Bottisham Village College

KNOWLEDGE ORGANISER

YEAR 8 TERM 2

Bottisham Village College

At Bottisham Village College, we are striving to create a five-year curriculum plan that builds effective revision strategies into homework and lessons, to ensure that students are able to place powerful knowledge into their long-term memories. Additionally, we hope that this will help build effective learning strategies from early in their time here at the college.

Based on evidence, we know that regular recall activities are the best way of achieving this goal and committing powerful knowledge into the students' memories.

At the start of each term, we shall publish all the knowledge organisers that students will require for their studies in each curriculum area. These will cover a range of aspects: facts, dates, characters, quotes, precise definitions and important vocabulary. We are clear: if this fundamental knowledge is secured, students can then develop their higher-level skills of analysis and critical understanding with greater depth.

They will be given an electronic A4 Knowledge Organiser (KO) booklet for each term containing all of the knowledge required. In lessons, Bottisham staff will be regularly testing this fundamental knowledge, using short-quizzes or even more formal "Faculty Knowledge Tests".

The best way to use these organisers at home, is to follow a simple mantra:

1. Look at a certain aspects of a particular knowledge organiser
2. Cover up part of their knowledge organiser
3. Write it out from memory
4. Check and correct any spelling mistakes, missing bits or mistakes

So simple but so effective.

ART

Steve Wilson (Retro) painting

You will learn about the artist Steve Wilson.

RETRO
Drips
Melting shapes
Bright colours
Overlapping
Colours
Translucent colours

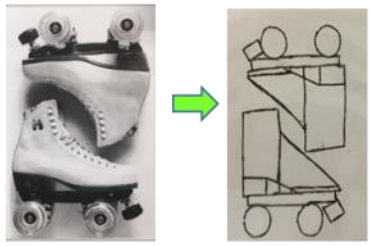
Bold shapes
Overlapping shapes
Chaos
Primary and secondary colours

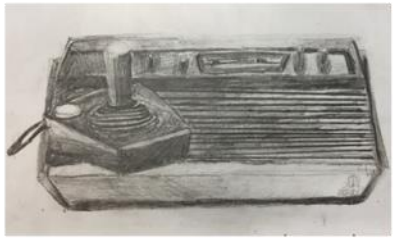
Lines
Continuous lines
Patterns
Organised

You will learn how to create a double page of research that creatively combine pictures, notes and sketches.

You will learn how to draw pictures of retro objects.

KEY WORDS:
Observation
Simplistic
Shapes
Proportion
Angles
Sketching





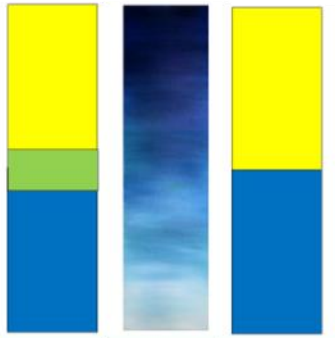
TOP TIPS

- Keep **inside the lines** to make a sharper image
- Keep your pencil **sharp** for more accurate lines
- Avoid scratchy shading by holding your pencil at roughly a **45° angle**
- Avoid smudging your drawing by putting a piece of paper under your hand.

You will learn how to create designs inspired by the artist and extend your understanding of how to use colour pencils.

Block colouring/even density
One colour shading
Two colour blending

You will learn how to paint in the style of Steve Wilson.



Colour washes
Blending
Blocks of colour

KEY WORDS: Measurements, proportions, precision, accuracy, primary, secondary & tertiary colours, tints & tones.

You will learn how to produce your own piece of retro art.

COMPUTING

Depending on which Technology rotation students are on, they may be working in Computing, D&T or Food Technology

Media & Fake News

Keywords

ICT and the Media

ICT: information communication technology

Media: the main means of mass communication (broadcasting, publishing, and the internet) regarded collectively.

Data/Information: Data is a value with no obvious meaning, eg 9. Information is data with meaning, eg the average man's shoe size is 9.

Tabloids: A type of popular newspaper with small pages that has many pictures and short, simple reports.

Platforms: A media platform is a service, site, or method that delivers media to an audience eg magazines, newspapers, radio, television, news websites, adverts, and social media.

Manipulating Data

Data: eg text or an image

Image: a picture.

Manipulaton: presenting of data in a way that may lead to false information.

Photoshop: image-editing software.

Influence: the power to have an important effect on someone or something.

Deepfake: a video of a person in which their face or body has been digitally altered so that they appear to be someone else.

Toolbar: a strip of icons that can be clicked to perform certain functions.

Filters: a way to alter the appearance of an image e.g. make a photograph look like a hand drawn sketch.

Privacy Settings: allow you to control who sees information.

Fake News

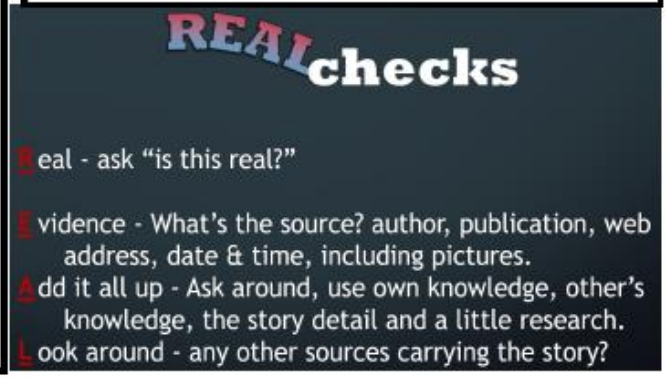
Fake: false information distributed deliberately, usually for political or commercial purposes.

Real: a news item that has passed 'real checks'.

Influence: the power to have an important effect on someone or something.

Manipulaton: the presenting of data in a way that may lead to false information.

Target Audience: a particular group of people at which a product is aimed e.g. a film.



COMPUTING

Media & Fake News

ICT and the Media

There are three types of media

Print: eg magazines, newspapers (broadsheet and tabloid)

Broadcast: eg radio (news), and tv (news)

Internet: news websites, adverts, social media

Broadsheet

Tabloid

Deepfake

A video of a person in which their face or body has been digitally altered so that they appear to be someone else, typically used maliciously or to spread false information.

Media

Advantages: information can be dispersed quickly, people can learn about other cultures

Disadvantages: can spread of misinformation and the development of bad values.

Influence: providing false information which may skew an individual's views and effect their actions eg voting a certain way. Some media messages reinforce an existing belief.

Data Types

Text: publishing software to allow the use of images and text together eg Microsoft Publisher, Google Slides.

Images: can be edited (including photos), created with software eg Photoshop.

Videos: video editing programs enable snipping, videos as well as adding effects, and filters.

Audio file: these are digital sound recordings. Software, eg Audacity, can be used to record, snip, add effects, and combine audio files.

Statistics: e.g. graphs and tables.

COMPUTING

Media & Fake News

Fake News

What is 'fake news'?

REAL

Real - ask "is this real?"

Evidence - What's the source? author, publication, web address, date & time, including pictures.

Add it all up - Ask around, use own knowledge, other's knowledge, the story detail and a little research.

Look around - any other sources carrying the story?

BBC's definition: False information distributed deliberately, usually for political or commercial purposes

⇒ Made up stories and information

⇒ Meant to be widely shared—perhaps to shock or scare

⇒ To make money from advertising—clickbait

⇒ It's purpose is to persuade people to think a certain way, or vote a certain way

Fake news: meets REAL criteria

Not fake news: a mistake

Not fake news: a joke

COMPUTING

Computer Systems

Keywords

Computer Systems

CPU: central processing unit, the main processor (the brains of the computer).

Data: values that the computer understands represented in binary.

Hard drive: the primary storage where your music, videos, games, work, and other data is stored.

Input: data (letters, numbers, sounds, videos, images) gets put IN to the computer.

Motherboard: a printed circuit board like a road map between the components of the computer

Output: what comes OUT of a computer eg text, sound.

Process: the computer manipulates data to produce meaningful information.

System: a set of things working together as part of a mechanism or an interconnecting network

Binary, Bits, and Bytes

Addition: adding together two or more numbers

Binary: a number system that only uses two digits (0 and 1)

Bit: a single binary digit (1 or 0)

Byte: 8 binary digits eg 10001101

Denary: a number system that uses 10 digits: 0-9. This is the number system that we use to count.

Nibble: 4 binary digits eg 1100

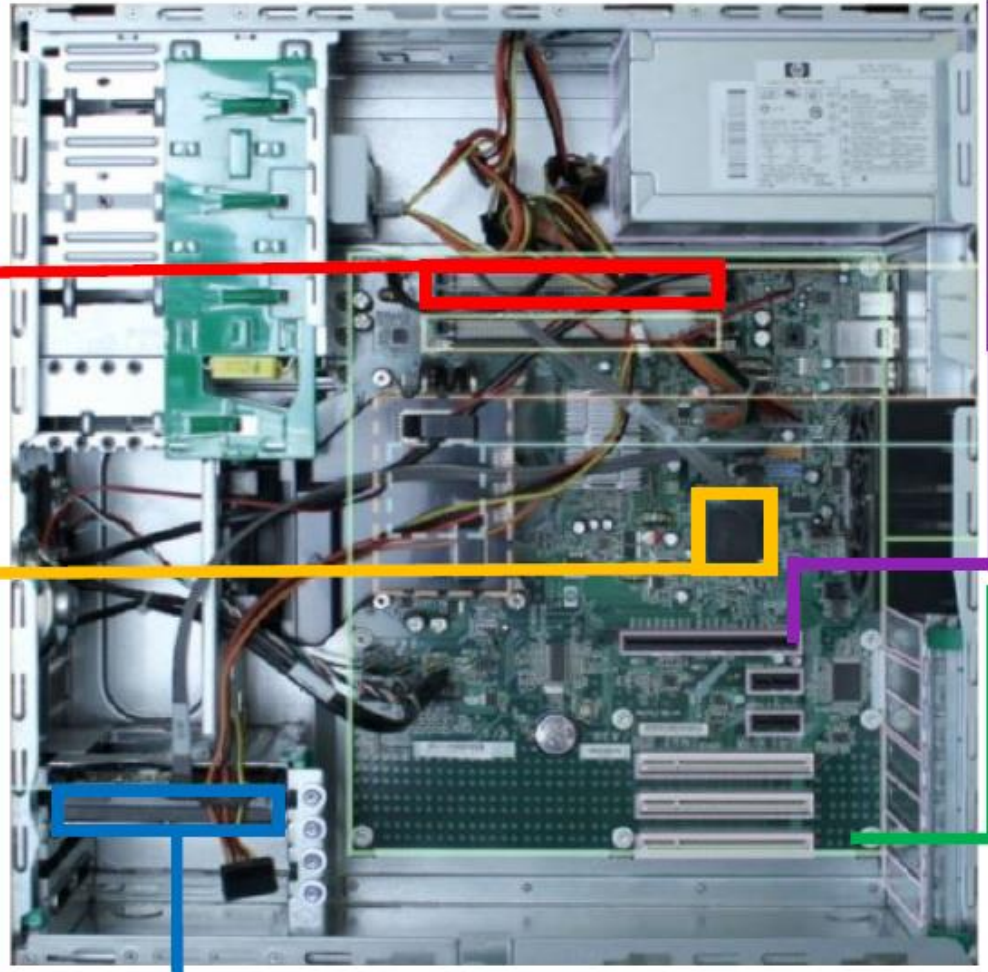
Subtraction: taking away one number from another

COMPUTING

Computer Systems

Inside a computer

RAM (random access memory): is fast. The data needed by the processor is temporarily stored in RAM while a program is running. The data is volatile which means that when the program is closed, the data is deleted.



