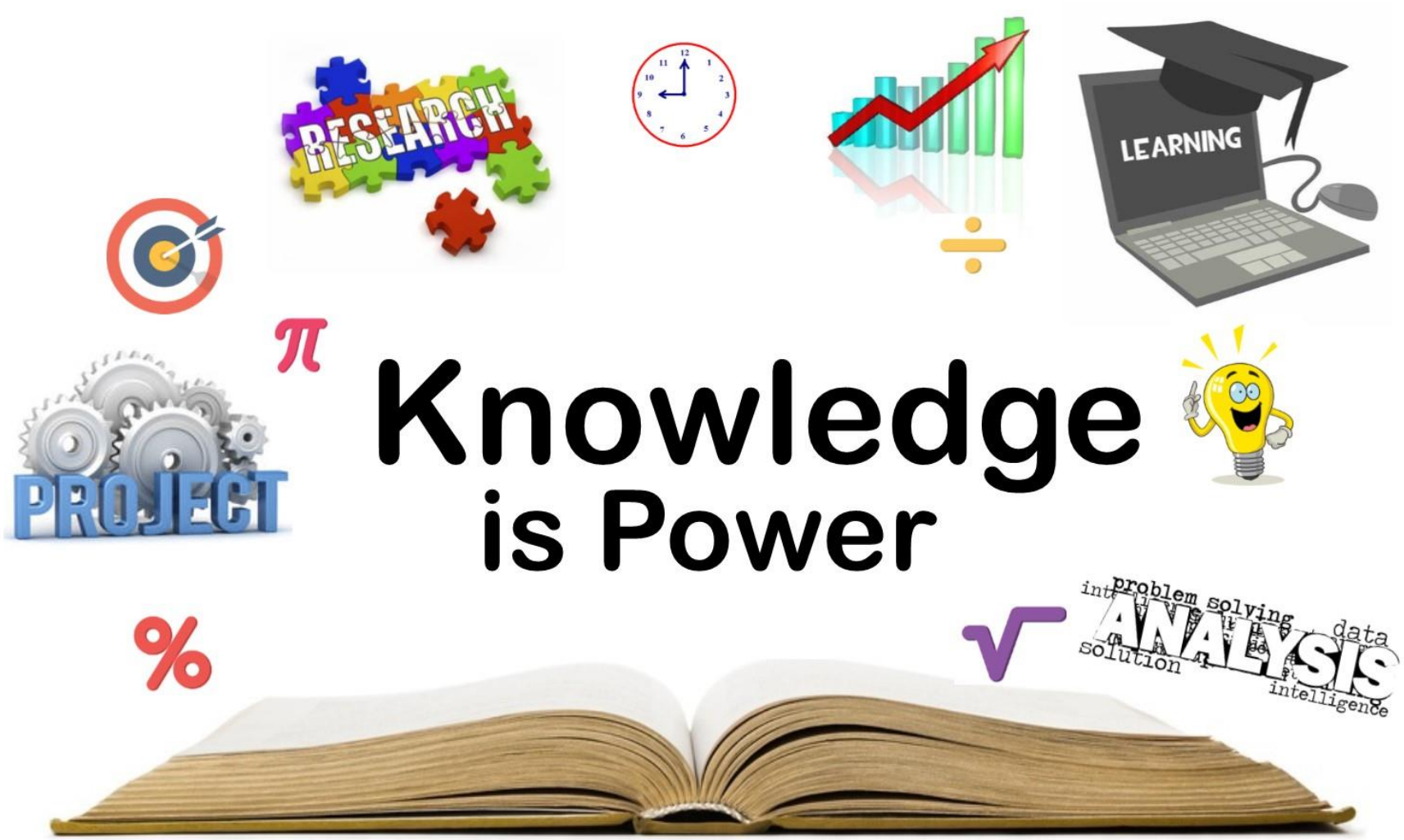
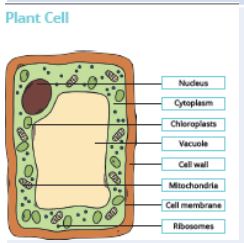
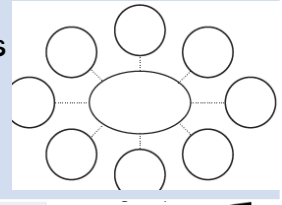


Year 7 Spring 1 - Knowledge Organiser

Just reading through your books or a knowledge organiser is not always an effective way to revise. Instead, you should do something with the information. Choose an example of the revision methods on the pages or see if you can come up with another method.

The knowledge is evolutionary not revolutionary. Approximately half the knowledge is new and half helps you revise. Many of the activities are changing. We hope you enjoy them.

Y7 – In SKL this term we will be continuing with the GrangeEnders book, which will focus on your personal development around ways to take criticism positively and being part of a team and considering what part you play and how this may impact you both inside and outside of the Academy. We will also look at ways to cope with 'big' life events such as bereavement.

Idea	Explanation
Make some flash cards or PowerPoint slides. Make top trumps. 	Write down key words, quotation, questions or equations on one side of a card. On the other side, write the definition or answer. Use them to test yourself.
 Make a poster.	Turn your notes into posters with lots of colour and illustrations. Summarising the key information in a different way is an effective way of learning and your brain will remember the colours more easily. Do the title last!
Draw spider diagrams, or for the adventurous mind maps. 	Write the topic/keyword in the centre of your page. Add everything you know in subtopics. Then explore each subtopic in turn adding more ideas. Colour/pictures help you recall.
Write a song or a rap. 	Are there songs that stick your head. Change the lyrics to the information you want to learn. If you record and listen back it will be a more fun way of revising.
 Plan a lesson	If you teach something to someone else the chance of recalling it is really high. This has been found to be the most effective way of learning something for the long term.
Write a story or comic strip. 	Take the keywords or facts that you need to learn and turn them into a story or a cartoon. The sillier the story the more likely you are to remember it.
Write a quiz. Design a game. 	Playing is how we learn as young children and it is a very powerful way of learning throughout life. If we enjoy the game it helps us remember.

Starter activity: What do you already know?

We will be reading an article from the BBC called "Footballers have 'worryingly poor' teeth."

Discuss the following questions.

- What things can you do to look after your teeth?
- Have you had a tooth ache before? What happened/ what did you do?
- What things can you do before performing a physical activity to help prevent injury?

PRE-READING STRATEGIES

Stand up if you agree with the statement.

Sit down if you disagree.

Footballers have 'worryingly poor' teeth

By James Gallagher
Health editor, BBC News website

3 November 2015

Professional footballers have worryingly poor teeth that could be affecting their performance on the pitch, say dentists.

1. On average, footballers have better teeth and dental health than the general population.
2. You only need to go to the dentist when you have a tooth ache. Regular check-ups aren't important.
3. Dental health is an important part of your overall health.
4. A tooth ache can affect how well a footballer plays.
5. Football teams should employ dentists as part of their medical team.
6. Dental problems can make other injuries (i.e. a pulled muscle in your leg) worse.
7. Sports/ health drinks often contain lots of sugar and are bad for your teeth.

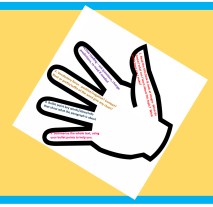
Let's read

- Ask questions, make connections, discuss, re-read, decide on key ideas

Click on the link!

https://www.bbc.co.uk/news/health-34699583

VOCABULARY FOCUS



Some words change their meaning depending on the context in which we use them.

Read the sentences below and look at the blue words in bold. What do they mean in these sentences?

1. “Professional footballers have worryingly poor teeth that could be affecting their **performance** on the pitch.”
2. “Previous research has shown “**striking**” levels of bad teeth in athletes.
3. “These are individuals who otherwise **invest** so much in themselves.”

VOCABULARY FOCUS

PiXL Unlock

Read It

Cavity

Define It

A decayed part of a tooth.

Digging Deeper:

In this context we are talking about teeth cavities, however the word can be used in other contexts to mean any empty space within a solid object. For example a hole in a tree or a rock could be described as a cavity if it is a hollowed out space.

Draw It

Use It

You should go to a dentist to treat a cavity.

Link It

Hole, chamber, hollow, pocket, space, socket

Deconstruct It

From the latin word 'cavus' which means hollow.

Related terms in the article:

Tooth decay– rot of the tooth

Dental erosion (see next slide)

Abscess– a build up of pus caused by infection

Oral health– relating to the mouth

Dental health– relating to the teeth

VOCABULARY FOCUS

PiXL Unlock

Read It

Erosion

Define It

The gradual destruction of something.

Draw It

Use It

Nearly four out of ten of the players had active tooth decay and dental erosion, in which the tooth structure is worn away by acid.

Link It

Wear away, abrasion, dissolving, crumbling, weathering, grinding down

Deconstruct It

From the latin word 'erodere' which means to wear or gnaw away.

Digging Deeper:

Erosion can be used in different topics and subjects. For example in geography you might look at how rocks and cliffs are eroded by water and wind. In English or History you might talk about the erosion on an idea (i.e. an idea that was once widely held, but that has diminished over time.)

VOCABULARY FOCUS

PiXL Unlock

Read It

Nutrition

Define It

The process of providing or obtaining the food necessary for health and growth.

Draw It

Use It

There is a direct link between nutrition and health.

Link It

Nourishment, nutrients, sustenance, food

Deconstruct It

From the latin word 'nuteire' which means to feed or noursih

Digging Deeper:

The human body converts the food consumed into energy in order to function and stay alive. The nutrients in food each provide a different amount of energy to the body.

POST READING: HAVE YOU CHANGED YOUR MIND?

Stand up if you agree with the statement.

Sit down if you disagree.

Footballers have 'worryingly poor' teeth

By James Gallagher
Health editor, BBC News website

3 November 2015

Professional footballers have worryingly poor teeth that could be affecting their performance on the pitch, say dentists.

