Knowledge

is power

In PSHEE you will learn about "What makes a good team and how do I contribute?" It is important that we learn how we work effectively with others. You will be taught that having emotions is right and proper. You will begin to understand how we learn to manage our moods so we can be a part of a team and live happily within our British Society. Some students may explore how different people in different societies manage their emotions.
It will be really good if you talk with your parents, grandparents and other key adults in your life about this.

1

Methods of Recording

Observational drawing	Drawing from looking at images or objects
First hand observation	Drawing directly from looking at objects in front of you
Second hand observation	Drawing from looking at images of objects
Photographs	Using a camera or smartphone to record images will class as first hand observation
Sketches	Basic sketches and doodles can act as a starting point for development

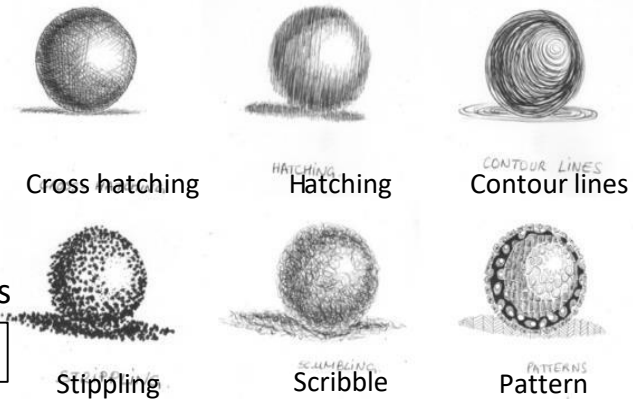
Stages of Drawing

Basic shapes → Accurate shapes → Detail → Shade

2

Tonal shade
Produce a range of tones by varying the pressure and layering consider using softer pencils for darker shades

Alternative shade techniques



3

Annotation

Describes writing notes, using images and explaining your thoughts to show the development of your work.

Step 1 Describe
What is this an image of?
What have you done here?
What was this stage of the project for?

Step 2 Explain
How was this work made?
How did you produce particular effects? How did you decide on the composition?

Step 3 Reflect
Why did you use these specific methods? Why do particular parts work better than others?
Why might you do things differently next time?

Art Key Stage 3

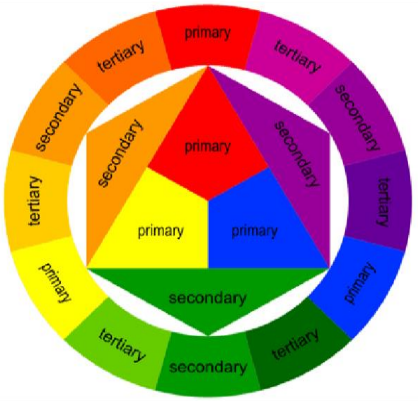
1- Formal elements are taught e.g. how to sketch and use tone to create a 3D effect. You will explore the colour wheel and how to use the basic materials in Art.
2-"The Greenman" – This project introduces you to facial proportions and how to blend oil pastels effectively. We also learn about clay and create small 3D Greenman faces. Examples of world renowned pieces of art are discussed.
3-"Perspective Landscapes"- This project introduces students to the concept of perspective and distance in Art. You learn about the technique of one-point perspective to create a feeling of depth in a landscape.

1

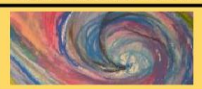
Media	The substance that an artist use to make art
Materials	The same as media but can also refer to the basis of the art work eg, canvas, paper, clay
Techniques	The method used to complete the art work, can be generic such as painting or more focus such as blending
Processes	The method used to create artwork that usually follows a range of steps rather than just one skill

3

Colour Theory	
Primary= RED, YELLOW, BLUE	Complimentary; Colours opposite on the colour wheel
Secondary= Primary+Primary	Harmonious; Colours next to each other on the wheel
Tertiary= Secondary+Primary	Monochromatic; shades, tones & tints of one colour
Shades – add black	Hue – the pigment
Tint – add white	Warm; RED, ORANGE YELLOW. Cold; BLUE, GREEN, PURPLE



2

Pencil		The basic tool for drawing, can be used for linear work or for shading
Biro		Drawings can be completed in biro and shaded using hatching or cross hatching
Pastel (chalk/oil)		Oil and chalk pastels can be used to blend colours smoothly, chalk pastels give a lighter effect
Coloured pencil		Coloured pencil can be layered to blend colours, some are water soluble
Acrylic paint		A thick heavy paint that can be used smoothly or to create texture
Watercolour		A solid or liquid paint that is to be used watered down and layered
Gouache		A pure pigment paint that can be used like watercolours or more thickly for an opaque effect
Pressprint		A polystyrene sheet that can be drawn into to print white lines – can be used as more than 1 layer
Monoprint		Where ink is transferred onto paper by drawing over a prepared surface
Collograph		A printing plate constructed of collaged materials
Card construction		Sculptures created by building up layers of card or fitting together
Wire		Thick or thin wire manipulated to create 2d or 3d forms
Clay		A soft substance used for sculpting, when fired can be glazed to create shiny colourful surfaces
Batik		A fabric technique using hot wax to resist coloured inks
Silk painting		Fabric inks painted onto silk, Gutta can be used as an outliner to prevent colours mixing

Art Key Stage 3

1

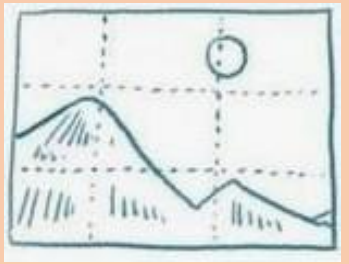
Formal Elements of Art

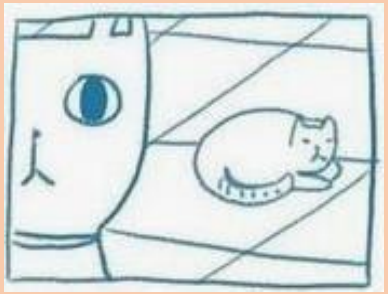
LINE	the path left by a moving point, e.g. a pencil or a brush dipped in paint. It can take many forms. e.g. horizontal, diagonal or curved.
TONE	means the lightness or darkness of something. This could be a shade or how dark or light a colour appears
TEXTURE	the surface quality of something, the way something feels or looks like it feels. There are two types : Actual and Visual
SHAPE	an area enclosed by a line. It could be just an outline or it could be shaded in.
PATTERN	a design that is created by repeating lines, shapes, tones or colours. can be manmade, like a design on fabric, or natural, such as the markings on animal fur.
COLOUR	There are 2 types including Primary and Secondary . By mixing any two Primary together we get a Secondary

2

Composition Layouts

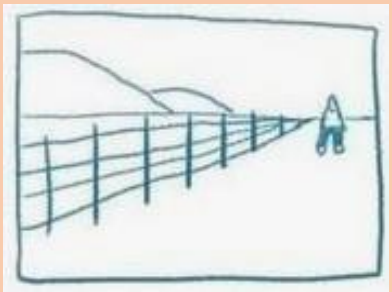
Rule of thirds – Place focal objects at 1/3 or 2/3 of the image horizontally or vertically. Not in the middle





Balance elements. If there is an emphasis on one side balance it out with smaller objects on the other

Simplify and fill. Enlarge or crop the image to fill the space



Use lines. Lines will draw the viewer in, they don't have to be straight, consider S or C

3

A Rough	A Visual/ Maquette	Final Piece
A basic sketch of a final idea	A small image or model created in selected materials	An image or sculpture pulling all preparatory work together

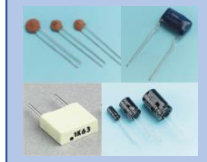
Art Key Stage 3

Year 7 Electronics and Graphic design, making a speaker and packaging

Electronics

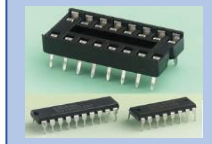
Basic electronics comprises the minimal "electronics components" that make up a part of everyday electronics equipment. These electronic components include resistors, transistors, capacitors, diodes, inductors and transformers. Powered by a battery, they are designed to work under certain physics laws and principles

Basic components and their function



A capacitor is a component that can store electrical charge (electricity). In many ways it is like a rechargeable battery. A good way to imagine a capacitor is as a bucket, where the size of base of the bucket is equivalent to the capacitance (C) of the capacitor and the height of the bucket is equal to its voltage rating (V). The amount the bucket can hold is equal to the size of its base multiplied by its height, as shown by the shaded area.

A resistor is a device that opposes (or limits) the flow of electrical current in a circuit. The bigger the value of a resistor the more it opposes (or resists) the current flow.

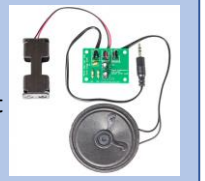


Integrated Circuit The top picture is an IC holder placed into the PCB, below are ICs. The notch on the holder should line up with the notch on the PCB

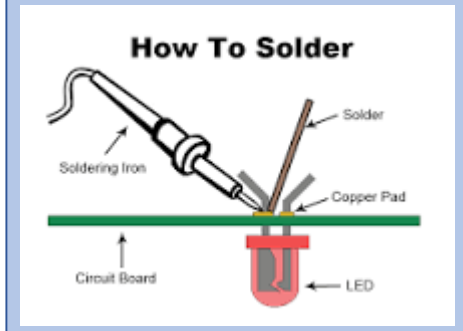
Printed circuit board (PCB). Components are soldered onto this and joined by a copper strip

Batteries provide power to the circuit

Finished soldered circuit



Soldering



Soldering is a process in which two or more metal items are joined together by melting and then flowing a filler metal into the joint—the filler metal having a relatively low melting point. Soldering is used to form a permanent connection between electronic components

Tools to solder successfully

Soldering iron: Heats solder to attach components to PCB

Wire strippers: Strips the plastic coating from electrical wire to make soldering easier

Solder: lead substitute, when melted acts like glue to join components to the PCB

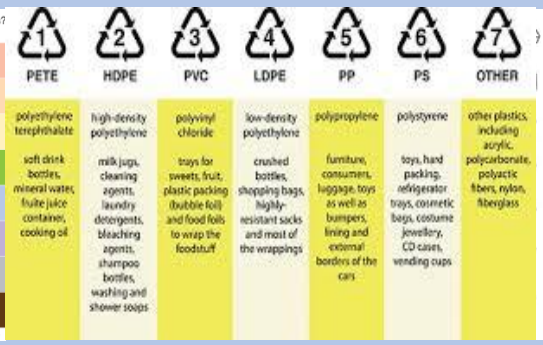
Graphic design

Could you imagine a world without pictures to help you visualise products you are purchasing? A good company utilises pictures and text to help capture the attention of its audience. Graphic design is a combination of visual images and text to communicate to an audience.

Design and make new packaging for a specified target audience.

