

Knowledge Organiser

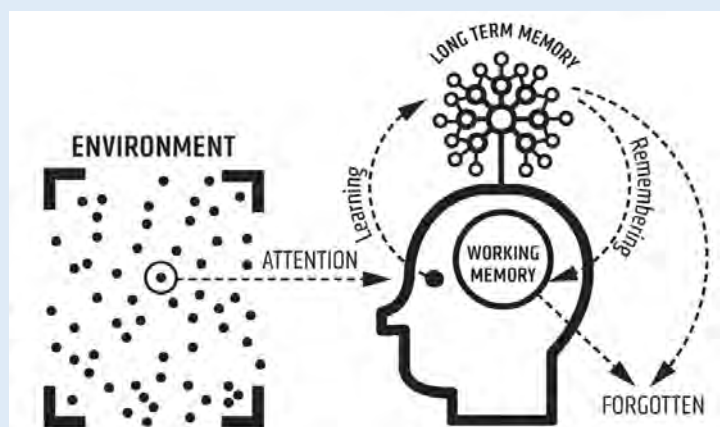
Booklet Year 7 Term 3



Our working memories can only store a limited amount of information, whereas our long term memories can store limitless information. To learn successfully, we need to store core knowledge into our long term memories, so we can retrieve it when we need it.

For instance if you are at work or in the shops and need to work out a 25% discount, you cant memorise 25% of every number, so you need to be able to quickly recall the method for calculating a percentage. Committing core knowledge to our long-term memories is a life-hack. It makes thinking about difficult things easier.

Using a knowledge organiser with regular retrieval activities is a way for you to store core knowledge & subject specific words, into your long term memory so it is there when you need it.



Contents

Clicking on the subjects below will take you directly to the knowledge organisers for each subject. These are to support learning that has taken place this past term. Use these to help reinforce the key knowledge. Use some of the strategies explained in the introduction to help you retain this important information.

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Blended Learning Expectations

Make sure you have access to a computer at home (If you don't please make pastoral staff aware or email langley.homelearning@taw.org.uk)

Download Microsoft Teams on both your phone and computer. (If you don't know how to do this please ask a member of staff or do this in your next computing lesson)













Spend at least 2 hours a week using teams EVERY WEEK. (Engagement in teams can be tracked and monitored). You need to be accessing each of your class teams and recapping on the previous learning or completing additional tasks set by your class teacher.













If you have any issues with teams (e.g. login problems or missing classes etc then please email langley.homelearning@taw.org.uk)

Teams is a tool to support ongoing learning and should **only be used for educational purposes.**



How to complete homework your teacher has set

	LOOK, COVER, WRITE, CHECK	DEFINITIONS TO KEY WORDS	FLASHCARDS	DUAL CODING
STAGE 1	<p>Look at & study an area of your knowledge organiser</p> 	<p>Write down the key words & definitions</p> 	<p>Write key words, dates/formulae, equations/quotes on one side & answers on the other</p> 	<p>Draw pictures/diagrams/ cartoon strips</p> 
STAGE 2	<p>Cover up your knowledge organiser and write everything you remember</p> 	<p>Cover up the definitions. How many can you remember? Repeat.</p> 	<p>Include pictures or diagrams if it helps. Read through them.</p> 	<p>Label your pictures/diagrams/ cartoon strips</p> 
STAGE 3	<p>Check. Correct mistakes in green and add anything you missed. Repeat</p> 	<p>Check. Correct mistakes in green pen. Which ones do you find hard to remember?</p> 	<p>Test yourself and get someone to test you.</p> 	<p>Explain out loud to yourself or family/friend what your images show</p> 

	SELF QUIZZING	MINDMAPS	PAIRED RETRIEVAL	SPEAK, COVER, WRITE, CHECK
STAGE 1	<p>Use your knowledge organiser to create quiz questions.</p> 	<p>Create a mindmap of everything you can remember from your knowledge organiser</p> 	<p>Give a family member/friend the knowledge organiser to hold</p> 	<p>Read out loud the information from the knowledge organiser several times.</p> 
STAGE 2	<p>Write down the answers to your quiz</p> 	<p>Check your knowledge organiser & use a green pen to make any corrections.</p> 	<p>Get them to test you using the knowledge organiser</p> 	<p>Cover up your knowledge organiser and write everything you remember</p> 
STAGE 3	<p>Keep self-quizzing until you get all the answers correct</p> 	<p>Add additional information to your mindmap or make connections to other knowledge</p> 	<p>Write down your answers to their questions</p> 	<p>Check. Correct mistakes in green and add anything you missed. Repeat.</p> 

Retrieval Placemat

Look at your knowledge organiser. Now cover it up and write down
Key vocabulary & definitions from memory:

First time: Look.
Cover. State 3 facts

Second time: Look.
Cover. State 3 facts

Third time: Look.
Cover. State 3 facts

Check & green pen your answers

Look at the knowledge organiser again. Now cover it up and
without looking, explain a concept or idea in your own words

Re-read your answer above. Look at the knowledge organiser
again. Now cover it up and improve on your previous explanation in
green pen.

Retrieval Relay

Look at your knowledge organiser. Now cover it up.

First time: Write down everything you can remember

Second time: Look. Cover. Write down everything you can remember

Third time: Look. Cover. Write down everything you can remember

Write down everything here that you didn't remember:

Vocabulary focus 1

Look at your knowledge organiser. Select a key word and write it here:

Write a definition of the key word in your own words - not the same as the one on the knowledge organiser:

Write a sentence with the key word in it:

Create a question where the key word is the answer:

What other words are connected to this key word?

Draw a picture or diagram to help you remember this key word:

Vocabulary focus 2

Definition:

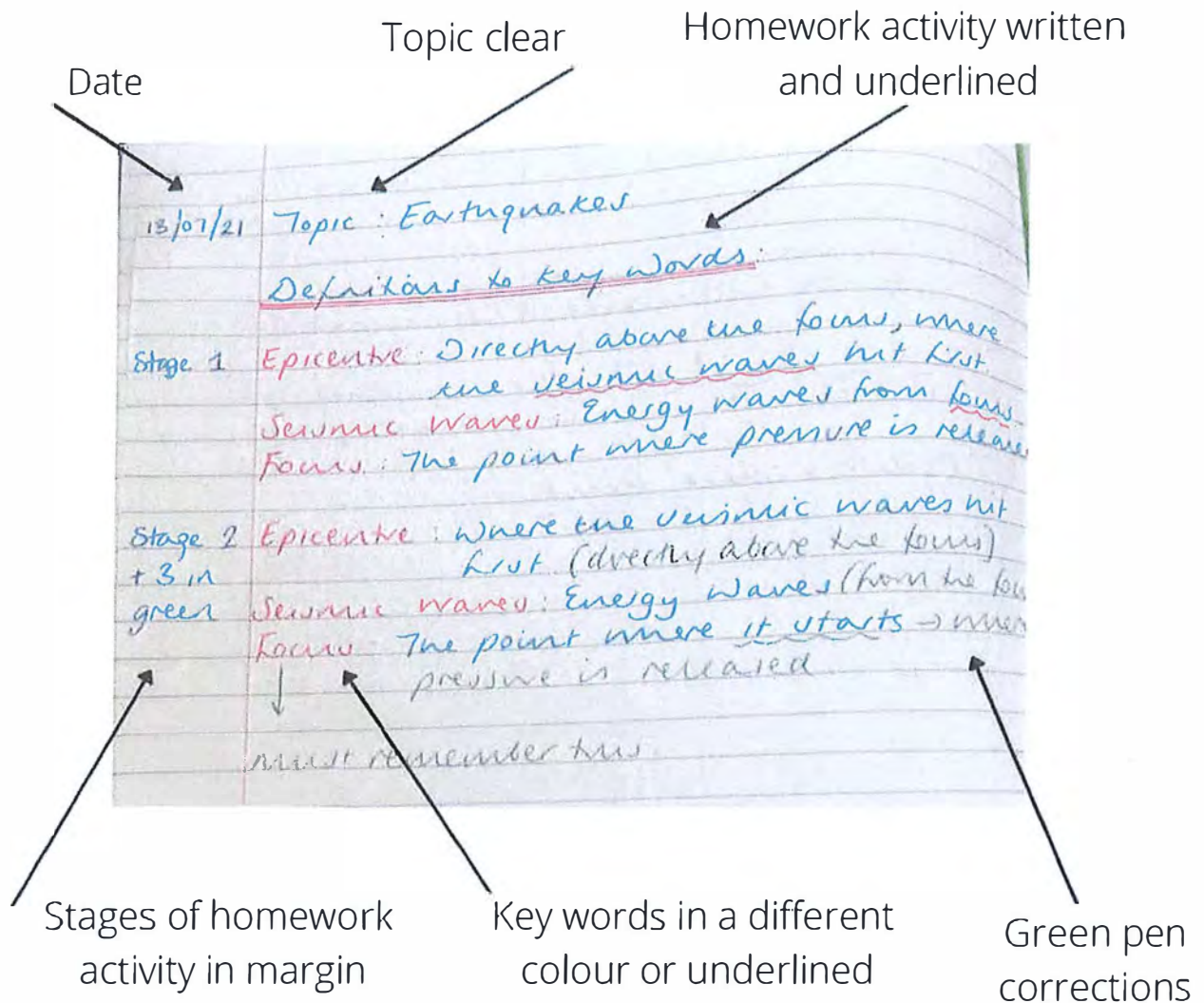
Characteristics:

Key word:

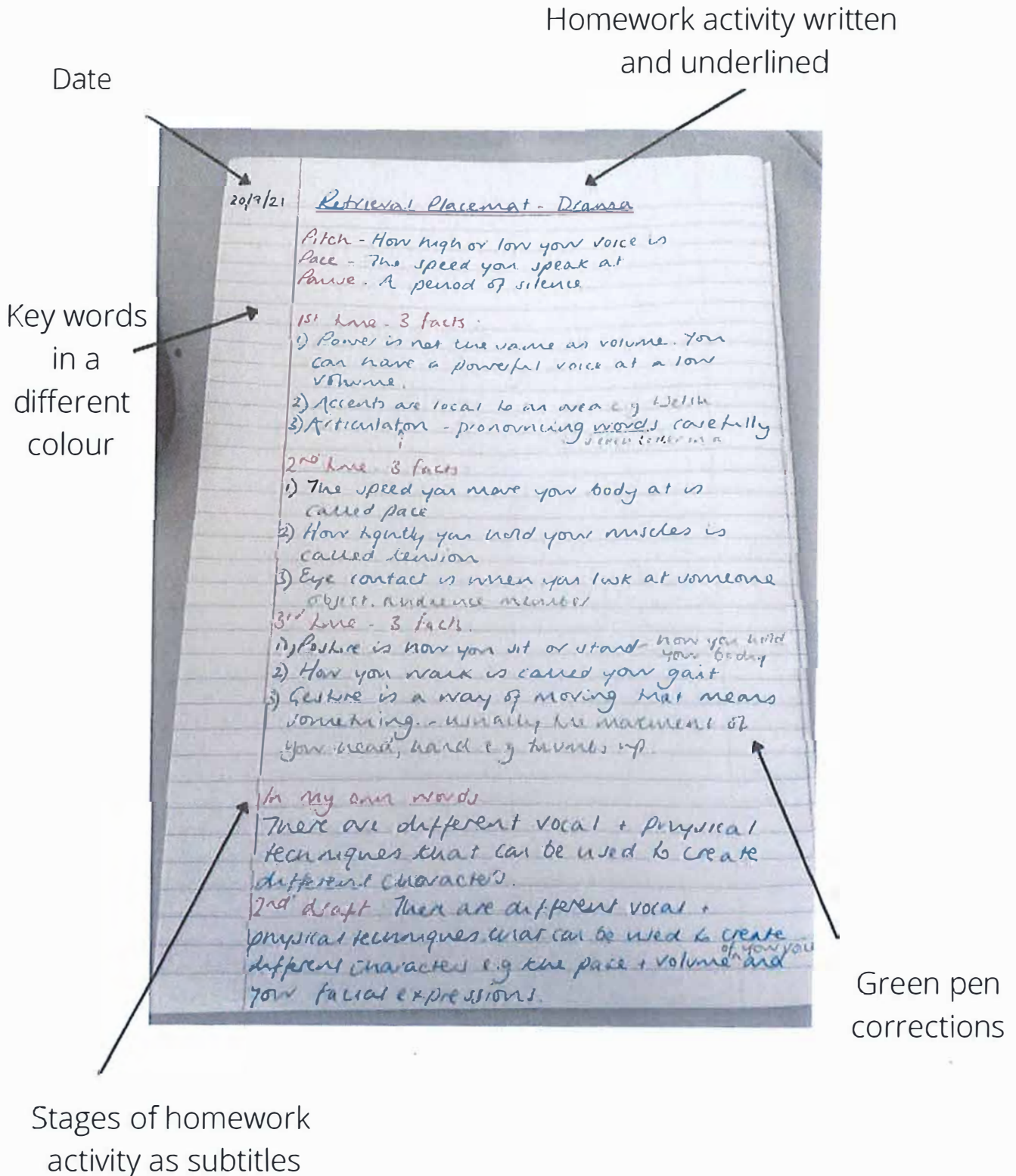
Examples:

Non-examples:

What should my knowledge organiser homework look like?



What should my knowledge organiser homework look like?



Art



Year 7: Unit 5: Bauhaus

Bauhaus

Threshold concept (TC12) – Understand that design ideas from many years ago influence designs of today.

Formal Elements of Art

- Colour** – what you see when light reflects off something.
- Line** – a mark made which can be long, short, scribbled, straight etc.
- Shape** – a 2D area which is enclosed by a line.
- Form** – a shape which has 3 dimensions.
- Tone** – how light or dark something is.
- Texture** – how something looks or feels (visual or actual) rough etc.
- Pattern** – a symbol or shape that can be random or repeated.

Bronze

... understand what the 'Bauhaus' was.
... name the person who founded the Bauhaus.

- (1) Who started (founded) the Bauhaus? **Walter Gropius**
- (2) What does the word 'Bauhaus' mean? **House of Building**
- (3) What was the Bauhaus about?

It was a design school that brought a variety of Art and Design ideas and people together. The Bauhaus became famous for its approach to design, using simple forms, geometric shapes and primary colours.

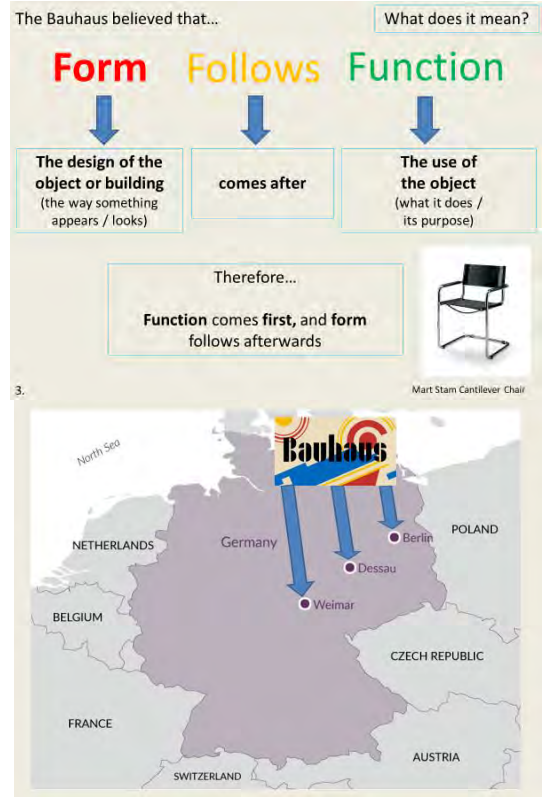


- (4) When did the Bauhaus start? **1919**
- (5) In which cities did Bauhaus exist and when?
Weimar (1919-1925)
Dessau (1925-1932)
Berlin (1932-1933)

- (6) When did Wassily Kandinsky start at the Bauhaus? **1922**

- (7) When did the Bauhaus close? **1933**

- (8) How were the Bauhaus ideas spread throughout the world when it closed? **Many of its teachers left Germany and went around the world, including the USA, and spread its ideas.**



Bauhaus influence on modern architecture in White City, Tel Aviv, Israel.