1. On average, footballers have better teeth and dental health than the general population.
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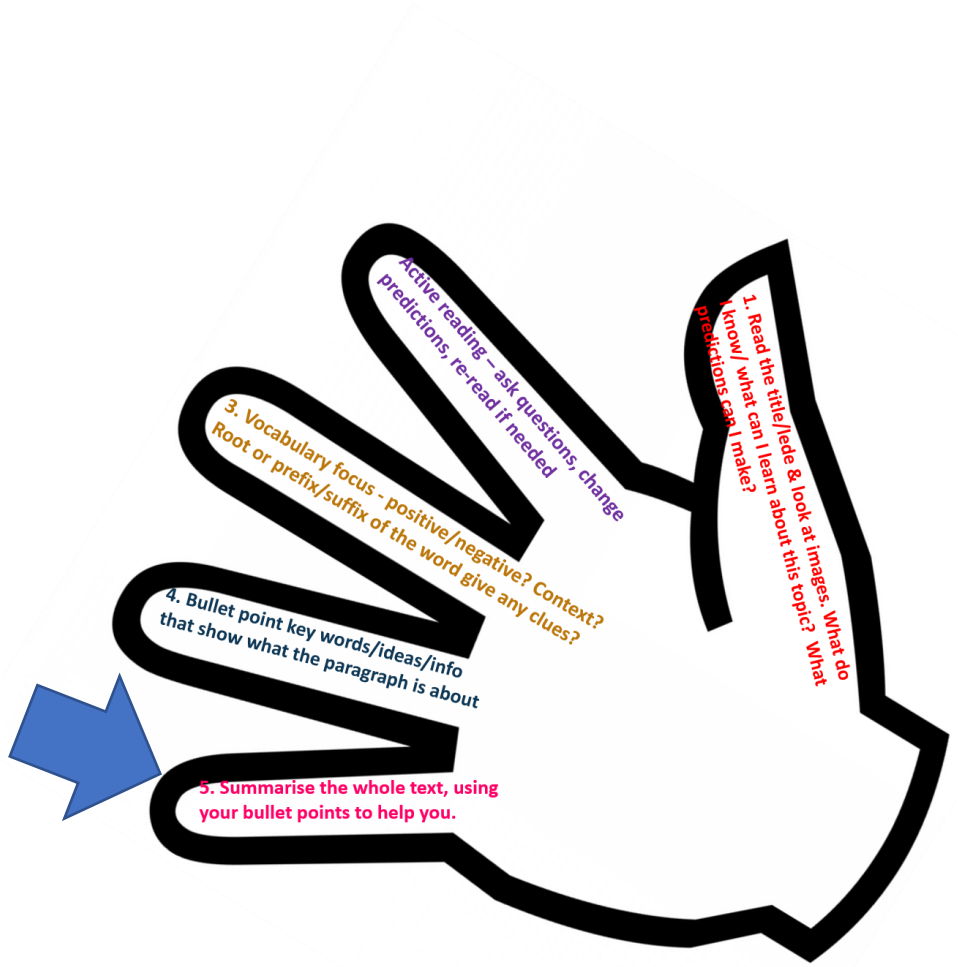
5. Football teams should employ dentists as part of their medical team.
6. Dental problems can make other injuries (i.e. a pulled muscle in your leg) worse.
7. Sports/ health drinks often contain lots of sugar and are bad for your teeth.

AFTER READING- APPLYING AND SUMMARISING KNOWLEDGE

- Write down 5 key things you have learnt from this article.



QUIZ- Answer the following questions. Write your answers in full sentences.

1. How do the teeth of footballers compare to the general population?

2. Why were the researchers surprised by what they found?

3. What severe affect can poor dental health have on players?

4. Name two other ways players might be affected by their dental health?

5. Why are footballers and athletes more at risk of poor dental health? Name two factors the article suggests.

6. What are football clubs doing to improve the dental health of players?

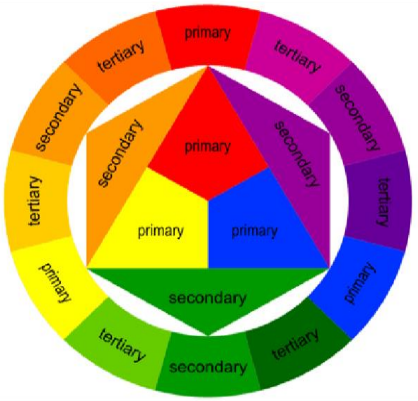
7. How do footballers teeth compare to other athletes?

1

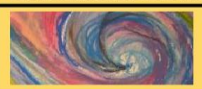
Media	The substance that an artist use to make art
Materials	The same as media but can also refer to the basis of the art work eg, canvas, paper, clay
Techniques	The method used to complete the art work, can be generic such as painting or more focus such as blending
Processes	The method used to create 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

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

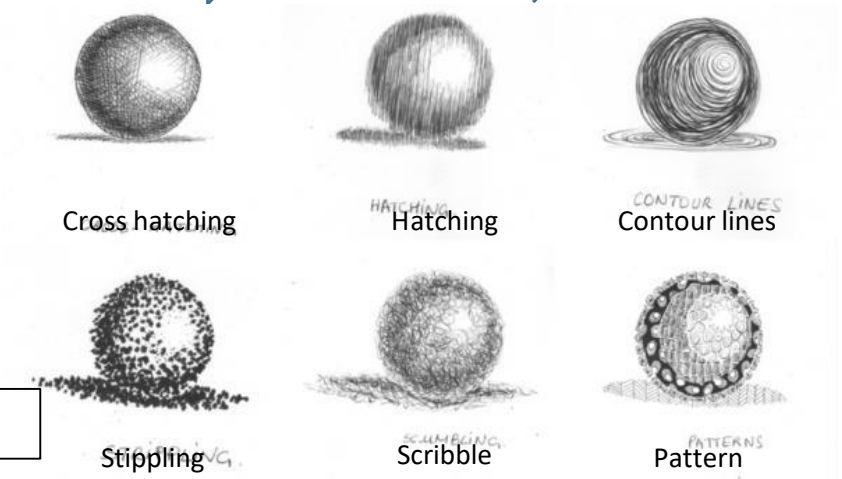
Basic shapes → Accurate shapes → Detail → Shade

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

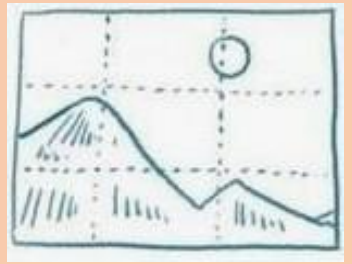
Formal Elements of Art

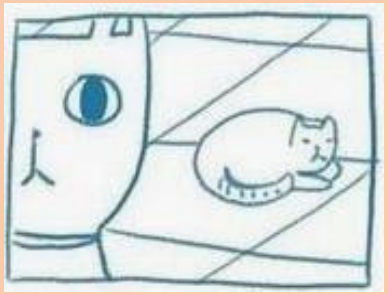
LINE	the path left by a moving point, e.g. a pencil or a brush dipped in paint. It can take many forms. e.g. horizontal, diagonal or curved.
TONE	means the lightness or darkness of something. This could be a shade or how dark or light a colour appears
TEXTURE	the surface quality of something, the way 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

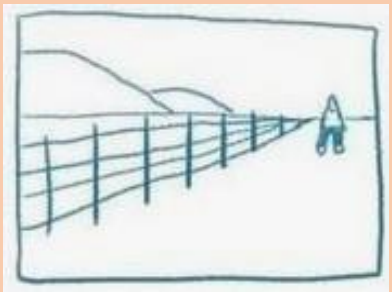
Rule of thirds – Place focal objects at 1/3 or 2/3 of the image horizontally or vertically. Not in the middle





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

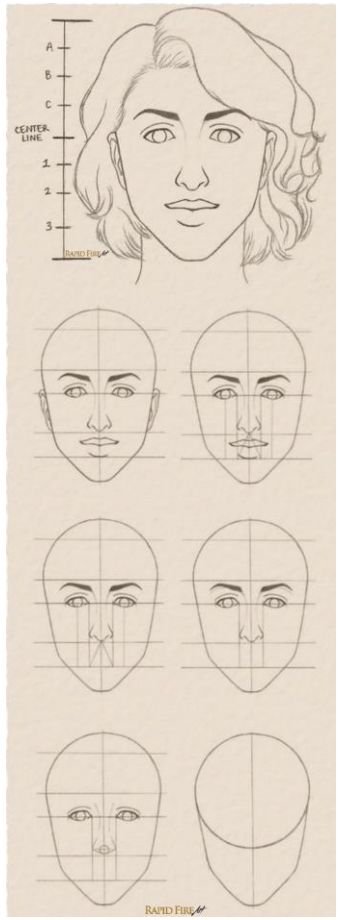
3

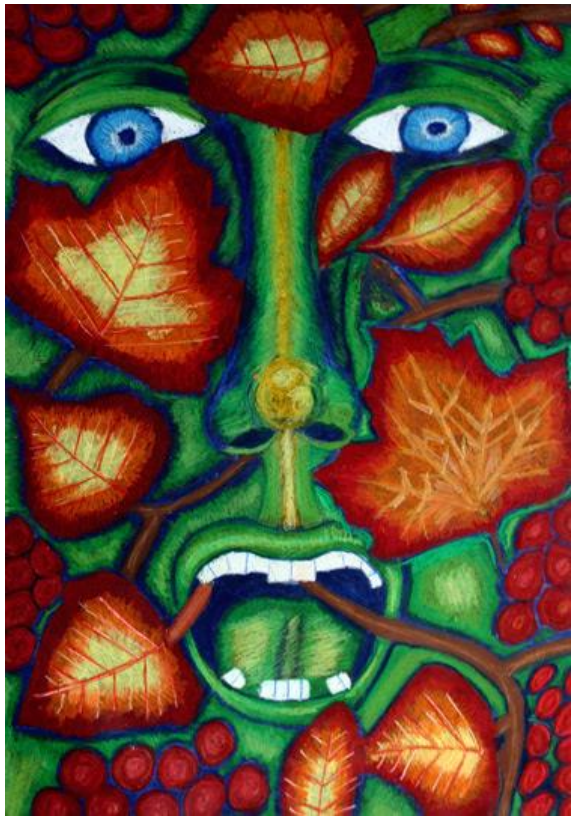
A Rough	A Visual/ Maquette	Final Piece
A basic sketch of a final idea	A small image or model created in selected materials	An image or sculpture pulling all preparatory work together