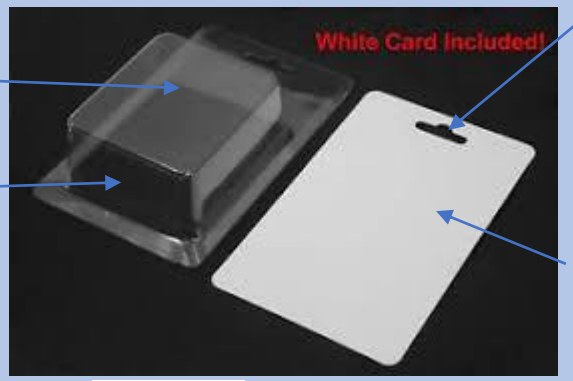
Colour theory

Plastic classification



Graphical Symbols

Blister style packaging



Vacuum formed plastic

A vacuum is applied sucking the sheet into the mould. The sheet is then ejected from the mould.

HIPS plastic

High Impact Polystyrene, it is a tough, rigid plastic material with high impact strength which can be guillotined, punched, routered or sawn easily, and is readily available in a wide variety of colours

Euroslot

A Euro slot is a flap for a product so it can be hung up

Cardboard

Cardboard is thick , stiff paper that is used, for example , to make boxes and models. It is made from paper pulp.

CE stands for Conformité Européenne, which is French for "Conformity." A product in one of the controlled product categories cannot legally be sold in the EU unless it has passed the tests to receive the CE marking.

CAD

2D Design and Solid Edge (3D) are used in the Academy. CAD (computer-aided design) software is used by architects, engineers, drafters, artists, and others to create precision drawings or technical illustrations. CAD software can be used to create two-dimensional (2-D) drawings or three-dimensional (3-D) models.

Health and Safety

Micro-organisms

Micro-organisms are tiny forms of life. They can only be seen under a microscope and are sometimes called microbes.
They spoil food and make it unsafe to eat because they contaminate it with their waste products, their physical presence and the toxins they produce.

What micro-organisms can spoil food and make it unsafe to eat?

There are three groups of micro-organisms that you need to know about that spoil food and cause food poisoning. These are..

- Bacteria
- Moulds
- Yeasts

Micro organisms need 5 conditions to grow and multiply:

1. A warm temperature
2. Plenty of moisture (water)
3. Plenty of food
4. The right PH level (not too acidic or alkaline
5. Enough time (bacteria split every 10-20 minutes)

High risk foods

- High risk food have ideal conditions for bacteria
- High risk foods are ready to eat foods that could grow harmful bacteria
- They are moist and high in protein which is food for bacteria.
- High risk foods have a short shelf life – you can't keep them for long or the bacteria might multiply to dangerous levels.

Examples of high risk foods:

Cooked meat, fish and poultry, dairy products (eggs, cheese etc.), gravies, stocks and sauces, shellfish, cooked rice.

Example exam questions:

What five conditions to bacteria need to grow and multiply? (5 marks)
What is a high risk food? (5 marks)

Storing food safely

Cooking (75°C)	The danger zone (5°C-63°C)
• Cooking food above 75°C kills bacteria • Re-heat food properly, only once. Reheat food so 75°C for at least 3 minutes • Check the food is 75°C with a temperature probe	• Bacteria can grow and multiply quickly between 5°C to 63°C. • This is called the danger zone • The optimum temperature for bacterial growth is 37°C
Chilling (0°C – 5°C)	**Freezing (-18°C)**
• Keeping food between 0°C and 5°C slows down the growth of bacteria • This extends the shelf life of food • Chilling food doesn't change the properties much – food looks and tastes the same	• Freezing food below -18°C stops bacteria growing – they become dormant • Freezing generally extends shelf life and the nutrients aren't lost • It doesn't kill the bacteria though. They become active again once the food defrosts.

Preparing self for cooking

- Tie hair back to prevent hair and dandruff falling in food
- Take off coats and blazers
- Wear an apron to prevent bacteria transferring from our clothes to our food
- Wash hands with hot soapy water to kill bacteria

Preparing the room for cooking

- Sanitise all work surfaces
- Check equipment is clean and dry
- Tuck all stools in as they can be a trip hazard
- Put all high risk foods in the fridge to slow bacteria growth

Wash your hands after:

- Coughing
- Sneezing
- Tying shoe laces
- Going to the toilet
- Touching hair or face

Nutrition

Nutrients

Macro nutrients – Needed in large quantities in the diet
1. Protein
2. Fats
3. Carbohydrates

Micro nutrients – needed in small quantities in the diet
1. Vitamins
2. Minerals

Dietary related health problems

Too much sugar can cause:
1. Weight gain (which can lead to obesity)
2. Tooth decay
3. Diabetes (your body cannot produce enough/any insulin to regulate your blood sugar levels)

Too much salt can cause:
1. High blood pressure (this can increase your risk of heart disease and a stroke).

Too much saturated fat can cause:
1. Weight gain (which can lead to obesity)
2. High cholesterol (this narrows arteries making it harder for the blood to travel around, putting you at risk of heart disease).

Example exam questions:

Explain three causes of obesity (3 marks)
What is the function of sugary and starchy carbohydrates (2 marks)
Why is protein especially important for children? (2 marks)
What are the functions of fat? (3 marks)
List 5 food sources of plant based protein (5 marks)

Protein

Food sources

Animal –beef, pork, lamb, poultry (chicken, turkey, duck), fish, cheese, butter milk
Plant – beans, chickpeas, lentils, peas, nuts, seeds, found in smaller amounts in some vegetables such as spinach and broccoli.

Function

Grown and repair of muscles and cells

Carbohydrates

There are two types of carbohydrates, complex and simple. They are also known as starchy (complex) and sugary (simple).

Food sources

Starchy – bread, rice, pasta, potatoes, bagels, oats, flour, cereal and some vegetables.
Simple – fruit, some vegetables, chocolate, sweets, biscuits, cakes

Function

Starchy/complex carbohydrates are digested slowly and provide long term energy.
Sugary/simple carbohydrates are digested slowly and provide short term energy

Fat

There are two types of fat, saturated and non saturated.
Saturated fats are classed as 'unhealthy fats', they are solid at room temperature and are generally animal based.
Unsaturated fats are classed as 'healthier fats' and are liquid or soft at room temperature and come from plant based sources.

Food sources

Animal –beef, chicken skin, processed meat (sausages, salami, pepperoni), bacon, butter, cheese, full fat milk
Plant – vegetable oils (sunflower, olive, rapeseed), avocado, nuts, seeds

Function

Keeps us warm (provides insulation), secondary source of energy, protects vital organs and bones.

The Eatwell guide

The Eatwell guide

The Eatwell guide is a government guide designed to show you the proportions of different foods groups you should eat over a day or more.

Tips on making healthy choices from the eatwell guide:

Fruit and vegetables: eat 5 portions of fruit and vegetables a day, this should make up 1/3 of your plate a day, fresh, canned dried and fruit juice/smoothies all count, don't exceed 150ml of fruit juice/smoothie a day as it can cause tooth decay, try snacking on fruit over high sugar and fat foods,

Potatoes, bread, rice, pasta and other starchy carbohydrates: choose non-sugary cereals, leave the skin on potatoes, choose wholemeal options of foods such as bread, rice and pasta.

Oils and spreads: choose unsaturated fats such as vegetable oils and margarine over butter, use in small amounts.

Dairy and alternatives: choose lower fat options such as skimmed milk and low fat and salt cheese, choose low sugar yogurts and add fruit as a natural sweetener.

Beans, pulses, fish, eggs, meat and other proteins: eat more beans and pulses as they are high in fibre and fill you up for longer, cut the visible fat off meat, choose lower fat meat options, eat 2 portions of fish a week.

Water: drink 2-3 litres of water a day, choose lower sugar option drinks.

Example exam questions:

How can I make healthy choices when choosing foods from the 'beans, pulses, fish, eggs meat and other proteins' section of the guide? (3 marks)

How much of my plate should be made up of fruit and vegetables per day? (1 mark)

How many grams of saturated fat is it recommended not to exceed per day? (1 mark)

Why is recommended not to exceed 6g of salt per day? (2 marks)

How can someone use the traffic light system to help them make healthy choices? (6 marks)

Health and Safety Example exam questions:

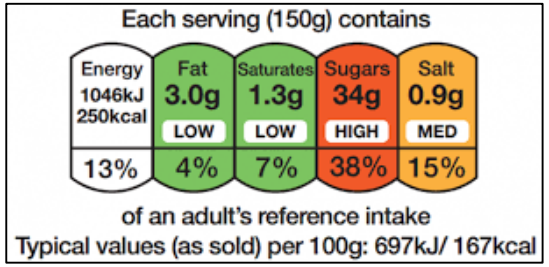
What five conditions to bacteria need to grow and multiply? (5 marks)

What is a high risk food? (5 marks)

Reference intake

You'll see reference intakes referred to on food labels. They show you the maximum amount of calories and nutrients you should eat in a day. Most packaging has a colour coded label on the front to help you make healthy choices.

Reference in take amounts:
Kcal (calories) – 2000
Total Fat -70g
Saturated fat – 20g
Sugar – 90g
Salt – less that 6g



Red means HIGH in that nutrient
Amber means MEDIUM in that nutrient
Green means LOW in that nutrient

Reference intakes are not meant to be targets. They just give you a rough idea of how much energy you should be eating each day, and how much fat, sugar, salt and so on.

The percentages represent how much of your reference intake is in the product, e.g. the product has 3.0g of FAT in it, that is 4% of 70g of fat.

Textiles – Equipment and Fabric

What is Textiles and what is a Textile Designer?

- A textile is a type of woven cloth.
- A textile designer comes up with innovative ideas, **designs** and prints for a variety of fabrics, clothing and non-clothing materials, furnishing materials, industrial fabrics and other related materials, using both natural and manmade fibres.

Tools and equipment

Embroidery Scissors
Used to cut off loose threads when sewing

Embroidery thread
Thick, colourful thread using for decoration in hand embroidery

Embroidery needle
Needle with a large eye so the thread ca fit through. Used to sew decoration onto fabric.

Embroidery hoop
Used to keep fabric taught (tight) so that it doesn't crease or bunch when sewing

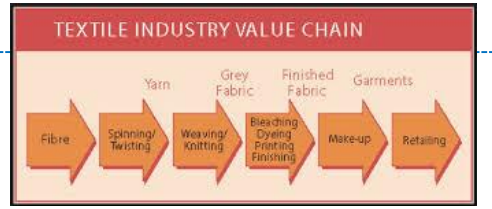
Un-picker
Used to cut through stitches and thread. Usually used to amend mistakes.

Sewing machine
Used to join fabric together, construct garments and textiles and also for decoration.

Example exam questions:

Give an example of a synthetic material. (1 mark)
Explain the term 'textile design'. (2 marks)
What is an un-picker used for?. (1 mark)
Name one different between a sewing needle and an embroidery needle. (1 mark)

Fabrics



Natural Fabrics

Cotton – produced from a cotton ball. Cotton is a soft breathable fabric used to make many fabrics for many uses. Can hold strong, bright colours when dyed.

