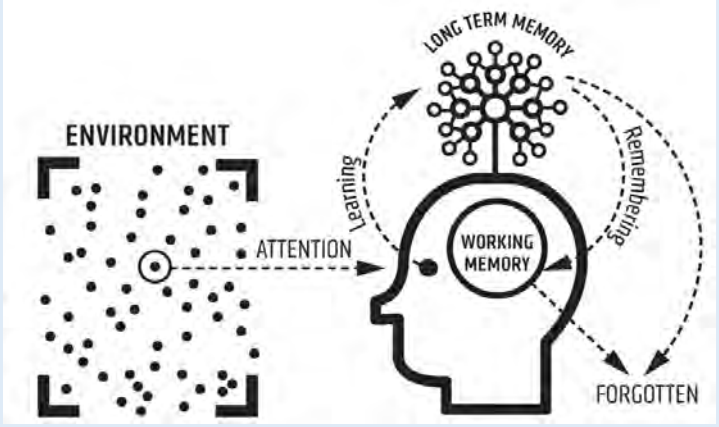
Knowledge Organiser Booklet Year 7 Term 2

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.

Click here to be taken to the knowledge organiser part of the school website.



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.

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

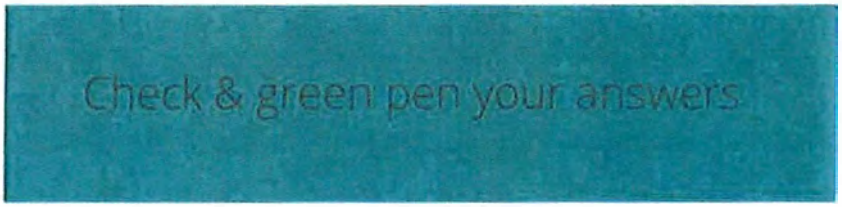
	LOOK, COVER, WRITE, CHECK	DEFINITIONS TO KEY WORDS	FLASHCARDS	DUAL CODING
STAGE 1	Look at & study an area of your knowledge organiser 	Write down the key words & definitions 	Write key words, dates/formulae, equations/quotes on one side & answers on the other	Draw pictures/diagrams/ cartoon strips 
STAGE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

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

Retrieval Placemat

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

First time: Look. Cover. State 3 facts	Second time: Look. Cover. State 3 facts	Third time: Look. Cover. State 3 facts



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:

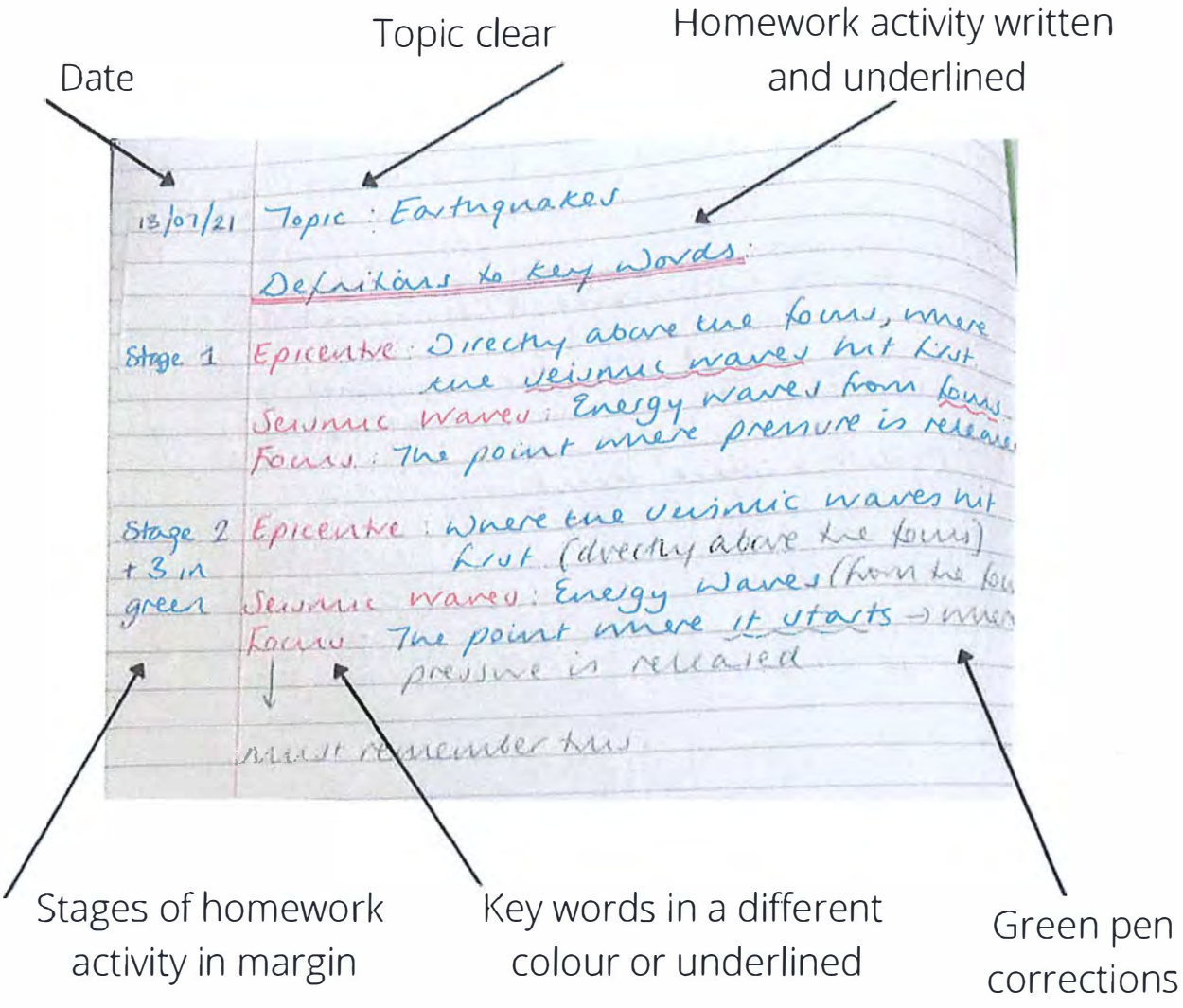
Characteristics:

Key word:

Examples:

Non-examples:

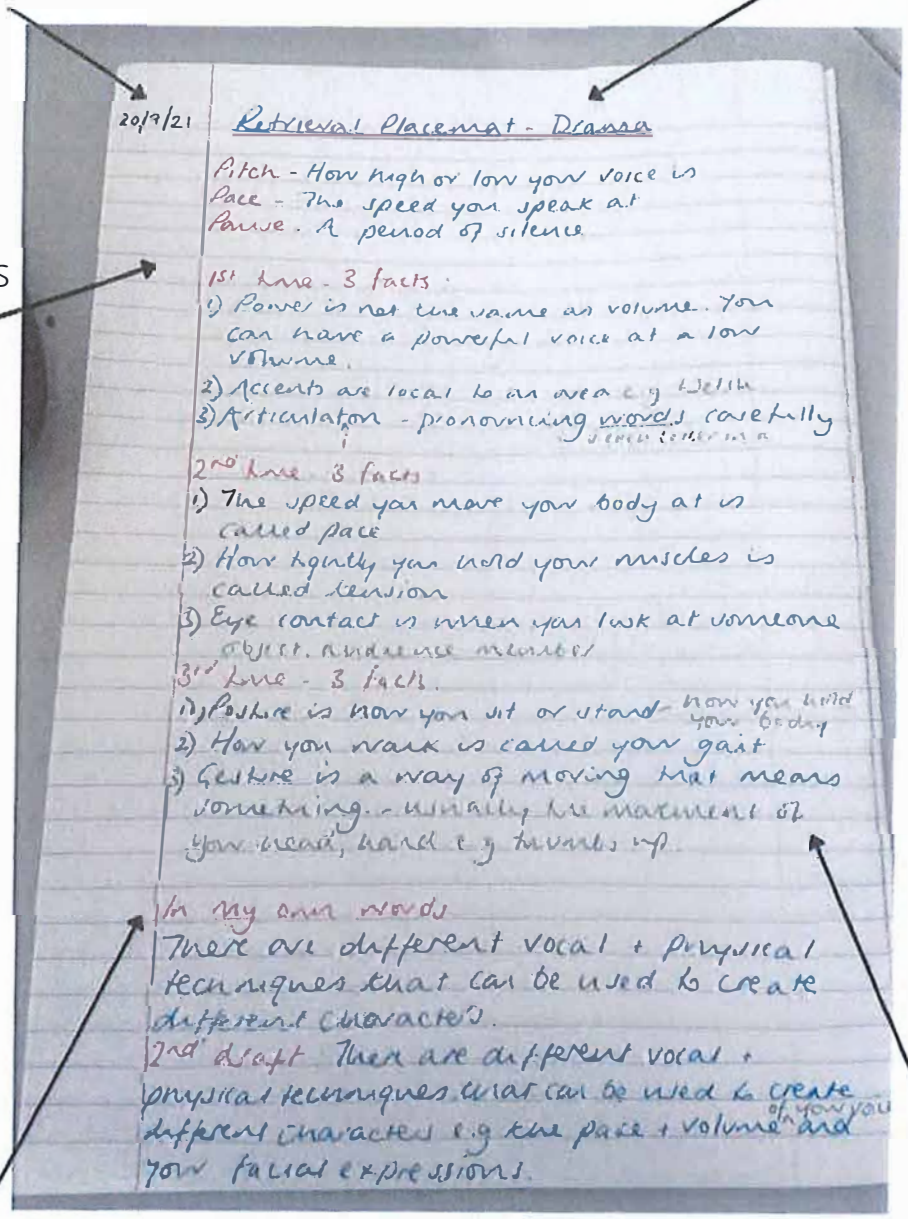
What should my knowledge organiser homework look like?



What should my knowledge organiser homework look like?

Homework activity written and underlined

Date



Key words in a different colour

Green pen corrections

Stages of homework activity as subtitles

Art

Year 7: Unit 3: Colour

Colour

Threshold Concept (TC5) - Understand basic colour theory that many colours can be made from the primary colours.
Threshold Concept (TC6) - Understand basic colour theory that some colours are similar, and others complement each other.
Threshold Concept (TC7) - Understand how to create tonal values with colouring pencil.
Threshold Concept (TC8) - Understand how to mix different colours using the primary colours.
Threshold Concept (TC9) - Understand how to use different art materials effectively.

Key words
Primary, Secondary, Tertiary, Warm, Cold, Shade, Tint Complementary, Harmonious, Monochrome.

SCAN ME
Colouring Pencil Techniques

Primary colours are the 3 main colours. They cannot be made but are used to make all other colours.

Secondary colours are made by mixing 2 primary colours.

Tertiary colours are made by mixing a primary and a secondary colour together.

Complementary colours are opposite on the colour wheel (**red** and **green**, **blue** and **orange**, **yellow** and **purple**).

Harmonious colours are next to each other on the colour wheel and are similar.

Tint – when you add white to a colour to make it lighter.

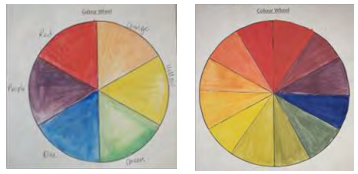
Shade – when you add black to a colour to make it darker.

Tone – when you add grey to a colour to dull the intensity.

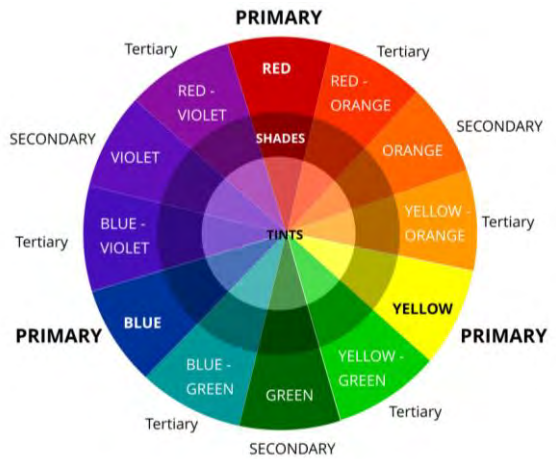
Monochrome – different shades of one colour.

Bronze … name and understand that there are three primary colours.
… understand what a 'colour wheel' is.

SCAN ME
Colour Theory

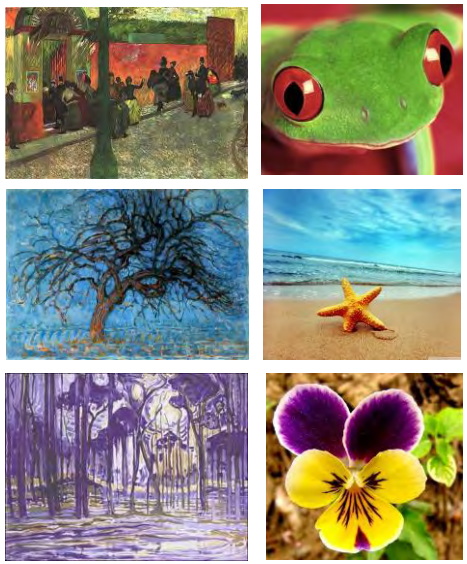

Watercolour paint.

The colour wheel is divided into warm and cold colours. Cold colours are calm and soothing, the warm colours are energetic and vivid.



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 lig ht 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.

Use primary colour pencils to show tone as well as blending them to create secondary colours.


Artwork using the complementary colours: Red/Green, Blue/Orange, Yellow/Purple.

Year 7: Unit 4: Abstract Art

Key words
Graphite, tonal scale, mark making, hatching, cross hatching, ellipse, symmetrical**, geometric shapes,** parallel, still life, acrylic paint.

Abstract Art
Threshold Concept (TC10) - Art can take many forms which includes Abstract art that only uses lines, shapes and colours.
Threshold Concept (TC11) – Understand that lines, shapes and colours can be used to create artwork that is not lifelike (no recognisable objects) and can also be used to show emotions.

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.
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Pattern – a symbol or shape that can be random or repeated.

Bronze
… understand what 'abstract' means.
… remember the elements of art which are used in abstract art.
… name an abstract artist.
… understand what acrylic paint is.
… understand what 'personality' means.

Abstract Art is a picture or a sculpture made up of colours and shapes.

Types of Abstract Art

(1) When paintings or sculpture are made up of shapes and/or colours. It is not an image of anything real. The work has **no recognisable** objects.

Wassily Kandinsky

- Wassily Kandinsky was born in Moscow, Russia in 1866 and died in France in 1944.
- He started as a landscape artist but later produced abstract art.
- From an early age Kandinsky was interested in colour.
- As a child he loved music and learned to play the piano and the cello.

- Kandinsky tried to show his feelings for music in his abstract art.
- He used colour, lines and shapes to do this. Colours and shapes set off different sounds or musical notes in his head and vice versa.

Kandinsky said,
" When I hear music I see colour and when I see colour I hear music."

(2) When the artist **paints something real and shows it with shapes and colours.**

These might give the general idea of what the subject is like.

Robert Delaunay
Window: Study for Two Windows
(1912) Oil paint on canvas

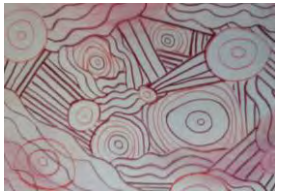
The Eiffel Tower in Paris, France

(3) When the artwork shows something that the artist is **feeling**, rather than what they can see.

How does this makes you feel?

Title: Calm Down by Chris Butler

Your final design will be drawn onto a canvas and painted using acrylic paints..



SCAN ME

Introduction To Abstract Art

What does the word **personality** mean?

The combination (mix) of characteristics or qualities that form an individual's distinctive character.

Characteristics: a feature or quality belonging typically to a person serving to identify them.

Qualities: a distinctive attribute or characteristic possessed by someone or something

Loyal · Devoted · Kind

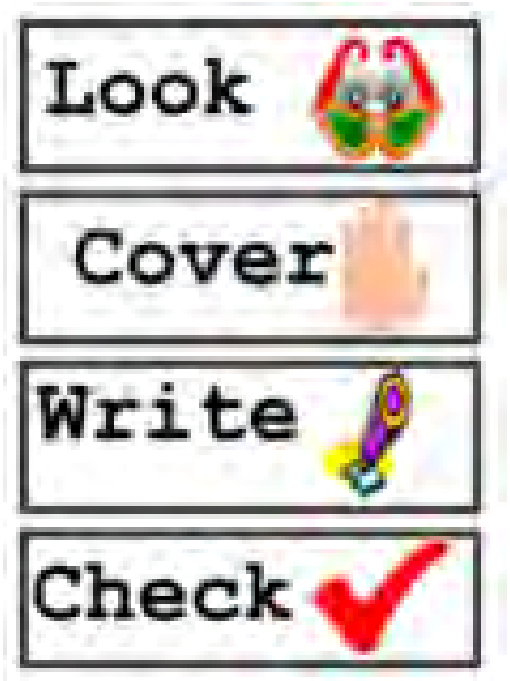
How can different colours might make us feel?

SCAN ME

Acrylic Paint Techniques

Acrylic paints are water-based but are water resistant when dry. They can be used thick like oil paints or watered down like watercolour paint.

Computing



Read through your knowledge organiser. Next, cover it up or put it away and try tho 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.

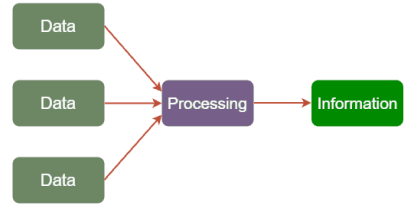
Computing Year 7 Unit:
Modelling Data—Spreadsheets

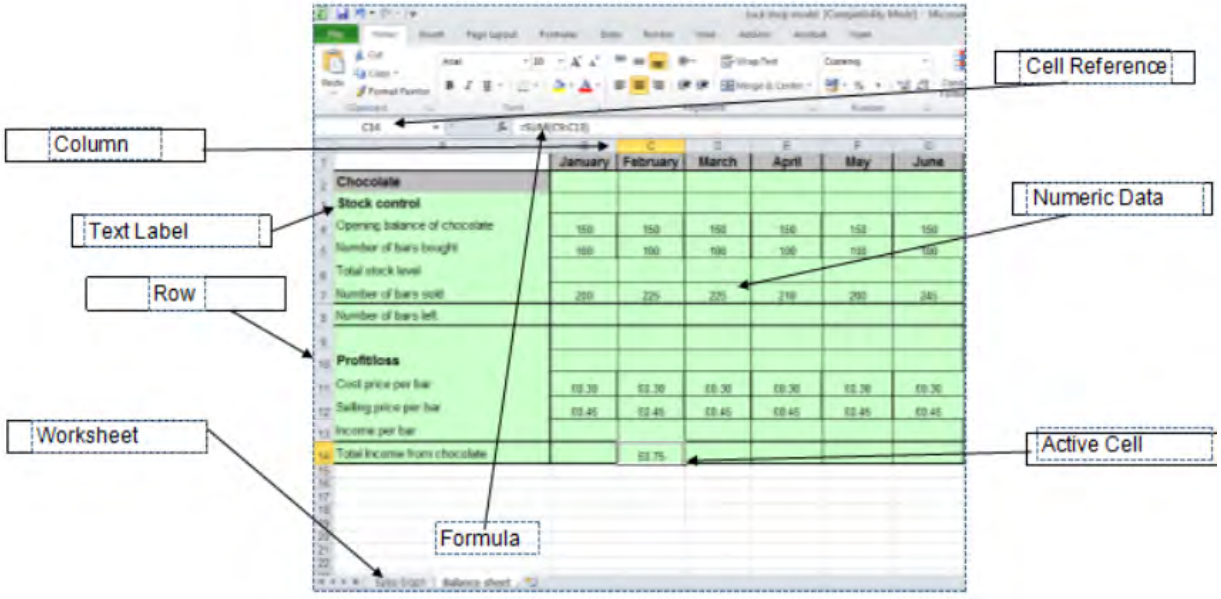
Threshold concept—

- Understand what a real-world problem is.
- Show basic awareness of formulas.
- Describe what a creative project is.
- Collect data for a project.
- Show understanding of a simple project for a specific goal.