ROM (read only memory): is data that cannot be changed by the user. It is non-volatile which means that even when the computer is turned off the data remains.

CPU (central processing unit): the processor is the part of the computer system that handles the instructions used to ensure that hardware and software respond as expected.

Motherboard: this is the green board that all the other parts sit on and connect through the copper pathways.

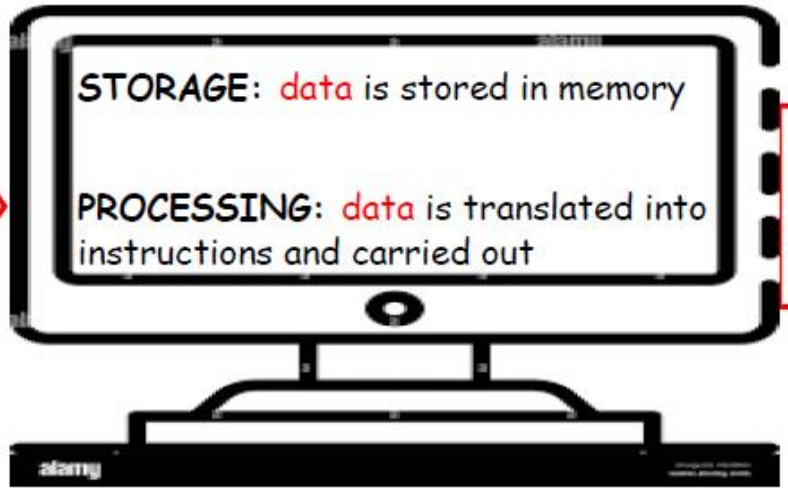
Hard drive: this stores programs and files long term, even when they

COMPUTING

Computer Systems

Binary

INPUT: data goes into the computer via an input device eg keyboard, mouse, microphone



OUTPUT: data comes out of the computer via an output device eg screen, speaker

Data is stored as binary digits called bits. Bits can be represented in different types:

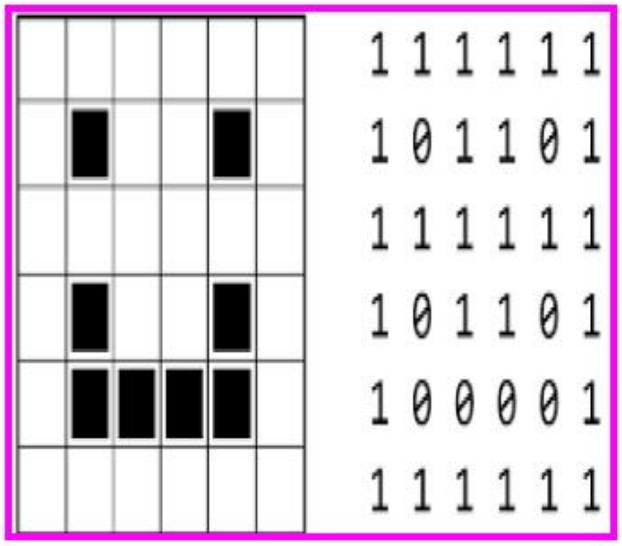
numbers (0 or 1, called binary)

Lights (on or off)

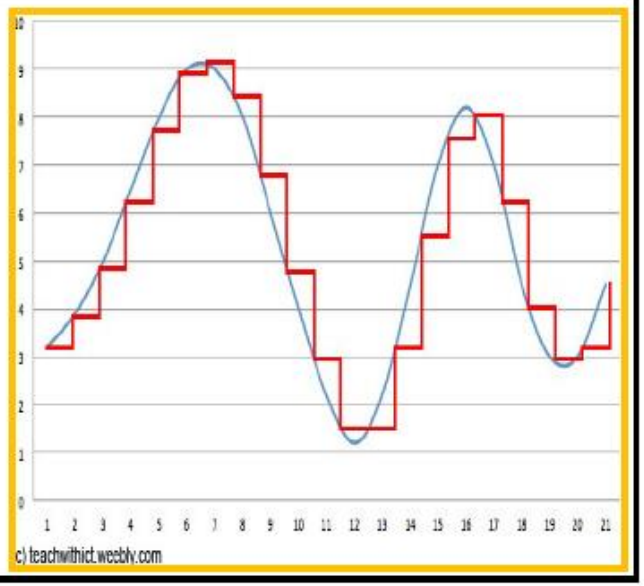
True or false

Yes or no

Pictures and sounds can be represented by binary by simply assigning a number to a colour or a sound, and converting that number to binary.



http://computerscience.chemeketa.edu/



COMPUTING

Computer Systems

Binary

Binary is a number system that only uses the two digits 1 and 0. Computers use the binary number system to store data. Like the denary number system (the number system that we use everyday) the binary placeholders start with a 1 in the furthest right placeholder, but whereas denary placeholders multiples by 10 to find the value of the next column, binary multiplies by 2.

Denary placeholders

x10 1000 x10 100 x10 10 x10 1

Binary placeholders

x2 8 x2 4 x2 2 x2 1

How to convert binary to denary

Binary placeholders

8	4	2	1

Binary number

1	1	0	1

0 x 8 = 0 0 x 4 = 0 1 x 2 = 2 0 x 1 = 0

128 + 64 + 0 + 16 = Denary number 210

How to convert denary to binary

Denary number: 12

The first placeholder column is 8. The denary number (12) does not fit into 8, so put a 0 in the column. Subtract 8 from 12 which leaves 4 remaining.

The next placeholder column is 4. The remaining denary number is 4 which does fit into 4, so put a 1 in the column. Subtract 4 from 4 which leaves 0 remaining, so we just put 0s in the rest of the columns.

Binary placeholders

8	4	2	1

Binary number

0	1	0	0

COMPUTING

Programming

Keywords

Computational Thinking

Computation Thinking: a systematic approach to solving problems

Decomposition: breaking problems down into smaller, more manageable parts

Abstraction: removing unnecessary information and focusing on the important details

Pattern Recognition: patterns or similarities that parts of a problem share

Algorithms: a precise step-by-step solution to a problem

Debugging: correcting mistakes in a computer program

Edublocks

Module: a small piece of code ready to be used in a computer program

FOR loop: a loop (iteration) that is called a set number of times

print: output the data to the screen

Variable: a memory location that is given a name and is used to store data (like a storage box). The data stored can be overwritten by new data. If the contents of the variable needs to be used, you must call it by it's name.

Selection: code that chooses from two or more options

Iteration: a loop

WHILE loop: code that tells the computer to keep doing something while a condition is true eg WHILE the glass is not full, keep pouring the drink

Input: a word used in code to tell the computer to accept data input from the user eg type in your name

!=: not equal to

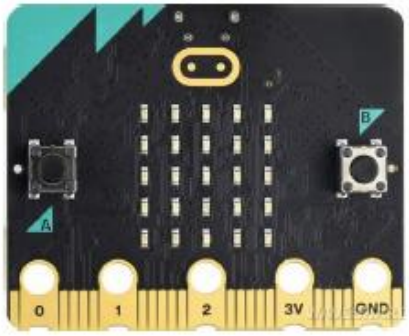
/: divide

Pen Up: when the turtle moves not line will be drawn

Pen Down: when the turtle moves a line will be drawn

Turtle: an image of a turtle who follows instructions in the code

micro:bit



micro:bit: small computer system of software and hardware working together

blocks: block-based programming uses a drag-and-drop environment like that used in Scratch

Input: the micro:bit has A and B buttons, or sensors that detect being shaken

Output: the micro:bit has an LED light display

Selection: code used to choose from two or more options

IF/ELSE: a statement of the two choices available in selection

ELSE IF/elif: can be used as many times as necessary if more that two choses are available

COMPUTING

Programming

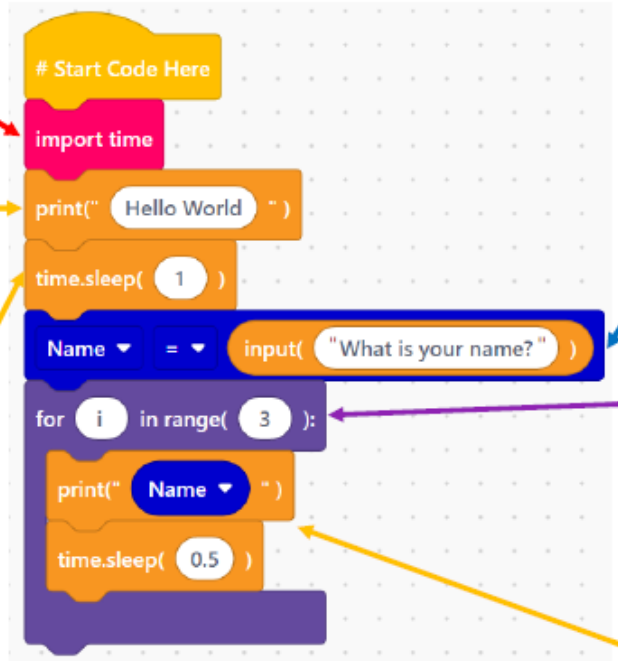
Edublocks

This EduBlocks program will print 'Hello World' to the screen, pause for 1 second, ask the user their name, then print their name to the screen 3 times.

The **module** 'time' is import-ed.

The string 'Hello World' is output to the screen.

The 'time' function is set to 1. This will cause the program to pause for 1 second.



A **variable** called 'Name' has been created. The string 'What is your name?' is output to the screen. The user will input their name with their keyboard. There name will be stored in

A **FOR loop** is set to **iterate** (loop) 3 times.

These two lines of code are in the **FOR loop** so for 3 times the contents of the **variable** 'Name' will be output to the screen, and then there will be a pause for 1/2 second.

COMPUTING

Programming

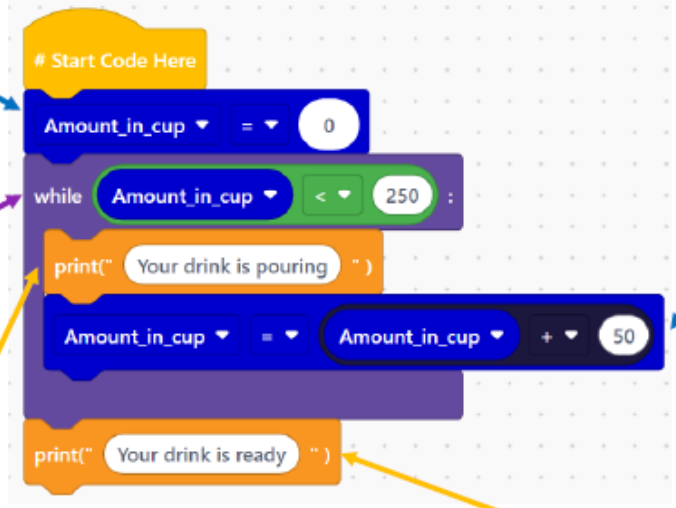
Edublocks

This EduBlocks program will let a user know that their drink is pouring, and when it is full (250ml) it will let the user know that their drink is ready.