Linen – produced from the flax plant. Linen is a strong, absorbent fabric and dries quickly.

Wool – produced commonly from sheep but also other animals such as goats and rabbits. Wool is insulating and water resistant.

Silk – the silk work produces a silk cocoon which is processed into silk. Silk is light and comfortable, has good insulating properties (warm in winter, cool in summer) and is strong.

Synthetic fabrics

Polyester – manmade from coal, water and petroleum. Polyester resilient fabric and can with stand a lot of wear an tear, holds dye well.

Nylon – manmade from petroleum, gas, coal and other materials. Nylon is a silky, strong and elasticated fabric.

Regenerated Fibre - Viscose is known as a regenerated fibre as it is made from cellulose found in wood pulp. It is often regarded as only partially man-made. It's a light, airy, breathable and biodegradable.

Bonded fabrics - Blended fabrics are created when two or more different kinds of fibres are mixed together to create a new fabric with unique properties e.g. polycotton.

Textiles – Decorative techniques

Applique

Applique is attaching shapes and patterns of fabric onto a larger piece of fabric to form a picture or pattern. Is it commonly used as decoration. The fabric can be attached by bondaweb or sewed using a machine or by hand.

Materials Required

Bondaweb, a variety of fabrics, tracing paper (if required and an iron.

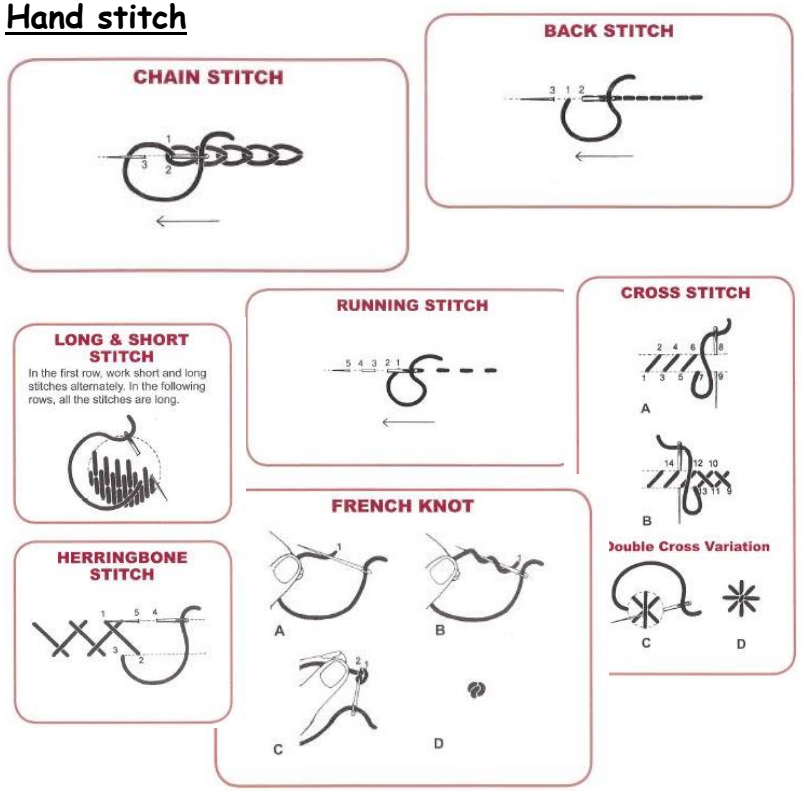
How to do Applique

- Draw a simple design
- Trace the design onto the Bondaweb - on the smooth side
- When using letters or words, you must do a mirror image using tracing paper
- Label each colour that you want to use on your design
- Select each colour fabric from the scrap fabric draws
- Cut roughly each section of the Bondaweb – this will be ironed onto each colour
- Iron onto the coloured fabric that you have selected – place the Bondaweb and the fabric in between two pieces of paper in case the design signs to the iron or the ironing board
- Cut out each shape
- Collect a larger swatch to put your applique onto
- Return to the iron, with your swatch and sections of your design
- Peel back the paper from your cut out design and lay onto the larger swatch
- Make sure that the applique is the correct way – place the design between two pieces of paper in case the design sticks to the iron or the ironing board
- Iron onto the larger swatch

Example exam questions:

Explain how to complete an applique sample when using Bondaweb (8 marks)
List 3 piece of equipment needed when completing hand embroidery. (3 marks)
Name one disadvantage of hand embroidery. (1 mark)
Explain what the term 'applique' means. (2 marks)

Hand stitch



Materials required

Embroidery needle, thread, fabric, embroidery hoop.

Advantages of hand embroidery:

- Control over length of stitches
- Range of stitches to choose from

Disadvantages of hand embroidery:

- Time consuming
- Must be tied off correctly or will unravel
- Thread can get caught and tangled.

Patterns and the sewing machine

Patterns

Patterns are used as a template when making textiles and fashion garments. They instruct you where to cut, sew, add zips and any other details you may need to know.

Pattern symbols

Notch – Pattern notches are small marks made on the pattern to ensure that one pattern piece will match up to the pattern next to it.

Grain line – this is the direction on the fabric that the pattern should be cut. Some things are cut on the grain line, other are cut on the bias which is diagonal to the grain line.

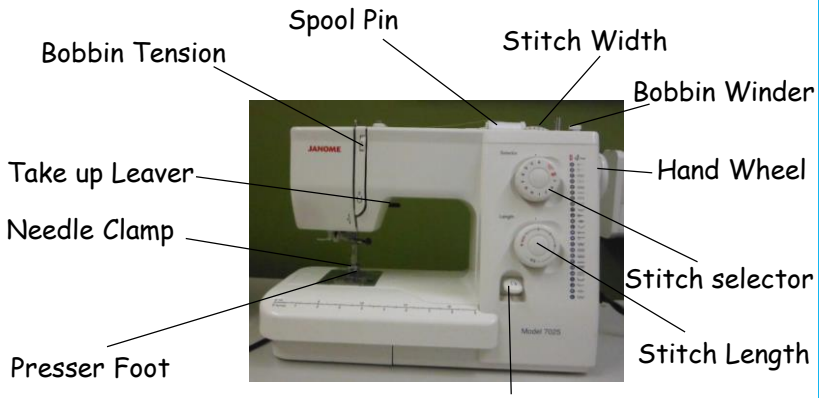
Seam Allowance – This is the space between the edge of the fabric and the sew line. Cut along this line when cutting out fabric from a pattern, this allows room for sewing it together. The seam allowance is usually 1cm.

Sewing line – Sew along this line when constructing your textile/garment.

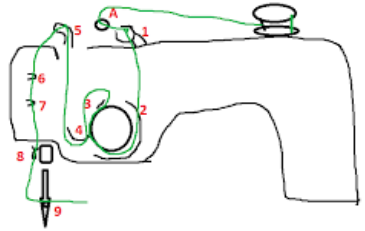
Example exam questions:

Why are notches used on pattern pieces. (2 marks)
Explain the advantages of using a sewing machine to construct textiles over hand sewing. (3 marks)
Why would the reverse stitch button be used when constructing a textile? (2 marks)
What is a bobbin used for? (2 marks)
Why is a seam allowance important? (3 marks)
What does this symbol mean on a pattern? (2 marks)
Name two disadvantages of using a sewing machine for embroidery. (2 marks)

Sewing Machine



How to thread a sewing machine



Materials required

Sewing machine, fabric, thread, scissors

Advantages of sewing machines

- Quick embroidery
- Secure stitching and construction
- Quick to use a range of stitches are available

Disadvantages sewing machines:

- Must understand how to use a sewing machine
- Can take some time to unpick incorrect stitches
- Less control over stitch lengths
- Cannot use wide a variety of different threads

Components of *Physical* Fitness

Aerobic Endurance – The ability of the cardiorespiratory system to work efficiently, supplying nutrients and oxygen to working muscles during sustained physical activity.

Muscular Endurance – The ability of the muscular system to work efficiently, where a muscle can continue contracting continuously against a light to moderate fixed resistance load.

Speed – The ability to cover a distance quickly. There are 3 types of speed (Accelerative speed, Pure speed and Speed Endurance. This is calculated by Distance travelled divided by the time taken.

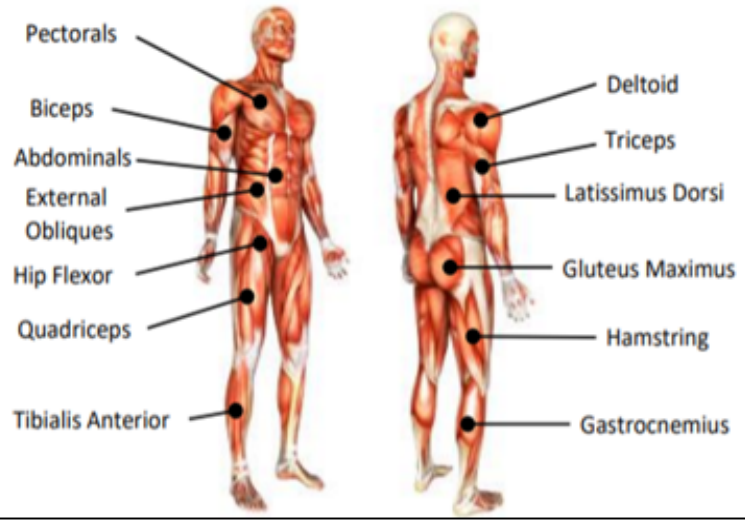
Muscular Strength – The maximum force, measured in kilograms (Kg) or newtons (N) that can be generated by a muscle or group of muscles.

Flexibility – The adequate range of motion in all joints of the body and the ability to move a joint fluidly through its complete range of movement.

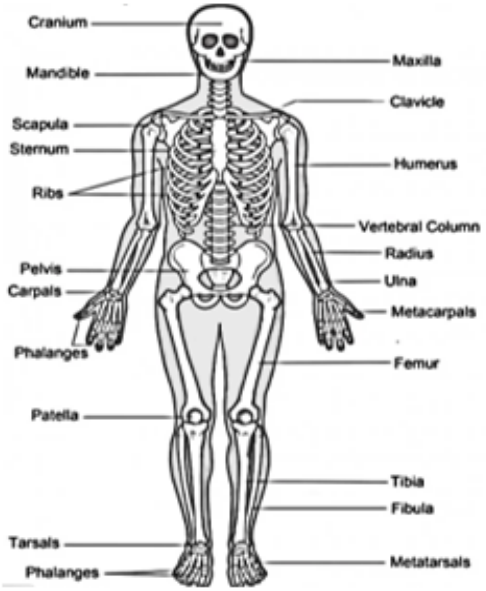
Body Composition – The ratio of fat to fat-free muscle mass. Sporting success is a combination of body composition and athletic ability.

https://www.youtube.com/watch?v=KycE8YJeaEI

Structure of the Muscular system



Structure of the Skeletal system



Components of *Skill-related* Fitness

Agility – The ability of a sports performer to quickly and precisely move or change direction without losing balance or time

Balance – The ability to maintain your centre of mass over a base of support. There are two forms of balance (static which is maintaining balance in a stationary position and Dynamic which is maintaining balance while in motion)

Co-ordination – The ability of the body to work together to move smoothly and accurately

Power - The ability to use strength and speed. It is the work done in a unit of time and is calculated in the following way Power- = Force (Kg) x Distance (m) / time (mins or seconds)

Reaction time – The time taken for a sports performer to respond to a stimulus, for example, the time taken for a sprinter to react to the starter gun.

