



Knowledge Organisers

Year 7

Autumn Half Term 1

'Practice of what is taught'

Name:

Tutor:

House:

Art

You need to research into natural forms and collect **at least** 10 different images of them. **Here are some suggestions**, leaves, flowers, seeds, shells, wood, plants, fruits, vegetables. (Remember not animals as we study them later in year 8.)

You need to arrange these on a power point slide OR a word document and attach it to class charts to submit it. Try and be creative with your presentation, you could consider a title, a border, or some notes about the natural forms you have found.



A collection of different natural forms

Year 7 Art - Natural Forms

Key knowledge & skills

Make drawings from primary and secondary resources. Focus on first on **SHAPE, FORM** and **LINE**. Then work on building skills in adding **TONE, TEXTURE, COLOUR** and **PATTERN**.



Mark making - This describes the different lines, dots, marks and patterns we can make in an artwork. When you look closely at a natural form, you will see lots of detail and texture. Good artists use mark making to record all the detail they can see. Different media will create different types of



Analyse work of artists whose work is inspired by natural forms, understanding how you can be **inspired** by their processes and techniques of creating art.

Printmaking - An artistic process where you can make pictures or designs by printing them from specially prepared plates or blocks. There are lots of different types of printmaking. When



Collage - the process of layering materials to create an image or background which can then be worked onto using different media. You can carefully cut and present materials to create an image too.

Key Artists



Peter Randall-Page

Artist Peter Randall-Page was born in the UK in 1954 and studied sculpture at Bath Academy of Art from 1973-1977. During the past 40 years Peter Randall-Page has gained an international reputation through his sculpture drawings and prints. He has undertaken numerous large-scale commissions and exhibited widely. His work is held in public and private collections throughout the world. His work is inspired by the natural world and the impact that it has on us as humans. For this project we will focus mainly on his drawings and specifically his use of mark making to show texture.



Georgia O'Keeffe

Born in 1887, Georgia O'Keeffe was an American artist who painted nature in a way that showed how it made her feel. She is best known for her paintings of flowers and desert landscapes. Her unique and new way of painting nature, simplifying its shapes and forms meant that she was called a pioneer. Her style of painting is a combination of abstract and realism. She was inspired by natural landscapes and the forms she would find there,



Angie Lewin

She studied BA (Hons) Fine Art Printmaking at Central St. Martins College of Art and Design between 1983 and 1986. Inspired by both the clifftops and saltmarshes of the North Norfolk coast and the Scottish Highlands, she depicts these contrasting environments and their native flora in wood engraving, linocut, silkscreen, lithograph and collage. She is fascinated by the huge variety of different plant species and insects which has in turn



Aimee Mac

Aimee Mac lives and works in Manchester in the UK. She sells her work through her website and on sites like Etsy. Her work consists of intricate illustrations that are inspired by plants, animals and insects, ceramics and retro interiors. Highly detailed, they are made up entirely of thousands of tiny dots and lines. She uses layers of block colour to tailor her work for digital, screen and risograph printing. I work with print, contemporary homeware and textiles, surface patterns, stationery, jewellery, stickers and clothing.

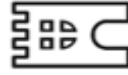
Key terms and techniques

observational drawing pencil printing
watercolours coloured pencil
tonal texture mono printing depth collagraph
printing collage materials textures
sculptural observing close up viewfinder com-
position relief intaglio roller printing inks
printing press printing plate sketching planning
designing drawing

Key descriptive words

natural nature textured smooth bumpy
wild sharp soft spiral layered flat de-
tailed colour segmented seed flower
shell leaves skull sections pattern repeat-
ed thorny irregular coarse directional spiky
printed drawn organic cross-hatching pointil-
lism hatching layered relief
three dimensional

Computing Knowledge Organiser



The Castle School
ACHIEVE | BELONG | PARTICIPATE



Topic: Collaborating Online Respectfully


Rationale: How to use the school ICT systems in a safe and responsible way.

Computing Room

You will have a username and password to log on.

Passwords - Create a memorable and secure password

It is important to have all your files and folders in a logical order so it is easy to find information correctly



Online Communication

Email- An electronic way of sending information to another person or group of people. This is a very convenient way to send information.



Presentation

Plan effective presentations for a given audience.

You are creating a presentation on cyberbullying.

Your audience is your **peers**, but what does that mean? Who is your audience? What characteristics could apply to your audience?


Presentation

Presentation tools

Sans Serif fonts **Example**

Contrasting background and font colours

Pastel shades for backgrounds




Cyberbullying

Bullying can be described as repetitive, malicious behaviour that tries to establish dominance over a person or group of people.

- As you begin to use social media apps you become more vulnerable to cyberbullying
- Cyberbullying is like traditional bullying but it takes place online
- Cyberbullying can include discrimination and hate crimes

Reporting Concerns

Talk to your teacher, tutor, pastoral or head of house



BBC Webwise: www.bbc.co.uk/webwise

Childline: www.childline.org.uk

ThinkUKnow run by the Child Exploitation and Online Protection centre (CEOP): www.thinkuknow.co.uk

Key Words

Password	A string of characters that allows access to a computer system or service.
Email	An electronic way of sending information to another person or group of people
Recipient	Recipient is the receiver of the email
PowerPoint	A software package designed to create electronic presentations consisting of a series of slides.
Cyberbullying	Where people use electronic communication to bully another person

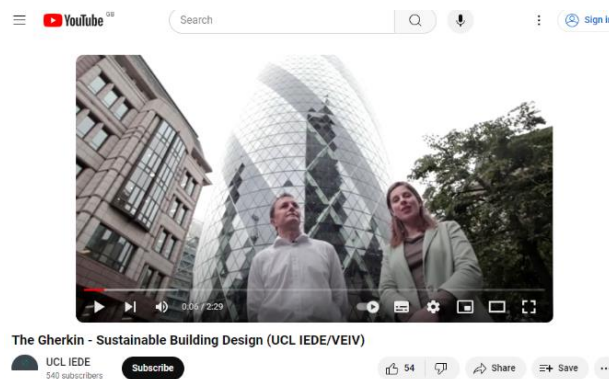
DT

For this half term you will have two tasks linking to what you are learning in DT about design.

Task 1: watch the following YouTube video. [The genius of the London Tube Map | Small Thing Big Idea, a TED series \(youtube.com\)](#) and use the Cornell Note method to make notes, summarise, create questions and self-quiz. The link will be available on ClassCharts.



Task 2: watch the following YouTube video. [The Gherkin - Sustainable Building Design \(UCL IEDE/VEIV\) - YouTube](#) and use the Cornell Note method to make notes, summarise, create questions and self-quiz. The link will be available on ClassCharts.



English

Week 1: Gothic Vocabulary

Antagonist: person who actively opposes or is hostile to someone or something; an enemy

Barrow: a large mound of earth or stones over the remains of the dead

Bildungsroman: a novel dealing with a character's formative years, a coming-of-age story

Genre: a style of art, music, or literature

Greed: intense and selfish desire for something

Gothic: uses dark and supernatural elements such as horror, mystery, and dread

Guardianship: the position of being legally responsible for the care of someone who is unable to manage their own affairs

Hero: person who is admired for their courage, outstanding achievements

Macabre: disturbing because concerned with or causing a fear

Week 2: Gothic Vocabulary

Mausoleum: a stately or impressive building housing a tomb or group of tombs

Morbid: an unusual interest in disturbing and unpleasant subjects, especially death and diseases

Monologue: speech with only one person speaking

Protagonist: the leading character or one of the major characters in a novel.

Supernatural: some force beyond scientific understanding or the laws of nature

Tomb: a large vault, typically an underground one, for burying the dead

Vulnerability: a weakness

Villain: a character whose evil actions or motives are important for the plot.

Week 3: Key English Terminology:

Word class – a type of word such as 'verb', 'noun', 'adjective'.

Simile – a comparison of two things using 'like' or 'as' – 'she is as fast as a cheetah.'

Metaphor – a comparison of two things by saying one literally is the other, 'she is a diamond.'

Personification – using human qualities to describe something non-human.

Pathetic fallacy – where the weather reflects the mood. Bright, sunny days to show a joyful mood.

Semantic field – a group of words connected by a theme.

Alliteration – The same letter or sound at the start of multiple words

Imagery – detailed descriptions that enable the reader to picture what is described.

Onomatopoeia – words that sound like the word they are describing 'bang' 'crash'.

Juxtaposition – describing two things that are not similar next to each other to highlight the differences.

Week 4: Essential Grammar:

Noun – a word that names something: a person, place, thing, or idea.

Concrete noun – a word for a physical object, e.g. Table, chair, pen

Abstract noun – a word for an abstract idea, e.g. love, war, peace, hatred.

Noun phrase – a group of words that function as a noun in a sentence. E.g. 'The plate with the food.'

Auxiliary verb – also known as 'helping verbs', help the main verb in a sentence by expanding its meaning. E.g. I am playing (am is the auxiliary verb).

Verbs – a word that describes an action.

Adverbs – a word that describes a verb.

Week 5: Context – Jungle Book

Inspiration is from **The Jungle Book**

This is a **bildungsroman (coming of age story)**. There are many similarities with The Graveyard Book.

Much of the book focuses on Mowgli, a boy who grows up in the jungle.

In “Mowgli’s Brothers,” Mowgli is raised by the Wolf Pack and learns the Law of the Jungle. He eventually leaves the wolves but vows to return when he has defeated the tiger Shere Khan.

In “Kaa’s Hunting,” Mowgli is taken to the Cold Lairs by the Monkey People and rescued by Baloo the bear, Bagheera the panther, and Kaa the python.

In “Tiger! Tiger!” Mowgli defeats Shere Khan and decides to become a lone hunter.

In the Graveyard Book, Bod is raised by ghosts, learns the laws of the dead and eventually leaves.

Week 6: Context - Witches

It was primarily old women that were accused of being witches, and often they were very poor. Any who were unfortunate enough to be ‘crone-like’, snaggle-toothed, sunken cheeked and having a hairy lip were assumed to possess the ‘Evil Eye’! If they also had a cat this was taken as proof, as witches always had a ‘familiar’, the cat being the most common.

Many unfortunate women were condemned (thought of as being guilty) on this sort of evidence and hanged after undergoing appalling torture. The ‘pilnie-winks’ (thumb screws) and iron ‘caspie-claws’ (a form of leg irons heated over a brazier) usually got a confession from the supposed witch.

A man called Matthew Hopkins, an unsuccessful lawyer, came to help (!) He became known as the ‘Witchfinder General’. He is said to have executed (killed) three hundred women for being witches between 1644 and 1646.

Week 7: Origins of gothic literature

The Goths were a Germanic tribe renowned for being uncivilised and going against the accepted rules of society.

The term ‘gothic’ was first coined (used) in 1764 by English author Horace Walpole in his novel, ‘The Castle of Otranto’, subtitled ‘A Gothic Story’. The novel was set in a haunted castle where the protagonist is plagued (haunted) by supernatural occurrences.

Walpole used the term Gothic because it refers to medieval buildings like castles and churches, where a lot of Gothic fiction is set. Gothic Literature became immensely popular in England and Germany during the 18th century, with many other genres borrowing its conventions.