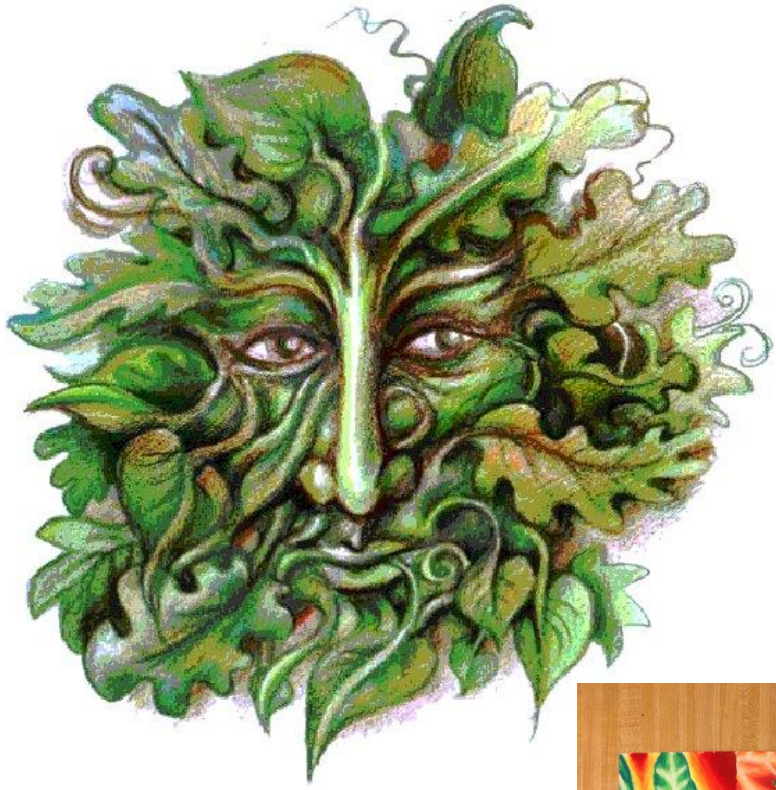
Art Key Stage 3

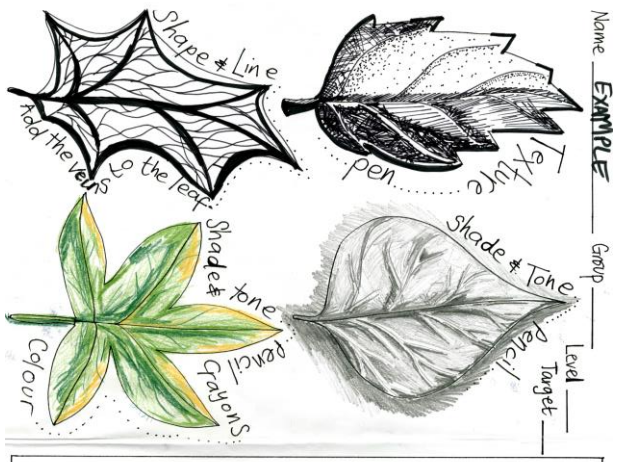
The Green Man

Year 7



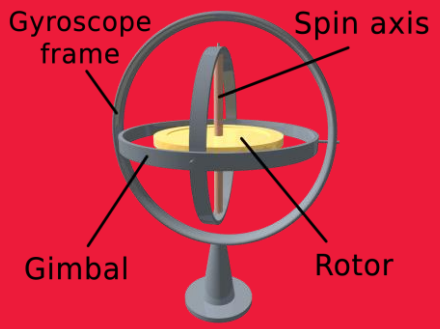


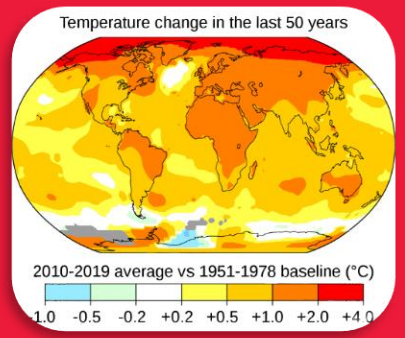




Year 7 STEM – Spring Term Part 1

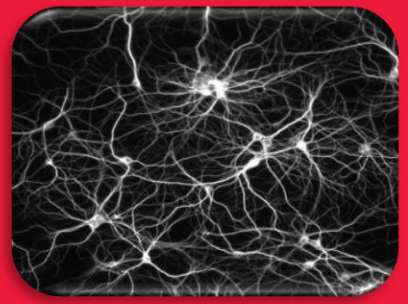
Science



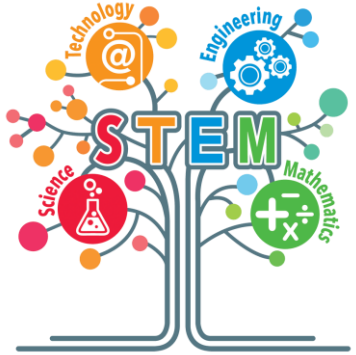


Gyroscopes
gyroscopes are tiny and they are used to guide everything from submarines and satellites to rovers on Mars and the phone in your pocket.
They are also integral to drones - a technology that some believe could transform how we do our shopping.

The Earth's temperature has fluctuated in the last few hundred years. However, since around 1950 there has been a dramatic increase in global temperatures. This increase is known as **<u>global warming</u>**.

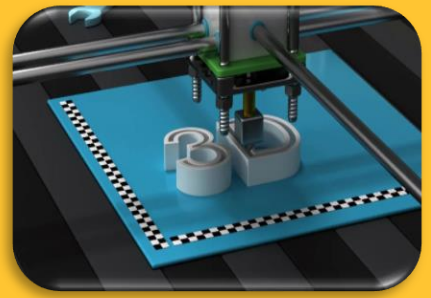


Stem will encourage you to use your knowledge of Science, technology, engineering and maths to explore ideas, materials and themes.

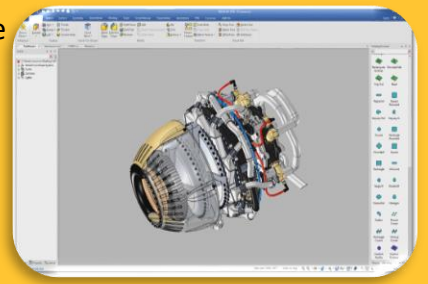


In addition to subject-specific learning, STEM aims to foster inquiring minds, logical reasoning, and team building skills.

Technology

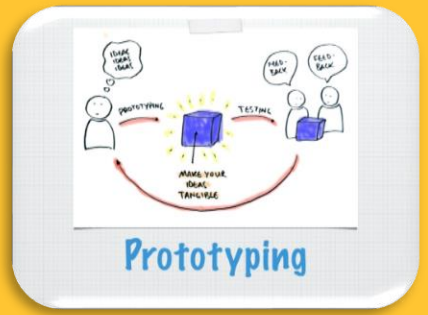


A laser cutter can use a computer aided design (CAD) to cut or engrave complex shapes out of card, wood, foam, plastic or circuit board.



CAD packages are more sophisticated drawing packages. They are used by engineers, architects and designers to produce detailed design plans and technical drawings.

3D printing is an additive computer aided manufacture (CAM) process that follows CAD designs to place layers on top of each other repeatedly and create a 3D object



Year 7 STEM – Spring Term Part 1

Engineering

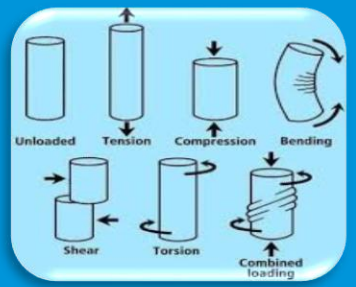
Engineering

Robotics - intelligent machines that can help and assist humans in their day-to-day lives and keep everyone safe

tension - a pulling force
compression - a pushing force
bending - forces at an angle to the material
torsion - a twisting force
shear - forces acting across the material

Different Types of Sensors

- **Temperature Sensor**.
- **Proximity Sensor**.
- **Accelerometer**.
- **IR Sensor (Infrared Sensor)**
- Pressure Sensor.
- Light Sensor.
- **Ultrasonic Sensor**.
- Smoke, Gas



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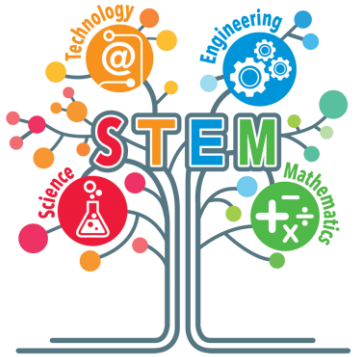
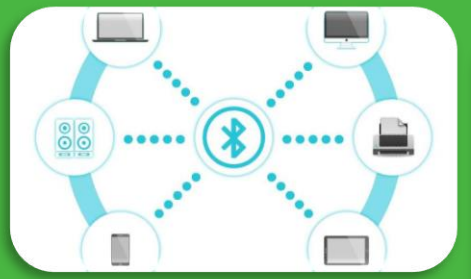
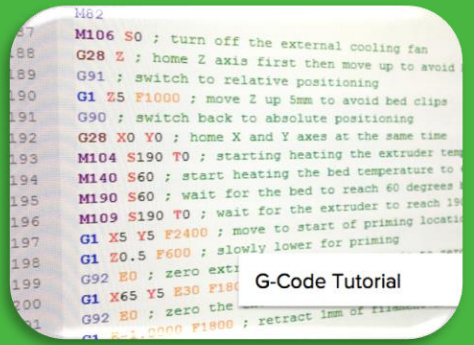


In addition to subject-specific learning, STEM aims to foster inquiring minds, logical reasoning, and team building skills.

Maths/ Computing





G-code stands for “Geometric Code”. Its main function is to instruct a machine head how to move geometrically in 3 dimensions.

NFC (near-field communication) allows two devices placed within a few centimeters of each other to exchange data. In order for this to work, both devices must be equipped with an NFC chip.

Bluetooth is a wireless technology for exchanging data over short distances. The chip can be plugged into computers, digital cameras and mobile phones.

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:

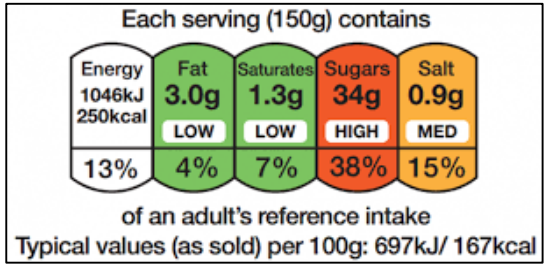
What five conditions to bacteria need to grow and multiply? (5 marks)

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.