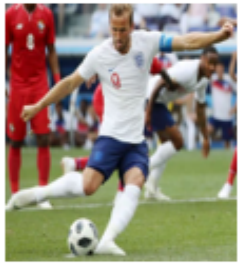
https://www.youtube.com/watch?v=nJleyUBesi8

DID YOU KNOW…?

The recommended safe heart rate for an individual during exercise is called your **Maximum Heart Rate (HR max)**. To estimate your HR max you need the following formula: **MAXIMUM HEART RATE = 220 – Your AGE**. For example, if you are 20 Years old your HR max would be 220 - 20 = 200 beats per minute (bpm)

It is important to understand that different sports and sports performers require different aspects of fitness. Many sports need the same types of physical and skill related fitness, however some a unique and require specific components.

Dina Asher-Smith is a British and World Champion sprinter. She needs to have **speed, power and reaction time** to cover as much distance as possible, respond to the starter's pistol and move powerfully out of the blocks to get a good start. It is also important for sprinters to have excellent **muscular strength and muscular endurance**



Harry Kane will require similar components of fitness in order to be successful. **Speed and agility** will be essential to move quickly into position avoid defenders when he has possession of the ball. He will also need a very high-level of **aerobic endurance and muscular endurance.**

Can you think of other sports performers who would require different components of fitness?

Warming up and cooling down

Year 7 Knowledge Organiser – Physical Education

Components of a warm up:

- Pulse raiser
- Stretches
- Skill related

5 reasons why we must warm-up

1.) Increases the temperature of the muscles, tendons and ligaments, which reduces the chances of injury.
2.) Increases heart rate and body temperature safely, which reduces chances of injury.
3.) Increases flexibility, which aids flexibility.
4.) Mentally prepares you for exercise, which can help improve performance.
5.) Increases oxygen delivery to the working muscles, which supports performance

6 reasons why we must cool down

1.) Gradually returns body temperature, breathing and heart rate back to their resting rate.
2.) To mentally unwind.
3.) To remove lactic acid, helping to prevent DOMS (Delayed Onset Muscle Soreness)
4.) To remove carbon dioxide and waste products.
5.) Improves flexibility.
6.) Avoids blood from gathering in muscles (pooling), which can cause dizziness

https://www.nhs.uk/live-well/exercise/how-to-warm-up-before-exercising/
https://www.nhs.uk/live-well/exercise/how-to-stretch-after-exercising/

Some key terminologies to learn and remember

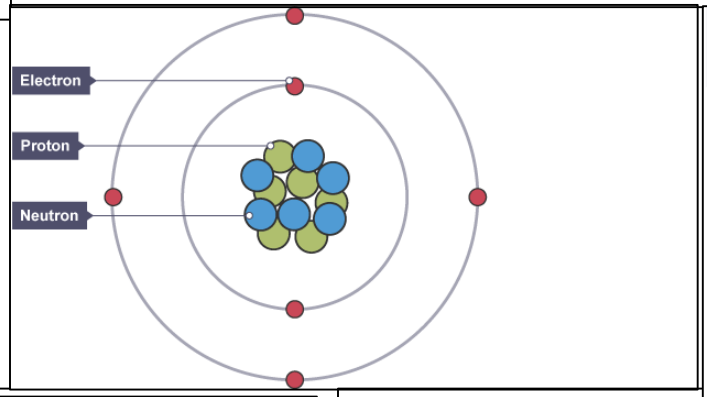
Aerobic Endurance	**Muscular Endurance**	**Muscular Strength**	**Speed**	**Flexibility**	**Body Composition**
Pulse Raiser	**Stretches**	**Skill related**	**Gastrocnemius**	**Hamstring**	**Quadriceps**
Gluteus Maximus	**Pectorals**	**Biceps**	**Triceps**	**Pectorals**	**Oblique**
Tibia	**Fibula**	**Humerus**	**Femur**	**Radius**	**Ulna**
Scapula	**Clavicle**	**Vertebral Column**	**Cranium**	**Ribs**	**Sternum**
Agility	**Power**	**Balance**	**Co-ordination**	**Reaction Time**	**Maximum Heart Rate**

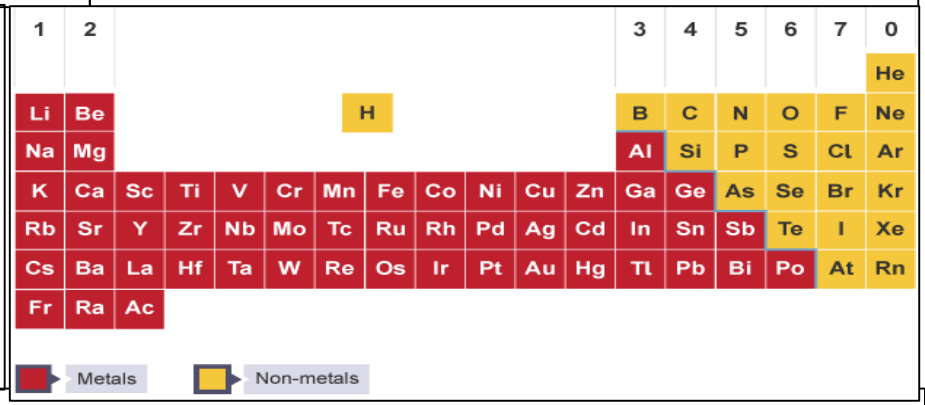
Mendeleev's beard 1

All the different elements are arranged in a chart called the periodic table. A Russian scientist called Dmitri Mendeleev produced one of the first practical periodic tables in the 19th century. The modern periodic table is based closely on the ideas he used:

Structure of the Atom

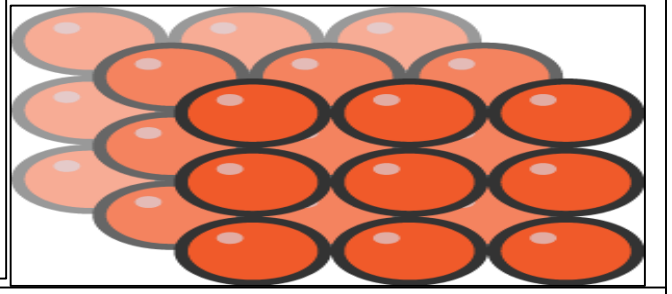
An atom is made up of three subatomic particles: protons, electrons and neutrons.
Protons and neutrons are found in the nucleus of the atom (in the centre).
Electrons are found orbiting the nucleus in shells (also known as *energy levels*).
Protons have a positive charge.
Electrons have a negative charge.
Neutrons have a no charge.





Atoms

Everything is made from atoms, including you. Atoms are tiny particles that are far too small to see, even with a microscope. If people were the same size as atoms, the entire population of the world would fit into a box about a thousandth of a millimetre across.



Chemical reactions

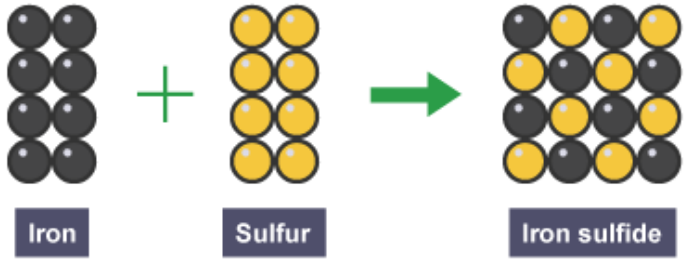
Atoms are rearranged in a chemical reaction. The substances that:
react together are called the **reactants**
are formed in the reaction are called the **products**
No atoms are created or destroyed in a chemical reaction. This means that the total mass of the reactants is the same as the total mass of the products. We say that **mass is conserved** in a chemical reaction.

Chemical equations

The changes in chemical reactions can be modelled using equations. In general, you write:
reactants → products
The reactants are shown on the left of the arrow, and the products are shown on the right of the arrow. Do not write an equals sign instead of an arrow. If there is more than one reactant or product, they are separated by a plus sign.

Word equations

A **word equation** shows the names of each substance involved in a reaction, and must not include any chemical symbols or formulae. For example:
iron + sulphur → iron sulphide
In this reaction, iron and sulphur are the reactants, and iron sulphide is the product.



Iron sulfide, the compound formed in the reaction, has different properties to the elements from what it is made.

Compounds

A **compound** is a substance that contains atoms of two or more different elements, and these atoms are chemically joined together. For example, water is a compound of hydrogen and oxygen. Each of its molecules contains two hydrogen atoms and one oxygen atom. There are very many different compounds.

Chemical reactions 2

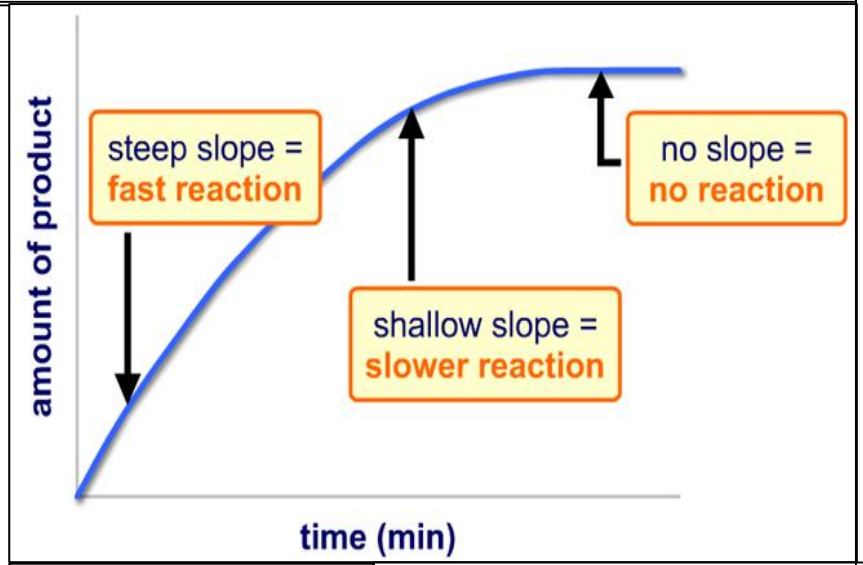
Chemical Reactions
Chemical reactions occur when particles collide with enough ENERGY. The minimum amount of energy particles need to react when colliding is called the ACTIVATION ENERGY.

Increasing temperature increases the **speed** of the particles (because they gain kinetic energy) so they **collide successfully more often** and **with more energy.** This increases the rate of reaction.