Gothic fiction is all about creating terror in the reader and using fear to create suspense. It is not usually bloody and horrific.

Week 8: Essential Grammar:

Adjectives – a word that describes a noun.

Participles – a word formed from a verb but used as an adjective or a noun in a sentence. (E.g. taking the verb ‘working’ and using it as a noun in a sentence - a working woman)

Articles – a word that comes before a noun to show whether it is specific or general. The definite article is ‘the’, to make a noun specific. ‘The cup of tea’. The indefinite article is ‘a’ to make a noun general. ‘A cup of tea’.

Co-ordinating conjunctions – connects words, phrases, and clauses together. The acronym **FANBOYS** can help to remember them all. For, And, Nor, But Or, Yet, So

Pronoun – a word that can be used in place of a noun to reduce repetition. For example, ‘I have a dog. She is brown and white.’ ‘She’ is the pronoun, instead of ‘the dog’.

Reading Articles

You will have a reading article each week linking to the whole school theme for that week:

Week 1: Values

Week 2: Friendship and Family

Week 3: Ambition

Week 4: Black History Month

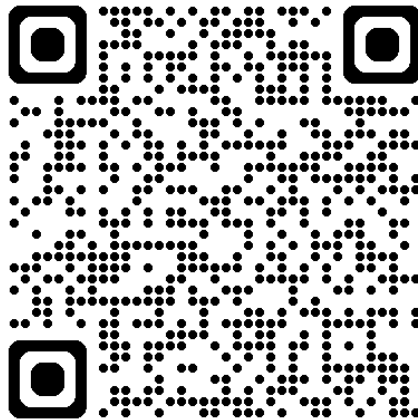
Week 5: Equality

Week 6: Celebration

Read the article and highlight three words of which you were not sure. Then write the definition and draw an image which will help you remember.

As you read the articles, you will identify that the articles are not in UK English. However, the articles offer some great messages.

Use this QR code to access the reading articles read by a teacher:



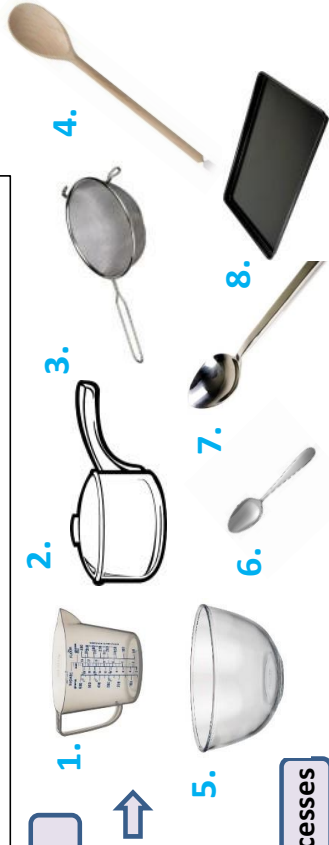
Sparx Reader

On a Tuesday and Friday, you should log on to Sparx reader and spend 30 minutes reading.



1. Measuring jug
2. Saucepan
3. Sieve
4. Wooden spoon
5. Mixing bowl
6. Teaspoon
7. Tablespoon
8. Baking tray

Equipment



Skills & Processes

Bridge & Claw Knife Grips



Used in: Fruit salad, vegetable couscous and most other recipes.



Knife Skills – Peeling, chopping, dicing, slicing.



Used in: Fruit salad, vegetable couscous and lots of other recipes.

Weighing & Measuring



Used in: Fruit crumble, scones, yule log and most other recipes.

Rubbing In Technique



Used in: Fruit crumble, scones.

The Cooker

- Learn how to switch these on and use them safely
- What are the school rules when using the cooker?



Hob



Oven



Order of Washing Up

1. Stack all equipment to be washed next to the sink
2. Empty loose food left in equipment into the bin and rinse little throw loose bits out.
3. Fill the washing up bowl with hot soapy water.
4. Wash the cleanest items first – progressing to the dirtiest. Use a dish cloth.
5. Put the clean dishes upside down on the draining board.
6. Meanwhile your partner is wiping the surfaces with a dish cloth.
7. Dishes must then be dried with a tea towel and put away in the correct place.
8. Empty the washing up bowl. Remove bits from the plug holes.
9. Wipe the sink and draining board down.
10. Washing up bowl to be in the sink.
11. Cupboards checked – dish cloths and tea towels in the wash bin.



Tea Towel



Dishcloth



Oven Gloves



Enzymic Browning

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



5 a-Day

Eat at least **5 portions** of a **variety of fruit and vegetables** every day.



An adult portion is 80g but children need smaller portion sizes. 1 portion is roughly the amount you can fit in the palm of your hand.

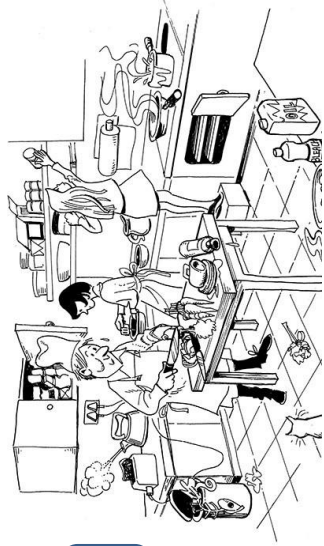


Eat as many **different colours** as possible because they all contain different combinations of fibre, vitamins, minerals and other nutrients that are good for our bodies.

What counts towards your 5 a day?

Fresh, frozen, canned, dried and juiced all count.

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



Hazards in the Kitchen

Key Words

Keyword	Meaning
Bridge Hold	Safe methods for using a knife to prepare food. The name describes the hand grip.
Claw Grip	When you slice some fruits or vegetables, e.g. apples, bananas, potatoes, the oxygen in the air turns them brown.
Enzymic Browning	Maintaining cleanliness ready for cooking
Personal Hygiene	Combining fat and flour together using your fingertips. E.g. crumbles, scones.
Rubbing In Technique	A small sharp knife used for preparing fruits and vegetables.
Vegetable Knife	Food items that will be used in a recipe
Ingredients	




Spellings

- | | | |
|---------------|-----------------|------------------|
| Fruit | Oven | Grate |
| Vegetable | Hob | Rubbing-in |
| Eatwell Guide | Ingredients | Stock |
| Nutrition | Texture | Bacteria |
| Safety | Sensory | Grate |
| Hazards | Stewing (fruit) | Enzymic Browning |
| Bridge Hold | Evaluate | Chop |
| Claw Grip | Hygiene | Sieve |
| Weighing | 5 a Day | Glaze |
| Measuring | Equipment | Scales |



Week 2 - The nature of Geography	Week 4 - The UK
<p>The word geography comes from the Greek word 'geo' (the earth) and 'graphy' (to write about) to write about the earth.</p> <p>Geography can be categorised into human, physical and environmental geography. Human geography is how people interact with the earth, nature, and landscapes. For example, humans pollute the air or build on land and take water out of rivers. Physical geography is the natural processes such as erosion and landforms on earth such as volcanoes, rivers, and deserts. Environmental geography is about natural habitats (plants and animals) and how they develop and change and interact with human activity. Examples include deforestation (chopping down trees), climate change (the planet is getting warmer) and how humans pollute the air, seas, and soil.</p>	<p>Great Britain is the largest of the British Isles, containing England, Scotland, and Wales; The United Kingdom also includes Northern Ireland.</p> <p>The UK is divided into regions such as the South West where we live. A region is an area of a country with similar characteristics such as climate and vegetation. London is the capital of the UK, located in the south-east of England on the River Thames. The highest mountain is Ben Nevis in Scotland, and the longest river is The River Severn. The total population of the UK in 2024 was 67.85 million. The population distribution means how people are spread out across the UK. Some regions are sparsely populated because they are mountainous and cold such as the Cambrian mountains whilst other places are densely populated because they are flatter and warmer and have a good water supply such as the south-east of England.</p>
Week 6 - The Geography of Europe and The World	Week 8 - The UK and the wider world
<p>There are forty-four countries in Europe, Russia is the largest and Liechtenstein is the smallest. The total population of Europe in 2024 was 741,656,711 which is less than 10% of the world's population. The population of Europe is declining. Most of the population in Europe live in urban areas - in towns and cities - where there are more jobs and facilities. Fewer people live in rural areas - the countryside - as there are fewer services such as hospitals.</p> <p>Our world has seven continents and five oceans. The largest continent is Asia, and the largest ocean is the Pacific. We use latitude and longitude lines to locate places in the world. The equator is 0° latitude so is the middle of the earth between the poles (north and south) and the Greenwich Meridian is 0° longitude so the middle of the planet west to east.</p>	<p>The UK has many links with other countries in the world. The UK exports goods worth £250 billion a year. The Channel Tunnel has meant that people and goods can move quickly to European countries. Media exports have increased enormously such as Peppa Pig which is exported to 170 countries around the world.</p> <p>The 56 Commonwealth countries which used to be part of the British Empire meet every 2 years to discuss common values and goals to improve the quality of life for people.</p> <p>The British public voted for Brexit in 2016. Now people from Europe must apply for a visa to live and work here. Another organisation that The UK belongs to is NATO which is an alliance of 28 countries bordering the North Atlantic Ocean. NATO was created in 1949 to provide security for those nations against the possible expansion of Russia.</p>

History

Week	Core Essential Knowledge	Disciplinary literacy				
<p>Week 1 - What was the Roman Empire and how did it support itself?</p>  <p>Week 1 - Why did the Roman army conquer Britain in 43AD?</p> 	<p>The city of Rome was founded in 753BC. The Romans wanted an empire and invaded other countries including Britain, France, Spain with the Roman Army.</p> <p>It lasted for over five hundred years!</p> <p>The Emperor led the Empire. The Roman Army would conquer and then run the country.</p> <p>Society was organised so that the Empire would be successful – through trade to support the wealth of the Empire.</p> <p>Britain would trade Wool, leather, and metal back to Rome to support the wealth of the Empire.</p> <p>Romans felt it was their right to have an Empire. Virgil, a Roman poet said: “Remember you are Roman. It will be your job to rule over other countries, so that the world becomes peaceful, and everyone obeys Roman law.”</p> <p>The Main Reasons Romans Invaded.</p> <p>Economic Britain had silver and gold mines. The Empire would use the wealth to feed the empire and pay the Army.</p> <p>Society – Romans felt it was their duty to improve the lives of people. Julius Caesar thought the British were strong and would help strengthen the Army.</p> <p>Political – Caesar thought it would make him look stronger and continue to protect the empire from enemy states.</p>	<p>Key vocab:</p> <p>Conquer – A successful invasion of another country.</p> <p>Empire One country taking over other countries and being ruled by one Emperor/Leader.</p> <p>Emperor -Ruler of an Empire.</p> <p>Trade The Act of buying and selling goods.</p> <p>Key vocab:</p> <p>Empire – See Lesson 1</p> <p>Invasion – When a country takes over another country.</p> <p>Economic factor – When money is a key reason for change.</p> <p>Social factor. – When people are a reason for change.</p> <p>Political factor – When Leaders make changes to increase power.</p>				
<p>Week 3 - How did the Romans deal with the rebellious Brits?</p> 	<p>Boudicca was ruler of the Iceni, a tribe of people in ancient Britain know as Celts. As a warrior queen she led her people against the invasions of the Romans, destroying cities like Colchester and London. She was unable to defeat them.</p> <table border="1" data-bbox="539 1125 1288 1415"> <tr> <td data-bbox="539 1125 929 1200">Reason Roman beat the Celts.</td> <td data-bbox="929 1125 1288 1200">Reason Celts lost</td> </tr> <tr> <td data-bbox="539 1200 929 1415">Romans were highly trained. Romans had hard wearing equipment. Romans used tactics to trap the Iceni.</td> <td data-bbox="929 1200 1288 1415">The Celts were farmers. Celts had less training. Celts did not wear Armour or equipment and only used tools as weapons.</td> </tr> </table>	Reason Roman beat the Celts.	Reason Celts lost	Romans were highly trained. Romans had hard wearing equipment. Romans used tactics to trap the Iceni.	The Celts were farmers. Celts had less training. Celts did not wear Armour or equipment and only used tools as weapons.	<p>Key vocab:</p> <p>Empire – See lesson 1.</p> <p>Invasion – See lesson 2.</p> <p>Rebellious = A behaviour that goes against the rules.</p> <p>Celts – The Native people to Britain.</p>
Reason Roman beat the Celts.	Reason Celts lost					
Romans were highly trained. Romans had hard wearing equipment. Romans used tactics to trap the Iceni.	The Celts were farmers. Celts had less training. Celts did not wear Armour or equipment and only used tools as weapons.					