Jam tarts

Ingredients

Pastry

30g margarine

50g Flour

1tbsp water

Filling

6tps jam

Equipment

Bowl

wooden spoon

Jug

Weighing scales

Cup cake tray

Cupcake cases

Rolling pin

Cookie cutter

Skills

Rubbing in method

Pastry making

Rolling out

1. Pre-heat the oven to 180°C. Rub the butter and flour together until it resembles breadcrumbs

2. Add the tbsp of water and mix. Use your hands to make the pastry into a ball.

3. Place on a floured surface and roll out evenly to the thickness of a £1 coin.

4. Use the cookie cutter to cut out 6 pastry cases.

5. Place the pastry cases into the cupcake cases in a tray.

6. Add a tsp. of jam to each case and bake in the oven for 15 minutes.

Pancakes

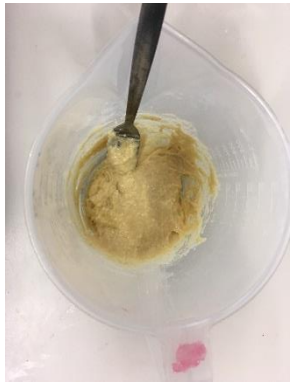
Ingredients
55g plain flour
Pinch of salt
1 egg
100ml milk
25g butter

Equipment
Bowl
Jug
Frying pan
Spoon
Spatula

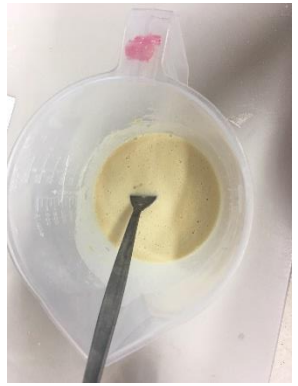
Skills
Weighing
Measuring
Mixing
Frying

How many different toppings can you think of to go with pancakes?

1. Weigh out the flour in a jug. add the salt and the egg.



2 Mix until its all combined.



3.. Gradually add the milk and keep mixing.

4. Once its smooth start heating pan with a little butter. Add a spoon of mixture and allow to cook.

5. When its golden, flip over and cook on the other side.

Serve hot with your favourite toppings ☺

Quesadillas

Ingredients

120g cheese

1 chicken breast

optional vegetables:

- pepper
- Spring onion
- Sweetcorn
- Spinach

These must be cut very small.

2 tortilla wraps

Equipment

Chopping board

Knife

Grater

Pan

Skills

Grating, chopping, frying, adapting a recipe

1. Chop the chicken into small bite-sized pieces and grate the cheese.

2. Lightly fry the chicken and vegetables until cooked through.

3. Sprinkle 1/4 the cheese over half of the wrap followed by $\frac{1}{2}$ the chicken.

4. Cover the chicken with another $\frac{1}{4}$ of the grated cheese.

5. Fold in half and place in the frying pan.

6. Fry in a lightly oiled pan until golden on each side.

Repeat with the remining wrap, cheese and chicken.

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.

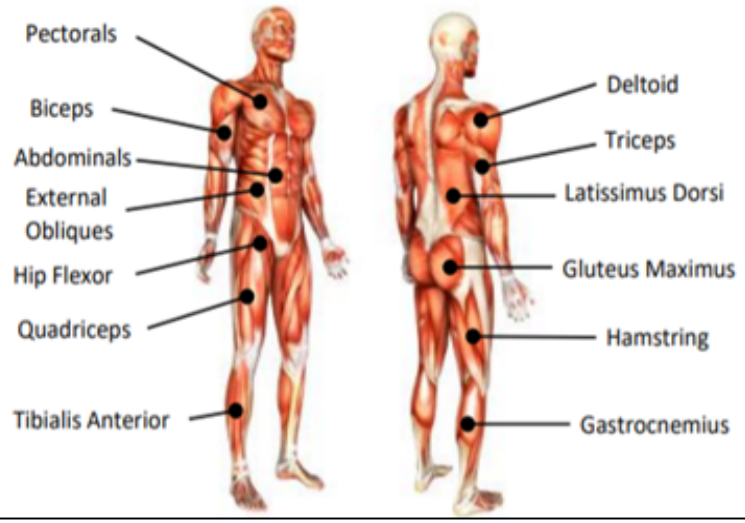
Muscular Strength – The maximum force, measured in kilograms (Kg) or newtons (N) that can be generated by a muscle or group of muscles.

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.

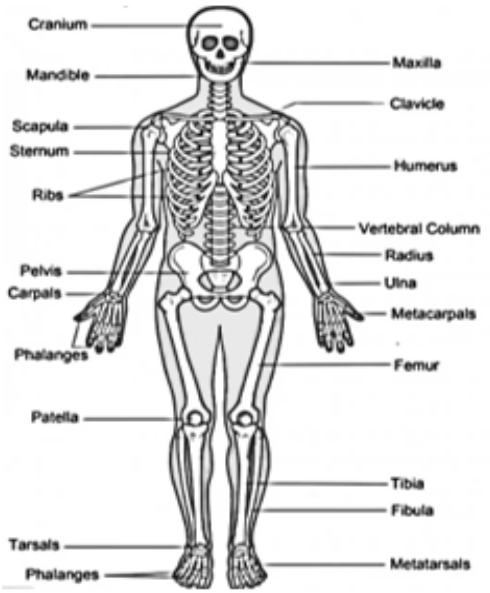
Body Composition – The ratio of fat to fat-free muscle mass. Sporting success is a combination of body composition and athletic ability.

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.

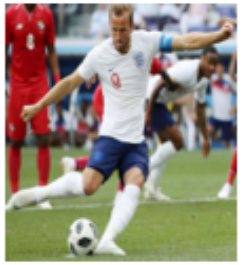
https://www.youtube.com/watch?v=nJleyUBesi8

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

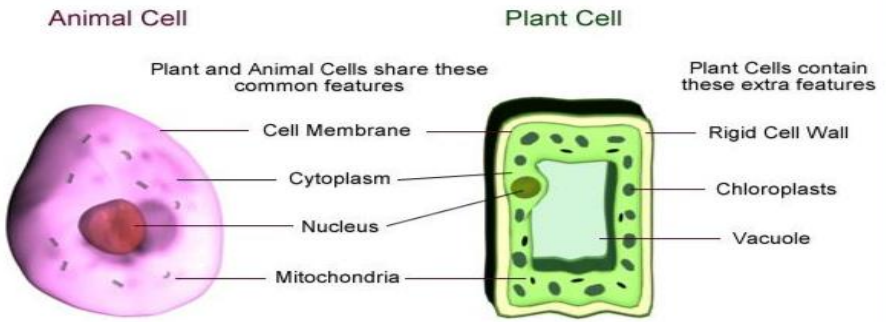
1.) Gradually returns body temperature, breathing and heart rate back to their resting rate.
2.) To mentally unwind.
3.) To remove lactic acid, helping to prevent DOMS (Delayed Onset Muscle Soreness)
4.) To remove carbon dioxide and waste products.
5.) Improves flexibility.
6.) Avoids blood from gathering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

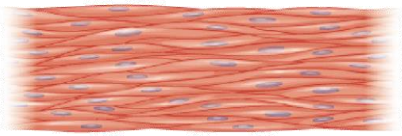
CELLS AND REPRODUCTION 1



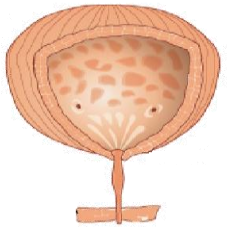
Key Terms	Definition
Cell wall	Made of cellulose, which supports the cell
Cell membrane	Controls movement of substances into and out of the cell
Cytoplasm	Jelly-like substance, where chemical reactions happen
Nucleus	Contains genetic information (chromosomes) made of DNA. Controls what happens inside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

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.**

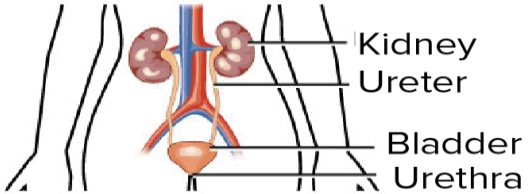
Muscle cell



Muscle tissue



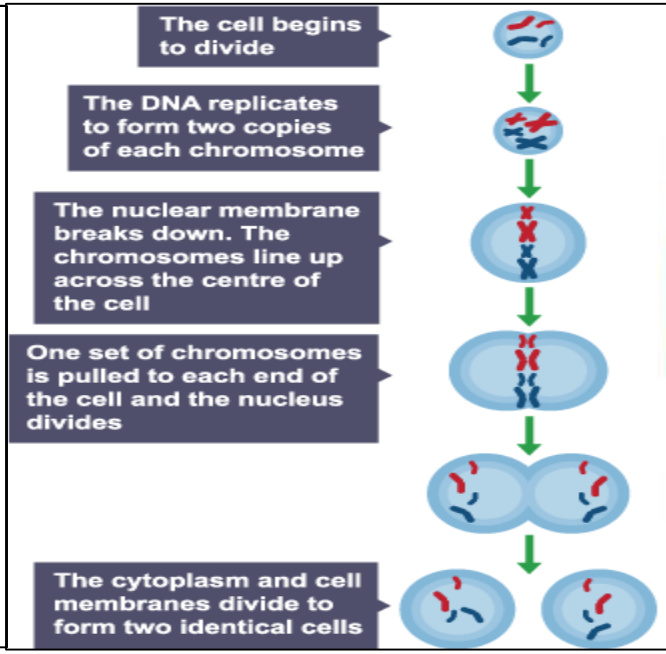
Organ (bladder)

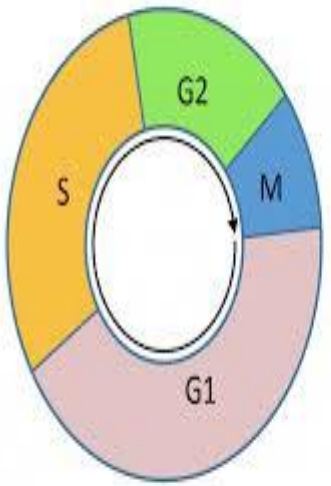


Organ system

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





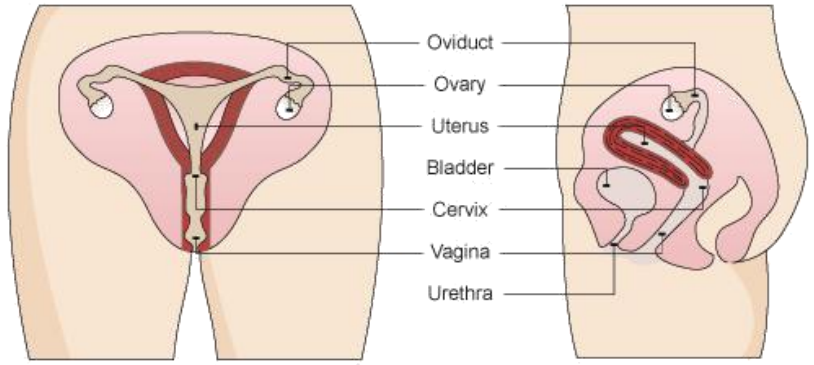
G1 - Growth

S - DNA synthesis

G2 - Growth and preparation for mitosis

M - Mitosis (cell division)