Increasing the pressure of gases brings the particles closer together so they **collide successfully more often.** This increases the rate of reaction.

Increasing the concentration of reactants increases the number of particles, so they **collide successfully more often.** This increases the rate of reaction.

Increasing the surface area of a **SOLID** (you cannot change the surface area of a liquid or gas) **increases the number of successful collisions.** This increases the rate of reaction.

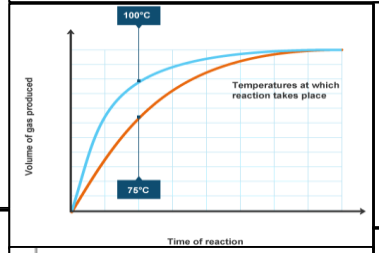


Collision Theory: chemical reactions occur when reactant particles **collide** with a certain amount of **energy.**

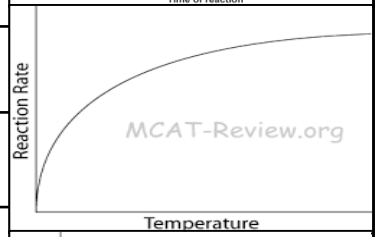
The rate of a reaction depends on two things:
the **frequency** of collisions between particles. The more often particles collide, the more likely they are to react.

the **energy** with which particles collide. If particles collide with less energy than the activation energy, they will not react.

Factors affecting the rate of reaction	
Temperature	The higher the temperature, the quicker the rate of reaction.
Concentration	The higher the concentration, the quicker the rate of reaction.
Surface area	The larger the surface area of a reactant solid, the quicker the rate of reaction.
Pressure (of gases)	When gases react, the higher the pressure upon them, the quicker the rate of reaction.

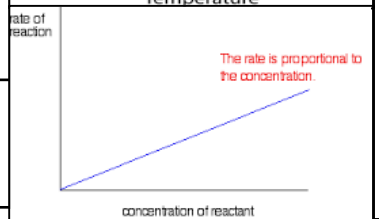


You may be presented with graphs like these ones.You need to be able to describe what they show. 'Describe' means say what you see. If numbers are given in the graph—quote them where appropriate.



As temperature increases so does rate of reaction. This means that reactions finish faster at higher temperatures, as the graph shows—the reactant is used up faster at 100oC, so it levels off sooner.

As temperature increases, rate of reaction increases very quickly.
As temperature continues to increase the rate of reaction increases more slowly.
Eventually the rate of reaction **levels-off.**



Rate of reaction and concentration are **directly proportional**—as one doubles, the other doubles

Knowledge Organiser: Year 7 Spring Term 2 Part 2 Visual Programming

Summary

Programming is writing computer code to create a program, in order to solve a problem. Programs consist of a series of instructions to tell a computer exactly what to do and how to do it.

An **algorithm** is a set of instructions that describes how to get something done. It is crucial that the steps in an algorithm are sequenced and performed in the right order - otherwise the algorithm will not work correctly. Algorithms can be designed using **pseudocode** and **flow charts**. They are written using **statements** and **expressions**. There are three basic building blocks (constructs) to use when designing algorithms: **sequencing**, **selection** and **iteration**. We create programs to **implement** algorithms. Algorithms consist of steps, where programs consist of statements.

In programming, iteration is often referred to as '**looping**', because when a program iterates it 'loops' to an earlier step. It is implemented using **FOR** and **WHILE** statements. Selection is implemented in programming using **IF** statements.

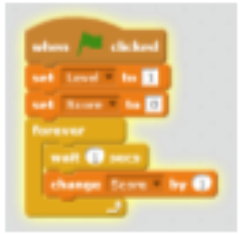
Key Vocabulary

Algorithm	A sequence of logical instructions for carrying out a task. In computing, algorithms are needed to design computer programs.
Flowchart	A diagram that shows a process, made up of boxes representing steps, decision, inputs and outputs.
Instruction	A single action that can be performed by a computer processor.
Programming	The process of writing computer software.
Programming language	A language used by a programmer to write a piece of software. There are many programming languages.
Pseudocode	A method of writing up a set of instructions for a computer program using plain English. This is a good way of planning a program before coding.
Variable	In a computer program, this is a memory location where values are stored.

Variable

Computer programs use variables to store information.

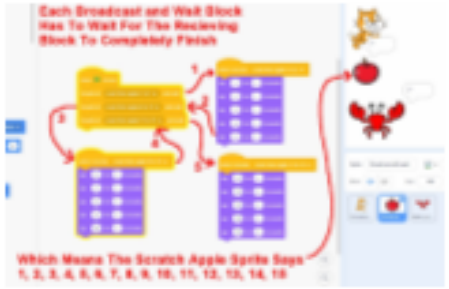
Variables could be used to store the score in a game, the number of cars in a car park or the cost of items on a till. They work in a similar way to algebra, where a letter in your code can stand for a number.



Sequencing

Sequencing is the specific order in which instructions are performed in an algorithm.

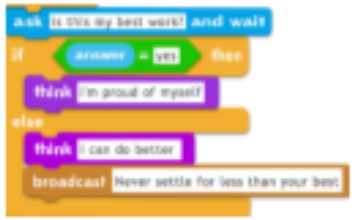
Algorithms consist of instructions that are carried out



Selection

Selection is a decision or question.

At some point, a program may need to ask a question because it has reached a step where one or more options are available. Depending on the answer given, the program will follow a certain step and ignore the others.



Iteration

Iteration is the process of repeating steps.

Iteration allows us to simplify our algorithm by stating that we will repeat certain steps until told otherwise. This makes designing algorithms quicker and simpler because they don't have to include lots of unnecessary steps.

Algorithms

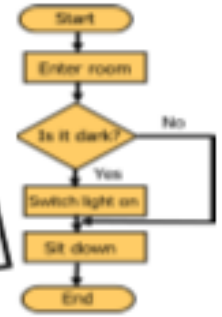
Algorithms can be represented as **pseudocode** or a **flowchart**, and programming is the translation of these into a computer program.

Pseudocode

How to make a cup of tea

1. Put teabag in cup
2. Fill kettle
3. Boil kettle
4. Pour water into cup
5. Add milk
6. Stir
7. Give cup of tea to person

Flowchart



http://bit.ly/2qg4ZE6

BBC Bitesize

Year 7 Knowledge Organiser: Settlements

Topics covered

- ✓ What is a settlement?
- ✓ Settlement sites
- ✓ Site factors
- ✓ Settlement hierarchy
- ✓ Settlement functions
- ✓ Mega-cities
- ✓ Impossible cities
- ✓ Future Cities

Key Ideas:

1. I can describe settlement characteristics (area size, population, services)
2. I can describe settlement site factors (where people choose to live)
3. I can explain how and why settlements can grow (migration/birth rates)
4. I can suggest how some cities are becoming more 'sustainable'

Skills

- ❑ Recognising geographical features from maps
- ❑ Describing geographical features from images
- ❑ Describing a distribution on a global scale
- ❑ Research using ICT
- ❑ Creating an informative leaflet
- ❑ Designing using MSOffice

Places and Environments

- ❖ Norwich
- ❖ London
- ❖ Rio de Janeiro
- ❖ Maldives
- ❖ Las Vegas

Key Terms Used in this Unit

- ❑ Site factors
- ❑ Aspect
- ❑ Raw materials
- ❑ Population
- ❑ Terrain
- ❑ Springs
- ❑ Bridging point
- ❑ Route centre
- ❑ Services
- ❑ Administration
- ❑ Residential
- ❑ Industrial
- ❑ Migration
- ❑ Employment
- ❑ Growth
- ❑ Arid
- ❑ Xeriscaping
- ❑ Sustainable

Year 7 Knowledge Organiser: Go Green

Topics covered

- ✓ Types of resources
- ✓ Finite and Infinite resources
- ✓ Non-renewable energies
- ✓ Nuclear power
- ✓ Renewable energies
- ✓ Wind energy
- ✓ Waste and pollution
- ✓ The 3 R's
- ✓ Saving energy in the home

Key Ideas:

1. I can describe how fossil fuels form and can explain why people want to end their use
2. I can describe advantages and disadvantages of renewable energy types
3. I can explain different opinions on some controversial (not all people agree upon) energy sources
4. I can design an eco-home

Skills

- ❑ To read source information on energy types
- ❑ To use digital mapping (GIS) to investigate site factors
- ❑ To research energy types using ICT
- ❑ To use numeracy skills to cost an eco-home design

Places and Environments

- ❖ Scroby Sands, Norfolk Coast
- ❖ Sizewell power station, Suffolk

Key Terms Used in this Unit

- ❑ Fossil Fuels
- ❑ Finite
- ❑ Non-renewable
- ❑ Sedimentary Rocks
- ❑ Geological
- ❑ Carbon Dioxide
- ❑ Methane
- ❑ Greenhouse effect
- ❑ Global Warming
- ❑ Radioactive
- ❑ Landfill sites
- ❑ Recyclable
- ❑ Bio-degradeable
- ❑ Insulation
- ❑ Grey water
- ❑ Conservation
- ❑ Sustainable
- ❑ Passive home

Year 7 Spring Term German Knowledge Organiser

Die Schule; Familie und Freunde

Meinungen	**Opinions**
Wie findest du Deutsch?	What do you think of German?
Ich finde es …	I think it's …
gut.	good.
schlecht.	bad.
interessant.	interesting.
langweilig.	boring.
einfach.	easy.
schwierig.	difficult.
toll.	great.
furchtbar.	awful.

Die Uhrzeit	**Telling the time**
Wie viel Uhr ist es?	What's the time?
Es ist neun Uhr.	It's nine o'clock.
Es ist neun Uhr dreißig.	It's nine-thirty.
Wann beginnt Deutsch?	When does German start?
Wann endet Deutsch?	When does German end?
Um zehn Uhr fünfzig.	At ten-fifty.

Das Pausenbrot	**Snacks at break**
Was isst du in der Pause?	What do you eat at break?
Ich esse …	I eat …
einen Apfel.	an apple.
eine Orange.	an orange.
eine Banane.	a banana.
ein Brötchen.	a roll.
Kuchen.	cake.
Schokolade.	chocolate.
Kekse.	biscuits.
Chips.	crisps.
Bonbons.	sweets.
Ich esse nichts.	I don't eat anything.
Was trinkst du in der Pause?	
Ich trinke Cola.	I drink Coke
Orangensaft.	orange juice.
Wasser.	water.
Ich trinke nichts.	I don't drink anything.
Ja, bitte?	Can I help you?
Ein Brötchen, bitte.	A roll, please.

Das macht fünfzig Cent.	That's fifty cents.
Bitte.	Here you are; You're welcome
Danke.	Thanks.