Week 3 - How did good organisation help the Roman Army to be so successful?



- Main part of the army were the **LEGIONS**.
- These were made up of around 5000-6000 men.
- A legion was divided into ten **cohorts**.
- Each cohort was made up of six centuries.
- A centurion commanded the centuries.
- Centuries had 80 - 100 men.
- They were responsible for training the soldiers under their command and making sure everyone obeyed.
- Some were very cruel and would carry a stick, which they used to beat soldiers.
- Most soldiers joined between 18-20 years old.
- There were three 30km marches each month.
- On each march the legionary would carry twenty-five kilos of equipment. Regular practises of weapons.

Key Vocab:

Centurion - A Roman who trained the soldiers under his command.
Cohort – A group of about six hundred men in the Roman Army
Legion - The main part of the Roman Army was called the **legion** and led by the **Legate**.

Week 5 - What were the tactics used by the Romans in battle?



THE ORB - The legionaries form a circle around the officers and the archers (these were the most important people!) using their shields as protection.

THE WALL - The soldiers form a line, with the men at the front crouching down with their shields in front of them and their spears stick out of the gaps. The men behind put their shields over the top of the men in front and have their spears ready to throw. This would even stop horses from charging.

The Wedge is at the front of the 'V' and the legionaries form the sides of the 'V.' They must stay close together to stop the enemy from breaking the line.

The Tortoise is square. The men at the front hold their shields in front of them. The men at the sides hold their shields to the sides. The men in the middle hold their shields above them.

Key Vocab – SEE LEFT

The Orb.
The Wedge.
The Wall.
The Tortoise.

Week 5 - How would armour and weapons make Roman Soldiers Successful?



Armour -. Roman soldiers had armour made of strips of strong iron. The iron made the armour strong, and the strips made it flexible. They also had iron helmets which protected their heads and neck, but still let them have good vision for fighting.

Weapons The Roman soldiers used a variety of weapons including a pugio (dagger), gladius (sword, see picture to the right), hasta (spear), javelin, and bows and arrows. The soldiers trained to fight with their weapons and practised on a regular basis. They would sometimes spar with each other using wooden swords.

Key Vocab

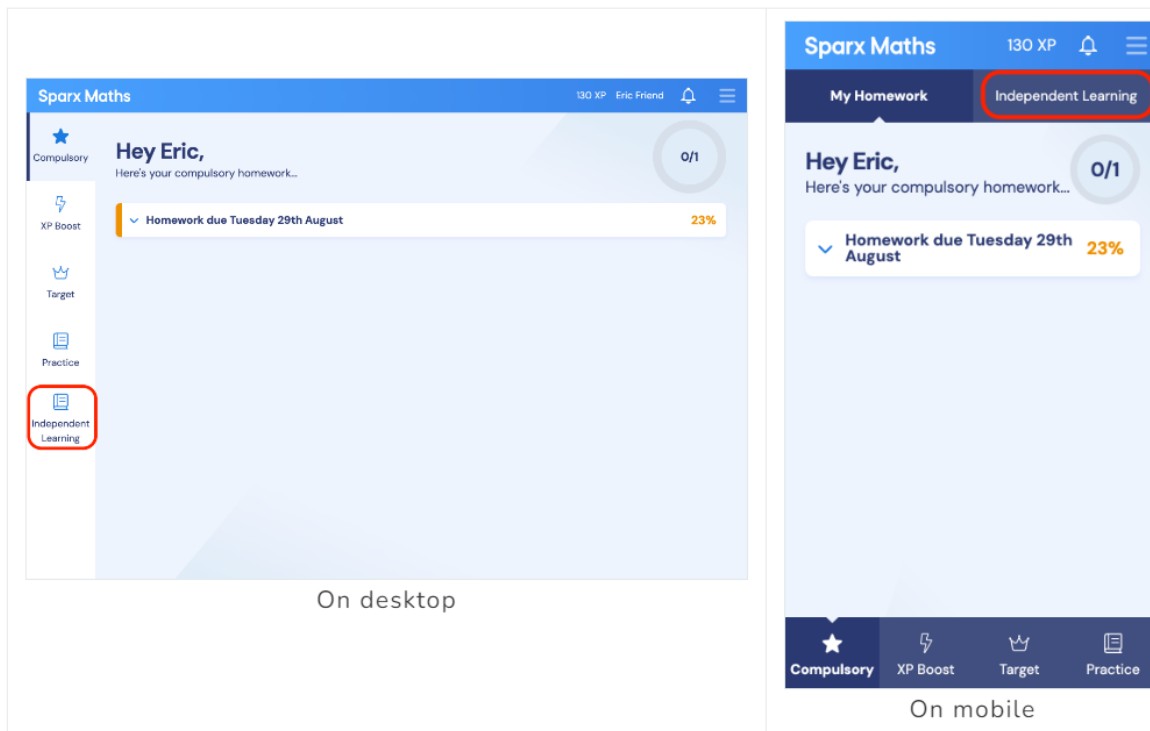
Gladius (short sword).
Pila (javelin).
Scutum (Shield).

Maths

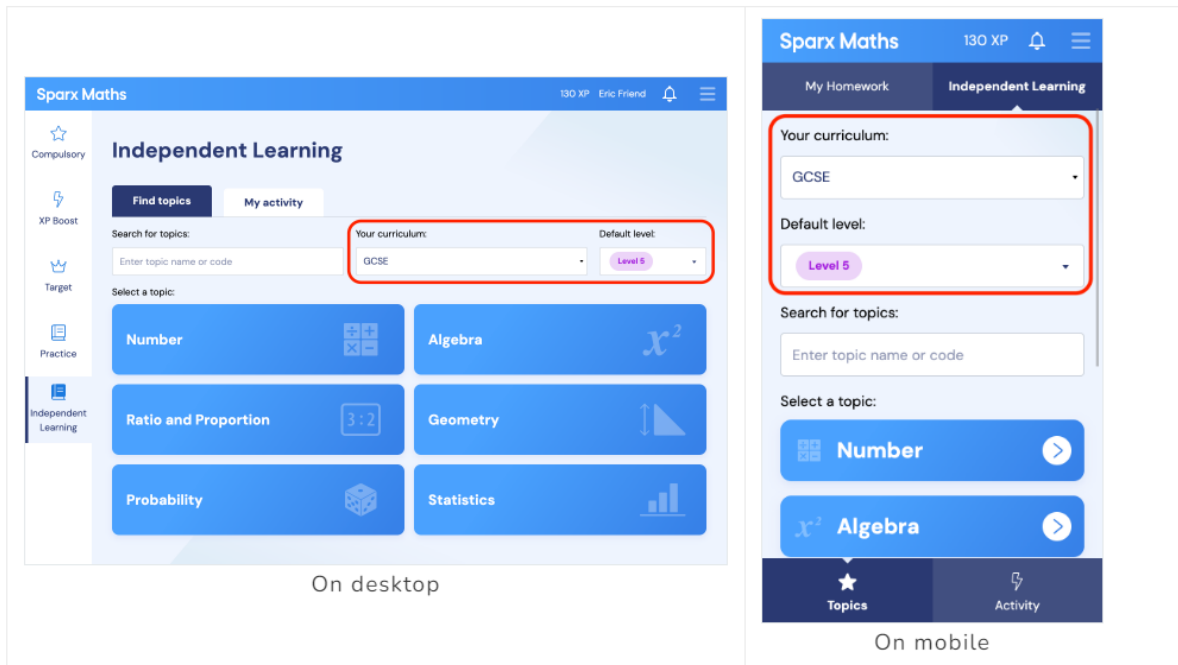
On a Tuesday, your Maths task will be set by your teacher. You should log on to Sparx Maths to complete this task. Your practice book has an area for your workings which you need to use as during the homework, Sparx Maths undertakes a bookwork check.

On a Thursday you practice independently on an area where you have a gap in your knowledge.

When logged in to Sparx students will always be able to see the Independent Learning option on the main menu:



Students have the option to choose both the **curriculum** they want to work on and the **default level** for the questions they will see, but when they first log in the curriculum will be the same as the **Base curriculum** that is set on their class' SoL, and the level will be set to the level they are being set for their homework (whether this was chosen by the algorithm or the teacher.)



- Typing one of the following in the **Search for topics field**:
 - The name of a topic
 - A keyword
 - A code given to them by their teacher. (Find out more about Topic Codes in our article on the [Independent Learning Page](#))
- Browsing the content by clicking on one of the main Strands:



Choosing what level to work at within a topic

When in a topic, students will see three sets of questions at the level set on their Independent Learning homepage (see image above) which they can choose from:

- **Introduce:** basics skills for this topic at this level
- **Strengthen:** questions to consolidate understanding
- **Deepen:** more problem-solving type questions to challenge

If students find questions too easy or too tricky, they can change the level of each individual topic*. This won't affect the overall level of questions in all other topic areas so they can tailor what they see to their strengths and weaknesses.

*Some topics won't have higher or lower levels depending on the subject chosen.

How students view their own progress





1. By a count next to each topic, and **Ticks** and **Stars** within each set of questions:



- Students will get a **tick** if they complete one of the tasks in the topic. This means all the basics are covered.
- Students will get a **star** for each subsequent task they complete.

MFL - French

Tu aimes les pays francophones? Do you like French speaking countries?