Set contents of the **variable** 'Amount_in_cup' to 0

A **WHILE loop** is set to keep **iterating** (looping) **while** the contents of 'Amount_in_cup' is less than 250

The string 'Your drink is pouring' is output to the screen.



50 is added to the contents of the **variable** 'Amount_in_cup'

The string 'Your drink is ready' is output to the screen.

COMPUTING

Programming

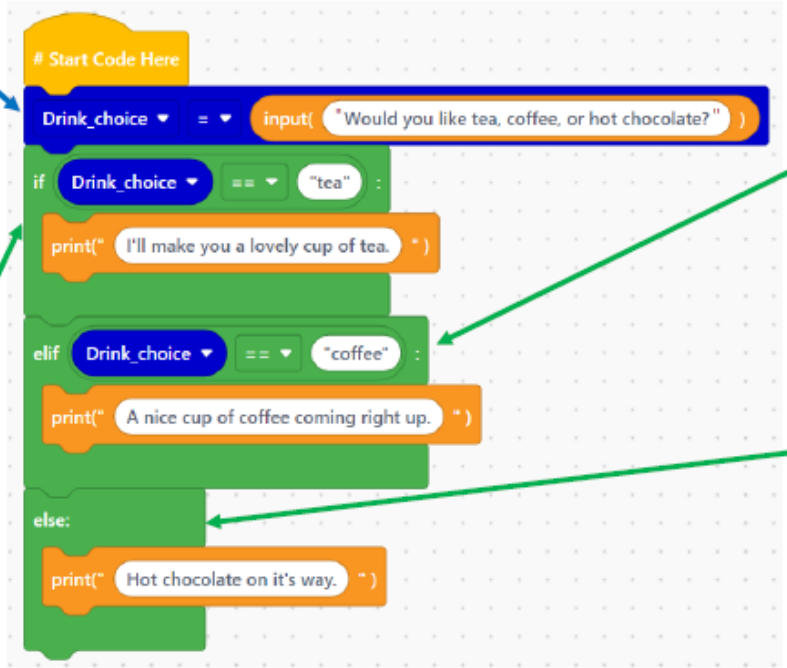
Edublocks

This EduBlocks program will ask the user what drink they would like, and depending on their choice a string is output to the screen. Selection is used

Output the string 'Would you like tea, coffee, or hot chocolate? to the screen. The choice that the user **selects** is stored in the **variable** 'Drink_choice'.

IF the data stored in the **variable** 'Drink_choice' is the same as the string 'tea', then print 'I'll make you a lovely cup of tea.' to the screen.

With **selection** you can only have one **IF**.



ELSE IF the data stored in the **variable** 'Drink_choice' is the same as the string 'coffee', then print 'A nice cup of coffee coming right up.' to the screen.

With **selection** you can have as many **ELSE IF**s as you need.

ELSE print 'Hot chocolate on it's way.' to the screen.

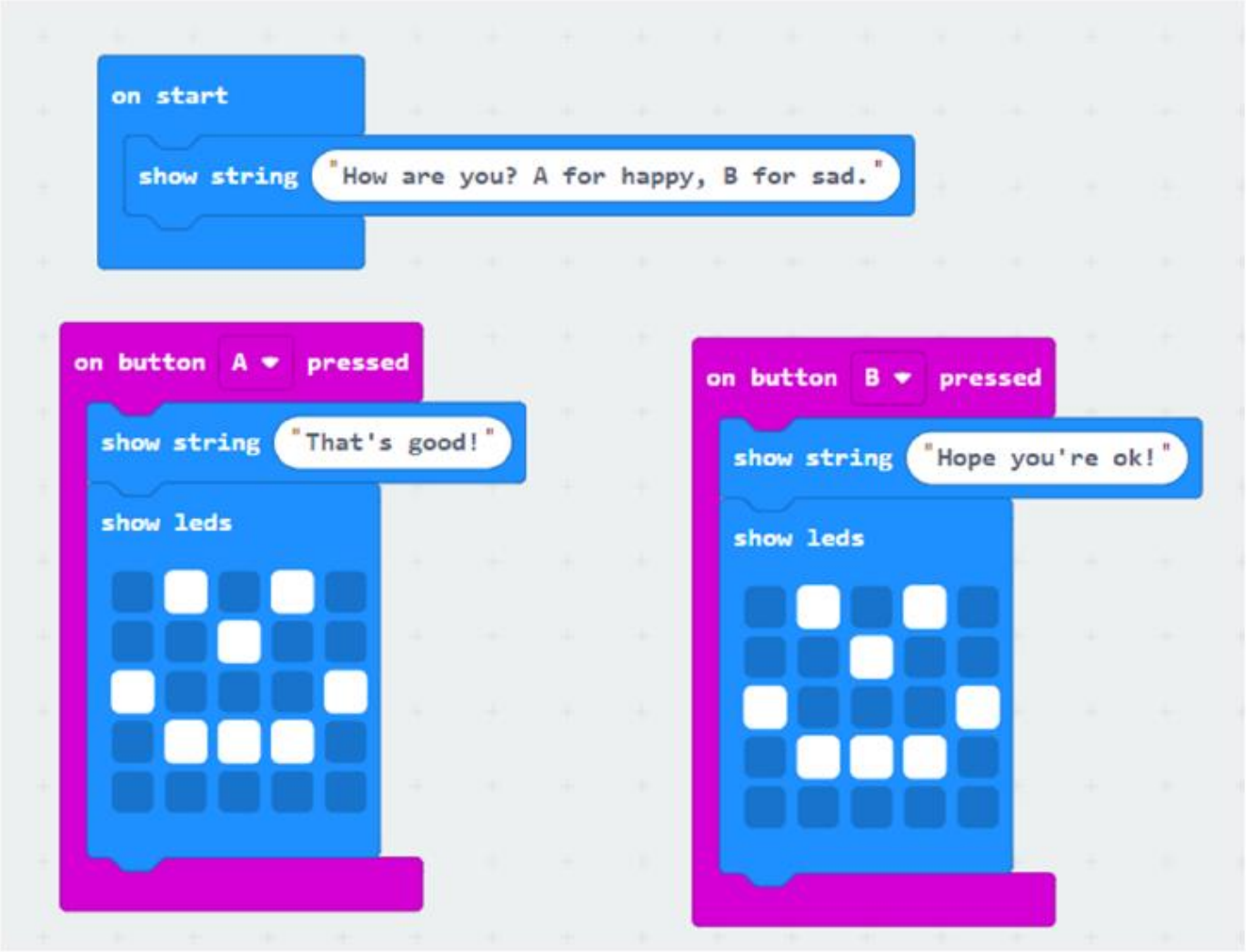
With **selection** you can only have one **ELSE**. It is **selected** if the user inputs anything other than the conditions for the **IF** or any **ELSE IF**s.

COMPUTING

Programming

Micro:bit

This micro:bit code uses **selection** so the user can press the A button **if** they are happy which will output a happy face to the screen, and the B button **if** they are sad which will output the sad face to the screen.



DANCE

Students in Year 8 study Dance & Drama as part of Performing Arts

Infra

Choreographic Intentions:

- Seeing below the surface
- Hiding emotion/keeping your feelings to yourself
- Showing vulnerability by

Stimulus:

A starting point

Choreographic intention:

What you want your dance to communicate to the audience.

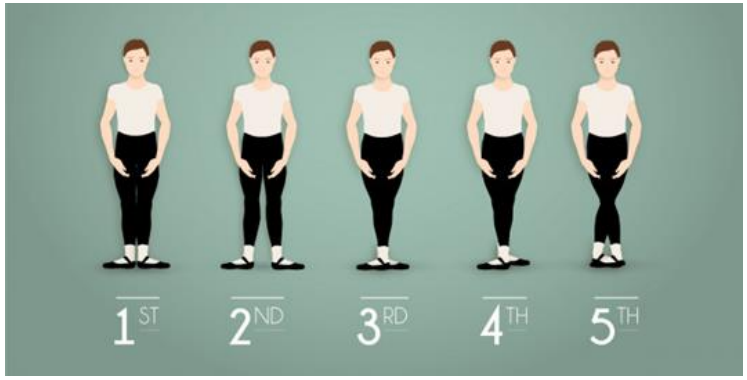
Key Terms:

Infra: Latin meaning 'below'

Contact Improvisation: creating unplanned movement with at least one other dancer by moving closely around their body, sharing weight and leading & following based on touch

Key Features of Ballet:

Turn out, extension, pointed toes, upright posture.
Positions of the arms and feet.
Dynamics: controlled, elegant, graceful, continuous



Performance Environment: Proscenium Arch

Physical Skills

- Isolation
- Extension
- Alignment
- Posture
- Strength
- Control
- Stamina
- Flexibility
- Mobility
- Co-ordination
- Balance

Lighting

- Colour
- Shape
- Hard/Soft edges
- Spotlights
- Shadows
- Darkness
- Mood/Atmosphere

Trailer:

https://www.youtube.com/watch?v=N64OFLfGndo

DRAMA

Students in Year 8 study Dance & Drama as part of Performing Arts

Devising from a stimulus Knowledge organiser

Why, What and How?

It is important for you to understand what a stimulus is, how to break it down and generate ideas from it. When able to do this you are opening up the opportunities to create exciting, unique and original pieces of drama. It is also important for you to understand the process of devising.

Unit aims:

- To be able to analyse and evaluate a stimulus to create initial ideas
- To be able to work as a group to create a performance from initial ideas with a clear structure, form, genre and style.
- To be able to perform your devised performance.

Key words

Devising Process Product Stimulus

Impact on the performance Impact on the audience

Structure Style Genre scene

Exposition Rising Action Climax Denouement Peripeteia

Obligatory moments

Home learning and revision resources:

Use the links below to revise, remind and test yourself on the key aspects of creating an original performance.

Responding to a stimulus
https://www.bbc.co.uk/bitesize/guides/zhpcy9q/revision/1

Researching for a performance
https://www.bbc.co.uk/bitesize/guides/zm6gscw/revision/1

Developing an idea
https://www.bbc.co.uk/bitesize/guides/zkdp2sg/revision/1

Selecting a genre and style
https://www.bbc.co.uk/bitesize/guides/zj7yt39/revision/1

Structure
https://www.bbc.co.uk/bitesize/guides/zg9x34j/revision/8

Refining a performance
https://www.bbc.co.uk/bitesize/guides/zdtrf4j/revision/1

Creating a devising log.
https://www.bbc.co.uk/bitesize/guides/zdqf6v4/revision/1

Devising Theatre Video with Jon Walton
https://www.youtube.com/watch?v=VBLp05AS9JY

Top tips on devising theatre with Geko
https://www.youtube.com/watch?v=-G9fwO4RgpU

Devising Masterclass
https://www.youtube.com/watch?v=47QhuLMLDL8

DESIGN & TECHNOLOGY

Depending on which Technology rotation students are on, they may be working in Computing, D&T or Food Technology

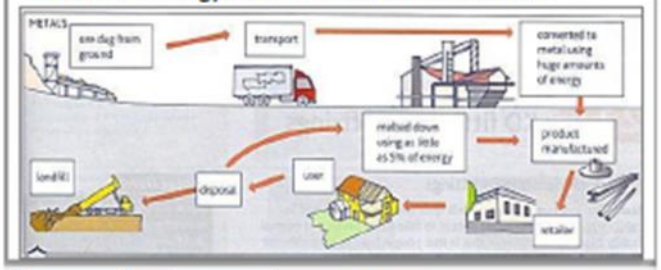
Year 8 Design Technology Knowledge Organiser- Pewter casting

Categories of metals.
Ferrous metals contain iron. **Steel** is the most common.

