

Year 7 Spring 1 - Knowledge Organiser



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In PSHEE you will learn about “How I can manage my emotions and feelings?” It is important that we learn how our emotions change between childhood and adulthood. You will be taught that having emotions is right and proper. You will begin to understand how we learn to manage our moods to live within our British Society. Some students may explore how different people in different societies manage their emotions.

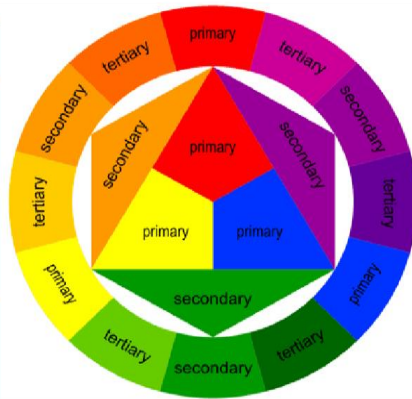
It will be really good if you talk with your parents, grandparents and other key adults in your life about this.

1

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
Collagraph		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

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

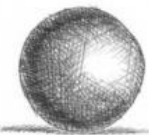
2



Tonal shade

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

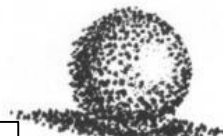
Alternative shade techniques



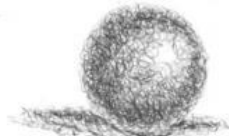
Cross hatching



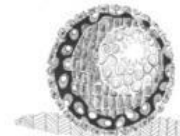
Hatching

CONTOUR LINES
Contour lines

Stippling



Scribble

PATTERNS
Pattern

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?

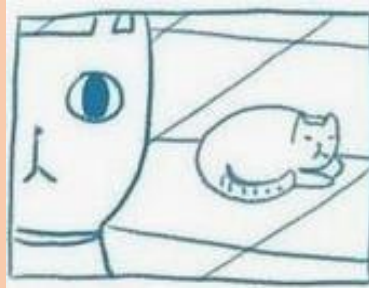
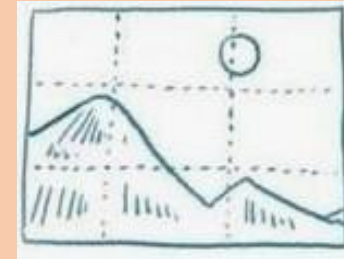
1 Formal Elements of Art

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 <u>shade</u> or how <u>dark</u> or <u>light</u> a <u>colour</u> appears
TEXTURE	the surface quality of something, the way something feels or looks like it feels. There are two types : <u>Actual</u> and <u>Visual</u>
SHAPE	an area enclosed by a <u>line</u> . It could be just an outline or it could be <u>shaded</u> in.
PATTERN	a design that is created by repeating <u>lines</u> , <u>shapes</u> , <u>tones</u> or <u>colours</u> . can be <u>manmade</u> , like a <u>design</u> on fabric, or <u>natural</u> , such as the markings on animal fur.
COLOUR	There are 2 types including Primary and Secondary . By mixing any two <u>Primary</u> together we get a <u>Secondary</u>

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

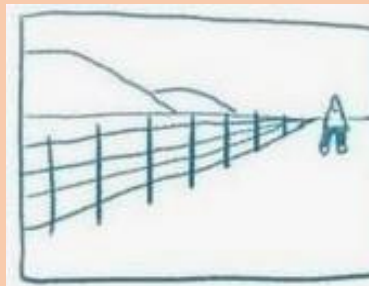
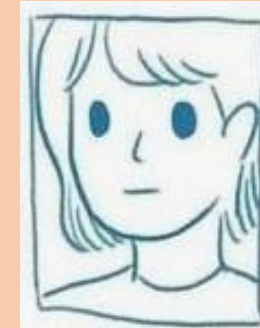
2 Composition Layouts

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

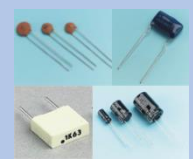


Use lines. Lines will draw the viewer in, they don't have to be straight, consider S or C

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

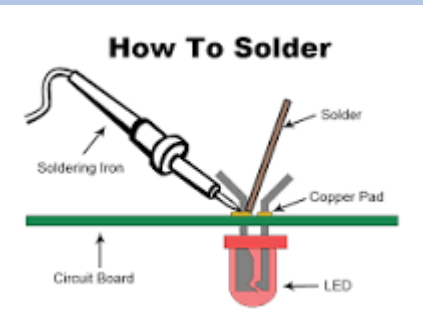


Soldering

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

What does each colour convey?	What are your brand's personality traits?				
	Shrew	Ending	Compete	Stimulated	Support
RED	EXCITING FIERY BOLD AGGRESSIVE ACTIVE		✓		
ORANGE	FRIENDLY DELICIOUS CONFIDENT EXCITING	✓	✓		
YELLOW	HAPPY OPTIMISTIC CONFIDENT FUN		✓		
GREEN	PEACEFUL HEALTHY CALM NATURAL	✓		✓	✓
BLUE	TRUSTWORTHY DEPENDABLE STRONG	✓		✓	
PURPLE	CREATIVE REGAL FLAMBOYANT SMART		✓		✓
BLACK	BALANCED CALM LUXURIOUS SENSIBLE	✓		✓	✓
BROWN	NATURAL RUGGED DEPENDABLE EARTHY	✓			✓

Plastic classification

1	2	3	4	5	6	7
PETE	HDPE	PVC	LDPE	PP	PS	OTHER
polyethylene terephthalate	high-density polyethylene	polyvinyl chloride	low-density polyethylene	polypropylene	polystyrene	other plastics, including acrylic, polycarbonate, polyacrylic fibers, nylon, fiberglass
soft drink bottles, mineral water, fruit juice containers, cooking oil	milk jugs, cleaning agents, laundry detergents, bleaching agents, shampoo bottles, washing and shower soaps	trays for sweets, fruit, plastic packing (bubble foil) and food foils to wrap the foodstuff	crushed bottles, shopping bags, highly-resistant sacks and most of the wrappings	furniture, consumer luggage, toys as well as lampers, lining and external borders of the cars	toys, hand packing, refrigerator trays, cosmetic bags, costume jewelry, CD cases, vending cups	

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, routed 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.

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.



stands for Conformité Européenne, which is French for "European 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.

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.