Die Schuluniform	**School uniform**
der Pullover	jumper
der Rock	skirt
die Bluse	blouse
die Hose	trousers
die Jacke	blazer
die Krawatte	tie
das Hemd	shirt
das Kleid	dress
das Sweatshirt	sweatshirt
das T-Shirt	T-shirt
die Jeans	jeans
die Schuhe	shoes
die Socken	socks

Year 7 Spring Term German Knowledge Organiser

Die Schule; Familie und Freunde

die Sportschuhe	trainers
die Stiefel	boots
Der Rock ist (blau).	The skirt is (blue).
Die Socken sind (gelb).	The socks are (yellow).
Was trägst du in der Schule?	What do you wear to school?
Ich trage …	I wear …
einen Rock.	a skirt.
einen Pullover.	a jumper.
eine Hose.	trousers.
eine Jacke.	a blazer / jacket.
eine Krawatte.	a tie.
ein Hemd.	a shirt.
ein T-Shirt.	a T-shirt.
ein kleid.	a dress.
ein Sweatshirt.	a sweatshirt.
Jeans.	jeans.
Socken.	socks.
Schuhe.	shoes.
Stiefel.	boots.
Sportschuhe.	trainers.

Ich finde das cool	I think it's cool.
bequem.	comfy.
schick.	smart.
gut.	good.
Ich habe keine Schuluniform.	I don't have a school uniform.

Geschwister	**Brothers and sisters**
Hast du Geschwister?	Do you have any siblings?
Ich habe …	I have…
einen Bruder.	a brother.
einen Halbbruder.	a half-brother.
einen Stiefbruder.	a stepbrother.
zwei Brüder.	two brothers.
eine Schwester.	a sister.
eine Halbschwester.	a half-sister.
eine Stiefschwester.	a stepsister.
zwei Schwestern.	two sisters.
Ich bin Einzelkind.	I am an only child.

Haustiere	**Pets**
Hast du ein Haustier?	Do you have a pet?
Ich habe …	I have …
einen Goldfisch.	a goldfish.
zwei Goldfische.	two goldfish.
einen Hamster.	a hamster.
vier Hamster.	four hamsters.
einen Hund.	a dog.
drei Hunde.	three dogs.
einen Wellensittich.	a budgie.
sechs Wellensittiche.	six budgies.
eine Katze.	a cat.
sieben Katzen.	seven cats.
eine Schildkröte.	a tortoise.
zwei Schildkröten.	two tortoises.
eine Schlange.	a snake.
neun Schlangen.	nine snakes.
ein Kaninchen.	a rabbit.
fünf Kaninchen.	five rabbits.
ein Meerschweinchen.	a guinea pig.
Zehn Meerschweinchen	ten guinea pigs.

Die Schule; Familie und Freunde

ein Pferd.	a horse.
acht Pferde.	eight horses.
Ich habe keine Haustiere	I don't have any pets.

.

Familie	**Family**
Das ist …	That's …
mein Vater.	my father.
mein Stiefvater.	my stepfather.
mein Großvater.	my grandfather.
mein Cousin.	my cousin (m)
mein Onkel.	my uncle.
mein Bruder.	my brother.
meine Mutter.	my mother.
meine Stiefmutter.	my stepmother.
meine Großmutter.	my grandmother.
meine Schwester.	my sister.
meine Tante.	my aunt.
meine Cousine.	my cousin (f)
Ist das …	Is that …
dein Onkel?	your uncle?
dein Bruder?	your brother?

dein Vater?	your father?
dein Stiefvater?	your stepfather?
dein Großvater?	your grandfather?
dein Cousin? (male)?	your cousin
deine Mutter?	your mother?
deine Stiefmutter?	your stepmother?
deine Schwester?	your sister?
deine Großmutter?	your grandmother?
deine Tante?	your aunt?
deine Cousine?	your cousin (f)?
Wie heißt er / sie?	What is he / she called?
Er / Sie heißt …	He / She is called …
Wie alt ist er / sie?	How old is he / she?
Er / Sie ist elf Jahre alt.	He / She is 11 years old.

Die Zahlen 70–100		**Numbers 70–100**
siebzig	70	achtzig 80
einundsiebzig	71	neunzig 90
zweiundsiebzig	72	hundert 100
dreiundsiebzig	73	

Wie siehst du aus? What do you look like?	
Ich habe …	I have …
Du hast …	You have …
Er hat …	He has …
Sie hat …	She has …
blaue Augen.	blue eyes.
braune Augen.	brown eyes.
graue Augen.	grey eyes.
grüne Augen.	green eyes.
braune Haare.	brown hair.
blonde Haare.	blond hair.
rote Haare.	red hair.
schwarze Haare.	black hair.
lange Haare.	long hair.
kurze Haare.	short hair.
glatte Haare.	straight hair.
lockige Haare.	curly hair.
Ich bin …	I am …
Du bist …	You are …
Er / Sie ist …	He / She is …
groß.	tall.

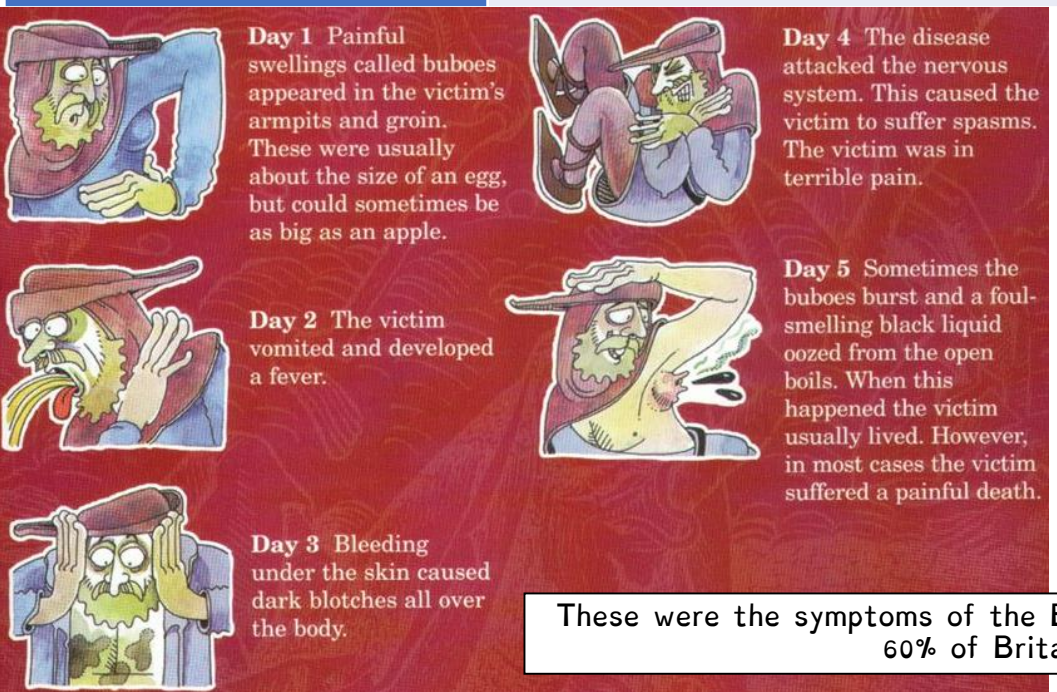
Die Schule; Familie und Freunde

mittelgroß.	medium height.
klein.	short.
schlank.	slim.
kräftig.	strong.
dick.	fat.

Wie bist du?	**What are you like?**
Ich bin (freundlich).	I am (friendly).
Wie ist er / sie?	What is he / she like?
Er / Sie ist …	He / She is …
lustig.	funny.
laut.	noisy.
schüchtern.	shy.
intelligent.	intelligent.
sportlich.	sporty.
musikalisch.	musical.
kreativ.	creative.
faul.	lazy.
launisch.	moody.
unpünktlich.	unpunctual.
nicht sehr	not very
ziemlich	fairly

Year 7 History: Black Death, Peasants Revolt and King John

Key words	
Black Death	A disease that spread across Asia and Europe in the 14th century, killing up to 1/3 of Europe's population
Symptoms	An effect of a disease that can be observed in someone who has the disease
Cause	An event or factor that occurs which leads to a further event
Consequence	An event or outcome that occurs as a result of a cause
Peasants' Revolt	A large uprising in England that took place in 1381 where peasants protested against the Poll Tax and their situation
Lollards	A group of Christians in 14th century Britain who believed that all people should be equal
King John	King of England between 1199 and 1216. Seen by many as one of England's worst kings
Interpretation	A point of view on historical events that is based on evidence



These were the symptoms of the Black Death, which killed between 40–60% of Britain's population!

In many ways medieval Britain was similar to today. Humans have remained much the same for thousands of years! However, life in medieval Britain also had some key features that make it different to today:

- Britain was a Christian country, and most people were very religious – it was illegal not to attend Church!
- Hygiene was much less important than today.
- Particularly for peasants, life was very hard. Starvation and disease were very common.
- There was a small number of very rich people, but most of the population were very poor
- The vast majority of people worked on the land, growing food.

Year 7 History: Black Death, Peasants Revolt and King John

People at the time did not understand that the disease was actually caused by a bacteria, carried by fleas, rats and humans. As a consequence they had many of their own theories about what caused the plague based on their own understanding:

- The plague was caused by the positions of the planets
- The plague was a punishment from God
- The plague was caused by 'bad' or 'corrupt' air
- The plague was spread by Jewish people

This led to many attempted cures, most of which did not prevent the disease from spreading at all:

- Rubbing a dead chicken on buboes
- People known as 'flagellants' whipped themselves to apologise to God
- Many Jewish people were killed as they were blamed for the plague

The Peasants' Revolt, 1381 – In 1381 the peasants of Britain rose up against the King. In the end they were defeated in London, but this was a significant example of people with very little power standing up for themselves! You have learnt about what caused it.

Cause	Consequence
The Black Death and the Statute of Labourers	After the plague, so many peasants had died that there was a shortage. Survivors were able to demand higher wages. Wealthy people were angry so they lowered wages back to their previous levels. The peasants were angry about this!
The Feudal System	Under the Feudal System peasants spent their life working for other people, and were the 'property' of the nobles and barons. More and more people went to see this as unfair.
The Lollards	The Lollards were a radical Christian group who preached that all people were born equal. This led many people to believe that life was unfair and not in line with God's teachings.
The Poll Tax	This was a tax that all people had to pay equally, regardless of how much money they had. The peasants saw this as unfair as it hit them particularly hard.
The war with France	England was losing the 'Hundred Years War' with France. As many English people hated the French they were very angry about this

Year 7 History: Black Death, Peasants Revolt and King John

Interpretations of King John

Many people, including historians and those alive during his reign, have disagreed over the reign of King John. Although he is often seen as 'bad King John', or even England's worst ever King, others argue that he was not all that bad. We call these competing points of view **interpretations**, because historians have used sources in order to **interpret** the past.

John taxed his nobility heavily

John lost wars against France

John's owns barons rebelled against him in 1215

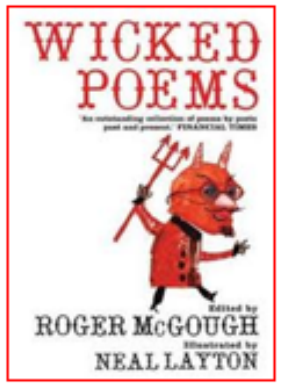
How bad was King John?