Key words

Bauhaus,
Form Follows Function,
formal elements, symmetry,
geometric, parallel, primary
colours, design.



"well-designed, functional home furnishing products"



The Barcelona chair is designed by Mies Van Der Rohe and Lilly Reich, for the German Pavilion at the International Exposition 1929. Van Der Rohe went on to design some of the glass skyscrapers which dominate city skylines.



SCAN ME

The Bauhaus movement turns 100





Year 7: Unit 6: Pop Art



Drawing Skills

Threshold Concept (TC13) – Understand that many artists over the years have used everyday objects as inspiration for their artwork.

Bronze

- ... understand what the 'Pop Art' was.
- ... understand in which countries Pop Art started and when.
- ... understand what 'iconic' means.
- ... understand what 'onomatopoeia' is.

Pop Art definition

- Pop Art burst on to the scene in Britain and American during the 1950s and 60s.
- It was a dazzling celebration of life in a world recovering from the World War 2.
- Many people were enjoying fast cars, fast food, colour TV, film, fashion and pop music.
 - A whole range of new products brightened up their lives.
 - The Pop artists saw how the colour and energy of modern life appealed to so many people.
 - They wanted their art to be popular too, so they began making artwork of things people used and recognized (everyday objects).



Formal Elements of Art

- Colour** – what you see when light reflects off something.
- Line** – a mark made which can be long, short, scribbled, straight etc.
- Shape** – a 2D area which is enclosed by a line.
- Form** – a shape which has 3 dimensions.
- Tone** – how light or dark something is.
- Texture** – how something looks or feels (visual or actual) rough etc.
- Pattern** – a symbol or shape that can be random or repeated.



Four Coloured Campbell's Soup Can (1965)
Print on Canvas
Artist: Andy Warhol

What does the word 'composition' mean?

Composition is the way that things are arranged in a piece of artwork.

The Toy Shop (1962)
Mixed Media on wood
Artist: Peter Blake

Interior II (1964) Oil paint and collage on panel
Artist: Richard Hamilton

Whaam! (1965)
Acrylic and oil on canvas
Artist: Roy Lichtenstein

What is Onomatopoeia?

Onomatopoeia is a word that mimics (imitates) the sound of the object or action it refers to.

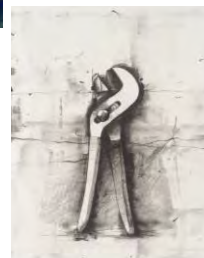
When you pronounce a word, it will mimic (imitate) its sound.

- Can you think of some sounds that animals make?
- Can you think of some other examples of onomatopoeia?



SCAN ME

What is Pop Art?



Jim Dine, 1973

Iconic is a symbol that represents something that is easily recognised and an example of excellence or the best of something.



Design a Pop Art background



Add appropriate onomatopoeia.



Claes Oldenburg
Dropped Cone



Key words
Popular Culture,
Iconic,
Onomatopoeia,
Primary colours,
secondary colours,
Tertiary colours,
Consumerism,
Popular culture,
Acrylic paint,



Computing



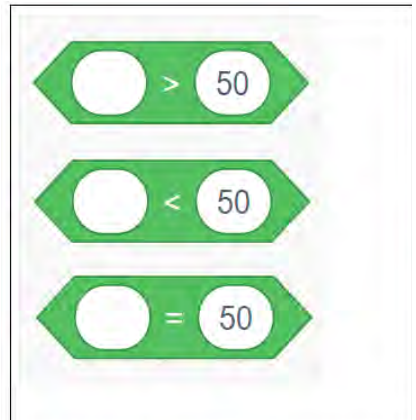
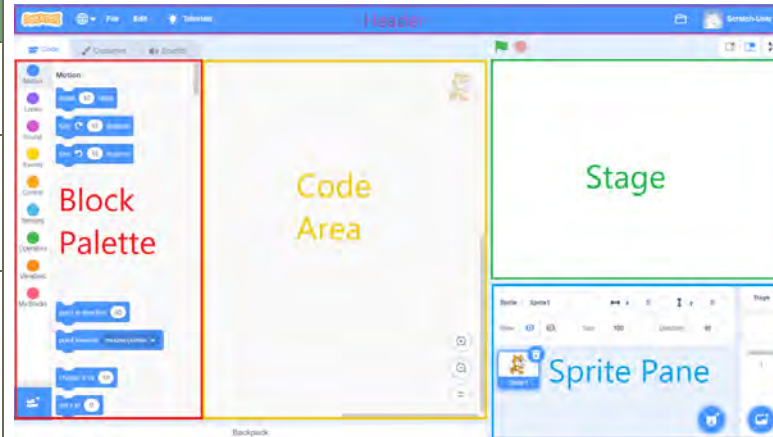
Read through your knowledge organiser. Next, cover it up or put it away and try to write down as many of the key facts that you can remember. Use your knowledge organiser to check the facts you have written down. Correct any you may have got wrong.

Computing Year 7 Unit: Programming essentials in Scratch part 2

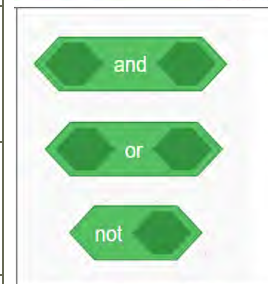
Threshold concept—

- Understand what a real-world problem is.
- Understand the concept of computational abstractions
- Show understanding of a simple project for a specific goal.
- Gain a basic understanding of a programming language

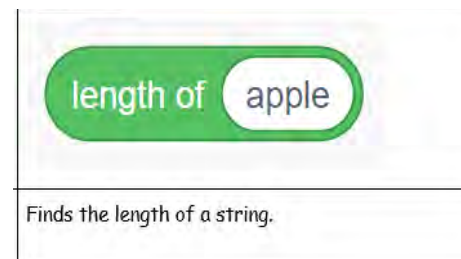
Keyword	Definition
Sequence	Creating a set of instructions to complete a task.
Variable	A memory location within a computer program where values are stored.
Selection	A decision within a computer program when the program decides to move on based on the results of an event.
Operators	Mathematical symbols which allow you to complete code e.g. > < =
Iteration	In computer programming, this is a single pass through a set of instructions.
Decomposition	The breaking down of a system into smaller parts that are easier to understand, program and maintain.
Input	Data which is inserted into a system for processing and/or storage.
Process	The actions taken by a program to manipulate data
Output	Data which is sent out of a system.



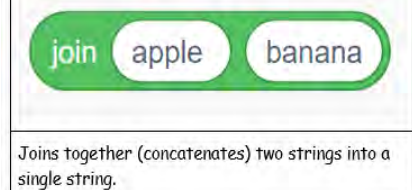
Comparison operators. Used to make a comparison between two values or variables.



Logical operators. Used to create boolean expressions.



Finds the length of a string.



Joins together (concatenates) two strings into a single string.

Count-controlled iteration - code inside the block repeats a set number of times	Condition-controlled iteration - code inside the block repeats until the condition is met (true)	Infinite iteration - repeats the code inside the block until the program is stopped by the user

Computing Year 7 Unit: Using media—gaining support for a cause

Threshold concept—

- Understand why we have creative projects
- Complete a basic creative project
- Understand how to use technology safely, respectfully, responsibly, and securely
- Recognise legal issues relating to a creative project

Keyword	Definition
Processor	computer program that provides for input, editing, formatting, and output
Features	multiple font sets, spell checking, grammar checking, a built-in thesau-
Format	The process of formatting a document involves specifying how the document will look in its final form on the screen and when printed.
Credibility	Knowing if information is trusted
Referencing	Referencing means acknowledging where you got information from
Plagiarism	the practice of taking someone else's work or ideas and passing
Layout	The way a document looks

Tool icon	Tool name	Brief description
	BOLD	Changes the text to be bold, i.e. thicker and more noticeable
	FONT	Allows you to change the style/appearance of the text
	CENTRE ALIGN	Moves the text so that it is in the middle of the page, rather than having a margin on the left- or right-hand side of the page
	TEXT COLOUR	Allows you to change the colour of the text
	BULLETED LIST	Allows you to create a bullet-pointed list

Licensing issues

- It is important to understand for example Microsoft you have to pay a license fee to be able to use its software
- If you want to share a document or photograph with others freely, you can use creative Common licenses which allow you to share content but retain control over who uses it, where and if they can edit it.

Referencing techniques

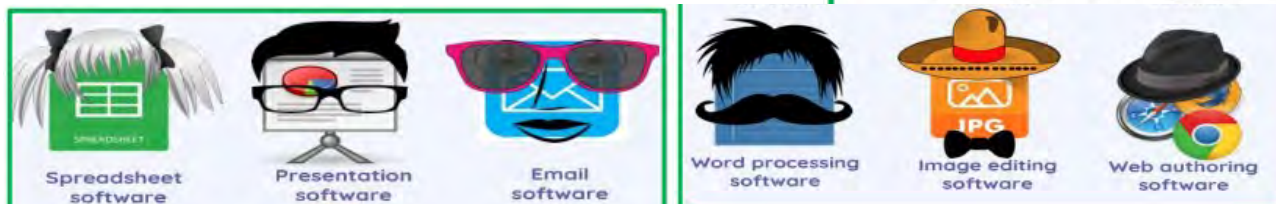
- It is important to understand if you are using content from another person you need to reference it, either at the bottom of the page in a footnote or in a referencing page at the end of your work where you will link the information you have found where you've used it to show you are crediting it to somebody else and not your own work you are pretending is yours.

Reliability of content

- It is important to understand that not all content online is truthful.
- Anybody can set up a website and add content to it.
- It is important to look at different techniques to determine the credibility of the source as to how real or fake images and text are.

Creating a blog key features

- Use research you have completed well.
- Reference your sources properly
- Credit the authors of any photos
- Use suitable formatting tools to make your blog interesting



Design and Technology



You can make your own questions. This process takes a lot of time, but if you create a study group you can each create a few questions and trade. However it is important that you write what Key facts or knowledge you expect to see in any answer.



Threshold Concepts:

We need food and drink to grow, be active maintain health and stay alive. A variety of food and drinks are needed for health, as depicted by the Eatwell Guide. Being active is important for health - to be active and healthy, food is needed to provide energy for the body.



The Eatwell Guide is the UK healthy eating model. It shows the proportions in which different types of foods are needed to have a well-balanced and healthy diet. The proportions shown are representative of your food consumption over the period of a day or even a week, not necessarily each meal time. Healthy eating is all about balance, meaning that there are no good or bad foods and all foods can be included in a healthy diet as long as the overall balance of foods is right.

Threshold Concept:

Front-of-pack traffic light labels help us make a healthier choice.



Some front-of-pack nutrition labels use red, amber and green colour coding. Colour-coded nutritional information tells you at a glance if the food has high, medium or low amounts of fat, saturated fat, sugars and salt: red means high, amber means medium and green means low. Aim to choose more greens and ambers than reds.

Each serving (150g) contains

Energy 1046kJ 250kcal	Fat 3.0g LOW	Saturates 1.3g LOW	Sugars 34g HIGH	Salt 0.9g MED
13%	4%	7%	38%	15%

Kids need to be active for at least 60 minutes a day, with 30 minutes of this outside of school. This should include 3 sessions a week of activity that strengthens muscles and bones. Research shows that physical activity can help school-aged kids in lots of ways...

- Improves behaviour, self-confidence and social skills
- Improves attention levels and performance at school
- Develops co-ordination
- Strengthens muscles and bones
- Improves health and fitness
- Improves health and fitness
- Improves sleep
- Maintains healthy weight

Threshold Concept:

Understand that all food comes from plants or animals.



Food obtained from animals is the main source of protein and include fish, milk, meat, poultry, and cheese. Whereas plants provide us with fruits and vegetables, which are an important source of fibres, proteins and carbohydrates.

Threshold Concept:

It is important to store, prepare and cook food safely and hygienically.

Good food safety and personal hygiene practices are essential to reduce the risk of food poisoning. It is important to follow the 4C's: Cleaning, Cooking, Chilling and Cross-contamination.



Unit guiding question: How can we share design ideas with other people?



Follow this Link to tutorials on the Telford Langley School D&T YouTube channel.

The threshold concept that is truly essential to enable you to access future learning is ...

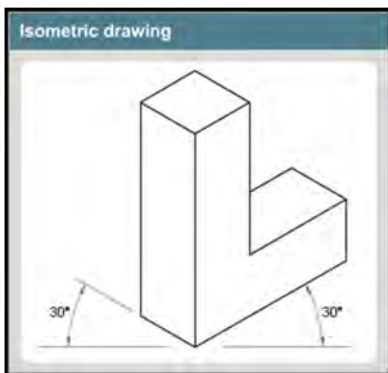
To understand that ideas can be graphically communicated to other people.

To understand that appropriate 3D drawing techniques can enhance design ideas

To understand that Computers can streamline the design process.

You Will:

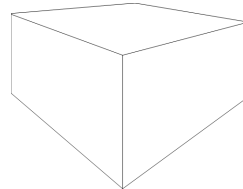
- Be able to add simple notes and labels on designs.
- To recognise the different styles of 3D drawing commonly used.
- To be able to use basic rendering techniques.
- To know what CAD is.
- To be able to use CAD to produce simple shapes
- To be able to use drawings and CAD to produce a simple design



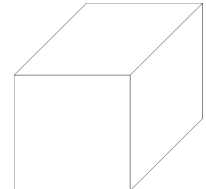
The only two angles you need in isometric drawing are 30 degrees and 90 degrees. You never draw horizontally.

A grid is used to help you draw. Staying on the grid lines makes sure you are drawing at the correct angles.

There are different ways to

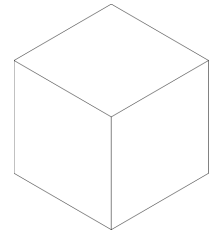


Perspective drawing



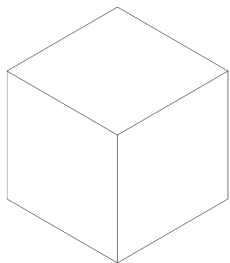
Oblique

Isometric drawings do not attempt to show any perspective at all. This means that dimensions and proportions are shown accurately.

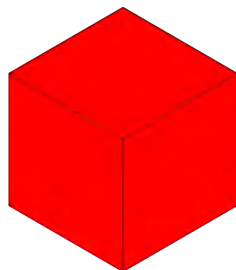


Isometric

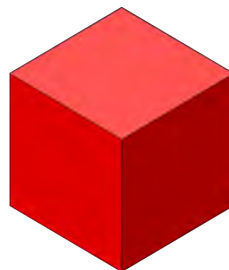
Enhancing drawings. Tone is used to enhance 3D drawings. Tone is how light or dark something is and by showing shadows and highlights we can make drawings look more realistic and 3 dimensional.



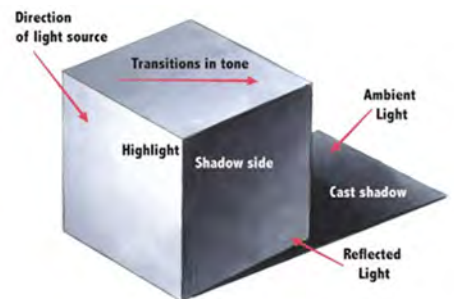
Line Drawing



Coloured



Rendered using shade and tone



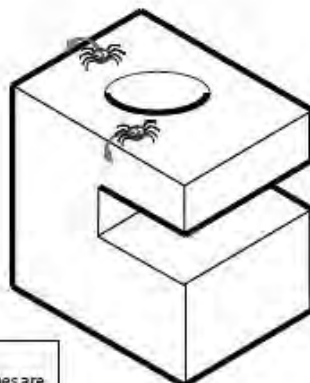
THICK AND THIN LINE TECHNIQUE

Applying thick and thin line technique to a drawing is one of many ways that a designer can enhance the form (shape) of a design drawing.

Look carefully at your drawing and imagine a spider walking over the shape.