Storing food safely

<p>Cooking (75°C)</p> <ul style="list-style-type: none"> • 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 	<p>The danger zone (5°C-63°C)</p> <ul style="list-style-type: none"> • 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
<p>Chilling (0°C - 5°C)</p> <ul style="list-style-type: none"> • 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 	<p>Freezing (-18°C)</p> <ul style="list-style-type: none"> • 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

Example exam questions:

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

What is a high risk food? (5 marks)

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

Each serving (150g) contains				
Energy 1046kJ 250kcal	Fat 3.0g LOW	Saturates 1.3g LOW	Sugars 34g HIGH	Salt 0.9g MED
13%	4%	7%	38%	15%
of an adult's reference intake				
Typical values (as sold) per 100g: 697kJ/ 167kcal				

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.



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 can 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



Unpicker

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 unpicker 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.

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 sticks 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:

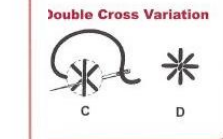
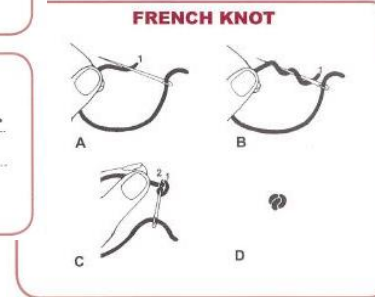
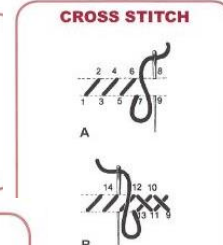
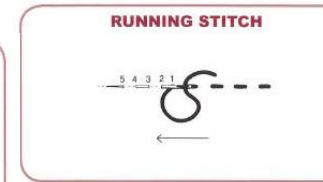
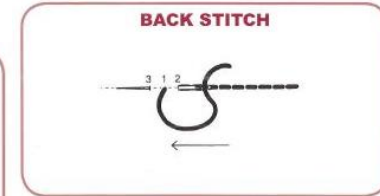
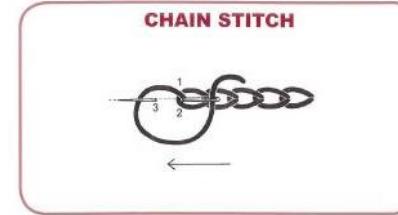
Explain how to complete an applique sample when using Bondaweb (8 marks)

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

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)

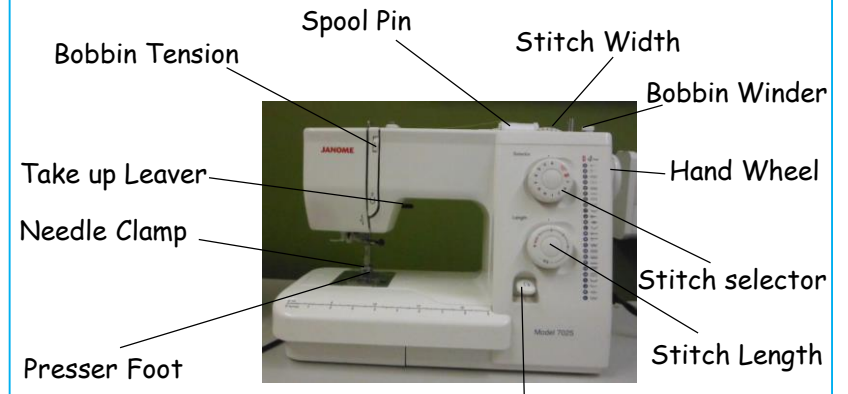
Why is a seam allowance important? (3 marks)

What does this symbol mean on a pattern? (2 marks)



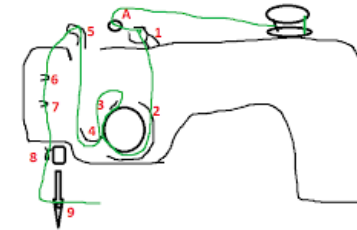
Name two disadvantages of using a sewing machine for embroidery. (2 marks)

Sewing Machine



Reverse Stitch button

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.

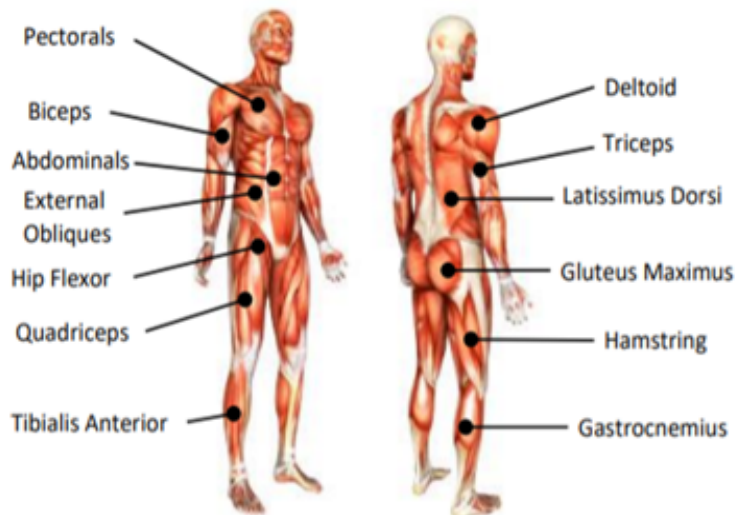
Muscular Strength – The maximum force, measured in kilograms (Kg) or newtons (N) that can be generated by a muscle or group of muscles.

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.

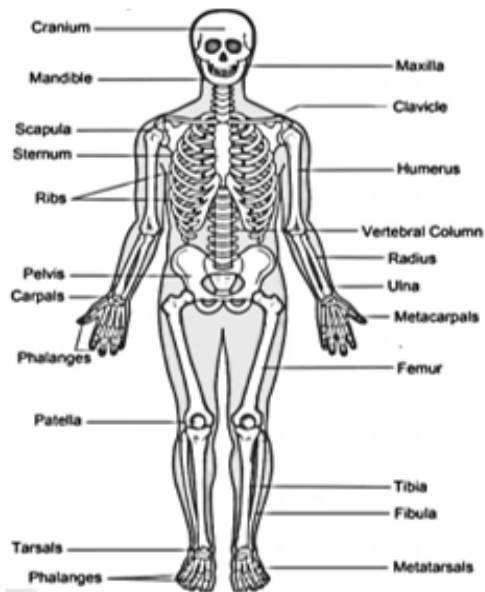
Body Composition – The ratio of fat to fat-free muscle mass. Sporting success is a combination of body composition and athletic ability.

