter; no fighting. When he meets Pavel Duda, a refugee from Old Country, the rules start to get broken. Then the bombs come, and the soldiers from Old Country, and Little Town changes for ever.



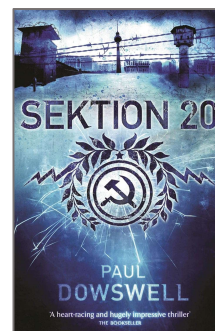
**Ghost Hawk** by Susan Cooper

In the winter of his eleventh year, Little Hawk goes deep into the forest, where he must endure a three-month test of solitude and survival which will turn him into a man. But outside the woods, the world is changing. English settlers are landing on the shores of the New World, and tensions between native tribes and the invaders are rising.



**A History of Britain in Ten Enemies** by Terry Deary

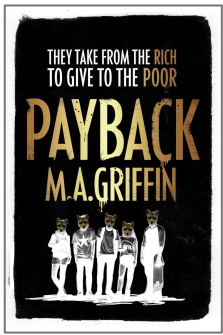
Horrible Histories author Terry Deary argues, nations and their leaders are defined by the enemies they make. You might even say those enemies made Britain what it is today... For instance, did you know: Elizabeth I would count as a minor royal without the Spanish Armada? Without the Nazis, Churchill would be remembered as an opposition windbag?



**Sektion 20** by Paul Dowswell

Alex lives in East Berlin. He and his family are forbidden to leave, but the longer they stay the more danger they face. His parents start to realise that leaving the East may be the only option, but getting across the Wall is practically impossible. And even if Alex and his family make it to the other side, can they escape the Stasi?





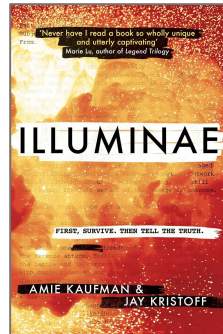
### Payback by M.A. Griffin

Payback, an enigmatic anticapitalist group staffed by teens, has one mission: to steal from the rich and give to the poor. Its dramatic heists create a sensation. But when excitable Payback fan Tom is recruited, he accidentally brings with him a shady money man, Mr Ruiz. And he's not the only one on their tail. As the net closes in, the teenagers of Payback fight to stay alive - and true to their values.



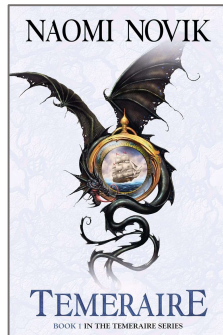
### Hideki Smith Demon Queller by A J Hartley

Fifteen-year-old Caleb Hideki Smith is a loser's loser, and he's accepted that he will never fit in. But after stumbling upon a lost Shinto shrine, a shrine Caleb knows for a fact wasn't there the day before, things start to get strange. Caleb finds he has developed some unusual abilities and his sister is doing her best not to accidentally turn into a fox. They need answers fast ...



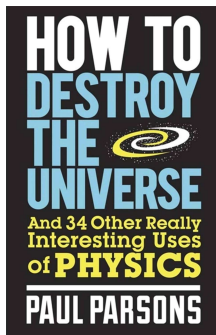
### Illuminae by Jay Kristoff and Amie Kaufman

Their planet invaded, Kady and Ezra are forced to fight their way onto one of the evacuating craft, with an enemy warship in hot pursuit. But the warship could be the least of their problems. A deadly plague has broken out and is mutating, with terrifying results; the fleet's AI, which should be protecting them, may actually be their biggest threat; and nobody in charge will say what's really going on.



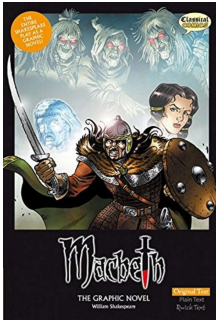
### Temeraire by Naomi Novik

An historical fantasy series with bite. Follow the global adventures of Captain William Laurence and his fighting dragon Temeraire as they are thrown together to fight for Britain during the turbulent time of the Napoleonic Wars



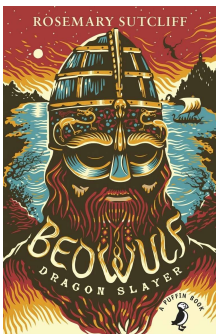
### How to Destroy the Universe & 34 other really interesting uses of physics by Paul Parsons

How do you generate a force field? Could you survive falling into a black hole? How do you turn lead into gold? If you thought physics was all about measuring the temperature of ice in a bucket or trying to fathom what  $E=mc^2$  means, think again. This book brings to life 35 key physics ideas in a way that anyone can understand.



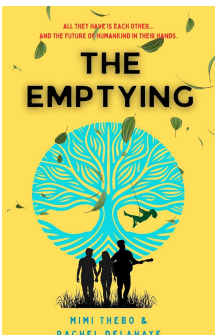
### Macbeth – the graphic novel by William Shakespeare, and Jon Haward

"Macbeth" is probably the most dramatic of Shakespeare's tragedies and this version will give you a brand new and totally fulfilling view of the sheer genius of Shakespeare's story telling. Witchcraft, superstition, murder - it's all here!



### Beowulf by Rosemary Sutcliff

In this thrilling re-telling of the Anglo-Saxon legend, *Beowulf*, the renowned children's historical fiction writer Rosemary Sutcliff recounts Beowulf's most terrifying quests: against Grendel the man-wolf, against the hideous sea-hag and, most courageous of all - his fight to the death with the monstrous fire-drake.



### The Emptying by Mimi Thebo & Rachel Delahaye

The city is starving but the farms are bursting with food. Something is very wrong. In the aftermath of a riot turned lethal, city-kid Acker goes looking for law and order. After a farm truck is attacked in the city, farmgirl Dot sets off to find answers. When the two teens meet, they find common ground and a terrifying truth about the future.