Keyword	Definition
Data	Values, typically letters or numbers.
Cell	A cell is the intersection between a row and a column on a spreadsheet that starts with cell A1
Cell reference	The set of coordinates that a cell occupies on a worksheet.
Row	The numbered gray area to the left of each row.
Column	The lettered or numbered gray area at the top of each column.
Formula	A combination of symbols that indicates the chemical composition of a substance.
Range	Two or more cells on a sheet. The cells in a range can be adjacent or nonadjacent.
Maximum	The highest number
Minimum	The lowest number
Information	Data with a meaning
Data	Facts and statistics

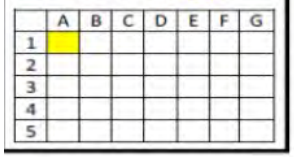
Data Vs Information	Data	Information
	Facts or figures **e.g. 8, 4, 2, 3, 4, 2**	Information has been processed into information that has a meaning **e.g. Shoe sizes: 2, 3, 4, 8**



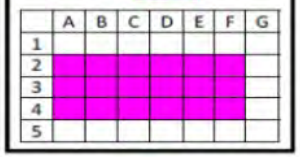


Golden rule: every formula always starts with an =

Cell references begin with a letter, and finish with a number. EG: A1



A range is a selection of cells. EG: A2:F4



Operators	
+	Adds two numbers / cells
-	Subtracts one cell or number from another
*	Multiplies two numbers/cells
/	Divides one number / cell from another one
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

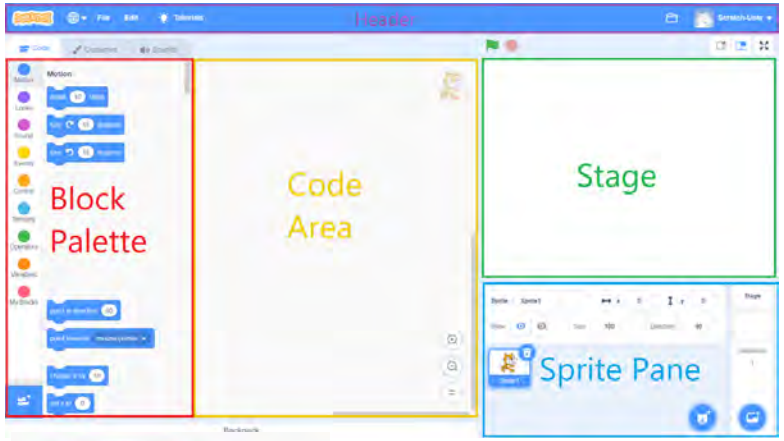
Computing Year 7 Unit:

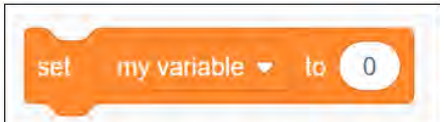
Programming essentials in Scratch part 1

Threshold concept—

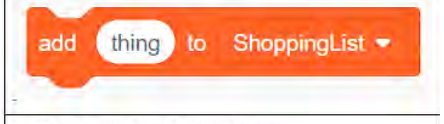
- Understand what a real-world problem is.
- Understand the concept of computational abstractions
- Show understanding of a simple project for a specific goal.
- Gain a basic understanding of a programming language

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.

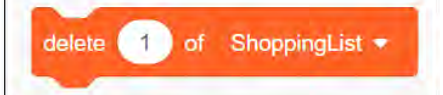




Used to set the value of a variable.

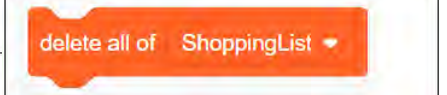


Adds an item to a list variable



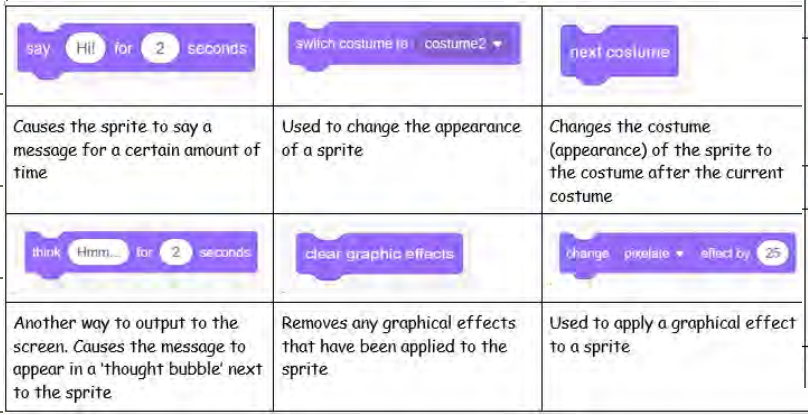
Deletes a certain item in a list variable

Used to change the value of a variable.



Deletes all the items in a list variable

Checks if an item is in a list variable



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.

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:

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

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:

Understand that all food comes from plants or animals.

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?

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

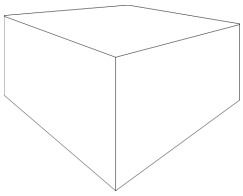
To understand that Computers can streamline the design process.

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

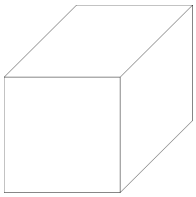
You Will:

- 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

There are different ways to

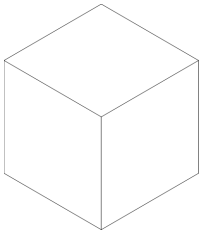


Perspective drawing

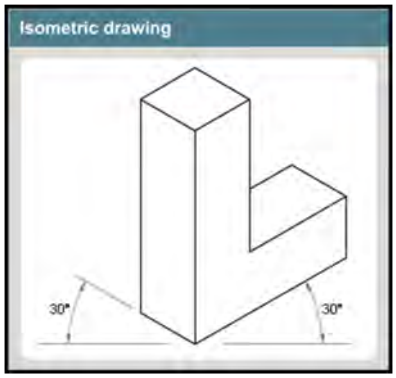


Oblique

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



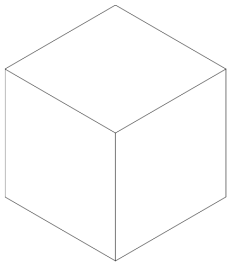
Isometric



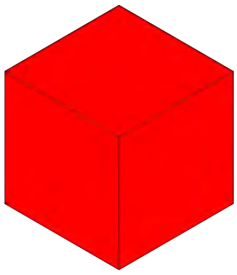
The only two angles you need in isometric drawing are 30 degrees and 90 degrees. You never draw horizontally.

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

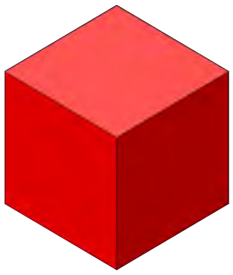
Enhancing drawings. Tone is used to enhance 3D drawings. Tone is how light or dark something is and by showing shadows and highlights we can make drawings look more realistic and 3 dimensional.



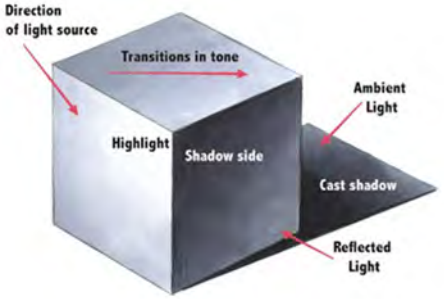
Line Drawing



Coloured



Rendered using shade and tone



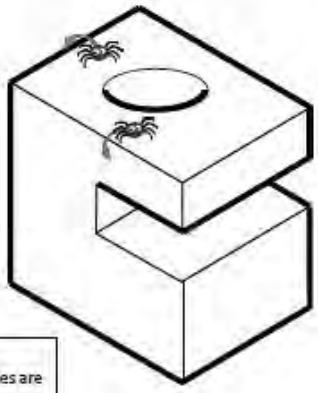
THICK AND THIN LINE TECHNIQUE

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.

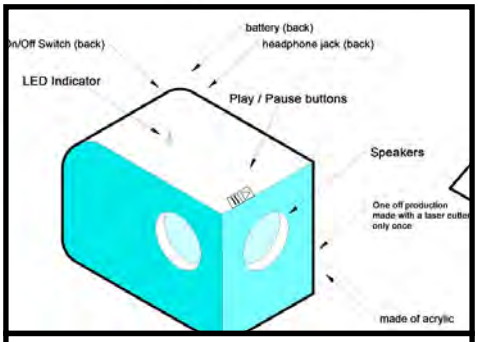
If the spider is able to disappear around an edge, then this edge will be drawn with a thick line.

If the spider is still visible once it has crawled over an edge, then this edge will be draw 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.

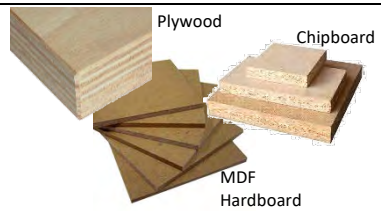
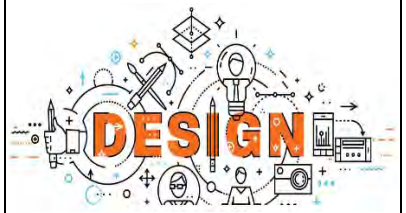
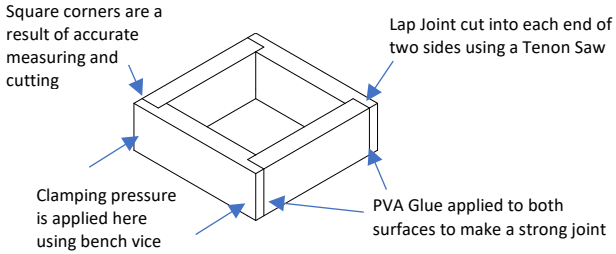
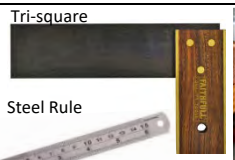
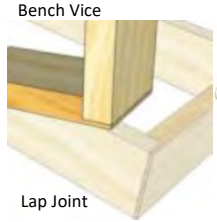


Computer Aided Design (CAD) is used to make more accurate drawings and **ANNOTATION** is added to describe parts of our designs and communicate our ideas.

SCAN ME

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
	**Materials knowledge:** • Know the 3 main groups of wood (Hardwood, Softwood and Manufactured board • To be able to name at least one of each group	 ch dar e Softwood  Mahogany Beech Oak Ash Hardwood  Plywood Chipboard MDF Hardboard Manufactured Board	SCAN ME
	**Design process:** • Understand a design brief is a list of customer requirements • Use detailed annotation to describe their ideas	BRIEF: It must be wood It must be suitable for sale in a shop  Square corners are a result of accurate measuring and cutting Lap Joint cut into each end of two sides using a Tenon Saw Clamping pressure is applied here using bench vice PVA Glue applied to both surfaces to make a strong joint	
	**Practical skills:** • 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	 Sharp Pencil  Tenon Saw  Tri-square Steel Rule  Bench Vice PPE  Goggles Glass Paper   Marking Gauge  Chisel  Bench Hook  Lap Joint  Apron	
	**Environmental.** • understand the source of wood is very sustainable if the supply is managed correctly. • Explain how a forest can be managed	 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.	SCAN ME

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."

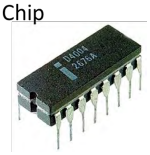
All systems have

LDR Toggle Switch Variable Resistor.

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

Transistor

PIC Chip



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

L.E.D

Speaker

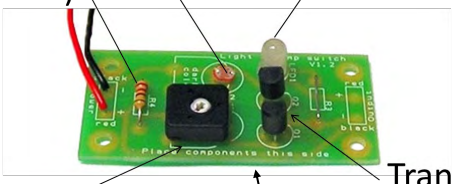
motor

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.

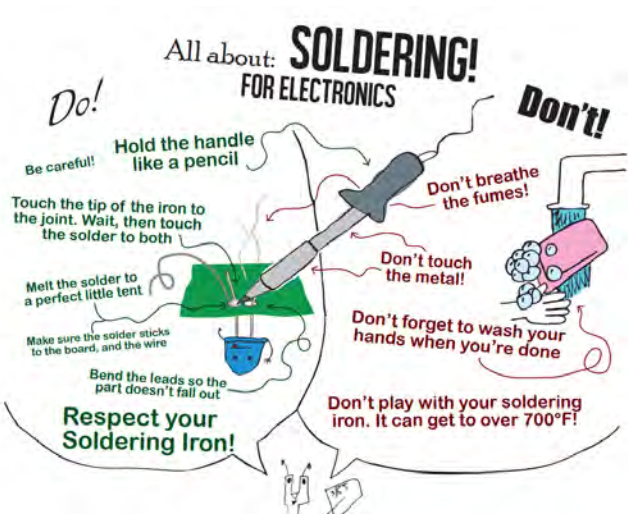
The components are combined to make a System. In electronics this is called a **circuit.** The components are mounted on a **printed circuit board (PCB)** using **Solder.**

How does it work?

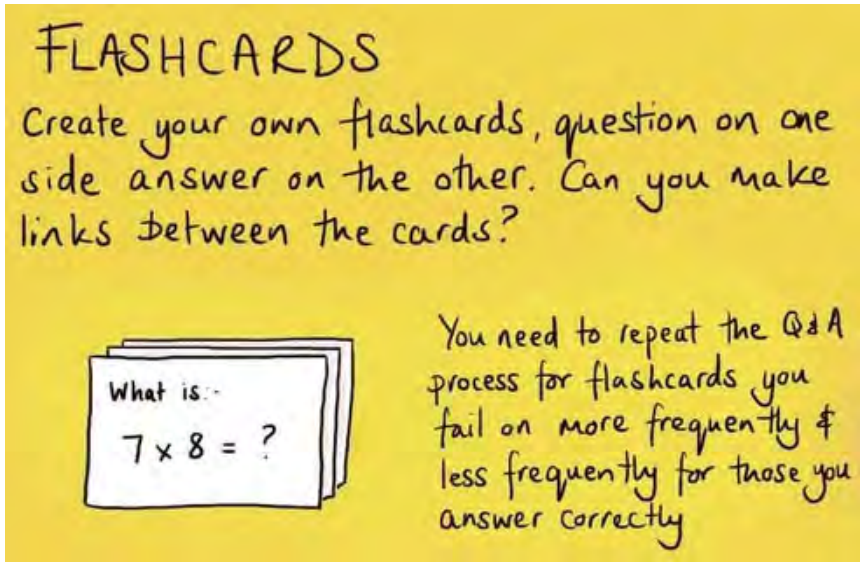
Electricity is the movement of electrons from one atom to another. It flows through materials like lead, tin and copper because they have good **conductivity**. Copper is used for the tracks on a **PCB** and lead or tin is used to **solder** the components to the board.

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



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.

Sam and Alex (Peer Pressure)

A. Remote Control Effect (Flashforward/Flashback)

Performers in a scene are asked to improvise scenes which take place seconds, minutes, days, or years before or after a dramatic moment. This will enable the exploration of characters' backgrounds, motivations and the consequences of their actions.

B. Cross Cutting

Cross-cutting (also called split-screen) is a drama technique used to describe two or more scenes which are performed on stage at the same time. Scenes can happen at different times or in different places, using separate areas of the performance space.

C. Hot Seating

Hot seating is when you are asked questions in character, and you have to answer them in character.

We use hot seating in Drama as it helps understand your character and their background and gets you to think about who they are.

Open ended questions are better to ask as it draws out more information.

D. Angel and Devil Technique

The devil vs angel technique is a plot device used for either dramatic or humorous effect. The angel represents conscience, and the devil represents temptation.

This technique involves at least three people. On the left of the central character, one plays the good angel, and to the right another person plays the bad angel. The central character could be some sort of dilemma e.g., there is a decision to be made. Through the good and bad angels, they can consider different points of view.

E. Physical Skills

Body Language	How an actor uses their body to communicate meaning. For example, crossing your arms could mean you are fed up.
Posture	The position an actor holds their body when sitting or standing. For example, an upright posture.
Gait	The way an actor walks.
Facial Expressions	A form of non-verbal communication that expresses the way you are feeling, using the face.
Gestures	A movement of part of the body, especially a hand or the head, to express an idea of meaning.
Stance	The way you position yourself when standing to communicate your role. An elderly person would have a different stance to a child!

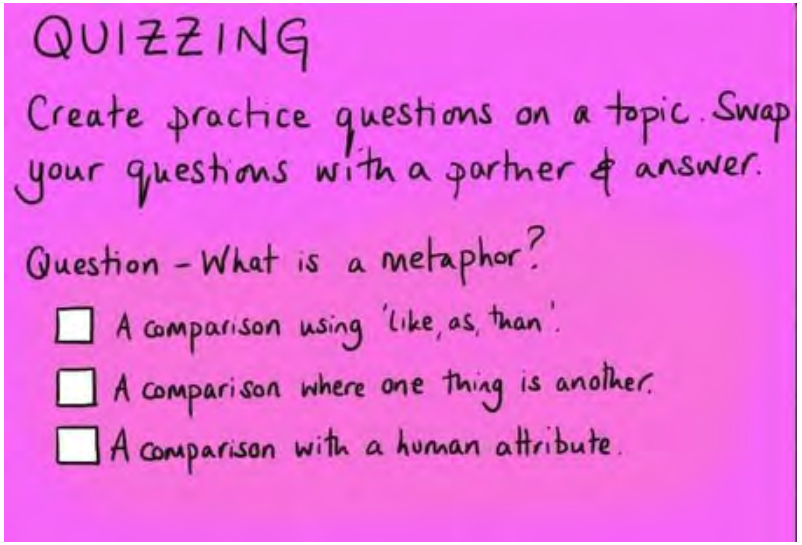
F. Vocal Skills

Projection	Ensuring your voice is loud and clear for the audience to hear.
Volume	How loudly or quietly you say something. (Shouting, whispering).
Tone	The way you say something to communicate your emotions. (e.g., angry, worried, shocked tone of voice).
Pace	The speed of what you say.
Pause	Moments of pause can create tension or show what you are thinking.
Accent	Use of an accent tells the audience where your character is from.
Pitch	How high or low your voice is.
Emphasis	Changing the way, a word or part of a sentence is said, to emphasise it. (Make it stand out).

G. Marking the Moment

Marking the moment is a dramatic technique used to highlight a key moment in a scene or improvisation. The moment is 'highlighted' or marked to the audience by using an explorative strategy.

English



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 Concept- Year 7- The Tempest:

TC1 - Understanding texts

TC2 - Demonstrate an appreciation of the writer's craft through analysis and critically evaluative comments.

A plot and character summary of 'The Tempest:' Full translation (if on MS Teams) = The Tempest Modern

The sinking ship

A ship is sinking in a wild storm. King Alonso and his son Ferdinand, accompanied by Antonio, Gonzalo, and Sebastian, are on board.

Prospero's story

He was the Duke of Milan, and Miranda was a princess. King Alonso tried to kill them, but they survived. Prospero learned magic.

The plot to kill Alonso

The other passengers are on another part of the island. Thinking that Ferdinand is dead, Sebastian and Antonio plot to kill Alonso.

Caliban gets drunk

Trinculo & Stephano from Alonso's ship meet Caliban, Prospero's slave. They get drunk together and plot to kill Prospero. Ariel overhears.

The celebration

Prospero agrees to the marriage of Ferdinand and Miranda. All the spirits come together to celebrate the wedding.

Prospero & Miranda

On a nearby island Miranda and her father, Prospero, watch the storm. Prospero has caused the tempest. He tells Miranda their story.

Ferdinand meets Miranda

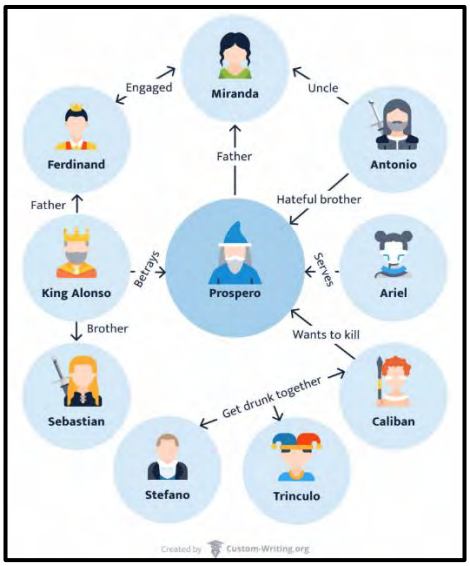
Ariel, a spirit of the air, lands the passengers of the sunk ship on Prospero's island. Ferdinand meets Miranda and falls in love with her.

The proposal

Ferdinand dreams of marrying Miranda. He doesn't know yet that she loves him. Miranda proposes to Ferdinand and he accepts.

Ariel becomes a monster

Prospero uses magic to turn Ariel into a monster for a while. Ariel terrifies Alonso, Antonio, and Sebastian. They run away in fear.