<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)

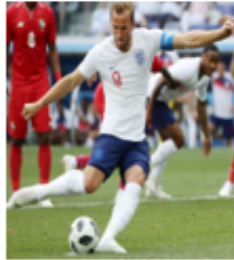
It is important to understand that different sports and sports performers require different aspects of fitness. Many sports need the same types of physical and skill related fitness, however some a unique and require specific components.



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**.



Warming up and cooling down

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/>

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

Some key terminologies to learn and remember

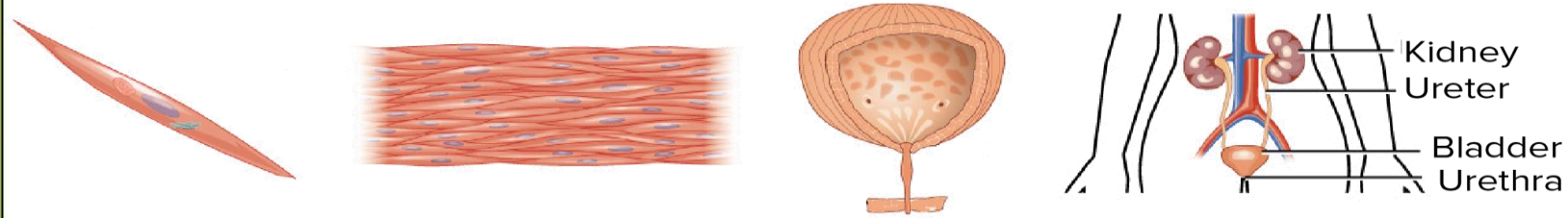
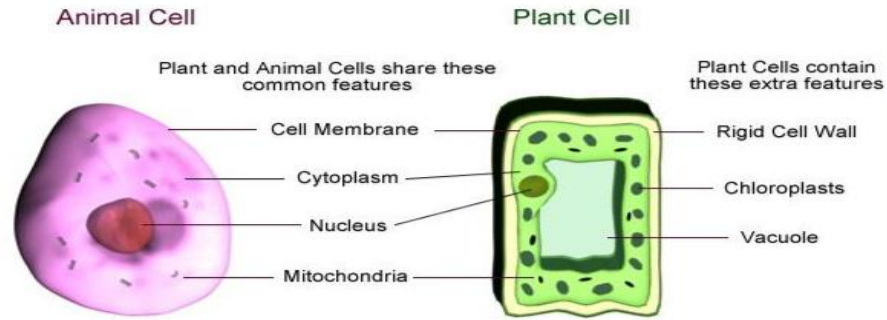
Aerobic Endurance	Muscular Endurance	Muscular Strength	Speed	Flexibility	Body Composition
Pulse Raiser	Stretches	Skill related	Gastrocnemius	Hamstring	Quadriceps
Gluteus Maximus	Pectorals	Biceps	Triceps	Pectorals	Oblique
Tibia	Fibula	Humerus	Femur	Radius	Ulna
Scapula	Clavicle	Vertebral Column	Cranium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

CELLS AND REPRODUCTION 1

Body organization

All living organisms are made up of one or more cells. **Unicellular organisms**, like amoebas, consist of only a single cell. **Multicellular organisms**, like people, are made up of many cells. Cells are considered the fundamental units of life.

The cells in complex multicellular organisms like people are organized into **tissues**, groups of similar cells that work together on a specific task. **Organs** are structures made up of two or more tissues organized to carry out a particular function, and groups of organs with related functions make up the different **organ systems**.



Muscle cell

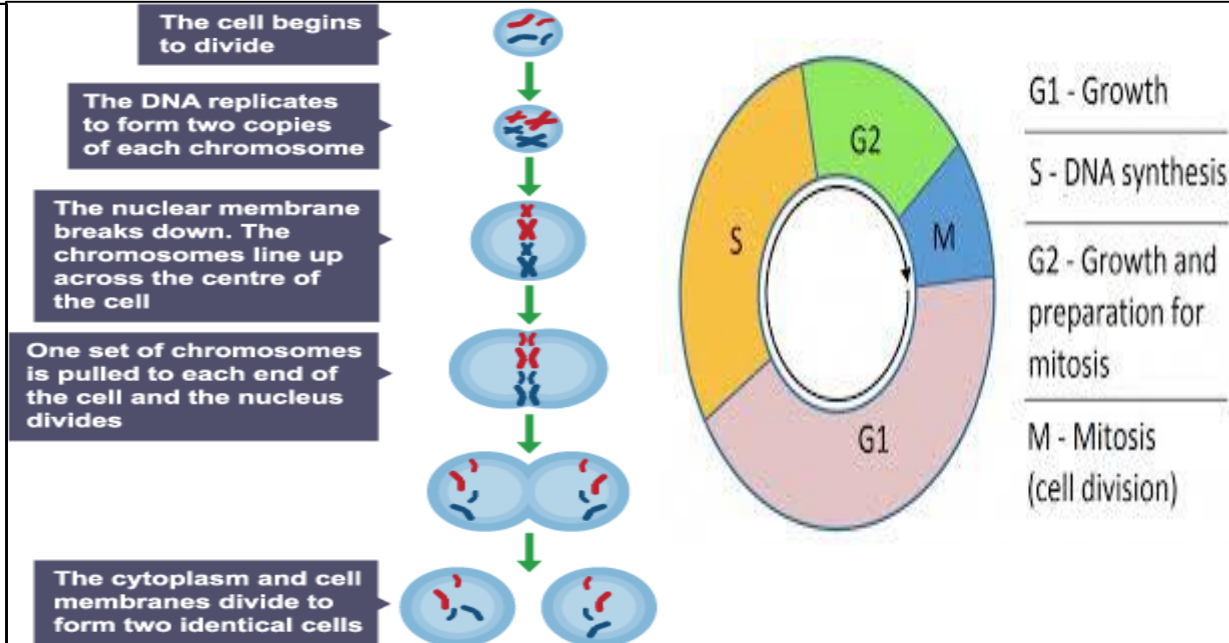
Muscle tissue

Organ (bladder)