Opinion	Place	Phonics: J SFe	Connective	It is	Adjective
J'adore (I love) ❤️❤️	le Canada 				historique (historic)
J'aime (I like) ❤️	le Maroc 		car (because)	c'est (it is)	relaxant (relaxing)
Je n'aime pas (I don't like) 🤔	la France 				moderne (modern)
Je déteste (I hate) 🤔🤔	la Martinique 				moche (ugly)

Person/verb	Place	Connective	Verb	Qualifier	Adjective
Je vais (I go / I am going) ↑	au Canada (to Canada)	car because	c'est it is	assez quite très very vraiment really	historique (historic)
	au Maroc (to Morocco)				relaxant (relaxing)
	en France (to France)				moderne (modern)
	à la Martinique (to Martinique)				moche (ugly)

Person/verb	Infinitive	Tourist Attraction	Opinion	Noun
Je vais (I go / I am going)	visiter	le Louvre (Louvre art museum)	J'aime (I like)	l'art Art
Je voudrais (I would like to)		le Centre Pompidou (Pompidou Science centre)		les sciences Science
		l'Arc de Triomphe (Arc de Triomphe)		les monuments historiques historic
		la Tour Eiffel (Eiffel Tower)		monuments historic monuments

German

Woher kommst du? [Where do you come from?]

1	2	3
Ich komme [I come] Er kommt [He comes] Sie kommt [She comes]	aus [from]	Köln Berlin Bremen Hamburg Dresden Stuttgart München England Deutschland

Was trägst du? [What do you wear?]

1	2	3
Ich trage [I wear] Er trägt [He wears] Sie trägt [She wears] Meine Eltern tragen [My parents wear]	gern [gladly] lieber [preferably] am liebsten [best of all] immer [always] meistens [mostly] oft [often]	blau [blue] braun [brown] gelb [yellow] grau [grey] lila [purple] orange [orange] rosa [pink] rot [red] schwarz [black] weiß [white]

Wer ist dein(e) Lieblingsspieler(in)?

[Who is your favourite player?]

1	2	3	4	5
Mein Lieblingsspieler [My favourite player - male]	heißt [is called]	_____	und er ist [and he is]	fantastisch [fantastic] sehr gut [very good] toll [great] wunderbar [wonderful]
Meine Lieblingsspielerin [My favourite player - female]			und sie ist [and she is]	

Deutsche Aussprache

1  Jo-jo	2  Wildwassersport	3  Buch	4  Zug	5  Vogel
6  ein Ei	7  Hi Hai!	8  die Biene	9  Haus	10  Deutschland
11  Mäuse	12  Mr Löwe Löwe	13  küssen	14  Bär	

Mandarin

1st hour – Greetings

nǐ hǎo nǐ hǎo wǒ jiào 你好，你好，我叫 Tim。	Hello, hello, my name is Tim.
zài jiàn zài jiàn zài jiàn 再见，再见，再见！	Goodbye, goodbye, goodbye!
nǐ jiào shén me míng zì? 你叫什么名字？	What is your name?

2nd hour – Numbers

yī 一 1	èr 二 2	sān 三 3	sì 四 4	wǔ 五 5	liù 六 6	qī 七 7	bā 八 8	jiǔ 九 9	shí 十 10
shí yī 十一 11	shí èr 十二 12	shí sān 十三 13	shí sì 十四 14	shí wǔ 十五 15	shí liù 十六 16	shí qī 十七 17	shí bā 十八 18	shí jiǔ 十九 19	èr shí 二十 20
èr shí yī 二十一 21	èr shí èr 二十二 22	èr shí sān 二十三 23	èr shí sì 二十四 24	èr shí wǔ 二十五 25	èr shí liù 二十六 26	èr shí qī 二十七 27	èr shí bā 二十八 28	èr shí jiǔ 二十九 29	sān shí 三十 30

3rd hour – How are you?

nǐ hǎo ma 你好吗？	How are you?
wǒ hěn hǎo xiè xiè 我很好，谢谢！	I am very well, thank you!
zài jiàn 再见！	Goodbye!

4th hour – Most common characters/radicals

kǒu 口	rén 人	huǒ 火	mù 木	shān 山	rì 日	yuè 月	mén 门	nǚ 女	mián 宀
mouth	person	fire	tree	mountain	sun	moon	door	female	roof
wáng 王	shuǐ 水	zǐ 子	xīn 心	xī 夕	dà 大	xiǎo 小	nǐ 你	hǎo 好	ān 安
king	water	child	heart	sunset	big	small	you	good	peace
mǎ 马	yǔ 雨	fēi 飞	niǎo 鸟	mā 妈	jiě 姐	mèi 妹	bà 爸	gē 哥	dì 弟
horse	rain	fly	bird	mum	Older sister	Younger sister	dad	Older brother	Younger brother

Spanish

WELCOME PHRASE	VERB	NOUN	CONN'	VERB	PREP'	NOUN
Hola (hello)		Jaime				España - Spain
Buenos días (good morning)	Me llamo (my name is)	Luis	y (and)	soy (I am)	de (from)	Méjico Ecuador Venezuela Perú Colombia
Buenas tardes (good afternoon)		Isabel				Norte América
		Lorenzo				Inglaterra - England Gales - Wales Escocia - Scotland Irlanda - Ireland
		Carla				Francia - France Alemania - Germany Polonia Poland
		Ana				

VERB	VERB	NOUN	CONN'	NOUN
Quiero (I want)	probar (to try)	la paella - paella la tortilla de patata - spanish omelette	y (and)	el gazpacho - tomato soup el chorizo - spicy sausages el jamón serrano - spanish ham el cocido - spanish stew
No quiero (I don't want)	comer (to eat)	las empanadillas - pastries las croquetas - croquetas las patatas bravas - spicy potatoes las tapas - tapas las albondigas - meatballs las aceitunas - olives		los huevos fritos - fried eggs los calamares - calamari los churros <u>con</u> chocolate - churros <u>with</u> chocolate

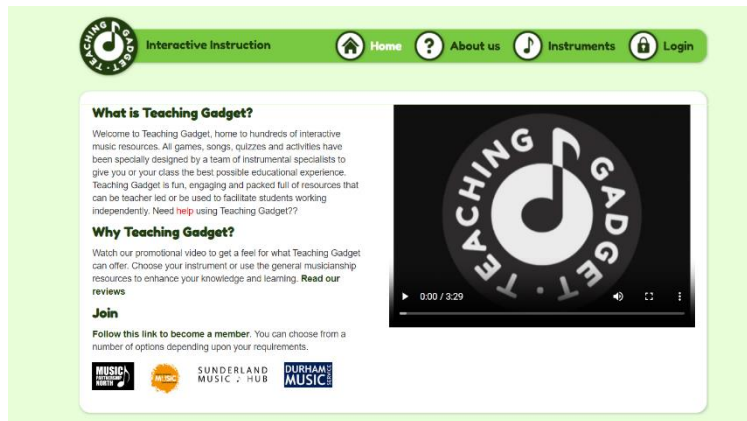
¿Qué hay en la foto? What are there in the photo?		
VERB	NOUN	ADJECTIVE
Hay There is	una línea - a line una espiral - a spiral una estrella - a star	blanca - white negra - black amarilla - yellow roja - red morada - purple naranja - orange rosa - pink verde - green azul - blue gris - grey marrón - brown
No hay There isn't	un círculo - a circle un cuadrado - a square un triángulo - a triangle un punto - a point un ovalo - an oval un ojo - an eye un rectángulo - a rectangle	blanco - white negro - black amarillo - yellow rojo - red morado - purple naranja - orange rosa - pink verde - green azul - blue gris - grey marrón - brown

Music

- 1) Go to teachinggadget.com on a computer or scan this QR code on your phone or tablet.

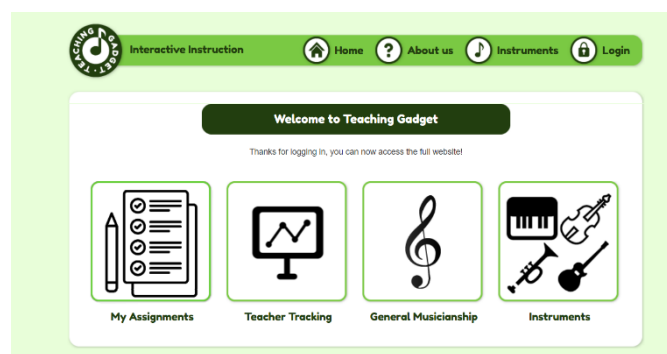


- 2) Click 'Log In'.



- 3) Type the username and password below:

- 4) Click 'My Assignments'



5) Click the drop-down box and select your class. Then click the box 'Select Class'

The screenshot shows the 'Interactive Instruction' website interface. At the top, there is a navigation bar with icons for Home, About us, Instruments, and Login. Below this is the 'Assigned Tasks' section, which contains a text prompt: 'To access your assigned tasks please choose your class from the following list'. Underneath, there is a 'Class:' label followed by a dropdown menu and a 'Select Class' button. The dropdown menu is open, displaying a list of classes including '7G2 Leech MonP1', '7B Leech TuesP4', '7G1 Leech TuesP5', '7M Leech WedP4', '7R Leech FriP1', '7O Adams MonP1', '7Y1 Adams TuesP4', '7Y2 Adams FriP2', '8B3 Leech WedP2', '8A1 Leech WedP5', '8B2 Leech ThuP2', '8A3 Leech FriP2', '8B1 Adams MonP2', '8B4 Adams TuesP5', '8A4 Adams WedP2', '8A2 Adams FriP4', '9B2 Leech MonP2', and '9B1 Leech MonP5'. To the right of the dropdown, there is a 'Sign up to our mailing list' link. At the bottom of the page, there is a footer with links for 'about us', 'Testimonies', 'Support', 'Contact us', 'Term & conditions', and 'Privacy policy'.

6) The next page will display the lessons or quizzes you will need to complete for homework. Below is an example of what you will see.

The screenshot shows the 'Assigned Tasks' page for the class 7G2 Leech MonP1. The page title is 'Assigned Tasks' and the text below it says: 'These are the tasks assigned to your class 7G2 Leech MonP1. Click on the name of the assignment to go directly to that page.' Below this text is a table with the following data:

Class	Assignment	Description	Date Set	Date Due
7G2 Leech MonP1	Pitch Quiz – Treble Clef Spaces	1.	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Treble Clef Lines	2.	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Treble Clef Level 1	3.	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Bass Clef Spaces	4. Extension	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Bass Clef Lines	5. Extension	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Bass Clef Level 1	6. Extension	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Alto Clef Level 1	Xander	20-11-2023	20-11-2023

D	Dynamics	How loud or quiet the music is played	
R	Rhythm	Rhythm and duration is how long or short a note or rest is	
S	Structure & Form	The overall plan or order of a piece of music	
M	Metre	How many beats are in the bar and what type of beat they are, the Time Signature The top number shows there are 3 beats in a bar The bottom number 4 shows the type of beat is a crotchet.	
	Melody	The tune. Moving by step or leap? High or low?	
I	Instrumentation / Voices (Sonority)	Describes the particular sound quality of an instrument or voice. E.g the cymbal sounds like a metallic crash	
T	Texture	Texture describes how melody, harmony and rhythm are layered in a piece of music	
	Tempo	How fast or slow the piece of music is played	
	Tonality	The key of the piece e.g Major or Minor	
H	Harmony	The chords (two notes or more notes played at the same time)	

Note Values

This is a *Rhythm Tree* – it is designed to help you identify what the symbols for different note values are, and how they relate to one another. Here are the note values!