Using this information can you:

- Recount what happens from start to finish in the novella?
- Explain who the primary characters are, and what makes them unique?

You should use this information to get the base knowledge needed for **William Shakespeare's play**.

E.g. **Ferdinand is King Alonso's son** who becomes engaged to Miranda. He is proposed to by her nearer the end of the play.

The character of Miranda is clearly in love with Ferdinand. **"I am your wife if you will marry me. If not, I'll die your maid."** This juxtaposition reflects Miranda's devotion to Ferdinand, whether he chooses her to marry or keep as a servant. The pronoun "your" is repeated which shows she feels owned by Ferdinand already. A modern audience would be worried that Miranda is putting herself in a vulnerable position to be exploited by Ferdinand here, while an original audience would highly approve of Miranda's commitment to a male figure in a sexist society

Key quote writt dow
que
hat it shows
u reaction(s

In order to be successful, you must know a range of different moments from the whole story. For example, other moments where Miranda is important include:

- Her making fun of her dad "Your tale, sir, would cure deafness."
- Caliban's inappropriate language about her, "seek'st to violate... the honour of my child."
- Miranda meets new people for the first time in her life: "O brave new world!"

Developing this further- discussing audience reaction.

A really effective way to showcase your understanding of the text is by comparing how an original audience might react vs. how a modern audience might react (see the blue part of the WAGOLL above). This is how we do this:

ORIGINAL AUDIENCE MIGHT THINK

Prospero is right to treat Caliban the way he does, as Shakespeare's audience believed non-white people were more aggressive, less intelligent and sneakier (racism was far more common).

MODERN AUDIENCE MIGHT THINK

Caliban should be treated more fairly. He shows moments of intelligence and kindness that is completely ignored by other characters (we are an anti-racist society).

Try to consider, as you read the play, your own reactions to characters/ events. Then compare this to how an audience in the 1600s (with very different views to us) would react.

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.

Apostrophes for contraction	Examples
Replace letters with **apostrophes**.	They + have = They've We + are = We're
Apostrophes for possession: To show belonging.	**Examples**
1. Use an **apostrophe** + **S** (**'s**) to show that one person/thing owns or is a member of something.	Lisa**'s** car, the parrot**'s** beak
2. Use an **apostrophe** after the "**s**" at the end of a plural noun to show possession.	The parents**'** bedroom, the girls**'** team
3. If a plural noun doesn't end in "**s**" add an **apostrophe** + "**s**" to create the possessive form.	The children**'s** room

Expanded noun phrase: An expanded noun phrase is expanded by the addition of adjectives, nouns and preposition phrases.	**Example:** determiner, adjective, noun, preposition
The teacher	The strict maths teacher with curly hair

Determiners: a modifying word that determines the kind of reference a noun or noun group has.	**Example:**
articles	a boy, an apple, the cat
demonstratives	this apple, that car, these shops, those girls
possessives	his hat, her homework, my book, their house
quantifiers	some rice, each word, every box
numbers	one chair, two men, three dogs
question words	which bag, what letter, whose computer

Pronoun	Examples
a function word used in place of a noun or noun phrase to aid cohesion and avoid repetition.	she = Sandra there = The beach they = Sandra, Molly, Rebecca, Susan
Sandra went to the beach. Sandra met Molly, Rebecca and Susan at the beach and Sandra, Molly , Rebecca and Susan bought an ice-cream.	Sandra went to the beach. She met Molly, Rebecca and Susan there and they bought an ice-cream.
Possessive pronoun	**Examples**
a pronoun that demonstrates ownership.	my, our, your, his, her, its, and their, mine

Fronted adverbial: Words or phrases at the beginning of a sentence, used to describe the action that follows. A comma marks the adverbial.	**Examples:** **Earlier today**, I ate my cereal.
Time	As soon as she could, she returned back home.
Frequency	Never in my life, have I seen such a beautiful sunset.
Place	Above the clouds, the phoenix burned brightly in the sky.
Manner	Without warning, I burst into song.
Extent	Decidedly unimpressed, the teacher warned the student.

Simple tenses	Example
Past - when an action took place at a specific time and is now finished.	I walked into the monster's cave.
Present - when an action is taking place now.	I walk into the monster's cave.
Future - when an action will take place in the future.	I will walk into the monster's cave.

Progressive tenses	Example
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...

Perfect tense	Example
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 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.
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.

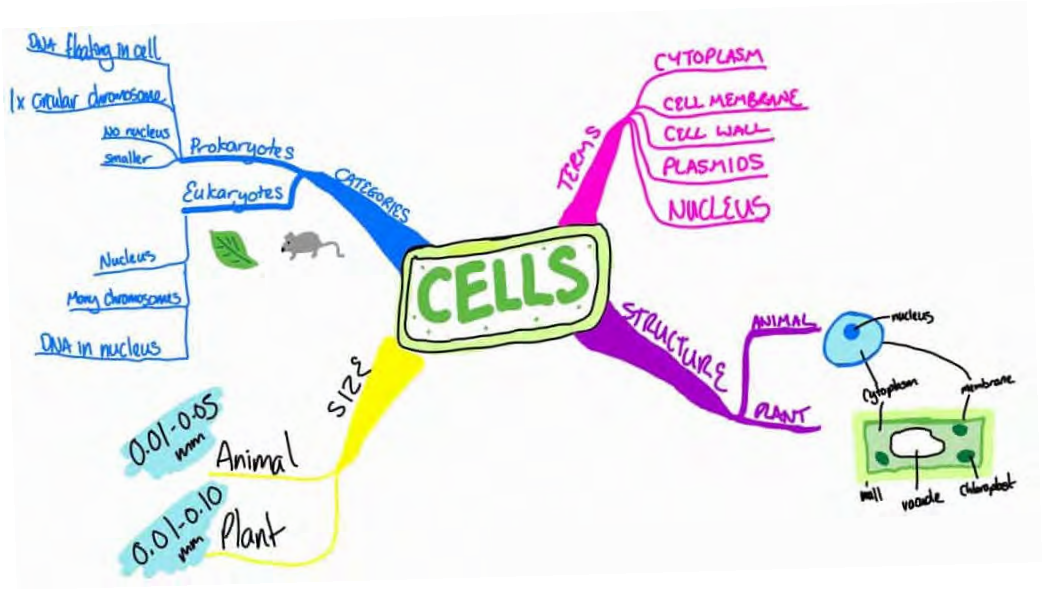
Word class: Nouns	
Proper noun - name, place, month- always starts with a capital letter	e.g. John, South Woodford, March James went to the supermarket.
Concrete nouns - things you experience through your five senses	e.g. table, pencil, chocolate, music In my bag I have many things including an apple.
Abstract nouns - ideas and concepts; you can't touch them	e.g. truth, justice, anger I feel hope for the future.
Pronoun - replaces a proper noun or common noun	e.g. he, she, they, it John had a bookmark; he used it in his book.
Collective noun - a noun that refers to a group of individuals	e.g. herd, class, pack A gaggle of geese were at the pond.

Word class:	
Adjective- describes a noun	e.g. blue, small, gentle The white snow blanketed the floor.
Verb - an action, state or occurrence	e.g. run, was, work The sun is hot so I play in the garden.
Adverb - modifies the meaning of an adjective, verb or other adverb. Expresses manner, place, time or degree	e.g. slowly, regularly, soon I liked the cuddly rabbit best.

Word class: Determiner	A modifying word that determines the kind of reference a noun or noun group has
Article - tells us the definite or indefinite	e.g. a/an, the The tree is beautiful in autumn.
Quantifier - indicates quantity	e.g. few, many, some Lots of fun was had at the party.
Possessives - indicates who it belongs to	e.g. my, its, his That is her coat.
Demonstratives - points to something specific	e.g. this, that, those These computers are for sale.
Numbers - tells us how many	e.g. one, two, three Seven dwarves accompanied Snow White.

Word class:	
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 after the end of the war.
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 but I don't like sweets.
Subordinating conjunction - a conjunction that introduces a subordinating clause	e.g. while, since, although I went to the cinema after I had eaten my dinner.

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

Map Skills

Types of Geography

Human geography The impact of people on the earth

Physical geography The natural world without people

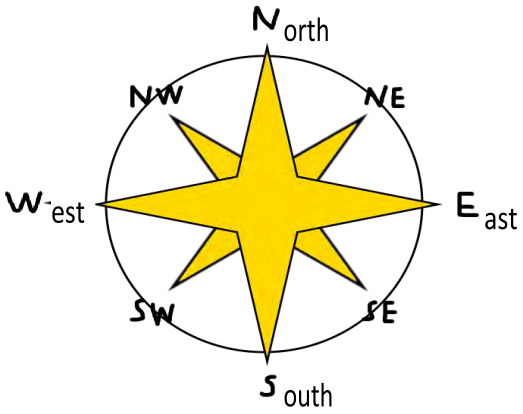
Environmental geography Human interaction with nature

What is Geography?

"Geography is the study of the Earth's landscapes, peoples, places, and environments. It is, quite simply, the study of the world we live in."

Geography is part of your everyday life; you use it every day without even realising!

Compass Points



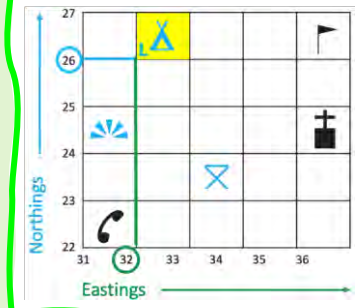
Where is the UK?

The United Kingdom (UK) is an Island country located in the continent of Europe, it is made up of four countries: England, Scotland, Northern Ireland and Wales.

The UK

4 figure Grid references

Along the edges of each map there are numbers. These numbers help you work out where a location is on a map. Northings are numbers that go from bottom to top, Eastings go from left to right.



The first two numbers give the eastings.

32 26

The second two numbers give the northings.

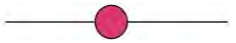
Remember.... eastings then northings!

Along the corridor and up the stairs!

Map Symbols

Symbols are useful for lots of reasons including, space saving on a map, multi-lingual (all languages can understand them), saves time, clear.

MOTORWAY



TRAIN STATION

FOOTPATH

FOREST

BUS/COACH Station

river

parking

Cycle trail

Viewpoint

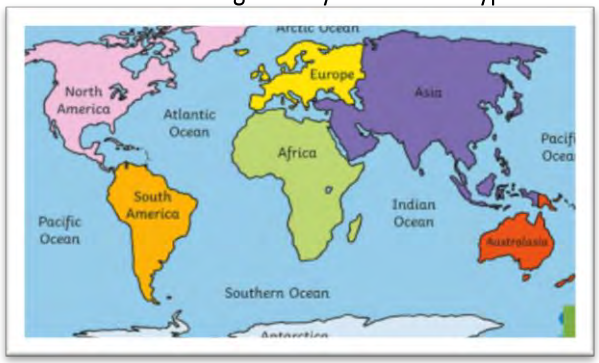
Golf course

Nature reserve

marshland

Atlas skills

There are generally three main types of maps shown in an atlas:



Physical maps these show topography/relief (the shape of the land) and other physical features such as rivers and lakes.

Political maps these show country borders, cities, transport links etc.

Thematic maps these show information such as climate data, agriculture types etc.

6 Figure Grid References

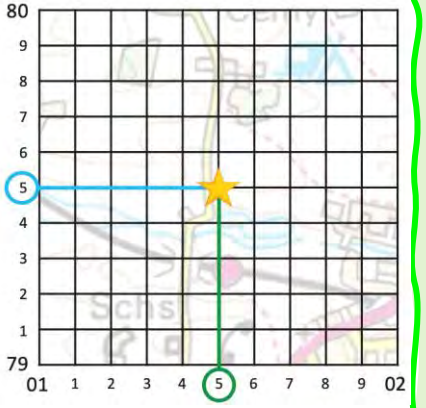
We can use six-figure grid references to find an exact location within a grid square, so they are much more accurate The grid square is divided into tenths.

Example:

015 795

The first three numbers give the easting which includes the number of tenths.

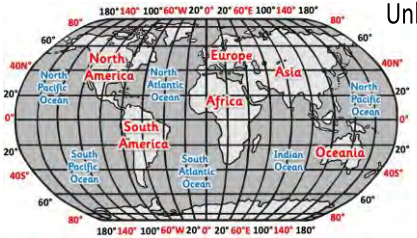
The last three numbers give the northing which includes the number of tenths.



Keywords

Latitude			North	
Longitude	East	Distance	Relief	Contour
Scale	South	Scale	West	Direction

Longitude and Latitude



Unlike grid lines where we go along the corridor and the stairs, here we go UP and ACROSS

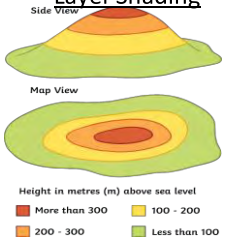
Latitude
Flat lines. Flat-itude!

Longitude
Long lines – up and down

Height and relief

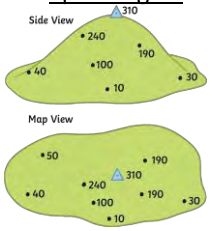
Relief the difference between the highest and lowest heights of an area.
Topography the surface features of the earth like hills, mountains, valleys etc

Layer Shading



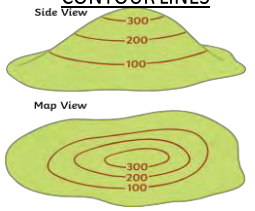
Areas of different heights are shown using different colours. A key is used to show how high the land is.

Spot heights



The exact height of a place above the ground is measured and written onto a map.

CONTOUR LINES

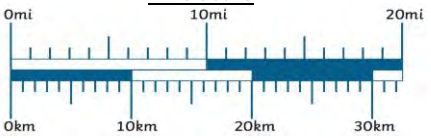


Contour lines are lines on a map which join up places of the same height. Everywhere along a contour line is the same height.

SCALE AND DISTANCE

OS maps have a scale. On some smaller maps, 1cm on the map equals 250m in real life. On some larger maps, 1cm on the map equals 500m. Different maps might have different scales, so check on your map to find its scale.

Line Scale



Using a line scale on a map is as easy as using a ruler. The important thing to remember is that a line scale shows measurements in km and the measurements on a ruler are in cm.

Word Scale

One centimeter on the map represents 3 kilometers on the ground. (1cm = 3 km)

Using the scale above, if we measure the distance on a map between two places with our ruler. The measurement is 4cm. We then have to multiply that measurement by 3 to calculate that the real distance between the two places is 12km.

About the UK Knowledge Organiser

Key Words:

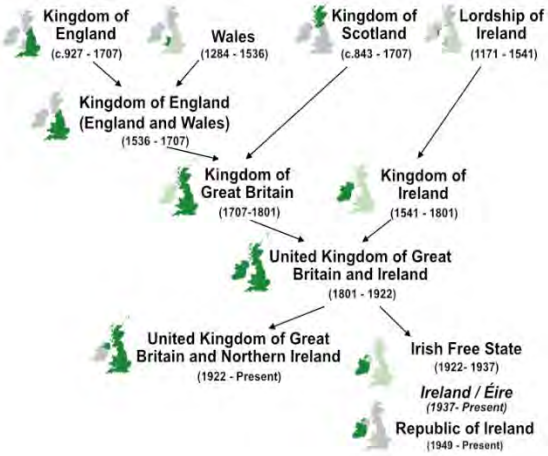
Immigrant – a person who moves from one country to another to live
Emigrant – a person who leaves his or her own country to settle in another one
Push Factor – negative things that force people out of a place
Pull Factor – positive things that attract people to a place
Population Density – the average number of people living in a place per square kilometre
Densely populated – many people live there
Sparsely populated – very few people live there
Rural – an area that is mainly countryside
Urban – a built up area – town or city
Global City – a city that is well connected to the rest of the world

Typically, British!

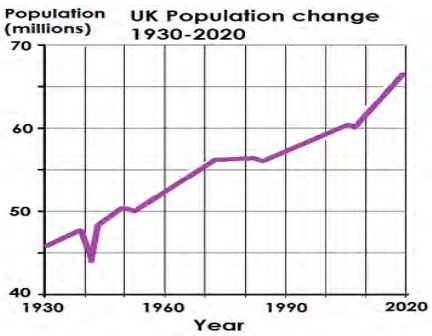
What do we associate with the British Isles?
Fish and Chips
Sunday roast
Cornish pasty
Cup of tea and afternoon teas
Queen Elizabeth/King Charles
London Eye and Big Ben
River Thames
The Beatles
Cricket …… and many more.

It's a Jigsaw

Great Britain – England, Scotland and Wales
United Kingdom – England, Scotland, Wales and Northern Ireland
British Isles – England, Scotland, Wales, Northern Ireland and the Republic of Ireland



Who Are We?



Over the centuries many groups of people have arrived in the UK – **push and pull** factors. We are all descended from **immigrants** if you go back far enough.

Remember!
The label matches the green area.


the British Isles


the United Kingdom


Great Britain (or just Britain)

Some facts about the British Isles

Flag of UK / Flag of Republic of Ireland	England	Scotland	Wales	Northern Ireland	Republic of Ireland
Area (square kilometres)	130 400	77 100	20 800	14 200	70 300
Population (millions)	55.8	5.5	3.2	1.9	4.8
Flag of this British nation					

History box (CE)

1801: Ireland becomes part of 'The United Kingdom of Great Britain and Ireland'.

1922: the Republic of Ireland gains independence. Northern Ireland remains in the UK.

1171: King Henry II of England invades and takes control of parts of Ireland.

1100: England, Scotland, Wales and Ireland are separate countries.

1276: King Edward I of England invades and takes control of Wales.

1536: King Henry VIII unites England and Wales, and makes himself King of Ireland.

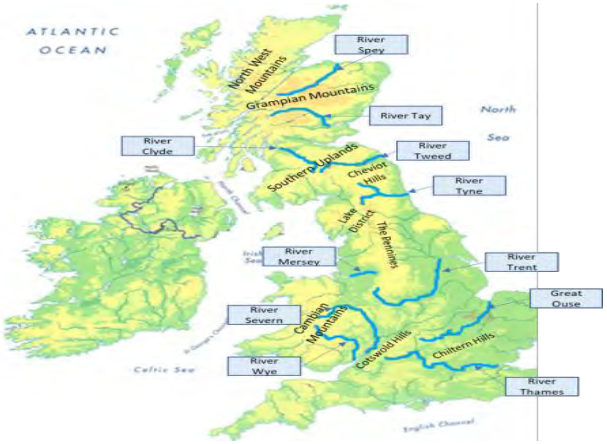
1707: England, Scotland and Wales become 'Great Britain'.

Today: England, Scotland, Wales and Northern Ireland are still united as the UK.

About the UK Knowledge Organiser

Physical Features

The UK is fairly small compared to other nations, yet it has a variety of landscapes created by the processes of weathering, erosion, and deposition.



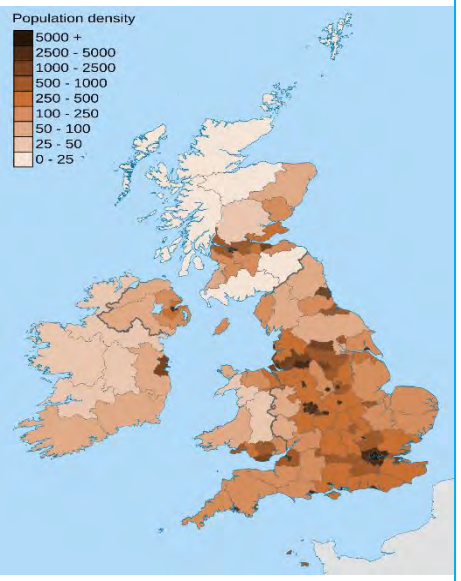
Where do we live?

The choropleth map shows the UK's **population density**. The darker the shading the more **densely populated** the area is e.g. the south-east. Lighter shading represents **sparsely populated** areas e.g. Northern Scotland.

Urban or Rural?

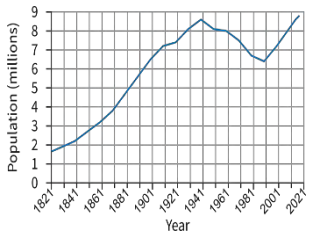
Rural areas are mainly countryside and are sparsely populated – why – lack of services, climate, relief of the land.

Urban areas are built up towns and cities and are densely populated – why – variety of services, good transport links, job opportunities.



London – our Capital City

London – located in the southeast of England is the UK's largest city with approximately 9 million people. It is a **multiracial** and **diverse** – over 300 languages spoken. The government is based here, and it is known around the world for music, theatre, art, shopping, and sport.