CELLS AND REPRODUCTION 2



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

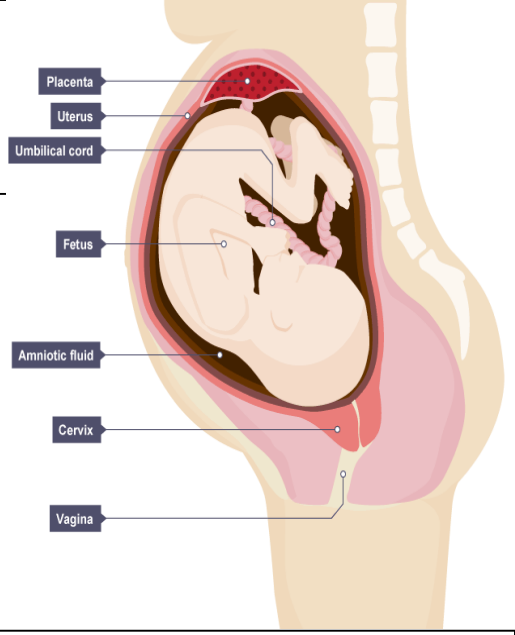
Each ovary is connected to the **uterus** by an **oviduct**. This is sometimes called a Fallopian tube or egg tube. The oviduct is lined with **cilia**, which are tiny hairs on cells. Every month, an egg develops, becomes mature and is released from an ovary. The cilia waft the egg along inside the oviduct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

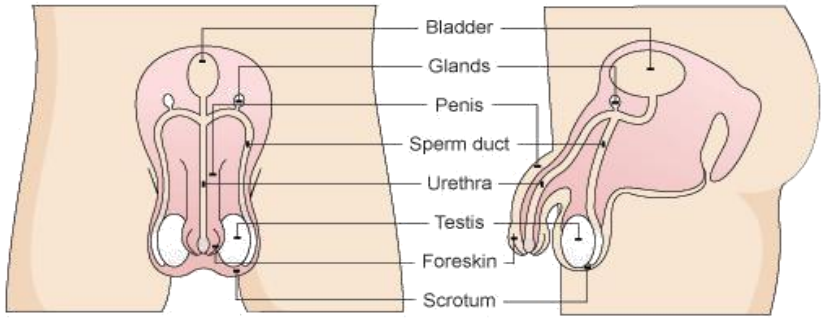
Uterus and cervix

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

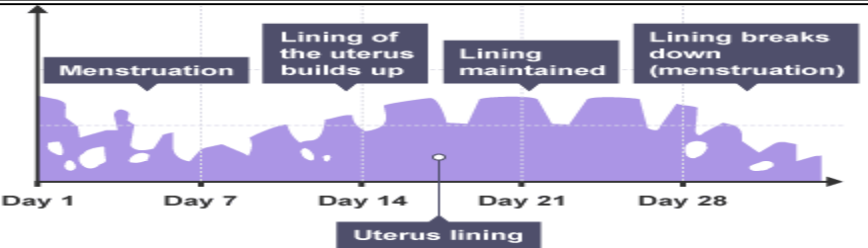
The sperm pass through the **sperm ducts**, and mix with fluids produced by the **glands**. The fluids provide the sperm cells with nutrients. The mixture of sperm and fluids is called semen.

Penis and urethra

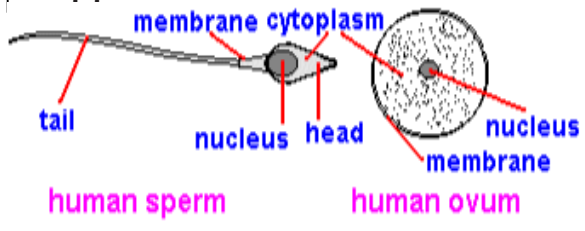
The **urethra** is the tube inside the penis that can carry urine or semen. A ring of muscle makes sure that there is no chance of urine and semen getting mixed up.

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.



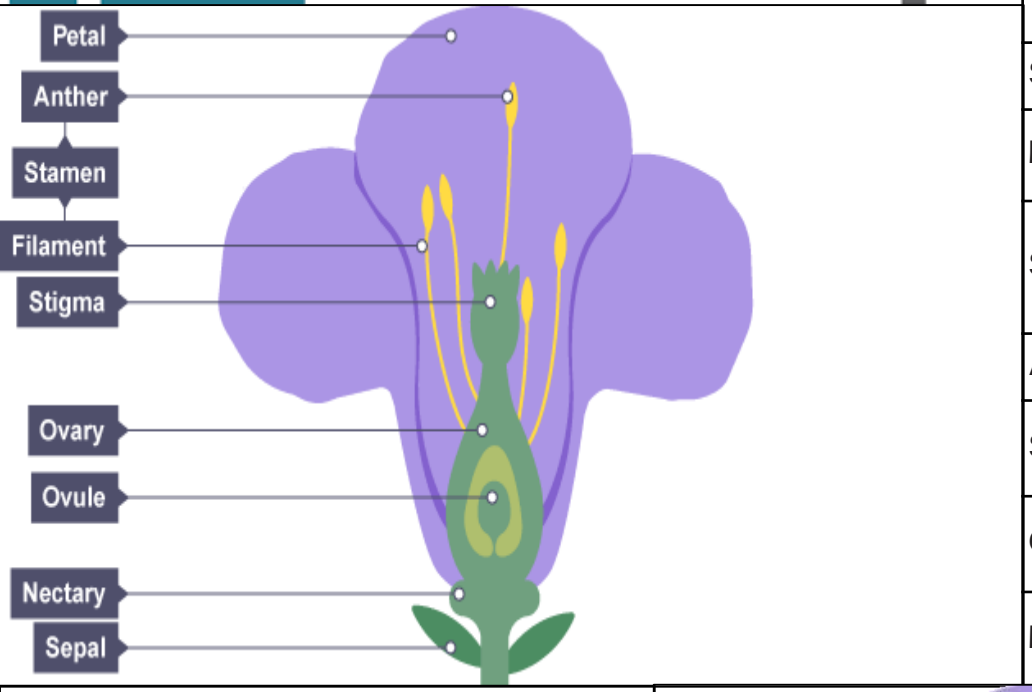
Fetal development and birth

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

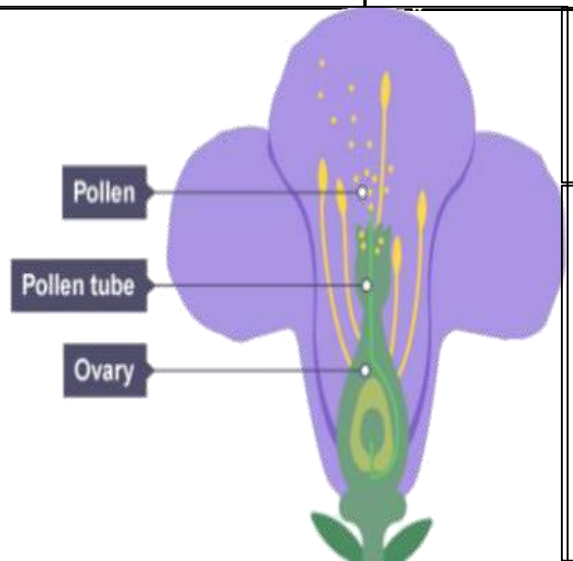
Water – for example coconuts

Pollination

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

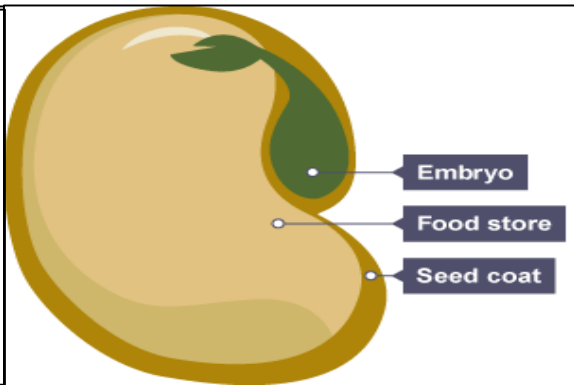
In wind pollination, the wind carries the pollen from the anthers of one flower to the stigma of another

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



German

Module 3: Freizeit – juhu! (Free time – yippy!)

Here is the vocabulary you will need for Module 3.
Remember to listen to the German by copying and pasting the blue codes next to the speaker icons here. The full address is: https://www.activeteachonline.com/view

QkIQP7f4

In this Module you will learn how to:

- talk about which sports you play
- talk about leisure activities
- talk about how often you do activities
- talk about mobiles and computers
- develop prediction strategies.

www.textivate.com
Username: openacademy
Password: surname123
Go to 'my resourses' to find your work.

Bist du sportlich?	Are you sporty?
Ich bin (sehr/ziemlich/ nicht sehr) sportlich.	I am (very/quite/not very) sporty.
Was spielst du?	What do you play?
Ich spiele ...	I play ...
Ich spiele gern ...	I like playing ...
Ich spiele ziemlich gern ...	I quite like playing ...
Ich spiele nicht gern ...	I don't like playing ...
Badminton	badminton
Basketball	basketball
Eishockey	ice hockey
Fußball	football
Handball	handball
Tennis	tennis
Tischtennis	table tennis
Volleyball	volleyball
Wasserball	water polo

Keep practising your German vocabulary on www.quizlet.com

- *Either*:

click on this link: https://quizlet.com/_8ievl8?x=1qqt&i=25q2il

- *Or*:

use your class link to go directly to your Quizlet class.

German

Read the Strategy Box for ideas on learning German vocabulary.

Strategie 3

Oft benutzte Wörter

High-frequency words are words that come up again and again, no matter what you are talking about. All of the *Wörter* pages have a list of these words, but there are many more. Look back through Chapter 3 and see how many you can find. Here are a few to get you started:

der, die, das, ein, eine, einen, und, aber, in, ich, es gibt, gern, ... You will find that some of these words appear in every chapter in *Stimmt! 1*. Can you predict which they are? Look through the book. Were you right?

Was machst du gern?

• What do you like doing?