- Semibreve = 4 beats
- Minim = 2 beats
- Crotchet = 1 beat
- Quaver = 1/2 beat
- Semiquaver = 1/4 beat

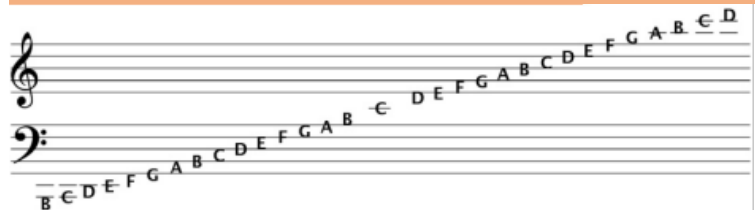
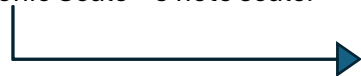


Notes on the Staff

Here are the notes of the **treble** (top line) and **bass** (bottom line) clefs. When the notes fall outside the five lines of music paper, we add extra lines called **ledger** lines. Here are some phrases to help you remember where the notes go!

- Treble Clef Lines: **E**very **G**reen **B**us **D**rives **F**ast
- Treble Clef Spaces: **F** **A** **C** **E** (in the space!)
- Bass Clef Lines: **G**reen **B**uses **D**rive **F**ast **A**lways
- Bass Clef Spaces: **A**ll **C**ows **E**at **G**rass

Pentatonic Scale – 5 note scale.

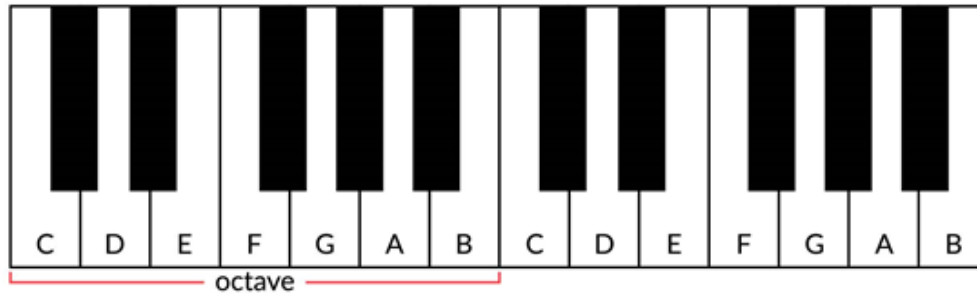


Keyboard Skills

Exploring Treble Clef Reading and Notation



A. Layout of a Keyboard/Piano



A piano or keyboard is laid out with **WHITE KEYS** and **Black Keys** (see section G). C is to the left of the two Black Keys and the notes continue to G then they go back to A again. Notes with the same letter name/pitch are said to be an **OCTAVE** apart. **MIDDLE C** is normally in the centre of a piano keyboard.

D. Keyboard Functions



E. Left Hand/Right Hand (1-5)



B. Treble Clef & Treble Clef Notation

A **STAVE** or **STAFF** is the name given to the five lines where musical notes are written. The position of notes on the stave or staff shows their **PITCH** (how high or low a note is). The **TREBLE CLEF** is a symbol used to show high-pitched notes on the stave and is *usually* used for the right hand on a piano or keyboard to play the **MELODY** and also used by high pitched instruments such as the flute and violin. The stave or staff is made up of 5 **LINES** and 4 **SPACES**.



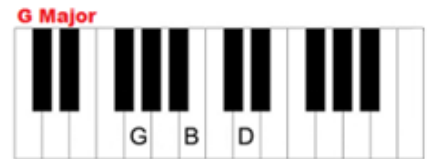
Every Green Bus Drives Fast. Notes in the **SPACES** spell "FACE"



Notes from **MIDDLE C** going up in pitch (all of the white notes) are called a **SCALE**.



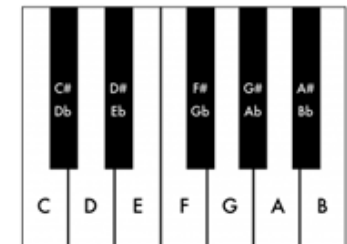
C. Keyboard Chords



Play one – Miss one – play one – miss one – play one

F. Black Keys and Sharps and Flats

There are five different black notes or keys on a piano or keyboard. They occur in groups of two and three right up the keyboard in different pitches. Each one can be a **SHARP** or a **FLAT**. The # symbol means a **SHARP** which raises the pitch by a semitone (e.g. C# is higher in pitch (to the right) than C). The b symbol means a **FLAT** which lowers the pitch by a semitone (e.g. Bb is lower in pitch (to the left) than B). Each black key has 2 names – C# is the same as Db – there's just two different ways of looking at it! Remember, black notes or keys that are to the **RIGHT** of a white note are called **SHARPS** and black notes to the **LEFT** of a white note are called **FLATS**.





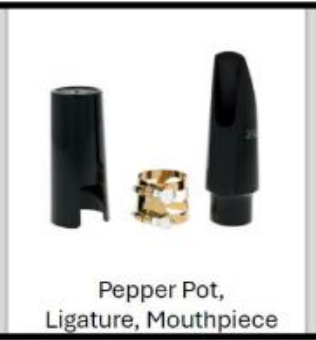
Beginner Saxophone – Autumn Term 'J6'



- Key Parts of the Saxophone**
- ◆ Pepper Pot
 - ◆ Reed
 - ◆ Mouthpiece
 - ◆ Ligature
 - ◆ Neck
 - ◆ Body
 - ◆ Bell
 - ◆ Neck Strap



Name (UK)	Note	Rest	Beat Value
Semibreve			4
Minim			2
Crotchet			1
Quaver			1/2
Semiquaver			1/4



12 Bar Blues

E	E	E	E
A	A	E	E
B	A	E	E

Listen to famous Saxophone songs here:



Blues Music





Loss

Key Words

- Loss** The fact that you no longer have something or have less of something
- Stress** Great worry caused by a difficult situation, or something that causes this condition
- Bereavement** The period after experiencing a loss.



Use the QR code to give the name of the organisation that supports children undergoing loss
.....



Equality & Diversity

The Equality Act protects people against discrimination on the grounds of protected characteristics, of which there are 9:

- age
- disability
- gender reassignment
- marriage and civil partnership
- pregnancy and maternity
- race
- religion or belief
- sex
- sexual orientation

What is bullying?

'The **repetitive, intentional hurting** of one person or group by another person or group, where the relationship involves an **imbalance of power**. Bullying can be physical, verbal or psychological.

It can happen face-to-face or online.'

Report it!

HOH / Pastoral

E-Safety

Key words:

Cyberbullying Cyberbullying or cyberharassment is a form of bullying or harassment using electronic means.

online grooming Online grooming is a process of befriending and manipulating children online for sexual abuse and other forms of child abuse.

emotional abuse Emotional abuse is a type of abuse that is emotional rather than physical in nature. It can include verbal abuse, constant criticism, intimidation, manipulation and a refusal to ever be pleased.

online abuse is any type of abuse that happens on the internet, facilitated through technology like computers, tablets, mobile phones and other internet-enabled devices.

QR code link to help and support.





Worldviews Knowledge Organiser – Why is my hair like that?

Lesson 1 - To know what your hair style says about you.

In this unit, we will explore how our worldview shapes our identity through our hair. We will examine various worldview perspectives on the significance of hair and head coverings, comparing them with our own worldview. By doing so, we can learn from their perspectives and share insights from our own experiences.

Key Terms:

- **Influence:** refers to how our behaviour is shaped by others around us.
- **Identity:** the essence of who we are, encompassing our beliefs, values, and self-perception. Our identity is often moulded by the cultural context we inhabit and the interactions we have with others.

Lesson 2 – To know why witches, wear pointy hats.

Understanding Modern Witchcraft: modern witchcraft encompasses various contemporary practices that draw inspiration from pre-Christian European religions. Wicca, the largest modern Pagan religion, is often associated with witchcraft. Wiccans typically identify as witches and follow nature-based spiritual beliefs.

Why the Concern?: Despite its diverse forms, modern witchcraft can evoke curiosity, fear, or misunderstanding. Societal stereotypes and historical associations contribute to the fascination and apprehension surrounding witchcraft.

Key Terms:

- **Wicca:** A Neo-Pagan religion that emphasizes reverence for nature, magic, and the divine. Wiccans often identify as witches.
- **Pagan:** A general term for traditional religions that often involve multiple gods or goddesses.
- **Stereotype:** Making assumptions about a group based on specific characteristics.

Lesson 3 – To know about orthodox Jews and their hair.

At The Castle School, we strive to be inclusive of all traditional clothing practices. Here are some key terms to consider:

- **Orthodox Jew:** An Orthodox Jew is someone who adheres closely to the rules and teachings of the Torah (the Jewish sacred text). Their clothing choices often reflect their commitment to religious observance.
- **Peyot:** Peyot are the sidelocks worn by Orthodox Jewish men. These locks of hair are a visible sign of their faith and devotion.
- **Sheitel:** A sheitel is a wig worn by married Jewish women. It is often worn to cover their natural hair, in accordance with religious guidelines.
- **Tichel:** A tichel is a headscarf worn by Jewish women. It serves both practical and cultural purposes, and there are various styles and colours.
- **Mitzvot:** Mitzvot are the commandments or laws given by God in Jewish tradition. These laws guide various aspects of life, including clothing choices.

By embracing and respecting these diverse clothing practices, we create a more inclusive and understanding environment at our school.

Lesson 4 – To know about Buddhist monks and their hair (or lack of it)

Let us explore the key ideas related to giving up something for reflection and the significance of certain practices:

- **Liberation through Sacrifice:** The concept of giving up something, whether material possessions or attachments, can lead to liberation. By letting go, we create space for deeper reflection and connection with what truly matters.
- **Buddha Dharma:** Buddha Dharma refers to Buddhism, a spiritual tradition founded by Siddhartha Gautama (the Buddha). Buddhists seek enlightenment and liberation from suffering through various practices.
- **Sangha:** The Sangha represents the community of Buddhists. It provides support, guidance, and a sense of belonging on the spiritual path.
- **Tonsure:** Tonsure involves cutting one's hair or shaving the head for religious reasons. In Buddhism, it symbolises renunciation and detachment from worldly concerns.
- **Pabbajja:** Pabbajja means "going forth." It refers to the act of leaving behind possessions, family, and ordinary life to become a monk or nun. By embracing simplicity, one can focus on spiritual growth.

Lesson 5 – To know about Muslims and their hair.