Non- ferrous metals do not contain iron. **Aluminium** is the most common.

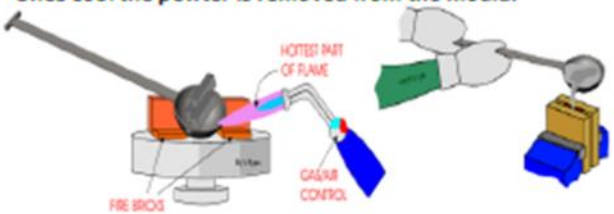
Alloys are mixtures of metal and another element(s) which improves on the properties of the metal. **Pewter** is and alloy of tin and antimony. Pewter has a low melting point compared to most other metals at 225ºc to 240ºc.

Environmental impact of metals. Metals are made from ore. **Ore** is mined. Ores use a huge amount of energy to be converted to metal. All metal can be **recycled** using as little as 5% of the energy need to convert metal from ore.



Personal Protective Equipment
Face visor
Leather apron
Leather gloves
Leather shoes

Pewter Casting
The **mould** is clamped between two pieces of **MDF** and placed in a **vice**
Pewter is heated with on the hot plate until molten.
A **Casting ladle** is used to pour the molten pewter into the mould.
The pewter is allowed to cool.
Once cool the pewter is removed from the mould.



A **lapped joint** is used to increase the gluing area on the joints of your box.

The box is **dry assembled** to test if it is square.
A try square is used for this **quality control check.**

Tools for working with metal

Centre punch

Ball pein hammer

Cordless drill

Hand drill

Needle files

Wet and dry abrasive paper

Buffing wheel

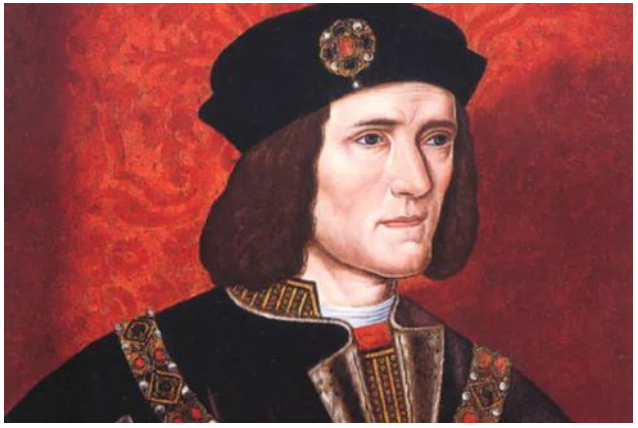
CAD/CAM- A mould is designed using CAD- computer aided design and cut with a laser cutter (CAM- computer aided manufacture) from MDF

Advantages of CAD/CAM	Disadvantages of CAD/CAM
Designs can be altered and edited easily and can be sent anywhere in the world instantly	High initial set up cost and some running costs
Machines do not need breaks, holidays, pensions and are never sick	Staff may need training
Products are accurate, repeatable, consistent, made quickly with a minimum of error and fewer safety issues	May lead to fewer skilled jobs and higher unemployment

ENGLISH

The Tragedy of RICHARD III

By WILLIAM SHAKESPEARE



Key Characters

- Richard III/Richard Plantagenet: Yorkist Duke of Gloucester (Boar). Killed at the Battle of Bosworth 1485.
- King Edward IV/Edward Plantagenet: Yorkist. Defeated Henry VI (Lancastrian) during War of the Roses. Married to Elizabeth.
- Queen Elizabeth (Woodeville family). Widow of John Grey (Lancastrian). Married King Edward in 1644.
- Duke of Clarence/George Plantagenet: middle brother of Edward and Richard.
- Dutchess of York: Mother to Edward, George and Richard. Grandmother to the Princes in the Tower and their sister Elizabeth.
- Anne/Lady Anne Neville: Widow of Prince Edward (Son of Henry VI). Marries Richard aged 16.
- Duke of Buckingham: Richard's trusted ally. Betrays Richard and is executed.

Other Key Characters

- Dorset: Queen Elizabeth's eldest son
- Rivers: Q Elizabeth's brother
- Grey: Q Elizabeth's younger son
- Vaughn: Yorkist killed by Richard
- Prince Edward: King Ed's eldest son
- York: King Ed's youngest son
- Margret: Henry VI's widow
- Hastings: Yorkist noble. Killed by R III
- Stanley/Earl of Derby: Yorkist noble
- Richmond: Nephew of Henry VI. Future King (Henry VII). Defeats Richard at Battle of Bosworth.

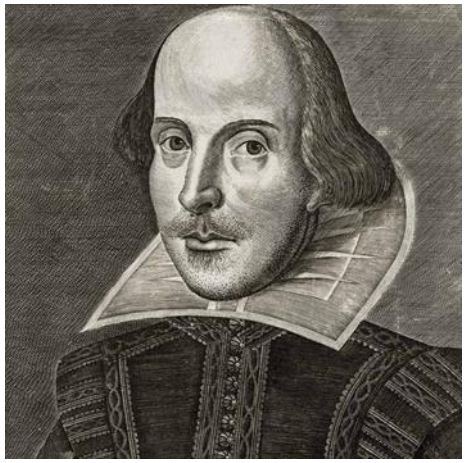
Plot

- In Henry VI, Part III, Richard kills the Lancastrian Henry VI and his son Edward.
- **Act 1:** Richard marries Anne, tricks King Edward into ordering Clarence killed, and stirs up trouble with Queen Elizabeth and her relations.
- **Act 2**: Richard causes King Edward's death by preventing Edward's attempt to repeal his sentencing of Clarence. Rivers, Vaughn and Grey are arrested.
- Act 3: Prince Edward arrives in London. Hasting refuses to support Richard, Rivers, Vaughn and Grey are executed at Pomfret. Hastings is sentenced to death by Richard. Richard 'reluctantly' accepts the appeal for him to be king.
- **Act 4**: Elizabeth, the Duchess of York and Anne are refused entry to see the princes in the Tower. Buckingham hesitates to assist Richard in having the princes killed. Tyrell is hired by Richard to murder the princes. Buckingham flees from Richard to raise an army against him in alliance with Richmond. Margaret gloats over Elizabeth. Richard attempts to woo her daughter. Stanley's son is taken hostage by Richard.
- **Act 5**: Buckingham is captured and executed. Richmond's troops gather near Leicester. On the eve of battle Richard is visited in a dream by the ghosts of those he has killed. Richard fights bravely in battle but is slain by Richmond. Richard becomes king (Henry VII, marries Elizabeth of York (Queen Elizabeth's daughter). Their marriage brings the Houses of York and Lancaster together, ending the War of the Roses.

ENGLISH

Top Quotes

Richard, Act 1, Scene 1: "I am determined to prove a villain."
Anne 1.2: "Blush, blush, thou lump of foul deformity."
Anne 1.2: "Some dungeon?" Richard: "Your bedchamber."
Richard 1.2: "Was ever woman in this humour wooed?
Was ever woman in this humour won?
Q Margaret 1.3: "That bottled spider…whose deadly web
ensnareth thee about."
Q Margaret 1.3: "This poisonous bunch-backed toad."
Q Elizabeth 4.1: "Pity, you ancient stones, those tender babes."
Richard 4.2: "Shall I be plain? I wish the bastards dead."
Richard 4.3: "To her go I, a jolly thriving wooer." (her = Q Eliz.)
Tyrell 4.3: "The tyrannous and bloody act is done."
Duchess 4.4: "Bloody thou art; bloody will be thy end."
Richard 5.3: "And every tongue brings in a several tale
And every tale condemns me for a villain."
Richard 5.3: "Conscience is but a word that cowards use."
Richard 5.4: "A horse! a horse! my kingdom for a horse!"



Some critical Stances

Elizabethan Viewpoints (original audience of 1591)

- Popular Tudor myth of Richard's monstrosity due to Queen Elizabeth being a direct descendent of Richmond (Henry VII)
- Monarchical society meant a greater understanding of hereditary titles/succession
- Deformity represented inner corruption/evil.

Feminist Viewpoints

- Frustrated by Anne's acceptance of Richard
- Angered by Richard's dismissive attitude towards female characters.

Meritocratic Viewpoints

- Richard's ambition can be praised
- Richard overcoming his deformity can be praised
- Richard might be admired for his powers of persuasion.

Machiavellian Viewpoint

- Richard's ruthlessness to achieve power might be seen as logical/necessary.

Common Language Devices

Dramatic Irony: when the audience knows more than the character/s on stage.

Anaphora: a repeated word or phrase at the beginning of multiple clauses.

Verse: a writing style traditionally used to denote 'high' characters.

Prose: a writing style traditionally used to denote 'low characters.

Broken syntax: often used to show confusion/anger/fear.

Asides/soliloquy: a solo-speech in which the character voices their inner thoughts and feelings.

Plosives/Fricatives: consonants that help to create a tone of anger/disgust.

Pun/ Double Entendre: when a word or phrase is used which can be interpreted more than one way. Often used for humorous effect.

Stichomythia: quick dialogue between two characters. Often used to help build dramatic tension.

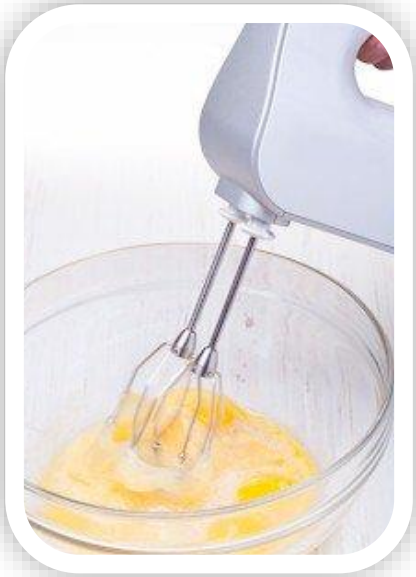
FOOD & NUTRITION

Depending on which Technology rotation students are on, they may be working in Computing, D&T or Food Technology

Recipes to learn:

All groups will make:

- Indian curry
- Pizza
- Victoria sponge
- Vegetable / meat chilli
- Risotto
- Flapjack
- Scrambled / fried / poached egg
- Cinnamon pastries
- Pasta and stir in sauce
- Smoked mackerel / tuna nicoise salad



Scientific processes to learn

- Respiration – yeast and bacteria break down sugars and carbohydrates
- Rubbing in – fat coats starch to limit the amount of gluten released
- Dextrinisation – starch turns brown in dry heat
- Denaturation – proteins change their structure when heated, whisked or mixed with acid
- Coagulation – proteins set when heated
- Aerating – adding air to a mixture to help it rise
- Caramelisation – sugar turns brown when heated.
- Convection heat – where heat is transferred through a liquid or gas.
- Conduction heat – where heat is transferred through solid materials.