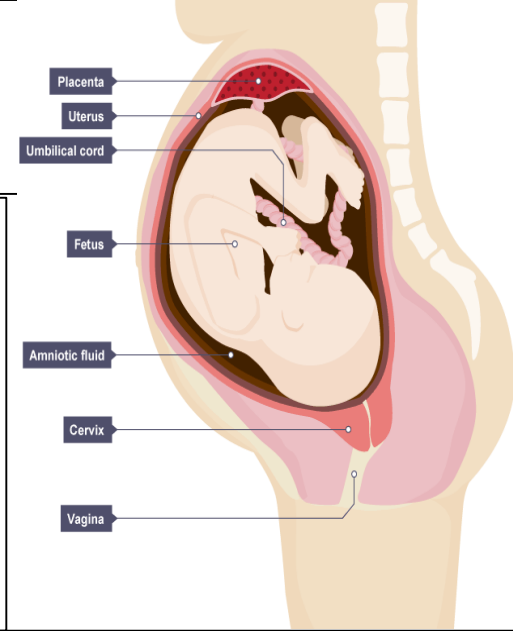
Organ system

The human cell nucleus contains 46 chromosomes or 23 pairs. They are ultimately long strands of coiled up DNA.

Cells are continually lost or made. All cells have a life cycle known as the cell cycle. To make new cells the body carries out cell division in a process known as mitosis.



Key Terms	Definition
Cell wall	Made of cellulose, which supports the cell
Cell membrane	Controls movement of substances into and out of the cell
Cytoplasm	Jelly-like substance, where chemical reactions happen
Nucleus	Contains genetic information (chromosomes) made of DNA. Controls what happens inside the cell
Vacuole	Contains a liquid called cell sap, which keeps the cell firm
Mitochondria	Where most respiration reactions happen
Chloroplast	Where photosynthesis happens



The two **ovaries** (one of them is called an ovary) contain hundreds of undeveloped female **gametes** (sex cells). These are called **ova** (one of them is called an ovum) or egg cells. Women have these cells in their bodies from birth, whereas men produce new sperm continually.

Oviducts

Each ovary is connected to the **uterus** by an **oviduct**. This is sometimes called a Fallopian tube or egg tube. The oviduct is lined with **cilia**, which are tiny hairs on cells. Every month, an egg develops, becomes mature and is released from an ovary. The cilia waft the egg along inside the oviduct and into the uterus.

Uterus and cervix

The **uterus**, also called the womb, is a muscular bag with a soft lining. The uterus is where a baby develops until its birth.

The **cervix** is a ring of muscle at the lower end of the uterus. It keeps the baby in place while the woman is pregnant.

The **vagina** is a muscular tube that leads from the cervix to the outside of the woman's body. A man's penis goes into the woman's vagina during sexual intercourse.

Testes

The two **testes** (one of them is called a testis) are contained in a bag of skin called the **scrotum**.

The testes have two functions:

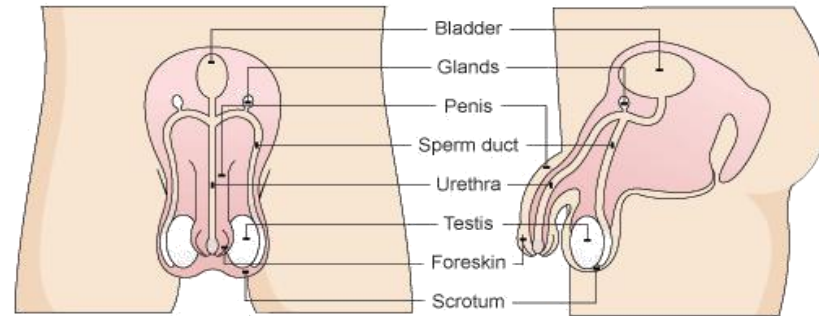
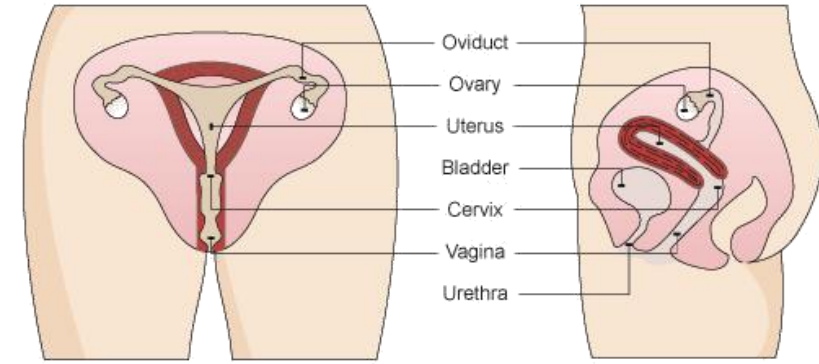
- to produce millions of male **gametes** (sex cells) called **sperm**
- to make male sex **hormones**, which affect the way a man's body develops

Sperm duct and glands

The sperm pass through the **sperm ducts**, and mix with fluids produced by the **glands**. The fluids provide the sperm cells with nutrients. The mixture of sperm and fluids is called semen.

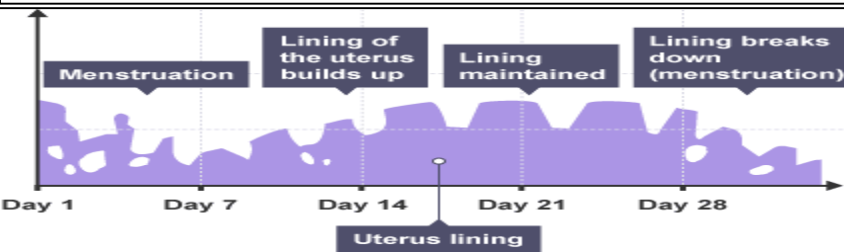
Penis and urethra

The **urethra** is the tube inside the penis that can carry urine or semen. A ring of muscle makes sure that there is no chance of urine and semen getting mixed up.

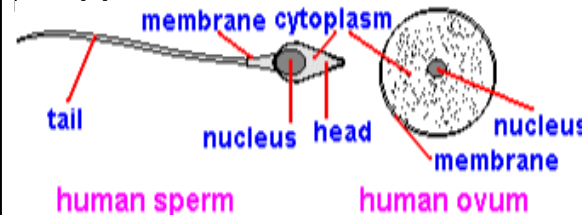


The menstrual cycle

The female reproductive system includes a cycle of events called the **menstrual cycle**. It lasts about 28 days, but it can be slightly less or more than this. The cycle stops while a woman is pregnant. These are the main features of the menstrual cycle:



Fertilisation happens if the egg cell meets and joins with a sperm cell in the oviduct. The fertilised egg attaches to the lining of the uterus. The woman becomes pregnant, the lining of the uterus does not break down and menstruation does not happen.