Let us explore the key ideas related to people's treatment based on beliefs and appearance, as well as the question of whether individuals should be allowed to wear whatever they want. I will address both perspectives:

- **Understanding Unfair Treatment:** People sometimes face discrimination or mistreatment due to their beliefs or appearance. Stereotypes and biases can lead to negative experiences for individuals who express their identity through clothing.
- **Clothing and Identity:** The hijab, burka, and niqab are examples of clothing choices that hold cultural, religious, and personal significance. Modesty, as a value, influences how people choose to dress.
- **Freedom of Expression:** Allowing people to wear what they want promotes freedom of expression. It acknowledges individual autonomy and diversity.
- **Considering Different Perspectives:** Some argue that dress codes in schools or workplaces are necessary for uniformity, safety, or professionalism. Balancing personal expression with community norms can be challenging.

Should we be allowed to wear whatever we want at The Castle School?

- **Yes, we should:** **Individual Expression:** Allowing personal clothing choices fosters creativity and self-expression. **Respecting Diversity:** Acknowledging diverse backgrounds and beliefs enriches our school community. **Learning Opportunity:** Encountering different styles and traditions broadens our understanding.
- **No, we should not:** **Uniformity:** Dress codes promote a sense of unity and prevent distractions. **Safety and Security:** Certain clothing items may pose safety risks (e.g., loose scarves in labs). **Professionalism:** In some contexts, adhering to dress standards is essential (e.g., job interviews).

Lesson 6 – To know about Sikhs and their hair.

Let us explore how the Sikh practice of wearing a turban reflects the principle of equality within the Sikhi faith:

- **Sikhi and the Khalsa:** Sikhi, also known as Sikhism, is a monotheistic religion founded in the 15th century in the Indian subcontinent. Baptized Sikhs, known as the Khalsa, follow specific practices and principles.
- **The 5 Ks:** The 5 Ks are essential symbols worn by baptized Sikhs. They represent their commitment to Sikh values. One of the Ks is **Kesh**, which refers to uncut hair. Sikhs believe that hair is a natural gift from God and should not be altered.
- **The Turban (Dastar):** Sikhs often wear a turban (dastar) as part of their religious observance. The turban covers the uncut hair (kesh) and serves as a visible sign of Sikh identity.
- **Equality and Respect:** Sikhi emphasizes equality and treating all individuals with respect. By wearing the turban, Sikhs demonstrate their commitment to equality, regardless of social status, caste, or appearance.
- **Breaking Stereotypes:** The turban challenges stereotypes and promotes understanding. It signifies that every Sikh, regardless of gender or background, shares the same commitment to faith and values.

In summary, the Sikh practice of wearing the turban symbolizes equality, unity, and respect for all, reinforcing the core principles of Sikhi.

Science - *Biology*

Composite title	Essential knowledge	Keywords
<p>Week 1</p> <p>What are living things made of?</p>	<p>All living organisms are made up of cells.</p> <p>Animal Cell structure include:</p> <ul style="list-style-type: none"> • Nucleus • Membrane • Cytoplasm • Ribosome • Mitochondria <p>Plant cell structure include organelles above plus:</p> <ul style="list-style-type: none"> • Cell wall • Chloroplast • Vacuole <p>Function of the cell structures.</p> <ul style="list-style-type: none"> • Cytoplasm - Chemical reactions occur here • Nucleus - Contains the genetic information. Controls the cells activity • Cell membrane - Controls what enters or leaves the cell • Mitochondria - Carry out respiration to release energy • Chloroplast - Photosynthesis occurs here. • Vacuole - Contain cell sap to keep cell swollen. • Cell Wall - Provides structure and support. <div data-bbox="994 485 1733 890" style="text-align: center;"> <p>The diagram shows two cells side-by-side. On the left is an 'Animal cell', which is roughly spherical with a thin blue outer boundary. Inside, there is a large blue nucleus, several small pink oval mitochondria, and a light blue cytoplasm. On the right is a 'Plant Cell', which is rectangular with a thick yellow outer boundary (cell wall) and a thin blue inner boundary (cell membrane). It contains a large green permanent vacuole, a blue nucleus, several green chloroplasts, and pink mitochondria. Labels with arrows point to these structures: Cytoplasm, Nucleus, Cell membrane, Cellulose cell wall, Mitochondrion, Permanent vacuole, and Chloroplast.</p> </div>	<p>Organelle Nucleus Cytoplasm Cell wall Cell membrane Chloroplast Vacuole Cell</p>

Week 2
Using a microscope

Parts of a microscope:

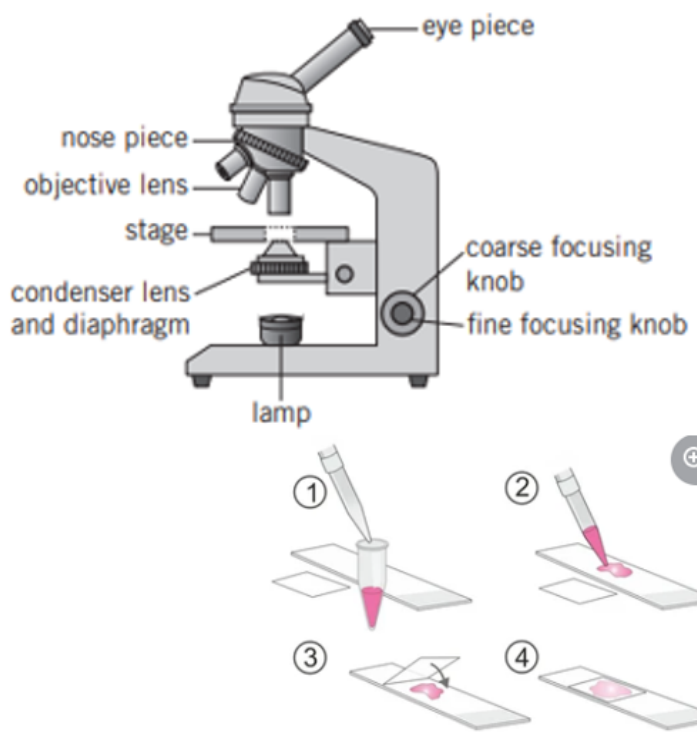
- Stage
- Eyepiece lens
- Objective lens
- Focusing knob

Preparation of cheek cell with stain method:

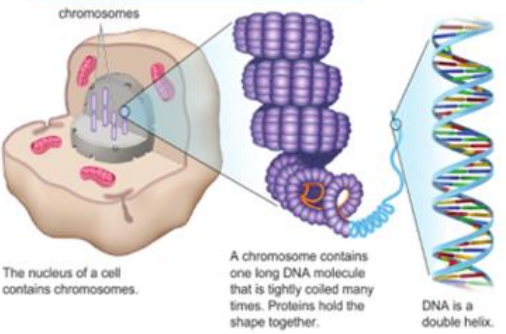
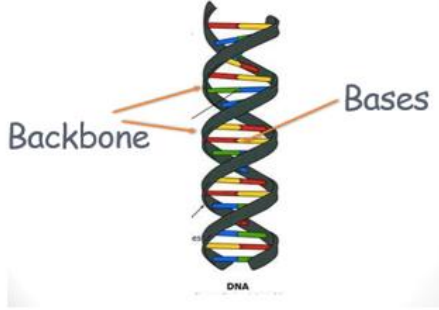
1. Using a cotton wool bud, rub the inside of your cheek to collect the cells.
2. Streak the cotton wool bud onto a microscope slide.
3. Place two to three drops of methylene blue solution onto the streak (stains make the cell parts easier to see)
4. Carefully place the cover slip onto the slide.
5. Observe under the microscope using low power before moving to a higher power.

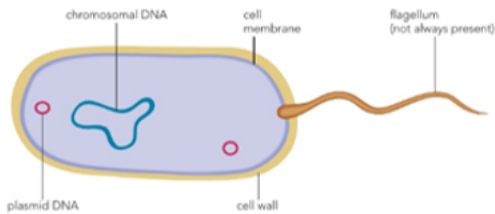
To calculate overall magnification:
Eyepiece lens x objective lens

Magnification is how many times bigger an image is compared to its original size.
Resolution is the ability to distinguish between two separate points on an image (how detailed it is)



Microscope
Magnification
Focus
Resolution
Lens

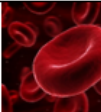



<p>Week 3</p> <p>What is DNA?</p>	 <p>The nucleus of a cell contains chromosomes.</p> <p>A chromosome contains one long DNA molecule that is tightly coiled many times. Proteins hold the shape together.</p> <p>DNA is a double helix.</p> <div data-bbox="1176 231 1534 622" style="background-color: #4a86e8; color: white; border-radius: 15px; padding: 10px; text-align: center;"> <p>DNA has a double helix shape.</p> <p>DNA consists of a backbone and bases.</p> <p>The complimentary base pairs are:</p> <p>A and T</p> <p>G and C</p> </div> 	<p>DNA</p> <p>Chromosome</p> <p>Double Helix</p> <p>Base</p> <p><i>Base pairs</i></p>
---	--	---

<p>Week 4</p> <p>Other types of <u>cell</u></p>	<p>Structure of bacterium:</p> <ul style="list-style-type: none"> • Unicellular (one cell) • NO nucleus • Cell wall • Chromosomal DNA • Plasmid DNA • Some have <u>flagella</u> 	<p>Bacteria are microorganisms (very small living things)</p> <p>Not all bacteria are bad. Many are useful to humans.</p>	<p>Unicellular</p> <p>Multicellular</p> <p>Bacterium/ (bacteria as plural)</p> <p>Plasmid</p>
---	--	--	---

Other microorganisms include: Fungi and viruses.

Roles of differentiated/ specialised cells in multicellular organisms including:

- Egg
- Sperm
- red blood cell
- root hair

Cell	Function	Adaptations	Image
Red blood cell	To carry oxygen around the body	Large surface area to carry oxygen. Haemoglobin to carry oxygen. No nucleus for plenty of space for haemoglobin.	
Sperm cell	To reach female egg cell and fertilise it (fuse with it)	Tail for swimming. Acrosome with digestive enzymes to help break through egg cell. Mitochondria to provide energy.	
Egg cell	To be fertilised by a sperm cell	Only allows one sperm cell through membrane. Contains yolk which provides a large store of <u>nutrients</u>	
Root hair cell	to absorb water from the soil for the plant.	Thin membrane and a large surface area to speed up the rate of diffusion.	



Multicellular organisms consist of many cells.

Specialised cells are cells that have a specific function. They are well adapted to carry out their function in a number of different ways.