Skills to learn

- Chopping safely using the **'bridge and claw'**
- How to 'rub in' butter and flour Kneading
- Mixing
- Whisking
- Frying
- Sautéing

GEOGRAPHY

GEOGRAPHY YEAR 8: Settlement

Key term	Definition
Rural	An area away from a town or a city (the countryside)
Urban	An area within a town or a city
Urbanisation	The process of more people living in cities
Sustainability	Actions and forms of progress that meet the needs of the present without reducing the ability of future generations to meet their needs.
Settlement	Settlements are places where people live. Many settlements have things in common and so they can be grouped to make it easier to study them.

Key idea 1: Settlements have specific locations and characteristics

Site and Situation

Settlements are places where people live. Many settlements have things in common and so they can be grouped to make it easier to study them.

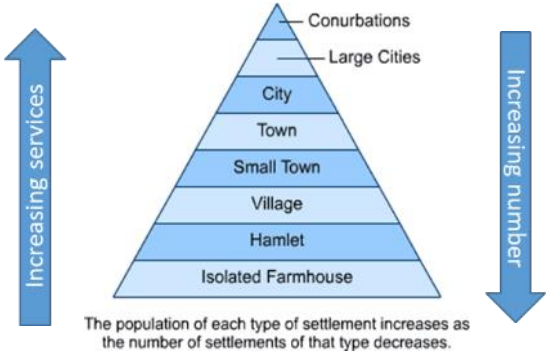
Site - this is the place where the settlement is located, e.g. on a hill or in a sheltered valley.

Situation - this describes where the settlement is in relation to other settlements and the features of the surrounding area, e.g. is the settlement surrounded by forest or is it next to a large city?

Early settlements

Early settlers often looked for certain features in an area to make life easier:

•Flat land, to make building easier and safer •Local raw materials, e.g. wood and stone, to build homes •A local water supply for drinking, washing, cooking and transport •A defendable site, e.g. a hilltop or river bend, to protect from attackers •Fertile soils, so people could grow crops



The population of each type of settlement increases as the number of settlements of that type decreases.

Key idea 2: Settlements change over time

Factors affecting settlement change

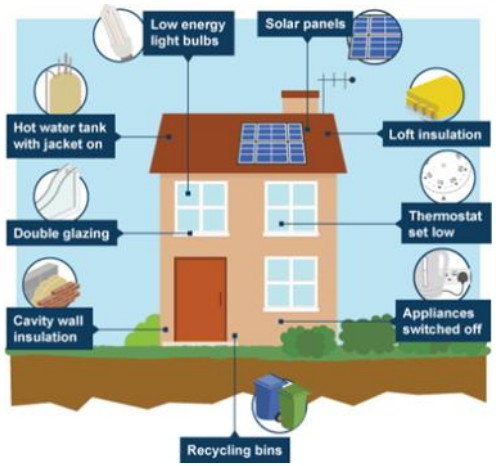
There are a number of reasons why settlements can grow and change, including: -Population growth - Migration - Economic change - A movement towards sustainability

Sustainable Cities Case Study: Curitiba, Brazil

Key features of Curitiba that have made the city more sustainable include: ·An efficient public transport system ·A large amount of green space ·A way of encouraging everyone to recycle ·Access to education and affordable housing

Sustainability involves trying to balance the three aspects shown in the sustainability stool. Cities try to improve sustainability by tackling these areas

As well as at the whole settlement level, individual actions can also make settlements more sustainable



Key idea 3: Geographical skills can be used to assess settlements

Fieldwork techniques can be used to assess the quality of environment of settlements as well as being used to identify key settlement features and patterns

Ordnance Survey (OS) maps	Environmental Quality Survey (EQS)	Land use maps
Used to identify key features of settlements, such as amenities and services, enabling judgements to be made about what type of settlement a place is. Also very useful for exploring the site and situation of a settlement, enabling comparisons to be made.	Compares the Environmental Quality (e.g. building quality, noise, open space) in different places.	The land use map is used to show a general pattern for the distribution and location of different types of land use. They are often used when investigating the function of a site or when planning the development of an area.

GEOGRAPHY

GEOGRAPHY YEAR 8: Migration

Key term	Definition
Migration	The movement of people to live in a different place
Internal migration	People moving within a country
International migration	People moving between countries
Immigration policy	Decisions made by a government on who they will let into their country
Source country	The country that migrants are leaving
Host country	The country where migrants settle

Internal and international migration

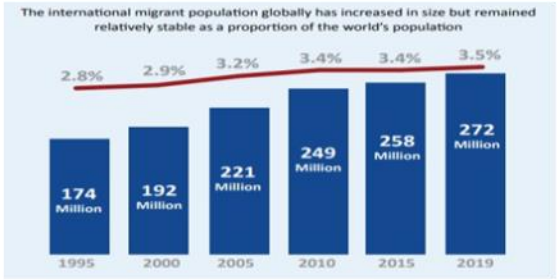
As well as migration happening between regions and countries, migration can also happen within a country with people moving to live in a different part without emigrating.

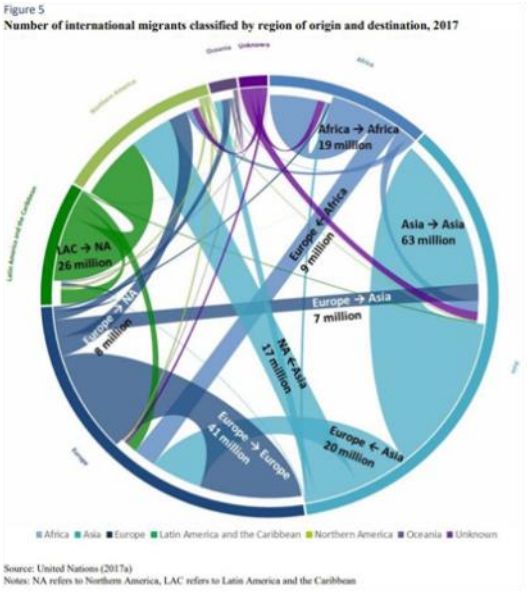
Key idea 1: Global migration happens in a range of ways

Reasons for migrating

Push and pull factors influence people's decision as to where they migrate to. Often there are multiple factors that are taken into account by people, making their decisions difficult. For example:

- Cost of living
- Family factors
- Job opportunities
- Cultural and social opportunities
- War, conflict and issues of safety





Key idea 2: Migration decisions are difficult

Dangers of migrating from Mexico to the USA

Dying from exposure
Smugglers stealing all your money and abandoning you
Getting split up from family
Getting arrested
Deportation back to Mexico

Problems of remaining in Mexico

Danger from crime and drug gangs
Corrupt local officials
Lack of local facilities (e.g. schooling)
Lack of well paying jobs

Key idea 3: Migration impacts both source and host countries

Host countries approach migrants in different ways

In the USA, economic migrants are only allowed where they are viewed as being able to significantly contribute to the economy of the USA. However, there are many illegal migrants who contribute by filling low skilled jobs that are needed. Dreamers are the children of illegal immigrants who have been treated differently by different governments.

Impacts on source and host countries

Source country impacts	Host country impacts
Money sent home to family	Reduction in labour shortages in key
Gender imbalance as it is often men who move for work	Increased cost of services such as health care and education
'Brain drain' as skilled workers leave	Migrants more prepared to fill low pay, low skilled jobs
Migrants may return with new skills	Overcrowding

HISTORY

17th and 18th centuries – background

- The power of the monarchy was decreasing, with the power of the parliament increasing
- There were lots of concerns during the 17th century about religion – Parliament was very keen to have Protestant monarchs
- Britain was the first country to have an industrial revolution during the 18th century, due to the availability of natural resources and some key individuals who had bright ideas for inventions

Key people

James II: Catholic King of England from 1685-1688.

Mary I: James II' eldest daughter, raised a Protestant. Queen of England 1688-1702

William III: William of Orange, Protestant husband of Mary I. King of England 1688-1702.

Anne: James II's younger daughter. Protestant Queen of England 1702-1714

George I: Anne had no children, and Parliament chose her nearest Protestant relative (a second-cousin) as heir. George I was German, but became King of England 1714-1727

Richard Arkwright: a factory owner in the 1700s who invented a way to speed up spinning

William IV: great-great-grandson of George I, King of England 1830-1837 during the Great Reform Act.

Chartists: a group of protestors in the 1840s who encouraged workers to go on strike in order to get the vote.

Victoria: Niece of William IV, Queen of England 1837-1901. She was succeeded by her eldest son.

Gladstone: Prime Minister of Britain under Queen Victoria, who passed the 3rd Reform Act 1884, allowing all men over the age of 21 to vote.

Annie Besant: helped the Match Girls to get more rights

Emmeline Pankhurst: leader of the Suffragettes, a movement to help women gain the vote

Glorious Revolution

Key dates:

- 1685: Charles II dies with no children – the throne is left to his younger brother James II.
- 1688: Parliament ask James' daughter Mary, and her husband William of Orange, to invade England and replace James II
- 1688: Bill of Rights

Key events:

- Charles I was a Protestant king who was considered to be rather Catholic. He ended up going to war with Parliament, and having his head chopped off in 1649.
- At first Cromwell ran the country, but after his death Parliament decided they wanted the Royal Family back – they wrote to Charles I's surviving children, and asked his eldest son to come back and be King of England.
- Charles II therefore became the king in 1660. He loved parties and the theatre, and was very relaxed with Parliament. He promised to be a Protestant and to raise his children as Protestants… but he didn't have any legitimate children. When he was dying, he declared his younger brother would be his heir.
- Charles II's younger brother became James II in 1685 – but he was a Catholic! Parliament made him promise to raise his children as Protestants if he wanted to be the king. He agreed, and his two daughters (Mary and Anne) were raised as Protestants.
- However, James II then had a son… and began to raise him as a Catholic! Parliament were so worried that they asked his eldest daughter Mary, and her Protestant husband William of Orange, to invade England! James II ran away, and William and Mary became the King and Queen… but only after they signed the Bill of Rights which was a list of rules from Parliament, restricting the monarch's power.

HISTORY

The Early British Empire

Key dates:

- 1585: The first English settlement is established at Roanoke, Virginia
- 1600: The East India Company was set up
- 1612: The East India Company began to build up a small empire of trading posts in India.
- 1776: America gained its independence

Key events:

- Between 1497 and 1763, English seamen reached places Europeans had not previously been. Britain then set up colonies and used them to trade all over the world. However the British used violence to take over these lands, many people were enslaved as a result of the expansion of the empire.
- In 1655 the English invaded Jamaica, which had previously been a colony of Spain. Jamaica formally became a British colony in 1670.
- By 1783, Britain had built a large empire with colonies in America and the West Indies.