Was machst du gern?	*What do you like doing?*
Ich fahre Rad.	*I ride my bike.*
Ich fahre Skateboard.	*I go skateboarding.*
Ich fahre Ski.	*I ski.*
Ich fahre Snowboard.	*I snowboard.*
Ich lese.	*I read.*
Ich mache Judo.	*I do judo.*
Ich mache Karate.	*I do karate.*
Ich reite.	*I go horse riding.*
Ich schwimme.	*I swim.*
Ich sehe fern.	*I watch TV.*
Ich spiele Gitarre.	*I play the guitar.*
Ich tanze.	*I dance.*

6i81yZmF

Wie findest du das?

• What do you think of it?

Ich finde es ...	*I think it's ...*
Es ist ...	*It's ...*
irre	*amazing*
super	*super*
toll	*great*
cool	*cool*
gut	*good*
nicht schlecht	*not bad*
okay	*okay*
langweilig	*boring*
nervig	*annoying*
stinklangweilig	*deadly boring*
furchtbar	*awful*

kxLBHBM

Was machst du in deiner Freizeit?

• What do you do in your free time?

Ich chille.	*I chill out.*
Ich esse Pizza oder Hamburger.	*I eat pizza or hamburgers.*
Ich gehe einkaufen.	*I go shopping.*
Ich gehe ins Kino.	*I go to the cinema.*
Ich gehe in den Park.	*I go to the park.*
Ich gehe in die Stadt.	*I go into town.*
Ich höre Musik.	*I listen to music.*
Ich mache Sport.	*I do sport.*
Ich spiele Xbox oder Wii.	*I play Xbox or on the Wii.*

9xycnf0u

German

Ich bin online • I'm online

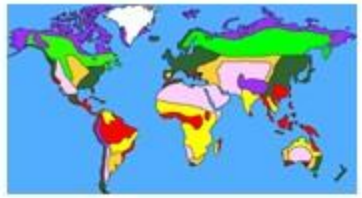
SVO8IKVZ

Was machst du am Computer?	*What do you do on the computer?*
Was machst du auf deinem Handy?	*What do you do on your mobile?*
Ich chatte mit Freunden auf Facebook.	*I chat with friends on Facebook.*
Ich lade Musik herunter.	*I download music.*
Ich mache Fotos oder Filme.	*I take photos or make films.*
Ich sehe Videos.	*I watch videos.*
Ich simse.	*I text.*
Ich spiele Computerspiele.	*I play computer games.*
Ich suche und lese Infos für die Hausaufgaben.	*I look for and read information for my homework.*
Ich surfe im Internet.	*I surf the internet.*
Ich telefoniere mit Freunden.	*I call my friends.*
Ich mache ziemlich viel auf meinem Handy.	*I do quite a lot of things on my mobile.*

Oft benutzte Wörter • High-frequency words

glViTgXQ

Wie oft?	*How often?*
(sehr/ziemlich/nicht so) oft	*(very/quite/not so) often*
einmal/zweimal/dreimal pro Woche/pro Monat	*once/twice/three times a week/a month*
jeden Tag	*every day*
jeden Morgen	*every morning*
manchmal	*sometimes*
immer	*always*
nie	*never*
Wann?	*When?*
am Wochenende	*at the weekend*
am Abend	*in the evening*
heute	*today*
morgen	*tomorrow*
am Montag	*on Monday*
nächste Woche	*next week*
in zwei Wochen	*in two weeks*



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

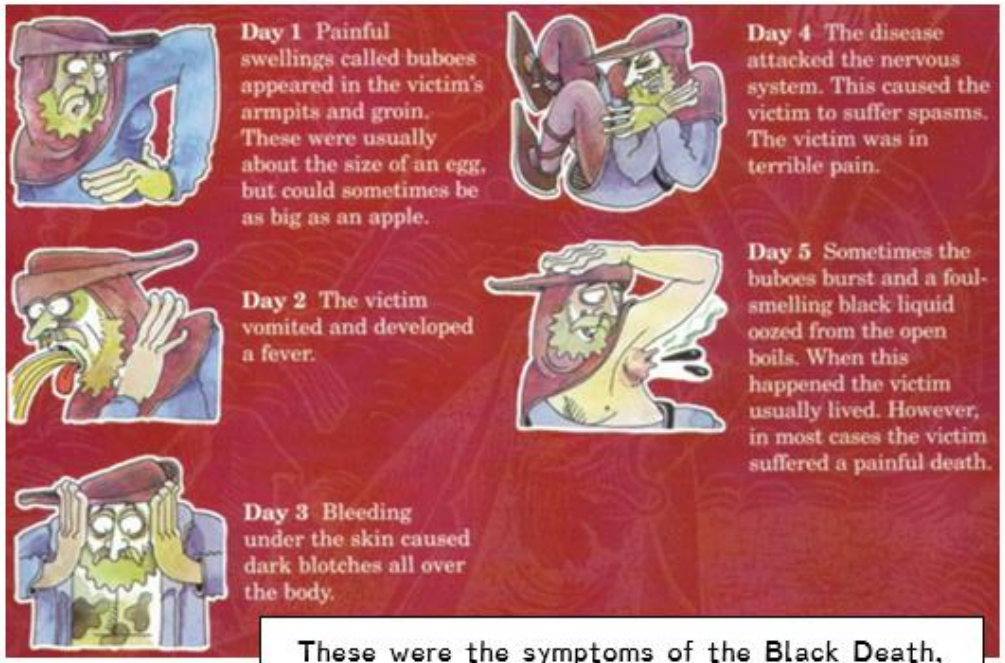
- ❑ Biomes
- ❑ Temperature
- ❑ Rainfall
- ❑ Climate
- ❑ Distribution
- ❑ Adaptations
- ❑ Evaporation
- ❑ Precipitation
- ❑ Lianas
- ❑ Buttress Roots
- ❑ Drip Tips
- ❑ Biodiversity
- ❑ Cattle ranching
- ❑ Plantations
- ❑ Palm Oil
- ❑ Sustainable

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

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 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

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

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

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.*

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

Macbeth Knowledge Organiser Tasks

Act One	S1	Three Witches get together and start plotting: "When shall we three meet again..."
	S2	A soldier reports to King Duncan that Macbeth helped secure victory for the Scottish army through his violent bravery in which he "unseam'd" his opponent with "smoking valour". The King commends Macbeth's bravery.
	S3	 The Witches give Macbeth and Banquo the prophecies (predictions of his future): Macbeth will be Thane of Cawdor, then King, but Banquo will be father to a line of kings. Both Macbeth and Banquo are intrigued and tempted by these prophecies.
	S4	At his palace, the King thanks Macbeth and Banquo for their bravery. He makes Macbeth Thane of Cawdor, fulfilling the first part of the Witches' prophecy. The King also names Malcolm heir to the throne.
	S5	Lady Macbeth reads Macbeth's letter, starts to plot to herself, and then tells Macbeth her ideas when he arrives
	S6	Lady Macbeth receives Duncan. She acts like "th'innocent flower" whilst still planning to murder him.
	S7	Macbeth has doubts about killing Duncan and argues with Lady Macbeth but she persuades him – calling him a coward and undermining his masculinity.

Act Two	S1	Macbeth hallucinates, seeing a dagger in front of him. It leads him to Duncan's chamber.
	S2	 Macbeth returns from killing the King, feeling guilty. Lady Macbeth comforts him but then tells him off for bringing the daggers back. She takes them and plants them on the guards whom she's already drugged. When she returns, she comments that the "old man" had a lot of "blood in him" and reminds her of her father.
	S3	Macduff arrives and discovers the King's death. Macbeth kills the two guards and Macduff seems suspicious of this. Malcolm and Donalbain, realising they're in danger, decide to flee.
	S4	Macduff discusses Macbeth being made King. He goes home to Fife, choosing not to see the coronation.
Act Three	S1	Banquo thinks about the prophecy when Macbeth and Lady Macbeth enter to invite him to the banquet that night. He goes riding with his son, Fleance and Macbeth thinks about his fear of Banquo. Some men arrive whom Macbeth sends off to murder Banquo and Fleance.
	S2	Macbeth discusses his troubles with Lady Macbeth: he is troubled that his kingship is not completely secure – he fears that his power is under threat – but won't tell her the next part of his plan. He tells her to stay innocent until everything is completed.
	S3	The murderers kill Banquo but Fleance escapes.
	S4	 During a feast, Macbeth sees Banquo's 'gory' ghost and is terrified. Lady Macbeth covers for him although she doesn't know what he can see or why. Macbeth says he will meet with the witches since he is already 'steeped' in blood.
	S5	The Witches meet with Hecate, the goddess of witchcraft: she tells the Witches off for meddling and says she will take over, promising to create visions for Macbeth which draw him into a false sense of security.
	S6	Two Lords discuss Banquo's death and their suspicions of Macbeth. They also discuss how Macduff has gone to England for help in fighting Macbeth.

Act Four	S1	Macbeth visits the Witches and is given three new prophecies: 1) to beware of Macduff; 2) that no man who is born of woman can harm Macbeth; 3) he is safe until Burnham Wood moves to Dunsinane Hill.
	S2	 A group of murderers, sent by Macbeth, arrive at Macduff's castle and kill his wife and children.
	S3	Macduff finds out his family have been killed. He rounds up the English armies ready to wreak bloody revenge on Macbeth.
Act Five	S1	Lady Macbeth sleepwalks. In her sleeping state, she re-enacts washing blood from her hands but laments that the 'spot' of blood remains on her skin. It seems as though she is chastising (telling off) Macbeth in her sleep when she says 'fie, my Lord!'
	S2	Scottish Lords discuss the military situation.
	S3	 Macbeth boasts that he has nothing to fear until the wood moves. He finds out that the army are approaching and puts on his armour. The doctor tells him of Lady Macbeth's illness and he tells the doctor to cure her.
	S4	The army decide to take branches off the trees to use as camouflage
	S5	Macbeth finds out that Lady Macbeth is dead. He then finds out that the wood is starting to move and is filled with terror. He laments over the meaninglessness of his kingship and his short time on the throne.
	S6	The battle commences outside the castle
	S7	Macbeth strikes everyone he can see, afraid of nothing. Macduff searches for Macbeth.
	S8	Malcolm enters the castle. Macbeth and Macduff meet: Macbeth finds out that Macduff was born by caesarean but vows not to give in.
	S9	Macduff emerges with Macbeth's head, having killed him.

TASKS

Looking up the definitions of the keywords for each question will help you to answer them.