It is a **global city** – has an impact far beyond the UK – financial hub.

The Romans built London alongside the R. Thames and called it Londinium.

Its population has grown and continues to grow due to the many opportunities it offers.

Our links to the wider world

Trade – we buy (import) and sell (export) goods and services from all over the world.

Transport – the UK has a variety of different transport links to the rest of the world - airports, the Channel Tunnel and a number of different ports.

Communications – with improvements in technology we are linked to the world by phone and the internet.

Investment – British companies have been bought by other large companies from countries like USA and China, but our companies also buy companies in other countries too.

Membership – the UK belongs to several groups of countries such as the Commonwealth and the United Nations.

Tourism – millions of people visit the UK each year and vice versa

Culture – British music, fashion, theatre, films, books and sport make an impact around the world as do other country's cultures on us.

Aid – every year the UK gives money and help to poorer countries in Africa and Asia to support projects such as dealing with disasters and education.

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 4 – Medieval Mysteries

Key Terms

Medieval Period	The period of time between 1066 and 1485, beginning with the Norman Conquest and ending with Henry VII's victory in the Battle of Bosworth.
Succession	The order of Kings and Queens.
Damsel in Distress	A female who is seen as weak and vulnerable that needs saving, usually by a man
Archbishop of Canterbury	The head of the Catholic Church in England.
Cathedral	A Cathedral is a large church ruled by an important member of the Church. A bishop or an Archbishop.
Tax	Money paid by normal people to the King or the government.
Revolt	Taking violent action towards a leader.

Key events in order

Henry I dies without an heir. Stephen and Matilda compete for the English Throne.

→ King Henry II's involvement in the murder of Archbishop Thomas Becket creates problems for the monarchy.

→ King John is forced to sign the Magna Carta. This is the first time an English monarch has had to follow a set of rules.

→ The Black Death came to England in 1348 and within 2 years it had killed a 1/3 of the population.

→ The Peasants Revolt in 1381 due to an unpopular tax.

Key Figures

Matilda
As the first woman to fight for the English Throne, declaring herself 'Lady of the English', Matilda's legacy should not be forgotten.

Thomas Becket
Tensions between King Henry II and Becket, the Archbishop of Canterbury resulted in his unfortunate murder.

King John
Ruling in the shadow of his brother Richard the Lionhart, John's mistakes led to the Magna Carta in 1215.

King Richard III
The last Medieval King of England was defeated in the Battle of Bosworth.

Threshold Concepts linked to this unit:

TC6	Historians will continue to investigate events throughout history as new information is uncovered as much of history is still a mystery to us
TC7	The Medieval period was a time of inequality between genders and social classes.
TC8	The Medieval period was a brutal time period involving a high number of wars, mysterious murders and mass deaths from diseases such as the Black Death.

Key Fact

The Magna Carta is the most important document you may never have heard of. Its legacy has inspired liberty and freedom in many countries across the world today.

Year 7 – History Knowledge Organiser – Unit 5 – Was the Tudor Period a religious rollercoaster?

Key Terms

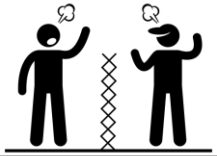
Catholic Church	A type of Christianity, this was the main religion in England until the Tudor Period.
Protestant	A Protestant is a Christian who does not follow the Catholic Church.
Church of England	A Church started by Henry VIII during the Reformation. The head of the Church of England is the monarch.
Reformation	When England broke away from the Catholic Church by starting the Church of England.
Heresy	To go against the Church. This was a serious crime in Tudor England.
Golden Age	A Period of prosperity, wealth and development.

Key events in order

The Tudor period begins with Henry VII's victory at the Battle of Bosworth.

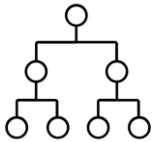
→ Henry VIII is the next Tudor monarch. He starts the Church of England.

→ Edward VI, Henry's only son has a short reign. The country is divided between Catholics and Protestants.



→ 'Bloody' Mary becomes Queen, during her reign 280 Protestants are burnt at the stake for heresy.

→ Elizabeth dies without an heir bringing the Tudor period to an end.



Why was there so much religious change?

Protestantism

Coming from the word 'protest' Protestantism began as a protest against the Catholic Church.

In 1517 Martin Luther nailed his 95 theses to the door of a Church in Wittenburg beginning the Protestant Reformation.

The Church of England

In 1536 Henry VIII brought Protestantism to England by starting the Church of England. He did this as it would make him more powerful and allow him to divorce his first wife Catherine of Aragon.

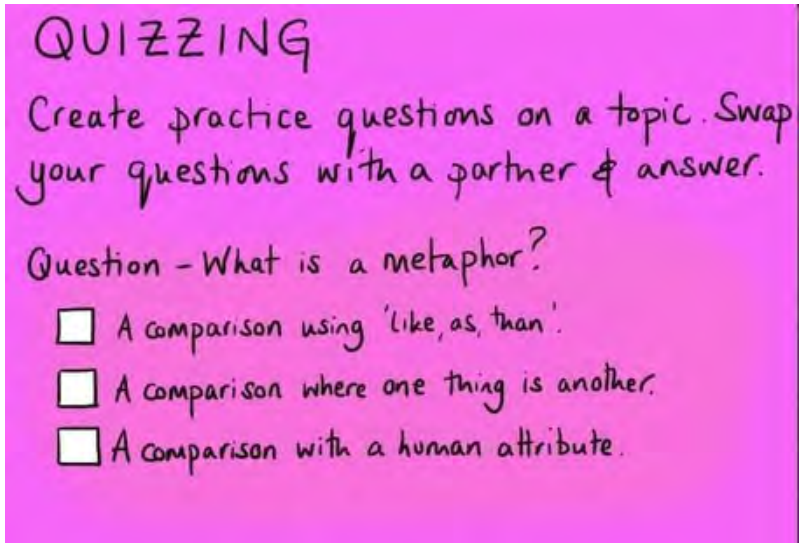
Threshold Concepts linked to this unit:

TC9	The development of the Church of England and other Protestant religions throughout Europe led to a decline in the power of the Roman Catholic Church.
TC10	The religious uncertainty in England during the Tudor period led to political, social, and religious instability.

Key Fact

King Henry VIII had six wives; Catherine of Aragon, Anne Boleyn, Jane Seymour, Anne of Cleaves, Catherine Howard and Catherine Parr. Their fates follow the rhyme 'Divorced, Beheaded, Died, Divorced, Beheaded, Survived.'

Maths



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 – APPLICATION OF NUMBER

Solving problems with addition and subtraction

@whisto_maths

What do I need to be able to do?

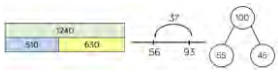
By the end of this unit you should be able to:

- Understand properties of addition/ subtraction
- Use mental strategies for addition/subtraction
- Use formal methods of addition/Subtraction for integers
- Use formal methods of addition/Subtraction for decimals
- Solve problems in context of perimeter
- Solve problems with finance, tables and timetables
- Solve problems with frequency trees
- Solve problems with bar charts and line charts

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
Inverse: the operation that undoes what was done by the previous operation. (The opposite operation)
Placeholder: a number that occupies a position to give value
Perimeter: the distance/ length around a 2D object
Polygon: a 2D shape made with straight lines
Balance: in financial questions – the amount of money in a bank account
Credit: money that goes into a bank account
Debit: money that leaves a bank account

Addition/ Subtraction with integers



Modelling methods for addition/ subtraction

- Bar models
- Number lines
- Part/ Whole diagrams

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
- Show your relationships by writing fact families

Formal written methods

	H	T	O
	1	8	7
+	5	4	2

	H	T	O
	4	2	7
−	2	4	9

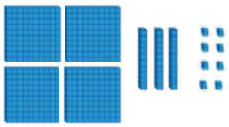
Remember the place value of each column.
You may need to move 10 ones to the ones column to be able to subtract

Addition/ Subtraction with decimals

4	.	3	8	
7	.	9	0	+

0 can be used to fill empty places with value

The decimal place acts as the placeholder and aligns the other values



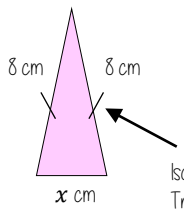
If  represents 1 instead of 100

$5.43 + \frac{8}{10}$

Revisit Fraction – Decimal equivalence
543 ÷ 08

Solve problems with perimeter

Perimeter is the length around the outside of a polygon



Isosceles Triangle notation

The triangle has a perimeter of 25cm
Find the length of x

8cm + 8cm + $x$cm = 25cm
16cm + $x$cm = 25cm
$x$cm = 9cm

Solve problems with finance

Profit= Income - Costs

Credit – Money coming into an account

Debit – Money leaving an account

Money uses a two decimal place system.
14.2 on a calculator represents £14.20

Check the units of currency – work in the same unit

Tables and timetables

Distance tables

	London		
211	Cardiff		
556	493	Glasgow	
518	392	177	Belfast

This shows the distance between Glasgow and London.
It is where their row and column intersects

Bus/ Train timetables

Harton	1005	1045	1130
Bridge	1024	1106	1147
Aville	1051	1133	1205
Ware	1117	1202	1233

Each column represents a journey, each row represents the time the 'bus' arrives at that location

TIME CALCUALTIONS – use a number line

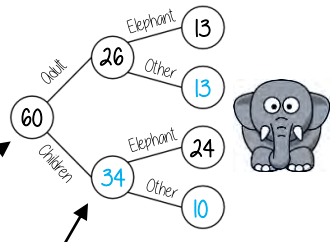
Two-way tables

	H	T
H	HH	HT
T	TH	TT

Where rows and columns intersect is the outcome of that action

Frequency trees

60 people visited the zoo one Saturday morning.
26 of them were adults. 13 of the adult's favourite animal was an elephant. 24 of the children's favourite animal was an elephant.

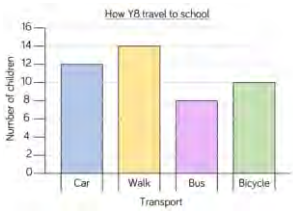


The overall total "60 people"

A frequency tree is made up from part-whole models.
One piece of information leads to another

Probabilities or statements can be taken from the completed trees
e.g. 34 children visited the zoo

Bar and line charts



Use addition/ subtraction methods to extract information from bar charts

e.g. Difference between the number of students who walked and took the bus.
Walk frequency – bus frequency

When describing changes or making predictions

- Extract information from your data source
- Make comparisons of difference or sum of values
- Put into the context of the scenario

YEAR 7 – APPLICATION OF NUMBER

Solving problems with multiplication and division

@whisto_maths

What do I need to be able to do?

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

- Understand and use factors
- Understand and use multiples
- Multiply/ Divide integers and decimals by powers of 10
- Use formal methods to multiply
- Use formal methods to divide
- Understand and use order of operations
- Solve area problems
- Solve problems using the mean

Keywords

Array: an arrangement of items to represent concepts in rows or columns
Multiples: found by multiplying any number by positive integers
Factor: integers that multiply together to get another number.
Milli: prefix meaning one thousandth
Centi: prefix meaning one hundredth.
Kilo: prefix meaning multiply by 1000
Quotient: the result of a division
Dividend: the number being divided
Divisor: the number we divide by.

Factors

Arrays can help represent factors

5 x 2 or 2 x 5

Factors of 10
1, 2, 5, 10

10 x 1 or 1 x 10

The number itself is always a factor

Square numbers have an **ODD number** of factors

Factors of 4
1, 2, 4

Factors of 36
1, 2, 3, 4, 6, 9, 12, 18, 36

Be strategic - Lay factors out in pairs can help you not to miss any

Multiples

Bar models can represent by something is a multiple. E.g. 20 is a multiple of 4

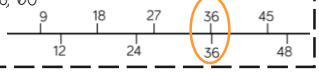
Lowest Common Multiples — **LCM of 9 and 12**

The first time their multiples match

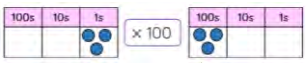
LCM = 36

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

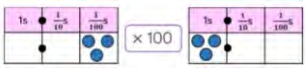
12: 12, 24, 36, 48, 60



Multiply/ Divide by powers of 10



3 x 100 = 300



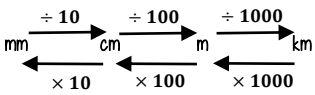
0.03 x 100 = 3

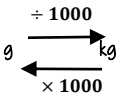
Repeated multiplication and division by powers of 10 is commutative

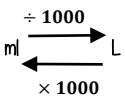
÷ 10 then ÷ 10 → ÷ 100

Metric conversions

Useful Conversions

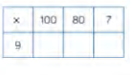




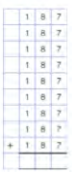


Multiplication methods

Long multiplication (column)



Grid method



Repeated addition

Less effective method especially for bigger multiplication

Multiplication with decimals

Perform multiplications as integers

e.g. 0.2 x 0.3 → 2 x 3

Make **adjustments** to your answer to match the question: 0.2 x 10 = 2, 0.3 x 10 = 3

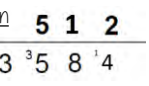
Therefore 6 ÷ 100 = **0.6**

Estimations: Using estimations allows a 'check' if your answer is reasonable

Division methods

3584 ÷ 7 = 512

Short division



Complex division

÷ 24 = ÷ 6 ÷ 4

Break up the divisor using factors

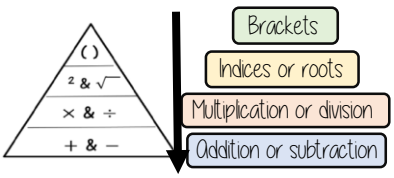
Division with decimals

The placeholder in division methods is essential – the decimal lines up on the dividend and the quotient

24 ÷ 0.02 → 24 ÷ 0.2 → 240 ÷ 2

All give the same solution as represent the same proportion. Multiply the values in proportion until the divisor becomes an integer

Order of operations



If you have multiple operations from the same tier work from left to right

e.g. 10 – 3 + 5 → 10 – 3 → 7 + 5

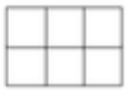
6 x 4 + 8 x 2

24 + 16 = 40

Area problems

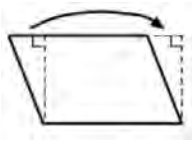
Rectangle

Base x Perpendicular height



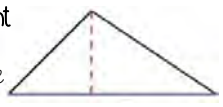
Parallelogram/ Rhombus

Base x Perpendicular height



Triangle

½ x Base x Perpendicular height



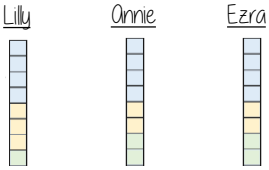
A triangle is half the size of the rectangle it would fit in

Mean problems

Mean – a measure of average
It gives an idea of the central value

Lilly, Annie and Ezra have the following cubes

Finding the mean amount is the average amount each person would have if shared out equally



The mean number of blocks would be 8 each

YEAR 7 – APPLICATION OF NUMBER

Fractions and percentages of amounts

@whisto_maths

What do I need to be able to do?

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

- Find a fraction of a given amount
- Use a given fraction to find the whole or other fractions
- Find the percentage of an amount using mental methods
- Find the percentage of a given amount using a calculator

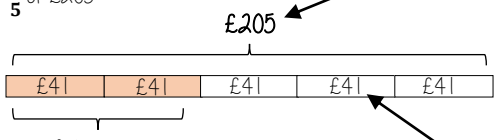
Keywords

Fraction: how many parts of a whole we have
Equivalent: of equal value
Whole: a number with no fractional or decimal part
Percentage: parts per 100 (uses the % symbol)
Place Value: the value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right
Convert: change into an equivalent representation, often fraction to decimal to a percentage cycle

Fraction of a given amount

Find $\frac{2}{5}$ of £205

The bar represents the whole amount

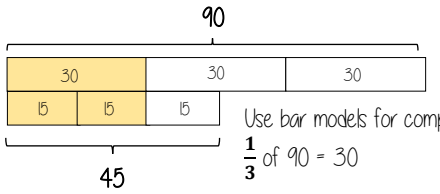


2 out of the 5 equal parts

2 x £41 = **£82**

£205 ÷ 5 = £41

Each part of the bar model represents £41



Use bar models for comparisons

$\frac{1}{3}$ of 90 = 30

$\frac{2}{3}$ of 45 = 30

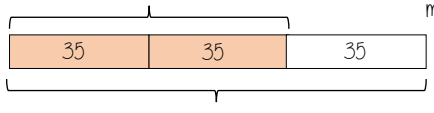
$\therefore \frac{1}{3}$ of 90 = $\frac{2}{3}$ of 45

Use a fraction of amount

$\frac{2}{3}$ of a value is 70. What is the whole number?

70 ÷ 2 = 35

Each part of the bar model represents 35.

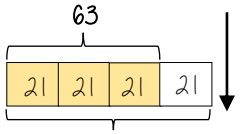


35 x 3 = 105

The whole number is 105

The wording of the question is important to setting up the bar model

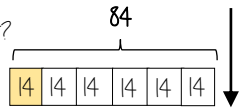
$\frac{3}{4}$ of a number is 63.



Find the whole

What is $\frac{1}{6}$ of the number?

= 14

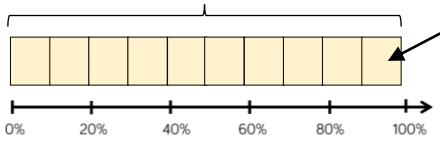


Use the whole to find a given part

Find the percentage of an amount (Mental methods)

The **whole** represents 100%

10% = $\frac{1}{10}$ of the whole



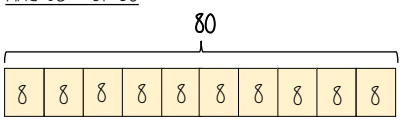
10% = $\frac{1}{10}$ of the whole

50% = $\frac{5}{10}$ = $\frac{1}{2}$ of the whole

20% = $\frac{2}{10}$ = $\frac{1}{5}$ of the whole

5% = $\frac{1}{20}$ of the whole

Find 65% of 80



For bigger percentages it is sometimes easier to take away from 100%

Method 1
65% = 10% x 6 + 5%
= (8 x 6) + 4
= 52

Method 2
65% = 50% + 10% + 5%
= 40 + 8 + 4
= 52

Find the percentage of an amount (Calculator methods)

Using a multiplier

Find 65% of 80

Fraction, decimal, percentage conversion

65% = $\frac{65}{100}$ = 0.65 ← The multiplier

0.65 x 80 = **52**

Using the percent button

Find 65% of 80

This brings up the % button on screen
You will see 65%

Type 65

Press SHIFT ((%)

Press × 80 and then press =

You can also use the calculator to support non calculator methods and find 1% or 10% then add percentages together

"of" can represent 'x' in calculator methods

YEAR 7 – DIRECTED NUMBER

Operations with equations and directed numbers

@whisto_maths

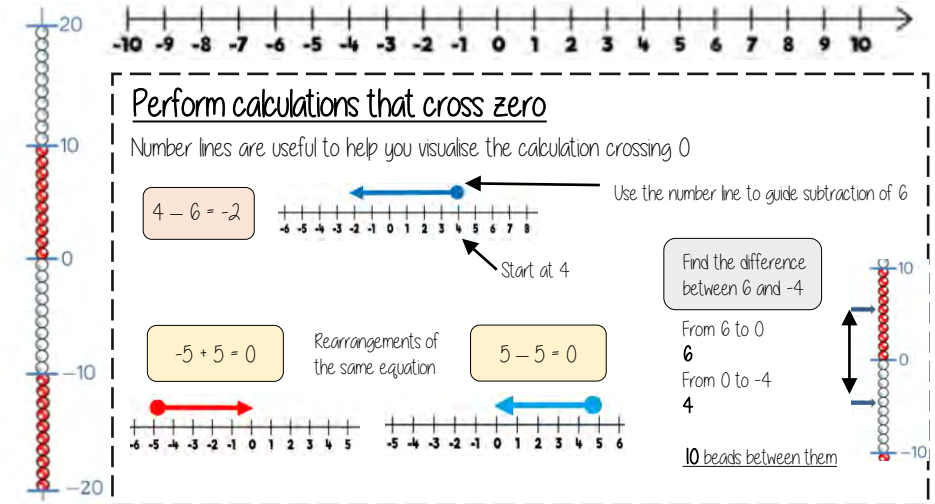
What do I need to be able to do?