Industrial Revolution

Key dates:

- 1768: Arkwright invents spinning frame
- 1804: World's first steam train
- 1854: John Snow discovers cause of cholera
- 1888: Match Girls' strike

Key events:

- By the 1700s, Britain had a growing population and had been successful in a lot of wars. This meant Britain was quite a rich country, and had lots of workers. Britain also had a lot of coal, which could be mined and used to create steam power.
- All Britain needed was a couple of bright inventions which would make use of all this money, man-power and coal. British people started to invent machines to improve ways of making goods, and this led to the creation of factories.
- Before the factories, people used to work at home, and make fabrics as a small family group. However, new inventions (like the spinning jenny and the spinning frame) were too big for people to use in their homes, and so people started working in the factories instead. The people who owned the factories usually became very rich.
- However, the workers in the factories were not treated very well. Children were forced to work there for long hours with very little pay. There was also not much concern about the workers' safety – accidents were common and people could lose limbs, or even their lives.
- In 1888 Annie Besant was angry about how girls working in a match factory could get 'phossy jaw'. She encouraged the girls to go on strike, and forced the owners of the factory to change the conditions. This was the first time a factory had been forced to change because of strike action.

Key history terms

Significant: of specific historical importance e.g. has an effect on our world today/is worth remembering/is unusual

Turning Point: A point in time when an important change takes place. This often takes events on a different path than they were on before.

Key topic terms

Revolution: Process or event which leads to great and rapid change

Parliament: group of politicians who vote on laws and taxes

Heir: person who will inherit the throne after the monarch's death

Prime Minister: the leader of Parliament, elected by other ministers

Industry: process of making or manufacturing items e.g. the cloth industry makes cloth

Bill: another term for 'Act' or 'Law' – passed by Parliament

MATHS

Factors

Numbers that an integer can be divided by.

e.g. factors of 12 are:

1, 2, 3, 4, 6, 12

Multiples

Numbers that are made by multiplying one integer by another.

e.g. multiples of 12 are:

12, 24, 36, 48, 60 etc

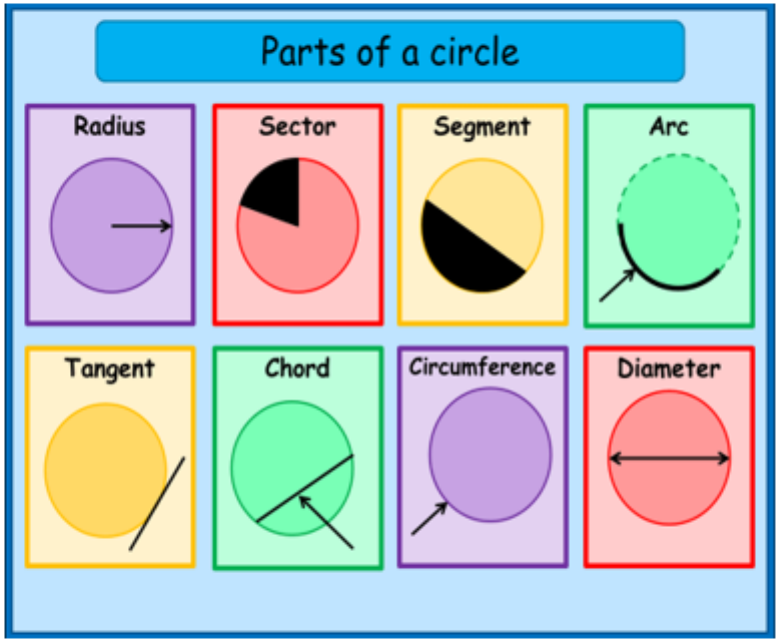
Prime Numbers

Numbers with only themselves and 1 as a factor:

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

Negative Numbers

3 + -5 = 3 – 5
-3 + -5 = -3 – 5
3 - -5 = 3 + 5
-3 - -5 = -3 + 5
3 x 5 = 15
3 x -5 = -15
-3 x 5 = -15
-3 x -5 = 15
15 ÷ 3 = 5
-15 ÷ 3 = -5
15 ÷ -3 = -5
-15 ÷ -3 = 5



Maths – Year 8

Square Numbers

Numbers which are made by multiplying an integer by itself.

1 x 1 = 1
2 x 2 = 4
3 x 3 = 9
4 x 4 = 16
5 x 5 = 25
6 x 6 = 36
7 x 7 = 49
8 x 8 = 64
9 x 9 = 81
10 x 10 = 100
11 x 11 = 121
12 x 12 = 144
13 x 13 = 169
14 x 14 = 169
15 x 15 = 225

Circles 2

Diameter = radius x 2 (2r)

Circumference = π x diameter (dπ)

Area = π x radius x radius (πr^2)

Percentages

Per cent means per 100

$1\% = \frac{1}{100} = 0.01$ $10\% = \frac{10}{100} = \frac{1}{10} = 0.1$

$20\% = \frac{20}{100} = \frac{1}{5} = 0.2$ $25\% = \frac{25}{100} = \frac{1}{4} = 0.25$

$50\% = \frac{50}{100} = \frac{1}{2} = 0.5$ $75\% = \frac{75}{100} = \frac{3}{4} = 0.75$

MUSIC

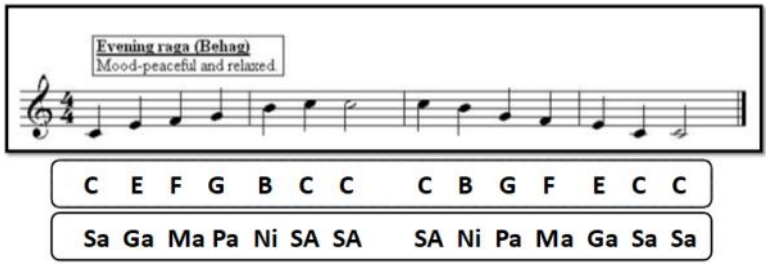
Indian Rag

Depending on the order of the student's Art' rotations, they will either study The Blues or Indian Rag during the Spring term.

Indian Rag dates back to around 1700BC where it originally developed in the temples and royal palaces. It is based around Hindu tradition but was also heavily influenced by the Mogul (Muslim) conquest of north India. There are thousands of different rags and they are all associated with different moods, times of day, and seasons. Audiences and musicians take the performance of these rags very seriously, which is why it is often called "Indian Classical Music". Each rag starts slow and builds to an energetic climax. Some performances can last several hours.

KEYWORDS

1-Rag /Raga - The piece and the scale (pattern of notes) the piece is played on. Usually played on a Sitar, Sarod, Sarangi or Bansuri	**6—Jhor**—Literally "join". Faster and with a pulse.
2– Tala– The repeating rhythmic patters that accompany the Rag, usually played on the Tabla	**7– Gat –** Precomposed (not improvised). Tabla enters and the Rag gets faster
3– Improvisation – making something up on the spot, within a given structure.	**8– Jhalla –** The final section where the piece reaches a climax. Lots of interplay between the melody instrument and the tabla. Fast and loud.
4– Drone – Repeated notes that accompany the Rag	**9– Oral Tradition** – Teaching through language, not written music
5– Alap— The opening section. Slow, explores the notes of the Rag. No fixed pulse.	**10– Svara** – The Indian equivalent of Do, Re, Mi. Used for teaching melodies orally



Common Talas:

Tintal—4+4+4+4

Rupak: 3+2+2

Dhamar: 5+2+3+4

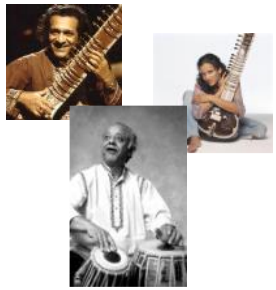
Famous Players:

Ravi Shankar,

Anoushka

Shankar,

Alla Rakha



Sitar | Tambura | Sarod | Sarangi | Bansuri | Tabla

MUSIC

Musical features: 12 bar blues chords; Walking bassline; AAB melodic structure; Improvisation; blues scale

The blues is the name given to a style of music created by African Americans at the end of the 19th century. Blues music was originally performed by one singer accompanied by a guitar or banjo. The accompaniment was often simple and the lyrics reflected the hardship and reality of every day life.
Until the end of the 19th century, America was largely a rural community. In the early 20th century large numbers of people started to move to industrial cities. After the Civil War and the emancipation of slaves, the blues spread, together with the people who sang and played it. Many former slaves moved from the cotton fields of the southern states to northern cities such as Chicago and Detroit, where the blues became hugely popular.

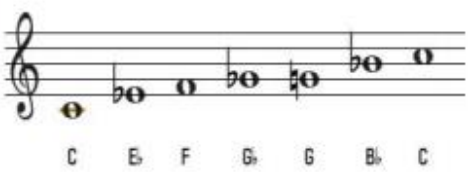
KEYWORDS	
1-12-bar Blues – A chord structure of 12-bars using chords I, IV and V.	**7- Syncopation –** playing on/stressing the weak beat to add energy
2- Chord – 2 or more notes played simultaneously.	**8- Off-beat –** playing on the unaccented notes in a bar—usually beats 2 & 4
3- Walking Bassline – a bassline that moves by step and goes up and down the scale	**9- Introduction** – the first section of a piece before the verse starts.
4- Swung rhythm – a rhythm that divides a beat into 3 (a bit like coconuts to sound like horses hooves)	**10- Coda** – the ending section of a piece.
5- Blues Scale – a scale with a flattened 3rd, 5th and 7th.	**11- Vamp** – a repeated, improvised accompaniment based around the chords.
6- Improvisation – making something up on the spot, within a given structure.	**12- Guitar TAB** –musical notation indicating fingering rather than musical pitches.

The Blues

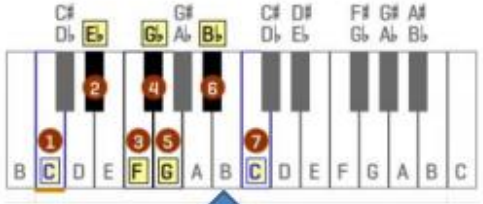
12 Bar Blues Chord Progression

C (x4)	C (x4)	C (x4)	C (x4)
F (x4)	F (x4)	C (x4)	C (x4)
G (x4)	F (x4)	C (x4)	C (x4)

C blues scale

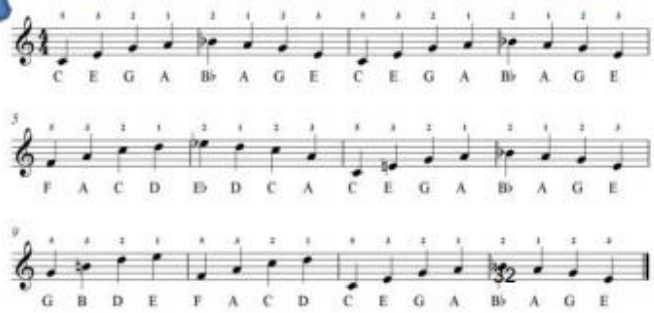


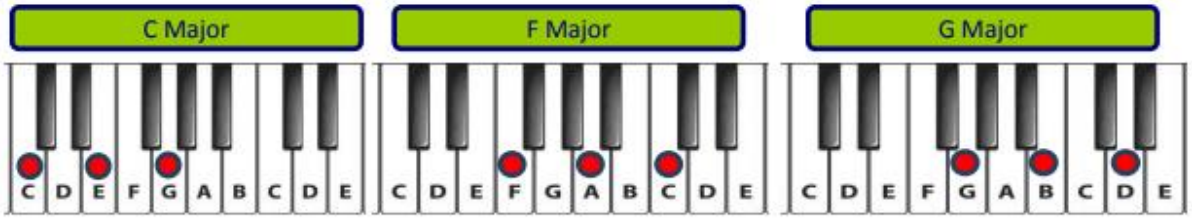
C blues scale



Blues Scale

Walking Bassline

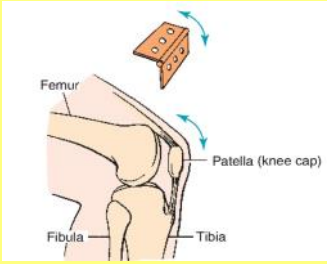




PE

Types of joint

Hinge



Flexion - ”bending” e.g. a bicep curl-decreasing the angle at a joint.