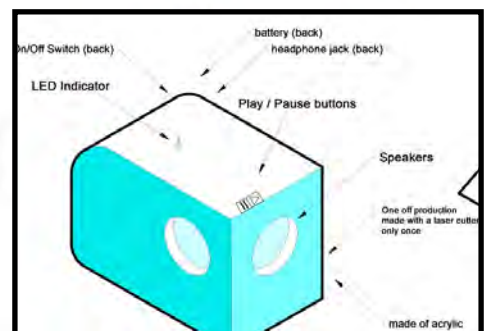
If the spider is able to disappear around an edge, then this edge will be drawn with a thick line.

If the spider is still visible once it has crawled over an edge, then this edge will be drawn with a thin line.



TASK
Go back to the three isometric drawings you did and add thick and thin lines. Try adding a hole to one of them.

Top Tip!
Follow the spider and make sure the thick lines are correct before you put them in.




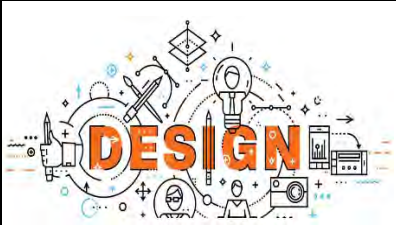
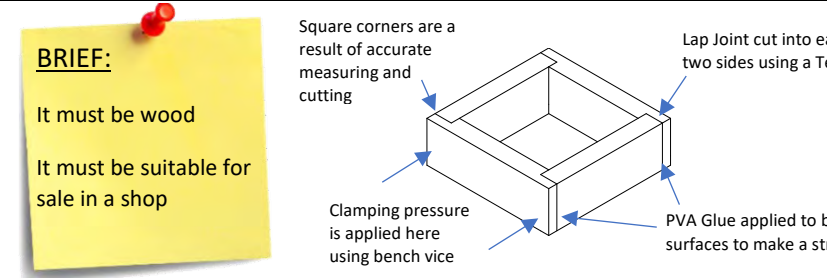









Computer Aided Design (CAD) is used to make more accurate drawings and **ANNOTATION** is added to describe parts of our designs and communicate our ideas.



Year 7 Knowledge Organiser – Design and Technology - Resistant Materials

To understand wood is an important and key material used in everyday life
 Understand that wood comes in many different types and can be used to manufacture a wide range of products

Subject Area	Required Knowledge - Bronze		Links
	<p>Materials knowledge:</p> <ul style="list-style-type: none"> Know the 3 main groups of wood (Hardwood, Softwood and Manufactured board) To be able to name at least one of each group 	 <p>Softwood Hardwood Manufactured Board</p>	 <p>SCAN ME</p>
	<p>Design process:</p> <ul style="list-style-type: none"> Understand a design brief is a list of customer requirements Use detailed annotation to describe their ideas 	<p>BRIEF:</p> <ul style="list-style-type: none"> It must be wood It must be suitable for sale in a shop 	
	<p>Practical skills:</p> <ul style="list-style-type: none"> Understand how to use joints to join wood Be able to name several different hand tools Understand how to use hand tools to produce a wood product Understand how a 'finish' effects the final appearance Understand why a Lap Joints are stronger than Butt Joints. Show an understanding of personal and group Health and Safety 	 <p>PPE</p>  <p>Goggles Apron</p>	
	<p>Environmental.</p> <ul style="list-style-type: none"> understand the source of wood is very sustainable if the supply is managed correctly. Explain how a forest can be managed 	  <p>Managing a forest means we plan long term for the future, plant enough trees, allow them time to grow and then cut them down when needed. Careful management will mean every year more and more trees are planted to ensure there is enough for the future. It is common good practice to plant far more trees than is needed.</p>	 <p>SCAN ME</p>

Unit guiding question: How do electronic systems work?

The threshold concept that is truly essential to enable you to access future learning is ...

- To understand that electrical components can be described as input, output, process or passive.
- Understand that different electrical components can be combined to make a system.



"A system is a set of things which are connected and work together to perform a specific function."

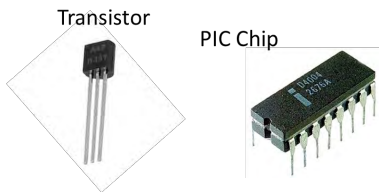
All systems have



LDR Toggle Switch Variable Resistor.



Input components are sensors, switches or variable resistors. Inputs CONTROL the system.



Process components are the clever part of the system. They are complicated components like transistors and PIC chips



Output components are things that put something out such as light or sound or movement.

Resistor

Battery

Mains Plug

Resistors are **Passive components**, they are not input, process or output, they simply reduce the flow of electricity in the circuit. Batteries and mains plugs are in a separate category called power supplies.

Resistor (passive)

LDR (input)

LED (output)

Variable resistor (input)

PCB

Transistor (Process)

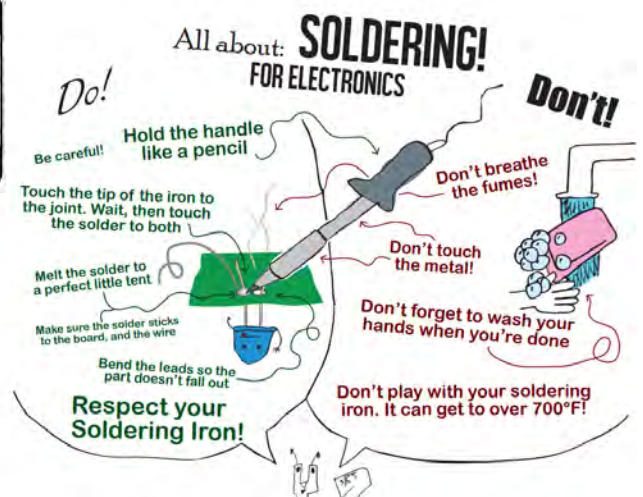
The components are combined to make a System. In electronics this is called a **circuit**. The components are mounted on a **printed circuit board (PCB)** using **Solder**.

How does it work?

Electricity is the movement of electrons from one atom to another. It flows through materials like lead, tin and copper because they have good **conductivity**. Copper is used for the tracks on a **PCB** and lead or tin is used to **solder** the components to the board.

Solder melts at around 375° C so the components are heated up to this temperature with a **soldering iron**. You need to take care not to burn yourself when soldering.

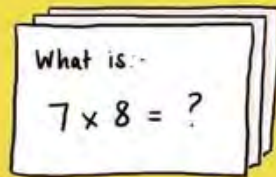
Because PCBs are made up of lots of different materials it makes them very difficult to recycle. Throwing electronic products and plastics away is very bad for the environment.



Drama

FLASHCARDS

Create your own flashcards, question on one side answer on the other. Can you make links between the cards?

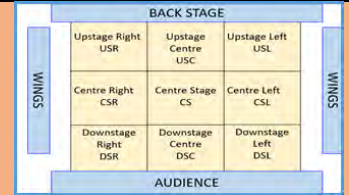


You need to repeat the Q&A process for flashcards you fail on more frequently & less frequently for those you answer correctly

Create a flash card with all the key facts you want to learn (this can be drawn in your book). On the next page try writing down as many facts or as much of the knowledge as you can. If you find you are getting certain facts wrong then these are where you need to focus and relearn.

Charlie and the Chocolate Factory

The script provides essential information to the actor and technical department. It suggests stage directions, pauses and the style of emotion the character should move or speak in. For the technical team, it prompts any lighting, sound or stage direction that is needed for the scene.



A: Storyline

"Charlie and the Chocolate Factory" is a classic children's novel by Roald Dahl. The story follows Charlie Bucket, a poor boy who lives with his family in a tiny house near a chocolate factory owned by the mysterious and reclusive Willy Wonka. One day, Wonka announces a competition in which five lucky children will be given a tour of the factory and a chance to win a lifetime supply of chocolate. Charlie and four other children, including the mischievous Augustus Gloop, the spoiled Veruca Salt, the gum-chewing Violet Beauregarde, and the television-obsessed Mike Teevee, win the tour and embark on a journey filled with strange and fantastical adventures.

B: Themes

Setting: The story takes place in the fictional town of 'Willy Wonka's chocolate factory.'
 Themes include the dangers of greed and selfishness, the importance of being kind and humble, and the power of imagination.

C: Main Characters

Mr Willy Wonka The eccentric owner of the chocolate factory	Charlie Bucket A poor boy who wins a tour of Wonka's factory	Grandpa Jo Charlie's Grandpa who is kind, wise, and full of stories and memories.	Augustus Gloop A gluttonous boy who falls into the chocolate river	Veruca Salt A spoiled girl who demands everything she wants	Violet Beauregarde A gum-chewer who turns into a blueberry	Mike Teevee A boy obsessed with television	Oompa-Loompas A group of small, orange-skinned workers who help Wonka in the factory
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D. Types of Theatre



In The Round— the audience sit around the stage on all sides. Performers enter and exit through the audience on walkways.



Thrust stage sticks out into the audience, who sit on three sides. There is a back wall that can be used for hanging backdrops and large scenery.



Proscenium Arch— describes the frame that surrounds the stage. All the audience face the same way. The stage is raised. The seating is often tiered.

E. Vocal

Types of volume: Whisper, quiet, talking, loud, shouting.
Types of Pitch: Low, medium, high
Pause: Stillness in a scene or dialogue
Pace: Speed of dialogue
Tone: Emotionally influenced dialogue
Emphasis: Putting importance on a word

F. Physical

Gestures: Using movement to express emotion or direction
Facial expressions: Used to show emotion
Body language: Use to show the character profile/emotion
Levels: Used to show status/hierarchy
Gait: Character walk
Eye contact: Between actors/audience
Proxemics: Space between actors/audience

G. Performance Skills

Cross-cutting: To show contrast on stage.
Freeze Frame: To highlight a key moment.
Narration: To give the audience information about the story
Thought track: To give the audience information about a character
Direct address/aside: Speaking directly to the audience out of the scene
Multi-rolling: Playing more than one character

English

QUIZZING

Create practice questions on a topic. Swap your questions with a partner & answer.

Question - What is a metaphor?

- A comparison using 'like, as, than'.
- A comparison where one thing is another.
- A comparison with a human attribute.

You can make your own questions. This process takes a lot of time, but if you create a study group you can each create a few questions and trade. However it is important that you write what Key facts or knowledge you expect to see in any answer.

Literacy



Sparx Maths



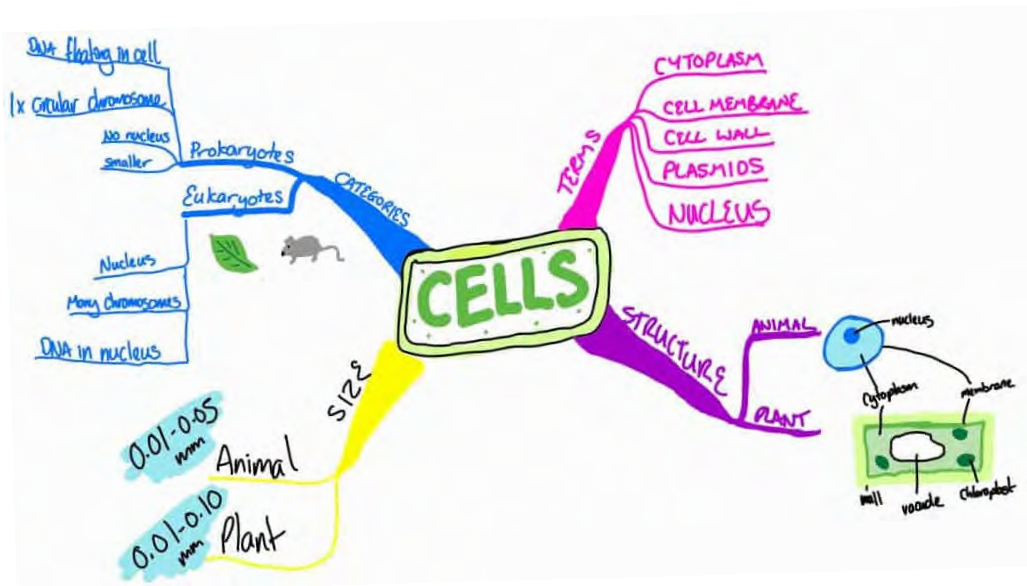
Make sure you are regularly testing your knowledge using the resources provided by the school on platforms such as Sparx, Educake and Linguascope. You will have been issued with user names and passwords to access your accounts.

Modal verbs: Modal verbs are auxiliary verbs. After a modal verb, the root form of a verb is generally used.	Examples: can, could, may, might, will, would, shall, should, must.. <i>dare, ought to, had better, and need not</i> also behave like modal auxiliaries	Parenthesis: Parenthesis is a word, phrase, or clause inserted into a sentence to add extra, subordinate or clarifying information.	Example: A parenthesis is usually offset with parentheses (i.e., round brackets), commas, or dashes.
Ability - can, could	David can play the drums.	1. commas - most commonly used	I miss seeing John, my best friend from school , every day.
Permission - can, could, may	May I borrow your dictionary?	2. brackets - tends to be used in formal writing although no set rule.	George Washington (born in 1732) was the first president of America.
Advice - should	You should eat fruit for a snack.	3. dashes - tend to be used in informal writing although no set rule	The train - which was late - was heading to Paris.
Obligation- must	I must practise my times tables.	Building cohesion within and across a paragraph:	Transitional phrases and adverbials of time allows us to show relationships between ideas, logically connect sentences and paragraphs.
Possibility- could, might, can, may, will, shall, must		Time:	Recently, In the blink of an eye, later
Relative clauses:	Examples of relative pronouns:	Location:	On the shore, around the corner, nearby
A relative clause is one kind of dependent clause. It has a subject and verb, but can't stand alone as a sentence. It is always with a main clause.	Who, whom, whose, that, which, where, when	Feelings/manner:	In a flash, anxiously, as fast as she could
I like the person. The person was nice to me.	I like the person who was nice to me.	Number/sequence:	Secondly, in conclusion
Embedded clause:	Example:	Tense choices:	He had seen her before.
An embedded clause is a clause that is within a main clause, usually marked by commas.	The witch, who had green eyes, is very spooky. Main clause: The witch is very spooky. Embedded clause: ,who had green eyes,	Commas to clarify meaning and avoid ambiguity.	Example
		Let's eat kids - this suggests we are going to eat the children.	Let's eat, kids - the comma and the pause suggests we are going to eat something with the children.
		Clause: a group of words in a sentence that contains a subject and verb.	Phrase: a group of words in a sentence that does not contain a subject and verb.
		The boy is playing.	On the wall, in the distance,

Simple tenses		Example	Perfect tense	Example		
Past - when an action took place at a specific time and is <u>now finished</u> .		I <u>walked</u> into the monster's cave.	Past perfect - is used to say when an action was completed in the past. The past tense of 'to have' + past participle of verb.	I had walked in the monster's cave.		
Present - when an action is taking <u>place now</u> .		I <u>walk</u> into the monster's cave.				
Future - when an action will take place <u>in the future</u> .		I <u>will walk</u> into the monster's cave.				
Progressive tenses		Example	Present perfect - is used to say when: 1) An action has recently finished using 'just', 2) An action that has started in the past and is still going. 3) The time period has not finished. 4) When the time period is not important or known. 5) The action is repeated in a period between the past and now. The past tense of 'to have' + past participle of verb.	I have just walked in the monster's cave. I have worked in the bank for five years. I have not seen her today. I have studied French, Russian and German. I have eaten at that restaurant several times.		
Past progressive - used for a continuous action in the past. The past tense of 'to be' + present participle of the verb (verb ends in -ing).		I was walking in the monster's cave. He/She was ... You/We/They were ...				
Present progressive - used for an action that is happening at the moment of speaking. The present tense of 'to be' + present participle of the verb (verb ends in -ing).		I am walking in the monster's cave. He/She is ... You/We/They are ...				
Future progressive - used for an action that is will be continuing in the future. The present tense of 'to be' + present participle of the verb (verb ends in -ing).		I will be walking into the monster's cave. He/She will be ... You/We/They will be ...				
					Future perfect - is used to say when an action will have been completed in the future. The future tense of 'to have' + past participle of verb.	I will have walked in the monster's cave.