How does Macbeth change throughout the play? Use concise vocabulary to express your ideas, and give evidence (quotes) to support your answer.
Keywords: influenced, cowardly, masculine, proud, defiant, murderous

How does Lady Macbeth change throughout the course of the play? Use concise vocabulary to express your ideas, and give evidence (quotes) to support.
Keywords: Femininity, gender expectations, manipulative

Why are the Witches included in the play? What role or function do they serve? How might they entertain and affect the audience?
Keywords: supernatural, magic, witchcraft, ominous

What evidence do we have that Macbeth has a violent and ambitious nature? Think about what he has done in the play so far.
Keywords: masculinity, pride, warfare, loyalty

What is pride? Why is it considered a 'sin'? How is Macbeth proud?
Keywords: sin, pride

Is Lady Macbeth a villainous (evil) character? Explain your opinion. Hint:
Keywords: Manipulation, poison, gender expectations

Why do you think Shakespeare chose a 'dagger' as the murder weapon?
Keywords: Close combat, betrayal, deliberate

Why does Lady Macbeth see a permanent 'spot' of blood on her hands in the sleepwalking scene? What is her state of mind at this point in the play?
Keywords: remorse, hallucination

Why do you think Shakespeare includes hallucinations in this play? What does it show us that we would not otherwise see?
Keywords: hallucination, insights, madness

In many ways, Macbeth's actions can be viewed as quite cowardly, rather than brave and "masculine". To what extent do you agree? Can you explain your ideas?
Keywords: masculine, cowardly, extent

1. **Themes:**

- Ambition
- Guilt
- Gender expectation
- Kingship
- Pride
- Fate and destiny

Look up these words and concepts and write out their definitions.

1.
2.
3.
4.
5.
6.

Can you think of moments in the play when you have seen evidence of any of these themes? Give as many examples as you can think of.

Year 7 – Place Value and proportion **Ordering integers and decimals**

What do I need to be able to do?

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

- Understand place value and the number system including decimals
- Understand and use place value for decimals, integers and measures of any size
- Order number and use a number line for positive and negative integers, fractions and decimals;
- use the symbols $=, \neq, \leq, \geq$
- Work with terminating decimals and their corresponding fractions
- Round numbers to an appropriate accuracy
- Describe, interpret and compare data distributions using the median and range

Keywords

Approximate: To estimate a number, amount or total often using rounding of numbers to make them easier to calculate with
Integer: a whole number that is positive or negative
Interval: between two points or values
Median: A measure of central tendency (middle, average) found by putting all the data values in order and finding the middle value of the list.
Negative: Any number less than zero; written with a minus sign
Place holder: We use 0 as a place holder to show that there are none of a particular place in a number
Place value: The value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right
Range: The difference between the largest and smallest numbers in a set
Significant figure: A digit that gives meaning to a number. The most significant digit (figure) in an integer is the number on the left. The most significant digit in a decimal fraction is the first non-zero number after the decimal point.

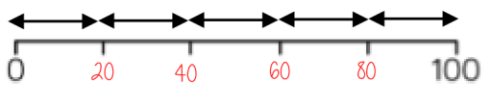
Integer Place Value

Billions			Millions			Thousands			Ones		
H	T	O	H	T	O	H	T	O	H	T	O
		3	1	4	8	0	3	3	0	2	9

Placeholder

Three billion, one hundred and forty eight million, thirty three thousand and twenty nine
1 billion 1, 000, 000, 000
1 million 1 000, 000

Intervals on a number line



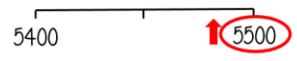
Divide the difference by the number of intervals (gaps).
E.g 100 ÷ 5 = 20

Rounding to the nearest power of ten

If the number is halfway between we "round up"

5495 to the nearest 1000

5475 to the nearest 100



5475 to the nearest 10

Compare integers using $<, >, =, \neq$

$<$ less than
$>$ greater than
$=$ equal to
$\neq$ not equal to

Two and a half million = 2 500 000
300 000 000 = Three billion
Six thousand and eighty < 68 000

Range

Spread of the values

Difference between the biggest and smallest

3 9 8 12

Range: Biggest value – Smallest value
12 – 3 = 9
Range = 9

Median

The middle value

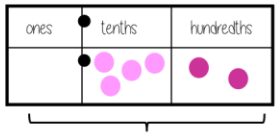
Example 1
4 3 9 8 12
Median: put the in order 3 4 8 9 12
find the middle number 3 4 (8) 9 12

Example 2
150 154 148
137 160 158
Median: put the in order
137 148 (150 154) 158 160
There are 2 middle numbers
Find the midpoint
152

Decimals

We say "nought point five two"

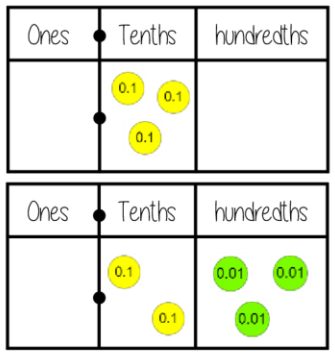
Five tenths and two hundredths



0 ones, 5 tenth and 2 hundredths
0 + 0.1 + 0.1 + 0.1 + 0.1 + 0.1 + 0.001 + 0.001
= 0 + 0.5 + 0.02
= 0.52

Comparing decimals

Which the largest of 0.3 and 0.23?



$0.3 > 0.23$

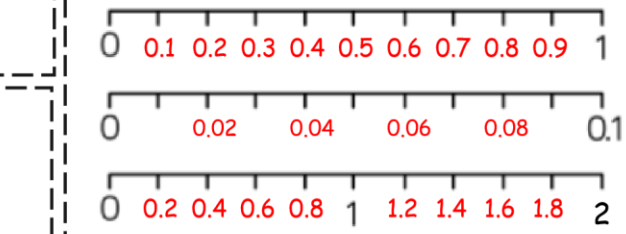
"There are more counters in the furthest column to the left"

0.30
0.23

Comparing the values both with the same number of decimal places is another way to compare the number of tenths and hundredths

Decimal intervals on a number line

One whole split into 10 parts makes tenths = 0.1
One tenth split into 10 parts makes hundredths = 0.01



Round to 1 significant figure

370 to 1 significant figure is 400
37 to 1 significant figure is 40
3.7 to 1 significant figure is 4
0.37 to 1 significant figure is 0.4
0.00000037 to 1 significant figure is 0.0000004

Round to the first non zero number

Year 7 - place value and proportion FDP equivalence

What do I need to be able to do?

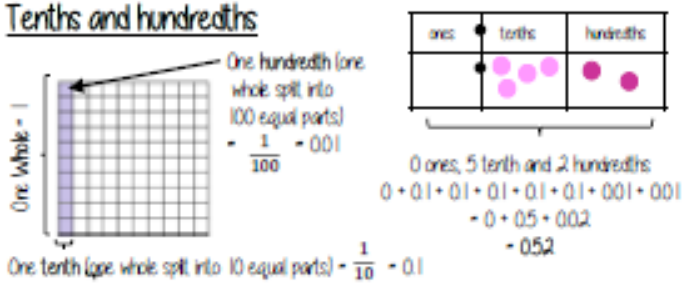
By the end of this unit you should be able to:

- Convert fluently between fractions, decimals & percentages

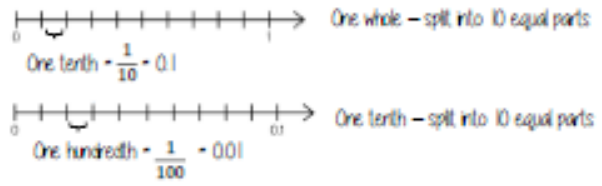
Keywords

Fraction: how many parts of a whole we have
Decimal: a number with a decimal point used to separate ones, tenths, hundredths etc.
Percentage: a proportion of a whole represented as a number between 0 and 100
Place value: the numerical value that a digit has decided by its position in the number
Placeholder: a number that occupies a position to give value
Interval: a range between two numbers
Tenth: one whole split into 10 equal parts
Hundredth: one whole split into 100 equal parts
Sector: a part of a circle between two radius (often referred to as looking like a piece of pie)
Recurring: a decimal that repeats in a given pattern

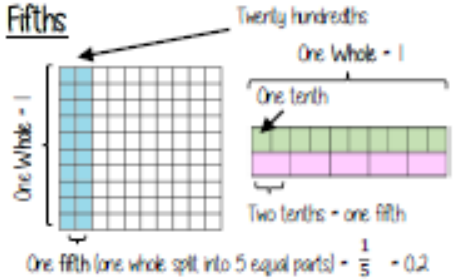
Tenths and hundredths



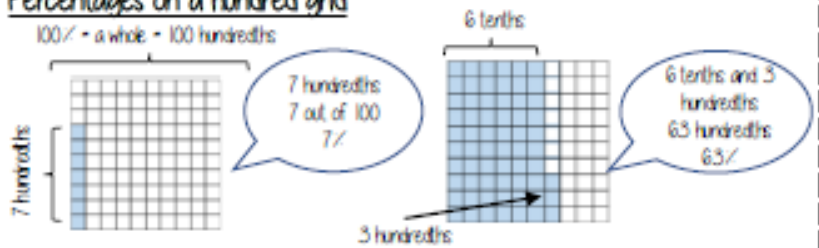
On a number line



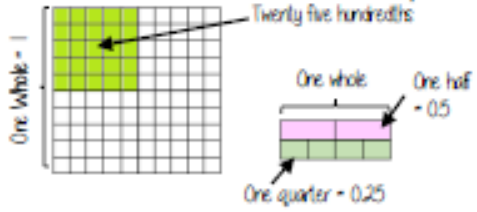
Fifths



Percentages on a hundred grid



Quarters



Simple pie charts

A pie chart has 360° so all FDP calculations are out of 360

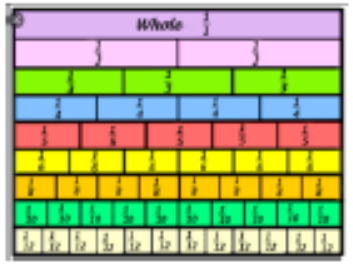
Split into 10 parts = 10% = 36°

Split into 2 parts = 50% = 180°

Split into 5 parts = 20% = 72°

Equivalent fractions

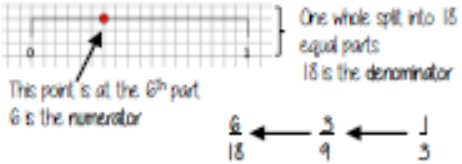
Represent equivalence with fraction walls



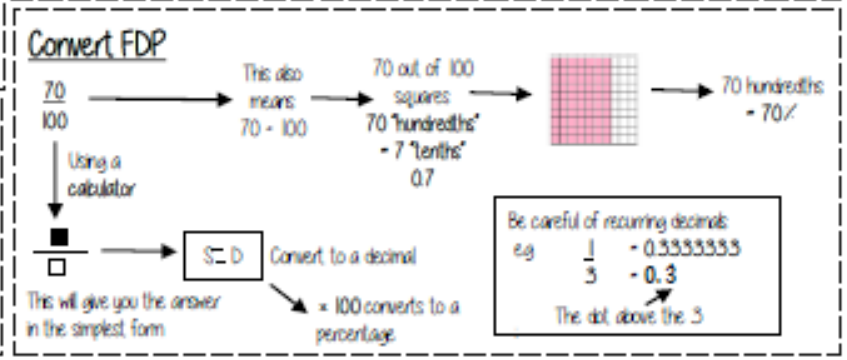
Fractions – on a diagram

The denominator is represented by EQUALLY sized parts – this is split into quarters

Fractions – on a number line



Convert FDP



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.