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

- Perform calculations that cross zero
- Add/ Subtract directed numbers
- Multiply/ Divide directed numbers
- Evaluate algebraic expressions
- Solve two-step equations
- Use order of operations with directed number

Keywords

Subtract: taking away one number from another.
Negative: a value less than zero.
Commutative: changing the order of the operations does not change the result
Product: multiply terms
Inverse: the opposite function
Square root: a square root of a number is a number when multiplied by itself gives the value (symbol $\sqrt{}$)
Square: a term multiplied by itself.
Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)



Perform calculations that cross zero

Number lines are useful to help you visualise the calculation crossing 0

4 – 6 = -2

Use the number line to guide subtraction of 6

Start at 4

-5 + 5 = 0

Rearrangements of the same equation

5 – 5 = 0

Find the difference between 6 and -4

From 6 to 0
6
From 0 to -4
4

10 beads between them

Add directed numbers

= -1
= 1
Representations

2 + - 4 = -2

Zero pair
(-1 + 1 = 0)

Two " – 1 " left
= -2

8 + -3 = 5

Partitioning

8 + -3 = 5

5 + 3 + - 3 = 5

Partition the value to create a zero pair calculation

Generalisation
+ – = –

Subtract directed numbers

= -1
= 1
Representations

=
Representation for calculation

2 "Subtract" – means take away or remove

2 - - 1 = 3

Take away one

Start with the representation of 2

= 3

2 - - 3 = 5

= 5

Generalisation
– – = +

Multiply/ Divide directed numbers

-3 -3

Two representations of the same calculation

2 x -3 = -6

Negative, Negative calculation

-2 x -3

This is the negative of 2 x -3

The act of making counters into their negative is turning them over

-2 x -3 = 6

Divisions are the inverse operations

Evaluate algebraic expressions

a = 5

b = -4

$a^2 = 5^2$
$a^2 = 25$

$b^2 = (-4)^2$
$b^2 = 16$

With negative numbers the brackets are important so that it performs -4 x -4.

Brackets around negative substitutions helps remove calculation errors

2a – b = 2 x 5 – (-4) = 10 + 4 = 14

3b – 2a = 3(-4) – 2(5) = -12 – 10 = -22

Two-step equations

Bar Model

10

x x x x 2

10

4x + 2 = 10

10 – 4x = 2

Representing the same question (use fact families)

Function machine

x → x4 → +2 → 10

Inverse operations to find x

x x x x

8

x

2

Use order or operations

( )
² & √
× & ÷
+ & –

Brackets
Indices or roots
Multiplication or division
Addition or subtraction

Brackets around negative substitutions helps remove calculation errors

Remember square roots have a positive and negative value

×	-3	-2	-1	0	1	2	3
-3	9	6	3	0	-3	-6	-9
-2	6	4	2	0	-2	-4	-6
-1	3	2	1	0	-1	-2	-3
0	0	0	0	0	0	0	0
1	-3	-2	-1	0	1	2	3
2	-6	-4	-2	0	2	4	6
3	-9	-6	-3	0	3	6	9

YEAR 7 – FRACTIONAL THINKING

Addition and subtraction of fractions

@whisto_maths

What do I need to be able to do?

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

- Convert between mixed numbers and fractions
- Add/Subtract unit fractions (same denominator)
- Add/Subtract fractions (same denominator)
- Add/Subtract fractions from integers
- Use equivalent fractions
- Add/Subtract any fractions
- Add/Subtract improper fractions and mixed numbers
- Use fractions in algebraic contexts

Keywords

Numerator : the number above the line on a fraction. The top number. Represents how many parts are taken

Denominator: the number below the line on a fraction. The number represent the total number of parts

Equivalent: of equal value

Mixed numbers: a number with an integer and a proper fraction

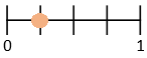
Improper fractions: a fraction with a bigger numerator than denominator

Substitute: replace a variable with a numerical value

Place value: the value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right

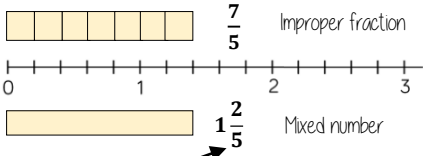
Representing Fractions

$\frac{1}{4}$ is represented in all the images



$1 \div 4$

Mixed numbers and fractions



$\frac{7}{5}$ Improper fraction

$1\frac{2}{5}$ Mixed number

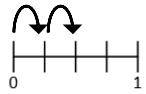
In this model 5 parts make up a whole

Fractions can be bigger than a whole

Add/Subtract unit fractions

Same denominator

$\frac{1}{12} + \frac{1}{12} - \frac{1}{12} = \frac{2}{12}$



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

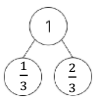
With the same denominator ONLY the numerator is added or subtracted

Add/Subtract fractions

Same denominator

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

Sequences



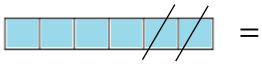
$\frac{1}{3}, 1, 1\frac{2}{3}, 2\frac{1}{3}, 3, \ldots$

$+\frac{2}{3}$ $+\frac{2}{3}$

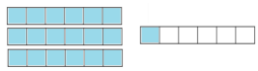
Represent this on a number line to help

Add/Subtract from integers

$1 - \frac{2}{6} = \frac{4}{6}$



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

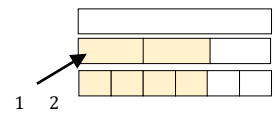


The denominator indicates the number of parts a whole is made up of

Equivalent fractions

Numerator and denominator have the same multiplier

$\frac{2}{3} = \frac{4}{6}$



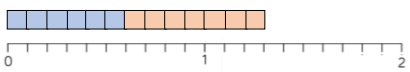
$\frac{1}{3} = \frac{2}{6}$

Add/Subtraction fractions (common multiples)

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

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

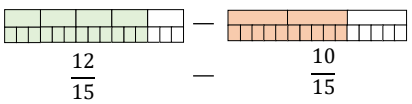
Addition/Subtraction needs a common denominator



$\frac{13}{10}$

Add/Subtraction any fractions

$\frac{4}{5} - \frac{2}{3}$



$\frac{12}{15} - \frac{10}{15} = \frac{2}{15}$

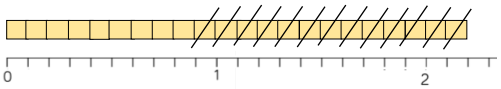
Use equivalent fractions to find a common multiple for both denominators

Add/Subtraction fractions (improper and mixed)

$2\frac{1}{5} - 1\frac{3}{10}$

$2\frac{2}{10}$

$\frac{22}{10} - \frac{13}{10} = \frac{9}{10}$



- Convert to an improper fraction
- Calculate with common denominator

Partitioning method

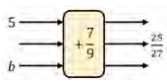
$2\frac{1}{5} - 1\frac{3}{10} = 2\frac{2}{10} - 1\frac{3}{10} = 2\frac{2}{10} - 1 - \frac{3}{10} = 1\frac{2}{10} - \frac{3}{10} = \frac{9}{10}$

Fractions in algebraic contexts

$k - \frac{5}{8} = 2$

Apply inverse operations

$k = 2 + \frac{5}{8}$



Form expressions with fractions

$b + \frac{7}{9} \longrightarrow b + \frac{7}{9}$

$p = 5 \quad m = 2$

$\frac{p}{8} + \frac{1}{m}$

Substitution

$\frac{5}{8} + \frac{1}{2}$

Fractions and decimals

$\frac{1}{10} = 0.1$

$\frac{1}{100} = 0.01$

Example $\frac{6}{10} + 0.3 \longrightarrow 0.6 + 0.3$

$\frac{6}{10} + \frac{3}{10}$

Remember to use equivalent fractions and common denominators

Numeracy

Educake

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.

Geometry - 3D Shape

Key Vocabulary

Polygon – A 2D shape with straight sides

Irregular – A polygon with sides and angles that are all not the same.

Regular – A polygon with sides and angles of the same size.

2D – '2 Dimensional' – having a length and width.

Congruent – Two shapes that are exactly the same.

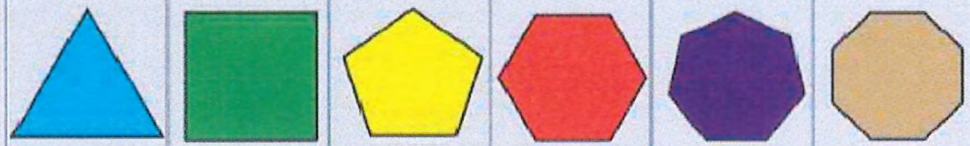
Parallel – Two straight lines that never meet, running across from one another (like a train track).

Perpendicular- Two straight lines that meet at a right angle (90 degrees)

A polygon can have three or more sides.

3 sides	4 sides	5 sides	6 sides	7 sides	8 sides
Triangle	Quadrilateral	Pentagon	Hexagon	Heptagon	Octagon

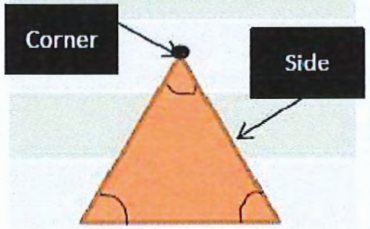
Regular Polygons
all sides are equal length and all internal angles are equal



Examples of

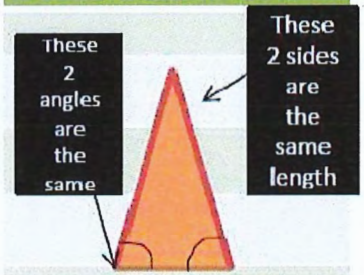
Irregular Polygons
any polygon that is not regular

Equilateral triangle – all the sides are the same length and all of the angles are the same size.



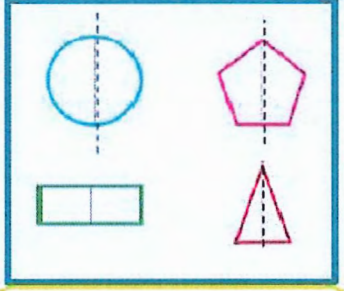
All of the angles are the same size

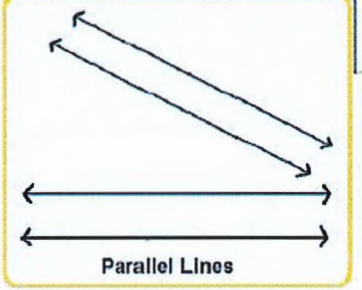
Isosceles triangle – 2 Sides are the same length, as well as 2 angles. 1 of the sides is a different length.



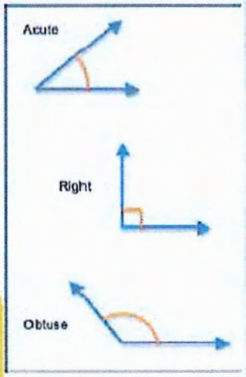
The side along the bottom is different to the other 2.

Lines of symmetry





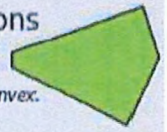
Angles



Obtuse	An angle that is between 90 degrees and 180 degrees.
Acute	An angle that is smaller than 90 degrees.
Right Angle	An angle measuring exactly 90 degrees.
Straight line	180 degrees

Concave Polygons
have at least one internal angle greater than 180°

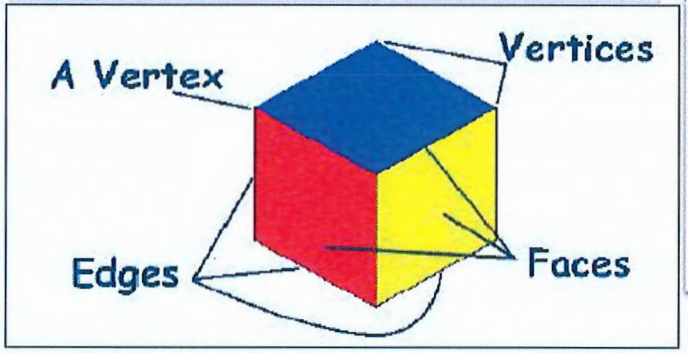
Convex Polygons
have no internal angles greater than 180°. All regular polygons are convex.

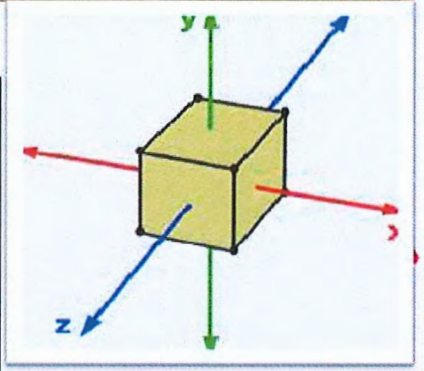


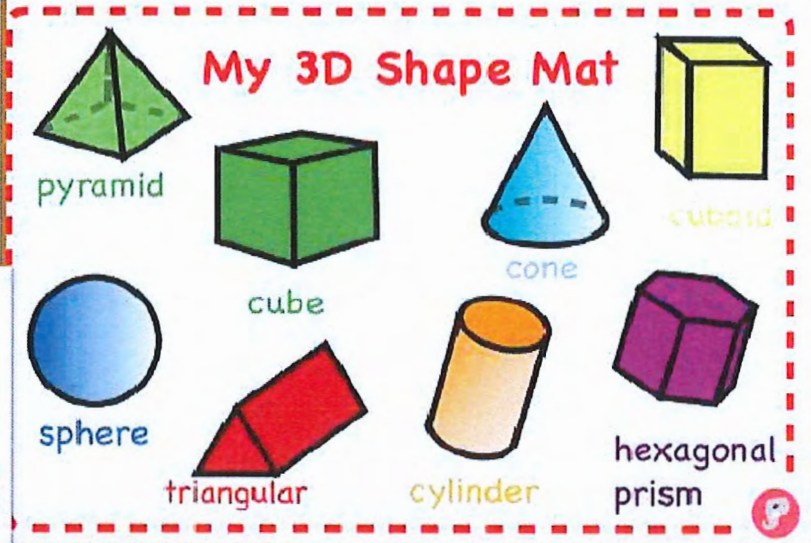
Geometry - 3D Shape

Key Vocabulary
Face- The flat surface of a 3d shape.
Vertices – Where the edges of a 3d shape come together to form a point.
Edge- The line where two faces meet
Surface Area- All of the areas of all of the faces added together.
Prism- A 3d shape which has a continue cross section throughout its length, e.g. a cylinder has a circle that runs for all of its length.

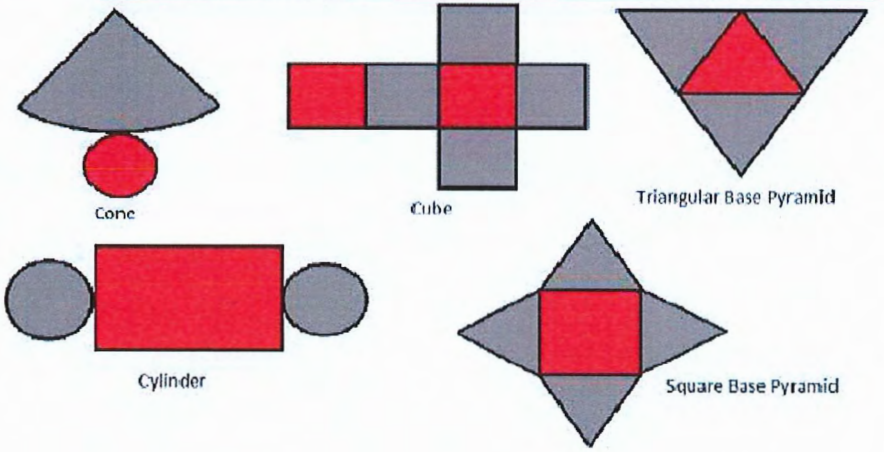
A shape is 3D if has 3 'dimensions' – meaning it has a length, a width and a depth.



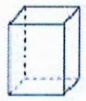
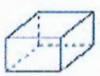




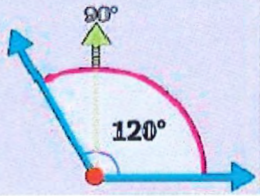
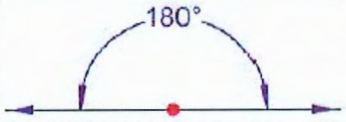
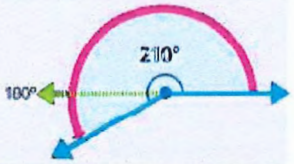
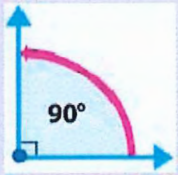
Nets of 3d Shapes



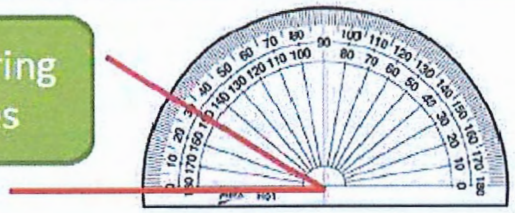
Can you fill the details out for the 3d shapes below?

	1	2	3	4	5	6
	Cuboid 	Square-based pyramid 	Cuboid 	Triangle-based pyramid 	Cube 	Triangle-based prism 
Edges						
Faces						
Vertices						

Geometry - Angles

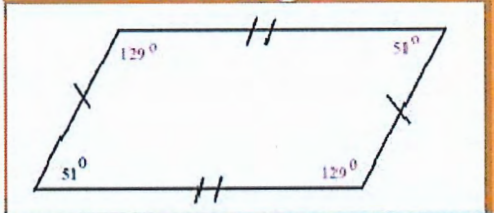
Key Vocabulary	Image
Obtuse- Angles that are larger than 90 degrees but smaller than 180 degrees.	
Acute – Angles smaller than 90 degrees	
Straight line- Always 180 degrees	
Reflex – Angles between 180 and 360 degrees	
Right angle- Angles exactly 90 degrees	

Measuring angles



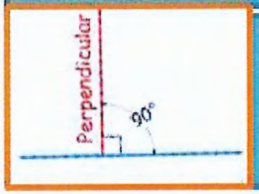
Line up your protractor's base line with the base line of your angle. Read the angle, make sure you read up from 0 degrees. **This angle is 30 degrees.**

Parallelogram



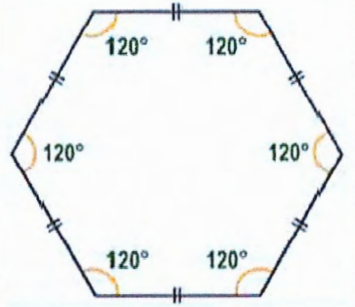
Opposite angles in a parallelogram are always equal

Parallel lines never meet, running alongside one another

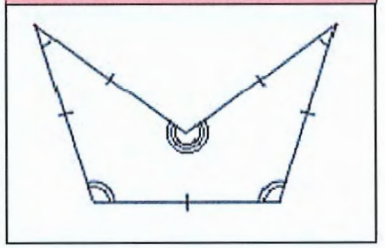


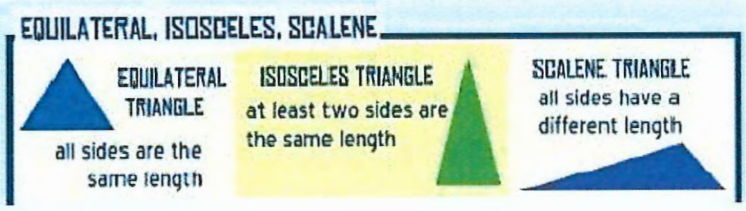
Perpendicular lines cross at 90 degrees.