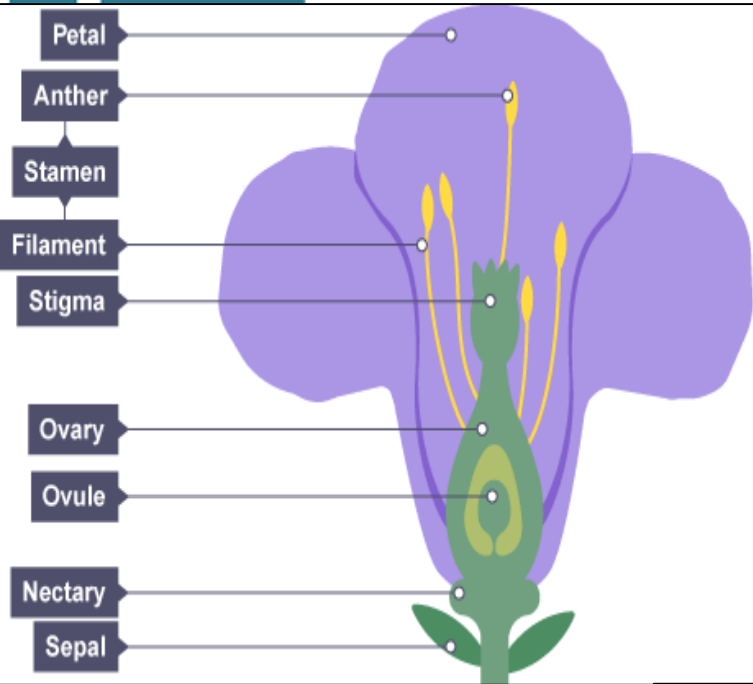


Fetal development and birth
The fertilised egg divides to form a ball of cells called an **embryo**. The embryo attaches to the lining of the uterus. It begins to develop into a **fetus** and finally into a baby.

The role of amniotic fluid, the placenta and the umbilical cord

CELLS AND REPRODUCTION 3

PLANT REPRODUCTION



Structure	Function
Sepals	Protect the unopened flower
Petals	May be brightly coloured to attract insects
Stamens	The male parts of the flower (each consists of an anther held up on a filament)
Anthers	Produce male sex cells (pollen grains)
Stigma	The top of the female part of the flower which collects pollen grains
Ovary	Produces the female sex cells (contained in the ovules)
Nectary	Produce a sugary solution called nectar, which attracts insects

Seed dispersal

The plant spreads the seeds out – this is called seed dispersal – so

their offspring don't compete with them for light or soil nutrients.

Seeds can be dispersed in many ways:

Animals – they eat the fruit and release the seeds in their waste

Wind – for example sycamore seeds

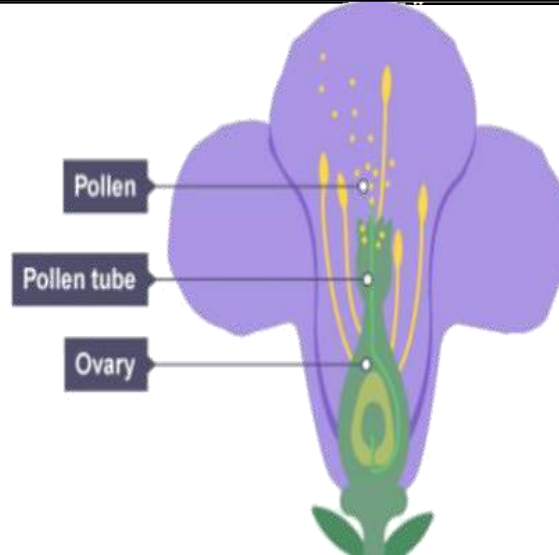
Water – for example coconuts

Pollination

Pollination is the transfer of pollen from the anthers of one flower to the stigma of another flower (of the same species).

In wind pollination, the wind carries the pollen from the anthers of one flower to the stigma of another

In insect pollination, insects carry the pollen from anthers to stigmas. They go to flowers to get nectar for food (e.g. bees), and the pollen sticks to them so they carry it onwards



After fertilisation, the female parts of the flower develop into a fruit:

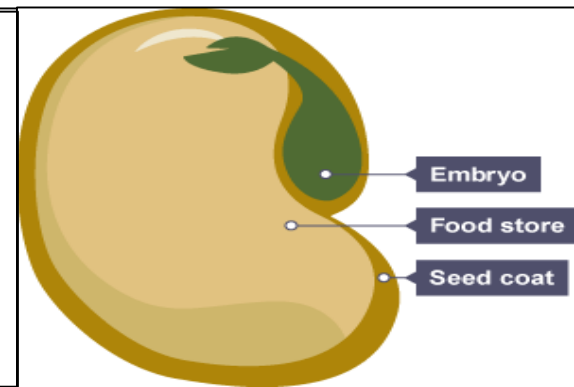
the ovules become seeds

the ovary wall becomes the rest of the fruit

Seeds

A seed has three main parts:

- embryo – the young root and shoot that will become the adult plant
- food store – starch for the young plant to use until it is able to carry out photosynthesis
- seed coat – a tough protective outer covering



Knowledge Organiser: Year 7 Spring Term 1 Part 1 Computational Thinking and Algorithms

Summary

An **algorithm** is a plan, a logical step-by-step process for solving a problem. Algorithms are normally written as a **flowchart**. The key to any problem-solving task is to guide your thought process. The most useful thing to do is keep asking 'What if we did it this way?' Exploring **different** ways of solving a problem can help to find the best way to solve it. **When designing an algorithm, consider if there is more than one way of solving the problem.**

When designing an algorithm there are two main areas to look at:

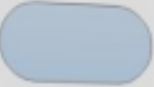

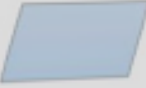


- What are the **inputs** into the problem?
- What will be the **outputs** of the problem?
- In what order do **instructions** need to be carried out?

What **decisions** need to be made in the problem? Are any areas of the problem repeated? What process is required?