Extension - ”straightening” e.g. a cricket bowl– increasing the angle at a joint.

Ball & Socket

Flexion— a forwards movement e.g. kicking a football

Extension—a backwards movement e.g. butterfly arms

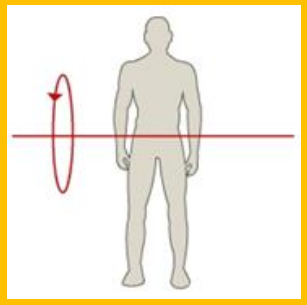
Rotation— a pivot movement e.g. Top spin shot

Abduction— movement “sideways” away from midline of the body e.g. GK dive

Adduction— movement “sideways” towards midline of the body e.g. star jump

Circumduction— a circular movement e.g. cricket bowl

Axes of movement

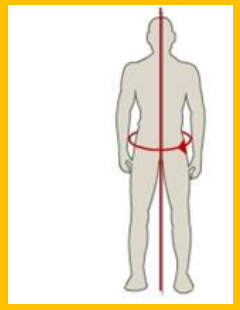


Transverse axis

A horizontal axis from side to side.

Flexion & extension movements.

E.g. forward roll, somersault, chest pass

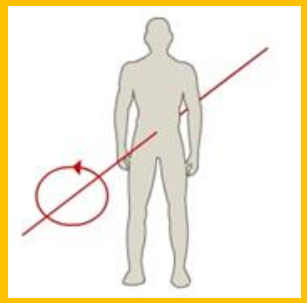


Longitudinal axis

A vertical axis

Rotation movements

E.g. a full twist, turning around a corner in rounders



Frontal axis

A horizontal axis from front to back.

Adduction & abduction movements.

E.g. a cartwheel, star jump, signalling in netball

JUDAISM KNOWLEDGE ORGANISER

REP

Jewish Beliefs

The Four Stages of Life

-Jews believe in four important stages of life, and mark each with a religious ceremony.
-The four are: birth, becoming an adult, marriage and death.

-When Jewish boys (aged 13) and Jewish girls (aged 12) become Jewish adults, they have a bar mitzvah (for boys) or bat mitzvah (for girls) ceremony. At these ages, Jewish religion, law and social life judges that the boys and girls become responsible for their own actions. The ceremony is usually held on the first Shabbat (Jewish day of rest) after their birthday. In a bar mitzvah ceremony, a boy must read passages from the Torah.

The Story of Abraham

-Abraham is an important figure in Judaism, Christianity and Islam. His story is told in the Genesis section of the Bible.

-According to the story, Abraham made an agreement with God, in which he promised to be faithful and to teach his laws to the world. In return God gave Abraham and his descendants the land of Israel. Even though Abraham was 99, and his wife Sarah 90, God enabled them to have a son, Isaac, forming the first Jewish family.

Ceremonies and Festivals

- Jews enjoy many ceremonies and festivals as a part of their religion.

-Passover takes place in March or April, and is when Jewish people remember how God brought them out of Egypt (the Exodus). A special meal is created to remind the Jews of the good and bad times in the past. It includes hard boiled egg, parsley, boiled potato, lettuce, horseradish, chopped apples and walnuts.

-Hannukah takes place in December and is known as 'the Jewish festival of lights.' People light candles, exchange presents, and eat foods such as latkes (potato pancakes) and sufganiot (jam doughnuts).

Judaism Timeline

- 1713 BCE: Abraham forms the first covenant with God.
- 1250 BCE: The Exodus – people of Israel freed from Egypt.
- 993 BCE: King David establishes a capital city in Jerusalem.
- 970 BCE: King Solomon constructs the First Temple.
- 66 CE: The Jews revolt against Roman rulers.
- 70 CE: The Second Temple in Rome is destroyed, and many Jews are forced to leave
- 1930s-1945: 6 million Jews are killed by the Nazi German regime in the Holocaust in Europe.
- 1948: The modern state of Israel is established. Its capital is Jerusalem.

JUDAISM KNOWLEDGE ORGANISER

REP

Where and how do Jews worship? Why?	 	-Synagogues are where Jewish people go to worship. -In Orthodox synagogues, men and women sit separately. In progressive synagogues, men and women can sit together and worship. -Synagogues have large rooms for prayers, and normally smaller rooms for studying. -The front of a synagogue faces towards Jerusalem. -There is always a raised platform called a Bimah.
What is the Torah?		-The Torah Is the Jewish holy book. -They are written in Hebrew on rolls of parchment. The scrolls are never touched when they are read from – readers use a pointer called a yad.
Where do most Jews live in the world?		-There are around 14.6 million Jews in the world. -Two countries – the United States and Israel - have 81% of the world's total Jewish population. -Some of the other countries with substantial Jewish populations include France, Canada, Russia, the United Kingdom, Argentina and Germany. -There were 17 million Jews in 1939, but this was reduced to 11 million by 1945 due to the Holocaust.
How many different types of Jews are there?		-There are many different branches of Judaism. -Some Jews still follow all of Judaism's original laws and customs – these are called Orthodox Jews. -Jews who do not follow all of these traditions are called Progressive Jews. Progressive Jews are happy to be flexible with certain Jewish laws, in order to fit in with their modern, everyday lives.

Key Vocabulary

Judaism

Jew

Torah

Synagogue

Abraham

Passover

Hanukkah

Bar Mitzvah

Bat Mitzvah

Middle East

Exodus

Jerusalem

Yad

JUDAISM KNOWLEDGE ORGANISER

REP

Overview

Judaism is one of the world's major religions. It is the **world's 10th largest religion**, with about 14.6 million followers. It is around 4,000 years old.

Jews are the people who follow Judaism. Like Christians and Muslims, Jews believe that there is only one God, who created the world and everything in it.

Abraham is seen as the father of the Jewish religion. Jews believe that Judaism began when he started worshipping one God instead of many.

Judaism began in the **Middle East** – but there are now Jewish people all across the world.

The main holy book of Judaism is the **Torah**, written in **Hebrew**. **Synagogues** are Jewish worship buildings.

Image of the Great Synagogue of Florence, in Italy, Europe.

Top 10 Facts!

1. Jews believe in one God, that is a spirit and has no physical form.
2. A kippah is the clothing item that many Jewish men wear on their head.
3. Praying is very important in Judaism – there are prayers for every occasion.
4. Jesus was born into the Jewish religion, but began preaching his own ideas.
5. Many Jewish homes have a family box, and give to those in need.
6. Strict Jews are not allowed to travel or watch TV on the day of Shabbat!
7. Jewish New Year takes place in September/ October time, and is called Rosh Hashanah.
8. Jews fast for 25 hours and pray during Yom Kippur.
9. Anne Frank was a famous Jewish girl, who was killed in the Holocaust.
10. The Anne Frank House and Secret Annex, in Amsterdam, Netherlands, remains one of Europe's busiest tourist attractions.

Bottisham Village College

KNOWLEDGE ORGANISER

YEAR 8 SCIENCE TERM 2

- CHEMICAL CHANGES
- FORCES
- ECOLOGY
- CHEMISTRY OF THE ATMOSPHERE AND USING RESOURCES

Chemical Changes Year 8

A. Keywords.

Atom	The smallest part of an element that can exist.
Bond	The link between two atoms that joins they together
Chemical Reaction	A change in which a new substance is formed. In a chemical reaction the atoms are rearranged and joined together differently.
Conservation of Mass	During a chemical reaction matter is neither created no destroyed. The mass of the reactants is equal to the mass of the products
Salt	A compound that is formed when the hydrogen atoms of an acid are replaced by atoms of a metal element.
Acid	A substance that has a pH lower than 7. All acids contain hydrogen.
Base	A substance that reacts with an acid to neutralise it and produce a salt. It has a pH more than 7.
Alkali	A base which is soluble in water. It has a pH more than 7.
Neutralisation	The reaction between and acid and a base to form a salt and water
Metal Oxide	Is a type of base, it is a compound made up of a metal and oxygen. They are insoluble.
Metal Hydroxide	Is a type of base, it is a compound made up of a metal, oxygen and hydrogen. Some of them dissolve in water to form an alkali.
Metal Carbonate	Is a type of base, it is a compound made up of a metal, carbon and oxygen. They are usually insoluble.
Electrolysis	Using electricity to split a compound into its elements

B. Conservation of Mass

Reactants → Products

- In a chemical reaction bonds between atoms are broken and the atoms rearranged and bonded to form new products.
- In a chemical reaction atoms are not created or destroyed, there will always be the same number in the reactants as there are in the products.

C. Making Salts

There are four reactions that form salts:

Acid + Alkali → Salt + Water

Acid + Metal → Salt + Hydrogen

Acid + Metal Oxide → Salt + Water

Acid + Metal Carbonate → Salt + Water + Carbon Dioxide

The name of the salt will always be two words, the first will be a metal, the second will be made of non-metals.

The name of the salt can be worked out by:

- Taking the name of the metal in the alkali
- Taking part of the name of the acid
  - ◊ Hydrochloric acid forms 'chlorides'
  - ◊ Sulfuric acid forms 'sulfates'
  - ◊ Nitric acid forms 'nitrates'

E.g. Sulfuric Acid + Sodium Hydroxide will form a salt called Sodium Sulfate.

D. Testing for Gases

Gas	Method	Positive result
Oxygen	Glowing splint	Splint relights
Hydrogen	Lit splint	Squeaky pop
Carbon Dioxide	Limewater	Limewater turns cloudy

E. Extracting Metals

Displacement reactions

Metals can be placed in order of reactivity. This can be used to predict if a displacement reaction will take place.

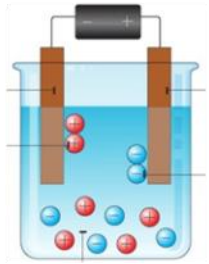
A displacement reaction takes place when a solution of a **less reactive** metal compound is mixed with a **more reactive** solid metal. The metals will 'swap' places.

Extraction with carbon

If a **less reactive** solid metal oxide is reacted with carbon the carbon will bond to the oxygen instead of the metal. This leaves the solid metal behind.

Electrolysis

If a metal is very reactive electrolysis is used to extract the metal. This is where an electrical current is used to split the metal from the non-metals.