John introduced Magna Carta – the first time the King had to answer to his people

John strengthened England's control over Ireland and Wales

Vocabulary to learn

Syllable
Alliteration
Simile
Metaphor
Personification
Onomatopoeia
Stanza
Rhyme
Rhythm
Pace
Speaker
Tone
Inference
Explicit
Implicit
Technique
Method
feature



Structure analysis - methods:

- Zoom in/out
- Repetition of an image/idea
- Links and connections between paragraphs
- Shifts:
  - inside to outside (and vice versa)
  - focus
  - time
  - topic
  - setting/place
  - mood/atmosphere
  - description to dialogue (and vice versa)

Language analysis Checklist:

- Link to task
- Relevant quote
- Meaning of quote
- Method named
- Effects explained
- Word zoomed in on
- Meaning of word
- Implied meanings

Sentence Form	Definition	Example
Fragment sentence	An incomplete idea.	*Rolling thunder.*
Simple sentence	Contains one complete idea in an independent clause.	*The lightning flashed.*
Compound sentence	Contains two independent clauses linked by a conjunction or a semi-colon.	*The lightning flashed **and** the rain fell.* *The lightning flashed; the rain fell.*
Complex sentence	Contains an independent clause and at least one dependent clause.	*Despite the thunder and lightning, there was no rain.*

TIPTOP

PARAGRAPHS

Time – change in TIME

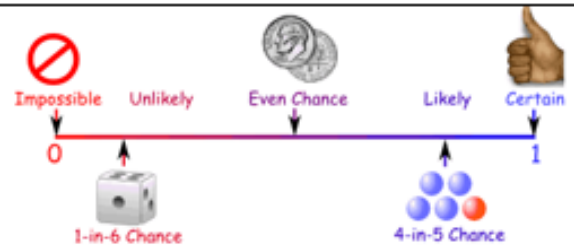
Place – change in PLACE

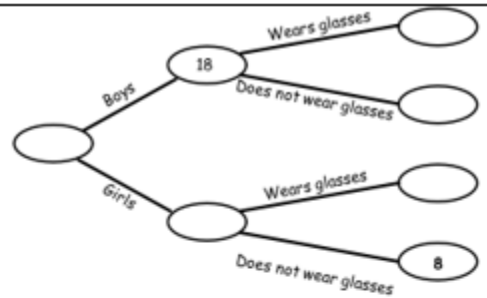
Topic – change in TOPIC

Person – change in SPEAKER

Literary devices and word class

- Metaphor – a literal comparison – *she was a monster*
- Personification – human qualities – *the grass danced in the wind*
- Simile – as/like/as if – *he was like a man possessed*
- Onomatopoeia – the sound words – *bang, pop, sizzle*
- Alliteration – same starting sounds - *really rather raucous*
- Verbs – doing words
- Adjectives – describing words
- Nouns – objects or abstract things e.g. love
- Adverbs – describe doing words e.g. wrote **neatly**
- connotations of words – associations – night-time = mystery

Topic/Skill	Definition/Tips	Example
1. Probability	The likelihood/chance of something happening. Is expressed as a number between 0 (impossible) and 1 (certain). Can be expressed as a fraction, decimal, percentage or in words (likely, unlikely, even chance etc.)	
2. Probability Notation	P(A) refers to the probability that event A will occur.	P(Red Queen) refers to the probability of picking a Red Queen from a pack of cards.
3. Theoretical Probability	$\frac{Number\ of\ Favourable\ Outcomes}{Total\ Number\ of\ Possible\ Outcomes}$	Probability of rolling a 4 on a fair 6-sided die = $\frac{1}{6}$.
4. Relative Frequency	$\frac{Number\ of\ Successful\ Trials}{Total\ Number\ of\ Trials}$	A coin is flipped 50 times and lands on Tails 29 times. The relative frequency of getting Tails = $\frac{29}{50}$.
5. Expected Outcomes	To find the number of expected outcomes, multiply the probability by the number of trials.	The probability that a football team wins is 0.2 How many games would you expect them to win out of 40? $0.2 \times 40 = 8\ games$
6. Exhaustive	Outcomes are exhaustive if they cover the entire range of possible outcomes. The probabilities of an exhaustive set of outcomes adds up to 1.	When rolling a six-sided die, the outcomes 1, 2, 3, 4, 5 and 6 are exhaustive, because they cover all the possible outcomes.
7. Mutually Exclusive	Events are mutually exclusive if they cannot happen at the same time. The probabilities of an exhaustive set of mutually exclusive events adds up to 1.	Examples of mutually exclusive events: - Turning left and right - Heads and Tails on a coin Examples of non mutually exclusive events: - King and Hearts from a deck of cards, because you can pick the King of Hearts

8. Frequency Tree	A diagram showing how information is categorised into various categories. The numbers at the ends of branches tells us how often something happened (frequency). The lines connected the numbers are called branches.	
9. Sample Space	The set of all possible outcomes of an experiment.	
10. Sample	A sample is a small selection of items from a population. A sample is biased if individuals or groups from the population are not represented in the sample.	A sample could be selecting 10 students from a year group at school.
11. Sample Size	The larger a sample size, the closer those probabilities will be to the true probability.	A sample size of 100 gives a more reliable result than a sample size of 10.

+	1	2	3	4	5	6
1	2	3	4	5	6	7
2	3	4	5	6	7	8
3	4	5	6	7	8	9
4	5	6	7	8	9	10
5	6	7	8	9	10	11
6	7	8	9	10	11	12

Please use QR codes to support your knowledge:

http://goo.gl/PbnOy6 http://goo.gl/Vcv57C

Topic/Skill	Definition/Tips	Example
1. Percentage	Number of parts per 100.	31% means $\frac{31}{100}$
2. Finding 10%	To find 10%, divide by 10	10% of £36 = 36÷10=£3.60
3. Finding 1%	To find 1%, divide by 100	1% of £8 = 8÷100 = £0.08
4. Percentage Change	$\frac{Difference}{Original} \times 100\%$	A games console is bought for £200 and sold for £250. % change = $\frac{50}{200} \times 100 = 25\%$
5. Fractions to Decimals	Divide the numerator by the denominator using the bus stop method.	$\frac{3}{8} = 3 \div 8 = 0.375$
6. Decimals to Fractions	Write as a fraction over 10, 100 or 1000 and simplify.	$0.36 = \frac{36}{100} = \frac{9}{25}$
7. Percentages to Decimals	Divide by 100	$8\% = 8 \div 100 = 0.08$
8. Decimals to Percentages	Multiply by 100	$0.4 = 0.4 \times 100\% = 40\%$
9. Fractions to Percentages	Percentage is just a fraction out of 100. Make the denominator 100 using equivalent fractions. When the denominator doesn't go in to 100, use a calculator and multiply the fraction by 100.	$\frac{3}{25} = \frac{12}{100} = 12\%$ $\frac{9}{17} \times 100 = 52.9\%$
10. Percentages to Fractions	Percentage is just a fraction out of 100. Write the percentage over 100 and simplify.	$14\% = \frac{14}{100} = \frac{7}{50}$

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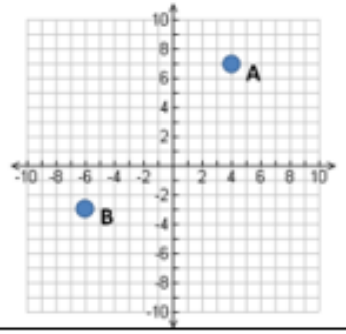
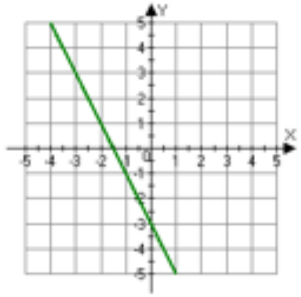
Topic/Skill	Definition/Tips	Example
1. Coordinates	Written in **pairs**. The **first** term is the **x-coordinate** (movement **across**). The **second** term is the **y-coordinate** (movement **up or down**)	 A: (4,7) B: (-6,-3)
2. Midpoint of a Line	Method 1: **add the x coordinates and divide by 2, add the y coordinates and divide by 2** Method 2: Sketch the line and find the values half way between the two x and two y values.	Find the midpoint between (2,1) and (6,9) $\frac{2+6}{2} = 4$ and $\frac{1+9}{2} = 5$ So, the midpoint is (4,5)
3. Linear Graph	**Straight line** graph. The general equation of a linear graph is $y = mx + c$ where m **is the gradient** and c **is the y-intercept.** The **equation** of a linear graph can contain an **x-term**, a **y-term** and a **number**.	Example:  Other examples: $x = y$ $y = 4$ $x = -2$ $y = 2x - 7$ $y + x = 10$ $2y - 4x = 12$
4. Plotting Linear Graphs	Method 1: **Table of Values** Construct a table of values to calculate coordinates.	

x	-3	-2	-1	0	1	2	3
y= x +3	0	1	2	3	4	5	6

Please use QR codes to support knowledge.

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Year 7 RS: What does it mean to say God became human?

Key words	
Incarnation	Becoming flesh, taking human form.
Resurrection	Rising from the dead.
Blasphemy	A religious offence, which includes claiming to be God
Agape	The unconditional love God has for mankind.
Repent	To ask for forgiveness for the sins you have committed.
Atonement	The reconciliation of God and humankind through the actions of Christ's life, suffering and death. Christians believe that Jesus sacrificed his life on the cross so that human sin could be forgiven.
Redemption	The deliverance or salvation from sin. Christians believe that by showing God that you are truly sorry for your actions, you can atone (make up) for your guilt and then your sins would be forgiven.

Although many people question the virgin conception

Because it is not a natural thing to happen and is unlikely

That it has happened. For Christians it is very important.

It gives evidence for the belief shared by all Christians,

That Jesus is God incarnate–made flesh in human form.

Fully God, yet fully human and part of the Trinity.

What do Christians believe about Jesus?

- . **CHRISTIANS** believe that the son of **GOD** became flesh in order to be the saviour of **MANKIND**
- Jesus was conceived and born with a mother called **MARY**. He also experienced **AGEING**, he grew up.
- Jesus had to be human in order to shed **BLOOD** for the forgiveness of human **SINS**. Jesus was sacrificed and needed to **DIE** as part of God's plan. A blood sacrifice requires a body of **FLESH** & blood. In Hebrews 9:22 it states that 'without the shedding of blood, there is no **FORGIVENESS** of sins'.
- We don't know whether people who lived at the time of Jesus, even many of those who followed him and believed that he was teaching the truth, knew anything about the circumstances of his birth.
- He is often to referred to as Jesus of Nazareth but there is little mention of Bethlehem, where he was born, apart from in stories of his birth.
- For Christians, the belief that Jesus was God in human form is more important than he details of his birth.
-
- did not conceive Jesus sexually. In both cases he angel explains that the conception was no ordinary conception and that the child would be no ordinary child.
- Mark and John did not include any information about the birth of Jesus. Maybe they did not think the story important, but they are both clear that Jesus is the Son of God.