All of the angles in a **regular polygon** are the same

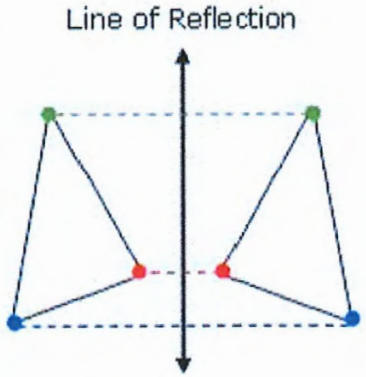


All of the angles in an **irregular polygon** are the same

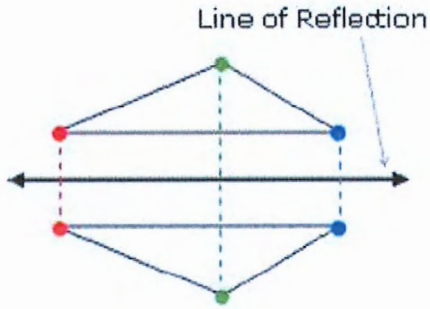




Key Vocabulary	
Co-ordinates	Two numbers describing a position on a grid
Translation	Moving a point to a different position
Reflection	Flipping the shape over the mirror line
Origin	Where two axes cross on a graph in the middle
Quadrant	A section of the grid divided by the axis

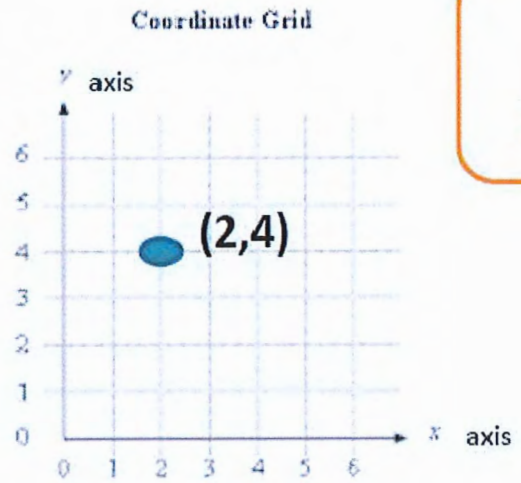


Horizontal Reflection
(flips across)

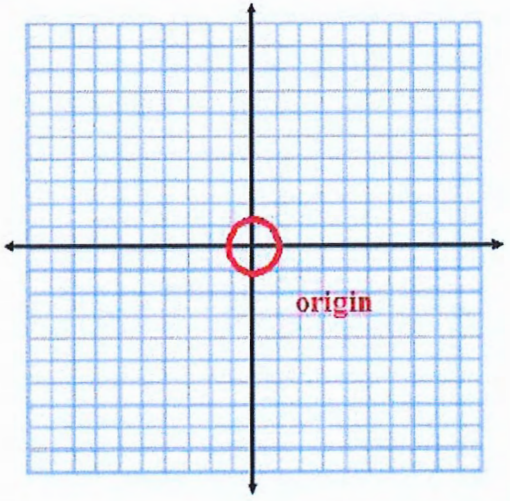


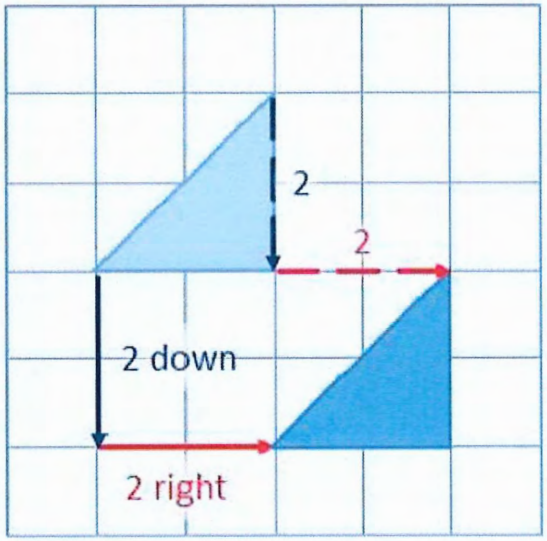
Vertical Reflection
(flips up/down)

coordinates, translation and reflection



Remember, when plotting points, we use the **x-axis first, then y-axis!**

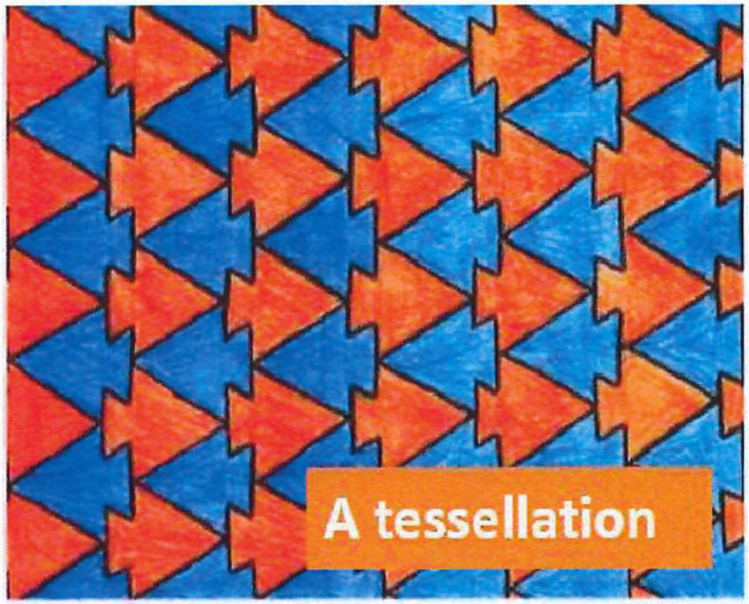


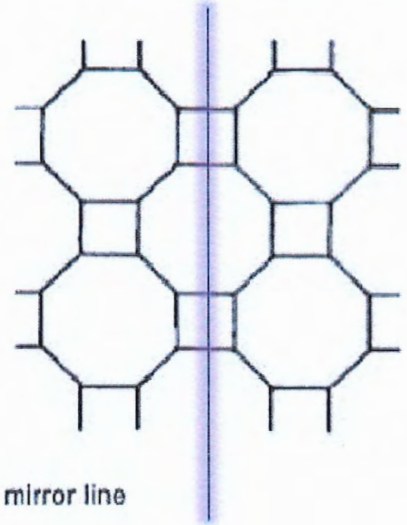


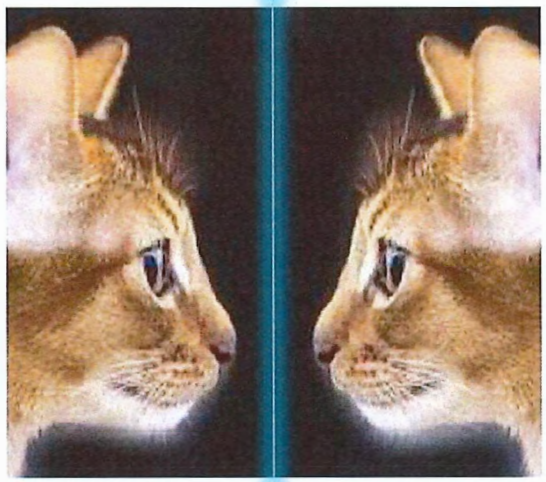
Points can be translated **up, down, left** and **right**

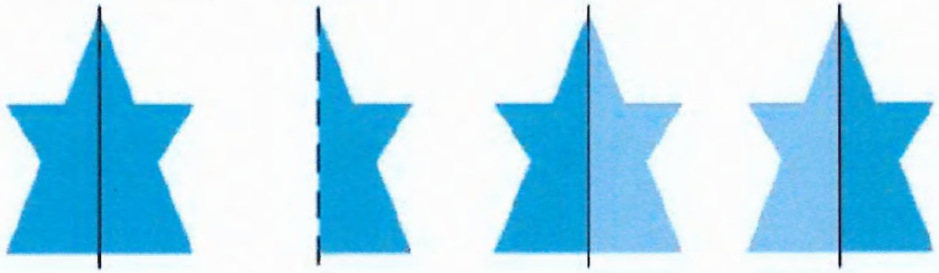
patterns and symmetry

Key Vocabulary	
Symmetry	A mirror image on the other side of the line
Mirror line	The line of symmetry, where one half is the reflection of the other
Pattern	An arrangement of shapes that follows a rule
Tessellation	A repeated pattern of shapes without gaps









Symmetrical patterns are the same on either side of the mirror line.

1. Conversion Table

10mm	=	1cm
100cm	=	1m
1000m	=	1km

3. Multiplying and Dividing by 10, 100 and 1000

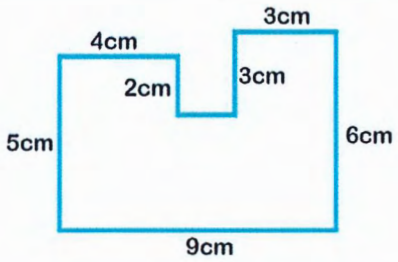
10, 000	1, 000	100	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$

Multiplying ← | → Dividing

X 10	Digits move left 1space	÷ 10	Digits move to the right 1 space
X 100	Digits move left 2 spaces	÷ 100	Digits move to the right 2 spaces
X 1000	Digits move left 3 spaces	÷ 1000	Digits move to the right 3 spaces.

4. Perimeter and Area

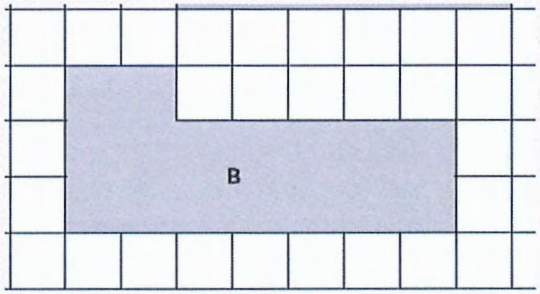
Perimeter



Find the perimeter of this shape:

Step 1: 9-4-2-3-3=2
Step 2: 5+4+2+2+3+3+6+9= 34cm

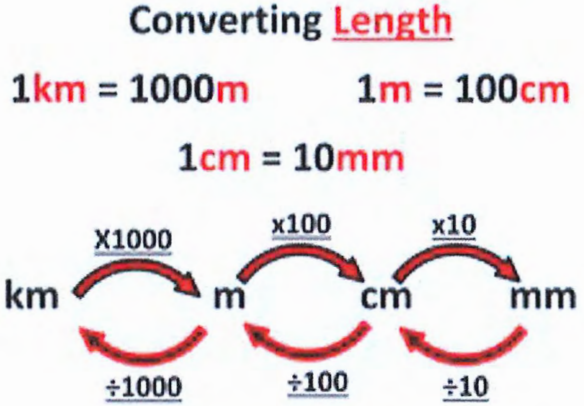
Area



Find the area of this shape by counting the squares inside the shaded area.

16 squares= 16cm²

2. Converting Units in Length



5. Key Vocabulary

distance	Distance tells you how far apart two things are.
width / breadth	The distance from one side to the other. It is sometimes called breadth. It is usually the shorter length.
length	The measurement along a line or curve. Usually longer than width/breadth.
distance to/from	Finding the distance from a starting point to an end point.
kilometre	A kilometre is a metric unit of length used to measure long distances. There are 1,000m in 1km
perimeter	The perimeter is the distance all away around the shape.
area	The area of a shape is how much surface it has. Area is measured in square units such as square centimetres (cm^2) square metres (m^2) and square kilometres (km^2)

1. United Kingdom Currency

2. Converting between pounds and pence.

Pounds:	Pence:
£1.75	175
Words:	**Coins:**
One pound and seventy-five pence.	

3. Calculating money in pounds and pence.

Example Question: I buy a DVD for £13.05. How much change do I get from £20.

So: £20-£13.50

Strategy:

1. Step 1: Convert £20 into 20.00 so the place value columns align easily.
2. Use column subtraction.
3. Answer the question "I receive £6.50 change"

4. Key Vocabulary

Penny	1 penny is our smallest currency.
Pence	More than 1 penny (2 pence).
Pounds	100 pence = 1 pound (£)
Estimate	When you make an estimate judge the amount without measuring or calculating.
Calculate	A calculation is when you have to work out the answer to a number problem e.g. $\frac{1}{2}$ of $10.40
Convert	When you convert something you change it from thing into another. You can use converting graphs and tables when converting between units.
Currency	A system of money in use in a particular country.
Discount	A deduction from the usual cost of something.
Sale	A period during which a shop or dealer sells goods at reduced prices.

5. Round to the nearest ten pence

£3.88	Rounds to	£3.90
£0.72	Rounds to	£0.70

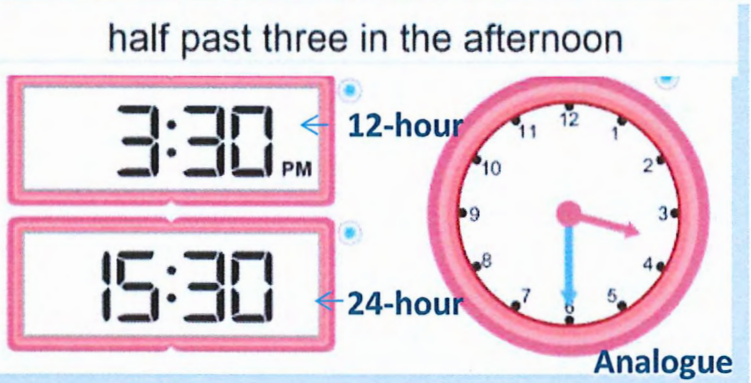
Round to the nearest pound (£)

£15.72	Rounds to	£16.00
£784.39	Rounds to	£784.00

1. Conversion Table

60 seconds	=	1 minute
60 minutes	=	1 hour
24 hours	=	1 day
7 days	=	1 week
4 weeks	=	1 month
12 months	=	1 year
10 years	=	1 decade
100 years	=	1 century
1,000 years	=	1 millenium

2. Digital and Analogue clocks



To convert between analogue and digital clocks, if the time is in the afternoon, start at 12 and count on... (12+3=15)

3. Calculating durations that pass through the hour.

Example Question: Ben left is uncle's house at 19:45. He arrived home 50 minutes later. What time was it when he arrived home?

Strategy:

1. Use part-whole model to break up the time.

2. Use the part-whole model to jump to the next hour.

Answer: Ben reached home at 20:35

Can also be used jumping backwards to find what time something started.

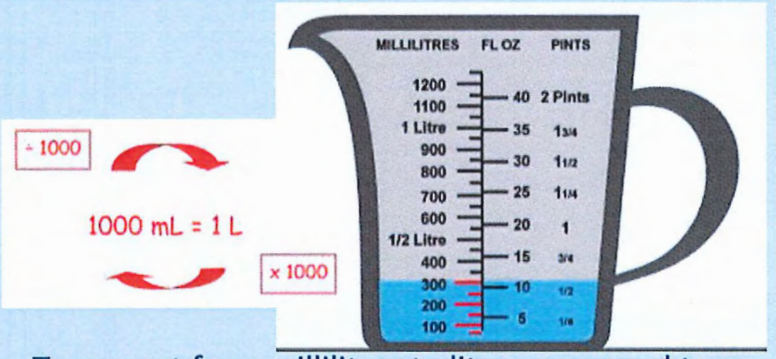
4. Key Vocabulary

seconds	Unit of time (s).
minutes	60 seconds are in a minute.
hours	60 minutes are in an hour.
durations	The time during which something continues.
fortnight	A period of two weeks.
leap year	A year, occurring once every four years, which has 366 days including the 29th February as a leap day.
convert	When you convert something you change it from thing into another. You can use converting graphs and tables when converting between units.
Morning (am)	Times from midnight to 11:59am in the morning.
Afternoon (pm)	Times from 12:00pm to 11:59pm in the evening.

1. Conversion Table

1l	=	1000ml
Pint	=	568ml
1 Gallon	=	8 Pints

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.

3. Converting between litres and millilitres.

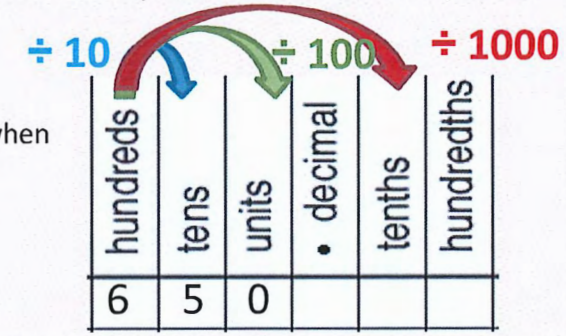
Example Question: At a party Sam drank 200ml of lemonade, 0.5l of cola and 300ml of orange juice. How much did Sam drink altogether?

Strategy:

1. In order to work out this problem you will have to convert the volumes into the same units. To convert from litres to millilitres you divide the number by 1000.

0.5l = 500ml

Tip: double check the place value when dividing.



2. After the volumes have been converted to the same unit, add them all together.

200ml + 500ml + 300ml

Answer: 1000ml or 1l

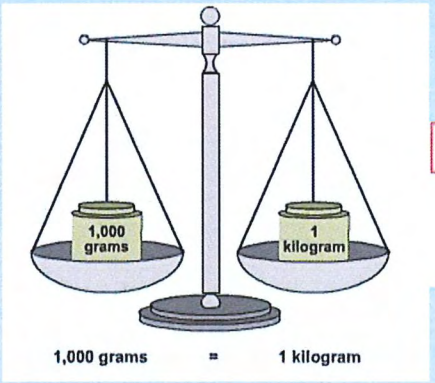
4. Key Vocabulary

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).

1. Conversion Table

½ a kg	=	500g
1kg	=	1000g
1 ½ kg	=	1500g
2kg	=	2000g

2. Kilograms and grams.



÷ 1000

1000 g = 1 kg

× 1000

To convert from grams to kilograms, you need to divide the number by 1000.
To convert from kilograms to grams, you need to multiply the measurement by 1000.

3. Converting from grams to kilograms.

Example question: How much do the toys weigh in kg?

Strategy:

1. To convert from grams to kilograms you need to divide by 1000.

÷ 1000

1000 g = 1 kg

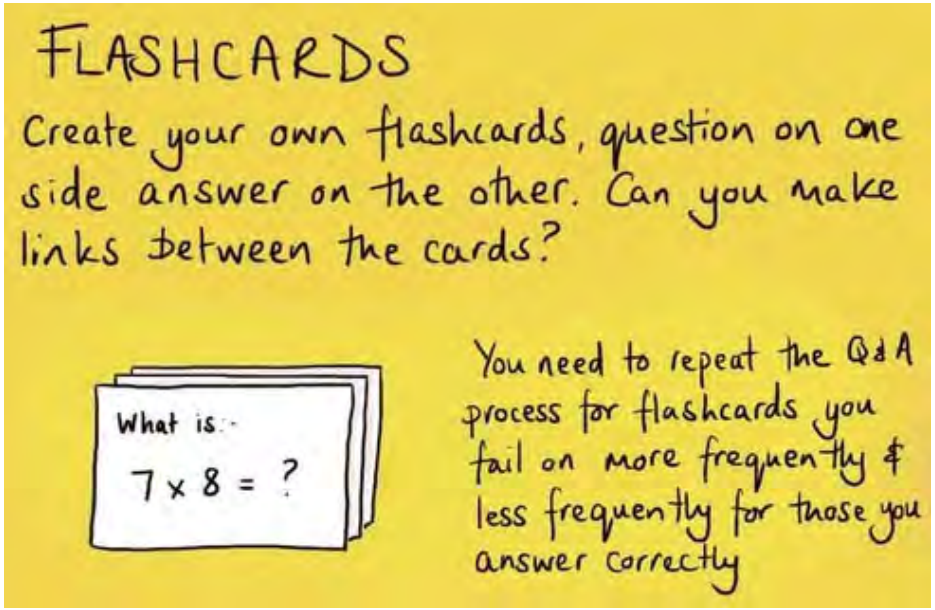
2. Write the calculation: 650 ÷ 1000 =

Answer: 0.65kg

4. Key Vocabulary

Mass/Weight	The measure of how much matter an object contains.
Convert	To change the units of measurement without a change in the size or amount.
Measuring scale	A device used to measure the weight of an object.
Metric	Mass measured in kilograms (kg) or grams (g).

MFL - French



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.