Key Vocabulary

Abstraction	The process of separating and filtering out ideas and specific details that are not needed in order to concentrate on those that are needed.
Algorithm	A diagram that shows a process, made up of boxes representing steps, decision, inputs and outputs.
Decomposition	The breaking down of a system into smaller parts that are easier to understand, program and maintain
Flowchart	Sequences of instructions
Program	Sequences of instructions for a computer
Programming	The process of writing computer software.

Flowchart—Uses Images

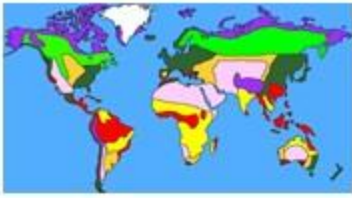
Symbol	Name	Function
	Start/end	An oval represents a start or end point
	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectangle represents a process
	Decision	A diamond indicates a decision

Flowchart—Examples



<https://bbc.in/2CNAQ1z>





Year 7 Knowledge Organiser: Global Ecosystems (Biomes)



Topics covered

- ✓ What is an ecosystem?
- ✓ Types of ecosystem/biomes
- ✓ Locations of biomes
- ✓ Deserts distribution (where they are found) and climate
- ✓ Deserts adaptations
- ✓ Tropical Rainforests distribution (where they are found) and climate
- ✓ Tropical Rainforests (TRF's) adaptations
- ✓ Threats to TRF's
- ✓ Protecting TRF's

Key Ideas:

1. I can describe the location of global climate zones (average weather zones) and biomes
2. I can describe the characteristics (what it is like) for deserts and tropical rainforests (TRF's)
3. I can explain how TRF's are being threatened
4. I can suggest ways that TRF's can be protected

Skills

- Recognising/Describing geographical features from an image
- Describing a distribution on a global scale map
- Drawing a climate graph
- Research using ICT
- Writing a persuasive letter

Places and Environments

- ❖ The Sahara desert
- ❖ The Amazon Rainforest

Key Terms Used in this Unit

- Biomes
- Temperature
- Rainfall
- Climate
- Distribution
- Adaptations
- Evaporation
- Precipitation
- Lianas
- Buttress Roots
- Drip Tips
- Biodiversity
- Cattle ranching
- Plantations
- Palm Oil
- Sustainable

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

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.

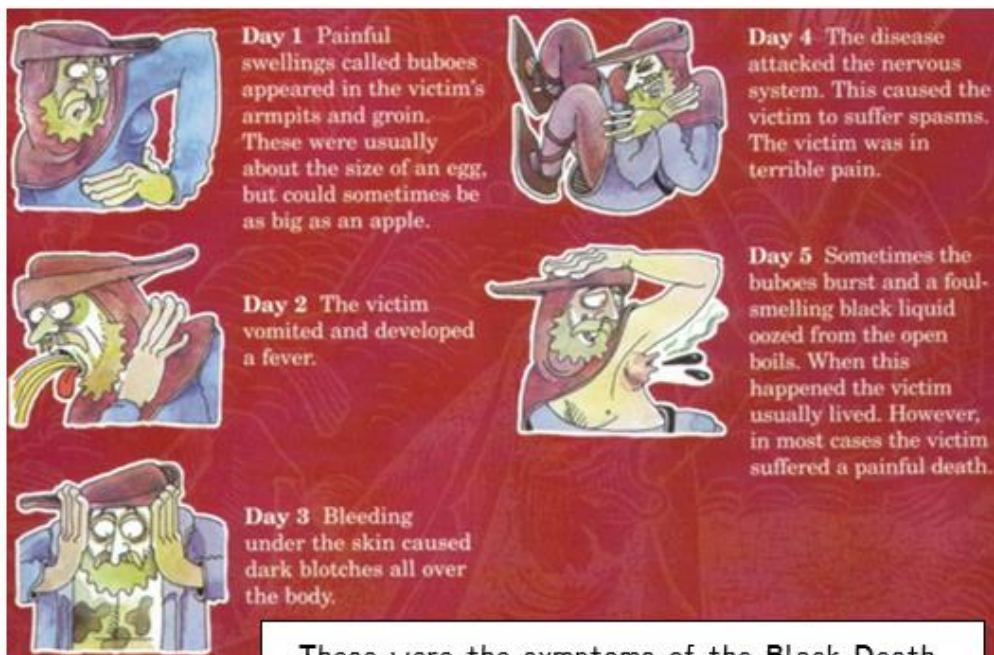
Wie bist du?	What are you like?
Ich bin (freundlich).	I am (friendly).
Wie ist er / sie?	What is he / she like?
Er / Sie ist ...	He / She is ...
lustig.	funny.
laut.	noisy.
schüchtern.	shy.
intelligent.	intelligent.
sportlich.	sporty.
musikalisch.	musical.
kreativ.	creative.
faul.	lazy.
launisch.	moody.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



Key words	
Black Death	A disease that spread across Asia and Europe in the 14 th 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 14 th 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

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.



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

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 <u>Labourers</u>	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

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 own 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

- Soliloquy
- Consequences
- Guilt
- Shakespeare
- Context
- Prose
- Verse
- Hubris



A brave Scottish general by the name of Macbeth receives a prophecy from a trio of witches that one day he will become King of Scotland. Consumed by ambition and spurred to action by his wife, Macbeth murders King Duncan and takes the Scottish throne for himself. He is then wracked with guilt and paranoia.

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

TIPTOP

PARAGRAPHS

Time - change in TIME



Place - change in PLACE

Topic - change in TOPIC



Person - change in SPEAKER



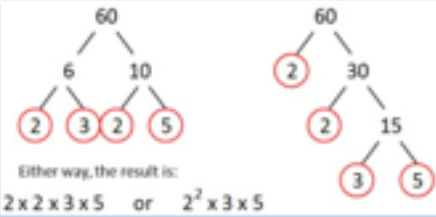


Literary devices and word class

- 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

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

Mathematics Number

1	Integer	A whole number	
2	Positive	A number greater than zero	
3	Negative	A number less than zero	
4	Decimal	A number with digits after the decimal point	
5	Operations	Symbols and words used to show how to combine numbers	
		× Multiply + Add ÷ Divide - Subtract	
6	Inverse Operations	The operation used to reverse the original operation.	
		+ and - are inverses	× and ÷ are inverses
		Finding a square root is the inverse of finding the square	
7		Finding a cube root is the inverse of finding the cube	
9	Order of Operations	The order in which operations should be done	
		B I DM AS	Brackets Indices Divide and Multiply Add and Subtract
10		Not equal to	
11	Inclusive	The end numbers are included	
12	Index Form	A number written to a power of an index	
13	Prefix	Is the beginning of a word	
14	Standard Form	A number written in the form $A \times 10^n$ Where $1 \leq A < 10$ and n is an integer	
15		Large number	$4.3 \times 10^6 = 4300000$
16		Small number	$2.1 \times 10^{-3} = 0.0021$
17	Scientific Notation	Another name for Standard Form	
18	Fraction	Represents part of a whole number	