Quotes from the Bible
Showing evidence of Jesus' humanity

1. ...and as they sailed he fell asleep. And a windstorm came down on the lake, and they were filling with water and were in danger.
2. And after fasting forty days and forty nights, he was hungry.
3. And there appeared to him an angel from heaven, strengthening him. And being in an agony he prayed more earnestly; and his sweat became like great drops of blood falling down to the ground.
4. But one of the soldiers pierced his side with a spear, and at once there came out blood and water
5. These things I have spoken to you, that my joy may be in you, and that your joy may be full.
6. And he looked around at them with anger, grieved at their hardness of heart, and said to the man, "Stretch out your hand." He stretched it out, and his hand was restored.

Instead of telling the story of Jesus' conception and birth in his gospel, John is more interested in the meaning of it:

This gives clear support to the Christian belief that Jesus was God incarnate, in the flesh as man.

The belief that God is incarnate makes it easier for Christians to explain and accept

As truth some of his actions on earth, including his miracles and resurrection.

When Jesus was baptised, a voice from the heavens said "You are my son".

On one occasion the disciple Peter referred to Jesus as The Christ. During this conversation at Ceasera Phillipi, Jesus immediately warned the disciples that they should not use this term on him, possibly because his opponents would have him arrested for blasphemy.

According to one of the Gospel accounts, Jesus later accepted it's use for himself at his trial when he was asked a direct question.

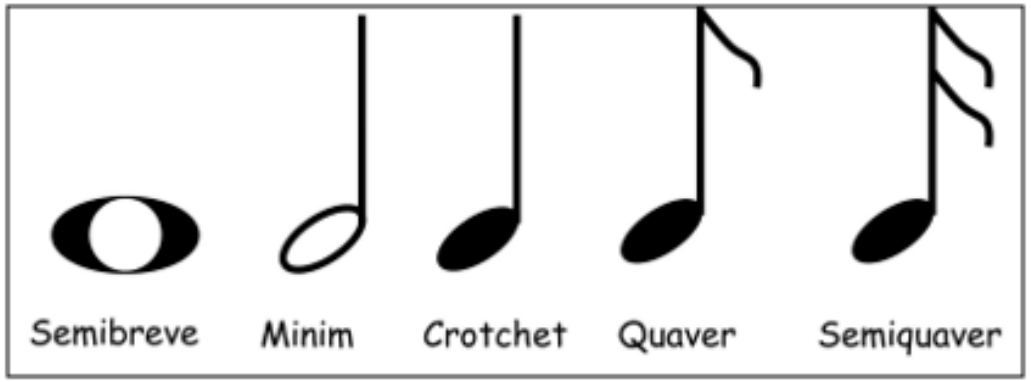
"Again the high priest asked him, 'Are you the Christ the Son of the Blessed One?' 'I am,' said Jesus." *Mark 1:61b–62a [NIV]*

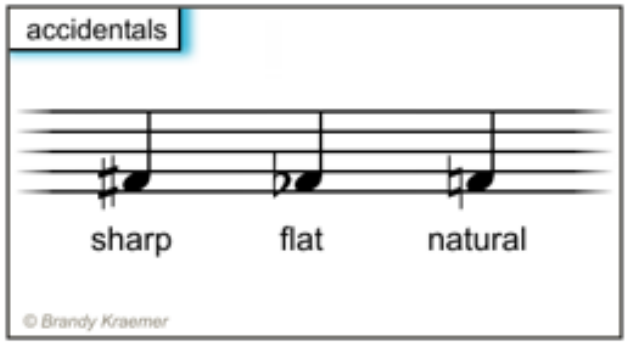
"When Jesus was baptised, a voice from Heaven said 'You are my Son'." *Mark 1:11 [NIV]*

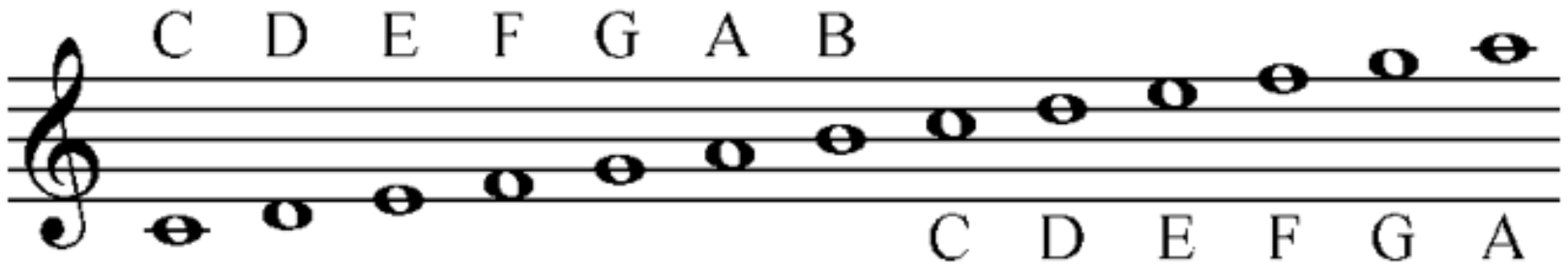
"You may believe that Jesus is the Messiah, the Son of God, and that by believing you may have life in his name." *John 21:31[NIV]*

Year 7 Knowledge Organiser Music

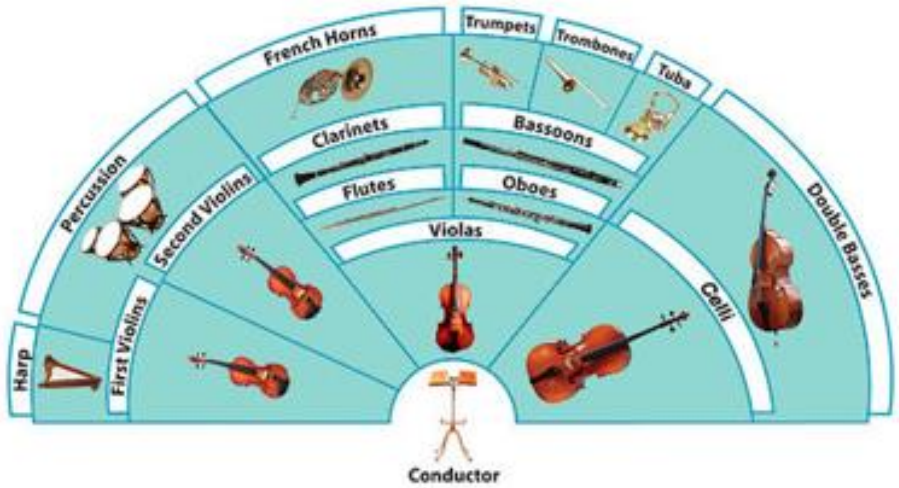
Duration	How long a note lasts for
Pitch	How high or low a note is
Tempo	How fast or slow a note is
Dynamics	How loud or quiet the music is
Timbre	The quality of sound
Texture	How thick or thin the music is
Structure	How the sections of music are laid out e.g. chorus, verse etc.
Silence	When the instruments stop playing



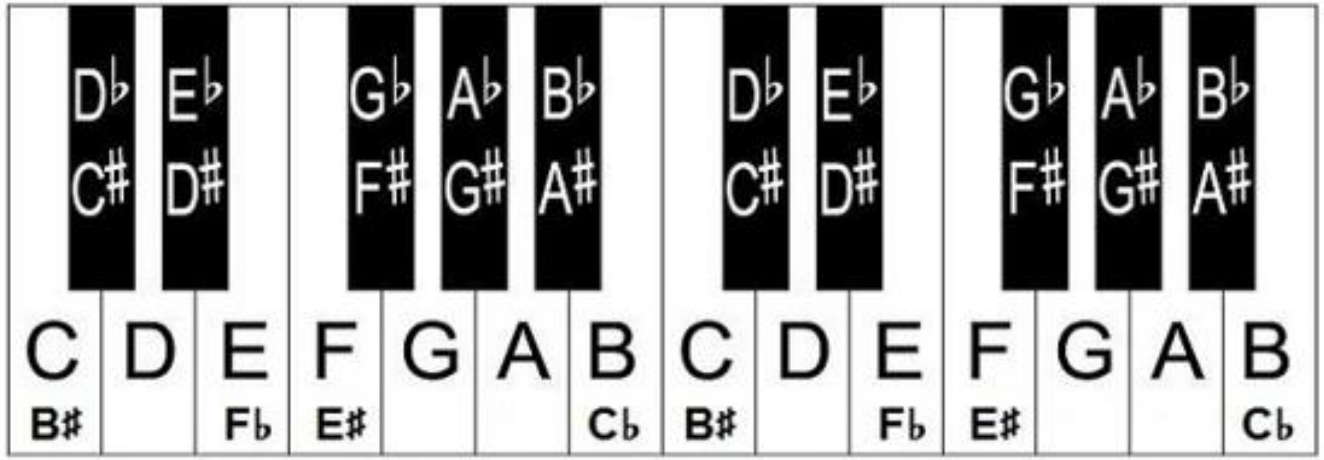




Year 7 Knowledge Organiser Music



Strings	Violin, Viola, Cello, Double Bass, Guitar, Harp, Ukulele, Banjo
Brass	Trumpet, Trombone, Tuba, Cornet, French Horn, Euphonium, Sousaphone
Woodwind	Flute, Piccolo, Clarinet, Oboe, Bassoon, Recorder, Saxophone
Percussion	Drums, Timpani, Cymbals, Djembes, Cajons, Xylophone, Glockenspiel, Maracas, Claves, Snare Drum, Bass Drum



African Drumming

Djembe

Talking Drum

- ✓ Polyrhythms – multiple simultaneous rhythms
- ✓ Tone and Bass – different timbres on a drum
- ✓ Improvisation – making music without preparation
- ✓ Ostinato – a musical pattern that repeats

Marimba

Shaker

Fanfares

- ✓ Fanfares are usually played by brass (trumpet, trombone, tuba, cornet, French horn) and percussion (bass drum, snare drum) instruments because they are the loudest
- ✓ Fanfares are musical introductions to important events like a royal entrance, a sports game or even the beginning of a film!
- ✓ Fanfares use the notes of a major triad (3 or 4 in total) and use a variety of different rhythms
- ✓ The time signature is always in 4/4

British Folk Music

- ✓ British folk music began in medieval times but is still played today having been passed through generations
- ✓ The music is usually inspired by nature and is played at social events like weddings and parties
- ✓ Songs are played at a fast tempo and use instruments like violin, accordion, drums and flutes
- ✓ Songs use melody and accompaniment i.e. there is a main tune but there are chords underneath to support the tune
- ✓ They can also use key signature changes which involve sharps, flats and natural notes