Word class: Nouns		Word class:	
Proper noun - name, place, month- always starts with a capital letter	e.g. John, South Woodford, March <u>James</u> went to the supermarket.	Adjective - describes a noun	e.g. blue, small, gentle The <u>white</u> snow blanketed the floor.
Concrete nouns - things you experience through your five senses	e.g. table, pencil, chocolate, music In my bag I have many things including an <u>apple</u> .	Verb - an action, state or occurrence	e.g. run, was, work The sun <u>is</u> hot so I <u>play</u> in the garden.
Abstract nouns - ideas and concepts; you can't touch them	e.g. truth, justice, anger I feel <u>hope</u> for the future.	Adverb - modifies the meaning of an adjective, verb or other adverb.	e.g. slowly, regularly, soon I liked the cuddly rabbit <u>best</u> .
Pronoun - replaces a proper noun or common noun	e.g. he, she, they, it John had a bookmark; <u>he</u> used it in his book.	Expresses manner, place, time or degree	
Collective noun - a noun that refers to a group of individuals	e.g. herd, class, pack A <u>gaggle</u> of geese were at the pond.		
Word class: Determiner	A modifying word that determines the kind of reference a noun or noun group has	Word class:	
Article - tells us the definite or indefinite	e.g. a/an, the <u>The</u> tree is beautiful in autumn.	Prepositions - show the relationship between the noun or pronoun and other words in a sentence. They describe, for example, the position of something, the time when something happens, or the way in which something is done	e.g. after, in, with He moved here <u>after</u> the end of the war.
Quantifier - indicates quantity	e.g. few, many, some <u>Lots</u> of fun was had at the party.	Co-ordinating conjunction - a conjunction placed between words, phrases, clauses, or sentences of equal importance (main clause)	e.g. for, and, nor, but, or, yet, so I like chocolate <u>but</u> I don't like sweets.
Possessives - indicates who it belongs to	e.g. my, its, his That is <u>her</u> coat.	Subordinating conjunction - a conjunction that introduces a subordinating clause	e.g. while, since, although I went to the cinema <u>after</u> I had eaten my dinner.
Demonstratives - points to something specific	e.g. this, that, those <u>These</u> computers are for sale.		
Numbers - tells us how many	e.g. one, two, three <u>Seven</u> dwarves accompanied Snow White.		

Geography

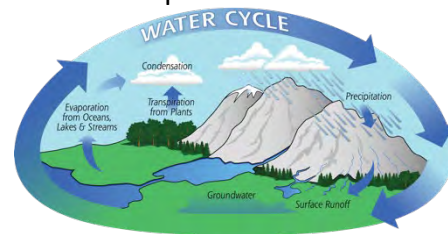


Organise your ideas into a concept map, like the one below that summarises 'cells'. In a concept map, you take the main ideas and link them together with phrases that explain the relationship between the concepts. But, always try to make the concept map from memory first! Then check it with the knowledge organiser

Rivers Knowledge Organiser

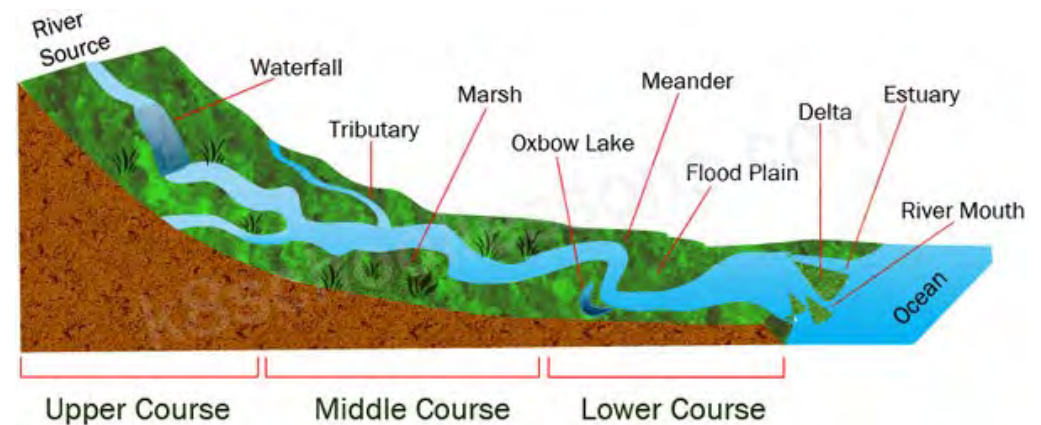
Water cycle

- The water cycle is powered by changes in temperature from the sun, and fuels our entire planet
- The water cycle is made up of three main processes – evaporation, condensation, and precipitation
- **Evaporation** happens when the heat from the sun warms surface water – in the form of lakes, rivers, oceans, and runoff from rain – and turns it into water vapour
- **Transpiration** is when water inside plants is turned into water vapour through the same process
- **Condensation** is when the water vapour begins to cool as it rises. As this happens, tiny water droplets come together to form clouds
- **Precipitation** is the rain, snow, sleet, or hail that falls when these water droplets cool enough to turn back into a liquid or a solid
- Water then returns to the ocean as **throughflow** (water that has absorbed into and moves through the soil), **groundwater flow** (water that has soaked below the soil and deep into the earth), or **surface runoff** (water that runs over the top of soil and rocks).



River features

- Source** – the place where a river begins, usually a marsh or bog
- Marsh** – an area that floods frequently, where the land is usually wet
- Tributary** – small rivers that join a larger river
- Confluence** – the point at which two rivers meet
- Floodplain** – the land where a river floods
- Mouth** – the point where a river meets the sea
- Estuary** – a point at the mouth of a river where it meets the tide from the ocean/ sea and the freshwater and saltwater mix



River processes

Erosion

- **Hydraulic action** – as water rushes by, it forces air into cracks in the rock, which continue to widen and break
- **Abrasion** – sand and rock are thrown against the riverbed and banks, wearing them away like sandpaper
- **Attrition** – pieces of rock are thrown against each other, causing sharp edges to break off and eventually becoming smaller and rounder
- **Corrosion** – weak acids in the water break down the rock in the riverbed and banks

Transportation

- **Traction** – large stones are rolled along the riverbed
- **Saltation** – smaller stones bounce along the riverbed over one another
- **Suspension** – small particles of rock, dirt, and plants float in the water of a river, making it look cloudy
- **Solution** – particles of rock and chemicals are dissolved and carried along in the water unseen

Deposition

- Rivers **deposit** (drop) eroded material as they lose speed when:
- the river becomes shallower
 - the amount of water is reduced
 - the amount of material being carried increases
 - the river reaches its mouth
- They do this because they no longer have the **energy** to carry it.

Rivers Knowledge Organiser

River landforms

Upper course

V-shaped valleys – steep valleys that are formed as the river erodes the land it passes over; they are v-shaped because the land

Waterfalls – steep drops formed by uneven rates of erosion as rivers pass over differing bands of hard and soft rock

Middle course

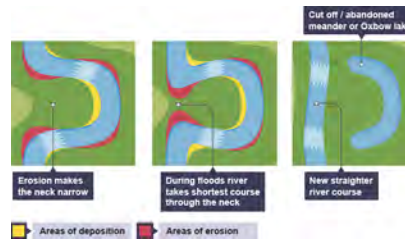
Meanders – bends in the river that are made more extreme as water flows more forcefully around the outside bend, eroding the riverbank further there and leading to deposition around the inside bend

Ox-bow lakes – when a meander bends so much that the river takes a short cut and leaves part of the meander cut off from the rest of the river

Levees – steep banks built up along a river intentionally or as a result of material being deposited on the banks during flooding

Lower course

Deltas – material that is deposited and builds up at the mouth of a river



Factors affecting flooding

Natural

Heavy rain – when it rains very heavily the water doesn't have time to soak into the soil, so it runs over the ground, causing flooding

Soggy soil – when soil is already holding a lot of water, it can't absorb any more

Tributaries – the more a river has, the higher the risk of flooding due to all the extra water

Steep slopes – water flows faster down steep slopes, meaning it doesn't have time to soak into the soil

Impermeable rock – some areas have **impermeable** rock (water cannot pass through) just below the soil, so water can't soak down

Human

Deforestation – leaves can catch rainwater (called **interception**) and tree roots take up a lot of water from soil; when there aren't any trees in an area this cannot happen

Built-up areas – rain can't soak through concrete, so it is carried away by drains and quickly returns to the river; if drains are blocked street can flood quickly even if they are not near a river

River management

Rivers are constantly changing. For humans to live near and utilize rivers they must be managed. Ways of managing rivers can use **hard engineering** (using man-made structures) or **soft engineering** (using parts of the environment in a more natural approach).

Hard engineering

- Dams
- River barriers
- Levees/ embankments
- Overflow channels

Soft engineering

- Afforestation (planting trees)
- Dredging
- Managed flooding

Case Study: Flood management on The River Thames

Almost every year, there is flooding somewhere along the River Thames. The source of this river is in the Cotswolds, and it runs 346km to its mouth at Southend-on-Sea where it meets the North Sea. As it passes through London the flooding is managed by long and short term solutions as outlined below.

Short Term Solutions

- **Put up portable flood barriers:** These are temporary due to flood warnings and stored when not needed. The Thames Barrier is permanent barrier which raise when the risk for flooding London is high.
- **Put anti-flood shutters on homes:** Metal shutters to stop water entering buildings through the windows and doors.

Long Term Solutions

- **Build Embankments (high banks):** The Thames embankments were underground sewage systems and tube lines, but they are now used for flood protection.
- **Dig new river channels:** These divert water from the Thames.
- **Let nature help:** Use flood plains, Plant trees and do not build on flood risk areas.

Weather Knowledge Organiser

Weather & Climate

Weather: describes the **current condition** of the atmosphere.

e.g. the weather today in London is sunny and warm.

Climate: means the **average weather** conditions in a particular location.

e.g. the Mediterranean has warm, wet winters and hot dry summers

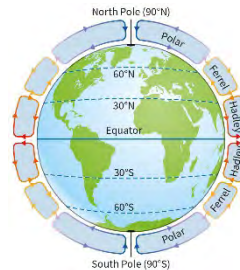
How is heat carried around the Earth?

Global Atmospheric Circulation – air does not flow straight from the Equator to the cold poles. It circulates in bands called cells that curve around the Earth:

Hadley – warm air rises and cools around the Equator.

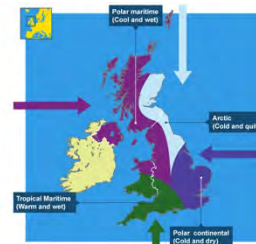
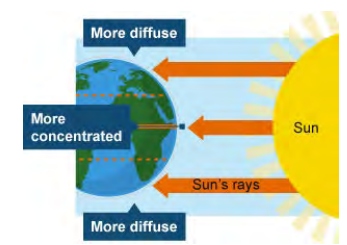
Polar – cold air sinks at the poles – pushing surface air towards the Equator to warm.

Ferrel – mixing cells – warm air and cold air get whisked together by **depressions**.



Factors affecting the climate:

Latitude - Locations that are further north receive less concentrated energy from the Sun. The equator lies directly underneath the Sun and so countries that fall on the equator receive the strongest solar energy.



Air masses - A large body of air with similar characteristics is called an air mass. The temperature of the air and the amount of rainfall partly depend on where the air has come from. Looking at where the air has come from helps to explain the characteristics of the weather.

What Causes Cloud and Rain – the Water cycle

The water cycle is powered by changes in temperature from the sun and fuels our entire planet. It is made up of three main processes – evaporation, condensation, and precipitation:

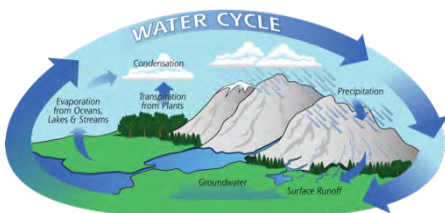
Evaporation happens when heat from the sun warms surface water – in the form of lakes, rivers, oceans, and runoff from rain – and turns it into **water vapour**.

Transpiration is when water inside plants is turned into water vapour.

Condensation is when the water vapour begins to cool as it rises. As this happens, tiny water droplets come together to **form clouds**.

Precipitation is the **rain, snow, sleet, or hail** that falls when these water droplets cool enough to turn back into a liquid or a solid

Water then returns to the ocean as **throughflow** (water that has absorbed into and moves through the soil), **groundwater flow** (water that has soaked below the soil and deep into the earth), or **surface runoff** (water that runs over the top of soil and rocks).



Altitude - Temperatures decrease with altitude. There is a 1°C drop in temperature for every increase of 100 m in height. This is because the air is less dense in higher altitudes.

Distance from the sea - Coastal areas are most affected by the sea. The sea takes longer to heat up and cool down than land. So, in the winter the sea keeps coastal areas warm and in summer, it cools them down.

Ocean currents - The effect that **ocean currents** have on the temperature depends on whether the ocean current is hot or cold.

Britain is on the same latitude as Siberia and parts of Russia, yet it does not suffer the same long, harsh winters. Britain's mild climate is partly due to the Gulf Stream, a large Atlantic Ocean current of warm water from the Gulf of Mexico.

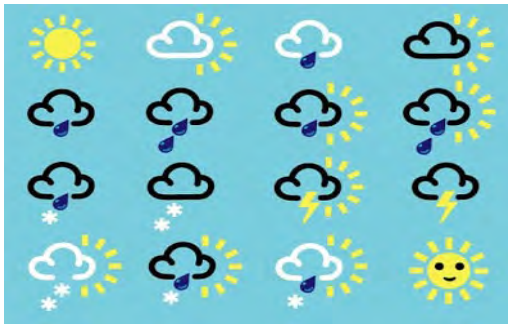


Weather Knowledge Organiser

Weather symbols

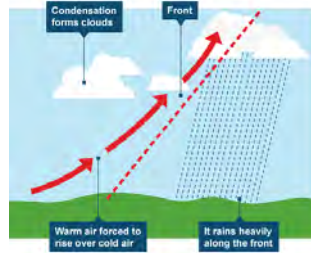
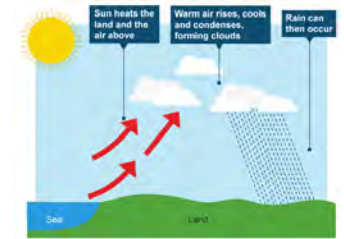
Meteorologists measure weather conditions in different places and use this information to report and make forecasts about future weather conditions. This is useful because people can be warned about hazardous weather conditions such as storms and floods.

Weather forecasts use symbols to show what the weather is like in certain areas across the country.



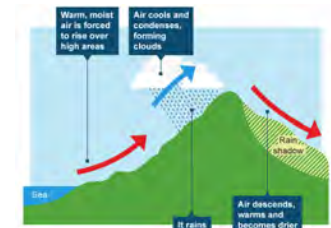
Types of rain

Convictional rainfall – when the land warms up, it heats the air above it. This causes the air to expand and rise. As the air rises, it cools and condenses. If this continues, clouds will form & rain will fall.



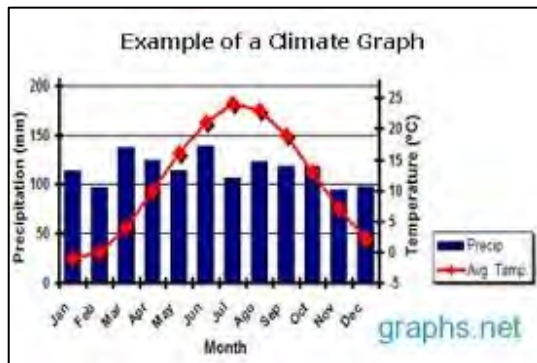
Frontal rain - When a cold polar air mass meets a warm tropical air mass they do not mix - they form fronts. The colder air mass is heavier than the warmer air mass, therefore the lighter, warmer air rises over the top of the heavier, colder air. As the warm air is forced to rise it cools. Also, the warm air is in contact with the cold air along the fronts, and this also cools. Condensation occurs and clouds form. Rain occurs along the front.

Relief rainfall - Prevailing winds bring warm, moist air to the western British Isles. Air is forced to rise over high areas. As air rises, it cools and condenses. Clouds form and it rains. Air descends on the other side of the mountains. This air is dry and a rain shadow is created this side of the mountains.



Climate graphs

Climate graphs show the average **temperature** and **precipitation** (rainfall) in a place/country over a year.