19	Numerator	the number on the top of a fraction	numerator
	Denominator	the number on the bottom of a fraction	denominator 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97
21	Factor	A factor is a number that divides into another number. e.g. factors of 6: 1, 2, 3 and 6	The answer when two or more numbers are multiplied together.
22	Multiple	A multiple is a number from the times tables eg the first five multiples of 4: 4, 8, 12, 16 and 20	Writing a number as a product of its prime factors
			 <p>Either way, the result is: $2 \times 2 \times 3 \times 5$ or $2^2 \times 3 \times 5$</p>
26	Highest common factor (HCF)	The highest number that divides exactly into two or more numbers. e.g. The HCF of 12 & 8 is 4	
27	Lowest common multiple (LCM)	The smallest positive number that is a multiple of two or more numbers. e.g. The LCM of 12 & 8 is 24	
28	Combinations	When there are m ways of doing a task, and n ways of doing a second task, then the total number of combinations is $m \times n$	
RULES OF INDICES			
29	Multiplying	add the powers	$x^7 \times x^4 = x^{11}$
30	Dividing	subtract the powers	$x^9 \div x^3 = x^6$
31	Brackets	Multiply the powers	$(x^7)^2 = x^{14}$

STANDARD FORM Mathematics Year 7 Spring 1		
1	Converting a small number into standard form	$0.00000037 = 3.7 \times 10^{-7}$
2	Converting a very large number to standard form	$147\ 100\ 000\ 000 = 1.471 \times 10^{11}$
3	Converting to a small ordinary number	$2.4 \times 10^{-6} = 0.0000024$
4	Converting to a large ordinary number	$5.67 \times 10^9 = 5\ 670\ 000\ 000$
5	Adding or subtracting numbers in standard form	<p>The numbers must be converted into the ordinary numbers</p> $(2.3 \times 10^4) + (6.4 \times 10^3)$ $= 23000 + 6400$ $= 29400$ $= 2.94 \times 10^4$
6	Multiplying numbers in standard form	<p>The format stays the same.</p> <p>We can use index laws to help us. $(1.5 \times 10^3) \times (3 \times 10^5)$</p> $= 4.5 \times 10^{3+5}$ $= 4.5 \times 10^8$
7	Dividing numbers in standard form	<p>The format stays the same.</p> <p>We can use index laws to help us.</p> $(2.5 \times 10^{11}) \div (5 \times 10^{13})$ $= 0.5 \times 10^{-2}$ $= 5 \times 10^{-3}$

Year 7 RS: Does the existence of evil prove that God doesn't exist?

Key words	
Free Will	Humans have the ability to make their own choices.
Moral Choice	Humans have the ability to know right from wrong and can choose right or wrong behaviour.
Moral Evil	Actions that are caused by man that lead to suffering.
Natural Evil	Actions caused by nature that lead to suffering.
Omnipotent	The belief that God is all powerful.
Omnibenevolent	The belief that God is all loving and kind.
Omnipresent	The belief that God is all present- he is everywhere,
Omniscient	The belief that God know everything- the past, the present and the future.
The Fall	The original sin committed by Adam and Eve.

How do Christians respond to the problem of evil?

Christians respond to the problem of evil in several ways. For example:

Free will: God has given people free will – the ability to choose between right and wrong for themselves. God has shown people how they should live (e.g. the Ten Commandments), but it is up to them to decide whether or not to follow God's instructions. Suffering comes from humans misusing their freewill.

Spiritual growth: Some Christians point out that experiencing suffering ourselves or seeing other people suffer can teach us humility or help us develop compassion for others. Christians believe that God shares in our suffering (e.g. Jesus suffered on the cross).

The existence of evil and suffering is one of the commonest reasons people give for not believing in God, or for losing their faith in God:

- If God is all-loving, surely, he would not want people to suffer?
- If God is all-powerful, surely, he could prevent people from suffering?
- The fact that evil and suffering do continue to exist in the world makes some people question whether the all-powerful, all-loving God of Christianity actually exists. We call this the **problem of evil**.

They feel that God is using suffering to test the faith of his followers (like the story of Job)

They also believe that suffering is a part of God's plan- he knows why everything is happening, but humans cannot understand.

Christians feel that evil is necessary for us to know what good is. Because evil exists we can be aware of what is good and choose to do good so that we can grow into the image of God.

Some Christians believe that evil is the sole responsibility of humans for making wrong choices e.g.: Adam and Eve brought evil

Coping with Suffering

- 1. PRAYER** – Christians pray to God when they are suffering, hoping that God will listen and comfort and strengthen them in dealing with their suffering. They may also pray for God's help in ridding them of the suffering e.g. curing them/someone else from an illness.
- 2. IT IS PART OF GOD'S PLAN** – Even though humans may not understand or be aware of the plan, Christians believe that God does have a plan and purpose for everything that happens and this includes suffering. God works through all situations to bring about good, even if this may result in someone dying. It is comforting for Christians to think that a greater good will come out of the suffering they are feeling.
- 3. JESUS HIMSELF SUFFERED** – Christians believe that God can understand the suffering that they go through because Jesus himself suffered on the cross. The Bible teaches Christians to share in the suffering of Jesus and in times of suffering Christians will look to God for strength and support.

Christians believe that when God created the world, Adam and Eve were in a state of innocent and in a perfect relationship with God, as it says in Genesis 3.

God forbade Adam and Eve to eat the forbidden fruit from the tree of knowledge, but Eve was tempted by the serpent to do so and Adam also shared the fruit.

Humanity now had knowledge of good and evil – they were no longer innocent and brought death and evil into the world by disobeying God. God punished Adam and Eve by banishing them from the Garden of Eden and making their lives harder e.g. woman pain in childbirth.

The Fall is the phrase used to show this shift from a perfect relationship with God to one of disobedience and a broken relationship.