French Year 7 Spring Term – Mon collège

Objective: To talk about school

Threshold Concepts:

French has many words which are similar or the same as English – these are cognates or semi-cognates
French phonemes are different to English. Learning these will help with pronunciation
French nouns are either masculine or feminine (le/un or la/une)
When expressing likes and dislikes, the noun is used with the article (le, la, l' or les)

French Phonics

Essential Vocabulary- The School Day

On a cours (le lundi) – we have lessons (on Mondays)

On n'a pas cours… - we don't have lessons…

On commence les cours à… - we start lessons at…

On a quatre cours le matin – we have four lessons in the morning

On étudie neuf matières – we study nine subjects

À la récré, on bavarde et on rigole – at break, we chat and have a laugh

On mange à la cantine – we eat in the canteen

On finit les cours à… - we finish lessons at…

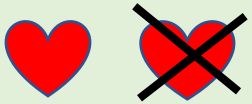
On est fatigues – we are tired

Essential Vocabulary- School Subjects

le français – French
le théâtre – drama
la géographie/ la géo – geography
la musique – music
la technologie – DT
l'anglais (m) – English
l'EPS (f) – P.E
l'histoire (f) – history
l'informatique (f) – ICT
les arts plastiques (m) art
le dessin – art
les mathématiques/ les maths (f) – maths
les sciences (f) – science

Essential Vocabulary- Opinions

j'aime- I like
j'aime assez – I quite like
j'aime beaucoup – I like…a lot
j'adore- I love
je n'aime pas- I don't like
je déteste- I hate
tu aimes/ est-ce que tu aimes…? – do you like?
c'est ma matière préférée – it's my favourite subject
moi aussi – me too
t'es/folle – you're crazy



Essential Vocabulary- Giving Reasons

c'est – it's…
intéressant – interesting
ennuyeux – boring
facile – easy
difficile – difficult
génial – great
nul – rubbish
marrant – fun/funny
on a beaucoup de devoirs – we have a lot of homework
le/la prof est sympa – the teacher is nice
le/la prof est trop sévère – the teacher is too strict

Etre – to be

Je suis – I am
Tu es – you are
Il est – he is
Elle est – she is
On est – we are

Avoir – to have

J'ai – I have
Tu as – you have
Il a – he has
Elle a – she has
On a – we have

Essential Vocabulary- High Frequency Words

à – at
et – and
aussi – also
mais – but
très – very
trop – too
assez – quite
un peu – a bit
pourquoi? – why?
parce que - because
beaucoup (de) – a lot (of)
tous les jours - everyday
aujourd'hui - today
pardon – excuse me
merci – thank you
est-ce que (tu)….? – do (you)…?
qu'est-ce que (tu)…? – what do (you)…?
avec - with

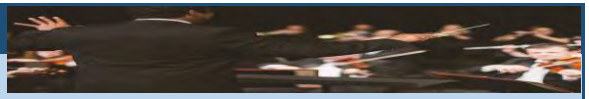
Music

Educake

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.

Exploring Instruments of the Orchestra



A. Key Words, Terms and Facts about the Orchestra

ORCHESTRA – A large **ENSEMBLE** (group of musicians) of performers on various musical instruments who play music together. No set numbers of performers although a **SYMPHONY ORCHESTRA** (a large orchestra) can have between **80-100+** performers. Famous orchestras include: **THE LONDON SYMPHONY ORCHESTRA, THE BBC SYMPHONY ORCHESTRA** and the **HALLÉ ORCHESTRA** (Manchester).

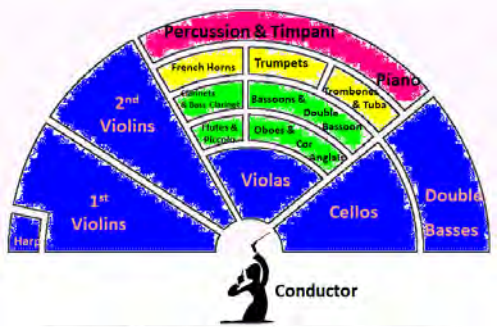
CONDUCTOR – Leads the orchestra with a **BATON** (white 'stick') and hand signals. Stands at the front so they can be seen my all performers. Sets the **TEMPO** and **BEATS TIME.** Brings different instruments 'in and out' when it is their turn to play. Keeps the performers together. Takes charge in rehearsals. In ultimate control of the performance of the music, adjusting **DYNAMICS, TEMPO,** and mood.

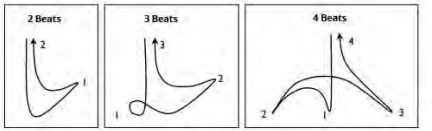
FAMILIES/SECTIONS – Instruments of the orchestra can be divided into 4 families or sections: **STRINGS, WOODWIND, BRASS** and **PERCUSSION**.

TUNING UP – Before the orchestra rehearses or plays, all instruments need to be **IN TUNE** with each other. The **OBOE** always sounds the note '**A**' which all other instruments **TUNE** to.

SONORITY (also called **TIMBRE**) – Describes the **UNIQUE SOUND OR TONE QUALITY** of different instruments and the way we can identify orchestral instruments as being distinct from each other –Sonority can be described by many different words including – ***velvety, screechy, throaty, rattling, mellow, chirpy, brassy, sharp, heavy, buzzing, crisp, metallic, wooden etc.***

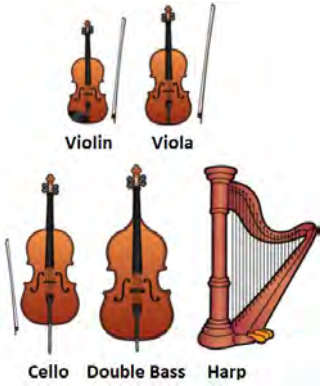
PITCH - The **HIGHNESS** or **LOWNESS** of a sound, a musical instrument or musical note (***high/low, getting higher/lower, step/leap***).





C. Strings Section/Family

Largest section of the orchestra who sit at the front, directly in front of the conductor. Usually played with a **BOW** (**ARCO**), (not the **HARP**) but can be **PLUCKED (PIZZICATO)**. **VIOLINS** split into two groups: **1st VIOLINS** (often have the main **MELODY** of the piece of music) and **2nd VIOLINS**.



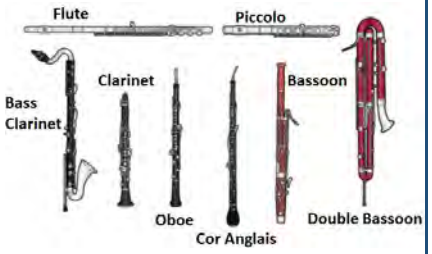
D. Woodwind Section/Family

Originally (and some still are) made from wood (some now metal and plastic). All are **BLOWN**.

FLUTES: Flute and Piccolo – air blown over hole.

SINGLE REED (small piece of bamboo in the mouthpiece): Clarinet, Bass Clarinet & Saxophone (not traditionally in the orchestra, but some modern composers have used it)

DOUBLE REED (two reeds in the mouthpiece): Oboe, Cor Anglais, Bassoon, Double Bassoon.



E. Brass Section/Family

Four types of brass instruments in an orchestra, all made from metal – usually brass and **BLOWN** by the player 'buzzing their lips' into a **MOUTHPIECE** *(shown right)*. The Trumpet, French Horn and Tuba all have three **VALVES** which, along with altering the players mouth positions, adjust the length of the tubing allowing for different notes to be played. The Trombone has a **SLIDE** which adjusts the length of the tubing. Brass instruments (along with Percussion) have often been used to play **FANFARES**: a short, lively, loud piece of music usually warlike or victorious in character used to mark the arrival of someone important, give a signal *e.g., in battles*, of the opening of something *e.g., a sporting event or ceremony*.

Fanfares often use notes of the **HARMONIC SERIES** – a limited range of notes played by **BUGLES** (smaller trumpets with no valves) and valveless trumpets.

F. Percussion Section/Family

Always located at the very back of the orchestra (due to their very loud sounds!). Large number of instruments which produce their sound then ***hit, struck, scraped, or shaken.***

TUNED PERCUSSION (able to play different pitches/notes)

Piano Xylophone Glockenspiel Timpani Celesta Tubular Bells

UNTUNED PERCUSSION (only able to produce 'sounds').

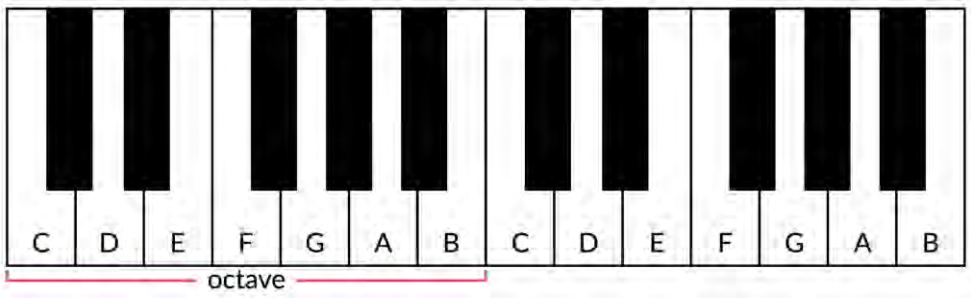
Bass Drum Snare Drum Cymbals Woodblock Guiro

Triangle Gong Tambourine Cabasa Maracas

Keyboard Skills

Exploring Treble Clef Reading and Notation

A. Layout of a Keyboard/Piano

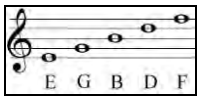


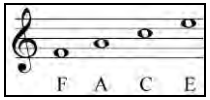
A piano or keyboard is laid out with **WHITE KEYS** and Black Keys (see section G). C is to the left of the two Black Keys and the notes continue to G then they go back to A again. Notes with the same letter name/pitch are said to be an **OCTAVE** apart. **MIDDLE C** is normally in the centre of a piano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

B. Treble Clef & Treble Clef Notation

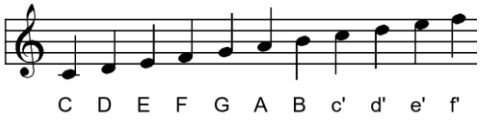
A **STAVE** or **STAFF** is the name given to the five lines where musical notes are written. The position of notes on the stave or staff shows their **PITCH** (how high or low a note is). The **TREBLE CLEF** is a symbol used to show high-pitched notes on the stave and is *usually* used for the right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

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

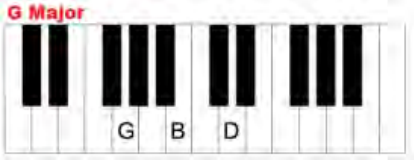


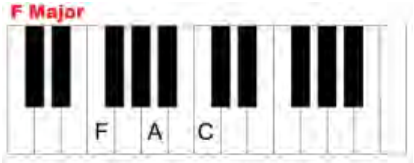


Notes from **MIDDLE C** going up in pitch (all of the white notes) are called a **SCALE**.



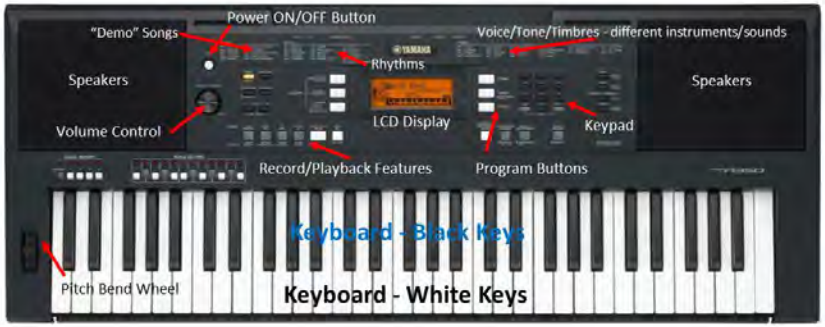
C. Keyboard Chords





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

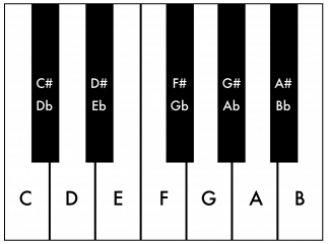
D. Keyboard Functions



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

F. Black Keys and Sharps and Flats

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



PE

Year 7 PE Spring Knowledge Organiser

Students will be thinking about what happens to their body during exercise, how they can keep trying and not give up, and how they can maintain a high level of effort or skill.

Head

Explain

It is important you are able to explain what happens to our bodies during and after exercise. Here are some questions to think about:

- How do you feel during exercise?
- What is physically happening to your body during exercise?
- How do you feel immediately after exercising?
- What has changed compared to before you exercised?

Heart

Resilient

Being resilient means being able to recover quickly from a challenge or problem, and giving it another try. To be resilient you must:

- Don't give up if something doesn't work on the first try.
- Always give it another go.
- Don't be disheartened by something not working, think of a new way to tackle it.
- What examples can you think of in PE where you may have to show good resilience?

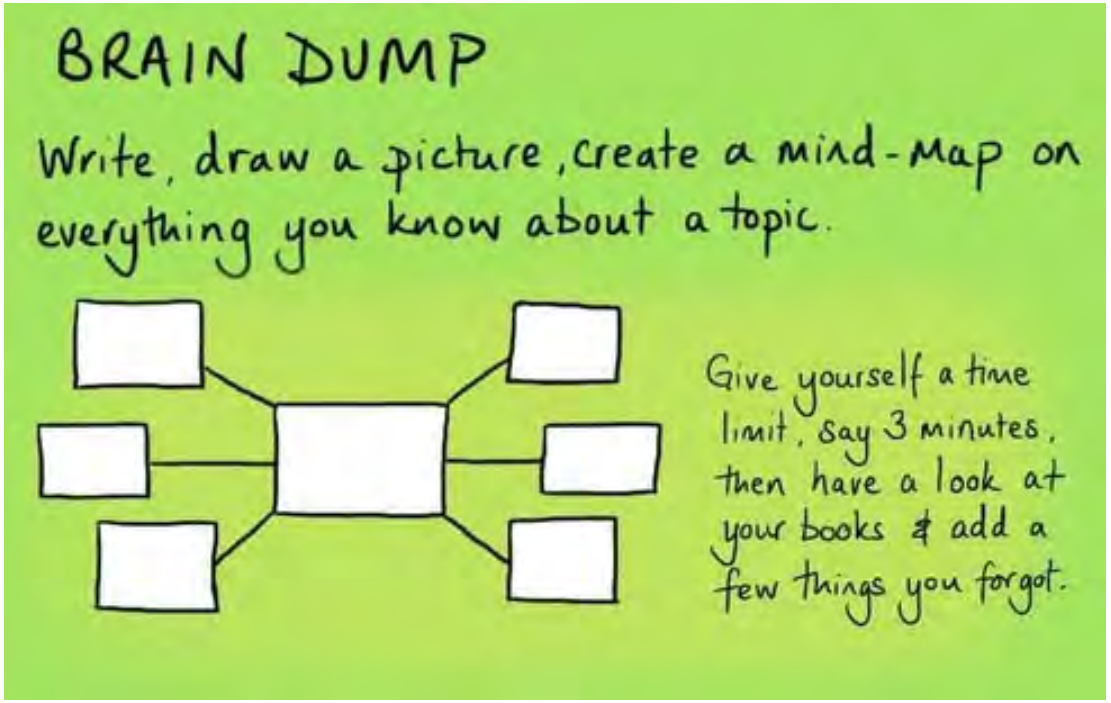
Hands

Maintain

Maintaining something means you are able to continue doing it for a period of time. Here are some examples of it within PE:

- Continuing to work at your highest ability for the whole lesson.
- Working at 100% effort for the entire game.
- Performing a skill with the correct technique, over and over again.
- Not dropping your level of performance for the whole lesson/activity.

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.

Year 7 – PSHE – Health and Wellbeing

Key Terms

Caffeine	A legal drug that can make you feel more alert
Alcohol	A liquid produced by fermenting sugars, found in beer, wine and spirits
Tobacco	A plant that can be smoked in cigarettes, pipes, or cigars
Nicotine	An addictive, poisonous chemical found in tobacco
Protein	A nutrient needed by the body for growth and maintenance

PSHE covers a variety of topics that focus developing understanding in four key areas, personal, social, health and economic.

Energy Drinks and Sugar Consumption

The recommended maximum caffeine intake for young people is 100mg per day.

Popular energy drinks can include up to 160mg of caffeine and as much as 69g of sugar

Alcohol, Smoking and E-Cigarettes

Excessive alcohol use can lead to long-term health impacts including weight gain, headaches, sleep disturbance and for some depression.
Around 106,000 people in the UK are killed by smoking every year, accounting for one fifth of all UK deaths. Most e-cigarettes contain nicotine, and no amount of nicotine is safe. Nicotine is very addictive and can harm children and teens' developing brains.

Threshold Concepts:

TC6	Know that alcohol, nicotine and other legal and illegal substances have short-term and long-term health risks associated with their use
TC7	That there are personal and social risks and consequences of substance use and misuse including occasional use
TC8	Know how to identify risk and manage personal safety in increasingly independent situations, including online
TC9	That there are benefits of physical activity, diet and exercise for physical and mental health and wellbeing
TC10	That bullying in all its forms has an impact

Key Skills

- Active listening and communication
- Teamwork
- Negotiation and self advocacy
- Leadership
- Presentation and debate

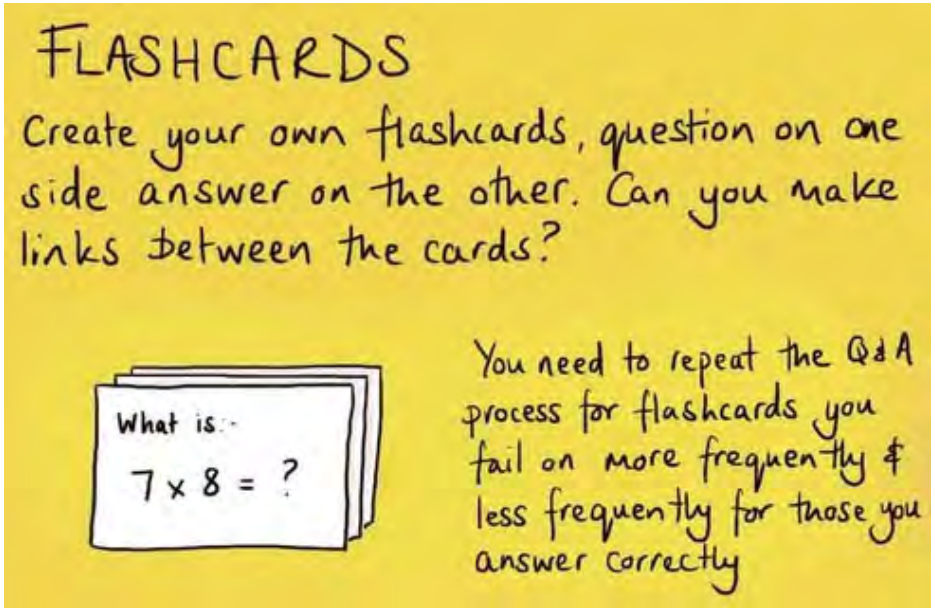
Healthy Lifestyles

The Eatwell Guide is used to help us all eat a balanced diet.

Eating five fruits and vegetables a day is beneficial for your health They are a great source of vitamins, minerals and fibre.

The NHS suggests that young people aim for an average of at least 60 minutes of moderate or vigorous intensity physical activity a day across the week.

RS



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.

Year 7 – Religious Studies Knowledge Organiser - Christianity

World Religions

- Christianity
- Islam
- Judaism
- Hinduism
- Buddhism
- Sikhism

Ten Commandments

- Do not kill
- Do not lie
- Do not commit adultery

Key Terms – Belief and Non-Belief in God

Agnostic	A person who is unsure whether God exists
Atheist	A person who doesn't believe in God
Theist	A person who does believe in God

Christianity

- Largest of the main world religions
- Founder = Jesus
- Symbol = cross or crucifix
- Place of worship = Church
- Holy writing = Bible

Prayer

Prayer is a way of communicating with God

Set Prayer = The same words said in the same way every time

Informal Prayer = Own words

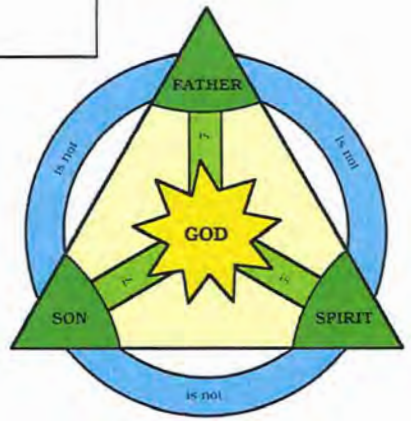
Parables

These are short, easily remembered stories used by Jesus to teach his message.

Example, The Parable of the Lost Sheep

Threshold Concepts:

TC1	To understand that religious beliefs are interpreted differently, even with in the same religion or denomination.
TC2	To understand that religious practices have varying levels of adoption.
TC3	To understand that misconceptions exist surrounding religious beliefs and practices that need addressing.
TC4	To understand that religious values can be accepted and adopted by non-religious believers.
TC5	To understand the varying impact of modern, often secular based, challenges to religious beliefs
TC6	To understand the influence key beliefs, teachings and practices have on religious believers, and at times non-religious believers, today (individuals, society and community).
TC7	To understand the variety of sources of authority within religion and the different approaches to them.
TC8	To understand the symbolisms found within religion.



The Holy Trinity

Year 7 – Religious Studies Knowledge Organiser - Life and Death

Christian Beliefs about the Soul

- Eternal
- Invisible
- Non-Physical
- Link to God
- Goes somewhere after death

Sikh Beliefs about the Atma

- Everlasting
- A spark
- Non-Physical
- Moves on to another body

Key Terms

Heaven (Christianity)	God's home; paradise
Hell (Christianity)	A place of eternal torment
Purgatory (Christianity)	A waiting room
Samsara (Sikhism)	The cycle of birth, death and rebirth
Numinous Experience	The feeling of the presence of something greater than yourself
Miracle	Something seems to break a law of science, to which the only answer is God.