Temperature = line graph

Precipitation = bar graph

Depressions and anticyclones

Air Pressure – is the force of the air pressing down on us due to the weight of the atmosphere. When air is rising, air pressure falls and when this air is sinking air pressure rises. This can impact our weather.

Depressions – are areas of **low pressure**. Their main features are – rising air so clouds form, **unsettled weather**, strong winds (blowing anticlockwise), precipitation and storms.

Anticyclones – are areas of high pressure. Their main features are sinking air so few clouds, fine settled weather, light winds (blowing clockwise), lasts several days, **summers** – hot and sunny (heatwave conditions), winters – clear skies, very cold, frost and fog – no precipitation.



History



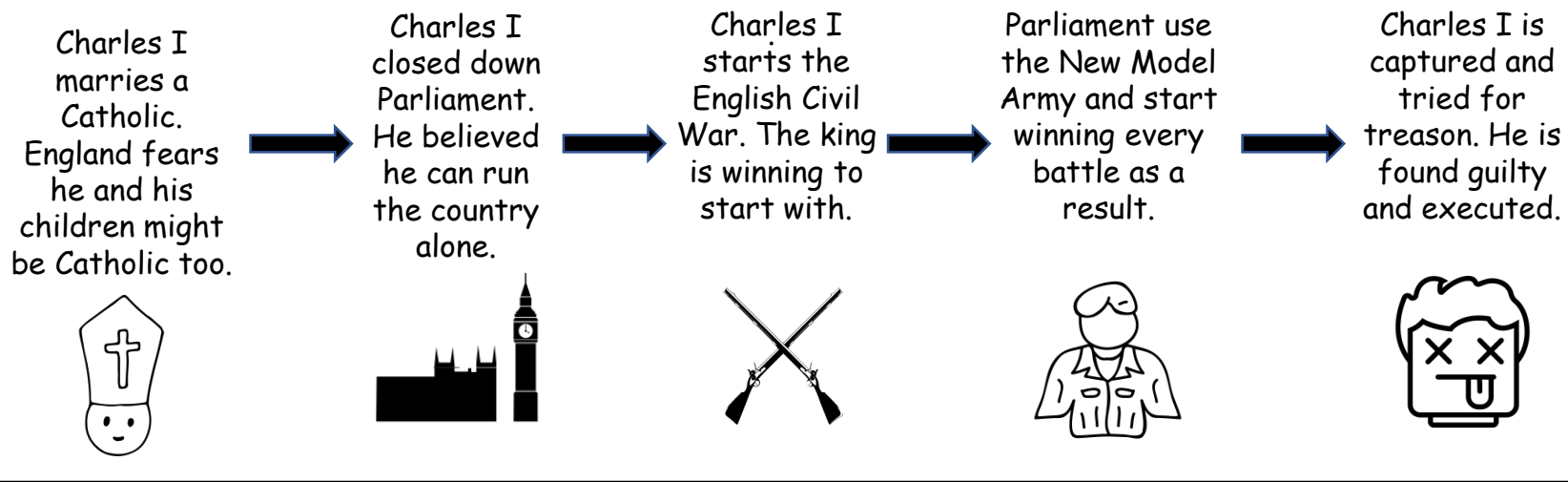
You can make your own questions. This process takes a lot of time, but if you create a study group you can each create a few questions and trade. However it is important that you write what Key facts or knowledge you expect to see in any answer.

Year 7 - History Knowledge Organiser - Unit 6 - Why did the English fight in a Civil War?

Key Terms

Civil War	A war fought between two sides in the same country.
Divine Right of Kings	A belief that God choses the King and therefore the King is Gods representative on Earth, everything he does is agreed by God.
Parliament	Leading lords who help the monarch rule the country.
Royalist / Cavalier	The name given to people who supported Charles I in the Civil War.
Parliamentarian/ Roundhead	The name given to people who supported Parliament in the Civil War.
Treason	A crime committed against authority e.g. trying to kill the king or going to war against your country.
Protectorate	The time after the Civil War where England did not have a monarch but was ruled by Oliver Cromwell.

Key events in order



Key Individuals

King Charles I
Charles I believed in the Divine Right of Kings and therefore thought he could run the country alone, no one had any right to tell him what to do. He closed parliament and started the Civil War. His side lost and as a result he was found guilty of Treason and executed.



Oliver Cromwell
Oliver Cromwell was the leader of Parliaments military force during the War. He set up the New Model Army which were a trained and disciplined army, this is what helped Parliament win the war. After the War he ran England as Lord Protector.



Threshold Concepts linked to this unit:

TC11	Civil Wars are often fought between two leading powers e.g., Parliament and monarch, to determine the way a country is run.
TC12	Historians' interpretations of events and individuals can differ for several reasons.

Key Fact

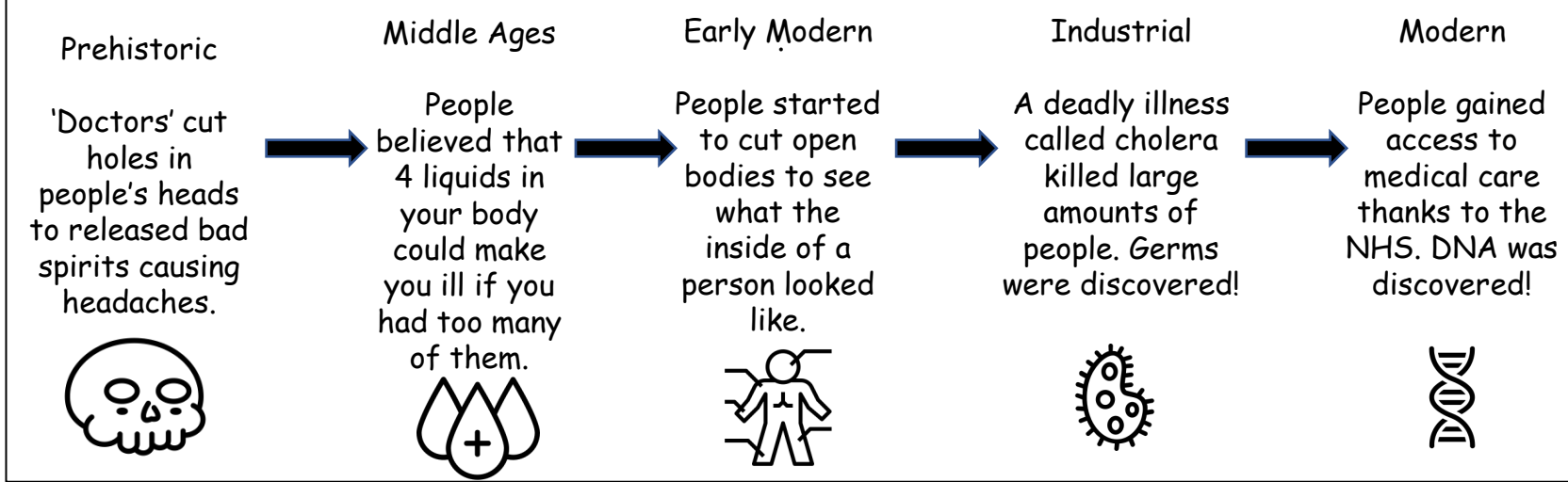
The English Civil War changed the way that England was ruled forever. Now Parliament run the country with the monarch overseeing changes. Before the war the monarch ruled the country, practically alone.

Year 7 - History Knowledge Organiser - Unit 7 - How has medical knowledge changed over time?

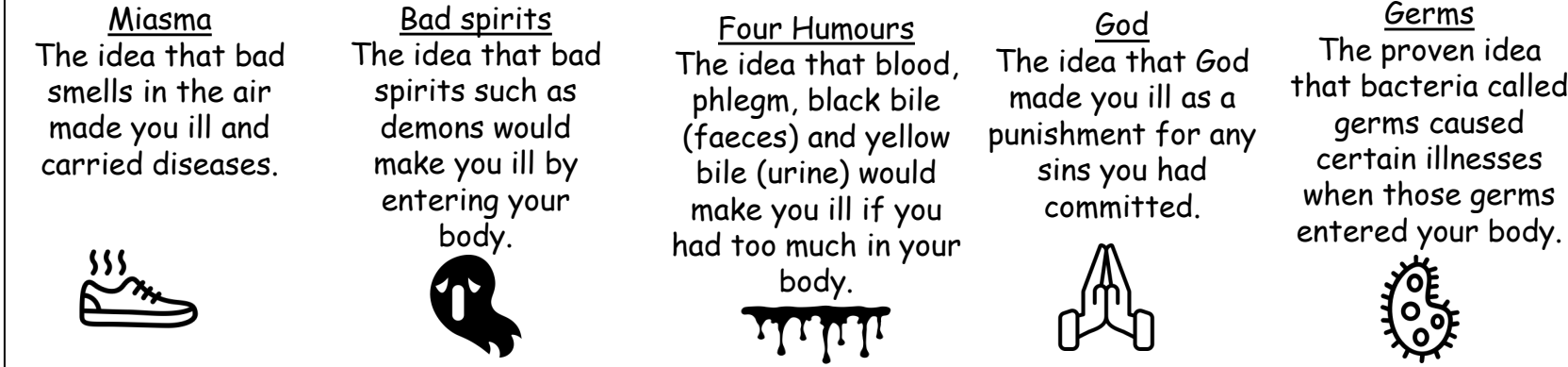
Key Terms

Treatment	Something given to help cure a patient who is sick.
Prevention	A measure taken to stop people getting sick.
Medical care	The people involved in trying to help patients either through diagnosis, treatment or prevention.
Diagnosis	The methods used to decide what illness a person has.
Anatomy	The study of the human body.
DNA	The genetic code in your body which makes you, you. It can decide your hair colour etc.
Germs	The tiny bacteria which can make people ill. Different germs cause different illnesses.
NHS	The National Health Service which offers medical care to people in the UK since 1945.

Key events in order



Key beliefs about what makes you ill.



Threshold Concepts linked to this unit:

TC13	Developments in technology and science have enabled medical knowledge to improve significantly from the prehistoric period to today.
TC13	The significance of events will change over time but are still important to understand the journey taken to reach the modern era.

Key Fact

Medical knowledge has advanced significantly over the last 3000 years. This is due to changes in technology, religion and scientific understanding. This could develop even further while we are alive.

Maths

QUIZZING

Create practice questions on a topic. Swap your questions with a partner & answer.

Question - What is a metaphor?

- A comparison using 'like, as, than'.
- A comparison where one thing is another.
- A comparison with a human attribute.

You can make your own questions. This process takes a lot of time, but if you create a study group you can each create a few questions and trade. However it is important that you write what Key facts or knowledge you expect to see in any answer.

YEAR 7 — LINES AND ANGLES

Constructing, measuring and using geometric notation

@whisto_maths

What do I need to be able to do?

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

- Use letter and labelling conventions
- Draw and measure line segments and angles
- Identify parallel and perpendicular lines
- Recognise types of triangle
- Recognise types of quadrilateral
- Identify polygons
- Construct triangles (SAS, SSS, ASA)
- Draw Pie charts

Keywords

- Polygon:** A 2D shape made with straight lines
- Scalene triangle:** a triangle with all different sides and angles
- Isosceles triangle:** a triangle with two angles the same size and two sides the same size
- Right-angled triangle:** a triangle with a right angle
- Frequency:** the number of times a data value occurs
- Sector:** part of a circle made by two radii touching the centre
- Rotation:** turn in a given direction
- Protractor:** equipment used to measure angles
- Compass:** equipment used to draw arcs and circles

Letter and labelling convention

The letter in the middle is the angle
The arc represents the angle

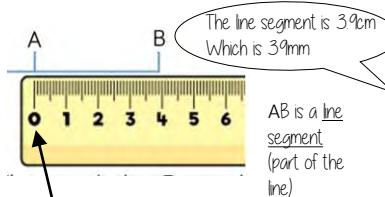


Angle Notation: three letters ABC
This is the angle at B = 113°

Line Notation: two letters EC
The line that joins E to C

Draw and measure line segments

Conversions $1\text{cm} = 10\text{mm}$, $1\text{m} = 100\text{cm}$



Make sure the start of the line is at 0.

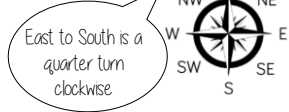
Angles as measures of turn



Clockwise



Anti-Clockwise



East to South is a quarter turn clockwise



Quarter Turn
 90°
Clockwise



Half Turn
 180°

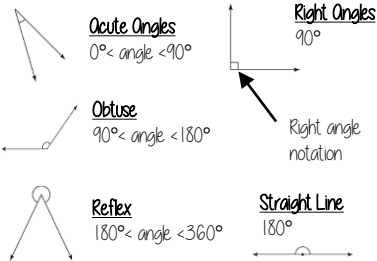


Three-quarter Turn
 270°
Anti-Clockwise

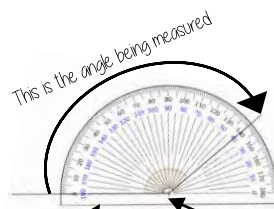


Full Turn
 360°

Classify angles



Measure angles to 180°



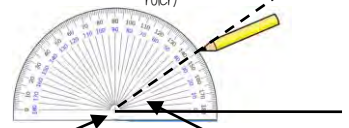
This is the angle being measured
The base line follows the line segment
Make sure the cross is at the point the two lines meet

Read from 0° on the base line
Remember to use estimation
This is an obtuse angle so between 90° and 180°

Draw angles up to 180°

Draw a 35° angle

Make a mark at 35° with a pencil
And join to the angle point (use a ruler)



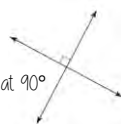
Make sure the cross is at the end of the line (where you want the angle).

Parallel and Perpendicular lines

Parallel lines
Straight lines that never meet
(Have the same gradient)



Perpendicular lines
Straight lines that meet at 90°



Angles over 180°

Use your knowledge of straight lines 180° and angles around a point 360°

360° - smaller angle = reflex angle



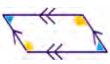
Measure the smaller angle first (less than 180°)

Properties of Quadrilaterals

Square
All sides equal size
All angles 90°
Opposite sides are parallel

Rectangle
All angles 90°
Opposite sides are parallel

Rhombus
All sides equal size
Opposite angles are equal



Parallelogram
Opposite sides are parallel
Opposite angles are equal
Co-interior angles

Trapezium
One pair of parallel lines

Kite
No parallel lines
Equal lengths on top sides
Equal lengths on bottom sides
One pair of equal angles

Draw Pie Charts

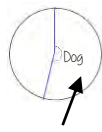
Type of pet	Dog	Cat	Hamster
Frequency	32	25	3

$\frac{32}{60}$ "32 out of 60 people had a dog"

This fraction of the 360 degrees represents dogs

$\frac{32}{60} \times 360 = 192^\circ$

Use a protractor to draw
This is 192°



Polygons

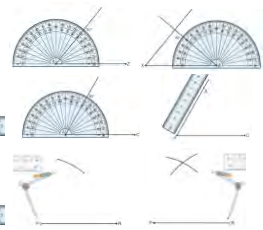
3	- Triangle	5	- Pentagon	8	- Octagon
4	- Quadrilateral	6	- Hexagon	9	- Nonagon
		7	- Heptagon	10	- Decagon

SAS, SSS, ASA constructions

Side, Angle, Angle

Side, Angle, Side

Side, Side, Side



If all the sides and angles are the same, it is a **regular** polygon

YEAR 7 — LINES AND ANGLES

Geometric reasoning

@whisto_maths

What do I need to be able to do?