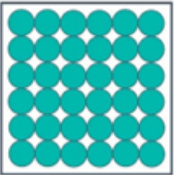
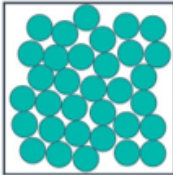

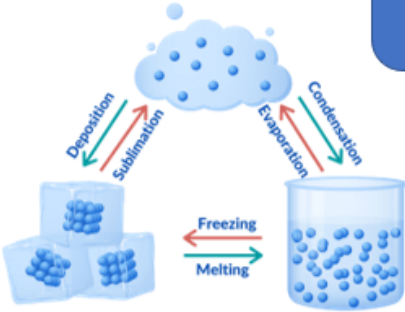
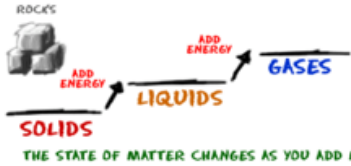
Eukaryotic cells contain a nucleus

Prokaryotic cells do not contain a nucleus

Chromosomal DNA
Flagellum
Specialised cell
Differentiated

<p>Week 5</p> <p>How can we see bacteria?</p>	<p>Practical investigation</p> <p><u>Aim 1</u>- To create plates using an aseptic technique to test what is living on your skin.</p> <p><u>Aim 2</u>- To investigate whether washing your hands has an impact on what's living on your <u>skin</u></p> <p>Method (aseptic technique):</p> <ol style="list-style-type: none"> 1. Wipe down the surface you are going to work on using antiseptic and blue roll. 2. Put the blue roll in the bucket provided – not the <u>bin</u> 3. Place a piece of foil on the <u>desk</u> 4. Set up a Bunsen burner and leave this on the blue flame near where you are <u>working</u> 5. Collect an agar plate, draw a line across the bottom and write your initials on it. 6. Your partner can take the lid off whilst you carefully rub your finger across the agar – do not push too hard. 7. Place the lid back on the plate and tape shut with a cross shape – do not completely seal the agar plate! 8. Turn off the Bunsen burner, and return the <u>foil</u> 9. Wipe down the area you have been working on with blue roll and place this in the bucket. 	<p>Aseptic technique means using practices and procedures to prevent contamination</p> 	<p>Aseptic technique Sterile Agar plate Petri dish Microorganism</p>
<p>Week 6</p> <p>How can we use microorganisms?</p>	<p>All living organisms can do the 7 following life processes:</p> <p>Movement Respiration Sensitivity</p> <p>MRS GREN</p>  <p>Growth Reproduction Excretion Nutrition</p> <p><u>Uses of fungi (yeast):</u> Making bread - Carbon dioxide released in respiration causes the bread to rise. Making beer – through fermentation, air is kept out of the mixture so the yeast <u>can</u> aerobically respire.</p> <p><u>Uses of bacteria:</u> Making yogurt. Method:</p> <ol style="list-style-type: none"> 1. Heat 100cm³ milk to 85°C in a beaker on a tripod and gauze. 2. Cool milk to 43°C, continue <u>stirring</u> 3. Add 1 teaspoon of starter (natural yogurt with bacteria in) 4. Put in plastic cup <u>an</u> cover in cling film with your name on. 5. These will be incubated. 	<p>Aerobic respiration word equation: Glucose + Oxygen → Carbon dioxide + Water</p> <p>Anaerobic respiration in yeast: Glucose → Carbon dioxide + ethanol (an alcohol)</p>	<p>Fermentation Fungi Yeast Egestion Reactants Products Reaction</p>

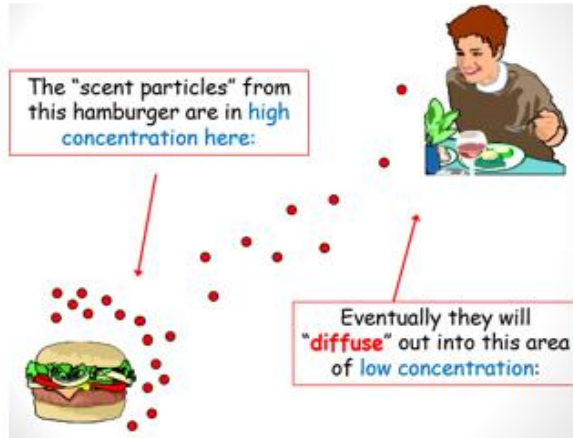
Chemistry

Composite title	Essential knowledge	Key words																								
<p>What are the states of matter?</p> <p>Week 1</p>	<p>Matter is the material from which everything is made. It can exist as three states: Solid, liquid and gas</p> <p>Particle diagrams:</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  <p>Solid Particles in solids <u>vibrate</u></p> </div> <div style="text-align: center;">  <p>Liquid Particles in liquids can move over <u>one another</u></p> </div> <div style="text-align: center;">  <p>Gas Particles in gases are spaced out. They move quickly and randomly</p> </div> </div> <p>Properties of solids, liquids and gases:</p> <table border="1" data-bbox="495 874 954 1305"> <thead> <tr> <th>Property</th> <th>Solid</th> <th>Liquid</th> <th>Gas</th> </tr> </thead> <tbody> <tr> <td>Is the shape fixed or can it change?</td> <td>Fixed</td> <td>Shape of the container</td> <td>Shape of the container</td> </tr> <tr> <td>Does it flow?</td> <td>Cannot flow</td> <td>Can flow</td> <td>Can flow</td> </tr> <tr> <td>Is it easy to squash?</td> <td>No</td> <td>No</td> <td>Yes</td> </tr> <tr> <td>Can you change its volume?</td> <td>Fixed Volume</td> <td>Fixed Volume</td> <td>No Fixed Volume</td> </tr> <tr> <td>Does it feel heavy or light?</td> <td>Heavy</td> <td>Heavy</td> <td>Light</td> </tr> </tbody> </table> <p style="text-align: center;">State changes:</p>  <div style="border: 2px solid blue; border-radius: 15px; padding: 10px; width: fit-content; margin: 10px auto;"> <p>State changes are physical changes. They can be reversed.</p> </div>  <p style="text-align: center; color: green; font-weight: bold;">THE STATE OF MATTER CHANGES AS YOU ADD MORE ENERGY</p>	Property	Solid	Liquid	Gas	Is the shape fixed or can it change?	Fixed	Shape of the container	Shape of the container	Does it flow?	Cannot flow	Can flow	Can flow	Is it easy to squash?	No	No	Yes	Can you change its volume?	Fixed Volume	Fixed Volume	No Fixed Volume	Does it feel heavy or light?	Heavy	Heavy	Light	<p>State Matter Particles Energy Physical Change Solids Liquids Gases Evaporation Condensation Melting Freezing Sublimation Deposition Vibrate</p>
Property	Solid	Liquid	Gas																							
Is the shape fixed or can it change?	Fixed	Shape of the container	Shape of the container																							
Does it flow?	Cannot flow	Can flow	Can flow																							
Is it easy to squash?	No	No	Yes																							
Can you change its volume?	Fixed Volume	Fixed Volume	No Fixed Volume																							
Does it feel heavy or light?	Heavy	Heavy	Light																							

What is diffusion?

Week 2

Diffusion is 'the movement of particles from an area of high concentration to an area of low concentration'.
Diffusion is a passive process, it does not require energy. It happens naturally.



Temperature can affect the rate (speed) of diffusion.
At higher temperatures substances diffuse quicker.

Liquids and gases are both fluids. They can flow.



Fluid
Diffusion
Brownian motion

How do the particles know which way to move?!

They don't!! Particles in fluids (gases and liquids) move **RANDOMLY**



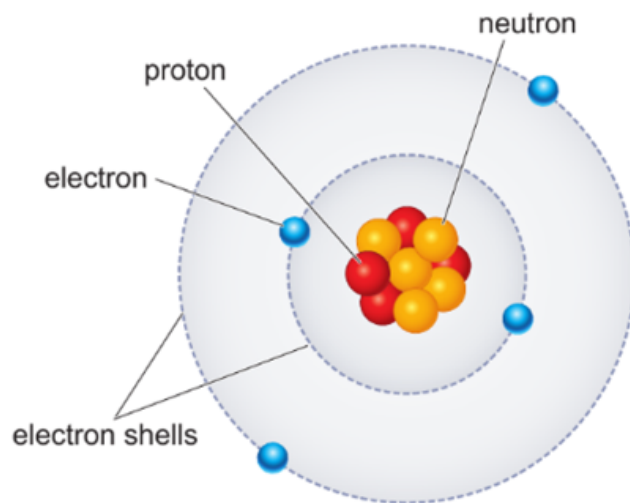
This is called **Brownian motion** (named after Robert brown who observed pollen grains moving randomly in water in 1827)

What is the universe made of?

Week 3

All matter is made up of very ~~very~~ small atoms (these cannot be seen with the eye)

Atomic structure:



Atoms are made up of 3 **subatomic** particles. Protons and neutrons are found in the centre and make up the **nucleus**. Electrons orbit the nucleus on shells.

Masses and charges of the subatomic particles:

Subatomic particle	Relative charge	Relative mass
proton	+1 (positive)	1
electron	-1 (negative)	1/1835 (negligible)
neutron	0 (no charge)	1

B relative masses and relative charges of subatomic particles

Atom
Nucleus
Proton
Electron
Neutron
Electron Shell
Atomic Number
Atomic Mass
Electron configuration

Different atoms have different numbers of protons neutrons and electrons. We can use the periodic table to find out how many protons neutrons and electrons are in different atoms.

Atomic number =
number of protons

Atoms have the same number
of electrons as protons



Relative Atomic Mass =
number of protons +
neutrons

Number of Neutrons =
Mass number - Atomic
number

The **atomic number** is
the smaller number
and the **relative
atomic mass** is the
bigger number

Electron configuration shows how many electrons are in each shell.

Argon has 18 electrons. It will have 2 electrons on the first shell, 8 on the second shell and 8 on the third shell.

Its electron configuration is 2,8,8

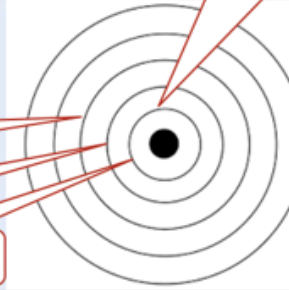
Electron configuration

Always start on the inner most shell.

Max. 8 electrons

Max. 8 electrons

Max. 2 electrons



What is an element?

Week 4

Elements are substances that are made up of **one type of atom**. For example, pure copper will only contain copper atoms.

The different elements we have discovered on earth are found on the periodic table. Each element is represented by a symbol on the periodic table.

The metals are on the left and the non-metals are on the right. The columns are called **groups** and the rows are called periods.

Some elements consist of one atom. Some go around in

Periodic Table of Elements

1	IA																17	18
2	IIA										IIIA						16	18
3	IIIA										IIIA						16	18
4	IIIA										IIIA						16	18
5	IIIA										IIIA						16	18
6	IIIA										IIIA						16	18
7	IIIA										IIIA						16	18

* Lanthanide Series: Ce, Pr, Nd, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu
 * Actinide Series: Th, Pa, U, Np, Pu, Am, Cm, Bk, Cf, Es, Fm, Md, No, Lr

Element
Periodic table
Properties

Some elements consist of one atom. Some go around in pairs e.g. O₂, H₂, some consist of thousands of atoms but they are all elements because they contain one type of atom.




Properties of elements can be investigated such as:

- Conductivity (electrical)
- Conductivity (thermal)
- Boiling point
- Melting point
- State at room temperature
- Appearance
- Metal or non-metal
- Magnetic






Hazards and everyday uses





Week 5

Many chemicals in the lab and in every day life can be hazardous. Hazard symbols inform us of the hazards.