Rites of Passage

- Ceremonies that mark important transitional periods in a person's life, such as birth, puberty, marriage, having children, and death
- Bar Mitzvah = Son of the Commandment
- Bat Mitzvah = Daughter of the Commandment
- Tallit = Prayer Shawl
- Torah = Holy writing of Judaism. A scroll written in Hebrew

Stewardship

- Stewardship = a belief that God has created the World and everything in it and it is our job to look after that
- Pollution = Christians and other religions believe we will be judged on how we look after the planet

Eating Meat

- Many Buddhists and Hindus are vegetarian (they don't eat meat)
- Some religions have food rules. Kosher in Judaism and Halal in Islam

Threshold Concepts:

TC1	To understand that religious beliefs are interpreted differently, even with in the same religion or denomination.
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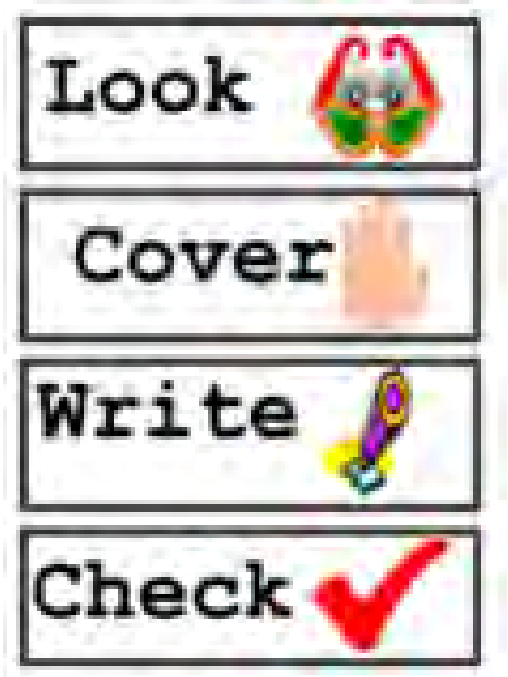
RSE



Read through your knowledge organiser. Next, cover it up or put it away and try tho 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.

Year 7 – RSE – Health and Wellbeing/Intimate and Sexual Relationships

Key Terms

Adolescence	Is the period of life between child and adulthood
Puberty	When the body begins to change from the body of a child to that of an adult

Sexual Feelings

Because of the changes that happen during puberty it is quite common to start to experience sexual feelings. This is because of the hormones young people's bodies are producing

New Love

This is also a time when many young people start to have romantic feelings about other people. They may even have or start to think about having a boyfriend or girlfriend.

RSE covers a variety of topics and focuses on developing understanding of different aspects of relationships. This includes with yourself, friendships, romantic and sexual relationships

Hygiene

Hygiene = any practice or activity that you do to keep things healthy and clean

- ✓ Change clothes on a regular basis
- ✓ Wash regularly
- ✓ Wash clothes regularly
- ✓ Use anti-perspirants
- ✓ Use deodorants
- ✓ Wash hands with soap and water



Threshold Concepts:

TC5	That there are strategies to manage the physical and mental changes that are a typical part of growing up, including puberty and menstrual wellbeing
TC6	That there are strategies for maintaining personal hygiene, including oral health, and prevention of infection
TC7	That there are different types of relationships, including those within families, friendships, romantic or intimate relationships
TC8	That sexual attraction and sexuality are diverse
TC9	That there are ways manage the strong feelings that relationships can cause (including sexual attraction)

Key Skills

- Active listening and communication
- Teamwork
- Presentation and debate

Puberty

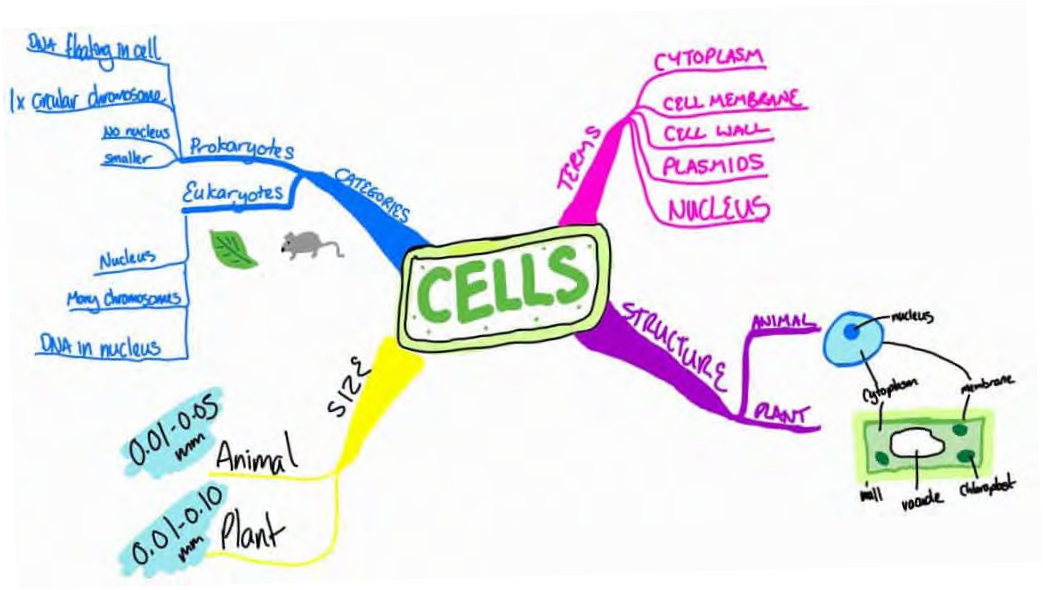
Puberty starts because a person's body starts to produce a very large quantity of sex hormones that they were only producing in small amounts before.

As these new chemicals are developing in the body it is creating changes in the body, changes in emotions and sexual feelings.

Physical Changes

Get taller
Develop breasts
Weight Gain
Grow Hair (Arms, legs, genitals, facial)
Acne and Spots
Voice deepens
Menstruation starts
Hips widen
Shoulders broaden
Voice cracks
Sweat will smell
Brain undergoes remodelling

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

Energy

Threshold Concept

Energy can't be created or destroyed, it can only be transferred from one store to another in a closed system

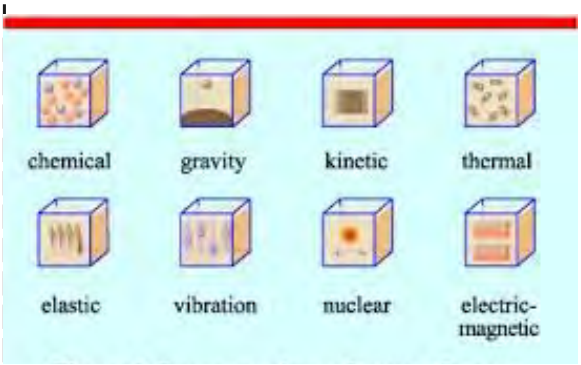
Keywords

Energy – moved between stores during transfers
Store – A temporary housing for energy
Transfer – The movement of energy between stores
Useful – The energy store that you wish for the energy to flow into
Dissipated – The store that energy flows into that is not useful or wasted

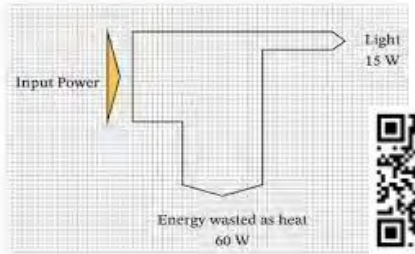
Movement between stores

Energy Transfer	Description
Mechanical	When a force acts on a body e.g. a collision
Electrical	Electricity can transfer energy from a power source, such as a cell, delivering it to components within a circuit
Heating	Thermal energy can be transferred by conduction, convection or radiation
Radiation	Light and sound carry energy and can transfer this between two points

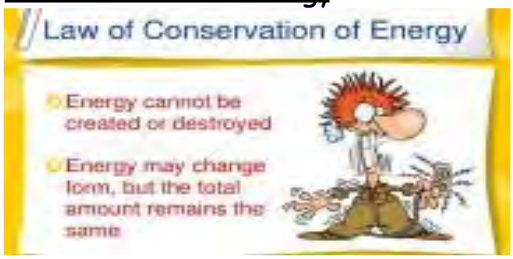
Energy Stores



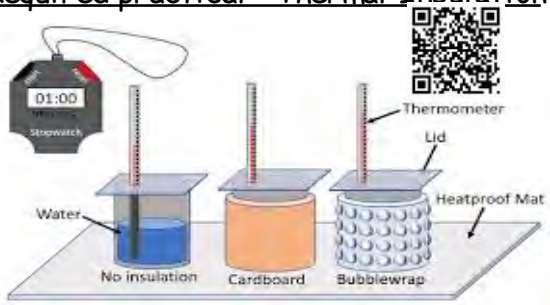
Sankey Diagrams



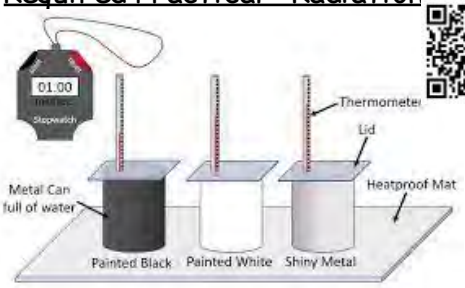
Conservation of energy



Required practical – Thermal Insulation



Required Practical – Radiation



Equations for this topic

Work = Force x Distance

Power = Work done/ time

Efficiency = useful energy output/total energy input

Foundations of chemistry

Threshold Concept

All matter is made of particles

States of matter:

State	Solid	Liquid	Gas
Closeness of particles	Very close	Close	Far apart
Arrangement of particles	Regular pattern	Randomly arranged	Randomly arranged
Movement of particles	Vibrate around a fixed position	Move around each other	Move quickly in all directions
Energy of particles	Low energy	Greater energy	Highest energy
2D diagram			

Atoms and compounds:

Elements contain just **one type** of atom.

Oxygen (O_2)

Compounds contain **different types** of atom bonded together.

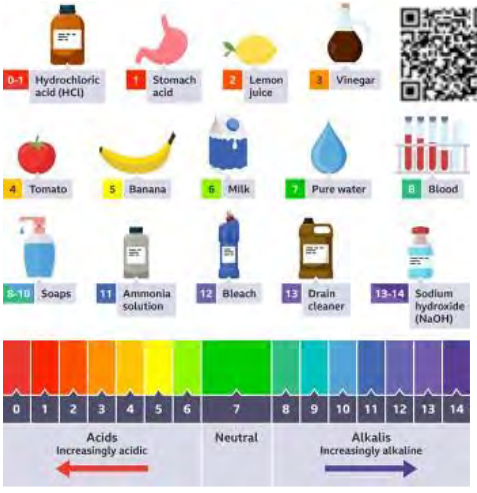
Carbon dioxide (CO_2)

Pure substances:

Pure substances are made from only one chemical element or one compound.

For example, salt is a pure substance made only of sodium chloride.

The pH scale:

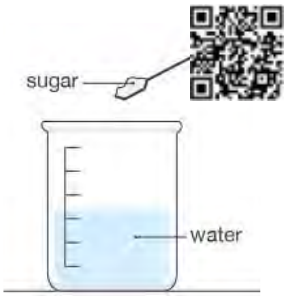


Keywords

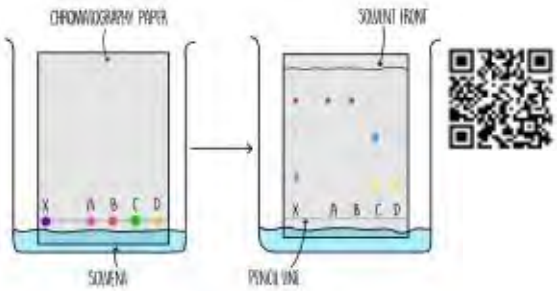
- **Particles:** The tiny things that all materials are made from. The smallest unit of matter.
- **Atom:** Atoms are the building blocks of all matter. Everything is made of atoms even yourself. They are the smallest particle of an element, which are far too small to see.
- **Solid:** Have a fixed shape and cannot flow, because their particles cannot move from place to place, cannot be compressed (squashed), because their particles are close together and have no space to move into.
- **Liquid:** Flow and take the shape of their container because their particles can move around each other, cannot be compressed, because their particles are close together and have no space to move into
- **Gas:** Flow and completely fill their container, because their particles can move quickly in all directions, can be compressed, because their particles are far apart and have space to move into

Solubility:

Some solids dissolve in water to make a solution. These solids are soluble. A solution is made from a solute (usually a solid) and a solvent (liquid). Some gases, such as oxygen and carbon dioxide, can also dissolve in water.



Required practical: Chromatography



Equations for this topic:

$$R_f \text{ value} = \frac{\text{distance travelled by substance } (B)}{\text{distance travelled by solvent } (A)}$$

Forces

Threshold Concept

Every action has an equal and opposing action.

Keywords

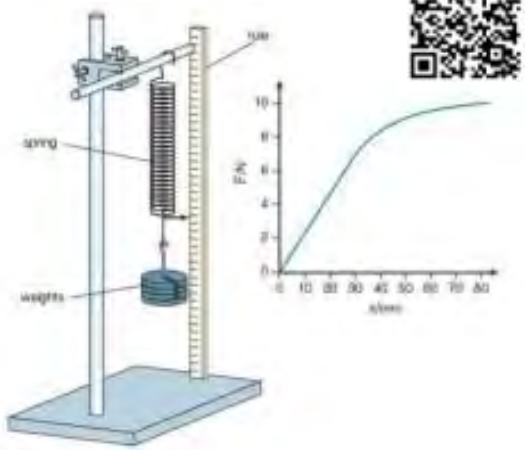
- **Contact:** Contact forces are forces that act between two objects that are physically touching each other.
- **Non contact:** Non-contact forces are forces that act between two objects that are not physically touching each other.
- **Balanced:** When the total force in opposite directions are equal 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).

Contact and non contact forces

Contact Force	Non-Contact Force
A **contact force** involves a force between two objects in contact.	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.
For example, **friction** between your feet and the ground can be present.	For example, **magnetic** forces between two magnets can happen when the magnets are near but not touching.

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

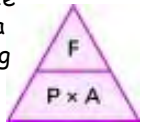
displacement
velocity
acceleration
momentum
force
lift, drag, thrust
weight

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)	$W = Fs$
force = spring constant × extension	$F = ke$
moment of a force = force × distance (perpendicular to the direction of the force)	$M = Fd$
pressure = force normal to a surface / area of that surface	$p = \frac{F}{A}$
distance travelled = speed × time	$s = vt$
resultant force = mass × acceleration	$F = ma$

Periodic Table

Threshold Concept

All elements fit within the Periodic Table

Link to information on most of the topic, consisting of slides, videos, and quizzes

Keywords

Elements - a substance that cannot be broken down into any other substance.
Periodic Table – a table showing every element that is known to exist.
Symbol – a sign/letter/character that is used to represent something

Periodic Table & Developing the Periodic Table

Task 1 & 2

Mendeleev redesigned Newlands periodic table by organising the periodic table by atomic weights and the properti

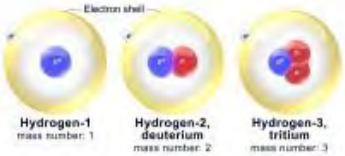
't

RAM & Isotopes

Task 10

RAM

Isotopes



Atomic Structure

Task 8

Electronic Configuration

Task 9

Example, using an atom of sodium

No. of electrons per shell
1st shell: up to 2
2nd shell: up to 8
3rd shell: up to 8
etc

Group 1 – Alkali Metals

Task 4

1

Li
Na
K
Rb
Cs
Fr

All share similar properties:
- Are soft (can be cut)
- Have relatively low MP
- Have low densities

The further down the group you go, the more reactive the elements become.
- They will react will air and tarnish quite quickly.
- They will react with water to produce an alkaline solution (hence the name) and turn universal indicator blue/purple

Group 7 - Halogens

Task 5

7

F
Cl
Br
I
At
Ts

All have 7 electrons in outer shell.
All diatomic (made up of two atoms bonded together.

The further down the group you go, the less reactive the elements become.
The further down the group you go, the higher its MP and BP, because:
- Molecules become larger
- Intermolecular forces become stronger
- More energy is needed to overcome these forces

Group 0 – Noble Gases

Task 3

0

He
Ne
Ar
Kr
Xe
Rn
Og

All have full outer shells.
All unreactive (inert).

All have low boiling points.
Lower down the group, the higher it gets.
This is because, going down the group:
- Atoms become larger
- Intermolecular forces between atoms become stronger
- More energy is needed to overcome these forces

Reproduction

Threshold Concept

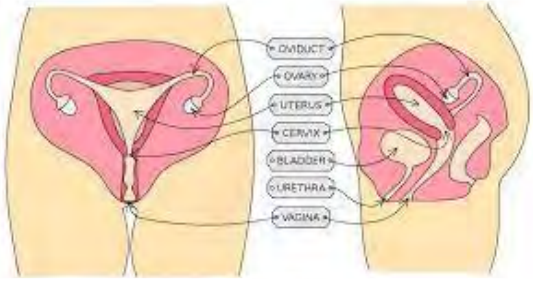
Reproduction can happen sexually and asexually

Keywords

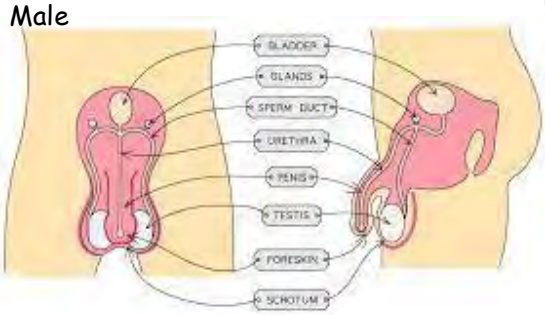
- **Sperm:** male reproductive cell that contains genetic material
- **Egg**: female reproductive cell that contains genetic material
- **Reproduction**: the joining of sex cells (a sperm and egg) to produce offspring
- **Fertilisation:** the joining of a male and female sex cell/genetic material
- **Develop**: build upon given information

Reproductive organs

Female



Male

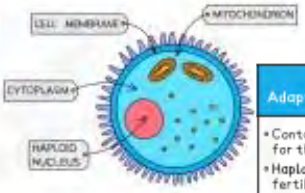


Sperm cell

Adaptations

- The head contains the genetic material for fertilisation in a **haploid nucleus** (containing half the normal number of chromosomes)
- The **acrosome** in the head contains digestive **enzymes** so that a sperm can penetrate an egg
- The mid-piece is packed with **mitochondria** to release **energy** needed to swim and fertilise the egg
- The **tail** enables the sperm to **swim**

Egg cell

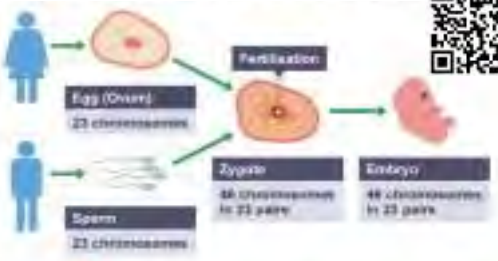


Adaptations

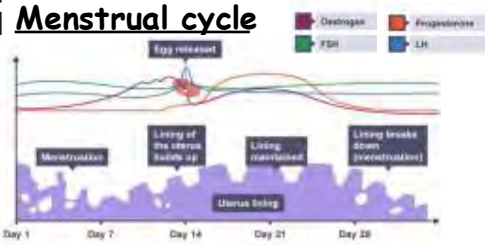
- Contains a lot of **cytoplasm** which has nutrients for the growth of the early embryo
- **Haploid nucleus** contains the genetic material for fertilisation
- **Cell membrane changes after fertilisation** by a single sperm so that no more sperm can enter

Fertilisation

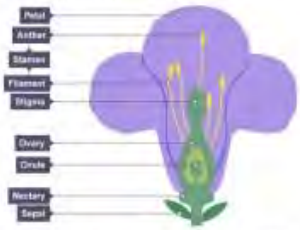
When the sperm and egg nuclei join, they form a ZYGOTE



Menstrual cycle



Plant structures



IVF

In Vitro Fertilisation is used to help people with fertility issues conceive

Equations for this topic