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

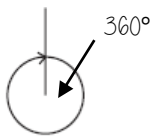
- Understand/use the sum of angles at a point
- Understand/use the sum of angles on a straight line
- Understand/use equality of vertically opposite angles
- Know and apply the sum of angles in a triangle
- Know and apply the sum of angles in a quadrilateral

Keywords

- Vertically Opposite:** angles formed when two or more straight lines cross at a point
- Interior Angles:** angles inside the shape
- Sum:** total, add all the interior angles together
- Convex Quadrilateral:** a four-sided polygon where every interior angle is less than 180°
- Concave Quadrilateral:** a four-sided polygon where one interior angle exceeds 180°
- Polygon:** a 2D shape made with straight lines
- Scalene triangle:** a triangle with all different sides and angles
- Isoceles triangle:** a triangle with two angles the same size and two angles the same size
- Right-angled triangle:** a triangle with a right angle

Sum of angles at a point

The sum of angles around a point is 360°



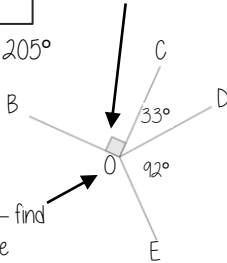
Find angle BOE

$$90^\circ + 33^\circ + 92^\circ = 205^\circ$$

$$360^\circ - 205^\circ$$

$$BOE = 155^\circ$$

Angle notation — 90°

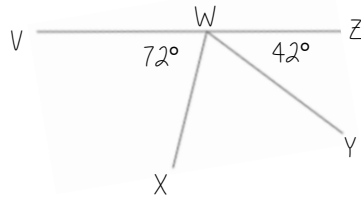


Angle notation — find this missing angle



Sum of angles on a straight line

Adjacent angles that share a common point on a line add up to 180°

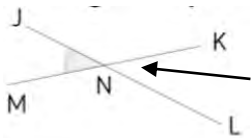


Find angle XWY

$$72^\circ + 42^\circ = 114^\circ$$

$$180^\circ - 114^\circ = 66^\circ$$

Vertically opposite angles

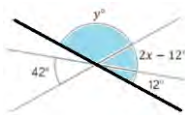


Angle JNM is vertically opposite to angle KNL

$$JNM = KNL$$

Vertically opposite angles are the same

Other angle rules still apply
Look for straight line sums and angles around a point

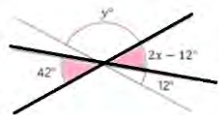


Form equations with information from diagrams

$$2x - 12 = 42$$

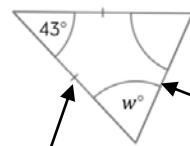
$$2x = 54$$

$$x = 27^\circ$$



Sum of angles in triangles

Sum of interior angles in a triangle = 180°



The two base angles will be the same size

Look at triangle notation
This indicates an isosceles triangle

$$\therefore 180 - 43 = 137$$

$$137 \div 2 = 68.5^\circ$$

A triangle can only have ONE right angle



Have a go!
Tearing the corners from triangles forms a straight line which is therefore 180°

Sum of angles in quadrilaterals

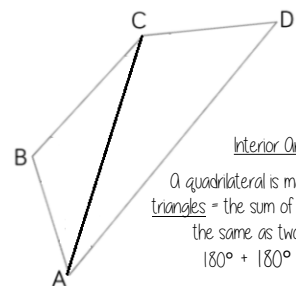
Sum of interior angles in a quadrilateral = 360°



Convex Quadrilateral
Concave Quadrilateral



Interior angles are those that make up the perimeter (outline) of the shape

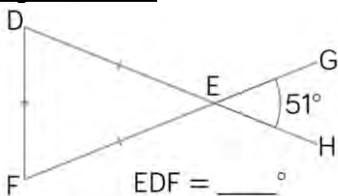


Interior Angles

A quadrilateral is made up of two triangles = the sum of interior angles is the same as two triangles
 $180^\circ + 180^\circ = 360^\circ$

Angle Problems

Split up the problem into chunks and explain your reasoning at each point using angle notation



1. Angle DEF = 51° because it is a vertically opposite angle DEF = GEH
2. Triangle DEF is isosceles (triangle notation) \therefore EDF = EFD and the sum of interior angles is 180°
 $180^\circ - 51^\circ = 129^\circ$ $129^\circ \div 2 = 64.5^\circ$
3. Angle EDF = 64.5°

Keep working out clear and notes together

YEAR 7 — REASONING WITH NUMBER

Developing number sense

@whisto_maths

What do I need to be able to do?

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

- Know and use mental addition/ subtraction
- Know and use mental multiplication/ division
- Know and use mental arithmetic for decimals
- Know and use mental arithmetic for fractions
- Use factors to simplify calculations
- Use estimation to check mental calculations
- Use number facts
- Use algebraic facts

Keywords

Commutative: changing the order of the operations does not change the result

Associative: when you add or multiply you can do so regardless of how the numbers are grouped

Dividend: the number being divided

Divisor: the number we divide by

Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)

Equation: a mathematical statement that two things are equal

Quotient: the result of a division

Mental methods for addition/ subtraction

Addition is commutative



$$6 + 3 = 3 + 6$$

The order of addition does not change the result

Subtraction the order has to stay the same

$$360 - 147 = 360 - 100 - 40 - 7$$

- Number lines help for addition and subtraction
- Working in 10's first aids mental addition/ subtraction

Mental methods for multiplication/ division

Multiplication is commutative



$$2 \times 4 = 4 \times 2$$

The order of multiplication does not change the result

Partitioning can help multiplication

$$\begin{aligned} 24 \times 6 &= 20 \times 6 + 4 \times 6 \\ &= 120 + 24 \\ &= 144 \end{aligned}$$

Division is not associative

Chunking the division can help $4000 \div 25$
"How many 25's in 100" then how many chunks of that in 4000.

Mental methods for decimals

Multiplying by a decimal < 1 will make the original value smaller e.g. $0.1 = \div 10$

Methods for multiplication 12×0.03

$$\begin{array}{l} 12 \times 3 = 36 \\ 12 \times 3 = 36 \\ 12 \times 0.3 = 3.6 \\ 12 \times 0.03 = 0.36 \end{array} \quad \begin{array}{l} 12 \times 3 = 36 \\ \div 10 \quad \div 100 \quad \div 1000 \\ 12 \times 0.03 = 0.36 \end{array}$$

Methods for division $15 \div 0.05$

Multiply by powers of 10 until the divisor becomes an integer

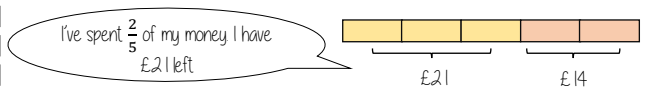
$$\begin{array}{l} 1.5 \div 0.05 \\ \times 100 \quad \times 100 \\ 150 \div 5 = 30 \end{array}$$

Methods for addition $2.3 + 2.4$

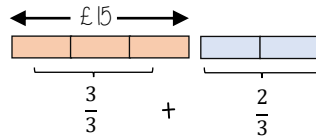
$$\begin{array}{l} 2 + 2 = 4 \\ 0.3 + 0.4 = 0.7 \\ 4 + 0.7 = 4.7 \end{array}$$

Mental methods for fractions

Use bar models where possible



How much did they have to begin with?



What is $\frac{5}{3}$ of £15?

Using factors to simplify calculations

$$30 \times 16$$

$$10 \times 3 \times 4 \times 4$$

$$10 \times 3 \times 2 \times 8$$

$$2 \times 5 \times 3 \times 2 \times 2 \times 2 \times 2$$

$$16 \times 10 \times 3$$

Multiplication is commutative
Factors can be multiplied in any order

Estimation

Estimations are useful — especially when using fractions and decimals to check if your solution is possible.

Most estimations round to 1 significant figure

Estimations are useful — especially when using fractions and decimals to check if your solution is possible.

$$210 + 899 < 1200$$

This is true because even if both numbers were rounded up, they would reach $300 + 900$.

The correct estimation would be $200 + 900 = 1100$.

Number facts

Use $124 \times 5 = 620$

For multiplication, each value that is multiplied or divided by powers of 10 needs to happen to the result

$$620 \div 124 = 50$$

For division you must consider the impact of the divisor becoming smaller or bigger.
Smaller — the answer will be bigger (it is being shared into less parts)
Bigger — the answer will be smaller (it is being shared into more parts)

Algebraic facts

$$2a + 2b = 10 \quad \text{Everything } \times 2$$

$$0.1a + 0.1b = 0.5$$

Everything $\div 10$

$$a + b = 5$$

Add 2 to the total

$$a + b + 2 = 7$$

The unknown quantity isn't changing but the variables change what is done to give the result

YEAR 7 — REASONING WITH NUMBER

Sets and probability

@whisto_maths

What do I need to be able to do?

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

- Identify and represent sets
- Interpret and create Venn diagrams
- Understand and use the intersection of sets
- Understand and use the union of sets
- Generate sample spaces for single events
- Calculate the probability of a single event
- Understand and use the probability scale

Keywords

Set: collection of things
Element: each item in a set is called an element
Intersection: the overlapping part of a Venn diagram ($A \cap B$)
Union: two ellipses that join ($A \cup B$)
Mutually Exclusive: events that do not occur at the same time
Probability: likelihood of an event happening
Bias: a built-in error that makes all values wrong (unequal) by a certain amount, e.g. a weighted dice
Fair: there is zero bias, and all outcomes have an equal likelihood
Random: something happens by chance and is unable to be predicted

Identify and represent sets

The **universal set** has this symbol ξ — this means **EVERYTHING** in the Venn diagram is in this set

A set is a collection of things — you write sets inside curly brackets { }

$\xi = \{\text{the numbers between 1 and 50 inclusive}\}$

My sets can include every number between 1 and 50 including those numbers

$A = \{\text{Square numbers}\}$
 $A = \{1, 4, 9, 16, 25, 36, 49\}$

All the numbers in set A are square number and between 1 and 50

Interpret and create Venn diagrams

Mutually exclusive sets
 The two sets have nothing in common
 No overlap

Union of sets
 The two sets have some elements in common — they are placed in the intersection

Subset
 All of set B is also in Set A so the ellipse fits inside the set

The box
 Around the outside of every Venn diagram will be a box. If an element is not part of any set it is placed outside an ellipse but inside the box

Intersection of sets

Elements in the intersection are in set A AND set B

The notation for this is $A \cap B$

$\xi = \{\text{the numbers between 1 and 15 inclusive}\}$
 $A = \{\text{Multiples of 5}\}$ $B = \{\text{Multiples of 3}\}$

The element in $A \cap B$ is 15

In this example there is only one number that is both a multiple of 3 and a multiple of 5 between 1 and 15

Union of sets

Elements in the union could be in set A OR set B

The notation for this is $A \cup B$

This Venn shows the **number of elements** in each set

$\xi = \{\text{the numbers between 1 and 15 inclusive}\}$
 $A = \{\text{Multiples of 5}\}$ $B = \{\text{Multiples of 3}\}$

The elements in $A \cup B$ are 5, 10, 15, 3, 9, 6, 12

There are 7 elements that are either a multiple of 5 OR a multiple of 3 between 1 and 15

Sample space — for single events

A sample space for rolling a six-sided dice is $S = \{1, 2, 3, 4, 5, 6\}$

A sample space for this spinner is $S = \{\text{Pink, Blue, Yellow}\}$

You only need to write each element once in a sample space diagram

- A Sample space represents a possible outcome from an event
- They can be interpreted in a variety of ways because they do not tell you the probability

Probability of a single event

Probability = $\frac{\text{number of times event happens}}{\text{total number of possible outcomes}}$

$P(\text{Blue}) = \frac{4}{10}$ ← There are 4 blue sectors
 ← There are 10 sectors overall

Probability notation $P(\text{event}) = \frac{2}{5}$

Probability can be a fraction, decimal or percentage value

$\frac{4}{10} = \frac{40}{100} = 0.40 = 40\%$

Probability is always a value between 0 and 1

The probability scale

Impossible 0 or 0% Even chance 0.5, $\frac{1}{2}$ or 50% Certain 1 or 100%

The more likely an event the further up the probability it will be in comparison to another event (It will have a probability closer to 1)

There are 2 pink and 2 yellow balls, so they have the same probability

There are 5 possible outcomes So 5 intervals on this scale, each interval value is $\frac{1}{5}$

Sum of probabilities

Probability is always a value between 0 and 1

The probability of getting a blue ball is $\frac{1}{5}$
 \therefore The probability of **NOT** getting a blue ball is $\frac{4}{5}$

The sum of the probabilities is 1

The table shows the probability of selecting a type of chocolate

Dark	Milk	White
0.15	0.35	

$P(\text{white chocolate}) = 1 - 0.15 - 0.35 = 0.5$

YEAR 7 — REASONING WITH NUMBER

@whisto_maths

Prime numbers and Proof

What do I need to be able to do?

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

- Find and use multiples
- Identify factors of numbers and expressions
- Recognise and identify prime numbers
- Recognise square and triangular numbers
- Find common factors including HCF
- Find common multiples including LCM

Keywords

Multiples: found by multiplying any number by positive integers
Factor: integers that multiply together to get another number.
Prime: an integer with only 2 factors
Conjecture: a statement that might be true (based on reasoning) but is not proven
Counterexample: a special type of example that disproves a statement
Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)
HCF: highest common factor (biggest factor two or more numbers share)
LCM: lowest common multiple (the first time the times table of two or more numbers match)

Multiples

The "times table" of a given number

All the numbers in this lists below are multiples of 3

3, 6, 9, 12, 15...

$3x, 6x, 9x \dots$

This list continues and doesn't end

Non example of a multiple

45 is not a multiple of 3 because it is 3×15

Not an integer

x could take any value and as the variable is a multiple of 3 the answer will also be a multiple of 3

Factors

Arrays can help represent factors

Factors of 10: 1, 2, 5, 10

10×1 or 1×10

5×2 or 2×5

Factors and expressions

$6x \times 1$ OR $6 \times x$

$2x \times 3$

$3x \times 2$

The number itself is always a factor

Prime numbers

- Integer
- Only has 2 factors
- and itself

The first prime number

The only even prime number

2

Learn or how-to quick recall...

2, 3, 5, 7, 11, 13, 17, 19, 23, 29...

Square and triangular numbers

Square numbers

Representations are useful to understand a square number n^2

1, 4, 9, 16, 25, 36, 49, 64 ...

odd, even, odd

Triangular numbers

Representations are useful — an extra counter is added to each new row

Add two consecutive triangular numbers and get a square number

1, 3, 6, 10, 15, 21, 28, 36, 45...

Common factors and HCF

1 is a common factor of all numbers

Common factors are factors two or more numbers share

HCF — Highest common factor

HCF of 18 and 30

18: 1, 2, 3, 6, 9, 18

30: 1, 2, 3, 5, 6, 10, 15, 30

Common factors (factors of both numbers): 1, 2, 3, 6

HCF = 6

6 is the biggest factor they share

Common multiples and LCM

Common multiples are multiples two or more numbers share

LCM — Lowest common multiple

LCM of 9 and 12

9: 9, 18, 27, 36, 45, 54

12: 12, 24, 36, 48, 60

LCM = 36

The first time their multiples match

Comparing fractions

Compare fractions using a LCM denominator

$\frac{3}{5}$ and $\frac{7}{10}$

$\frac{6}{10}$ and $\frac{7}{10}$

Product of prime factors

Multiplication part-whole models

30 = 2 x 15 = 2 x 3 x 5

30 = 3 x 10 = 3 x 2 x 5

30 = 5 x 6 = 5 x 2 x 3

All three prime factor trees represent the same decomposition

Multiplication is commutative

$30 = 2 \times 3 \times 5$

Multiplication of prime factors

Using prime factors for predictions

e.g. 60: 30×2 or $2 \times 3 \times 5 \times 2$

150: 30×5 or $2 \times 3 \times 5 \times 5$

Conjectures and counterexamples

Conjecture

1, 2, 4, ...

The numbers in the sequence are doubling each time.

A pattern that is noticed for many cases

Counterexamples

This sequence isn't doubling it is adding 2 each time

Only one counterexample is needed to disprove a conjecture

Numeracy



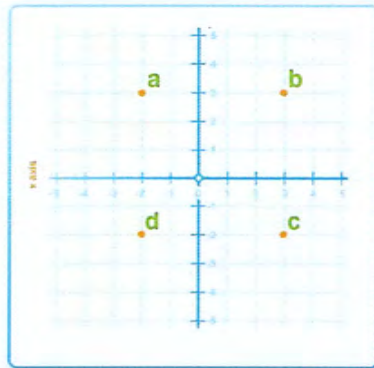
Sparx Maths

Make sure you are regularly testing your knowledge using the resources provided by the school on platforms such as Sparx, Educake and Linguascope. You will have been issued with user names and passwords to access your accounts.