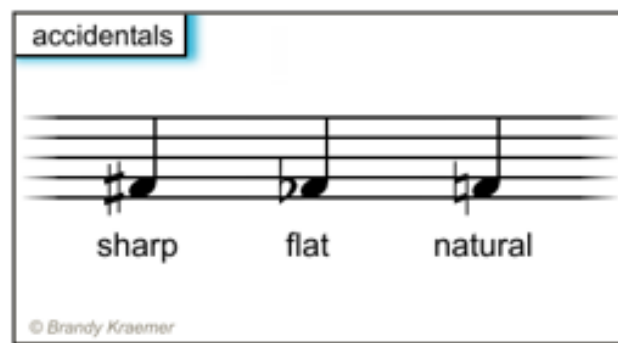
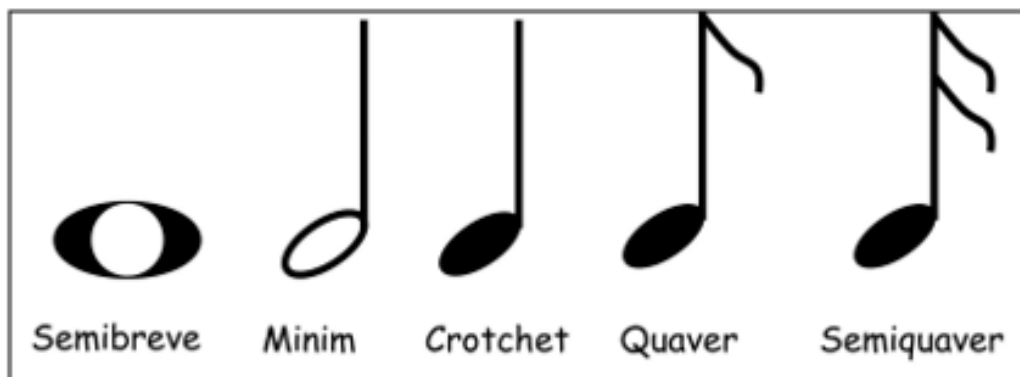
Many Christians believe that The Fall has affected all humans and that every person is born with original sin – born out of a relationship with God and needing to be saved by God. Without being saved by God, a person with original sin cannot gain eternal life in heaven

Christians believe that they must seek to have their broken relationship with God mended and restored and therefore ask for God's forgiveness in order to gain redemption (restoring a relationship with God). The way that Christians can do this is by following a life in the example of Jesus, because Jesus died on the cross for the sake of all humanity's sins so that humans can enter back into a relationship with God. Christians believe that anyone who chooses not to follow Christ and live outside of a relationship with God, will be punished after death by hell.

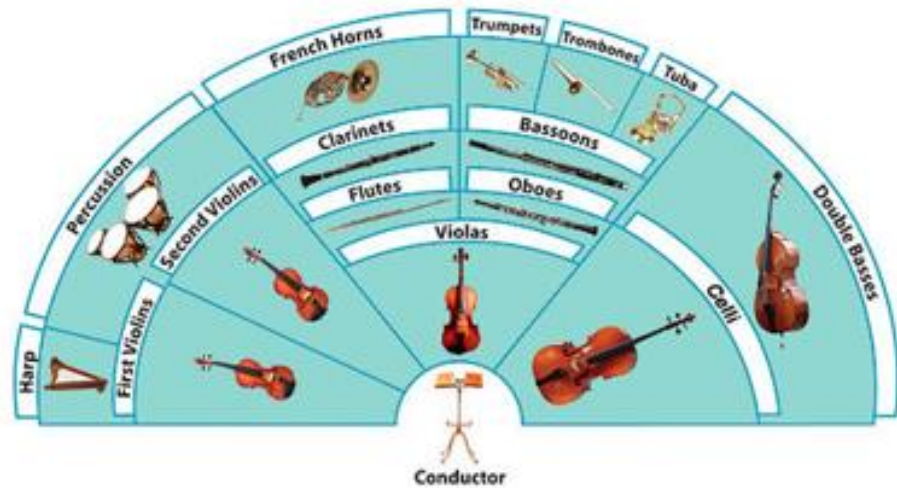


Year 7 Knowledge Organiser Music

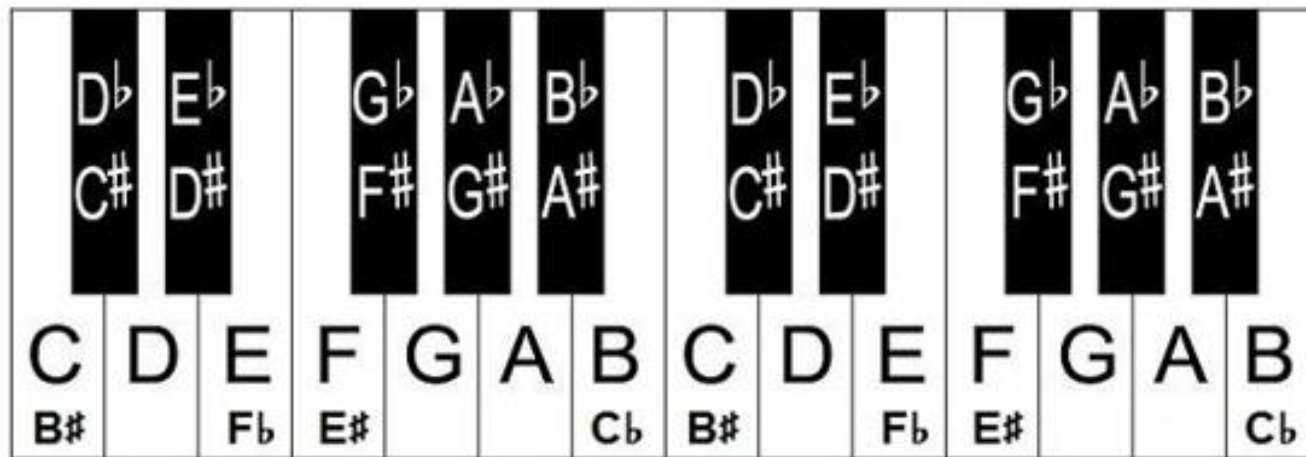
Duration	How long a note lasts for
Pitch	How high or low a note is
Tempo	How fast or slow a note is
Dynamics	How loud or quiet the music is
Timbre	The quality of sound
Texture	How thick or thin the music is
Structure	How the sections of music are laid out e.g. chorus, verse etc.
Silence	When the instruments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