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

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.**

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 be 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.

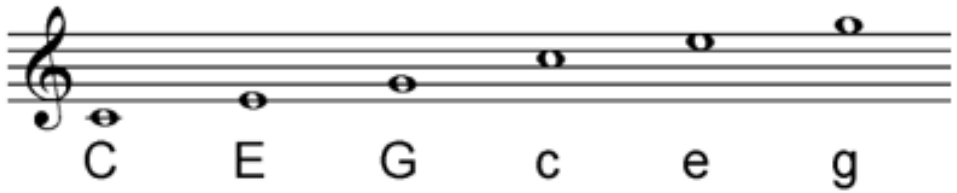
Many Christians believe that The Fall has affected all humans and that every person is born with original sin – born out of a relationship with God and needing to be saved by God. Without being saved by God, a person with original sin cannot gain eternal life in heaven

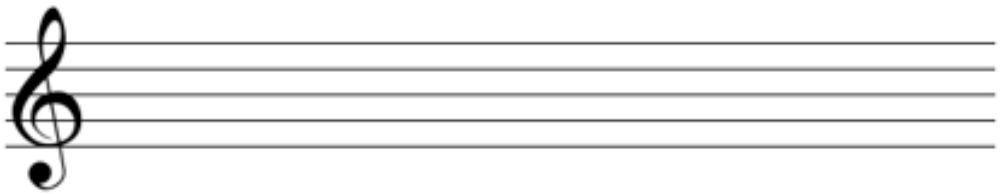
Christians believe that they must seek to have their broken relationship with God mended and restored and therefore ask for God's forgiveness in order to gain redemption (restoring a relationship with God). The way that Christians can do this is by following a life in the example of Jesus, because Jesus 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.

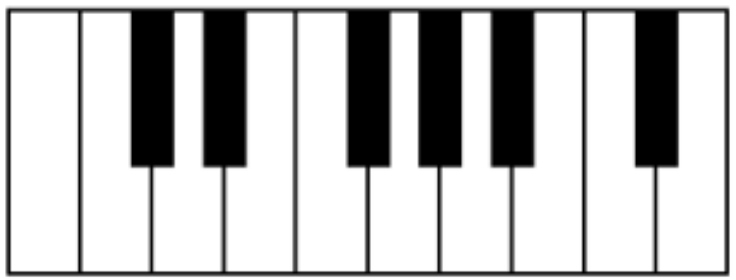
Year 7 Spring Term Knowledge Organiser

A fanfare is a call or flourish played on a trumpet and/or other brass instruments. A fanfare signals the arrival of an important person. Some fanfares are used to introduce a ceremony or event. Simple fanfares use the notes of a chord. They suit brass instruments because, without valves, brass players can produce the notes of a chord just by changing their lip pressure.





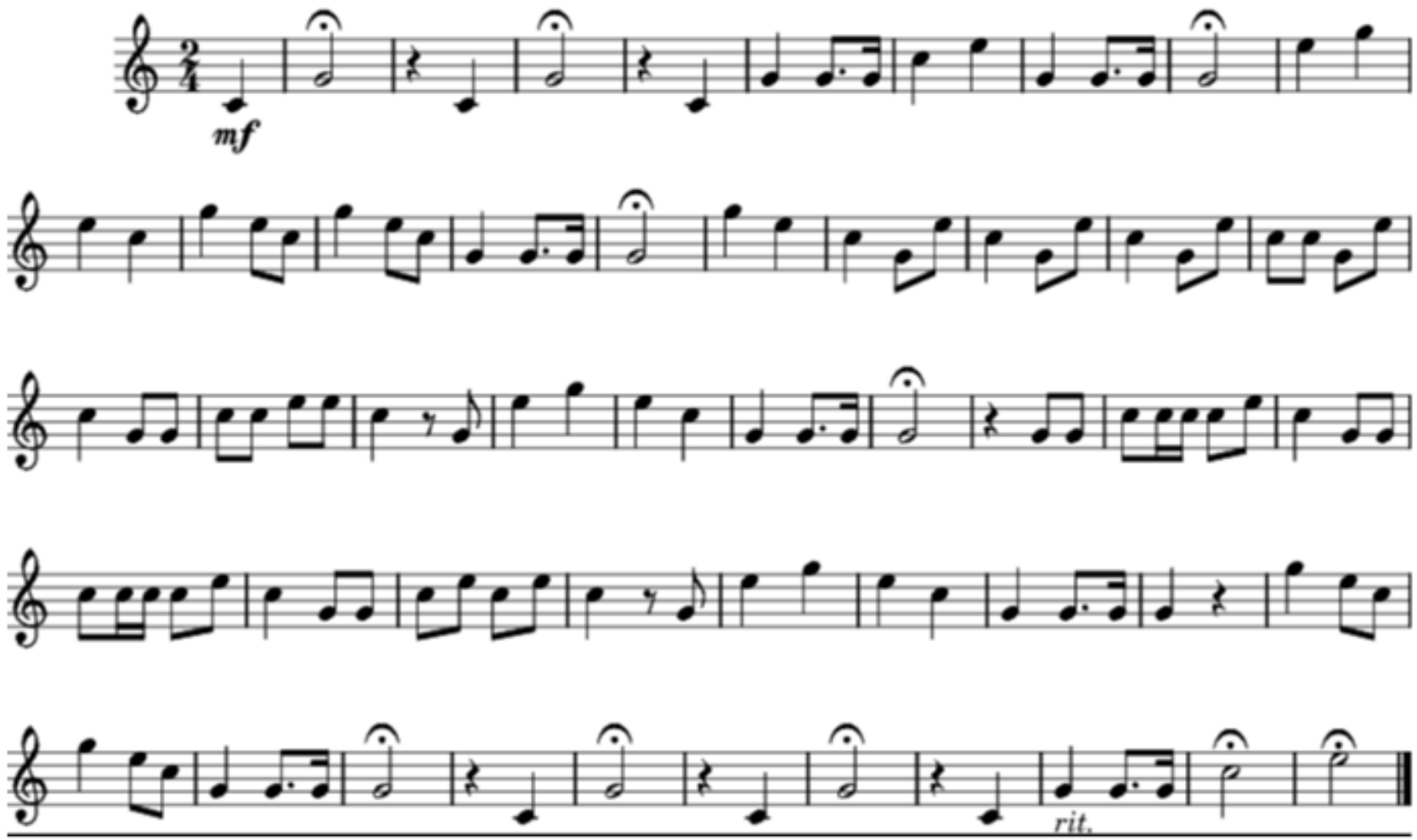
An ostinato is a musical pattern that repeats! You find them in all types of music, including fanfares, pop music, classical music and jazz!



Practice writing out notes on the blank stave above! Also, have a go at labelling the keyboard diagram over there!

Year 7 Autumn Term Knowledge Organiser

On this piece of fanfare music, see if you can find the following and label them: a crochet, a minim, a quaver, a treble clef, a G, 3 C's joined together, a pause sign, a bar line, a tempo marking and a dynamic marking!



Going the extra mile activities.
Here are some great ideas to do with family to avoid boredom that go above and beyond during the next half term.

The Arts	DT	English and Drama	Humanities	PE	Maths	Science
What different birds can you see? Can you make a diary with observational drawings.	Research what the difference between hard and soft woods is. What trees grow them and what do carpenters use them for?	Watch one of the briefings by the government. What makes a good information giving speech?	How is living in Norfolk special? Compare your lifestyle with others in Lima, Kazakhstan and Calcutta.	Create a new lockdown Olympic Sport. With the cancellation of Tokyo, your sport needs a name, at least 3 rules and a list of equipment needed.	Explain what a square root is to someone really not mathematical.	Try the home experiments.
Take one part of the knowledge organiser and make a piece of performance poetry about it.	How can you save money shopping for food (under normal circumstances)? Create a handy guide for a novice shopper.	Story Board a film that hinges on one of the key facts that you have just learned.	England was divided up into 7 Saxon kingdoms. Create a podcast describing what life would have been like at this time if you had lived then.	Get family members to play even by TEAMs or Zoom! Send it to the organisers of the Quarantine Olympics to include it in the next games!	Where can we find the Fibonacci sequence in nature? Do some research!	https://www.youtube.com/watch?v=adwvwrTnF48
Podcast your feelings on a good day and a bad day.	Can you make a model of a Norwich landmark? Use any material to hand.	Write a newspaper article about a spy e.g. James Bond. Try to write their obituary.	What happened to the Colony of Roanoke? Create a presentation to explain as an archaeologist what would you expect to find and where.	Create a diary of your physical activity each week. This could be a simple grid or list of activities.	Make some mathematical art using materials at home like packets and boxes.	Can you find some epic science failures yourself? Science is the process of trial and error. It leads to mistakes that we learn from.
Create a playlist that takes you through a particular mood.	Invent a new recipe and test it. Send in photos of it to Ms Luter.	Watch a film. Be a film critic. You are being interviewed to review the film on radio 1. What would you say?	Imagine how Europe's history would have been different if there had been no monarchy. Write a new constitution.	Think about what exercise or activity you completed, how long did you exercise for and how you felt during and after the activity.	Play out a Roast Battle between Pascal's Triangle and The Bermuda triangle.	Find out how smoking effects young people.