Polygon names

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

Example of grid divided into four quadrants



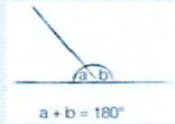
Point A has coordinates of (-2,3)
 Point B has coordinates of (3,3)
 Point C has coordinates of (3,-2)
 Point D has coordinates of (-2,-2)

Basic angle facts

Angles **around a point** add up to 360°



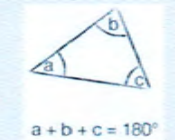
Angles on a **straight line** add up to 180°



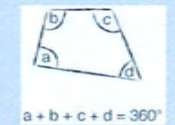
Vertically opposite angles are equal



Angles in a **triangle** add up to 180°



Angles in a **quadrilateral** add up to 360°



Number of degrees in a **right angle**

$$90^\circ$$

Acute angles

$$< 90^\circ$$

Obtuse angles

$$> 90^\circ$$

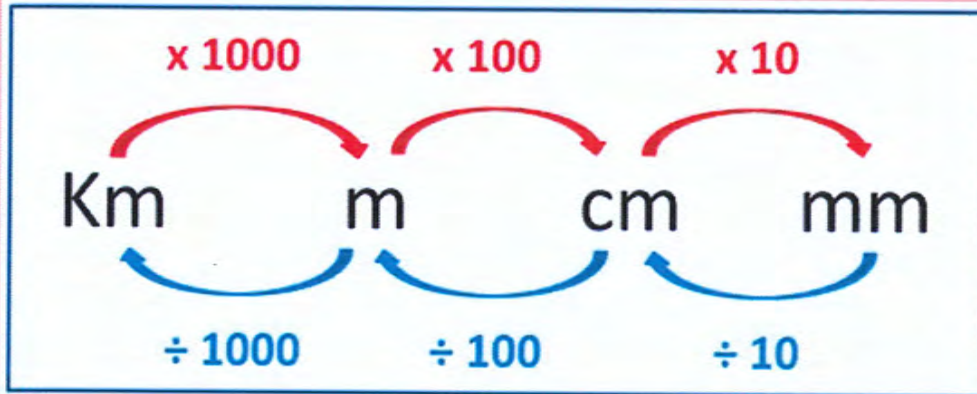
Reflex angles

$$> 180^\circ \text{ and } < 360^\circ$$

Some key vocabulary

polygon	a 2D shape made from 3 straight lines or more.
regular polygon	a polygon with all sides equal in length, and all interior angles equal in size
parallel	lines that have the same distance continuously between them. They never intersect.
interior angle	an angle between two adjacent sides inside a polygon
perpendicular	a line meeting another at a right angle.
translation	moving a shape to another position, without changing it in any way.
coordinates	a set of values that show an exact position
x axis	the horizontal axis on a grid
y axis	the vertical axis on a grid

Conversion diagram: Metric units of length

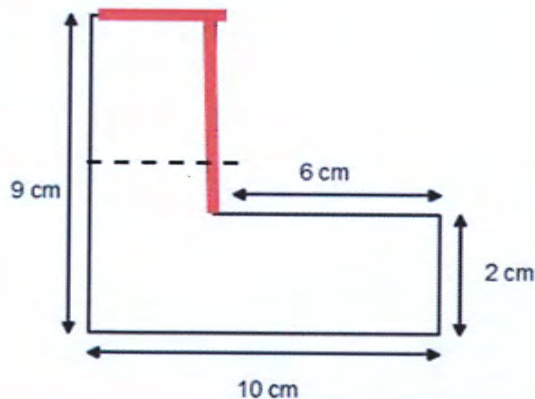


5km = ? m **Need to x 1000** $5 \times 1000 = 5000\text{m}$ ✓

120cm = ? m **Need to ÷ 100** $120 \div 100 = 1.2\text{m}$ ✓

Example of how to calculate perimeter when there are missing lengths:

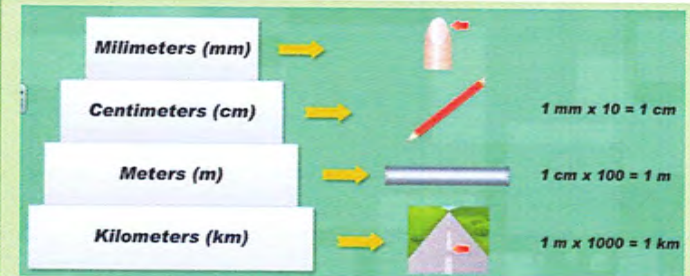
To find missing lengths: $10\text{cm} - 6\text{cm} = 4\text{cm}$
 $9\text{cm} - 2\text{cm} = 7\text{cm}$



$$4\text{cm} + 7\text{cm} + 6\text{cm} + 2\text{cm} + 10\text{cm} + 9\text{cm} = 38\text{cm}$$

4. Key Vocabulary

Metric units of length



Imperial units of length

Symbol	
in or ''	inch
ft or '	foot = 12 in
yd	yard = 3 ft
mi	statute mile = 1 760 yd

Square number

- A number that is the product of a digit being multiplied by itself.
- For example: 9 is a **square number** as it is the product of 3×3 ($3 \times 3 = 9$)

Perimeter

- The measurement all the way around a 2D shape
- (The perimeter of a circle is known as the *circumference*)
- Calculated by adding the measurements of each side of the shape together (or multiplying the length of the side by the number of sides, when working with regular shapes)

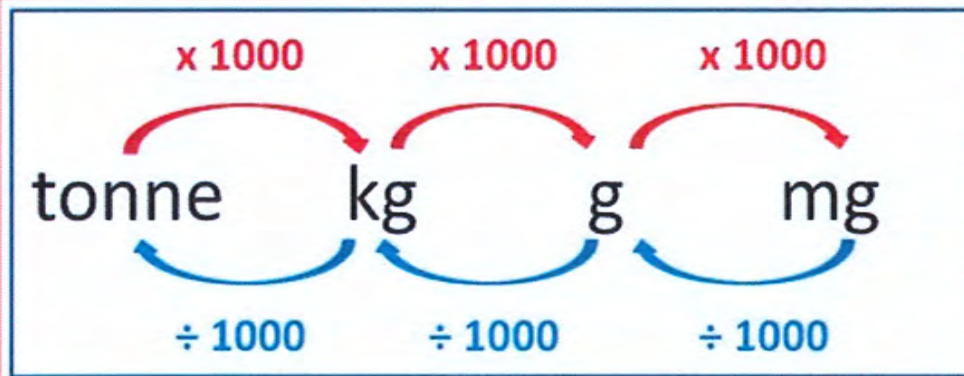
Area

- The measurement of the space within a 2D shape
- Measured in square units such as centimetres squared (cm^2) or metres squared (m^2)
- Calculation example: $L \times W = A$ (rectangle)

Composite shape

A shape of figure that can be divided into separate basic shapes of figures

Conversion diagram: Metric units of mass



Mass conversions use 1000's, and usually create fairly large results.

$1.6 \text{ tonne} = ? \text{ kg}$ **Need to x 1000** $1.6 \times 1000 = 1600 \text{ kg}$ ✓

Example of problem solving using conversion:

Sam and Samantha want to make a cake for their mum's birthday. They need 750g flour to make the cake.

- There are 0.246kg of flour left in the first bag. How much more flour do they need?
- If they take the rest from a second 1kg bag of flour, how many kg of flour will be left in the second bag?

Solving a)

- Convert 0.246kg into grams
- Subtract this amount from 750g to find out how much more flour is needed

Solving b)

- Convert 1kg into grams
- Subtract the answer from a)
- Convert your answer into kilograms

4. Key Vocabulary

Metric units of mass

Choose Metric Unit to Measure Mass

a) Pencil b) Book Bag c) Small Feather
 Grams Kilograms Milligrams
Conversions: $1,000 \text{ mg} = 1 \text{ g}$ $1,000 \text{ g} = 1 \text{ kg}$

Imperial units of mass

This parcel weighs 7 lb
 lb is the abbreviation for "pound"

The main imperial units for mass are ounces (oz), pounds (lb) and stones (st).

$16 \text{ oz} = 1 \text{ lb}$
 $14 \text{ lb} = 1 \text{ st}$

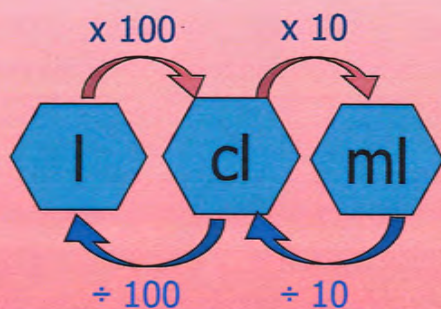
To change from one unit to another we multiply or divide by 16 or 14.

- Mass** = The amount of matter in an object. Measured in g, kg etc.
- Weight** = The measurement of the force of gravity on an object. Measured in Newtons (N)
- An astronaut's **mass** is the same on the moon as it is on the Earth. His **weight** is different due to the differing measurements of gravity

Mass or Weight?



Conversion diagram: Metric units of capacity



4. Key Vocabulary

Capacity	The maximum amount that a container can hold.
Volume	The amount of space that a substance or object occupies.
Convert	To change the units of measurement without a change in the size or amount.
Estimating	Guessing the size of something e.g. 'I think it will be about 500ml'.
Approximating	Rounding an exact measurement e.g. 'the bottle holds 994ml, which is approximately 1l'.
Imperial	Volume measured in pints or gallons.
Metric	Volume measured in millimetres (ml) or litres (l).

3. Converting between litres and millilitres.

Example Question: A bottle holds **1 litre** of lemonade. Rachel fills **5 glasses** with lemonade. She puts **150 millilitres** in each glass. How much lemonade is left in the bottle?

Strategy:

1. Convert 1L into millilitres

$$1\text{L} = 1000\text{ml} \quad 1 \times 1000 = 1000$$

2. Multiply the 5 glasses of lemonade by 150, as they each contain 150ml.

$$5 \times 100 = 500 \quad 5 \times 50 = 250$$

$$500 + 250 = 750$$

$$5 \times 15 = 750\text{ml}$$

3. Subtract the amount of lemonade poured from the original amount.

$$1000\text{ml} - 750\text{ml} = 250\text{ml}$$

Answer = 250ml

Conversion facts: Capacity

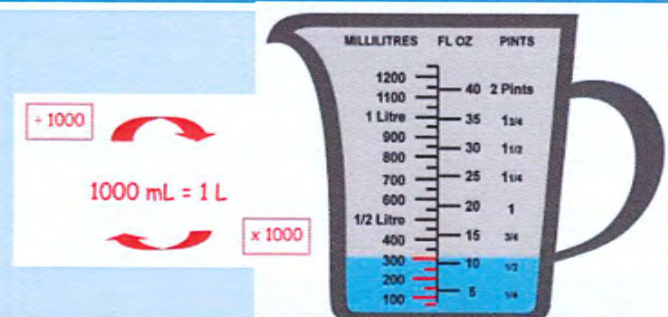
$$1 \text{ litre} = 1000 \text{ ml}$$

$$1 \text{ litre} = 100\text{cl}$$

$$1 \text{ cl} = 10 \text{ ml}$$

$$10\text{cl} = 100\text{ml}$$

2. Litres and millilitres.



To convert from millilitres to litres, you need to divide the number by 1000.

To convert from litres to millilitres, you need to multiply the measurement by 1000.

Some key vocabulary- word origins

Milli	one thousand	Mass	How heavy something is
Centi	one hundredth	Capacity	How much something can hold
Kilo	one thousand	Length	How long or wide something is

Timetable/schedule: A chart showing departure and arrival times

Station	Time				
	5:20	5:27	5:50	7:17	8:26
Burwood	5:20	5:27	5:50	7:17	8:26
Croydon	-	-	6:00	7:27	8:36
Ashfield	5:35	5:42	6:05	7:32	8:41
Summer Hill	-	6:12	7:39	8:48	8:53
Lewisham	5:48	5:55	6:18	7:45	8:54

The information in the first column shows the different stations that the bus stops at

The other columns shows the different buses e.g. column 1 shows the first bus, column 2 shows the second bus etc.

The dash (-) shows that no bus stops at that station

Rachael catches the third train from Burwood. How long will it take her to travel to Summer Hill?

To solve this problem: find the third bus from Burwood (5:50), follow the column down to Summer Hill (7:39), calculate the difference between the times.

Example of converting between units of time:

Jacques was in France for 7 days and 6 hours. How many hours was this?

(i) 1 day = 24 hours

Therefore, 7 days 6 hours = (7 x 24) hours + 6 hours

= 168 hours + 6 hours

= 174 hours

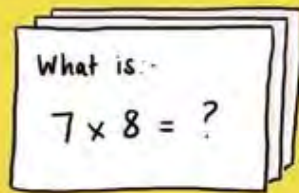
4. Key Vocabulary

Analogue clock	<ul style="list-style-type: none"> Clocks and watches that have hands that tell the time Tells the time in <u>two lots of 12 hours (am/pm)</u>
Am	<ul style="list-style-type: none"> Used to show times from 12 midnight (12am) to 12 noon (12pm) <i>Ante meridiem</i> (Latin for 'before midday') 3:00am = 3 o'clock <u>in the morning</u>
Pm	<ul style="list-style-type: none"> Used to show times from 12 noon (12pm) to 12 midnight (12am) <i>Post meridiem</i> (Latin for 'after midday') 3:00pm = 3 o'clock <u>in the afternoon</u>
Digital clock/ 24 hour clock	<ul style="list-style-type: none"> Clocks or watches that have only numbers instead of hands that tell the time Tells the time in one lot of 24 hours 03:00 = 3am (in the morning) <i>but</i> 15:00 = 3pm (in the afternoon)
Week	<ul style="list-style-type: none"> A measurement of time equivalent to 7 days Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday Monday, Tuesday, Wednesday, Thursday, Friday are known as 'weekdays' Saturday and Sunday are known as 'the weekend'
Year	<ul style="list-style-type: none"> A measurement of time equivalent to: 365 days, 52 weeks, 12 months
Decade	<ul style="list-style-type: none"> A measurement of time equivalent to 10 years
Convert	<ul style="list-style-type: none"> To change one thing into another. You can use multiplication and division to convert between different units of time

MFL - French

FLASHCARDS

Create your own flashcards, question on one side answer on the other. Can you make links between the cards?



You need to repeat the Q&A process for flashcards you fail on more frequently & less frequently for those you answer correctly

Create a flash card with all the key facts you want to learn (this can be drawn in your book). On the next page try writing down as many facts or as much of the knowledge as you can. If you find you are getting certain facts wrong then these are where you need to focus and relearn.



Objective: To talk about what I do in my free time.

Threshold Concepts:

French phonemes are mostly different to English. Knowing these helps you to pronounce words accurately.
 The verb "faire" is used with the majority of activities, unlike in English, where the verb "to go" is used.
 The preposition "de" changes depending on the gender of the noun.
 Regular verbs are conjugated in the present tense according to a set of grammatical rules.

Essential Vocabulary- Computer and mobile phone

Qu'est-ce que tu fais... - What do you do/are you doing?

avec ton ordinateur? - on your computer?

avec ton portable? - On your mobile phone?

Je joue - I play/I am playing

Je surfe sur Internet - I surf/I'm surfing the net

Je tchatte sur MSN - I chat/I'm chatting on MSN

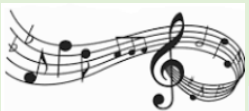
Je regarde des clips vidéo - I watch/I'm watching video clips

Je télécharge de la musique - I download/I'm downloading music

J'envoie des SMS - I text/I'm texting

Je parle avec mes ami(e)s/mes copains/mes copines - I talk/I'm talking to my friends

J'envoie des e-mails - I send/I'm sending emails



Essential Vocabulary- What do you do?

Je fais du judo - I do judo

Je fais du parkour - I do parkour

Je fais du patin à glace - I go ice skating

Je fais du roller - I go roller-skating

Je fais du skate - I go skateboarding

Je fais du vélo - I go cycling

Je fais de la danse - I do dance

Je fais de la gymnastique - I do gymnastics

Je fais de la natation - I go swimming

Je fais de l'équitation - I go horse-riding

Je fais des promenades - I go for walks



Frequency words in French

quelquefois - sometimes

souvent - often

tous les jours - every day

tous les soirs - every evening

tout le temps - all the time

de temps en temps - from time to time

une fois par semaine - once a week

deux fois par semaine - twice a week



Essential Vocabulary- What you like doing

le soir/le weekend - in the evenings/at the weekends

le Samedi matin/après-midi/soir - on Saturday mornings/afternoons/evenings

J'aime... - I like...