Forces Year 8

A. Key words.

Acceleration	How quickly speed increases
Deceleration	How quickly your speed decreases
Air Resistance	The frictional force caused by air on a moving object
Pressure	The force per unit area exerted on a surface. Unit is Pa
Speed	How much distance is covered in a given time.
Linear graph	Straight line graph
Mass	The amount of stuff in an object. Measured using a balance in Kg
Friction	Contact force that opposes motion.
Drag	The frictional force caused by any fluid (a liquid or gas) on a moving object
Fluid	Materials where particles are able to move freely (liquids and gases)

B. Equations

Speed (m/s) = Distance (m) ÷ time (s)

Force (N) = mass (Kg) x acceleration (N/Kg)

F = m x a

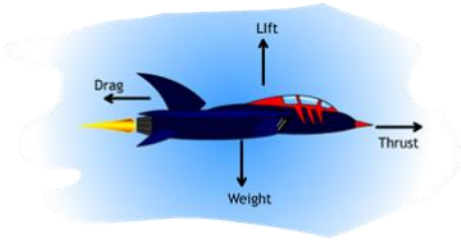
Pressure (Pa) = Force (N) ÷ Area (m^2)

C. Speed, Friction and Drag

Speed is how much distance an object covers in a given time. The faster the object is moving the more distance it will cover in a given time.

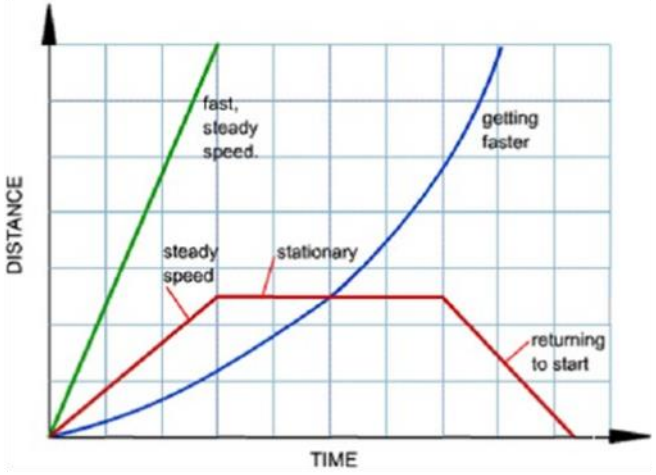
When an object is pulled across a surface a frictional force works in the opposite direction slowing the object down.

Drag is another example of a frictional force, this time when a fluid slows down an object.

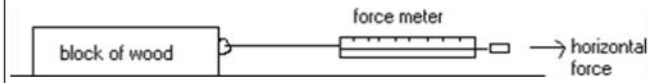


D. Distance - Time Graph

- A flat horizontal line shows a stationary object.
- A sloped straight line shows an object moving at a steady speed.
- A curved line shows an object changing speed.



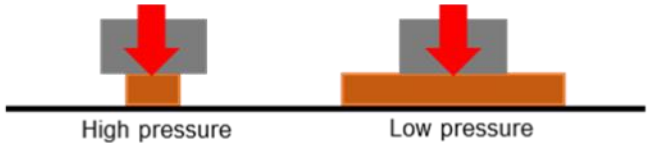
E. Working Scientifically



Different surfaces will produce different amounts of friction depending upon how rough they are.
A rough surface will have more friction than a smooth surface.
Friction can be investigated by pulling an object along a surface using a newton meter. The amount of friction between the surfaces is equal to the reading on the newton meter just as the material starts to move.

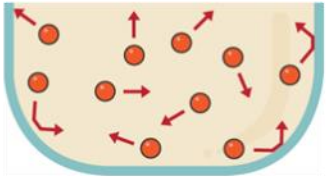
F. Pressure

A smaller area will create a greater pressure with the same force acting on it.



Gas molecules colliding with a surface create pressure.
The pressure of a gas can be increased by:

- Increasing the temperature
- Reducing the volume
- Adding more gas particles



Atmospheric pressure is lower at a higher altitude because there are fewer air particles (and so less weight) above a surface.

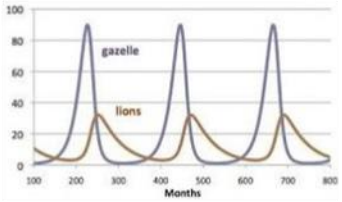
Ecology Year 8

A. Key words.

Producer	An organism that makes it's own food, Plants.
Predator	An animal that *eats* other animals.
Prey	An animal that *gets eaten* by other animals.
Consumer	Eats something else
Herbivore	Eats only plants
Carnivore	Eats only meat
Omnivore	Eats both plants and meat
Interdependence	Organisms relying on each other to survive, grow and reproduce
Pollination	When the male gamete (pollen) is transferred to the female part of a flower
Dispersal	Spread out, e.g. seeds spreading to stop plant crowding
Adaptation	Change to suit the environment
Bioaccumulation	The build-up of toxic chemicals inside organisms in a food chain

B. Working Scientifically

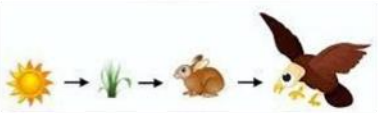
Graphs are an effective way of showing interdependence, for example a predator-prey graph.



Describing a graph means saying how the pattern changes.
Explaining a graph means giving reasons why the pattern changes using scientific knowledge.
Herbivore populations increase because there is food available and not many predators. This means the carnivore population increases because they is plenty of prey for them to eat. After a while the prey population decreases because there are too many predators. This then causes the predator population to then decrease because there is not enough prey to eat.

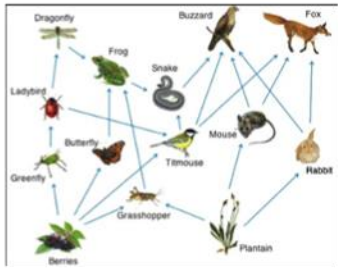
C. Food Chains + Webs

Food chains are one pathway for energy to flow. The arrow shows the direction of the energy.



Energy for a food chain comes from the sun because it enables plants to photosynthesise.

Food webs show more links between the food chains as animals often eat more than one food.



Food webs allow use to suggest the impact of changing population number of one species on the populations of other species.
Human activities can also cause changes to food chains and webs; for example bioaccumulation.

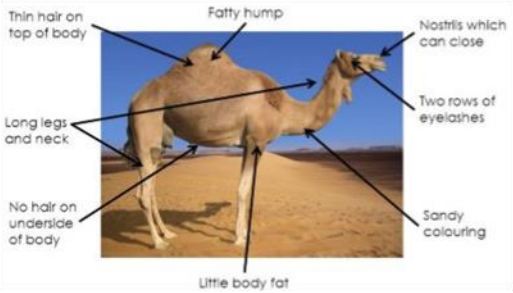
D. Interdependence

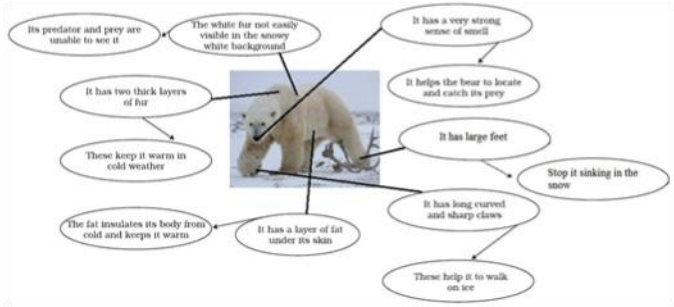
Interdependence is where organisms rely on each other to survive, grow and reproduce. This can be shown on predator-prey graphs, where patterns in population numbers can be observed.

Examples of interdependence include:

- Predator-prey cycles, where one organism relies on another as a food source.
- Mutual relationships where both organisms benefit. For example birds eating the mites from the fur of the deer.
- Competition where more than one organisms needs the same resource. Animals compete for food, water, mates and habitat/space. Plants compete for sunlight, minerals in the soil, water and space to grow.

E. Adaptations to hot and cold climates





Chemistry of the Atmosphere and Using Resources Year 8

A. Keywords

Atmosphere	The layer of gas above the surface of Earth.
Mixture	Two or more substances together that are not chemically bonded to each other.
Temperature	A measure of the amount of thermal energy.
Fossil Fuel	Coal, oil or gas. Chemicals humans obtain from rocks and burn to release energy.
Climate Change	A long-term change in weather patterns.
Distilling/ distillation	The process of separating a mixture of liquids by heating so it evaporates, then cooling it to condense it.
Respiration	A chemical reaction in the cells of living things that combines glucose with oxygen to release energy.
Combustion	A chemical reaction when a fuel is burned in oxygen to release energy.
Photosynthesis	A chemical reaction in the cells of plants, combining carbon dioxide and water to make glucose and oxygen.
Groundwater	Water that has filtered through rocks and soil and is found below earths surface.

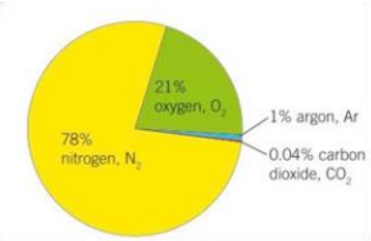
B. Climate Change

The effects of climate change may be:

- Change in weather patterns.
- More extreme weather (floods, drought, storms).
- Melting glaciers and polar ice caps.
- Sea level rise.
- Extinction of plants and animals and food shortages.

C. Global Warming

Earth's atmosphere is a mixture of many gases, but mainly Nitrogen and Oxygen with smaller amounts of Argon and Carbon Dioxide.

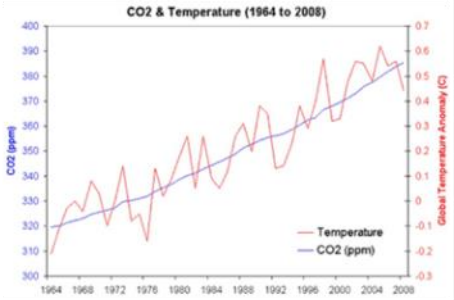


The **greenhouse effect** keeps earth warm.

D. Working Scientifically

Average global temperatures have been increasing since the 1960s.

Scientists have collected data that shows carbon dioxide levels in the atmosphere increasing at the same time.



E. Carbon Cycle

Carbon exists in the atmosphere as carbon dioxide, but can also be stored in a range of carbon sinks.

Respiration: Glucose + Oxygen → Carbon + Water Dioxide

Combustion: Methane + Oxygen → Carbon + Water Dioxide

Photosynthesis: Carbon + Water Dioxide → Glucose + Oxygen

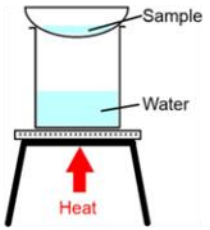
Respiration and combustion (of fossil fuels) add carbon dioxide to the atmosphere. Photosynthesis removes carbon, along with it dissolving in the oceans.

F. Potable Water

Potable water is safe to drink, but it may have low levels of salts or microbes in it. Pure water is only water (H_2O) molecules.

Potable water comes from filtering and sterilising river or groundwater.

Another method of producing potable water is to distil seawater. This involves evaporating the water and then condensing away from the salt.



G. Recycling

Recycling is when materials that have been used are collected and processed so they can be used again. Paper, plastic bottles and aluminium cans are examples of materials that can be recycled.

Advantages	Disadvantages
Resources will last longer.	Some people do not want to recycle and find it a nuisance.
Less energy is used to recycle than make something from new.	The lorries that collect recycling use fuel and create pollution.
Waste and pollution are reduced.	