Hazard symbol	What it means	How to reduce risk of harm.
	Explosive May explode if exposed to fire, heat, shock, friction.	Avoid ignition sources (sparks, flames, heat) Keep your <u>distance</u> Wear protective <u>clothing</u>
	Flammable Flammable if exposed to ignition sources, sparks, heat. Some substances with this symbol may give off flammable gases in contact with water.	Avoid ignition sources (sparks, flames, heat) Keep your <u>distance</u> Wear protective <u>clothing</u>
	Oxidising Agent Can burn even without <u>air</u> or can intensify fire in combustible materials.	Avoid ignition sources (sparks, flames, heat) Keep your <u>distance</u> Wear protective clothing

Irritant
Corrosive
Harmful
Toxic
Flammable
Explosive
Pressure

			<p><u>Gas under pressure</u></p> <p>Contains gas under pressure. Gas released may be very cold. Gas container may explode if heated.</p>	<p>Do not heat <u>containers</u> Avoid contact with skin and <u>eyes</u></p>	
			<p><u>Corrosive</u></p> <p>Corrosive material which may cause skin burns and permanent eye damage.</p>	<p>Avoid contact with skin and <u>eyes</u> Do not breathe vapours or <u>sprays</u> Wear protective <u>clothing</u></p>	
			<p><u>Toxic</u></p> <p>Toxic material which may cause life threatening effects even in small amounts and with short exposure.</p>	<p>Do not swallow the material, allow it to come into contact with skin or breathe <u>it</u></p>	
			<p><u>Health problems</u></p> <p>May cause serious and prolonged health effects on <u>short or long term</u> exposure.</p>	<p>Do not swallow the material, allow it to <u>come into contact with</u> skin or breathe it.</p>	
			<p><u>Irritant</u></p> <p>May cause irritation (redness, rash) or less serious toxicity.</p>	<p>Keep away from skin and <u>eyes</u></p>	

	<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">  </div> <div style="border: 1px solid black; padding: 5px;"> <p>Toxic to the environment</p> <p>Toxic to aquatic organisms and may cause long lasting effects in the environment.</p> </div> <div style="border: 1px solid black; padding: 5px;"> <p>Avoid release to the <u>environment</u></p> </div> </div>	
<p>Chemical Reactions</p> <p>Week 6</p>	<p>For a chemical reaction to have occurred a new substance has to have been formed.</p> <p>For a chemical reaction to have occurred a new substance has to have been formed.</p> <p>Reactants → Products (Starting <u>chemicals</u>) (New chemicals)</p> <p>There are three main ways to tell that a chemical reaction has occurred.</p> <ol style="list-style-type: none"> 1. A colour <u>change</u> 2. A gas is released (effervescence) 3. There is an energy change (e.g. changing temperature) <p>Chemical reactions usually cannot be reversed (irreversible)</p> <div style="border: 1px solid black; background-color: #4a7ebb; color: white; padding: 10px; text-align: center;"> <p>Remember: A physical change is a change in state. Physical changes can be reversed.</p> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 20px;"> <div style="text-align: center;">  <p>#1: A new color appears</p> </div> <div style="text-align: center;">  <p>#2: Heat, light, or sound is given off (or absorbed).</p> </div> <div style="text-align: center;">  <p>#3: Bubbles of gas are formed. A new odour may be noticed</p> </div> </div> <div style="border: 1px solid black; background-color: #4a7ebb; color: white; padding: 10px; margin-top: 20px; text-align: center;"> <p>The arrow shows a chemical reaction has happened, but an equals sign shows the items before and after are the same.</p> </div> <p>Writing chemical equations:</p>	<p>Reaction</p> <p>Reversible</p> <p>Irreversible</p> <p>Reactant</p> <p>Product</p> <p>Effervescence</p>

When **magnesium** is burned in **oxygen** , **magnesium oxide** is made.

Magnesium + oxygen → **magnesium oxide**

When **water** is added to **copper sulphate**, **hydrated copper sulphate** is made.

Copper sulphate + water → **hydrated copper sulphate**

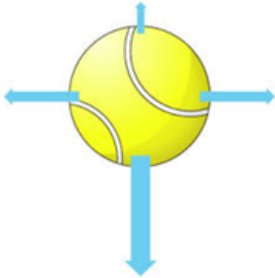




When **magnesium** is added to **hydrochloric acid**, **hydrogen** is made along with **magnesium chloride**.

Magnesium + hydrochloric acid(g) → **magnesium chloride + hydrogen**

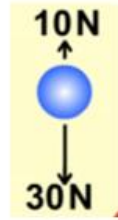
Reactants: The chemicals which are present at the start of the reaction

Products: The chemicals made in a chemical reaction

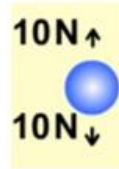
Physics

Composite title	Essential knowledge	Key words
<p>Week 1</p> <p>What is a force?</p>	<p>Forces are a push or pull which can change the speed, <u>direction</u> or shape of an object.</p> <p>All forces are measured in Newtons (N)</p> <p>We cannot see <u>forces</u> so we need to use diagrams to represent them. FREE BODY DIAGRAMS show the forces acting on an isolated object.</p> <p>Free body diagram:</p>  <div data-bbox="819 592 1122 882" style="border: 1px solid blue; border-radius: 15px; background-color: #4a7ebb; color: white; padding: 10px;"> <p>Free body diagrams...</p> <ul style="list-style-type: none"> • Use arrows to represent forces. • The direction of the arrow shows the direction of the force. • The size of the arrow represents the size of the force. </div>  <p>Forces are measured in NEWTONS using a FORCE METER.</p> <p>Objects can be hung from the hook at the bottom of the force meter the scale will show the strength of the force in Newtons.</p> 	<p>Force</p> <p>Free-body diagram</p> <p>Newton meter</p>
<p>Week 2</p> <p>What is the resultant force?</p>	<p>Forces can be contact or non-contact.</p> <p>Examples of contact forces include: Air resistance, up-thrust, friction, push, pull, normal contact force.</p> <p>Non-contact forces include: Static, magnetism, gravitational force.</p> <p>Forces acting on a single object can be balanced or unbalanced.</p> <p>If forces are balanced the motion of an object will not change – the object will be stationary (still) or will be travelling at a constant speed.</p> <p>Unbalanced forces cause the objects motion to change e.g. accelerate or decelerate.</p> <div data-bbox="1081 927 1552 1305" style="border: 1px solid gray; padding: 10px;"> <p>If there are equal forces pulling on both the force meters they will not move. This is because the forces are BALANCED.</p>  <p>If one of the forces is larger there will be movement. This is because the forces are UNBALANCED.</p>  </div>	<p>Balanced</p> <p>Unbalanced</p> <p>Resultant</p>

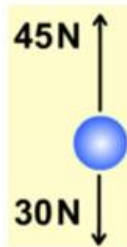
Calculating **resultant** forces:
The resultant force is the overall effect of the forces acting on an object.



Resultant force = 20N
down



Resultant force = 0N

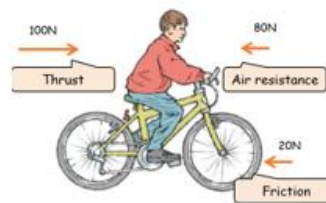


Resultant force = 15N
up



Resultant force = 5N Left

If forces are acting in opposite directions you subtract the numbers.
If the forces are acting in the same direction you add them together.



Resultant force = 0N

Week 3

How can we measure forces?



Aim: to make a Newton meter and find the weight of an unknown object.

Method:

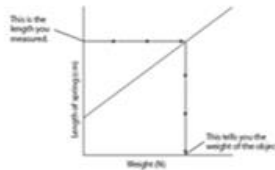
1. Attach 100g mass to the end of the spring.
2. Record the extension of the spring.
3. Repeat with more masses.

Mass (g)	Weight (N)	Extension of Spring (cm)
100		
200		
300		
400		
500		

Create a graph with spring extension on the Y axis and weight on the x axis.
Example:

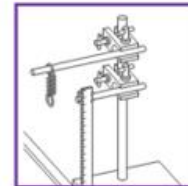
You can use your graph to tell the weight of a mystery object.
Attach the object to the spring and measure the extension.

Read this off of the graph to find the weight of the object.

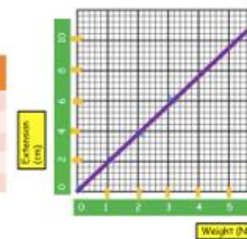


You will need:


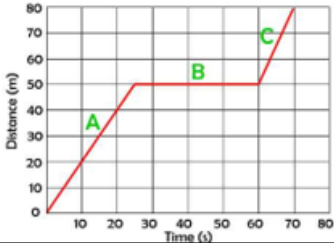
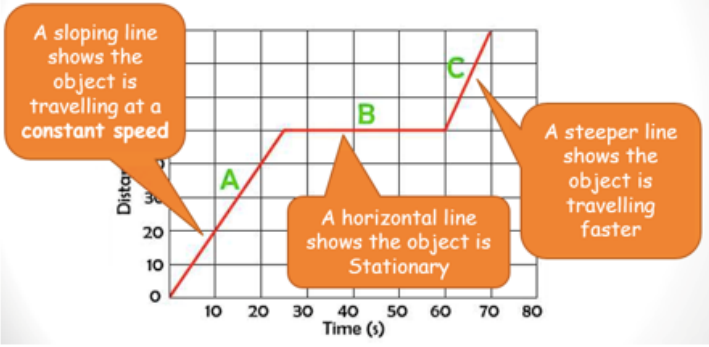




- Stand
- 2 Clamps
- Spring
- Meter Ruler
- Set of Masses



Weight (N)	Extension (cm)
0	0
1	2
2	4
3	6
4	7



Meter
Newton
Calibrate
Measure
Unit

<p>Week 4</p> <p>How can we measure speed?</p>	<p>SPEED is the measure of how much distance an object moves in a set time.</p> <p>Speed = distance/time</p> <p>Different units can be used for speed, distance and time. In science we usually use the following: Speed – m/s (meters per second) Distance – m (meters) Time – s (seconds)</p>	$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$ $\text{Distance} = \text{Speed} \times \text{Time}$ $\text{Time Taken} = \frac{\text{Distance}}{\text{Speed}}$ 	<p>Speed Distance time</p>
<p>Week 5</p> <p>How can we show a journey?</p>	<p>Distance/Time graphs can be used to show a journey..</p> <p>Example distance time graph. The distance travelled is plotted against the time it took to travel the distance</p> 		<p>Distance-time graph</p>
<p>Week 6</p> <p>How can we go faster?</p>	<p>Air resistance and friction are both forces which oppose motion (they act in the opposite direction to the movement of an object)</p> <p>Lubrication is a substance that can reduce friction (like oil or grease). For <u>example</u> using oil to reduce the friction in car gears.</p> <p>Many vehicles are designed to reduce the effects of air resistance. They are known as being aerodynamic as they have shapes designed to 'cut' through the air.</p> 	<p>Friction can be felt when you rub your hands together. Heat is transferred as you rub your hands together as a result of friction</p>  <p>If you get your hands wet and then rub them together. You will not experience as much heat transfer. The water acts as a lubricant between your hands.</p>  <p>Runners and cyclists wear Lycra. Lycra is smooth so reduces friction. It is also skin tight so reduces air resistance. This helps the runner or cyclist go faster.</p> 	<p>Friction Air resistance Lubrication Oppose Aerodynamic</p>