...retrouver mes amis en ville - ...meeting my friends in town

...regarder la television - ...watching TV

...jouer sur ma PlayStation - ...playing on my PlayStation

...écouter de la musique - ...listening to music

...faire les magasins - ...going shopping

...faire du sport... - ...doing sport

...jouer au football - ...playing football

...trainer avec mes copains - hanging out with my mates



The verb 'faire' in French

The verb 'faire' means to do or to make. You use 'faire de' to talk about some sports and other activities. **De** changes to **du**, **de la**, **de l'** or **des**, according to the noun that follows it.

Je fais - I do

Tu fais - you do

Il/elle/on fait - he/she/we do



Conjunctions

et - and

aussi- also

mais - but

car / parce que - because

Intensifiers

très - very

assez- quite

un peu - a bit



Music



Sparx Maths



Make sure you are regularly testing your knowledge using the resources provided by the school on platforms such as Sparx, Educake and Linguascope. You will have been issued with user names and passwords to access your accounts.

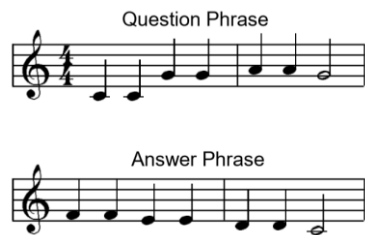
Form and Structure

Exploring Musical Structures



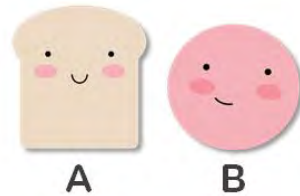
A. Question and Answer Phrases

Two short sections in a piece of music. The first **QUESTION PHRASE** is followed by the **ANSWER PHRASE** which in some way copies or answers the first – like a ‘musical conversation’. The **MELODY** below shows the opening of “Twinkle Twinkle Little Star” - notice how the **QUESTION PHRASE** rises in **PITCH** and the **ANSWER PHRASE** descends in **PITCH**.



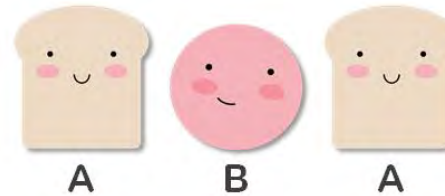
B. Binary Form

BINARY FORM (AB) describes music in two sections. The first section can be labelled “A” and the second section “B” (either or both sections may be repeated). The “B” section **contrasts** musically in some way to the first “A” section.



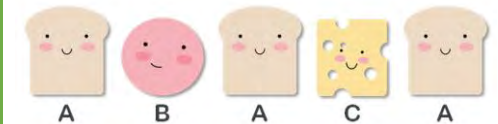
C. Ternary Form

TERNARY FORM (ABA) describes music in three sections. The first section can be labelled “A” and the second section “B”. The “B” section **contrasts** in some way to the first “A” section which is then **repeated** after the “B” section again.



D. Rondo Form

RONDO FORM (ABACADA...) describes music where a main **theme** or **melody** “A” keeps returning between different contrasting sections “B, C, D...” (called **episodes**)



E. Key Words

- FORM/STRUCTURE** – How a piece of music is organised into different sections or parts.
- PHRASE** – A short section of music, like a “musical sentence”.
- PITCH** – The **highness** or **lowness** of a sound or musical note.
- MELODY/THEME** – The main **tune** of a piece of music. The melody or theme often varies in **pitch** and “good melodies” have an organised and recognisable shape.
- HARMONY** – Playing two or more notes at the same time. The “harmony part” in music is different to the melody part.
- DRONE** – A repeated note or notes of **long duration** played through the music. When two notes are used, they are often **five** notes apart (a **fifth**).
- OSTINATO** – A repeated musical pattern. An ostinato can be a repeated rhythm or a repeated melody and are usually short.

F. Music Theory

Treble Clef Pitch Notation



C D E F G A B c' d' e' f'

Treble Clef “Lines” Note Names

Treble Clef “Spaces” Note Names

Repeat Mark



E G B d' f'



F A c' e'



PE



Year 7 PE Summer Knowledge Organiser

Students will **understand** the benefits of leading a healthy, active lifestyle, understand how actions can **impact others' emotions**, and start to include some **advanced skills** into routines and games.

Head



Understand the benefits

It is important for students to understand how exercise can benefit them in later life, as well as at school.

For example:

- Reduced risks of heart disease, type 2 diabetes and strokes (physical health).
- Provide a chance to make new friends and socialise with others (social health).
- Help to improve mental health, allow you to feel happier and have improved self-confidence (emotional health).

Heart



Understanding emotions

Being able to understand what **emotions are, and how others' emotions** can be affected by the things you do is a skill we aim for all students to have before leaving school.

- Always being fair.
- Considerate of others.
- Thinking carefully before **commenting on someone else's** performance.
- Being compassionate towards others.

Hands



Advanced Skills

Starting to perform more advanced skills during physical activity is key to students progressing practically.

Can you think of a skill, and then how you would make it more advanced?

Here's an example:

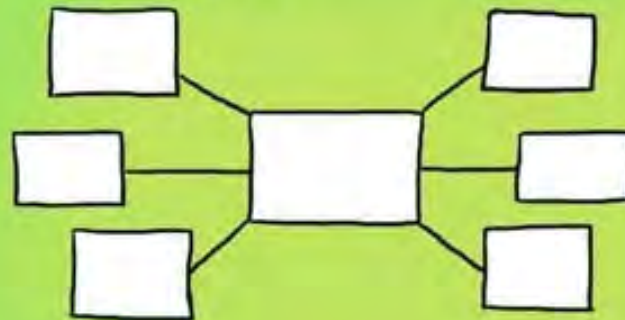
- Dribbling in football → dribbling around a defender in football.

See if you can name 3 more in different sports you have done so far at school.

PSHE

BRAIN DUMP

Write, draw a picture, create a mind-map on everything you know about a topic.

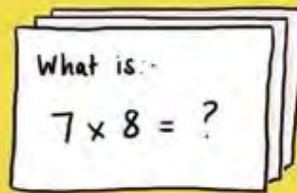


Give yourself a time limit, say 3 minutes, then have a look at your books & add a few things you forgot.

RS

FLASHCARDS

Create your own flashcards, question on one side answer on the other. Can you make links between the cards?



You need to repeat the Q&A process for flashcards you fail on more frequently & less frequently for those you answer correctly

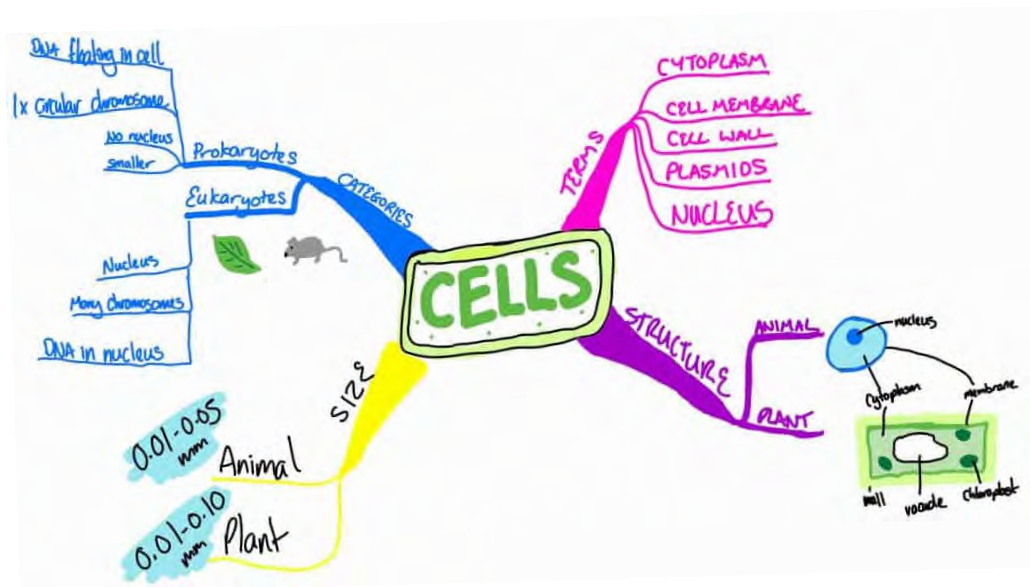
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RSE



Read through your knowledge organiser. Next, cover it up or put it away and try to write down as many of the key facts that you can remember. Use your knowledge organiser to check the fact you have written down. Correct any you may have got wrong.

Science




Organise your ideas into a concept map, like the one below that summarises 'cells'. In a concept map, you take the main ideas and link them together with phrases that explain the relationship between the concepts. But, always try to make the concept map from memory first! Then check it with the knowledge organiser

Forces

Threshold Concept

Every action has an equal and opposing action.

Contact and non contact forces

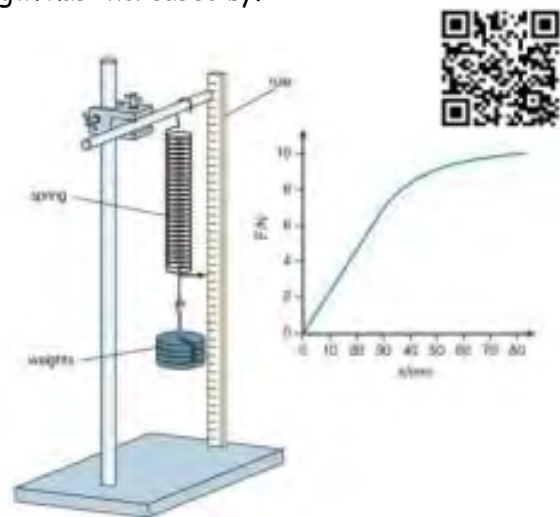
Contact Force	Non-Contact Force
<p>A contact force involves a force between two objects in contact.</p>  <p>For example, friction between your feet and the ground can be present.</p>	<p>A non-contact force involves a force between objects not touching. You can't 'see' anything physically touching, but there is still an attraction or repulsion.</p> <p>For example, magnetic forces between two magnets can happen when the magnets are near but not touching.</p>

Keywords

- **Contact:** Contact forces are forces that act between two objects that are physically touching each other.
- **Non contact:** Non-contact forces are forces that act between two objects that are not physically touching each other.
- **Balanced:** When the total force in opposite directions are equal in magnitude.
- **Unbalanced:** When the total force in opposite directions aren't equal in magnitude.
- **Force:** A push or a pull. The unit of force is the newton (N).

Required practical

When you apply a force to a material it can extend. The extension is the amount the length has increased by.



Scalar and vector quantities

A scalar quantity has only **magnitude**.
A vector quantity has both **magnitude and direction**.

Scalar Quantities

length, area, volume, speed, mass, density, pressure, temperature, energy, entropy, work, power



Vector Quantities

displacement, velocity, acceleration, momentum, force, lift, drag, thrust, weight



Free body diagrams

A free body diagram models the forces acting on an object

The object or 'body' is usually shown as a box or a dot. The forces are shown as thin arrows pointing away from the centre of the box or dot.



Pressure:

Pressure is the amount of force applied to a specific area. It is caused when objects exert a force on another object. It can be on a visible level (pushing a door, rolling out cake icing) or at a molecular level (gas particles in a can)



Equations for this topic

weight = mass × gravitational field strength	$W = m g$
work done = force × distance (moved along the line of action of the force)	$W = F s$
force = spring constant × extension	$F = k e$
moment of a force = force × distance (perpendicular to the direction of the force)	$M = F d$
pressure = $\frac{\text{force normal to a surface}}{\text{area of that surface}}$	$p = \frac{F}{A}$
distance travelled = speed × time	$s = v t$
resultant force = mass × acceleration	$F = m a$

Ecology

Threshold Concept

Understand that living things interact with the world around them

Different Habitat An area where an organism is at home



Adaptations



Keywords

Living- Undertaking the seven processes of living things
 Changes - structural, physiological and behavioural changes that allow species to compete
 Animal - Living creature of one of seven domains
 Plant - Living tissue that is a producer
 Energy - The flow through all organisms and food chains

Food Chains/Webs - show the flow of energy



Abiotic and Biotic Factors

Biotic factors	Abiotic factors
Living factors that affect another organism or shapes the environment.	Non-living factors that affect organisms.
<ul style="list-style-type: none"> ✓ Predation ✓ Food availability ✓ Competition ✓ Disease 	<ul style="list-style-type: none"> ✓ Temperature ✓ Light intensity ✓ Water ✓ Soil PH & mineral content ✓ Gases

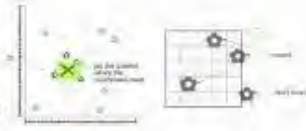


Required practical



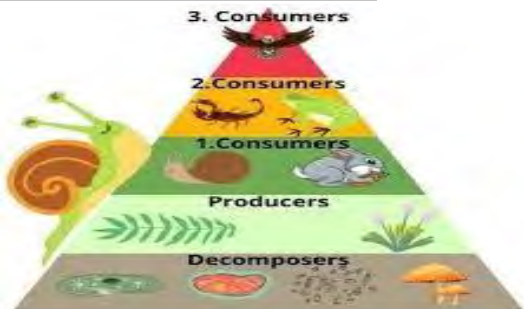
Quadrats

1. Measure area and form a grid
2. Take 2 random numbers and use these as coordinates on your grid
3. Lay your quadrat down
4. Count the number of a species and record results



- Must be random assignment of grids
- The bigger the sample the better (Validity)

Producers and Consumers



Equations for this topic

Metals

Threshold Concept

Identify most metals have similar properties

Metals and non metals

Most elements on the periodic table are metals. They are grouped together in the middle to the left-hand side of the periodic table.

Non metals are on the right-hand side.



Keywords

Metal DEFINITION

Non metal DEFINITION

Property a characteristic of a particular substance

Reaction a process that leads to the change of one set of chemical substances into another

Alloy a mixture of two or more metals or a metal and a non-metal

Displacement A more reactive metal will displace a less reactive metal from its compound.

Physical properties of metals

Properties	Metals	Non-metals
Appearance	Shiny	Dull
Hardness	Very hard or hard	Brittle
Malleability	Malleable	Non-malleable
Ductility	Ductile	Non-ductile
Heat conduction	Good conductor	Bad conductor
Conduction of electricity	Good conductor	Bad conductor
State	Solid	Solids, liquid, gases
Density	Higher	Lower



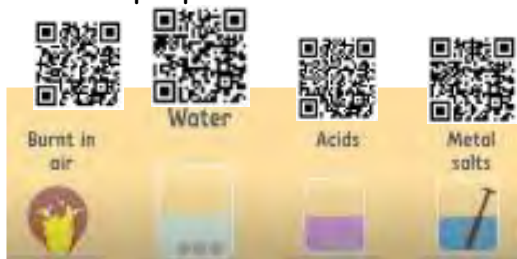
Metals and alloys

Making alloys changes the metals properties by changing its structure. Alloying is done for many reasons, typically to increase strength, increase corrosion resistance, or reduce costs

pure metals are malleable



Chemical properties of metals



Practical - Displacement reactions

1 Metal

2 Sulfate

3 What did you see?

	Magnesium	Zinc	Copper
Magnesium sulfate	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Zinc sulfate	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Copper sulfate	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>



The reactivity series

potassium	K
sodium	Na
calcium	Ca
magnesium	Mg
aluminium	Al
carbon	C
zinc	Zn
iron	Fe
tin	Sn
lead	Pb
hydrogen	H
copper	Cu
silver	Ag
platinum	Pt
gold	Au
platinum	Pt

↑ Most reactive

↓ Least reactive

The Reactivity Series lists metals in order how easily they react with other substances



Equations for this topic

Metal + acid → salt + hydrogen

Metal + oxygen → Metal oxide

Metal + water → Metal hydroxide + hydrogen